

Public Workshops  
Antitrust Division

2007 Telecommunications Symposium

**"Voice, Video and Broadband:  
The Changing Competitive Landscape  
and Its Impact on Consumers"**

9:10 a.m. through 5:23 p.m.  
November 29, 2007

Reagan Building  
International Trade Center  
1300 Pennsylvania Avenue, N.W.  
Washington, D.C.

OLENDER REPORTING, INC.  
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## P R O C E E D I N G S

**Opening Remarks**

1  
2  
3 MR. BARNETT: Good morning. I appreciate  
4 all of you coming to our symposium today to talk  
5 about telephone and video issues. I will start  
6 off with a caveat about the current state of our  
7 technology in telecommunications. If all of you  
8 could, turn off all of your BlackBerries and cell  
9 phones. I am told that it will interfere with  
10 our electronic equipment, and there are people  
11 who are trying to listen in, as well as watch in  
12 person. so we very much appreciate your  
13 cooperation. That will also help minimize any  
14 interruptions if anyone gets a call in the  
15 meantime.

16 We do appreciate your coming today. I  
17 think that this is a very exciting topic. It is  
18 a very exciting set of industries. As we look  
19 out from the Antitrust Division across the  
20 economy, there is no doubt that  
21 telecommunications and television is one of the  
22 most dynamic sectors of the economy.



1 just two years before. As of June of 2007,  
2 wireless minutes in use were 1.95 trillion, and  
3 there were 28.8 billion monthly text messages.  
4 There is no doubt that this is an important and  
5 widely used service.

6 From the broadband perspective, I think  
7 back 20 years to 1987, and the Internet was  
8 unknown to the American population. In the  
9 1990s, we were talking about dial-up modems, and  
10 if you had a 56K modem, you were top tier. Now  
11 we have companies putting fiber optic cables into  
12 homes with almost a limitless transmission  
13 capacity. Again, the penetration here is very  
14 impressive.

15 According to the FCC, from December 2000  
16 to December 2006, the number of high-speed  
17 broadband lines increased from 6 million to over  
18 82 million. The number of residential high-speed  
19 broadband lines increased from 5 million to 58  
20 million. Similarly, the number of residential  
21 high-speed fiber lines increased from under 2,000  
22 in the year 2000 to over 750,000 last year. The

1 number of satellite and wireless high-speed lines  
2 increased to almost 3.4 million as of 2006.

3           Again, when I was growing up and I wanted  
4 to watch television, I had access to four  
5 channels, all analog, all broadcast over the  
6 airwaves. Now most of us have access to hundreds  
7 of digital channels, and an increasing number of  
8 them are in high-definition digital. We can  
9 receive the video over the air, over a cable, or  
10 over a fiber optic line.

11           From a competition perspective, these  
12 developments are all to the good. In addition to  
13 expanded product offerings and the increased  
14 quality of products, we are seeing increased  
15 competition from separate platforms. At one  
16 point, we had a single copper wire running into  
17 our homes, and that is how we got our telephone,  
18 and we had the antenna on top of the house for  
19 the television. Now we have copper and fiber  
20 optic lines running into the house, coaxial  
21 cables, wireless communications, voice over the  
22 Internet protocol, or satellite transmissions.

1 Other technologies are on the horizon, including  
2 broadband over power lines and mobile wireless  
3 broadband.

4 The increase in the use of these  
5 technologies and across platform competition  
6 clearly has benefitted consumers. As just a  
7 couple of small examples, the cost of  
8 long-distance communication, which used to be a  
9 very significant part of your telecommunications  
10 bill, has dropped dramatically. People talk  
11 about free long distance in the not-too-distant  
12 future.

13 There are indication that where new  
14 providers, new facilities-based providers of  
15 video/television communication have entered and  
16 introduced competition that prices have fallen.  
17 While all these are wonderful, we also recognize  
18 they don't come free.

19 According to Standard & Poor's, the  
20 wireless carriers in 2006 invested over \$23  
21 billion in their wireless infrastructure. On the  
22 fiber optic side of things, just two companies



1 have announced that they are spending  
2 approximately \$25 billion to build out their  
3 fiber optic network, and according to the  
4 National Cable and Telecommunications  
5 Association, the cable industry is investing in  
6 2006 over \$12 billion in constructing and  
7 upgrading their cable facilities. So this is a  
8 very dynamic industry. It is doing wonderful  
9 things, and people are investing and taking risk  
10 with many billions of dollars. It is all very  
11 exciting.

12 So why are we having the workshop today?  
13 The reason we are having the workshop is that not  
14 all of the news that we hear from the Antitrust  
15 Division's perspective is good.

16 We believe that cross-platform  
17 competition is a good thing for consumers. We  
18 periodically hear, however, about factors that  
19 may be slowing the expansion of this type of  
20 competition. Some of those barriers are  
21 impediments that may be technological. Trying to  
22 provide high-speed broadband service over power

1 lines or through mobile wireless networks  
2 certainly presents major technical challenges  
3 that have not been completely solved.

4           Some of the barriers may be economic. As  
5 I have just discussed, the cost of building out a  
6 nationwide network is many billions of dollars.  
7 Some of these impediments may be regulatory.  
8 These could include, for example, requirements  
9 that a new provider of telephone, broadband, or  
10 video services obtain regulatory approvals from a  
11 large number of local governmental authorities.

12           The Antitrust Division cares about these  
13 issues for two interrelated reasons. First and  
14 foremost, expanded competition enhances consumer  
15 welfare by increasing the number and kind of  
16 product offerings, and by reducing the cost of  
17 those offerings.

18           Second, the Division must consider the  
19 degree of current and potential competition in a  
20 range of contexts. These include our review of  
21 proposed mergers, investigations of potential  
22 anticompetitive nonmerger conduct, and



1 able to accommodate, we do encourage you to  
2 submit your comments in writing, and we obviously  
3 will take those into serious consideration.

4 We hope to synthesize the information we  
5 obtain, both in the discussions today and in the  
6 written submissions, and produce a report on  
7 these issues sometime next year.

8 So I want to thank all of you for coming.  
9 I want to thank you for your written  
10 contributions, for your participation in the  
11 discussions today, and finally, I particularly  
12 want to thank our staff who have put in a  
13 tremendous amount of effort organizing this,  
14 preparing the agenda, lining up the panels,  
15 dealing with the submissions. I thank them for  
16 the work they have done so far and the work that  
17 they will do after the workshop.

18 So thank you very much for coming, and  
19 with that, let's get started. Thank you.

20 [Applause.]

21 **Panel I**

22 **Entry into Multichannel Video Services**

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1 MS. TARLOV: Good morning. Thank you,  
2 Tom. You are always a hard act to follow, but we  
3 will give it a shot.

4 I am Yvette Tarlov. I am an attorney in  
5 the Telecommunications and Enforcement Section of  
6 the Antitrust Division. I will be acting as the  
7 moderator of our first panel on entry into the  
8 multichannel video market.

9 Many of you, I am sure, have probably  
10 seen or received ads about Verizon's FiOS video  
11 service. Our first panel will explore the extent  
12 to which regulatory or other constraints continue  
13 to act as barriers to entry into the video  
14 market.

15 We also will be discussing the  
16 competitive impact of new entry into the video  
17 market: How have the incumbent cable companies  
18 responded? Have prices gone up or down?

19 Finally, we will be discussing the  
20 significance of offering bundles of services,  
21 including video, the so-called "triple play" or  
22 "quadruple play."



1 Charter's legal and regulatory affairs, as well  
2 as its business development, programming,  
3 procurement, and facilities departments.

4 Our fourth speaker is Jane Lawton. Ms.  
5 Lawton has served as the cable communications  
6 chief for Montgomery County since 1996. Her  
7 division of Cable and Communications Services  
8 oversees the negotiation and administration of  
9 cable franchises for the county. In addition,  
10 Ms. Lawton is serving her second term in the  
11 Maryland General Assembly, representing District  
12 18. Prior to that, she served four terms as  
13 Mayor of the Town of Chevy Chase, Maryland, as  
14 well as being on the town council.

15 The last, but not least, speaker is Hal  
16 Singer, President of Criterion Economics. Dr.  
17 Singer's areas of expertise are antitrust,  
18 industrial organizations, and damages. He has  
19 applied this expertise in a variety of  
20 industries, including telecommunications,  
21 Internet, and video programming. Hal has  
22 published extensively on these topics and has





1 Goodheart, Carl Willner, Luin Fitch, and the many  
2 of you that we have worked with on other things  
3 for hosting this. This is an important topic.

4 I would like to actually spend my entire  
5 5 to 10 minutes echoing Tom's excitement about  
6 the business because that is how people at  
7 Verizon feel about this now, but I am going to  
8 move a little bit beyond that.

9 I will start with the fact that Verizon  
10 is spending by itself \$23 billion pulling fiber  
11 to homes and offices and multiple dwelling units  
12 throughout a multi-State area. We are hoping to  
13 reach quite a few million customers in a  
14 reasonable length of time.

15 The \$23 billion is sometimes expressed as  
16 a smaller number, sometimes 18 and sometimes  
17 slightly different numbers, because if you put  
18 fiber in, some of the cost of maintaining the  
19 copper can be subtracted. So you can look at it  
20 two different ways, but the new money out the  
21 door putting in fiber is \$23 billion.

22 Verizon is offering a substantially

1 better product than any in the market, and in  
2 many places, we are offering it at a lower price  
3 than the poorer product that the cable incumbent  
4 is offering.

5 I will put my antitrust hat on for a  
6 second. I got to tell you, it is the most pro-  
7 competitive thing I have ever worked on. I have  
8 worked on several, but this is the most exciting  
9 that I think we have done. Consumers love the  
10 product.

11 We do get some complaints, so I've got to  
12 tell you. The complaints are along the lines of  
13 "When can I get FiOS on my street?" We get  
14 constant e-mails. All my friends ask. My  
15 neighbor in Chevy Chase has it, I live in D.C.,  
16 "When can I get it?"

17 Consumer Reports magazine, February of  
18 this year, has an article that, I think, is  
19 entitled "Fiber Joins the Fray" that begins with  
20 these words: "Cable Internet service has met its  
21 match."

22 In our latest survey of more than 34,000

1 subscribers, our first to assess "the new kid on  
2 the block," readers gave Verizon's fiber-based  
3 FiOS service top marks across the board. FiOS  
4 users were more satisfied with the service's  
5 speed than were users of cable. They were more  
6 satisfied with FiOS's cost. FiOS got higher  
7 marks for both reliability and technical support  
8 than did cable or DSL. That is the good news.

9           The bad news? Consumer Reports always has  
10 bad news. The bad news is that your chances of  
11 getting this promising new service today are  
12 slim. Verizon's FiOS currently is being offered  
13 to about 6 million homes in roughly one-third of  
14 the states where Verizon is otherwise a telephone  
15 provider.

16           The article goes on to say, "Plus, the  
17 very threat of a cable competitor can have an  
18 effect in the few markets where Verizon has  
19 rolled out its fiber to the home service. For  
20 example, cable has responded with lower prices on  
21 broadband, among other incentives."

22           I can go on about how cable has reacted

1 to us, and I do actually in the written  
2 submission, which I would recommend to you.

3 Long-run students of this industry --  
4 again, the paper details who they are and their  
5 findings -- governmental bodies ranging from the  
6 Government Accounting Office to Congress to the  
7 Justice Department, the FCC, the Commerce  
8 Department, professors who study the economics of  
9 this business over the past few decades -- you  
10 are going to hear from a couple I think later  
11 today, Hal Singer and Tom Hazlett -- repeatedly  
12 have concluded that new entry by a wireline rival  
13 is good for customers in terms of price, number  
14 of channels, quality of programming, all the  
15 other dimensions on which consumers evaluate the  
16 service.

17 I can tell you that if you look at what  
18 the cable companies that are threatened by this  
19 development say, you see the same thing. They  
20 are not saying "Oh, we don't care" or "Verizon is  
21 not a force" or "Customers don't care."

22 I would refer you, for example -- again,

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1     there are lots of examples, and I have some in  
2     the paper -- on May 3rd of this year, the chief  
3     operating officer of Cablevision, Tom Rutledge,  
4     said on the transcript of his company's quarterly  
5     earnings call that, "Churn" -- churn, that is the  
6     loss of a customer -- "Churn was impacted by FiOS  
7     competition."

8                     Then he got a question from the floor.  
9     The question was "Will your churn increase  
10    further because of FiOS?" and his answer was "It  
11    is a function of how franchises are granted and  
12    when they are granted." Now, you all know what  
13    that means, but I am going to emphasize the  
14    point. When the chief operating officer of an  
15    incumbent cable company says it is a function of  
16    how franchises are granted and when they are  
17    granted, he is telling you that if Cablevision  
18    had some ability to affect how and when the  
19    franchises were granted, he could affect his  
20    churn. He could keep his customers. He will  
21    lose his customers to competition if Verizon can  
22    enter faster.

1           Now, the entry barriers that Verizon has  
2   faced and is facing are partially recounted in  
3   the paper that I put in. I got the question from  
4   Rebekah and Yvette in preparation for this, what  
5   are the current most important entry barriers  
6   that are slowing down your bringing this good new  
7   product to consumers? I can answer that  
8   question, but I think the question actually  
9   reflects a mind-set, and I don't want to take  
10  issue too much. I think the right question for  
11  you to ask is not just what is the problem of the  
12  day because the problem of the day has changed  
13  every day.

14           If you look back over time, this is an  
15  enduring problem. It is not a one-time problem  
16  that gets fixed with a one-time solution. For  
17  example, you can go back 21 years to the  
18  Preferred [Communications v. City of Los Angeles]  
19  case. In that case, Los Angeles said that the  
20  incumbent cable operator was going to be the only  
21  one. There was going to be an exclusive, de  
22  jure, single cable operator in Los Angeles. The

1 Supreme Court, Justice Rehnquist -- then justice,  
2 not chief, said no. There is a First Amendment  
3 right to provide cable TV service, this kind of  
4 speech.

5 So, 21 years ago, the municipalities were  
6 told, "You cannot issue single cable franchises.  
7 Additional entrants must be allowed." Twenty-one  
8 years ago. It was 15 years ago that Congress  
9 wrote in the 1992 act that a franchising  
10 authority -- I am quoting from the statute -- "A  
11 franchising authority may not grant an exclusive  
12 franchise and may not unreasonably refuse to  
13 award an additional competitive franchise."  
14 Well, that was 15 years ago. You would have  
15 thought maybe 15 years ago, the barrier of  
16 franchising had been lifted, and yet regulators  
17 have had to continue coming back to the problem  
18 not just of franchises, but others.

19 There were three reports issued this year  
20 by the FCC. March 5 of this year, the FCC found  
21 the current operation of the franchising process  
22 unreasonably interferes with competitive entry.

1 That is the heading from one of the sections of  
2 the report, and that was a docket that was opened  
3 in 2005.

4 In November of this year, just a few  
5 weeks ago, November 6th, the FCC issued a second  
6 report and order on that same topic. It was  
7 still an issue.

8 November 13, just a couple weeks ago, the  
9 FCC ruled that a different problem, multiple  
10 dwelling units, when a new entrant like Verizon  
11 is on the verge of entering a market, the cable  
12 companies scurries to sign up MDUs into long-term  
13 contracts, so that the residents in the apartment  
14 building can't get the competitive service.

15 November 13, the FCC ruled those  
16 exclusivity agreements with the MDUs "caused  
17 significant harm to competition" and are "an  
18 unfair method of competition." That was a docket  
19 that was opened this year. That problem was  
20 addressed by the FCC this year. I expect the  
21 cable companies will appeal that decision. That  
22 may not actually get resolved right away.





1 the subsequent panels. Those of us who have been  
2 through the 1996 Act know that it is not that  
3 hard to interconnect to facilities, but somehow  
4 that has become an issue, and we detail some of  
5 that in the submission that we have put in.

6 Let me wrap up and just say again I am  
7 very appreciative to have a chance to be here and  
8 answer questions a little later on, but I think  
9 the right perspective for looking at this problem  
10 is that this may be one of those rare situations  
11 where this agency and its unique tools should be  
12 brought to bear.

13 Thanks.

14 MR. GOODMAN: Good morning. I am John  
15 Goodman, and I also want to express my  
16 appreciation for being here today. I am also  
17 always a little threatened or awed by being in  
18 this kind of an environment. I am a nonlawyer,  
19 and I am profoundly aware of the fact that I am  
20 surrounded almost overwhelmingly by lawyers.

21 My actual start in this industry is also  
22 a full cycle in that the first thing I did in the

1 industry was to work for a BSP or a broadband  
2 service provider -- some people call them  
3 "overbuilders" -- where we built a network in St.  
4 Cloud, Minnesota, and that network was put into  
5 place competing with Charter, who is sitting here  
6 today, and Qwest, who is on a panel later today.  
7 So it has been a very interesting thing for me.

8 As I think you are aware, the BSPs are  
9 always building networks that do the bundle, and  
10 one of the topics today is the bundle and how  
11 significant that is. It is also the case that  
12 BSPs are always in a competitive position. They  
13 have always come into markets where there is  
14 somebody else already offering all of the  
15 services that they bring.

16 One of the names that you may be familiar  
17 with is RCN. They offer services here in the  
18 greater Washington area. Other BSPs are Knology,  
19 Prairie Wave, SureWest, Everest, et cetera.

20 This is a diagram of the basic system  
21 structure that a BSP brings to the market. [BPSA  
22 Slide 3] Now, the interesting thing about this

1 basic structure is that it is now being emulated  
2 or duplicated with different technologies by most  
3 of the players that are coming into the market.

4           The key to this structure or  
5 understanding it is that everything inside this  
6 box is a private network being operated by the  
7 operator. The key to what it can do is the  
8 headend. The headend is the connection between  
9 the entire outside world, whether it is pulling  
10 in video content or connecting to the PSTN or  
11 connecting to the Internet, et cetera, and the  
12 subscribers that have signed into the network.

13           One of the things that I would point out  
14 is that this structure is creating perpetual  
15 change. Most of you can understand what we are  
16 now calling a three-screen strategy. We have all  
17 turned off our BlackBerries, but what is  
18 happening, in part driven by this structure and  
19 by technology, is that you have content and  
20 connections that are now bouncing between the  
21 three connections.

22           You used to have the world of TV in its

1 own world. You used to have an Internet PC  
2 living in its own world, and then you had a  
3 telephone that didn't have a screen. In today's  
4 world, you have connections and information that  
5 are bouncing between all three screens. That is  
6 for the panel kind of my daily life. Some  
7 things, I choose to watch on my TV. Some things,  
8 I watch on my PC. There are other things that I  
9 monitor that have a similar content on my  
10 telephone, which is no longer an independent  
11 thing.

12 One of the questions is the bundle and  
13 how important is that. BSPs have now been  
14 selling the bundle for about 10 years, and we  
15 decided that we will disclose some of our key  
16 numbers in terms of where we are. [BSPA Slide 4]  
17 It is pretty clear that the service that is the  
18 most important, that has the highest take rate  
19 and also economics is video. Fully eighty-nine  
20 percent, on average, of our customers take some  
21 form of video service.

22 In today's world, about 70 percent of all

1 of our customers are buying some type of bundle.  
2 A little over a third are buying all three. The  
3 two services that are growing in penetration  
4 fairly quickly are broadband and telephone. Not  
5 all of the BSPs were offering service from day  
6 one when it comes to telephone, but at this  
7 point, all of them have migrated to -- if they  
8 didn't do switched telephone, they are doing VOIP  
9 telephone. So they are offering all three  
10 services, and what we expect is the telephone  
11 numbers to go up.

12 By the way, all of this data is in the  
13 comments that we filed and posted. So you can  
14 come back to it there.

15 So the bundle is essential. When you go  
16 back to the 1980s and you had overbuilders that  
17 came into the market and they only offered video,  
18 they failed financially. The difference today in  
19 terms of this particular business model, is that  
20 you are offering the bundle. You do not have to  
21 come into a market and get a dominant market  
22 share in any individual service, but you can

1 create enough revenue to survive and do okay.

2 As has been already touted, this is a  
3 very capital-intensive business. If you go back  
4 to the early entry days, there was a  
5 misconception that this business was going to  
6 print money, and that is just not true. At the  
7 same time, it is a very powerful business model  
8 that is becoming very profitable today for the  
9 people that are still in it.

10 Some other questions have been raised as  
11 to whether these wireline entrants do or do not  
12 have significant impact on competition or on  
13 consumer welfare. One of the studies that was  
14 most significant to finally isolate markets where  
15 you have multiple wireline competitors was a Kohl  
16 and DeWine study in 2004.

17 This one has been cited now in several of  
18 the recent proceedings, including the MDUs and  
19 franchising. It is third-party evidence that you  
20 do have significant impact when you have an  
21 additional wireline competitor come into the  
22 market. One of the keys is that the impacts that

1 were identified back then are still going on  
2 today. It was not an isolated situation that has  
3 really changed.

4           The other thing that I would point out to  
5 you is a GAO study that has not has much  
6 visibility, but the GAO did a second study where  
7 they wanted to see how DBS penetration rates  
8 fared in different markets, and in going after  
9 this data, what they discovered is that in rural  
10 markets, the penetration rate of DBS is pretty  
11 high, 29 percent. As you moved into more urban  
12 and suburban markets, it dropped down to 18 and  
13 13 percent.

14           When you look at it from a technology  
15 standpoint, when you are out in a market where  
16 you don't have an upgrade, where DBS is competing  
17 with a traditional cable system, the penetration  
18 rate is actually the highest, 36 percent.

19           When you come into a market where the  
20 incumbent cable or other operators have fully  
21 upgraded to the bundle, guess what you find? You  
22 find that the DBS penetration rate drops to 16



1 and 14.

2 In the recent work done by the FCC, they  
3 have acknowledged that there are DMAs, major  
4 market areas in the country, where the incumbent  
5 cable operator still holds nearly 78 percent  
6 market share.

7 So what we have is an industry structure  
8 where DBS has had significant growth and offered  
9 a lot of new competition into the marketplace  
10 over the last 10-15 years, but we still have  
11 major market segments that have an incumbent  
12 operator for video that has an 80 percent market  
13 share, which is a very, very strong, nearly  
14 dominant position, especially when you consider  
15 that the DBS share is split between two  
16 providers. So you have an incumbent provider in  
17 a major market that may have an 8-to-1 advantage  
18 over the next nearest competitor for that  
19 service.

20 The other issue that I want to point out  
21 is the connection between broadband and video.  
22 It has become increasingly apparent, especially

1 with the FCC, that you can't deal with policy  
2 issues any more in isolation. When we implement  
3 good policies that promote the further expansion  
4 of video competition, given that the networks  
5 that are being built also offer broadband, what  
6 you indirectly do is create a better platform for  
7 broadband deployment.

8 A key quote from the FCC's franchising  
9 order states that the two are now intrinsically  
10 linked. You really can't deal with them in  
11 isolation as you go forward, as you look at  
12 antitrust laws, as you look at policy, those  
13 kinds of things.

14 Three recent actions are worth your  
15 looking into and becoming familiar with. One is  
16 the extension of the 628 prohibitions. Back when  
17 the rules were enacted, they said if programming  
18 content was subject to vertical integration and  
19 it was delivered by satellite [to the cable  
20 headend], it had to be offered on fair and equal  
21 terms to competitors. That rule was subject to  
22 sunset in the last year, and the FCC went ahead



1           When the FCC extended the current rules,  
2     it was a 5-0 vote. We haven't had a lot of 5-0  
3     votes from the FCC in recent years, but this one  
4     was unanimous and very strong, and they  
5     identified a number of market characteristics  
6     that they felt were germane and significant to  
7     the decision to extend the rules.

8           We believe that all of the arguments that  
9     created this 5-0 vote also play into the  
10    terrestrial loophole. The FCC actually closed  
11    the terrestrial loophole in the Adelphia merger  
12    Order. They decided that it would be  
13    anti-competitive if sports programming and other  
14    programming in that merger was made unavailable  
15    to all of the competitors involved in those  
16    markets.

17           The FCC has now issued a new NPRM, called  
18    MB No. 07-198, that takes up the issue of the  
19    terrestrial loophole and whether they should take  
20    action to close it, to treat all vertically-  
21    integrated programming in the same way.

22           We expect it is going to be a legal

1 debate. Does the FCC have the authority to do  
2 that? Since the foundation of the legal debate  
3 is antitrust law, we think there may be some room  
4 for you guys to be involved in this one.

5 We are taking the position that the FCC  
6 does have the authority, both based on Sections  
7 628(b) and 706 [of the Communications Act of  
8 1934], for those of you that are familiar with  
9 those statutes, and quite bluntly, we are going  
10 to be asking for congressional and DOJ support to  
11 have the FCC take this action at this time.

12 The key message I would like to leave you  
13 with is that, BSPs have been in the market for 10  
14 years, and in some sense, they have the longest  
15 history of dealing with whatever competitive  
16 issue you want to talk about, whether it is  
17 predatory pricing or franchising issues or all  
18 the rest of them, and all of them can be  
19 material.

20 We have come to the conclusion, based on  
21 our experience, that the foundational issue for  
22 any new wireline competitor is ultimately fair

1 access to programming content. If that access  
2 ever diminishes, you are going to have some  
3 issues with how quickly and how healthy new  
4 competition is.

5 MR. RACLIN: Good morning, everybody. I  
6 am Grier Raclin from Charter Communications. It  
7 is a pleasure to be here.

8 I guess one thing I learned today is I  
9 ought to be a little more gentle on my team that  
10 goes out and negotiates interconnection  
11 agreements since the litany of woes they come  
12 back with sound remarkably like some of the woes  
13 I have heard today.

14 I am going to spend a minute, if I can,  
15 and only a minute talking a little bit about  
16 Charter. I recognize that most of you here in  
17 the swamps of the Potomac, where I was for 20  
18 years myself, probably have never heard of  
19 Charter. It is a large cable company, about 6  
20 million subscribers in 29 states. That makes it  
21 about the third-largest publicly held cable  
22 company, the fifth largest MVPD [multichannel



1 will make later is that in 18 months, we  
2 obtained over 2,000 franchises. So we have a  
3 certain amount of limited tolerance for claims  
4 that it is an impossibility to do that.

5 One of the things I have been asked to  
6 talk about a little bit is our view of the market  
7 today, and I think it can be summed up pretty  
8 easily. Our view of the market is that it is  
9 already robustly competitive, and it is going to  
10 become more competitive as time goes on.

11 For years, we have competed with the  
12 satellite companies, which are a lot larger than  
13 we are. They have over 30 million subscribers  
14 compared to our little less than 6 million, a  
15 thirty-three percent market share, and \$28  
16 billion in combined revenues, which is  
17 significant.

18 The number one cost driver in the cable  
19 business is the cost of programming, and the  
20 larger you are, the less per head you are going  
21 to pay for your programming. So, when you get up  
22 to 30 million subscribers, that gives them a



1 tremendous cost advantage over us.

2 In addition to that, we compete with  
3 other cable companies, overbuilders, municipal  
4 cable companies (and if you want pleasure  
5 sometime, try competing against your regulator),  
6 private cable companies (which originally started  
7 out as SMATVs, antennas on large buildings). One  
8 of the ways the ILECs have found around  
9 franchising rules is they actually go in and  
10 build out as a PCO [Private Cable Operator]. So  
11 PCOs now are often affiliated with ILECs, and  
12 probably, that will grow with the exclusivity  
13 rule which we are happy to talk about later and  
14 answer some questions on because we obviously  
15 have a different view of things.

16 Local telephone companies are another  
17 competitor. Charter is not in a number of large  
18 communities. Most of our systems are in smaller  
19 communities, rural communities, and therefore,  
20 the local telephone companies, the rural  
21 companies, really are a large part of our  
22 competitive market, and they have a tremendous

1 advantage in that their networks were built at  
2 taxpayer expense. So we get to not only compete  
3 against our regulators, we get to fund our  
4 competitors as well.

5 Of course, the ones we are here to talk  
6 about today are the ILECs. The RBOCs have gotten  
7 the most attention and for good reason. Whenever  
8 they come into any market, they invoke a lot of  
9 well-deserved attention, given their size, and  
10 they are having a fair amount of success.

11 Verizon, for example, claims a little  
12 less than 5 million houses. I heard that maybe  
13 it is 6 million, but in any event, their  
14 build-out is going quite well. They claim to  
15 have over 700,000 new subscribers and are gaining  
16 17,000 subscribers a week. That is pretty  
17 impressive. Including their DBS partnerships,  
18 they have 1.5 million subscribers making them  
19 about the tenth largest multichannel video  
20 provider.

21 AT&T is building out a little different  
22 technology, a little less robust, but in a much

1 broader area. It has about 126,000 customers to  
2 what they call their U-verse video, which is  
3 their enhanced DSL product, and they are adding  
4 at about 10,000 a week, but if you include their  
5 satellite partnerships -- and both the RBOCs have  
6 partnerships with satellite companies, and have  
7 provided what has been called a "synthetic  
8 bundle" for years, and again, it is not new  
9 competition, it is just a different version of it  
10 -- they have over 2 million customers, making  
11 them about the ninth-largest, I guess, MVPD.

12 Their successes has good reason. They  
13 have tremendous advantages over all cable  
14 companies and, certainly, over Charter. They  
15 have huge capitalization and revenue flows. Just  
16 to give you an example, this is the chart of our  
17 competitors' revenues. [Charter Slide 5] The top  
18 line is AT&T's revenue. The second is Verizon's.  
19 The third is Comcast's. Then you have DirectTV,  
20 Time Warner, DISH, and Charter. Verizon, the  
21 second-largest, is larger than all the cable  
22 companies combined. They have the revenue flow,

1 rate supported by the way, that allows them to  
2 undertake some of these massive projects that we  
3 would like to undertake. If you look at their  
4 market capitalization, it is even more dramatic.  
5 [Charter Slide 6] They switch order, but AT&T's  
6 market capitalization makes it over 400 times  
7 larger than Charter. Verizon is over 200 times  
8 Charter's market capitalization, which is the  
9 funding source for all their build-out and their  
10 programming. It is a tremendous advantage.

11 In addition to these capitalization and  
12 revenue flows, they have got in place networks.  
13 They are enhancing their network. It is an  
14 expensive proposition. It is a complicated  
15 proposition. In fact, I would venture to say it  
16 is probably a little more complicated than they  
17 expected at the beginning.

18 The video business is very different than  
19 the voice business, but what they are doing is  
20 upgrading an existing network, an in-place  
21 network with in-place personnel, in-place  
22 systems, infrastructure, and back-office systems.

1 It is a huge advantage, and of course, they have  
2 got these tremendous brand names. While they are  
3 only beginning, they are going to be very strong  
4 competitors in the market.

5 So what is the future? The future is  
6 just kind of more of the same, as far as we can  
7 tell. The RBOCs are promising pretty dramatic  
8 growth. Verizon projects it is going to pass 18  
9 million houses in the next couple of years, have  
10 3 to 4 million subscribers. They will basically  
11 be able to do in a couple of years what it took  
12 us six years to do because of their scale. AT&T  
13 is on track, they claim, to pass over 8 million  
14 houses by 2008, and they are dedicating a lot of  
15 resources to get this done.

16 We also have the power companies. I have  
17 been in Washington for 20 years, and for those 20  
18 years, I have heard about power companies going  
19 into communications, but they recently have  
20 overcome some of the technical problems that  
21 delayed them. So I think you are going to see  
22 power companies entering far more vibrantly than

1 you have seen in the past.

2 IPTV is a very sexy topic. It is  
3 interesting. I think it was the Conference Board  
4 that came out with a study recently that said  
5 that over 16 percent of American households have  
6 access to video programming over the Internet in  
7 the last year, 16 percent in one year.

8 IPTV is being entered into by the major  
9 programmers, the Disneys, the ABCs, the CBSs, as  
10 well as a litany of small companies, some not so  
11 small like Netflix and some very small ones you  
12 may never have heard of, but they are coming out  
13 with it, and I think it is going to be a very  
14 vibrant competitor, direct to the consumer even.  
15 It will bypass the broadcast stations and just  
16 come right over the Internet, and of course,  
17 mobile delivery platforms, probably the most  
18 vibrant thing coming in the future, such as a  
19 Google platform.

20 One thing, I guess this is a subject for  
21 another panel, but the Antitrust Division and  
22 this industry is going to be focusing on dramatic



1           The second thing that is alleged is that  
2 we filed lawsuits. An important thing to  
3 understand is that not one of the lawsuits that  
4 were filed by Charter or any cable company that I  
5 am aware of ever challenged the entry of a  
6 competitor. The sole basis for the lawsuits that  
7 we were part of and everyone I know of in the  
8 industry -- and maybe there are others that I  
9 don't know about -- was simply to seek equal  
10 treatment based upon equal treatment provisions  
11 in our franchises. If you are going to let new  
12 entrants in and relieve them of certain  
13 requirements, you have got to relieve us of those  
14 requirements. That was the total basis for the  
15 lawsuits, and I think they are justified, and  
16 they didn't stop anybody from entering, as far as  
17 I can tell.

18           New entrants have gotten a lot of relief  
19 from these franchises. As has been mentioned,  
20 the FCC has already granted huge relief. States  
21 have done it as well. You have got statewide  
22 franchising in over 18 states. I heard this



1 morning, actually, it is up to 20 now, so between  
2 18 and 20 states, and you have 6 or 7 others that  
3 are going to do it later in the year. As I say,  
4 the FCC has been very, very busy granting relief,  
5 in fact, really uniquely to some of our  
6 competitors.

7 For example, the satellite companies, the  
8 PCOs are not subject to the rate regulation we  
9 are subject to. We have been denied the MDU  
10 exclusivity, including in existing contracts. I  
11 thought there was some kind of constitutional  
12 provision about that, but I guess I was wrong.

13 The program access rules, DBS is not  
14 subject to them but we are. I mean, we would  
15 love to get an NFL Sunday ticket. Must-carry  
16 requirements, along with the syndicated non-  
17 duplication rules, effectively grant broadcast  
18 stations a monopoly in each one of their markets,  
19 something we are not entitled to.

20 RBOCs are given unique relief from all  
21 the woes in John's [Thorne] paper about how long  
22 it took and the build-out requirements. The FCC

1 gave them relief from that, did not give that  
2 same relief to us, did give us relief on some of  
3 the other areas, but told us to wait until our  
4 renewal. It doesn't sound so bad until you  
5 realize that some of our franchises go out 10  
6 years, so this effective on renewal thing really  
7 is just a sleight of hand. In fact, it doesn't  
8 give us any relief at all.

9 On the set-top box waiver, Verizon is  
10 getting a permanent waiver for what they only  
11 gave one-year waivers to the cable companies.  
12 The list goes on, but one thing I think you would  
13 have say is that the FCC has been, shall we say,  
14 a hospitable environment for the RBOCs.

15 I will wrap it up quickly in terms of  
16 what our response is.

17 First, competition is not new. We have  
18 faced competition from DBS for years. The RBOCs  
19 are probably the third or fourth competitor in  
20 our markets. So we don't overreact. Contrary to  
21 what you have seen, we do not immediately drop  
22 prices. In fact, Keller, Texas, one of the areas

1 everybody talks about, is one of the first areas  
2 to have competition. If you tracked it, you  
3 would find that actually cable prices rose there  
4 after Verizon first entered because it was a  
5 pre-arranged raise, and there wasn't any reason  
6 to drop it.

7           What you have seen in terms of dropping  
8 prices hasn't been a reduction of the rate cards.  
9 It has been rolling out of the bundle. The  
10 number-one competitive response we have to  
11 competition is to roll out a bundle which  
12 effectively lowers the price of the service  
13 pretty dramatically, and that is what the RBOCs  
14 use to claim that their competition lowered  
15 prices. Well, they just raised their prices,  
16 Verizon did, 20 percent in two years. So I am  
17 not too sure competition has led to a lowering of  
18 prices.

19           We also roll out new enhanced products,  
20 more high definition, higher speed Internet. We  
21 are also increasing bandwidth. The number-one  
22 problem for a cable company, other than getting

1 programming, is having the bandwidth to transmit  
2 it. So we are trying to roll out technologies to  
3 get up to the level of bandwidth that FiOS offers  
4 -- FiOS is a very robust product -- increasing  
5 distribution channels by going through retail  
6 outlets, and obviously improving customer service  
7 which is our Achilles' heel and something we have  
8 done a lot to improve and still have a ways to  
9 go.

10 So I will conclude with two points. One,  
11 in our view, competition is longstanding and  
12 robust. It is going to get more robust. It is  
13 going to be a stronger market, but the last thing  
14 that the market needs is more regulatory  
15 involvement. The market is working quite well.  
16 I wish I could say I have enjoyed all the  
17 competition, but it is working quite well from a  
18 market perspective, and I would suggest that we  
19 just leave it alone and let it continue and let  
20 the market decide.

21 Thank you.

22 MS. LAWTON: Hi. I am Jane Lawton, the

1 cable administrator for Montgomery County,  
2 Maryland.

3 Montgomery County is the suburban  
4 district right here next to Washington, D.C., and  
5 it is a densely populated county with over a  
6 million residents and over 350,000 households.  
7 My office negotiates and administers cable and  
8 telecom franchises, monitors service quality and  
9 resolves customer complaints, oversees and  
10 supports 11 PEG channels, and coordinates the  
11 siting of wireless facilities.

12 In the past 12 years, my office has  
13 handled five cable franchise transfers, a  
14 franchise renewal, three competitive franchise  
15 applications and approvals, 18 telecom  
16 franchises, and approved over 1,200 wireless  
17 sites for 15 providers.

18 As you heard before, I serve at the state  
19 level. I work at the county level. I used to  
20 serve as a local official, and my first job was  
21 as a special assistant to the Speaker of the U.S.  
22 House of Representatives. So my legislative and

1 public service background actually have given me  
2 an expertise in public policy, local and state  
3 regulatory processes, economic development, and  
4 most important, consumer protection.

5 I know cable customers and cable  
6 providers first-hand because my role is to  
7 consider their needs and their access, and when  
8 there is a problem, whether it be federal or  
9 state or local, they call my office.

10 I know firsthand the impact of the cable  
11 and telecom industry's behavior on customers and  
12 also on providers.

13 In Montgomery County, we know that  
14 triple-play services are essential to all our  
15 residents. We want competition, and we have  
16 competition. Without state franchising  
17 legislation and before the FCC did anything, we  
18 had negotiated three competitive wireline  
19 franchises who compete in head-to-head markets:  
20 Comcast, RCN, and Verizon. We are about to award  
21 a fourth franchise to Cavalier Telephone.

22 Montgomery County is pro-competition.

1 For that reason, we are equally aggressive about  
2 exercising our full array of police powers to  
3 protect consumers and to ensure that all  
4 providers are treated equally.

5 Our robust regulatory environment is  
6 obviously not a barrier to any of these  
7 competitors who have similar franchise  
8 agreements, who all support PEG and I-Net and who  
9 all enjoy enormous success in our markets.

10 It is not accurate to suggest that local  
11 government favors the incumbent or refuses to  
12 give new entrants fair treatment. We have been  
13 helpful in the emergence and survival of  
14 competitive services. Montgomery County is, as  
15 far as we know, the first market in the country  
16 with four wireline competitors serving the same  
17 area. Our experience confirms what the previous  
18 speaker was also speaking to, that the state of  
19 video competition is determined by economics, not  
20 local regulations.

21 There are examples throughout the State  
22 of Maryland of communities that have negotiated

1 individual franchises and have supported  
2 competition. My comments that are on-line  
3 include a big study that shows that.

4           Montgomery County wants all our residents  
5 to have access to the services, not just the  
6 highly affluent or those in the urban areas,  
7 because we consider these services essential.  
8 Our franchises have build-out obligations, and  
9 two of the providers are meeting them very well.  
10 The third has only faltered because of economic  
11 problems due to declining investment by Wall  
12 Street. This further confirms that it is  
13 economics and not local regulation. We  
14 accommodated them when they had this challenge.

15           The application of local regulations with  
16 an even hand creates a competitive environment  
17 that is stable and conducive to business  
18 investment. The current efforts by the FCC and  
19 state legislatures to completely change this  
20 process may, in fact, slow competition.

21           In 2000, we had our first competition,  
22 and our new entrant believed that the incumbent



1 was engaging in predatory prices. They came to  
2 us for help. Eliminating local authority is  
3 actually a hindrance, not a help, to competition.  
4 Under our present franchises, basic rates are the  
5 same throughout the franchise area. It is  
6 difficult to engage in predatory pricing and  
7 ensure that one area of the county is not  
8 prohibited access by pricing and doesn't  
9 subsidize the other.

10 Building standards and testing  
11 requirements also help ensure a quality product.  
12 Instead of serving as a barrier to entry, our  
13 franchise ensures wider access to services and  
14 helps providers by giving them a level playing  
15 field.

16 Local government also has a legitimate  
17 role as a landlord and manager of the public  
18 rights-of-way. These are a public asset, and as  
19 such, they or their use can't be given away to  
20 competitors or to incumbents. This valuable real  
21 estate is already shared by all of the utilities,  
22 as well as individual homeowners who consider it

1 their front and back yards. Some of our most  
2 serious problems arise with regard to the  
3 condition and safety of construction activities.  
4 Incumbents and competitors alike complain about  
5 cut lines, space on poles, impact of street cuts  
6 on build-out plans.

7 In fact, when Verizon constructed its  
8 FiOS system, our incumbent came to us to report  
9 and seek help for hundreds of line cuts. These  
10 are real problems that require real management.

11 To John's [Thorne] point that he made  
12 earlier, we in Montgomery County offer a neutral  
13 hand-off for our PEG channels.

14 Providers assert that competition will  
15 improve customer service, spur lower prices, give  
16 higher quality service, and offer a wider array  
17 of programming choices. Unfortunately, our  
18 experience to date has been that this hasn't  
19 happened. New entrants have not lowered prices  
20 or improved customer services. We have watched  
21 the prices go up, the quality of service go down,  
22 and programming choices haven't changed

1 significantly. It is the market, rather than  
2 local regulation, that determines what the prices  
3 do.

4 The FCC's 2006 report shows that prices  
5 rose 6 percent, but our experience in this market  
6 is even more dramatic. In 2000, when we got our  
7 first competition, our incumbent's rate was  
8 \$36.85. One competitor arrived in 2000 and then  
9 another one in 2007. Since that time, there have  
10 been no reductions, and Comcast price now is  
11 \$60.35, a 63.8-percent increase and probably  
12 among the highest in the country because our  
13 market, our customers, will pay it.

14 Verizon entered the market in 2007 and  
15 announced an initial rate that was slightly lower  
16 than the incumbents', but they also raised the  
17 rate even before they started service, and they  
18 just announced a \$5 rate increase. This year,  
19 RCN's rates will go up by \$3.

20 Customers who are attracted to the  
21 bundled services find that they run out. They  
22 reach the end of their package deals, and they

1 are startled at the increases. My own increase  
2 which happened just last month was a 40-percent  
3 increase, from \$119 to \$170. A customer's only  
4 choice for relief is to change providers.

5 As competitors enter the market and  
6 incumbents anticipate the loss of revenue, they  
7 are cutting customer service, raising and  
8 creating new fees, and changing customer policies  
9 to enhance their bottom-line profits. Since  
10 competition came, Comcast has invented new fees,  
11 transaction fees, truck trip fees, wiring  
12 protection, guide fees. Verizon has a truck trip  
13 fee of \$79.95. RCN has a fee of \$49.95 to pick  
14 up your converter box, or you can send it in a  
15 mailer for \$22, or you can deliver it to another  
16 State. Customers are gauged at every turn.

17 Because there are no federal standards  
18 for cable modem service, consumers have no  
19 assurance that they are getting what they pay  
20 for. We have also seen changes in customer  
21 service policies that deal with privacy, forced  
22 arbitration, and other issues that put customers

1 at a disadvantage and limit their legal remedies.

2 One concern across the country is  
3 privacy, and several years ago, Comcast changed  
4 their privacy policy to one that our county  
5 attorney says goes beyond what the federal  
6 government allows.

7 This summer, Comcast announced an  
8 arbitration policy where customers could only opt  
9 out, and then when they went to the website to do  
10 that, it was not functional.

11 Against this backdrop, you can imagine  
12 how surprised local government officials were  
13 that this division of the Department of Justice  
14 offered comments to the FCC and also wrote  
15 directly to state legislators without public  
16 input to tell them that local franchising retards  
17 broadband deployment and will delay consumer  
18 protection.

19 I ask you, where is the evidence that  
20 build-outs resulting in consumer choice has been  
21 faster in state-franchise states, and where is  
22 the evidence that they have had reduced prices or

1     resulted in better customer service in  
2     state-franchised states?

3             I am a state legislator, and I can tell  
4     you if I got a letter from the Department of  
5     Justice telling me how to vote on a state  
6     legislative piece, I would be outraged. And I  
7     would be totally outraged if I got a letter that  
8     told me how local franchising was happening in my  
9     local district. I know my district, and I know  
10    what is happening there.

11            I challenge this panel to find a state  
12    that has more consumer choice than we do in the  
13    State of Maryland. The only states that begin to  
14    compete are Massachusetts, Delaware,  
15    Pennsylvania, and New York. None have state  
16    franchising laws. The only states with a  
17    state-franchising regime that began to compete  
18    are Virginia and New Jersey, and those states  
19    have the most aggressive build-out policies of  
20    any state-franchised states.

21            Compare those to Texas where two and one  
22    half years ago, the RBOCs got permission to go in

1 free to serve communities, and they are still in  
2 the single digit for penetration. In North  
3 Carolina, South Carolina, Kansas, and other  
4 states with state franchising laws, the RBOCs  
5 have yet to roll out competitive franchises.

6 While you can't document the increased  
7 choice in these states, I can document that  
8 consumer protection standards have gone down and  
9 that compensation for use of public assets has  
10 suffered.

11 I know the nature of county and state  
12 legislatures, and I know that customers and  
13 providers both benefit if franchising is left to  
14 the local government. State government is not  
15 equipped to handle customer inquiries on a daily  
16 basis, and state government has no role in  
17 managing or coordinating the activity in local  
18 rights-of-way.

19 Consumers now depend on these new  
20 services for their communications needs, but  
21 without national standards and without local  
22 governments' supportive role, they have little

1 assurance that the products they choose are  
2 equitably priced, reliable, or even accessible.  
3 Consumers deserve more, not less. Local, state,  
4 and federal government should work together to  
5 ensure that the public has access to the same  
6 high-level services at reasonable prices and with  
7 confidence that the policies won't change after  
8 they sign their contracts to undercut their  
9 protection.

10 The public looks to local government for  
11 assurance and consumer protection every day. The  
12 public and the competitive providers alike will  
13 benefit when local government is supported at the  
14 federal level.

15 Thanks very much.

16 DR. SINGER: Good morning. My name is  
17 Hal Singer. I am the President of Criterion  
18 Economics. I am the token economist on this  
19 panel. I think my job is to keep the lawyers  
20 honest and maybe tell a joke or two.

21 My presentation is going to focus on the  
22 welfare effects of telco entry into video



1 markets, and I will touch on a few policy issues  
2 as well.

3 MS. GARZA: In light of the circumstances  
4 and the time, we have made a decision to  
5 terminate Panel I and to resume with Panel II at  
6 11:15. That doesn't reflect on any thought that  
7 the Panel I discussion wouldn't have been very  
8 good, and we apologize to the people on the  
9 panel, but we will have the written comments. So  
10 what we will do is resume back here at 11:15 for  
11 Panel II.

12 Thank you, and thank you for your  
13 patience.

14 [Break taken from 10:16 a.m. through  
15 10:52 a.m.]

16 **Panel II**

17 **Entry into Telecommunications Services**

18 MR. WILLNER: I am glad to see everyone  
19 back again after the very unfortunate event on  
20 our first panel. Given what happened with Jane  
21 Lawton, we have decided not to continue with the  
22 last presentation and the discussion on Panel I

1 and simply move to Panel II.

2 I would just like to say to everyone good  
3 morning and welcome to the second of our four  
4 symposium panels. I am Carl Willner. I am an  
5 attorney with the Antitrust Division of the  
6 Department of Justice in our Telecommunications  
7 and Media Section, and I will be one of the  
8 co-moderators for this panel, along with Luin  
9 Fitch, another attorney in our section who will  
10 be the other co-moderator.

11 You have heard the first panel this  
12 morning discussing competitive entry into  
13 multi-channel video services, and our panel will  
14 be addressing the flip side of the developing  
15 competition for bundles of voice telephony,  
16 broadband, and video. We will be dealing with  
17 entry into the voice telephone services that have  
18 traditionally been dominated by the regional Bell  
19 operating companies and the other smaller  
20 incumbent local exchange carriers.

21 We will be addressing what modes of entry  
22 competitors are using, how widespread that

1 competition is now and is likely to become, and  
2 what obstacles new entrants into telephone  
3 services still face.

4 Bundled service offerings have become  
5 widespread, and as our first panel did, we will  
6 be considering how those offerings have affected  
7 the nature of competition, as well as what  
8 implications they have for complex antitrust  
9 issues such as market definition.

10 In telephone services for residential  
11 customers, cable television systems have  
12 increasingly become recognized as the leading  
13 source of facilities-based wireline competition  
14 to the incumbent telcos, and this will be a major  
15 focus of our panel, but there are also other  
16 types of competitive local exchange carriers  
17 serving some areas and other forms of entry or  
18 potential entry, such as wirelines, wireless  
19 substitution that are often discussed.

20 We will be considering the competitive  
21 impact of these possible alternatives and how  
22 they are affected by regulatory, economic, or

1 other limitations.

2 We have a distinguished panel of speakers  
3 to address these issues, presenting the  
4 perspectives both of incumbent telephone carriers  
5 and competitive entrants, as well as independent  
6 economic expertise.

7 Our first speaker toward the end of our  
8 panel lineup will be Sean Lindsay, Associate  
9 General Counsel of Qwest Communications  
10 International. Mr. Lindsay handles antitrust and  
11 commercial matters for Qwest and has worked  
12 in-house for 12 years at various  
13 telecommunications companies. Qwest, the  
14 smallest of the three remaining RBOCs, covers a,  
15 geographically, very large region of 14 western  
16 states. Unlike the two larger RBOCs, AT&T and  
17 Verizon, it does not have its own  
18 facilities-based wireless affiliate.

19 Qwest has reported suffering extensive  
20 line losses over the past several years, which  
21 are attributed in large part to competition from  
22 cable companies and other CLECs, as well as

1 wireless substitution. It has frequently  
2 requested regulatory relief from federal and  
3 state authorities and has been successful in  
4 obtaining regulatory forbearance from the FCC in  
5 significant parts of Omaha, Nebraska, where it  
6 faces Cox as its major competitor.

7           Next, we will hear from Alexandra "Sandy"  
8 Wilson, sitting next to Luin. She is Vice  
9 President of Public Policy and Regulatory Affairs  
10 for Cox Enterprises.

11           Ms. Wilson has been with Cox since 1994  
12 and is responsible for developing and  
13 implementing its public policy strategies.  
14 Formerly, she served as chief of the Cable  
15 Services Bureau and in other significant  
16 positions at the FCC.

17           Cox has been one of the leaders among the  
18 cable operators in entering telephone services  
19 nationwide, with over 2 million digital telephone  
20 customers using both circuit switch and voice  
21 telephony. That represents a third of its total  
22 number of cable subscribers and over a quarter of

1 homes with telephone service.

2 Cox is now reported to be both the fourth  
3 largest cable operator and the tenth largest  
4 telephone company in the U.S.

5 Our third speaker in the center of the  
6 panel lineup will be Stephen Perkins, General  
7 Counsel of Cavalier Telephone. Mr. Perkins has  
8 practiced in antitrust and other fields of law  
9 before coming to Cavalier where he has worked for  
10 nearly nine years.

11 He has been heavily involved in  
12 implementing Cavalier's entry into video  
13 services, opposing RBOC forbearance petitions,  
14 and seeking access to co-location, transport, and  
15 unbundled loops to combine with Cavalier's own  
16 facilities.

17 Cavalier, a competitive local exchange  
18 carrier, provides retail and wholesale voice,  
19 data, and video services, principally in the  
20 Mid-Atlantic and Midwest, and unlike many CLECs,  
21 it is focused on addressing residential customers  
22 in addition to businesses, gaining several



1 Wilkie, Executive Director of the Center for  
2 Communications Law and Policy at the USC Gould  
3 School of Law at the end of our panel lineup. He  
4 will provide an expert economic perspective on  
5 the issues our panel is considering.

6 Dr. Wilkie has had extensive experience  
7 with the telecommunications industry and  
8 previously served as chief economist at the FCC  
9 under Chairman Powell, and he has published  
10 widely on subjects such as spectrum auctions,  
11 game theory, and telecommunications regulations.  
12 His most recent research has involved the  
13 wholesale telecommunications market.

14 After all of the panelists have spoken,  
15 we will have a discussion of the issues among the  
16 moderators and speakers, and at that time, we  
17 should also have an opportunity for some  
18 questions from the audience. There will be a  
19 couple of people moving around in the audience  
20 carrying microphones. So, if you want to ask a  
21 question, please connect up with one of them, and  
22 they will provide you with the mike.



1           I would also like to remind everyone at  
2 this time to turn off your cell phones and  
3 BlackBerries, if you still have them on, and now  
4 let me turn to our distinguished speakers to  
5 begin their presentations.

6           Sean?

7           MR. LINDSAY: Thank you, Carl.

8           I am Sean Lindsay. I am an attorney  
9 in-house at Qwest, and I think I know most of the  
10 people in the audience from one place or another  
11 over the course of years, but we at Qwest  
12 appreciate the opportunity to present the  
13 information that we have and to discuss the  
14 issues here with all parties.

15           I was talking with a couple of friends in  
16 the lobby prior to the meeting, and it occurred  
17 to me that perhaps the best visual demonstration  
18 I can give of the reasons for the developments  
19 and the ways of the developments coming about is  
20 this toy.

21           Carl, ultimately, we didn't need it, but  
22 he asked me to bring on a flash drive, a copy of

1 my presentation in case we needed to reload it  
2 onto the laptops that are driving the computer  
3 presentation. This holds 2 gigabytes.

4 The second part of the visual is this,  
5 which probably you can't see. This also holds 2  
6 gigabytes. The only difference between these two  
7 is this was designed and manufactured about three  
8 years ago, and this was designed and manufactured  
9 last year.

10 Moore's Law was working quite well, long  
11 before the Telecom Act was enacted in 1996, and  
12 it shows no current signs of slowing. Moore's  
13 Law is the governing, from my perspective. It  
14 governs the competition paradigm in local  
15 telephony, just as it does in a variety of other  
16 markets.

17 Let's pause for a minute. When the  
18 Telecom Act was adopted in 1996, it was not  
19 creating competition. It was trying to shape it  
20 when pointed in a particular direction, but  
21 before it was adopted, cellular telephones had  
22 been deployed. They were the size of bricks, but

1 they worked nonetheless. Telephone companies  
2 were buying cable television companies in order  
3 to provide telephone over cable facilities. In  
4 1993, I believe, U.S. West made a  
5 multi-billion-dollar investment in Time Warner to  
6 that effect, and also the economic dynamics of  
7 the telecommunications market haven't changed  
8 since prior to the Telecom Act. High-value  
9 customers are still the principal focus of new  
10 entrants, and new entrants take advantage of  
11 regulatory arbitrage in order to maintain  
12 regulatory structures or promote regulatory  
13 structures that both facilitate their entry and  
14 then subsidize it once they have entered.

15 Finally, the last element that I will  
16 address in the course of my remarks is that the  
17 regulatory structure itself hasn't changed wildly  
18 either. At the very heart of residential  
19 telephony is a subsidy. 1FR lines continue to be  
20 substantially subsidized by other types of  
21 services. The extent of those subsidies, the  
22 manner of those subsidies, and the above-market

1 pricing of other services have all been addressed  
2 by the entrants of competition, but the 1FR  
3 continues to be priced below cost.

4 A lot of things have transpired over the  
5 last 11 years since the Telecom Act was passed.  
6 There have been scads of transactions. As I was  
7 building this slide, I actually had about 17 more  
8 pages that could have been built in here to talk  
9 about the transactions. Transactions come about  
10 because of all of the need for capital  
11 accumulation and the ability to expend it. There  
12 have been many, many, many of those transactions,  
13 but still the ultimate drivers come back to  
14 Moore's Law and the size of integrated computing  
15 circuits.

16 High-speed data networks are being  
17 deployed extensively throughout the country, and  
18 this, as Carl alluded to, creates an opportunity  
19 for competition that didn't previously exist, and  
20 it is competition not solely for the opportunity  
21 to provide broadband services. We will come into  
22 that in a moment with some of the more

1 data-oriented slides that I am going to present.

2           The relevant factors continue to be the  
3 desire to enter high-value niches. What it means  
4 for Qwest, competitive forces, yes, they come  
5 from the cable television companies that are  
6 providing telephone service in the regions that  
7 were traditionally served by the phone companies,  
8 but also two principal other areas.

9           Wireless. I have been quibbling and  
10 arguing with various counterparts at the  
11 Department of Justice for years to the effect  
12 that wireless is, in fact, a meaningful  
13 competitor that ought to be included into the  
14 product market associated with local wire line  
15 telephony, but as the facts will show in a few  
16 moments, I think that that has almost become  
17 indisputable at this point, but also, every home  
18 that has a high-speed data connection, by  
19 definition with the advent of Vonage and VoIP.com  
20 and a thousand other small VoIP companies, it is  
21 tantamount to a local wire line communications  
22 device. Disregarding that, I think can mislead

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1 us in market definitions.

2 In 2000, Qwest had 17.6 million lines in  
3 service. Today, we have 12.1. In 2000, there  
4 were 1.4 million CLEC access lines. Today, there  
5 are 4.1. We didn't just reverse the numbers.  
6 Those are significant measures, but they are not  
7 the most relevant ones. The most important one,  
8 I think is the number of wireless subscribers.

9 In 2000, there were 12 million, slightly  
10 more than 12 million wireless subscribers in  
11 Qwest's region. Today, there is 27 million.  
12 That is more than all of the CLECs' lines in  
13 service and all of Qwest's lines in service  
14 combined, and it is more than all of the CLECs'  
15 lines in service and all of the Qwest lines in  
16 service even in 2000, but that still doesn't  
17 exhaust the market definition for residential  
18 telephony.

19 VoIP providers are difficult to measure.  
20 I don't have great metrics for you that I can  
21 present to you, but so far as I know, nobody has  
22 come up with very reliable measures of them. I

1 would advocate and will continue to advocate that  
2 the right measure for evaluating VoIP provision  
3 is the number of broadband lines in service  
4 because as soon as you have a broadband  
5 connection, you have the ability to receive VoIP  
6 telephony services.

7           This slide essentially repeats the same  
8 exercise, but emphasizes that over the course of  
9 the last seven years, competition has not  
10 decreased, and over the course of the last seven  
11 years, the number of lines in service has not  
12 decreased, and over the last seven years, the  
13 demand for telecommunications, it has had some  
14 dips, but it hasn't substantially decreased.

15           What you see reflected on this slide  
16 relating to the line losses of Qwest, Verizon,  
17 and AT&T is competitive inroads, and the  
18 competitive inroads are not limited to the  
19 percentages of lines no longer in service that  
20 are reflected here. That is part of it. You  
21 need to add also the wireless lines in service  
22 that Carl talked about and that Attorney General

1 Barnett referenced earlier today and also the  
2 high-speed data lines and service.

3           Just as a reference -- and this chart is  
4 a little bit difficult to read, and I apologize  
5 for that -- broadband and dial-up, I at one time  
6 had an argument with Larry Frankel about whether  
7 those were the same market, but at that point, I  
8 believe we were in approximately this area. I  
9 don't think there is any question at this point  
10 that broadband is, in fact, the paradigm that is  
11 going to be relevant for the next several years.

12           This is the other chart that I wanted to  
13 draw particular attention to. The number of  
14 residential high-speed data lines in service  
15 shows the same kind of a shape to the graph that  
16 we have learned to expect from computational  
17 graph performances as well, and this is the last  
18 chart that I want to draw your attention to.

19           These are metrics measured not every  
20 year, but every six months. So, from June of '03  
21 until June of '04, there was about a  
22 percent-and-a-half increase in penetration. From



1 June of '04 to June of '05, there is about a  
2 2-percent increase. From June of '05 to June of  
3 '06, there was about a 3-percent increase, and  
4 the line is getting steeper.

5 Wireless is a meaningful competitor to  
6 local telephony, and at 11.8 percent as of  
7 December of last year, we are interested in  
8 looking at the FCC's data that should be released  
9 shortly that will tell us exactly how much higher  
10 than that number the current market reflects.

11 There are lots of new toys on the market  
12 that will allow people to take advantage of WiFi  
13 developments. While WiFi may be in the past  
14 reasonably considered one of those interesting  
15 items that people talk about for potential new  
16 entrants that are both difficult to prove and  
17 difficult to measure, Sprint has begun deploying  
18 these. T-Mobile has begun deploying them. The  
19 challenge for antitrust lawyers, whether you are  
20 defenders or law enforcement officials, is trying  
21 to figure out how you are going to take into  
22 account the portion of the market that is

1 affected by these providers.

2 WiFi is here, and it is growing. In  
3 Qwest region, we have people deploying WiFi as a  
4 telephony device and facilitating VoIP over WiFi,  
5 Netgear, Vonage, Skype. There are lots and lots  
6 of them. I will spare you the remainder of the  
7 charts and graphs that are available through the  
8 Department.

9 Qwest welcomes the opportunity to  
10 compete. Carl asked me to be sure to at least  
11 reference the extent to which regulatory  
12 structures affected or didn't affect the degree  
13 of competition in our markets. For that lesson,  
14 for that learning, I go back to the same dynamics  
15 that were in effect and in application before the  
16 Telecom Act was passed. That is to say, 1FR our  
17 residential wire line service continues to be  
18 very heavily regulated. It is a price point.  
19 Most of Qwest's region, we offer it for \$12 and  
20 change. There is a \$6 CALC [carrier access line]  
21 charge added onto that, and so for most  
22 residential customers, a telephone line in

1 service costs them about \$17 or \$18 in our  
2 region.

3 Most of the entrants, as might readily be  
4 understood, look at that price point and either  
5 price slightly above it or slightly below it,  
6 depending on what they are offering. Over the  
7 course of years, that figure has stayed roughly  
8 flat, which I think means, Carl, that the price  
9 has gone down in market terms, but however one  
10 chooses to measure the impact of inflation on  
11 those prices, in the end, while telephone  
12 companies continue to be providers of last  
13 resort, both a burden that we accept and that is  
14 required of us, the 1FR will continue, at least  
15 for the foreseeable future, to be below cost.

16 Other opportunities and technologies may  
17 surpass that. For example, there are VoIP  
18 companies that are now able to provide VoIP over  
19 a preexisting broadband connection for less than  
20 the \$18 price point that was available before in  
21 our regions.

22 The lack of ability to de-average 1FR

1 prices throughout a region and the need for  
2 universal service fund support for the same  
3 reason, because of the need for de-averaging,  
4 because of the impact of the lack of de-averaging  
5 drive a number of dynamics in our industry, as  
6 they have for the last 10 years.

7 I will stop there and be happy to  
8 entertain questions at the end.

9 MS. WILSON: Good morning, everybody. I  
10 am Sandy Wilson. I am really glad to be here  
11 today to participate in this panel. My first  
12 confession is I am not an antitrust lawyer which  
13 will become evident quickly I am sure as I talk,  
14 but I have been working with Cox since 1994, as  
15 Carl mentioned, when I left the FCC, and in that  
16 time, it's 13 years, it is really remarkable what  
17 Cox has done in terms of getting into the phone  
18 space.

19 When I started, it was a fairly small  
20 cable company providing one service, and it  
21 provided it very well, but it was the delivery of  
22 one-way video services, and now we operate state-

1 of-the-art broadband networks around the country,  
2 and we are providing the triple-play, and we also  
3 have some wireless interest as well. So it has  
4 been a remarkable journey and adventure, not for  
5 the faint of heart, but fortunately, it has a  
6 happy ending.

7           Let me just tell you a little bit about  
8 Cox. We actually think we are the third-largest  
9 cable company. I think we are sort of neck and  
10 neck with Charter there, but we have nearly 6  
11 million residential customer relationships, and  
12 it is interesting, we no longer just describe  
13 ourselves by the number of basic video customers  
14 that we have because, in fact, we have got over a  
15 half-a-million non-video customers, people who do  
16 not take video from us.

17           We have got 3.6 million broadband  
18 customers, and at 2.3 million residential phone  
19 customers, that does make us the tenth-largest  
20 phone company in the country, although we are  
21 obviously still tiny compared to Verizon and  
22 AT&T. I think combined, they have got something

1     like 100 million.

2                   We have gotten into the business sector  
3     as well. We serve about 187,000 business  
4     customers, mostly in the small and medium  
5     business sector.

6                   We are in multiple states. We are here  
7     in Fairfax County. We are in Omaha, Nebraska,  
8     where we duke it out with Qwest; Phoenix,  
9     Arizona; Orange County, California; mostly urban  
10    and suburban areas, although we do serve some  
11    rural communities at the fringes of our markets.

12                  Our market orientation has always been,  
13    obviously, we do serve the mass market. We  
14    always have, but we have long positioned  
15    ourselves as sort of the trusted provider of the  
16    services that we offer, and a real strong focus  
17    on providing high-quality service and also being  
18    "Your Friend in the Digital Age," as one of our  
19    marketing tags, sort of helping consumers  
20    integrate new technology into their lives in a  
21    simple way.

22                  That heavy investment in customer service

1 over the years, we used to take a pounding when  
2 we were a publicly traded company, Wall Street.  
3 Our margins were smaller than most other cable  
4 companies, but we really do think that that  
5 longstanding commitment to serving the customer  
6 made it possible for our customers to consider  
7 taking us as their phone provider, and we have  
8 also heavily invested in our network. I think we  
9 have now spent about \$16 billion since the '96  
10 act in private capital, making sure we have got a  
11 state-of-the-art network.

12 We have been recognized repeatedly for  
13 that quality. I think we have gotten 10 J.D.  
14 Power and Associates Awards for phone alone, and  
15 as I said, it is really what enabled us to get  
16 into the phone business.

17 We are actually celebrating our tenth  
18 anniversary this year in the residential phone  
19 business. We were the first cable company to  
20 role out the triple play. We did that in Orange  
21 County, California, in 1997, and of course, voice  
22 over IP wasn't around then. So we started off

1 with digital circuit switch technology, and in  
2 more recent years, we have added packet switch  
3 technology, but our customers don't know that.  
4 We hope they don't care. Many markets were  
5 actually offering both, but we sell it all as Cox  
6 digital telephone. So it is the same customer  
7 experience, whether it happens to be using packet  
8 switch or circuit switch technology.

9 We are fully facilities-based, and we  
10 have had relatively low usage of unbundled  
11 network elements over the years, and that has  
12 really I think been critical to our ability to  
13 kind of thrive in the marketplace.

14 The question of whether or not customers  
15 wanted a choice in phone and whether or not they  
16 would buy it from their cable company, obviously,  
17 both of those questions have been answered with a  
18 resounding yes. They love our service. Although  
19 we have been in the business for 10 years, we are  
20 still adding customers at a pretty good clip. I  
21 think we added about 370,000 in the last 12  
22 months alone, and we now have more than 25



1 percent phone penetration company-wide.

2           One of the things we tried to chat about  
3 with Carl is what has been the impact of going  
4 into the phone business from just an overall  
5 customer perspective, and it turns out our phone  
6 customers are very loyal. Sixty percent of them  
7 take all three triple-play services from us, and  
8 churn is much, much lower for the folks who are  
9 taking phone. Very interesting.

10           As a result of just the great consumer  
11 reaction, we have committed to offering phone and  
12 broadband throughout our footprint. So we are  
13 now serving or offering telephone and broadband  
14 to virtually 100 percent of our potential  
15 customer base, a little different than I think  
16 what Sean was talking about, others going in and  
17 just targeting certain neighborhoods.

18           We found it is a great product, and  
19 people like the value proposition, and that is  
20 regardless of socioeconomic status.

21           I wish to say we -- I did mention that we  
22 were getting into the business sector. I mean,

1 obviously, we are not. We don't have a national  
2 footprint. We are, at most, a regional player.  
3 We do think that the small- and medium-size  
4 business sector is pretty underserved. So we  
5 have targeted those in particular, and we are  
6 enjoying success there as well.

7 I have been talking on the topic of cable  
8 telephony for as long as we have been doing this,  
9 so 10 years, and for a long time, I was sort of  
10 the lonely petunia on the onion patch, but the  
11 good news is that the other cable companies are  
12 now investing heavily as well, and according to  
13 NCTA, cable telephony is now available to around  
14 100 million homes, and they think that about 12  
15 million are taking it. So that is quite a  
16 ramp-up in a fairly short period of time.

17 NCTA also commissioned a study saying  
18 that residential phone customers could save an  
19 average of \$135 or more a year. Small business  
20 customers could save \$500 or more a year, and the  
21 nationwide savings for those two groups combined  
22 could exceed \$100 billion over the next five

1       years. So that is a great consumer story, too.

2                       How did we get where we are? Obviously,  
3       it was not easy, and it was not for the faint of  
4       heart. It took a lot of time and money and  
5       training. Just as the phone companies have  
6       discovered getting into the video business, the  
7       video business and the voice business are very  
8       different things. We had to scale up. We had to  
9       make sure we had enough economies to scale and  
10      scope within our footprint certainly early on in  
11      order to support the cost of a circuit switch,  
12      and IP technology has made that much easier to  
13      do.

14                     We had to upgrade our network. We had to  
15      harden it. We had to activate the return path.  
16      We just had to put into place all the complex  
17      billing and back-office operations that you need  
18      in order to provide a highly reliable service  
19      that also complies with some pretty different  
20      regulatory requirements than we were used to in  
21      the video world.

22                     I do think that there were also a



1 so lots of discussion about how do you apply  
2 CALEA, how do you apply E911 universal service,  
3 et cetera.

4 I do think that Cox has been very  
5 appreciative, too, that over time, policy-makers  
6 do seem to have come to the conclusion that  
7 promoting facilities-based competition is where  
8 they should devote most of their attention I  
9 think early on, sort of the different modes of  
10 entry that were authorized in the '96 act,  
11 whether sort of resale or leasing unbundled  
12 network elements or building your own network  
13 that are treated a little more on par with each  
14 other, but I think they have understood that it  
15 is important at the end of the day to make sure  
16 that companies are investing in facilities, and I  
17 think their policies have moved in that  
18 direction, and that is a good thing in our view.

19 Of course, we have been chugging along,  
20 sort of rolling out the service and figuring out  
21 how to make it work and make sure it is reliable  
22 and all that, and in the meantime, the landscape

1 has just changed dramatically. Sean's charts  
2 show that. There has just been a ton of change  
3 in this marketplace, and there is little doubt  
4 that it is increasingly competitive. Consumers  
5 increasingly have many, many more choices, and  
6 that is all to the good, although some of the  
7 competitors have exited, and there has been some  
8 stranded investment. I am sure there will be  
9 some customers who aren't sure whether all this  
10 competition has been a good thing for them.

11 I don't think we are entirely there yet.  
12 I don't think we are quite at competition  
13 nirvana, but we are certainly heading there.  
14 There is still some more work to be done. If you  
15 were to say to Cox, what are some of your key  
16 policies or priorities, I think, first, we still  
17 believe that you need to have meaningful  
18 interconnection protections, both for circuit  
19 switch and for IP-based services, although  
20 obviously as the market changes, those can be  
21 looked at, and they are being looked at by the  
22 FCC through forbearance petitions and in other

1 ways.

2           Second, just because we do have this  
3 interesting mix of both circuit switch and IP  
4 technology being used to deliver the same  
5 product, we really think that it would be great  
6 to have a uniform approach to regulating  
7 competitive voice services, regardless of the  
8 underlying technology. I know it will be a  
9 challenge. There's differences between the  
10 federal government and the state governments and  
11 then some pretty interesting and thorny  
12 regulatory classification issues. I still do  
13 think it would make sense to kind of harmonize  
14 things, so that the customer experience is what  
15 drives the regulatory regime, not underlying  
16 technology.

17           Then lastly, I think it is fair enough to  
18 pursue retail deregulation of ILEC services as  
19 long as that is done with caution. I think  
20 policy-makers at both the state and federal level  
21 need to pay close attention to what is actually  
22 going on in their markets. If you have got





1 their day.

2 MR. WILLNER: Steve?

3 MR. PERKINS: Good morning. I am Steve  
4 Perkins with Cavalier Telephone. I thank everyone  
5 for being here, and we appreciate the invitation  
6 to present our views here today.

7 Sandy's last remark reminded me of one of  
8 my former colleague's comment after he left us and  
9 took a job with Comcast, which was you would be  
10 surprised how many problems disappear when you own  
11 the last mile.

12 It has been a great decade for Cox  
13 telephony, and it has been a challenging decade  
14 certainly for those of us who rely on unbundled  
15 network elements' last-mile facilities to provide  
16 service.

17 That is the model that Cavalier started  
18 with nine years ago or so, building fiber  
19 networks, as Cavalier's founders had done in  
20 Michigan, deploying our own switches, having our  
21 own customer care, our own billing, all of that  
22 stuff except that last mile of copper to the home

1 from the CO.

2           Along the way, there's been some changes.  
3 We started out planning to be a voice competitor  
4 in two markets. That quickly changed into being a  
5 voice competitor and a data competitor in more  
6 markets, and as some other players began to see  
7 some of the pitfalls and problems and challenges  
8 of telecommunications, particularly some of the  
9 power companies that had gotten into that  
10 business, we acquired some more operations,  
11 including some very interesting issues when you  
12 stretch fiber across the Peace Bridge into Canada.  
13 There's some interesting issues there.

14           The company has more recently expanded  
15 into offering video services, the triple play. We  
16 found ourselves in an unfamiliar alliance with  
17 Verizon on that issue with franchising.

18           What we offer is not a cable TV service.  
19 It really is an Internet Protocol TV. It is IPTV.  
20 We cobbled together our own system for doing that.  
21 We found a set-top box. We got some code. We  
22 actually recently acquired a company that wrote

1 some of the encryption software, and it really is  
2 a little browser device that sits on top of the TV  
3 and feeds it essentially a DSL type of a product.

4           Where we have gone with that is working  
5 with the copper last-mile facilities, the thing  
6 that Verizon seems determined to leave behind,  
7 that AT&T is perhaps a little bit schizophrenic  
8 about using the fiber-fed nodes and the copper  
9 into the individual premises. We are relying on  
10 all copper out of the CO, and we are pushing a  
11 15-meg ethernet service over that. We are pushing  
12 video over it and voice. We have got a triple  
13 play product that sells for \$79.95 a month. We  
14 are in triple-play because we have to be. That is  
15 where the competitors are going, the big  
16 competitors in the marketplace.

17           Carl mentioned that we have several  
18 hundred thousand customers. It makes us a fairly  
19 big CLEC, but not a very big player in the overall  
20 market, and so we follow the market leaders, where  
21 they are going as bundles, and we have to beat  
22 their pricing because we don't have millions upon

1 millions of dollars for marketing budget. We have  
2 to compete on price and on the quality of our  
3 service, and if we don't price below what others  
4 are offering, we are out of the market.

5 One of the topics that Carl asked us to  
6 address was barriers to entry, regulatory and  
7 otherwise. I have been sort of on the ground  
8 level of entering the voice market and now also  
9 entering the video market, sitting there watching  
10 the switch techs try to get up the SS7 links and  
11 the 911 trunks and just from the ground up  
12 starting to offer voice service.

13 We probably have a little different  
14 perspective on things as a result of that. I  
15 think Grier Raclin mentioned the incumbent's  
16 advantage in terms of an established network, and  
17 it is an advantage. It has been there for a  
18 while. They may have forgotten about it.

19 You go into some new markets, and the  
20 experiences can be varied. When we went into the  
21 voice markets in Virginia, we saw very cooperative  
22 local governments in terms of franchises or

1 rights-of-way agreements, a little haggling here  
2 and there about how the insurance section should  
3 be worded, what the amount of the bond might be to  
4 damage to the rights-of-way, but we were up and  
5 running pretty quickly. Notwithstanding the  
6 better recent experience with Montgomery Country  
7 in the video realm, Maryland as a whole was a  
8 different story on obtaining rights-of-way access  
9 and franchises.

10 We saw a lot more demands for in-kind  
11 services, for outright monetary compensation.  
12 There was a lot more emphasis on what the  
13 competitor should just hand over to the locality.  
14 As a result partly of that, we wound up leasing  
15 dark fiber in Maryland, not building our own  
16 transport network and owning the actual fiber on  
17 the poles or in the conduit like we do in the  
18 Central Virginia and Tidewater Virginia areas,  
19 like we do in Philadelphia.

20 Philadelphia was yet another story. The  
21 interesting issue that arose there was local  
22 organized labor saying this can be easy or it can

1 be hard, you can hire X many of our guys in these  
2 positions, and it is a little far away from the  
3 rarefied world of the Antitrust Division and the  
4 Reagan Building here, but a guy said, "Well, here  
5 is the gun I carry out in the field in case things  
6 get a little rough."

7 I can tell you the former colleague I  
8 mentioned and I were sitting there nicely in our  
9 suits. We thought we haven't really dealt with  
10 that sort of issue before. It is a little  
11 different tack. So there are some interesting  
12 things that come up on a day-to-day basis that can  
13 be challenges in the regulatory realm or  
14 challenges I mentioned from organized labor.

15 Also, we ran into some issues with pole  
16 attachments with the power companies. I think we  
17 moved past that. We actually wound up on very  
18 good terms with the company we litigated with the  
19 most, which was Dominion Power in Virginia. We  
20 wound up acquiring, first through a separate  
21 ownership structure and now in our own company,  
22 their long haul network, and we are on very good

1 terms with them. Again, that was another example  
2 where localities can get into issues with them  
3 because we had somewhat protracted litigation with  
4 the park authority up in Northern Virginia, which  
5 we did manage to resolve recently.

6 In terms of ongoing issues that we have,  
7 they basically stem from what I mentioned at the  
8 outset, use of the incumbent, the incumbent's  
9 last-mile facilities. I often speak solely of  
10 Verizon, but now we are also, in the last year,  
11 out in former SBC land, now part of the new AT&T,  
12 out in Michigan and Ohio.

13 We are transitioning a former UNE-P  
14 customer base onto a facilities-based network  
15 comprised of fiber that we have built in  
16 individual metropolitan areas, and again, the  
17 incumbent's last-mile facilities.

18 The issues with regard to the use of  
19 last-mile facilities are kind of legion. They  
20 break down into sort of operational issues.

21 We have had a variety of issues that we  
22 have discussed over the years with Verizon and

1 AT&T. There's examples up here. I am happy to  
2 speak to any of the individual ones if people  
3 think it would be helpful.

4           There is also the sort of constant  
5 regulatory battles which tend to make things very  
6 uncertain. It drives up costs. It also I think  
7 acts as a barrier to investment in a business  
8 model like the one that we have pursued. I don't  
9 think you will see too many start-ups going out  
10 and trying to use unbundled network elements,  
11 given all of the pressures and the issues.

12           Some things that seem somewhat esoteric  
13 can have a very strong day-to-day impact. A good  
14 example of that is the fiber-fed loops that we  
15 cannot access on an unbundled basis. So certain  
16 developments in the residential market, certain  
17 business customers, we will get a "no facilities  
18 ever response" when we order a loop, and we cannot  
19 serve that customer. You add on top of that the  
20 exemptions that the incumbents enjoy with fiber to  
21 the curb and fiber to the premises. You add on  
22 that, COs that are non-impaired for competition.



1 It starts to really cut down into the potential  
2 customer base that you can serve.

3 I mentioned some of these other issues I  
4 have listed here, and these are, again, pragmatic  
5 things like the private multi-tenant landlords.  
6 In a growing number of businesses, we will see an  
7 issue where a landlord will say, "We don't want  
8 you on the premises. Go away, or we are calling  
9 the police. Your tech cannot enter." Well, if  
10 you are trying to get a circuit up and running or  
11 repair a circuit, that is a problem, and you  
12 really, essentially, can't serve that customer.

13 There is a prohibition on carriers  
14 requiring exclusive access to a premise, but there  
15 is not a prohibition on landlords doing it. So  
16 you end up in a very obvious conflict between  
17 private property rights and your pro-competitive  
18 goals under the '96 Telecommunications Act.

19 There are some other issues I have listed  
20 here in terms of some of the challenges to  
21 facilities-based competition, or to competitors, I  
22 should say. I was reminded in the course of

1 preparing this that the antitrust laws exist to  
2 serve competition and not competitors, but one of  
3 the biggest ones I think is the FCC's emphasis on  
4 intermodal competition.

5           When you decide to abandon other  
6 unbundled access to these existing networks that  
7 have been in place, in some cases, a hundred years  
8 or more, you really just sort of foreclose, cut  
9 off, and abandon potential innovation of the type  
10 that Cavalier has engaged in recently, offering  
11 the higher Internet connectivity speeds over  
12 copper, offering video over copper, and you really  
13 wind up with a sort of dirigiste policy where you  
14 are going to say, "All right. We have got the  
15 people that own the wires into the homes. They  
16 are going to compete, and we will see how it  
17 shakes out," and I would submit that that is a  
18 real challenge to competition, to competitive  
19 pricing, and to innovation. I sum that up on this  
20 last page.

21           I mentioned the first two points, but  
22 also, I have an example here about what has

1 happened to competition in Virginia. AT&T has  
2 recently petitioned to raise their prices above  
3 the incumbent's rates, essentially exiting the  
4 market. AT&T stopped marketing when UNE-P went  
5 away, and I think if you see some of these  
6 regulatory initiatives like forbearance succeed  
7 the way the elimination of UNE-P succeeded, you  
8 will see additional competitors leave the market,  
9 and I think you will end up with a duopoly, and  
10 you will be in a situation where the goals of the  
11 Telecommunications Act are really almost  
12 completely abandoned. You will have essentially  
13 the same people that were in the market before  
14 1996, cable and the incumbent.

15 I mentioned the loss of innovative  
16 services. That is true for businesses as well as  
17 residential customers. I think the CLECs sort of  
18 led the way in these multi-use T1 circuits, Smart  
19 T's or whatever trade names they go under.

20 We have also got a vital role for  
21 facilities-based competitors in the wholesale  
22 market. That is an area where we have been able

1 to compete in the past, providing metro fiber or  
2 long haul fiber more recently, to wireless  
3 providers and to other carriers.

4 We have served wireless, CLEC, and those  
5 are certainly points of potential competition for  
6 the incumbent.

7 There are a couple of things I just  
8 wanted to mention here at the end. I was reminded  
9 by the brave new world of FiOS of what happened to  
10 me in one of the ice storms in Richmond a few  
11 years ago when all the power was out, but the  
12 phone line still worked. It was Christmas Eve,  
13 and we were able to plug my laptop in, get a  
14 dial-up connection, and find out what the road  
15 situation was and leave. Since we were without  
16 power for a week, that was a very good decision.  
17 We packed up our dog and headed for Virginia  
18 Beach.

19 The last point I will mention on that is  
20 that we do provide an alternative to government  
21 and emergency responders. Consider, if you will,  
22 something like a U.S. Coast Guard vessel with a

1 voice-over-IP connection from a competitive  
2 provider. If that competitive provider goes away,  
3 there may not be a good alternative in the wings  
4 for them. There may not be somebody that can  
5 patch together a network the way a small  
6 competitor like Cavalier has to create a solution  
7 for that type of situation.

8           Those are some of the issues that we see  
9 in the facilities-based world, the unbundled  
10 world. Thanks again for the opportunity to appear  
11 here today, and I would be happy to address any  
12 questions.

13           MR. WILLNER: Thank you, Steve.

14           Jill?

15           MS. CANFIELD: I do have slides.

16           Thank you very much for the opportunity  
17 to come here. I am Jill Canfield, and I am senior  
18 regulatory counsel at the National  
19 Telecommunications Cooperative Association. I am  
20 not an antitrust attorney either, nor do I want to  
21 be an antitrust attorney, but I am charged with  
22 making sure our association doesn't violate

1 antitrust law. So figure that one out.

2 I am going to give the rural incumbent  
3 local exchange carrier perspective on some of  
4 these things, where our members' businesses are  
5 going, what is driving it, what are some of the  
6 obstacles they are facing. I have to talk,  
7 obviously, in sort of the aggregate or on  
8 anecdotal kind of information because I don't have  
9 that inside business perspective that most of the  
10 panelists that are here are able to provide.

11 When we discuss the services the carriers  
12 provide and why we really need to look to the  
13 customers, what are their demands, who is best  
14 equipped of all of the potential competitors to  
15 meet them, the obvious place to look we think is  
16 at the young people. They are the early adopters  
17 of technology and the future paying customers as  
18 well, and the habits that they develop today  
19 really determine the future usage of the consumer.

20 NTCA's Foundation for Rural Service  
21 recently did a survey of 1,100 rural youth, ages  
22 14 to 24, on their telecom usage, and we really

1 got some surprising information and some not so  
2 surprising information. What we found is that 9  
3 out of 10 of these young people have a mobile  
4 phone today, and about the same number have  
5 Internet access at home.

6 Three-quarters of those with Internet  
7 access have a broadband connection in their house.  
8 The number with only dial-up has actually  
9 decreased significantly, 14 percent in just one  
10 year. Half of those with a broadband connection  
11 have a DSL connection in their home. Twelve  
12 percent have a wireless connection, and  
13 unfortunately, our survey didn't really get do  
14 they understand that we meant the pipe coming into  
15 the home, not necessarily their home network.

16 Only 8 percent had a cable modem, and I  
17 think that is a feature of the kind of service you  
18 get in rural areas. DSL penetration is high  
19 because you don't see the cable in the very rural  
20 areas.

21 Forty-five percent of these rural youth  
22 receive their video today via a satellite, their

1 DBS providers. Only 20 percent have a traditional  
2 cable video provision in their home, and what we  
3 found from these people is that 14 percent receive  
4 their video today already from a telephone  
5 provider. So that is not far. It is only  
6 6-percent less from those that receive it from the  
7 traditional cable provider for their video  
8 service.

9 As far as what services these rural youth  
10 care about, 88 percent considered their mobile  
11 phone service an essential service, and 77 percent  
12 considered a broadband essential.

13 It is really interesting. I have a  
14 six-year-old, and what does my six-year-old ask  
15 for? A cell phone. He is six. Who is he going  
16 to call? But yet, that is what they want.

17 As for the traditional wireline phone,  
18 that has gone down as far as who considers that an  
19 essential service. A percentage of the rural  
20 youth who considered that essential, it is down 10  
21 percent in just the last year. The wireline  
22 phone, you don't see people asking for a phone in



1 their room anymore. They want a cell phone.

2           Three-quarters of those with a mobile  
3 phone say that they only use a wired phone when  
4 they are in their own home. They don't seek out a  
5 pay phone anymore, or use it even in a friend's  
6 house, and another interesting factor is there is  
7 simply no brand loyalty whatsoever among these  
8 people. They don't even know who their provider  
9 is or how much the service costs, primarily  
10 probably because their parents are the ones buying  
11 it and paying for it, but it shows that you are  
12 not developing a brand loyalty with young people  
13 living in rural America.

14           By looking at this, you can understand  
15 why NTCA's members have really focused in recent  
16 years on capturing the broadband customer.

17           Here we have a little plug for NTCA's  
18 members, who we are. All of NTCA's members are  
19 incumbent local exchange carriers. Half hold  
20 wireless licenses today, whether they are  
21 providing a fixed service in the home where they  
22 can't quite get to the most rural customers or

1 several also hold mobile wireless licenses, the  
2 CMRS licenses.

3           Nearly all of our members offer broadband  
4 and Internet access to at least part of their  
5 service territory, if not the entire territory,  
6 and the number offering video is growing at a  
7 tremendous rate, and I will talk a little bit more  
8 about that in a minute, but we are almost at half  
9 of our members providing video right now.

10           Generally, I would say that our members  
11 do a better job than the larger carriers at  
12 serving rural areas, no offense to Qwest over  
13 there, but I think that we can quantify that in  
14 the most rural communities.

15           This is just to give you an idea of where  
16 our members are. This is a map to show you. The  
17 blue areas there are the metropolitan communities,  
18 and the green areas are the nonmetropolitan  
19 communities. The red here is the service  
20 territory, the territory served by the independent  
21 telcos. What you can see from this is our members  
22 served where the people are not.



1 cities and towns, but a significant minority, 47  
2 percent, say that they have competition for  
3 broadband throughout their entire service  
4 territory, and as far as what it is, what the  
5 competition that concerns them the most, it is the  
6 cable offering voice. That is the biggest  
7 competitive threat right now.

8           How do our members try to capture that  
9 broadband customer? What are their marketing  
10 ploys to do so? Well, the biggest thing they  
11 offer is free installation. We have price  
12 promotions. Bundling is big. About 59 percent of  
13 our members say today they bundle their services,  
14 and I expect that number to increase as we see  
15 more of the cable companies entering the voice  
16 market, and also, one of the factors that drives  
17 the marketing promotions in rural communities is  
18 simply what are they hearing about that other  
19 companies outside of their home market are  
20 offering. They watch TV. They hear about others,  
21 AT&T is offering or Verizon is offering. They  
22 hear about these things, and they expect even the

1 small local provider to offer it as well, free  
2 hardware, free software, nothing unusual there.

3           It is generally understood around NTCA  
4 and I think probably the industry in general that  
5 one of the key drivers for broadband deployment,  
6 especially in rural areas, is going to be video.  
7 It is generally not going to be entering the video  
8 market. It is not a giant money-maker, but you  
9 need it in order to retain your customer. You  
10 need them to have the reason to bring the  
11 broadband pipe into the home and offer them that  
12 triple play, so you retain your customer.

13           A recent survey showed just how many of  
14 NTCA's members are either offering or planning to  
15 offer video. You see right now, it is already at  
16 63 percent.

17           Now, it is important to recognize that  
18 that 63 percent includes traditional coax cable  
19 providers. The rural incumbent local exchange  
20 carriers were allowed to get into the original  
21 cable market. So we do have traditional cable  
22 providers, and probably, that is a pretty

1 substantial proportion of that, but we also have  
2 members who have agreements with the satellite  
3 providers and are providing a DBS service to their  
4 subscribers, and then we have the IPTV product,  
5 the Internet Protocol Television product.

6           Where you see those members who are not  
7 currently offering video, but they are planning to  
8 do so, my belief -- and I think that there is a  
9 good reason for that belief -- is the members who  
10 are looking to get into video and are planning to  
11 do so are looking at an IPTV product, rather than  
12 a satellite product or a cable product.

13           Then you see there that 17 percent there  
14 right now have no plans to enter the video market.  
15 My best guess there is that these are going to be  
16 very rural areas where either they already own the  
17 cable company, so they are not facing voice  
18 competition from the cable provider, or there  
19 simply is no cable provider in their service  
20 territory, and believe it or not, that is a  
21 substantial number of our members who don't have  
22 traditional coax cable providers in their markets.

1           As far as barriers to deployment, you are  
2 probably going to see quite a bit of difference  
3 here when you look at the rural areas compared to  
4 urban areas. Rural areas simply have much higher  
5 deployment cost. The loop lengths are very long  
6 to get to your customer, and when you are only  
7 serving one customer per square mile, that is a  
8 lot of fiber or cable or whatever to run to that  
9 customer, and you are not getting huge returns on  
10 your investment.

11           Long loops. If you are doing a DSL, you  
12 have to upgrade to be able to provide broadband  
13 over those long loops.

14           Obtaining cost-effective equipment is  
15 pretty big at 32 or 33 percent. This is something  
16 that you are going to find simply because of the  
17 size of our members. They lack the buying power  
18 of a major player in the market. So they are  
19 generally the last to get the equipment, and the  
20 equipment they get is going to be more expensive  
21 on a per-subscriber basis. It is simply more  
22 difficult. It is more difficult for small

1 carriers to enter anything new.

2 I am going to give you a couple of graphs  
3 here that just shows how our members have  
4 perceived the barriers to broadband deployment  
5 over the last few years.

6 You see that deployment cost has remained  
7 pretty steady, and it is still the most  
8 significant barrier to deploying broadband.  
9 Regulatory uncertainty has kind of ebbs and flows,  
10 and it really has depended on what are the issues  
11 the FCC is considering at the moment we take the  
12 survey.

13 Inter-carrier compensation got really  
14 huge there for a while. So there was more  
15 concern. Now it has kind of gone off, and I  
16 suspect universal service now is being considered,  
17 although not in a way that is causing our members  
18 a tremendous amount of anxiety.

19 Long loops is a big concern.  
20 Cost-effective equipment, it hasn't changed a  
21 whole lot, but the one thing that really has  
22 changed is the issue of customer demand. At one



1 time, that was the biggest obstacle to deploying  
2 broadband in our members' eyes was the customer  
3 demand. They could build it, but they weren't  
4 coming, and you see that that has decreased  
5 significantly over the last few years. That  
6 customer demand is now there.

7           Some of the key issues I would say for  
8 our members in making sure that they are able to  
9 survive and compete in the marketplace, not just  
10 in providing voice service, but also your  
11 broadband, your video, offering that triple-play,  
12 and also with the wireless market. We have a  
13 significant number of our members who are in the  
14 wireless business.

15           Universal service. I was asked to give  
16 sort of an explanation, just in case there are a  
17 couple of people who aren't terribly familiar.  
18 Everybody, on your phone bill, you usually have a  
19 thing that says payment to the universal service  
20 fund. Everybody pays in, and it is a policy goal.  
21 It is in the '96 Act and even before that, that  
22 everybody everywhere in the country should have

1 access to comparable services at comparable  
2 prices. So people living in lower cost areas,  
3 like all of us, pay into the fund, so that people  
4 living where my members serve don't have to pay  
5 the true cost of getting service there because it  
6 would be cost prohibitive. So it helps even out,  
7 so everybody gets the same service for about the  
8 same cost.

9 One of the major issues right now -- and  
10 this is one that I am spending actually most of my  
11 time right now, believe it or not -- is access to  
12 video content. This is huge because it is driving  
13 the broadband deployment, and our members see that  
14 they need to be able to offer that triple play.

15 You see a lot of what we call "tying  
16 arrangements" with your vertically integrated  
17 cable companies where if you take one station that  
18 you want that is the must-have programming, you  
19 have to take their 12 other stations as well, and  
20 by the way, it must be on your basic tier, and you  
21 must pay per subscriber. So they have got all of  
22 the power, the negotiating power we as independent

1 telephone companies have not. It is take it or  
2 leave it.

3 Compensation for use of the network, that  
4 is the inter-carrier compensation issues there.  
5 Most of the traffic goes over the wired network at  
6 some point or another. Who is paying for that if  
7 we no longer have the wire line connection in the  
8 home?

9 Regulatory certainty is a big deal.  
10 Where is our business going to be five years from  
11 now? Where are the revenue streams going to be?

12 Then one that I think hits the small  
13 carriers particularly hard is the unfunded  
14 mandates that come out of the regulatory bodies.  
15 Just to give you an example, CPNI, because we have  
16 a deadline that is potentially looming, Customer  
17 Proprietary Network Information, the companies  
18 have to put a whole bunch of new protections in  
19 trying to protect the privacy of your calling  
20 habits.

21 It sounds like a great idea. The  
22 regulations, there's a lot of them, a lot of

1 things that need to be complied with, and when you  
2 are a company with less than 10 employees, though,  
3 having a whole set of new regulations for maybe  
4 2,000 subscribers, it is a little bit much, and it  
5 is very, very expensive to comply, and we have  
6 things like CALEA or E911 mandates that simply  
7 won't work in rural areas, but they are being  
8 employed across the board without consideration  
9 for whether or not the technology exists, whether  
10 the rural companies can get there, and it becomes  
11 very difficult for our members to survive and  
12 compete, especially in that wireless arena.

13 With that, I am going to pass off, and I  
14 welcome your questions in a little while.

15 DR. WILKIE: Hi. I am Simon Wilkie, an  
16 economist. Unlike Hal on the first panel, I think  
17 my role here is to annoy everybody else on the  
18 panel.

19 I just wanted to tell a quick story based  
20 on the Cavalier experience. I didn't quite  
21 understand before the interconnection between the  
22 '96 Act and the right to bear arms, such a key

1 part of getting entry, but I will tell a story.  
2 Back in Australia, my brother started an  
3 independent trucking company, and he bid on a  
4 contract and ended up with broken arms. The next  
5 day, he went out and hired a driver who was known  
6 as "Shotgun Steve." So, apparently, this has a  
7 long history in terms of getting entrance into the  
8 market. It is not just telecom.

9           What I want to do today is just say what  
10 we need is more economics, better economics, more  
11 economists at the DOJ. That is not a surprise  
12 that these are fundamentally really hard issues,  
13 and that the impact of intermodal competition and  
14 bundling has made the analysis trickier, and any  
15 economist who is selling a panacea is selling you  
16 a bill of goods.

17           What I want to do is just run down a  
18 quick overview of some fundamental antitrust  
19 principles that I think are important here, how  
20 they are being impacted by these technology  
21 developments and strategic developments, and we  
22 will go through a couple of concrete examples of

1 why I think this is making life hard.

2 We shouldn't have a rush to regulate. We  
3 shouldn't have a rush to deregulate. We should  
4 proceed with a preponderance of caution. I am not  
5 going to say what the right answer is here because  
6 I don't know it, and nobody else does.

7 The type of issues I am going to talk  
8 about are, one, what is the impact of bundled  
9 products, touched on by the earlier speakers, what  
10 is happening with market segmentation, and what  
11 are the barriers to entry, and then I have got  
12 just one quick throwaway comment on the role of  
13 wireless.

14 Traditionally, the FCC and even the  
15 structure of the panels today has been based on  
16 traditional market definition, which is that we  
17 have a telephony product, we have a TV product,  
18 and we have a wireless product, and the FCC is  
19 essentially structured that way in terms of the  
20 bureaus, but once we had bundled products, then  
21 what is the good, and moreover, what is the  
22 definition of market dominance, how do we do a

1 test, what is the SSNIP [small but significant and  
2 nontransitory increase in price] test with the  
3 bundled products when I have competitors selling  
4 different bundles with different elements in it.  
5 Some parts, I can unbundle and roll my own. How  
6 do we judge competitive prices and things like  
7 that, these become trickier issues.

8           Also, as mentioned by several panelists  
9 today, consumer behavior changes in significant  
10 ways as we move from unbundled markets to bundled  
11 markets.

12           One of the key issues here I think also  
13 affects market definition is the difference  
14 between telecom services and access to those  
15 services via a wireline or a cable loop. We can  
16 think of it as being different. In many cases,  
17 they are actually different products, I am going  
18 to argue.

19           Market segmentation makes the analysis  
20 difficult. Price discrimination makes the  
21 analysis difficult. Geographic market definition  
22 and deployment is very important. When we look at

1 national averages, these tend to be very  
2 misleading, as was mentioned before, that the  
3 rural markets might be completely different from  
4 certain urban markets. The differences can be  
5 quite dramatic across short distances.

6           Market definition. What is the product?  
7 Are we talking about access, or are we talking  
8 about the services? One argument that we  
9 frequently hear is wireless substitution. What we  
10 have seen is that there is a vast migration of  
11 minutes from landlines to wireless lines. We have  
12 also seen a drop in the number of lines, but when  
13 economists do careful econometric studies of the  
14 degree of substitution and when we look at the  
15 access line, is there any evidence that the  
16 wireless substitution is sufficient such that it  
17 is in the same relevant product market, formally  
18 in the DOJ sense. They all say no.

19           Now, it might be that they all say,  
20 "Well, it is getting close to yes," but it is  
21 still no. It might be that we are at that point  
22 with these recent increases that have been



1 reported, or it might be that those are data  
2 errors. We don't know at this stage, but even  
3 though we have the vast migration of minutes, we  
4 don't see any ability to constrain access pricing.

5 Similarly, we have a similar experience  
6 with entry via VOIP, as mentioned. If we looked  
7 at switch versus IP telephony product, cable  
8 entrants have had experiences using both  
9 technologies, and VOIP in particular has led to  
10 rapid deployment in the last few years. So we  
11 have had an explosion in VOIP uses, and as was  
12 mentioned, anybody with a broadband connection can  
13 run VOIP over it, unless it is being blocked by a  
14 provider, which has been known to happen.

15 So, again, I think what we have got there  
16 is the phenomenon of minute substitution, but VOIP  
17 can't provide access substitution because you need  
18 the access line still.

19 One thing that is interesting that the  
20 DOJ should undertake would be a systematic study  
21 of the number portability data. That is, I have  
22 seen data that suggests that there are significant

1 differences in number portability for the same  
2 cable company. Think of a company like Cox, and  
3 it is not Cox that I am talking about, that has  
4 offered both a POTS [plain old telephone service]  
5 product and in different geographic markets a VoIP  
6 product. If it was a full substitute for access  
7 to the original line, then people would port their  
8 number. Right?

9           What you find is that number portability  
10 data is dramatically different, in particular, for  
11 some of the reasons mentioned like E911, emergency  
12 backup, the ability to just keep receiving calls  
13 on your old phone. People tend to keep the old  
14 access line. What they are doing is substituting  
15 the minutes.

16           So, therefore, if we say, "Oh, look at  
17 the number of VOIP lines that are out there," we  
18 can safely deregulate the market, then that is not  
19 true for the access market. Prices will rise. I  
20 am not saying that is a good thing or a bad thing.  
21 I am just saying don't tell me that that is  
22 competition if it is going to constrain prices.

1 It is not necessarily true.

2 Now, it might be that having prices rise  
3 is a good thing in particular when you have got  
4 issues with geographic de-averaging and the cost  
5 subsidies that have been mentioned earlier. So I  
6 am not saying what the welfare conclusions are. I  
7 am just saying don't tell me that this is going to  
8 constrain the price of access.

9 So premature deregulation could harm  
10 consumers in these markets, and that leads to my  
11 next point which really isn't a new point. This  
12 is a very old point. Wall Street understands  
13 this, and a lot of this industry, the entry has  
14 the characteristics of a natural monopoly; that  
15 is, that there are large sunk costs. These sunk  
16 costs are changing dramatically over time, but  
17 they are sunk. They are not recoverable.

18 So Verizon is spending we heard \$23  
19 billion on its FiOS project. It is not going to  
20 say, "No, we don't really like this market. I am  
21 going to take the glass back out of the ground,  
22 sell it back to Corning, and maybe turn it into

1 stemware," not so likely.

2           These are the fundamental characteristics  
3 of the industry. Now, what is driving Verizon's  
4 decision, back when I worked for those guys, for  
5 years the number that we got for household pass  
6 was \$2,900. That was the average cost of doing a  
7 deployment. I see many people nodding their heads  
8 because that number was around for 10 years, and  
9 it never changed.

10           Then we had the technological development  
11 of passive optical networks, and Verizon went  
12 ahead bit the bullet and realized that with scale,  
13 it could get that number down to \$700. So that is  
14 really the fundamental thing. It is that  
15 technological change that is driving that decision  
16 to entry. \$2,900, your stock goes in the toilet.  
17 \$700, maybe you can sell the story.

18           However, it is still a \$700 sunk cost.  
19 That is \$700 you are going to get to recover. So  
20 this leads to what I think Craig Moffett has  
21 called the "dumb pipe paradox," that if I have two  
22 pipes selling access to the same home and they are

1 both selling a homogenous product and we have  
2 price competition, it should drive price down to  
3 marginal cost. One of these guys is not going to  
4 recover the customer, and they are not going to  
5 recover their cost. Right? That is the nature of  
6 the equilibrium.

7 I have six copper loops coming into my  
8 house. I use one. They are all owned by AT&T,  
9 and it is not so much an information highway,  
10 unfortunately, as a super highway. I asked them  
11 to remove the five that I don't want, but they  
12 wouldn't.

13 If there were six different competitors  
14 selling that cooper loop to me, the price would be  
15 zero because it is all sunk cost. However, there  
16 is only one. So the dumb pipe paradox is if you  
17 really had full-blown competition for homogenous  
18 product, then somebody is going to lose money.

19 These guys are not dumb. So what that is  
20 telling us is that is not the equilibrium. So,  
21 therefore, they are going to do something else.  
22 They are going to differentiate the product and do

1 market segmentation. That is the only way you can  
2 recover the cost.

3           So the way that the 1996 Act was worded  
4 was let's let these guys into each other's  
5 markets, and then we can replace regulation with  
6 competition. It is fundamentally flawed. It is  
7 not logically true. It is an empirical question.

8           What does this tell us? One way that  
9 these guys differentiate the products, of course,  
10 the first way is to do bundling. Before if the  
11 ILECs weren't able to offer video and the cable  
12 guys could offer the triple-play, that gives them  
13 a strategic advantage and a differentiated  
14 product.

15           So here, the traditional economic  
16 analysis, the traditional bundling literature of  
17 an economist, it is almost entirely worthless. We  
18 need new economic models. This is hard work for  
19 us guys in academia. We really should put our  
20 graduate students on this.

21           The more interesting stuff is too hard  
22 for geezers like me. The more interesting stuff

1 is actually coming from the guys in the industry,  
2 if you listen to what they are telling you. So  
3 the economic model says that we should be bundling  
4 substitutes, the more differentiated the products,  
5 then we can raise the stand-alone prices. That is  
6 not really what we are seeing.

7 We should see significant bundled  
8 discounts compared with the competitive price for  
9 the stand-alone products. It was mentioned that  
10 Charter offers a discount. It is not a discount  
11 vis-a-vis if I went out and rolled my own bundle  
12 by getting the lowest price for each of the three  
13 different inputs.

14 What is really going on here? The  
15 industry tells us that it has reduced churn. You  
16 have bundled these products, and people churn  
17 less. If you churn less, that means you are with  
18 the company longer. That means the consumer has a  
19 higher net present value. That means your stock  
20 price goes up.

21 What are the welfare consequences of  
22 that? We don't know because we don't have a good

1 model of churn. So the increase in the net  
2 present value of a customer, that is, even if  
3 there is no change in prices, no change in  
4 revenues, this is a more valuable strategy to the  
5 companies because churn goes down.

6           What is the correct way to think about  
7 this? Well, there is a model that was developed  
8 by Roy Radner. It is a very technical paper  
9 called "Viscous Demand." He actually developed it  
10 back when he was working for AT&T, but published  
11 it years later.

12           The idea is the following, that consumers  
13 aren't behaving like economists assume. We don't  
14 always shop around for the lowest price. I may  
15 randomly look at my bill, and usually, it is  
16 something that annoys me, like there is some  
17 event, it is a service outage, how much am I  
18 paying for this crap, or else I am going to move  
19 my location. Something has to trigger me. Some  
20 event has to happen for me to go look at my bill,  
21 and then the annoyance factor has to be so high  
22 that it overcomes the transaction cost of me



1 actually going and changing the service.

2           In that case, you have an equilibrium  
3 with price dispersion, different prices. So what  
4 does bundling do? Bundling increases that  
5 threshold. Now I have got to switch three  
6 services out rather than one. So that means the  
7 customer is more sticky or more viscous. That  
8 means we are going to get greater price dispersion  
9 in the equilibrium, greater product  
10 differentiation, and so people in the DOJ and the  
11 FCC, we thought about using this model and  
12 extending it, but it is really a small part of  
13 economics because it is not the standard model,  
14 but I think it is really the right way to approach  
15 the problem, antitrust with viscous consumers or  
16 viscous antitrust.

17           This means that the welfare analysis is  
18 tricky. Us academic guys have been lazy. We  
19 haven't really done the work of what the correct  
20 welfare test is in these type of models.

21           So what does this mean? As I said, the  
22 equilibrium has to involve segmentation. The

1 segmentation, as Sean mentioned, could be  
2 geographic, which is that you enter a particular  
3 part of the geographic market, "I am just going to  
4 go after these high-value customers, for instance,  
5 and not go after the others, and then I am going  
6 to try and capture and control this 20 percent of  
7 the market," or it could be in product dimension.

8           So what we should be expecting to see is  
9 this happening in the equilibrium. This leads to  
10 an anomalous problem, which is you can have the  
11 equilibrium, all prices can rise. That doesn't  
12 necessarily mean consumer welfare goes down  
13 because you have got the increase in  
14 differentiation. So the welfare is not obvious.

15           Can this happen in practice? Is it just  
16 abstract theory? In this industry, we find it  
17 happening all the time. There is a nice theory  
18 paper on competition increasing prices by Yongmin  
19 Chen at University of Colorado-Boulder and Mike  
20 Riordan, former FCC chief economist and DOJ chief  
21 economist. They have a nice theory paper on this.

22           Yongmin has got a recent paper with Steve

1 Savage, also at Colorado, where they looked at  
2 broadband penetration. They looked at what  
3 happened to cable prices when actually Qwest put a  
4 DSLAM into a CO. They find increased  
5 differentiation and prices going up.

6           The Goolsbee and Petrin paper, which  
7 studied the impact of DBS competition on cable  
8 pricing, in the working paper version which is  
9 more expansive than the version that was  
10 published, they also found this result that you  
11 got rising basic service prices and increased  
12 competition for the high-value NFL ticket-type  
13 customer.

14           Finally, we just had this example where  
15 we introduced pricing flexibility in California,  
16 and lo and behold, what happened, we got greater  
17 price dispersion, and the prices of things like  
18 inside wiring and that type of stuff that were  
19 de-regulated all went up.

20           So what can I say today in terms of  
21 policy conclusions? What I am saying is we need  
22 more research from my part of the world, but what

1 are the three barriers here? They are the same  
2 things that they have always been. We have heard  
3 it today over and over and over again.

4 Interconnection. The incumbent can delay  
5 interconnection to delay entry. It can raise  
6 their rival's cost. Even though they are under an  
7 obligation to interconnect, it can take 18 months  
8 to 2 years and millions of dollars in litigation  
9 to get the deal done. So this is raising your  
10 rival's cost.

11 On the flip side, as we have heard, the  
12 telcos have the same problem with getting access  
13 to essential programming. This is a fundamental  
14 problem. You have got an essential input that the  
15 other guy needs.

16 The second big issue I think is that the  
17 FCC has targeted this issue of exclusive  
18 agreements with multiple-dwelling units, but out  
19 in the west, there is a similar agreement which  
20 also applies to telecom, which is exclusive  
21 provider agreements with these master-plan  
22 communities.

1           Some of these master-plan communities are  
2 enormous, thousands, tens of thousands of  
3 McMansions, and the developer signs a deal with  
4 one provider to be the exclusive provider for that  
5 new community. That means the entrant can't get  
6 in because the developer might seal up the  
7 conduit, for instance. So this clearly is, by  
8 definition, a barrier to entry.

9           In return, maybe you are getting  
10 accelerated deployment. So, again, the welfare  
11 analysis is tricky, but I think this is one thing  
12 that is clearly identified as a barrier to entry  
13 that the agency might want to look at.

14           Finally, there are issues related to the  
15 old chestnut special access, which as we heard  
16 from some of the other panelists, even if you are  
17 providing your own last mile, then the  
18 second-to-last mile, the interconnection between  
19 the COs, you have got to buy that from the  
20 incumbent. Again, that gives the incumbent  
21 ability to raise rival's cost. Traditionally,  
22 those prices were regulated. The FCC started to



1 cost prohibitive in the sense of offering a  
2 substitute for the wireline product. Very often,  
3 it is a complement. It is certainly a complement  
4 in my household.

5 In terms of broadband, we have a long  
6 history of wireless entrants, entering and then  
7 failing. There is a slide Stag Newman put  
8 together for the FCC Technical Advisory Committee  
9 of this, and tracking entry and then indeed, exit  
10 from the market.

11 The AWS auction, the last big auction the  
12 FCC had, we had no significant new entrant getting  
13 into the market. We have got the 700 megahertz  
14 auction coming up. This is sort of the last best  
15 opportunity to get a new broadband entrant in  
16 there if we feel that that is important, and so  
17 one proposal is to do what works where we know  
18 when we had a similar problem in 1994, we imposed  
19 spectrum caps, just a limitation on what fraction  
20 of the wireless spectrum anybody could hold.  
21 After the auction, you can relax the caps, which  
22 is exactly what the FCC did in that case. Any

1 merger or transaction would go through DOJ review.  
2 So the problem with not having a cap is  
3 essentially you are allowing the incumbent to buy  
4 the entrant through the auction process,  
5 short-circuiting any DOJ review.

6           If you have the spectrum caps, I am going  
7 to say that no one firm can own more than a  
8 quarter of the spectrum in any particular  
9 geographic area or purchase that amount in the  
10 auction, then an entrant enters. Then if the  
11 incumbent wants to acquire the spectrum, that is  
12 fine, but it will go through a review. So that  
13 might be one way to address that issue. However,  
14 I think as clever as that is, the horse has left  
15 the barn.

16           So that is it. The market is evolving.  
17 There are interesting things going on in  
18 technology and also just the strategy. This makes  
19 the world much more complicated than any economist  
20 will tell you. So I think it is much more  
21 interesting to hear from these guys about what is  
22 going on in the world, so that I have got better



1 sources of information.

2 Thanks.

3 MR. WILLNER: All right. Thank you,  
4 Simon.

5 We have a few minutes left for  
6 questioning, and let me take the moderator's  
7 privilege of asking a question first to a couple  
8 of the panel members.

9 We have up on our platform the two great  
10 rivals in Omaha, Cox and Qwest. So I would be  
11 interested in hearing from both of you, your  
12 perspectives on what impact the competition  
13 between Cox and Qwest in the Omaha market has had  
14 for consumers, what sort of benefits they  
15 received, and also what has been the impact of the  
16 FCC's grant of forbearance in that market, if it  
17 has affected consumers or competition positively,  
18 negatively, or not at all.

19 MS. WILSON: I am happy to take a stab at  
20 it. Omaha is a very interesting market because  
21 U.S. West, I believe, built a cable system many  
22 years ago. So we have actually been going head to

1 head on the triple play for some significant  
2 period of time.

3 MR. LINDSEY: It is embarrassing to  
4 admit, but we actually built it originally as a  
5 video dial tone platform.

6 MS. WILSON: But turned it into a cable,  
7 as I recall.

8 MR. LINDSEY: We did.

9 MS. WILSON: Right.

10 I can remember early days when I joined  
11 the company at Cox that it was a significant  
12 entry, and of course, there is DBS out there as  
13 well. I am sure it made us better there, prepared  
14 us for phone and broadband. Cox is in that  
15 market, and I think consumers, I would say, have  
16 benefitted.

17 We did have an interesting discussion  
18 about forbearance and what exactly should the  
19 commission forebear from, and I think the ultimate  
20 result that the commission came up with was fine  
21 with Cox, but again, we are a facilities-based  
22 company. What the commission did was forebear

1 from the requirement to sell any number of UNE-Ps,  
2 including unbundled loops, but left in place as  
3 sort of the physical interconnection requirements  
4 of 251(c)(3).

5 So I think that there are other  
6 competitors in the market who are not happy with  
7 that result, but I don't think it has necessarily  
8 impacted Cox.

9 MR. LINDSEY: I think it is maybe  
10 instructive to keep in mind that when Qwest  
11 originally filed its forbearance petition, the FCC  
12 handled the forbearance petition by examining wire  
13 center by wire center, which is a nice way to  
14 examine the way that telephone companies and  
15 telephone competition used to exist, and the FCC  
16 granted the 24 wire centers that we requested  
17 forbearance from, from regulation with respect to  
18 those wire centers.

19 The FCC granted forbearance with respect  
20 to nine of them, and unfortunately, unfortunately,  
21 from Qwest's perspective, not only was the 9  
22 substantially less than the 24, but they are kind

1 of patchworked throughout the City of Omaha, which  
2 really has prevented us from utilizing that  
3 forbearance to make significant market-wide or  
4 MSA-wide kind of marketing and pricing initiatives  
5 of that sort.

6 We are pursuing other forbearance  
7 petitions in other locations, but we don't think  
8 that there is really any question that the City of  
9 Omaha is subject to lots of vigorous competition,  
10 and I think I am in the position of having to at  
11 least admit that Cox I think has more customers in  
12 the City of Omaha proper than we do.

13 MR. WILLNER: We have heard a fair amount  
14 both from Qwest and from Dr. Wilkie today about  
15 the issue of wireless substitution and its impact  
16 on the market, and I was interested in addressing  
17 the same issue to the rest of the three who have  
18 not dealt with that in as much detail in your  
19 presentations.

20 Are your companies seeing much wireless  
21 substitution, and if you are, what are you doing  
22 to respond to it?

1 MS. CANFIELD: I will start, I guess.

2 Across our member service territories,  
3 again, what you said over there, I don't know that  
4 it is a complete substitution for those who  
5 already have the wireline phone in their home, but  
6 it is definitely a complement. It is taking  
7 minutes of use away.

8 But as you see, the younger people coming  
9 up, they are going directly mobile. It is not a  
10 substitution. They are just never starting with  
11 the wireline phone, and that is where we see our  
12 members going to that broadband pipe. They feel  
13 that they need to make themselves relevant, if you  
14 will, on a going-forward basis, and the way they  
15 do that is to offer the broadband pipe into the  
16 home. So it is not just a wireline phone anymore.  
17 It is the whole service of telecommunications, the  
18 whole suite of services.

19 MR. WILLNER: Steve?

20 MR. PERKINS: I don't think it is a  
21 substitute from our point of view, partly for some  
22 of the reasons Simon mentioned. I think younger

1 people, people in apartments perhaps might use a  
2 wireless-only option for their telephone, but like  
3 was just mentioned, most homeowners or customers  
4 we have will view the line to the house as  
5 something they need, that access line.

6 One of our triple-play customers, they  
7 put all three services on that, and they will use  
8 wireless to substitute minutes and they will use  
9 wireless for other reasons.

10 I look at my own personal experience.  
11 When I had a house in Richmond, we had three  
12 active telephone lines in the year 1996 to 2000 or  
13 so. One was a dedicated fax line. One was a  
14 business line, and one was a personal line. Well,  
15 my wife and I now each have wireless phones from  
16 our employers. We don't need that at home. We  
17 have an electronic fax number, an e-fax number, so  
18 we don't need that line, but we still have an  
19 access line because we need that to deliver our  
20 DSL and our telephone. So I think that is where  
21 it is going. It is not a substitute, but it has  
22 perhaps a profound impact on the number of wire

1 lines that you track.

2 MR. WILLNER: Sandy, how do you see this?

3 MS. WILSON: I think there has been a ton  
4 of change in the wireless world, and people tend  
5 to think of it, obviously, principally at the  
6 moment as a voice service, but it is obviously  
7 growing rapidly into being a data provider as well  
8 as a video or content provider. So I think we are  
9 probably starting to think of it more as a  
10 mobility issue as opposed to a wireless phone  
11 issue, and obviously, we are very interested in  
12 it, as is anybody who is in the marketplace, what  
13 role is mobility playing in people's decisions to  
14 buy your services.

15 MR. WILLNER: Luin, do you have a  
16 question you want to ask?

17 MR. FITCH: Well, I would like to ask  
18 Steve. John Thorne from Verizon this morning  
19 talked about how retiring the copper plant offsets  
20 some of the costs of laying out his FiOS network,  
21 and I was just wondering to what extent that  
22 phenomenon is going to limit the potential for

1 copper-based -- you know, third wires into the  
2 house as fiber optics gets more popular.

3 MR. PERKINS: I think it cuts the legs  
4 right out from under us, literally.

5 We have got a petition at the FCC on  
6 copper retirement, along with a lot of other  
7 carriers. We need to preserve that copper line  
8 into the home.

9 As I mentioned, that is a line-powered  
10 access line, too. It has got a lot more  
11 reliability, a lot more durability to my mind than  
12 the fiber does. If you have got these powered  
13 systems out there, they have got maybe four, maybe  
14 eight hours of battery backup. If you have got a  
15 big power failure, you start looking to some of  
16 the other events unfolding in the world.

17 Whether or not you believe there is  
18 climate change, if there is more variability in  
19 weather and more power failures, you are going to  
20 be deploying more fiber at a very bad time. So  
21 there are some interesting issues down the road  
22 with that. We think it is something that was



1 built over decades at ratepayer cost, and it  
2 should be preserved as an option for consumers.

3 MR. WILLNER: Simon, we have talked a lot  
4 today about the intermodal competition in the U.S.  
5 and the movement toward a more facilities-based  
6 model of competition here. Now, that is not the  
7 same thing that is done everywhere in the world.  
8 I know, for example, the European Commission has  
9 recently announced telecom policies that are going  
10 to rely very heavily on wholesale competition as a  
11 basis for providing the retail deregulation, and I  
12 wanted to ask for your perspective on those  
13 alternatives.

14 Over the long run, what do you think is  
15 going to serve consumers better, the  
16 facilities-based model or the more wholesale  
17 competition-oriented model?

18 DR. WILKIE: I think the reality is that  
19 the European market structure is different to the  
20 U.S. in that the U.S. is special in that it has  
21 such a widespread deployment of cable. So we have  
22 the luxury of a second facilities-based

1 competitor.

2           In the long run, more facilities-based  
3 competitors I think would be better. That would  
4 be the more effective mechanism because as long as  
5 it is wholesale, essentially the service offerings  
6 are limited by the one infrastructure, and the  
7 retail prices are ultimately dependent on the  
8 wholesale price.

9           But in cases where, as I said, the  
10 paradox is that you can't have an equilibrium that  
11 supports many facilities-based entrants if you  
12 have large sunk costs. So I think there is  
13 actually a role for both. I think we overreached  
14 in '96, but there is a preference for  
15 facilities-based competition with wholesale where  
16 it is needed.

17           MR. WILLNER: I did promise to provide an  
18 opportunity earlier for audience questions. So  
19 let me ask at this point, before we wrap up, if  
20 anyone in the audience does have a question. If  
21 so, if you could raise your hand, someone can  
22 bring you a microphone. Is there anything for

1 this panel?

2 [No response.]

3 MR. WILLNER: No?

4 Luin, would you like to ask another  
5 question?

6 MR. FITCH: Well, I would like to ask  
7 Simon. You mentioned the deregulation in  
8 California, and there has been substantial  
9 deregulation of retail telephone services, but  
10 many jurisdictions maintain tariffing  
11 requirements, published prices, rate averaging,  
12 which I think Sean suggested inhibited the  
13 incumbent's ability to match cost and prices.

14 To what extent do you think the  
15 continuation of regulation impedes the development  
16 of a real full market competition?

17 DR. WILKIE: That is a tough question. I  
18 think that in a sense, the role of de-averaging,  
19 there is a tension there between the universal  
20 service goals. So, essentially, de-averaging  
21 means that you want prices to go up in the more  
22 sparsely inhabited areas. That is also the areas

1 where you are not going to have competition  
2 because the economics of entry are not viable.

3           So tariffing and imposing  
4 nondiscriminatory requirements causes a tension,  
5 which is that you are limiting the ability of the  
6 incumbent to respond where there is competition,  
7 but inhibiting their ability to raise prices where  
8 there is no competition.

9           So, again, I hate to keep saying this,  
10 but the welfare effects are ambiguous, but that  
11 type of requirement would encourage entry, but  
12 would the entry be just regulatory arbitrage and  
13 would it be socially beneficial is a different  
14 question.

15           I am generally in favor of greater  
16 de-averaging.

17           MR. WILLNER: Do any of the members of  
18 our panel have questions for each other?

19           Sean?

20           MR. LINDSEY: One for Sandy.

21           Does Cox offer wholesale services to  
22 other carriers like Cavalier in the City of Omaha?

1 MS. WILSON: In Omaha? I don't believe  
2 so, but I am not sure.

3 MR. LINDSEY: I have one question, and  
4 maybe it is because I am still stuck in an old  
5 paradigm, but I stumble over the idea that  
6 wireless services are not directly competitive  
7 with wireless access. I think I paid close  
8 attention to the arguments that have been  
9 presented, but at some point, assuming the trend  
10 that was reflected on that chart I put up  
11 continues, probably even by now, since we are at  
12 the cusp of December of 2007, we are probably at  
13 16 to 17 percent of the homes in the United States  
14 no longer have any wireline access. They have  
15 replaced that entirely with wireless. At what  
16 point do we decide that that is real competition?

17 DR. WILKIE: The point is it is  
18 empirical.

19 MR. LINDSEY: And substitutional  
20 competition.

21 DR. WILKIE: And substitutional  
22 competition, right.

1           So the point is when the degree of  
2 substitution is high enough that it impacts  
3 prices, so that is purely an empirical issues.

4           MR. LINDSEY: But I think the panelists  
5 really reflected that prices -- I would suggest  
6 that cable and wire line aren't directly competing  
7 either since the prices haven't moved down.

8           DR. WILKIE: Right. So here is the  
9 experiment. In markets where you have -- we have  
10 examples in New York and Ohio. You count wireless  
11 competitors. You say the market is competitive.  
12 You deregulate based on competition. Access  
13 prices go up. So that tells you that the data is  
14 telling us that wireless isn't able to constrain  
15 the access price.

16           So the question is it is not what the  
17 level it is, but it is the level of  
18 substitutability, how much are people going to  
19 switch, what is the substitution. That is really  
20 the key driver. So it is not so much as level as  
21 change.

22           Now, obviously, if that was to increase,

1 then the greater the percentage share that has cut  
2 the cord, the more market segmentation you are  
3 getting. So the question is do they eventually  
4 become two different products for a different  
5 reason because it is serving different parts of  
6 the market.

7           It is interesting. I am a little weary  
8 of these numbers of showing this rapid increase  
9 because, as we saw with the recent FCC tabling of  
10 a decision the other day, when you talk about a  
11 percentage, then you have a numerator and a  
12 denominator, and the FCC isn't always the best at  
13 calculating, not in a consistent way.

14           So we actually don't know how many  
15 households there are.

16           MR. PERKINS: Well, don't you also have  
17 to look at the services that are being delivered,  
18 too?

19           You know, we all have dropped calls or  
20 choppy calls on our wireless phone, but if I have  
21 FiOS or I have Cavalier's IPTV and I am Joe  
22 Sixpack, I don't want to necessarily have that

1 phenomenon with the Fiesta Bowl I am watching, you  
2 know, the signal drops out, comes back, you miss a  
3 key play, or if I am watching the latest replay of  
4 a Balanchine ballet perhaps or whatever it is.

5           So, again, it is not the level. It is  
6 the degree of substitutability, and it may be the  
7 degree of substitutability is much higher for  
8 young people who have grown up with wireless being  
9 their first experience.

10           As I say, all the studies say the degree  
11 of substitutability is increasing, but we are not  
12 there yet. It may be that we are there today with  
13 the new data. Nobody has done the study yet.

14           MR. WILLNER: I think we are coming to  
15 the end of our time now, but I do see one question  
16 in the back. So please introduce yourself.

17           ATTENDEE: Thanks. I appreciate the  
18 opportunity. I am Jim Kohlenberger. I am with  
19 the VON Coalition.

20           I really enjoyed Sean's presentation  
21 because I think it highlighted some of the  
22 exciting things that are happening with nomadic



1 voice over IP and some of the things that voice  
2 over IP has happened, but I think you indicated  
3 that there weren't necessarily numbers on where  
4 that market is.

5 I noted in the Cox presentation that  
6 there is this micro study, \$100 billion in  
7 consumer savings from voice over IP competition,  
8 which I believe is predicated on both cable-based,  
9 voice over IP competition, and nomadic  
10 competition.

11 What is interesting that has happened in  
12 the last couple of years on voice over IP is, as  
13 we have seen very swift regulatory change in that  
14 market, the actual number of folks who are using  
15 nomadic voice over IP, I believe, is .6 percent of  
16 all voice subscribers.

17 TeleGeography then just recently came out  
18 and I think indicated that while cable, voice over  
19 IP is growing very rapidly, that nomadic voice  
20 over IP now, actually the growth rate is on the  
21 decline and is almost zero. So that .6 percent is  
22 kind of where we are at.

1           Presuming that all of those exciting  
2 things that I think we saw on the screen are  
3 something that policy-makers want to promote, what  
4 are those things in the regulatory space,  
5 policy-makers, ought to be doing to kind of foster  
6 those kinds of choices?

7           MR. WILLNER: Does anyone want to take a  
8 shot at that?

9           MR. LINDSEY: I am not familiar with what  
10 "nomadic voice over IP" means.

11          MR. WILLNER: You might want to explain  
12 that a little more.

13          ATTENDEE: So there's two types of what  
14 we call "interconnected voice over IP," things  
15 that the FCC has determined are substitutes for  
16 traditional home services. They are fixed kinds,  
17 which are the kind that cable provides where the  
18 underlying connection is provided with it, and  
19 then there is all of the other kinds which are the  
20 Vonages, the SunRockets, the Speakeasys, all of  
21 the things where they don't provide the broadband  
22 connection with it. It is the type of connection

1 that you can buy it independent of the underlying  
2 network.

3 MR. LINDSEY: It seems to me that the  
4 most important thing that phone companies can do  
5 to facilitate that kind of competition is to offer  
6 naked DSL. In fact, we do. I think that Verizon  
7 does. I think that AT&T does.

8 I know that some of the VoIP companies  
9 have had some technical stumbles in recent months,  
10 but they seem to be, so far as I can tell,  
11 resolving those matters as they arise, and I  
12 expect that to the extent that they are  
13 encountering current intellectual property issues  
14 as they resolve those, I can't see why a naked DSL  
15 line or a naked cable modem line wouldn't provide  
16 them with everything that they need, other than  
17 the billing and back-office arrangements.

18 I think some of the companies that you  
19 mentioned seem to have very sophisticated and able  
20 billing and back-office operations. Those seem to  
21 be like the obvious barriers to entry, and by the  
22 naked DSL, naked cable modem line offering, I

1 think that they are pretty much enabled to compete  
2 if they have the technological wherewithal to do  
3 so.

4 MR. WILLNER: When Qwest didn't offer  
5 naked DSL as part of a merger condition, unlike  
6 perhaps some other companies, what was your  
7 calculus in doing that?

8 MR. LINDSEY: We looked at it and  
9 concluded that we had customers that were turning  
10 off their telephone lines because they were  
11 switching over to VOIP, and we would rather keep  
12 them as a customer for a high-speed data line than  
13 lose them as a customer for a phone line or a  
14 phone line plus a high-speed data line. This is  
15 basic economics.

16 We had the install base. We had the  
17 install cost, the incremental cost of providing a  
18 DSL line. It was better than losing them entirely  
19 to competition.

20 MS. WILSON: Cable, I don't think has  
21 ever tied any of those three services together,  
22 and to this day, we have people, actually a fairly

1 significant number, who buy only phone from us or  
2 only broadband.

3 ATTENDEE: And then they can just put a  
4 VOIP service over the broadband?

5 MS. WILSON: Right.

6 But I would ask the question. If I had  
7 my policy-maker hat back on, it has been a long  
8 time since I wore it, but what do you think is  
9 driving that flat-to-declining growth rate, and is  
10 it a regulatory barrier, or is it something else?

11 ATTENDEE: I think this is one of the  
12 most dynamic regulatory-changing spaces that there  
13 has been. I think the FCC has done about 12  
14 different orders in the last year and a half with  
15 30-day time frames.

16 For most of these, I think 97 percent of  
17 them are small businesses and find it very  
18 difficult to implement systems on a 30-day kind of  
19 time frame.

20 So I think a lot of it is a regulatory  
21 type of challenge. It is something where when you  
22 don't have control of the underlying network,

1 things become I think a little bit more  
2 challenging to implement things that do require  
3 access to the underlying network. Say 911, for  
4 example. There is 98 million Americans today who  
5 live in areas where a nomadic voice over IP  
6 provider can't connect to the 911 network itself,  
7 for example, and thus can't market services. So  
8 these are kind of regulatory barriers.

9 If voice competition is a notable goal,  
10 which I think we presume was the goal of the '96  
11 act and presumably is a goal today, if we have  
12 only got .6 percent and this is the promise that  
13 we are all looking at, how do we boost that? I  
14 think we are kind of missing it in a regulatory  
15 domain.

16 MR. WILLNER: Sean, did you want to  
17 respond?

18 MR. LINDSEY: Yes.

19 I don't think we should underestimate the  
20 impact that Vonage's intellectual property  
21 challenges have presented to the entire industry.

22 I agree, certainly. You have to get to a



1           But if I am a smaller-than-Vonage  
2 operator, what I watch is to say, "Let's see what  
3 happens to Vonage. I am not going to put another  
4 \$10 million into my software development until I  
5 know whether that software development is going to  
6 have to be thrown out the window because of  
7 intellectual property obstacles."

8           So I think that what we are seeing in the  
9 last 12 to 18 months is really an idiosyncratic  
10 function that relates to a particular set of  
11 problems that I am not in a good position to know  
12 whether they are being overcome, but at least  
13 based on public reports, they appear to be in the  
14 process of being resolved.

15           So, rather than think of the flattening  
16 or the dip as trending for the future, I think  
17 that it is a relatively explicable set of data  
18 that shouldn't reflect what is going to happen.

19           Obviously, I will be interested to watch  
20 12, 18, 24 months from now, but I am not sure I  
21 would change a regulatory path in order to address  
22 what appears to be a specific problem with a



1 specific company.

2 MR. WILLNER: Well, I wish we had more  
3 time to continue this very interesting discussion.  
4 I do need to let people have a chance to get their  
5 lunch before our next panel on wireless begins at  
6 2:15.

7 So let me thank all of the speakers on  
8 the panel for their very interesting presentations  
9 and thoughtful responses to questions, and we will  
10 look forward to seeing you all back here at 2:15.

11 [Applause.]

12 [Luncheon recess at 1:04 p.m. through  
13 2:15 p.m.]

14 **Panel III**

15 **Wireless Technologies**

16 MS. BURCHUK: Good afternoon, and welcome  
17 back to the Telecommunications Symposium. I am  
18 Hillary Burchuk. I am an attorney in the Telecom  
19 Section, and my principal responsibilities include  
20 the wireless industry.

21 This morning, you heard about some of the  
22 entrants into the broadband space, and this



1           Unlike the panelists earlier in the  
2 morning, I am going to shake up the order, and I  
3 am going to start with our economist, and then he  
4 is going to set the tone, discussing overall the  
5 broadband product and the spectrum policy. Then I  
6 am going to have the providers speak in order,  
7 depending on how you look at it, either the  
8 largest down to the smallest or the oldest company  
9 down to the youngest company.

10           First, we have Tom Hazlett, who is a  
11 Professor of Law and Economics at the George Mason  
12 University School of Law. He has written  
13 extensively in economic and popular journals on  
14 the economics of the information sector, with a  
15 focus on spectrum policy.

16           Next, we will hear from Hank Kafka, who  
17 is from AT&T, where he is the Vice President of  
18 Network Architecture. He has 25 years of  
19 telecommunications experience and is responsible  
20 for creating the target architecture and road map  
21 for AT&T's technology through the network layer,  
22 which includes the core technologies for wireless,

1 broadband, cellular, and wireline.

2           Then we will hear from Bin Shen from  
3 Sprint Nextel. He is a Vice President who is  
4 responsible for Broadband Product Management and  
5 Partnership Development. He has played an  
6 instrumental role in providing Sprint Nextel's  
7 vision of the wireless interactive media services,  
8 and the completion of the next-generation mobile  
9 broadband business plan.

10           Next, we will hear from Gerry Salemme  
11 from Clearwire where he is a Director and  
12 Executive Vice President in charge of Strategic  
13 Policy and External Affairs. He has more than 30  
14 years of experience with telecom government  
15 affairs, regulatory and public policy. He has  
16 been with Clearwire since 2003, and now oversees  
17 Clearwire's spectrum strategy and acquisition and  
18 development.

19           Finally, we will hear from Bill Wallace  
20 who is the chairman of DigitalBridge. He is one  
21 of the founders of DigitalBridge which was formed  
22 in 2005 to provide wireless broadband to

1 underserved areas.

2           Without further ado, I will turn it over  
3 to Tom Hazlett.

4           MR. HAZLETT: Thanks, Hillary. I  
5 appreciate the Department of Justice putting the  
6 economist on first. I know the symposium focused  
7 on identifying entry barriers, and I think some  
8 might suggest that putting the economist on first  
9 might constitute an entry barrier, but maybe that  
10 is productive here. If you are willing to get  
11 through the economics, then you deserve to enter  
12 this market. So we will see how this goes.

13           I did want to give a bit of an overview  
14 here. Now it is my turn to see how I can use the  
15 convergence buzz word, now well into its third  
16 decade, in perhaps a somewhat different way, and  
17 that is to talk about the multidimensional  
18 convergence that we have here in wireless  
19 broadband.

20           On the one side, we have voice and data  
21 networks and seem to be converging and becoming  
22 one and the same, competing head to head. On the

1 other side, of course, we have fixed and wireless  
2 going head to head. This makes for some exciting  
3 times.

4 One way to think about wireless broadband  
5 is to think more generally about broadband. Here  
6 in the United States, of course, we have two  
7 principal wireline or fixed broadband  
8 technologies, cable modem service and DSL, digital  
9 subscriber line service provided by telephone  
10 companies, and we have engaged in a very nice  
11 natural experiment in regulation to promote more  
12 competition in this space, given the duopoly  
13 nature of the head-to-head technology competition.

14 We actually engaged in mandatory network  
15 sharing rules that allowed cable modem service to  
16 be unregulated, with the cable networks not having  
17 any obligations to share their facilities with  
18 independent third parties, and telephone companies  
19 having rather important obligations to do that.  
20 So competitive local exchange carriers like Covad  
21 have historically had the opportunity to use the  
22 telephone networks at regulated prices for



1 the U.S. But DSL service actually deviated from  
2 its pre-deregulation trend and actually kicked up  
3 quite substantially. So that by the end of 2006,  
4 you had about 10 million more households than you  
5 would have had if the pre-deregulation trend had  
6 continued.

7           So some of us have actually concluded  
8 that the data speak loudly here. This natural  
9 experiment is important for us to grasp and to  
10 incorporate into our future regulatory  
11 deliberations. The fact is that we are not going  
12 to be able to fiddle with mandatory sharing rules  
13 and get the competition we want. We may get the  
14 performance we want, but certainly not the number  
15 of providers if two is too small a number.

16           So that turns us to what is sometimes  
17 called the "'third pipe' wireless." Certainly,  
18 the wireless market is robust, doing well in  
19 voice. We see now in 2007 where there is over 2  
20 trillion minutes of use in the United States per  
21 year. By the way, out of the 2 trillion minutes,  
22 about 1.85 trillion minutes are junior high school



1 girls. I don't know if you knew that.

2 [Laughter.]

3 MR. HAZLETT: So the trends here, as  
4 currently estimated, are that the growth of the  
5 market really is not going to be in voice over the  
6 next several years, but in data. So that really  
7 does bring us to the broadband question of how  
8 much competition we are likely to see, and the  
9 wireless carriers are already well underway, as  
10 Hillary mentioned actually in her statistical  
11 intro, to trying to enter the broadband market by  
12 way of mobile telephone networks. Presumably, we  
13 will see this trend intensify.

14 Let's quickly go over some of these key  
15 wireless data players. Obviously, we have already  
16 talked about the principal wireless networks in  
17 the United States offering voice service. We  
18 might have more of these, but we have regulatory  
19 lag in this country. It took us several years  
20 beyond the European Union to issue so-called "2G,"  
21 second-generation digital cellular licenses back  
22 in the 1990s, and it has taken us several years

1 longer to get around to 3G.

2 As a result of that, these wireless  
3 players in some cases had to merge to gain access  
4 to sufficient bandwidth on a subscriber-adjusted  
5 basis and incorporating some economies of scale to  
6 be able to upgrade their networks to mobile  
7 broadband. Certainly, the AT&T acquisition by  
8 Cingular in 2004 was driven by a desire to access  
9 more spectrum and to build a broadband network;  
10 Sprint Nextel, a very similar story.

11 T-Mobile was denied the opportunity to  
12 merge and gain access to spectrum that way, and  
13 had to wait until 2006, and in fact, at present to  
14 gain the access to spectrum.

15 So we have seen that because --- and this  
16 is the flip side of U.S. policy -- the place where  
17 U.S. policy has been good is in having fairly  
18 liberal rules for the use of that spectrum that is  
19 out there. So there has been a lag in U.S.  
20 spectrum policy getting the spectrum out to the  
21 carriers. On the other hand, we have had very  
22 liberal rules for what the carriers can do with it

1 once they get it. So we have seen the emergence,  
2 in fact, a laboratory competition taking place  
3 here between the CDMA alternatives, EV-DO and  
4 wCDMA, which was legal in the United States market  
5 because of this liberal policy, illegal in Europe,  
6 and then the Europeans had to open because 3G and  
7 so-called "broadband technologies" worked so much  
8 better with the sort of non-European technologies.

9 Obviously, the regional carriers, which I  
10 am informed have no influence in the market,  
11 despite their multi-million-dollar market caps,  
12 apparently discussed on a previous panel, but  
13 there are regional carriers which actually are  
14 quite important in terms of market share,  
15 obviously smaller than the national networks, but  
16 still significant, particularly if Leap and  
17 MetroPCS might merge, as has been contemplated.

18 Then often ignored as within the wireless  
19 space because of these liberal rules, we have an  
20 enormous amount of sort of back-and-forth between  
21 various players and service providers, including  
22 companies like BlackBerry -- that would be

1 Research-in-Motion -- which offer, quote/unquote,  
2 "network services" without having any licenses or  
3 spectrum assets, but simply buy access to radio  
4 spectrum and complementary networks from the  
5 existing firms. This goes on in many, many  
6 dimensions.

7           We have pure play entrants, obviously,  
8 now in the wireless broadband space. We have some  
9 on the panel today, and a possibility of a new one  
10 coming by a sort of regulatory design, if  
11 Frontline does indeed emerge as planned in  
12 Washington with the D block license in 700.

13           Other entrants are certainly on the  
14 margin. SpectrumCo, a consortium of cable  
15 operators bid in the AWS auction. In disclosure,  
16 I was part of the bid consulting team on that and  
17 it did emerge with 20 megahertz nationwide.  
18 Obviously, satellite operators were involved there  
19 as well, but did not emerge with AWS spectrum, but  
20 are thought to be potential entrants. And also  
21 there are the application providers, Google,  
22 Microsoft, Apple. Apple is obviously now in the

1 wireless space through contractual arrangement  
2 with AT&T. Google importantly, extremely important  
3 in the applications world, is also spending a lot  
4 of time, effort in organizing consortia and  
5 potential entry into wireless, and of course,  
6 recently announced the Google phone which, as some  
7 people have noted, was only lacking the phone.

8 [Laughter.]

9 MR. HAZLETT: Just to say a quick word  
10 about regulation, if you examine mobile markets  
11 globally, it is actually quite interesting. You  
12 get exactly what you might suspect; that is to  
13 say, retail prices for wireless service decline  
14 with spectrum, with more spectrum, and then with  
15 more competition. Of course, more spectrum also  
16 gives you more competition.

17 I should also say that deregulation  
18 effectively creates more spectrum as well. That  
19 is to say, if you have looser rules on what  
20 carriers can do with radio spectrum, that allows  
21 more innovation to take place. The obvious  
22 example is the United States without technology

1 constraints on operators was not limiting what the  
2 operators could do to migrate to 3G technologies.  
3 So the U.S. market has migrated to 3G long before  
4 3G licenses, so-called "3G licenses" were put out  
5 because the United States has not restricted that  
6 migration. So that has been very important.

7           You can see the results of this license  
8 flexibility, the so-called "property rights model"  
9 granting flexible use to carriers and letting the  
10 market work out the business models, the  
11 technologies, and services provided. The cellular  
12 markets in the United States have actually done  
13 very well on this count. Their success is clear.  
14 Prices are relatively low internationally, despite  
15 the lack of spectrum put out by regulators and  
16 innovation of technology or despite some of the  
17 press accounts of this actually doing very well in  
18 the U.S.

19           Other experiments and further  
20 liberalization actually have taken place in some  
21 markets around the world. One is Australia where  
22 a more explicit property rights regime was

1 established in the 1990s, and that has eliminated  
2 entry barriers, by and large, relative to other  
3 markets anyway, and this is a Wall Street Journal  
4 report from about two and a half years ago that  
5 notes that multiple wireless broadband carriers  
6 were already competing in the marketplace in  
7 Australia. This competition has spread well  
8 beyond Sydney, around the rest of the country, but  
9 this open policy, due to the reforms of the 1990s,  
10 has proven very beneficial in developing new  
11 technologies.

12           So the U.S. policy, just with a little  
13 thumbnail, I would say is very positive in terms  
14 of liberalizing the actions and the flexibility of  
15 the options of carriers for the spectrum that is  
16 allocated for many of the licenses that are out  
17 there now. Negative, certainly, against the U.S.  
18 and things that we ought to be cognizant of and  
19 try to improve would be the regulatory lag in  
20 getting licenses out and sort of the  
21 misinterpretation of what is happening in the  
22 marketplace with respect to unlicensed spectrum.

1 It is not technologically or economically  
2 displacing the property rights model.

3 Quite the reverse, the property rights  
4 model has proven its effectiveness, and it is  
5 entirely compatible, by the way, with exactly the  
6 applications that are cited as successful and  
7 unlicensed.

8 So we are now obviously flirting with  
9 re-regulation, some of the 700 megahertz  
10 proceedings, and in my opinion, that would be a  
11 step in the wrong direction.

12 I will just leave you with what I think  
13 is a very classic statement about U.S. spectrum  
14 policy. Hillary saw my slide. She thought this  
15 was a mistake.

16 How did this get in here? To me, this is  
17 hysterically funny. I guess the members of the  
18 communications bar don't take this as anything  
19 other than another headline for another day, but  
20 it just turns out that if you are dealing with the  
21 regulatory system here -- and this is not only a  
22 mark of U.S. regulators, certainly, but the one



1 thing that the lawyer can tell his client with  
2 some certainty is that he can't obtain a delay.  
3 So I like it when it is put in terms of a spectrum  
4 auction delay hitting a fast track.

5 By the way, this is for a 700 megahertz  
6 auction which has been delayed over seven times.  
7 I counted seven some years ago. So we are  
8 supposed to have this thing starting by statute in  
9 January, and we all know that it will happen, but  
10 surprises sometimes do happen.

11 Anyway, that is it. Thank you.

12 MR. KAFKA: Good afternoon. Thanks for  
13 the opportunity to speak. I am Hank Kafka with  
14 AT&T.

15 I am a little bit unique as a speaker  
16 here. I looked through the bios quickly on the  
17 panel sessions. I am not an antitrust attorney.  
18 I am not any kind of an attorney. I am not an  
19 economist. I am not a corporate officer. I am  
20 basically an engineer, so a little bit unusual for  
21 the audience, but what I am going to try and do is  
22 I am going to focus my talk on the capabilities of

1 wireless broadband, some of what has happened in  
2 the past, what is out there now, and what is being  
3 deployed today and what the future capabilities  
4 are.

5 I will talk through some of the  
6 technologies and the field experience that AT&T  
7 has had with deployments of various families of  
8 technology, and then look at a bit about how those  
9 technologies will evolve in the future and what  
10 those capabilities should allow us to do as we go  
11 forward.

12 This chart is an illustration, and it  
13 shows that wireless has had and continues to have  
14 multiple competing technologies.

15 You just heard a little bit. The top  
16 line here represents the cellular technology  
17 areas, and we basically had in the U.S. two kinds  
18 of families of cellular technologies for quite a  
19 while, the GSM, HSPA, UMTS line on the top, and  
20 going through the CDMA, EVDO line on the bottom,  
21 on the lower line there. Those have evolved over  
22 time, starting out with no data at all to basic

1 below-dial-up-speed data through some  
2 moderate-speed broadband to where we are at today  
3 in the HSPA kind of range in the GSM family where  
4 we have actually evolved to have what I think are  
5 comparable to wireline kinds of broadband services  
6 and capabilities that are being introduced and  
7 being put out there.

8           It isn't stopping with that. That  
9 technology is actually evolving within that third  
10 generation bubble that is continuing to evolve and  
11 add capabilities, and there is intensive work  
12 going on right now in standards organizations to  
13 define the technology called "LTE" or long-term  
14 evolution in the 3G area. That technology should  
15 have standards complete by the end of next year  
16 and have equipment starting to show up from  
17 manufacturers kind of late 2009, early 2010 time  
18 frames. All of those continue to add more and  
19 more technical capabilities, more speed, and more  
20 capacity. It is basically driven by Moore's Law  
21 of Progress in ICs, the ability to do more digital  
22 signal processing in those areas.



1 as a fixed wireless technology, and now it, in  
2 fact, has evolved to a mobile technology, 802.16e,  
3 the mobile form of the technology, and then the  
4 WiMAX Forum formed a set of interoperability  
5 standards that further kind of tightened the  
6 specifications, so that you could go to  
7 significant scales with it.

8 AT&T has, in fact, deployed either  
9 prestandard WiMAX or WiMAX technology in Pahrump,  
10 Nevada, and several cities in Alaska, and it has  
11 been pretty successful. We have got good customer  
12 satisfaction. It had pretty good take rates on  
13 it.

14 It is evolving. Just as the 3G  
15 technologies are evolving, WiMAX is now accepted  
16 as a 3G technology by the ITU. It is adding a  
17 release 1.X. There is active standards meetings  
18 next week to further define and increase its  
19 capabilities, and there is also work getting  
20 started on a next version of a standard 802.16m  
21 which is going to significantly increase the  
22 speeds and capabilities of WiMAX again. So that

1 has got its own technology timeline, and it is  
2 making similar sets of progress.

3           Municipal WiFi is also an interesting  
4 area. I think that municipal WiFi, as it first  
5 came out, had a lot of hype associated with it,  
6 and I think it can easily be said that it was  
7 overhyped.

8           We actually have deployments underway in  
9 three different cities with municipal WiFi  
10 networks, and from a technology standpoint, it  
11 does work. The municipal WiFi capabilities are  
12 there.

13           It does not meet the hype that was  
14 initially generated around it, back when it first  
15 started to get considered, but the technology is  
16 out there working, providing service in one of  
17 those three cities now. It has been turned over  
18 to the city.

19           It does have some challenges with it. In  
20 the case of where we have been doing these  
21 deployments, you put the nodes on light poles, and  
22 one of the assumptions that everyone, including us

1 in the cities, had going in is that there was  
2 power going to the light poles 24/7. As it turns  
3 out, in significant sections in some of these  
4 cities, one light pole controls the power for a  
5 whole string of another set of light poles. So it  
6 works at night in those areas, but it doesn't  
7 necessarily work on all those poles during the  
8 day, not quite the ideal service.

9           Again, in the areas where we have  
10 deployed it, we have kind of renegotiated the  
11 geographical deployment areas and/or mitigated  
12 some of those, and where you have power and  
13 mounting capabilities, you can use wireline or  
14 wireless back haul to get the traffic off of the  
15 light poles. It is a workable technology.

16           Now, the other challenge in that area, in  
17 fact, where a lot of the excessive hype was, was  
18 around the business models and the free service  
19 business models which have proved to be  
20 challenging, but I think the key thing is that  
21 there is a big tendency when something gets  
22 overhyped and then doesn't meet the overhype to

1 say, "Ah, it's worthless." That is not the case.  
2 The technology does work. It doesn't meet what  
3 was stated about it. For that matter, WiMAX when  
4 it was first advertised was said it could do 70  
5 megabytes at 50 miles, and it can't do that, but  
6 it can do a lot of very good things, and it is a  
7 very viable technology.

8 All of these three technologies are  
9 evolving. I have got this green bubble out at the  
10 end, IMT-Advanced. The ITU is defining a  
11 technology called IMT-Advanced that is  
12 definitinally starting in 2008, and that is going  
13 to be what a true 4G technology is going to be.  
14 That actually will extend beyond even these  
15 advanced forms that are under work now that are  
16 being standardized. These forms will be adapted  
17 and extended to go to even higher speeds.

18 Indoor fixed locations, some of the  
19 requirements suggested that could get up to a  
20 gigabit kinds of speeds, typically 100 megabits in  
21 highly mobile environments, the kind of ranges and  
22 capabilities. So we have got an ongoing continued



1 progress of broadband as it moves forward.

2 To give you an example of the kinds of  
3 speeds and the histories of speeds, I am going to  
4 take one of these technologies, the GSM families,  
5 since that is what AT&T has the broadest  
6 deployment of right now.

7 You can look at the downlink speeds and  
8 the uplink speeds and see that we started out with  
9 the early GPRS technology, kind of the early  
10 phases of generation two, 2G, of kind of really  
11 dial-up modem-like speed. EDGE technology starts  
12 to work pretty well for text and graphics  
13 browsing. UMTS extended that a bit in the  
14 evolution of UMTS to HSPA, and by the way, HSDPA  
15 is the download part of HSPA, and HSUPA is the  
16 upload part of it.

17 So we are at points now where the devices  
18 that we announced in October can reach in typical  
19 applications in the field and real-world cases,  
20 600 kilobits to 1.4 megabits downstream and 500  
21 kilobits to 800 kilobits up. So we are definitely  
22 in the range of deploying viable broadband, true

1 broadband technologies.

2           The deployments are to the point now  
3 where when I am using my PC, when I had EDGE  
4 capabilities, my first choice would be to see if I  
5 could find a WiFi link somewhere or use a  
6 WiFi-in-the-hotel link, set something up like  
7 that, and then if I couldn't, I would resort to  
8 EDGE and kind of live through that, sending large  
9 files and e-mails and presentations like this back  
10 and forth.

11           I am now at the point with the HSDPA  
12 technologies and talking to my peers that have  
13 pretty much the same thing, once you have this in  
14 place, you don't kind of bother to switch over to  
15 WiFi. You just bring the HSDPA up and go, and you  
16 get really good performance. It works well as a  
17 true broadband technology.

18           If we start to extend and see what is  
19 going to happen as we go out into the future, this  
20 kind of capability is using the typical field  
21 speeds. With LTE, as an example, we don't have  
22 typical field speeds yet because there is nothing

1 out in the field to go and measure yet. So I am  
2 going to switch gears and switch scales and go  
3 from typical field speeds, which are constrained  
4 by the distance from the cell site and  
5 interference and noise and all kinds of other  
6 things and talk about theoretical peak speeds to  
7 kind of show what the trends look like overall in  
8 technology evolution.

9           Again, I am staying with the same HSDPA  
10 LTE family. The main trend that you see here, the  
11 yellow areas are focused on the upstream and the  
12 downstream speeds. The yellow and green are the  
13 HSDPA technologies, and even within HSDPA, we have  
14 got multiple releases in adding new peak speed as  
15 it goes.

16           Typically, we are at about 3.6 peak  
17 downstream and 1.5 peak upstream today, and then  
18 that is expanding to 14 meg downstream, peak  
19 speeds for the next couple of years, using  
20 existing standards capabilities. New standards  
21 extensions are starting to just get into place.  
22 It will allow that to get up to 41-meg peak speeds

1 downstream, and then as we jump to the new  
2 technology platform LTE, that starts out at those  
3 kinds of speeds, and in the lower parts of these  
4 red lines in the LTE space show what happens when  
5 you use the current 10 megahertz of spectrum that  
6 is used by the HSDPA technology. You start to get  
7 some advances, and those lines will continue to  
8 rise, but you also get a change in that you can  
9 use more spectrum to get more broadband services,  
10 and it can use twice or four times as much  
11 spectrum actually, eventually, as you can use in  
12 UMTS now to really ratchet it up to peak speed.

13           The key messages here I think is that we  
14 have now reached the point where wireless  
15 broadband is, in fact, competing with wireline  
16 broadband, or at least the technology I will say  
17 is competing with wireline broadband from a  
18 technology standpoint, that it is happening in  
19 fixed and portable and nomadic applications and in  
20 mobile applications, and the technology evolution  
21 is going to continue that as we go into the future  
22 into the 4G technologies and beyond 4G.

1           Also, as was mentioned, there are  
2 multiple technology families competing, and  
3 sometimes you have heard wireless talked about as  
4 the third pipe, and I think that is actually kind  
5 of inaccurate because in most areas, even today,  
6 you can get wireless broadband, 3G kind of speed  
7 wireless broadband from at least two providers.  
8 Right now, today, it is becoming the third pipe  
9 and the fourth pipe, and as you will hear from the  
10 next speaker in the not-too-distant future, it is  
11 going to have a fifth pipe going into quite a few  
12 of the metro areas.

13           So there is a lot of broadband  
14 capabilities going into place. It is very  
15 successful, very competitive. We are just at the  
16 early stages of ramping this up and kind of  
17 converting the wireless network into a true  
18 broadband network.

19           Thanks.

20           MR. SHEN: My name is Bin Shen from  
21 Sprint Nextel.

22           As you all know, we are in the process of

1 deploying a pretty large WiMAX network nationwide.  
2 So today, I want to give you an update regarding  
3 why we want to do that, where it is now, what is  
4 our mission here, why we think we can grow the  
5 market, and what are the critical elements to make  
6 this business model successful, and the status of  
7 deployment today.

8 I think the implementation actually works  
9 very well. Tom and Hank talked about economics,  
10 talked about the entry barrier, talked about  
11 competition, and Hank talked about the technology.  
12 I am more focused on the business perspective,  
13 what it means to the end customers, to the  
14 marketplace. I am sure Gerry is the expert on the  
15 spectrum, and I am not going to steal his thunder  
16 there.

17 First slide, please.

18 We believe the wireless broadband  
19 opportunity is now. As Hank just mentioned, there  
20 are a lot of experiments and trials in the last  
21 many years actually around the wireless broadband.

22 AT&T started Project Angel for the first

1 time. We also have a different kind of fixed  
2 wireless broadband product operated by Sprint  
3 prior to the merger, but we really believed the  
4 wireless broadband is available in a cost  
5 affordable kind of format now, and that is why we  
6 are in the process of making such a huge  
7 investment, to really provide these services to  
8 the marketplace.

9           Why we believe so, if you look at this  
10 chart, broadband service on the left-hand side  
11 here really stands for the landline broadband  
12 penetration by household. I think it is  
13 consistent with Tom's statistics there.

14           On the left-hand side if you look at the  
15 voice growth, the voice growth in terms of the  
16 wireline voice versus wireless voice, there is  
17 some history we can learn here. When the wireless  
18 voice really started hitting the maturity stage,  
19 penetrating most of the households, that is when  
20 the wireless technology started to emerge.

21           At that time, I think you have probably  
22 heard of the famous consultant assessment for

1 AT&T, that mobile voice only will hit about 1  
2 million subscribers maximum, and look at today how  
3 many people are using mobile voice. I think when  
4 people are used to having voice at home, they want  
5 to take voice with them, that is part of their  
6 lifestyle. It becomes ubiquitous, and then  
7 technology really catches up, the infrastructure  
8 catches up. We drive the cost down, and make the  
9 coverage really good. So it is kind of a natural  
10 trend for voice really riding on the landline  
11 voice adoption curve, and it keeps penetrating  
12 into people's lives.

13 We look at this trend, and then we look  
14 at the broadband market. Broadband is really  
15 penetrating a lot of households. Broadband is in  
16 over 15 percent of households today in the U.S.  
17 If you look at the last few years, the growth of  
18 the Internet services, including Google, including  
19 the e-commerce, it reaches about \$120 billion  
20 revenue. That kind of growth, especially over the  
21 last five or six years, I think is all primarily  
22 driven by broadband adoption. You can really



1 provide a platform for the customer and consumer  
2 that really enjoy the type of services that we can  
3 have in this Internet environment.

4           So we believe that kind of growth is  
5 going to spill over to the wireless environment  
6 because it is in people's nature to really want to  
7 be free, and they want to take the service with  
8 them.

9           Today, a lot of Internet experience to  
10 most people is really sitting at home or in an  
11 office with the browser, with a desktop kind of PC  
12 or laptop. That is the experience they relate to  
13 the Internet. Tomorrow, it doesn't have to be  
14 that way. Tomorrow, broadband can connect to a  
15 kiosk. Broadband can connect to a digital  
16 signage. Broadband can be very transparent to the  
17 customers, and be any terminal device where one  
18 can connect to the broadband. I think they all  
19 can connect to the Internet, any kind of network  
20 service there. We think people are really  
21 starting to get used to the broadband idea. I  
22 think they really can appreciate it in terms of



1 those devices? Don't you wish 20 minutes before  
2 getting on the airplane, when you really finally  
3 think about what could you do to spend the five  
4 hours from here to Los Angeles, and you could  
5 download a movie, you could select a movie at that  
6 point in time? You can download it to your DVD  
7 player, to your multimedia players. That can also  
8 be a broadband experience and Internet service. I  
9 think it is very natural for people to say why  
10 don't we connect those kind of devices.

11 So we think that pervasive broadband  
12 means it is accessible. It doesn't mean  
13 necessarily only that we have coverage everywhere.  
14 It means that broadband can show up in any type of  
15 device. Anything you carry, anything you touch  
16 can be connected to the Internet. It can be  
17 oxygen that just goes with you. So that is what  
18 we mean by broadband needs to be pervasive.

19 So, if you look at our device road map in  
20 terms of what we tried to produce, what we tried  
21 to work with our partners, and what we tried to  
22 introduce, the ecosystem, here is our road map.

1 In 2008, not only do we have a traditional PC card  
2 modem for the home and laptop, we are also  
3 starting to introduce multimedia devices, devices  
4 that can be Internet players, can be multimedia  
5 players, can be music players. We are starting to  
6 introduce them in 2008.

7 It takes about five years for WiFi  
8 transition from a PC card form factor into an  
9 embedded device form factor. In the first year,  
10 we are going to introduce that with WiMAX because  
11 we think WiMAX has a great ecosystem, and can also  
12 ride on the WiFi success and accelerate that pace,  
13 to make that more kind of accessible to the end  
14 users.

15 In 2009 and 2010, we are talking to a lot  
16 of planners. There are a lot of good ideas from  
17 consumer electronic companies and from the  
18 computer industry to really try to embed the WiMAX  
19 chip set into those kind of different form  
20 factors, into the card, into the multimedia  
21 players, into the UMTC, or through mobile devices.

22 So, when we have that type of

1 accessibility, then it is up to consumers to use  
2 that. I think we can make the service very easy.  
3 People can subscribe on a monthly basis, or people  
4 can use on an ad hoc basis. People can pick up a  
5 camera, and if you think about it, they can upload  
6 their image to the Internet or share with their  
7 family. That kind of package can be provided  
8 directly by Sprint Nextel or directly by Kodak and  
9 Sony. We can work with them, and make that easy  
10 for the customers.

11           So what are the critical elements  
12 necessary to make that a success, and why do we  
13 believe that we can really achieve those critical  
14 elements? We think there are three critical  
15 elements here. First of all, again, we need to  
16 make sure the chipset will be in the devices.  
17 That is a critical link.

18           In order to make sure the chipset can be  
19 in the devices, we really need to make sure the  
20 wireless chipset is really low cost. Today, if  
21 you look at the HSDPA cost or CDMA cost, because  
22 it is still coming from a traditional cellular

1 technology kind of environment and its ecosystem,  
2 after three or four years, it is still very  
3 expensive. For multimedia devices, about \$200 or  
4 \$300, adding another \$75 to \$100 chipset, it is  
5 not affordable for the customers.

6 When we look at this issue and we select  
7 the technology, we think WiMAX will provide a very  
8 robust, competitive chipset environment that will  
9 drive the cost of the chip very low.

10 Today, my group has a chipset ecosystem  
11 program. On our radar screen, we recognize there  
12 are about 25 chipset providers in the world that  
13 produce the WiMAX chipset. If you look at the  
14 traditional 3G technology, after so many years,  
15 there are not too many chipset providers in the  
16 marketplace.

17 For the first year in 2008, our chipset  
18 cost and margin is going to be in the \$20 to \$40  
19 range, so much lower than the 3G technology. So I  
20 think it is a very friendly environment for  
21 consumer electronic companies and computing  
22 companies who are thinking about embedding the

1 wireless capability into their devices. So that  
2 gave us a lot of confidence that we can make it  
3 happen with the right ecosystem partner.

4           The second piece is really the open  
5 network. You see a lot of people starting to  
6 announce the open network. I think in the mobile  
7 phone industry, Sprint Nextel is the first company  
8 to announce that we are going to be an open  
9 network and open to the devices, open to the  
10 applications.

11           The reason is that we recognize that in  
12 order to be a viable player in the Internet world,  
13 we need to be open. Openness creates innovation  
14 because we cannot innovate our own. We need to  
15 invite a broader community to produce innovative  
16 devices, innovative applications, and take  
17 advantage of these capabilities and drive more  
18 traffic onto our network. So we believe that is  
19 the success model, and we are going to follow  
20 that.

21           The third piece is to make the service  
22 more affordable. It is one thing to talk about

1 speed. We can always have high speed. If you  
2 look at the end price, the customer always can  
3 afford more. They can have more speed because  
4 they are willing to pay for it.

5 Sprint Nextel is probably the leader, the  
6 number-one leader in the mobile broadband market  
7 today. We have probably the largest customer  
8 base, but if you look at our customer base, the  
9 majority of the customer base are still business  
10 customers because the service is too expensive,  
11 because of the cost structure we have on this 3G  
12 network side. That to me is not a success yet.

13 For success you really make everything  
14 affordable. Today, broadband already is  
15 affordable to 50 percent of households. We want  
16 to have that type of a mass market adoption. We  
17 want to make sure the service is really  
18 affordable. So that is why we selected the WiMAX  
19 technology. We think the WiMAX technology will  
20 achieve one-tenth of the current 3G cost, and that  
21 will give us a lot of flexibility driving adoption  
22 by the mass consumer market. If we can make the



1 consumer happy, we can make the business customer  
2 using the service happy as well. So that is  
3 affordable service.

4 In addition to that kind of low pricing  
5 approach, we also want to make sure that is  
6 flexible. Today, most of the plans we have are  
7 monthly plans or prepaid plans. Tomorrow,  
8 actually, you can buy a day package. You can buy  
9 a day pass. In 2008, most of the laptops will  
10 start to have WiMAX embedded in the laptop. Once  
11 you see our network, once you see the Clearwire  
12 network, you have a choice to get onto these  
13 networks. You can have a choice to select WiMAX  
14 connectivity for a day. So it will be very  
15 flexible with a very low barrier to entry for  
16 customers.

17 Where we are right now, we are very busy.  
18 I have many meetings every day dealing with a lot  
19 of interoperability issues, and software release  
20 issues, but we are making great progress. I am  
21 very confident that WiMAX technology will work  
22 very well.

1           We have over 10,000 cell sites already  
2 being assessed, ready for WiMAX deployment. We  
3 have ordered over a thousand base stations and  
4 antennas from our infrastructure partner, Samsung,  
5 Nokia, and Motorola. We already started the field  
6 testing. We actually will make the first service  
7 market launch this year in Chicago, Washington,  
8 D.C., and Baltimore, and we will have commercial  
9 services the second quarter of next year.

10           So I think we are still right on track in  
11 terms of hitting this timeline, and recently, we  
12 completed the first market-to-market live kind of  
13 a data session which is not an easy task because  
14 we are talking about Motorola equipment in the  
15 Chicago market, Samsung equipment in Washington,  
16 D.C., and Baltimore market, and with three  
17 different locations to have a live session.

18           Please check it out. This is the  
19 internal ceremony we have done.

20           [Video clip presentation.]

21           MR. SHEN: That is in Herndon, Virginia.  
22 The middle is in Arlington. The other one is

1 Chicago.

2 [Video clip presentation continues.]

3 MR. SHEN: It is off-the-shelf video chat  
4 software. You can see what kind of latency we  
5 have across the whole nation. So we are very  
6 excited about the progress we have.

7 Certainly, we have some challenges.  
8 Today, it is a regulatory kind of forum here. I  
9 think there are some key related challenges we  
10 have.

11 We have tried to provide an alternative  
12 for broadband into the retail market, not only for  
13 the mobile, but also for the home and office.  
14 However, we still rely on backhaul from the  
15 incumbent providers in order to have cell site  
16 connectivity.

17 If you understand the wireless network,  
18 you can market 10 megabits per second, 15 megabits  
19 per second to the end users, but your weakest  
20 point, your bottleneck is actually your cell site  
21 connectivity. So this is a major challenge. If  
22 you look at the marketplace, it is about a

1 \$15-billion special access. AT&T and Verizon  
2 account for 82 percent of the special access  
3 market share. We think there is a cost issue. We  
4 have significant concerns about the regulatory  
5 environment in terms of how we will really get  
6 this kind of service at a competitive rate, and  
7 the lack of a competitive market to improve a  
8 timely response rate.

9 I have always been told by our network  
10 team that it takes a while to get the backhaul  
11 being ordered and being ordered from our  
12 competitors. So that is one big issue, and we  
13 have to solve this.

14 The second issue has to do with the  
15 spectrum option kind of policy here. Even under  
16 2.5 gigahertz, we still have a lot of wide space  
17 between the licenses in these markets, and I think  
18 there still needs to be a clear auction policy.  
19 Otherwise, it will slow down our efforts to  
20 provide a service in those kind of areas in a  
21 timely manner.

22 Thank you.

1           MR. SALEMME: Thank you very much,  
2 Hillary. We appreciate the opportunity to be  
3 here. It is not often that you are on a panel and  
4 you actually probably agree with everyone, and I  
5 think as Bin just pointed out, the way in which  
6 the panel is being developed is also very helpful.

7           I have learned something from Tom, which  
8 I always do, about the economy and about how  
9 business succeeds.

10           Hank has to teach me how to use the  
11 pointer. I could never figure out how to use a  
12 pointer. So, after this, we are going to learn  
13 that, and I think Bin's presentation on what is  
14 the ongoing development of WiMAX was very helpful,  
15 and it would be consistent with the Clearwire  
16 presentation.

17           I am really going to kind of build on I  
18 think what each party has said, talk a little bit  
19 about Clearwire, and who we are. Clearwire was  
20 founded in October of 2003 by Craig McCaw and  
21 three wireless veterans who had worked with him  
22 for a long time, and we really had a simple

1 mission statement, to do to the Internet what  
2 cellular did to voice telephony, to basically  
3 unburden it, to make it something that people  
4 could take with them. It was a very simple model.  
5 It really is one of the things Craig and his team  
6 did with cellular, and it is kind of interesting  
7 now to hear Bin mention that study, the old AT&T  
8 study that talked about the fact that cellular  
9 would have 900,000 customers by the year 2000.

10           That was a study that Craig unearthed and  
11 brought to the financial markets to get the  
12 initial funding for his McCaw Cellular Company,  
13 and to hear Hank talk about that fixed wireless  
14 mobile broadband precursor, Project Angel, that  
15 was a technology that Craig and these same three  
16 people had used while it was McCaw Cellular in the  
17 old days and sold to AT&T when McCaw Cellular was  
18 sold, and that was the old AT&T Wireless. So we  
19 have had a lot of experience in this and really a  
20 vision on how to make it happen, but what we  
21 recognize from those previous experiences is that  
22 you could not be successful in delivering mobile

1 broadband services unless you could get the cost  
2 of delivered bit to be down because right now, if  
3 you see the struggle of voice calling over their  
4 narrowband cellular network or even the new 3G or  
5 2.5G, whatever Hank would classify it on his  
6 charts, the cost per delivery bit is too  
7 prohibitive to really give you the kind of  
8 throughput you need to be the new kind of  
9 competitive broadband service offering, and that  
10 is really what we had to get to. That is really  
11 what had to change.

12           There were three key elements, similar to  
13 Bin's three key elements. I think we are thinking  
14 of it in a similar fashion.

15           We thought the first one was the  
16 spectrum. The spectrum is the life blood to  
17 mobility. It is really something you have to  
18 have, and we identified the 2.5 MHz spectrum as  
19 being the right place to be. At that point, it  
20 was ITFS and MMDS spectrum which was underutilized  
21 wireless cable spectrum that was being  
22 reclassified at the FCC. It gave us a great entry

1 point without having prohibitive spectrum cost.

2           The second thing that we looked at was  
3 the technology, was the promise of this broadband  
4 technology that was being kicked around and the  
5 WiMAX, you know, precursor IEEE to the WiMAX  
6 forum, and what was being moved around the CDMA  
7 and GSM technologies going to really take place.  
8 So we went around and tried to find and see if we  
9 could make that technology work.

10           Just to make sure that we could nurture  
11 it in a very atypical fashion, we bought a small  
12 precursor in the WiMAX technological world, a  
13 company called Nextnet up in Minneapolis, to make  
14 sure we could nurture that market to find a  
15 technology road map that was going to have to help  
16 really push the company, the big players, the  
17 Motorolas, the Intels, the Nokias, and Samsungs,  
18 who are all moving, but to give a little prod, we  
19 actually went forward and started deploying using  
20 those technologies.

21           The third was scale. One of the things  
22 we thought we were going to have to do is to



1 create a market. When you have incumbents who  
2 have entrenched markets with already having legacy  
3 activities that are beginning in revenue,  
4 sometimes they don't want to cannibalize their own  
5 services. They don't want to move to that next  
6 service too prematurely. We can look at that in  
7 the DSL world where there has been a lot of years  
8 where DSL was available to the incumbent telephone  
9 companies, but it was slow to develop, and it  
10 really did take some of the initiatives of  
11 Northpoint and Covad and the cable modem  
12 development that really became I think probably  
13 the impetus behind moving that forward.

14 In a similar fashion, we thought we had  
15 to help seed the market by delivering broadband  
16 wireless services in other markets. So we bought  
17 the spectrum in Europe. We bought spectrum in  
18 Mexico and Canada and deployed spectrum in  
19 broadband networks using that technology, to kind  
20 of build scale, because the third key was the  
21 scale which gets you to all of the activities,  
22 that environment, that infrastructure that Bin

1 talked about.

2 We also found strategic partners, Intel,  
3 Motorola, Bell Canada, Circuit City, Best Buy.  
4 They have all been critical in helping us both  
5 move that forward and make it happen.

6 Then the last thing is this is an  
7 incredibly capital-intensive business. The one  
8 thing you have to recognize is the biggest barrier  
9 is that you need the capital, and it is that sunk  
10 cost that I think Simon talked about in the last  
11 panel that really is a very difficult activity in  
12 our getting revenue on most of that early return.  
13 So we were able to raise \$4.3 billion, part of  
14 that with the seed money Craig brought and others,  
15 and we have I think been relatively successful.

16 I have a chart here that just kind of  
17 gives some fun statistics on both wireless and how  
18 people are moving more to wireless, but also just  
19 how the whole growth of the industry and  
20 e-commerce is moving, but I think Tom and Bin and  
21 everyone already covered that.

22 I am just going to talk about the

1 Clearwire vision, though, because it is the triple  
2 play, but it is a mobile triple play. It is the  
3 ability that I think if you look at what Hank  
4 showed in the throughput that is permitted using  
5 these technologies and the fact that you can now  
6 deliver a bit at one-tenth the cost which I said  
7 was really the necessary pre-element of being a  
8 success, you are able to provide all three of  
9 these services in a mobile environment. Bin and  
10 all those charts that he showed and all of the  
11 pictures of what different devices are going to be  
12 brought, that is all part of it. It is having  
13 those services embedded. It changes the cost  
14 structure.

15           One of the biggest elements is the  
16 cost-per-gross add that each of us pay in trying  
17 to sign up a customer. If we can have an open  
18 network, if we can have the ability to let people  
19 sign on, if we can have the chip already built in  
20 and don't have to subsidize a handset, don't have  
21 to have the cost of a modem subsidized, then you  
22 really can get the price down and be able to offer

1 those services to other people.

2 I just wanted to tell a little bit, very  
3 briefly, about what Clearwire is currently doing.  
4 We have a WiMAX class service. It is the Motorola  
5 Expedience. We actually have now deployed WiMAX  
6 802.16 in Portland, have it operational, working  
7 right now with a full commercial launch by the  
8 first quarter of 2008, similar to Bin's activities  
9 with Motorola, the Motorola WiMAX that he has in  
10 Chicago.

11 We have 14 million people that we cover.  
12 We have 420 cities and towns that are covered.  
13 These are the regions that are depicted on the  
14 map, just to give you a sense, so that you have  
15 the size, from Seattle, Jacksonville, some of the  
16 bigger cities, the NFL cities, down to some very  
17 small places like Duluth and St. Cloud, Minnesota.

18 We also, as I mentioned, are in Europe.  
19 We had a joint venture in Canada which has  
20 deployed the service in Canada. We are also in  
21 Mexico in a joint venture with MVS in Mexico, and  
22 Mexico City is actually one of the largest

1 deployments of the WiMAX free class activity, but  
2 we have service ongoing in Ireland, Belgium,  
3 Denmark, and Spain. Germany is being built. It  
4 will be launched in the first quarter, and Poland  
5 and Romania are on the chart to go forward.

6           Just to give you a sense of the progress,  
7 it is real progress. There are customers. We  
8 have 350,000 customers signed up, 15 million POPs  
9 that are covered, and there is ongoing growth and  
10 ongoing market deployment right now. As I said,  
11 Portland is coming online. Nashville, Rochester,  
12 New York; Syracuse, New York, there are a number  
13 of markets, and we can all talk about what is  
14 happening and how it is moving forward.

15           For penetration, our markets that we  
16 launched in 2004, we have broken 10 percent  
17 penetration or more in every one of our first 15  
18 markets, and this is kind of trying to get to what  
19 I thought the topic was, and I am sorry it took me  
20 so long to get here, but I really think that if  
21 you really can have the ability to deliver a  
22 service at a cost point in a new fashion, you

1 become disruptive to the market, the entrenched  
2 players in the way it is provided. But it is not  
3 as if you are disruptive to one element of the  
4 market.

5           What we tried to show on these is that  
6 Clearwire or WiMAX technology, let it just serve,  
7 and it doesn't necessarily even have to be WiMAX  
8 per se. It could be LTE or any other 4G precursor  
9 that Hank had laid out on his chart, but you  
10 really are totally competitive against all of the  
11 other wireless 3G providers, and at the same time,  
12 because you are able to deliver the speeds in the  
13 same service offerings that are provided by the  
14 cable companies or the telephony companies on an  
15 at-home basis, you are also finding in my mind a  
16 disruptive convergence.

17           So, to take the multidimensional  
18 convergence that we just heard from Tom and kind  
19 of put it in a perspective, we have the  
20 opportunity to be disruptive across different  
21 market elements, and as the wireless and wireline  
22 networks start to come together and actually start

1 to compete more against each other, we think we  
2 really provide an opportunity to be competitive on  
3 both elements and to work on either.

4           The Bluetooth and the WiFi, just on  
5 municipal networks, we really do see them as  
6 complements. We don't see them as actually  
7 providing a competitive alternative.

8           So what do we need? I think regulatory  
9 stability and certainty. This is something that  
10 does take an awful lot of up-front capital. It  
11 has some very skittish markets out there. If you  
12 don't know for certain that there is going to be  
13 an environment where we know what our status is as  
14 a company and how we are going to be treated, you  
15 really can't expect to have anything that is going  
16 to work that is going to go forward and you are  
17 going to get the financing that is necessary.

18           Second is spectrum policy. We would not  
19 have been able to get into business if it weren't  
20 for the 2.5 or the EBS/BRS spectrum. Really, it  
21 was underutilized. It was designated as  
22 broadband. The WiMAX Forum had made it the





1 card, and in many cases, what we are finding is  
2 that as you look at this convergence, people don't  
3 know how to classify us, are you IP, are you a  
4 carrier, are you a carrier when it comes to voice,  
5 how are you going to provide CALEA  
6 responsibilities, how are you going to provide  
7 E911.

8           We said adapt those requirements, so that  
9 we recognize we have responsibilities. We  
10 recognize that there is a need to participate in  
11 those activities, and we are not trying to eschew  
12 those regulatory responsibilities.

13           On the other hand, it isn't just  
14 something that we can take on the same status,  
15 since we don't have a circuit switch, for  
16 instance, with pure IP. There are different  
17 issues around that, and they just have to make  
18 sure we adapt them for that.

19           Thank you very much.

20           MR. WALLACE: Thank you, Gerry.

21           I am Bill Wallace, DigitalBridge  
22 Communications. I think I am here to describe the

1 situation we find today in WiMAX in that it is a  
2 market that lends itself well not just to national  
3 players, like Sprint and Clearwire, but also very  
4 appropriately to regional players.

5 Tom talked about MetroPCS and the  
6 cellular industry. We are very much like that.  
7 We are taking a regional strategy, and we very  
8 much appreciate the seeding of the market that  
9 Sprint and Clearwire have done because without  
10 that, we probably wouldn't have been able to raise  
11 the \$40 million we have raised.

12 I think in terms of barriers to entry, we  
13 are a great example that in this market, the WiMAX  
14 industry, \$40 million, and our first million  
15 dollars got us in the market, that you don't need  
16 to be raising \$4 billion to compete on a regional  
17 basis, and the economics really work quite well.  
18 I will walk through a few of those points as I go  
19 through the presentation.

20 Our goal has been to become the  
21 number-one private WiMAX operator serving  
22 underserved communities, and typically, the

1 underserved communities are 10- to 20,000 and  
2 above, but probably not more than 100,000.

3 We find that we serve very well  
4 consumers, small businesses, and visitors. Some  
5 of our communities are vacation spots, and WiMAX  
6 is suited very well for that.

7 We find with this technology, you have  
8 not only a low cost, but a differentiation which I  
9 will describe in more detail, but also the  
10 opportunity to make money in small markets, and I  
11 think historically, that has not been the case.

12 As Gerry and Hank and Bin described,  
13 mobility is going to be important. First, we are  
14 making good money on the fixed broadband, but we  
15 expect PC cards to be available soon, and then  
16 with embedded WiMAX chips, we will all make more  
17 money and serve customers even better.

18 To date, we have gotten started. We have  
19 been in business really for about a year, since a  
20 year ago this time, been able to secure spectrum,  
21 about 150- to 175 million megahertz POPs. We have  
22 built a NOC. We have launched 4 communities, soon

1 to be 15. We have a got a team. We have got a  
2 NOC, and we are up and running. We will have \$10  
3 million of revenue this year.

4 This is pretty much a chart describing,  
5 summarizing what everyone has said, that today it  
6 is fixed, tomorrow it will be PC cards, and then  
7 embedded chips and then multiple devices.

8 What is happening in this marketplace,  
9 when you are in the fixed world, you think about  
10 households covered. Here, we are moving to start  
11 off focusing on market share of fixed households,  
12 but very quickly, we move to people covered and  
13 mobile people, and that is when it becomes a much  
14 bigger market for all of us and move beyond the  
15 50-percent availability that you have in the cell  
16 markets today.

17 Why is WiMAX so economic in reaching  
18 smaller communities and other technologies?  
19 First, it is highly capital efficient, although it  
20 takes a lot of capital to reach many cities,  
21 within any one city. We spend \$40 to \$60 per  
22 household covered versus a DSL or cable company

1 that is going to spend \$800 or \$1,200. It is a  
2 radically different set of economics.

3           It is also very demand-driven. It is  
4 modular. I spent some part of my career in  
5 Verizon. We were part of a small division. We  
6 had deployed some early WiMAX, and that is when  
7 the light bulb went on for me because we had  
8 deployed to a small town down in Southwest  
9 Virginia, Grundy, Virginia, put up a tower with  
10 radio on it, and for various reasons I won't go  
11 into, we found that we had aimed the wrong way.  
12 We had aimed toward part of the town where there  
13 already was DSL. In the old days, that would have  
14 taken a long time to fix and a lot of money, but  
15 basically, we just tilted the radio and aimed for  
16 the part of the community that didn't have DSL or  
17 cable, and that is where we go first in these  
18 smaller communities.

19           We aim the radios right where there is no  
20 broadband. We start there, and then we start  
21 targeting the cable companies and the DSL  
22 providers as well. As Clearwire has shown, there

1 is a lot of business coming from cable and DSL to  
2 broadband wireless at this point.

3 Third, it is an IP network. It optimizes  
4 both voice and data, and it is very easy to add  
5 profitable applications like voice over IP.

6 It is truly differentiated, and we  
7 appreciate, again, what Clearwire is telling us.  
8 It is very easy to install and activate service.

9 We had a case where basically we were  
10 selling against the cable companies in one of our  
11 universities, and we handed out modems. The  
12 student goes home, plugs it in, plugs it into the  
13 laptop, and it is good to go within two minutes.  
14 You can't do that with any other broadband  
15 technology, and it is also portable at this point,  
16 soon to be mobile.

17 It truly redefines the customer  
18 experience to broadband in a box, and it makes it  
19 very easy to do that.

20 Finally, we do believe that WiMAX is  
21 bringing the benefits of the Internet to your  
22 pocket, very much like wireless did in the case of

1 the voice network.

2 Three parts of our business. We started  
3 with the last mile. I think you have heard enough  
4 about how disruptive we think WiMAX will be. The  
5 middle mile is a special access that Bin talked  
6 about. That is very important to our business,  
7 and we only go to communities where we can get  
8 economic special access. We avoid the communities  
9 where it is not competitive because it ruins the  
10 economic model.

11 Then today, in the first mile, we have  
12 been able to get into business in under 12 months,  
13 largely because we have used outsourced customer  
14 care. We use a company called Arise. We have  
15 used outsourced billing. We have used outsourced  
16 data centers, about 300 yards from our building at  
17 Equinex, and everything is variable. You don't  
18 need to build a huge fixed-cost business to get  
19 into the WiMAX industry.

20 We have had great success, much like  
21 Gerry said, surpassing 10-percent penetration. I  
22 want to focus on that for a minute. In my mind,

1 it took a PC four and a half years to reach  
2 10-percent penetration nationwide. To have a  
3 product category like this reach 10 percent in 12  
4 months or 15 months, actually the first 15 markets  
5 are already about 10 percent, what we are showing  
6 as our first market, this is just three markets,  
7 and one of them is six months old, so a  
8 representative sample, Rexburg, Idaho, 21,000  
9 people. We are over 9 percent now, 8.3 percent  
10 here, but we are over 9 percent after six months.  
11 So we will well exceed 18 percent probably over  
12 the first year, and that is based on an investment  
13 of under \$260,000. So it is a market you can get  
14 into economically and get in fast. We now have,  
15 as I said, four towns deployed, but most of them  
16 have just been deployed in the last couple of  
17 months.

18 Let me just end by summarizing the issues  
19 that could affect us. We like to say we are  
20 living the business American dream here because we  
21 have been able to raise money. That was probably  
22 the hardest part. We have raised it through the



1 venture capital, puts and takes, and the kind of  
2 things that worry us, spectrum, we support  
3 competitive bids to the wide space auction, as Bin  
4 said. It is going to be very important for  
5 picking towns we want to go into.

6           Timely tower access. When we go into a  
7 town, getting access to towers, if the only towers  
8 available are cellular towers, it proves very,  
9 very difficult and very time consuming to get on  
10 those towers. We love brokers who have towers,  
11 Crown Castle and others. Those work much easier  
12 and much faster.

13           Backhaul, the special access. Right now,  
14 we avoid towns where we can't get something that  
15 is under \$100 a megabit. It is eventually going  
16 to slow our growth, so whatever Federal  
17 authorities can do to make sure there is a  
18 competitive marketplace for special access they  
19 should do. We go to towns where there are three  
20 or four providers, Syringa Net out in Idaho with  
21 360 Networks, as well as Qwest, and we find prices  
22 are great.

1           Looking down the road, we are very much  
2 looking forward to setting up roaming networks,  
3 very much like the cellular industry did, so that  
4 we can have roam across a DigitalBridge network,  
5 as well as Sprint and Clearwire networks and  
6 anyone else who happens to have WiMAX spectrum and  
7 WiMAX capabilities.

8           We would also hope to establish industry  
9 relationships such that no towns are left behind.  
10 This technology is so economical that there is no  
11 reason for any town not to have broadband. We  
12 hope to establish industry partnerships to cover  
13 not just the towns we are covering now, but even  
14 smaller ones down the road.

15           So thanks very much for your time.

16           MS. BURCHUK: Now I will start the  
17 question portion. I guess I will kick it off, and  
18 I will talk to my panelists first on the question  
19 about content.

20           The major wireless providers with the  
21 broadband networks offer a wide variety of content  
22 to their subscribers. I would like you to speak

1 on how important the content is to your service  
2 and the success of it, and do you plan to offer  
3 content to your subscribers?

4 Sprint, we will start with you.

5 MR. SHEN: Clearly, just to mention, we  
6 are really for an open network and really for a  
7 lot of companies to ride onto that, and we are  
8 going to open up the network, too. So, to that  
9 extent, we want to make sure that content has a  
10 good experience on our network.

11 Further than that, we believe that when  
12 people are in the environment, especially in the  
13 mobile environment, convenience and accessibility  
14 are very important. So we plan to also have our  
15 own portal and then select some content that  
16 people really just want to have with good  
17 accessibility and the ability to download right  
18 away, maybe top 20 videos or top 20 music. So  
19 those kind of relationships, we will strike.

20 But most important of all, we want to  
21 make sure those kind of partnerships will really  
22 take advantage of the network capability, like the

1 location, like the device intelligence, and really  
2 optimize the content experience, especially for  
3 certain things like fitting to a small screen of  
4 the devices.

5           So we are going to do that and optimize  
6 these kind of content experiences on our portal.  
7 We also are going to open up the API to the  
8 developer community, so they can utilize those  
9 kinds of capabilities, too, as an economic return  
10 for us.

11           MS. BURCHUK: Gerry?

12           MR. SALEMME: Clearwire has very similar  
13 visions to Sprint's, and we also believe that it  
14 should be open. You are going to see a lot of  
15 different applications and content to come on and  
16 really want to change that experience for people  
17 and we agree that that is going to be very  
18 helpful.

19           We also actually have pulled together  
20 something called Clear Media, and we have hired a  
21 team of content providers who have been providing  
22 content for different applications and services,

1 mostly in the mobile environment, and we actually  
2 segregated them in L.A., thinking that is where  
3 they can get the best interaction and think of the  
4 most hip ideas, so we keep them away from Seattle  
5 and Washington, D.C. There is actually a team  
6 that is putting together the specific content that  
7 we would have for our service.

8 MR. KAFKA: From the content standpoint,  
9 a key aspect very similar to what Bin said, when  
10 you try and access, most of the web content that  
11 is out there now, it is designed for interfacing  
12 with a PC, having a keyboard, having a mouse,  
13 being able to scroll across multiple screens. It  
14 doesn't work really well when the screen is this  
15 big and you've got a little tiny keyboard and you  
16 have got other types of interfaces. So a lot of  
17 the content activity is focused around what you  
18 need to do to develop content that is easy for  
19 customers to use and interact with in a mobile  
20 space and get an integrated content environment  
21 across a mobile space and PC interfaces and other  
22 types of devices. So you end up more

1 device-focused, location specific-focused, to make  
2 sure that that becomes available and is easy to  
3 get to.

4 MS. BURCHUK: Okay. A number of you have  
5 spoke about the cost efficiency of using a WiMAX  
6 network, and I would like to hear from you all a  
7 little bit about the prices you are planning on  
8 charging or are charging now with wireless  
9 competing to be that third pipe to the home. How  
10 do you set the price to your consumers? Do you  
11 consider other broadband options when you are  
12 setting your prices?

13 MR. WALLACE: We, of course, look at the  
14 marketplace as a very --

15 [Technical difficulty with microphone.]

16 MR. SALEMME: Pricing always gets  
17 everybody.

18 MR. HAZLETT: Actually, what he said was  
19 that all the providers get together and work out  
20 these price schedules.

21 [Laughter.]

22 MR. HAZLETT: His microphone went off at

1 that point. I think that was counsel.

2 MR. SALEMME: Clearwire also prices by  
3 market. In many cases, we price a little above  
4 the price of the DSL service in the market for  
5 what is our fixed modem service and a little bit  
6 less than the cable because we believe the  
7 mobility service is actually providing you more.  
8 The portable service that we are selling provides  
9 more than the DSL, but we don't try to compete  
10 against the speeds that the cable companies at  
11 least advertise. So we are usually priced a  
12 little bit in between that.

13 For our PC card, we price at just about  
14 the same price as the EVDO card, the Sprint, the  
15 different cards that are out there in the 2G  
16 environment, but we are giving a lot more speed.  
17 We are doing 1.5 megabits per second instead of  
18 the 250 or 300.

19 MR. SHEN: We kind of set up a price  
20 here. Our commercial service will be next year.  
21 Also, we have some framework. Framework is  
22 actually pretty essential, as Gerry just

1 indicated, for service to target a home kind of  
2 environment. We need to be competitive to cable  
3 and DSL. There is no question about it.

4 For the services in the ongoing  
5 environment, like a PC card or laptop, it will be  
6 lower than our EVDO services because we will have  
7 a lower cost structure, and we try to acquire more  
8 mass market customers. So that is kind of a  
9 combination.

10 Our differentiation is really in  
11 packaging those services because, from our point  
12 of view, cable and DSL don't have the capability  
13 to serve people on the go, and we want to really  
14 differentiate that. So we want to package those  
15 services together.

16 MR. KAFKA: As an engineer, I don't get  
17 involved in the pricing decisions very often, but  
18 I will say that the mechanisms that we use for  
19 pricing are, in general, kind of the standard  
20 approaches and mechanisms that we use in pricing  
21 competitive market services. So it is typical  
22 competitive pricing approaches and strategies.



1           MR. SALEMME: I just want to remind  
2 people that what Bin talked about earlier is when  
3 you have an embedded chip and you can actually  
4 sign up for shorter periods of time, on an ad hoc  
5 basis, it really does change the environment, and  
6 that is part of what I think everybody's model is  
7 when we get to really embedded devices.

8           MR. WALLACE: I would just elaborate on  
9 what Bin said about PC cards.

10           Part of the reason I sense that the  
11 existing cards from the cell companies are so high  
12 is that you don't want to crowd out the voice  
13 network. If those were priced at \$30 instead of  
14 \$50, you would really be crowding a lot of voice.  
15 So I think there is huge price reduction  
16 possibility in the PC cards in the next five  
17 years, and that is going to be a real opening up  
18 in the marketplace.

19           MR. SHEN: I guess you are saying the  
20 same thing, what I tried to suggest. I think that  
21 the 3G cost is still very high to us. If you look  
22 at a PC card cost, it is very high. The WiMAX and

1 PC card cost will be much lower in the year one.

2 So the cost structure is different.

3 Secondly, we are supporting 15 million

4 customers on our network with the 15-megahertz.

5 In that sense, they are competing for the

6 resources, and voice is very important to us. So

7 that is why the cost to provide the broadband

8 service on 3G is challenging for us.

9 MR. KAFKA: Spectrum is an important

10 consideration, and the cost of the devices is an

11 important consideration as well.

12 We haven't had too many disagreements. I

13 don't think there is a fundamental technical

14 difference between where 3G and LTE technology are

15 going and where WiMAX is going. They are using a

16 lot of the same technologies, the same core

17 processing, the same digital signal processors,

18 and all of those technologies are bringing down

19 the cost per bit.

20 Now, where there is a difference is that

21 if you look at the products that are out there

22 today and what you can get access to today, if you

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1 have frequency division duplex spectrum, the FDD  
2 spectrum, the products that are out there that  
3 work with that today are typically the 3G-based  
4 kinds of products. WiMAX does not yet have a  
5 product out there for that spectrum, although  
6 frankly that is one of the things the WiMAX Forum  
7 is working on. That is one of the next  
8 developments that is going on in the WiMAX Forum.

9 Similarly, there is I think only one  
10 company that has a product out in the 3G LTE kind  
11 of products base that will work in TDD. So, if  
12 you have got spectrum that is TDD, then it makes a  
13 lot of sense to use WiMAX. If you have got  
14 spectrum that is FDD, it makes a lot of sense to  
15 use the 3G technologies.

16 MR. HAZLETT: I am a happy wireless  
17 broadband customer for more than three and a half  
18 years now that I have had the Verizon wireless  
19 card, and it has come down from \$80 a month to \$60  
20 a month, and presumably, this is a very fluid  
21 situation. You folks are going to press Verizon's  
22 margins ruthlessly, and I am sure you have told

1 that here to the Department of Justice.

2 [Laughter.]

3 MR. HAZLETT: We really don't know. The  
4 previous question was on content. These  
5 institutions are evolving in such an interesting  
6 fashion, and as we go forward, everybody wants to  
7 talk about open networks and so forth, and  
8 certainly, these cards, the PC cards are open  
9 network. It is just access to the Internet, and  
10 that is where you want the Internet. You are not  
11 particularly interested in the mobile Internet,  
12 but over time, as these mobile networks develop,  
13 there is no question that there is going to be  
14 some integration to stimulate investment in web  
15 applications that are mobile-specific.

16 We are at a very early stage here in  
17 mobile applications. So location-based services  
18 and some of these things that are developing now  
19 are going to be integrated with the carriers. The  
20 carriers are going to price for that, and it will  
21 be interesting to see what comes out of that.

22 Just to freak people out, in the age of

1 Google where we see how pricing can be totally  
2 turned on its head in a very short order of time  
3 here, with the business model sort of coming out  
4 of nowhere, you now have a company called Putting  
5 Media, if I am not mistaken, that is working on a  
6 mobile network application where you get the  
7 phone, you get the voice for free. Their voice  
8 recognition software follows your conversation and  
9 hits you with the advertisements relative to your  
10 conversations.

11 As I say, we live in the age of Google.  
12 Hey, why not? You are reading my e-mails. Why  
13 not listen in on the calls and capitalize that?

14 So that seems like quite an unusual  
15 business model because we have been paying for  
16 minutes, but there is going to be a lot of  
17 innovation in this market.

18 Remember it was only May of 1998 that  
19 AT&T Wireless did Digital One Rate, and that just  
20 completely turned the world upside-down, not just  
21 the wireless world, but that was a major event in  
22 the history of a fixed-line narrowband

1 telecommunications system in the U.S.

2           You recall those, don't you? Voice  
3 systems. So then there was a massive migration  
4 that really was triggered just by that marketing  
5 innovation, followed by all the other carriers  
6 very quickly, of course, and then long-distance  
7 minutes just flowed like water over the waterfall  
8 over to the wireless sector, and the rest is  
9 history.

10           Anyway, there is going to be a lot of  
11 innovation in this market, and as we go forward,  
12 people are going to certainly chant open, but  
13 there is going to be a lot of integration and  
14 content, I believe, and for very efficient  
15 reasons, and there is going to be a lot of  
16 innovation on the pricing model.

17           MS. BURCHUK: Does anyone in the audience  
18 have any questions? If you would introduce  
19 yourself and pose your question.

20           ATTENDEE: You were talking a lot about  
21 residential markets. Does anyone anticipate a  
22 time when WiMAX would be available for enterprise

1 customers who have been hopeful that it would  
2 provide a competitive alternative to traditional  
3 special access services, and if you do anticipate  
4 that happening, would you put a timeline on it?

5 MR. SALEMME: I think that we are talking  
6 really about 802.16e, and maybe Hank should be  
7 included in this, but if you think of some of the  
8 802.16d and tower, fiber, and some of those other  
9 companies, I think they are taking more of a  
10 line-of-sight, broader pipe, kind of a  
11 next-generation LMDS service that really is the  
12 type of thing that the credit card companies,  
13 Visas and others, could be using for their  
14 services, and I think that is really more of the  
15 enterprise solution than these, though if you  
16 could get the kind of throughput you are talking  
17 about, you really have a lot you can do.

18 The key is -- I haven't emphasized enough  
19 the word "spectrum." To really get a mobile  
20 triple-play, to get that kind of video  
21 capabilities, you need a lot more than the 20, 30  
22 megahertz of spectrum that has been talked about.

1 So, even the 700 auction, having a 22-megahertz  
2 channel is not really going to get you enough  
3 spectrum to do the kind of throughput that we are  
4 talking about to be competitive in this market.

5 MR. KAFKA: Even with the 700 kind of  
6 throughput, you can get very substantial broadband  
7 services, but there's always kind of an  
8 engineering tradeoff. The less spectrum you have,  
9 the more towers you need to get the same kind of  
10 throughput. So there is that balance that goes on  
11 if you have more spectrum and, again, the right  
12 kinds of spectrum and those kinds of things. You  
13 can be more effective.

14 I think the access market is fairly  
15 competitive. There are new access technologies  
16 being developed. Wireless is something that we  
17 are looking at using for wireless backhaul  
18 capabilities. So it is developing. It is moving  
19 out the same. The same technologies that are  
20 allowing the 802.16 and 3G technologies to evolve  
21 also start to get applied to the point-to-point  
22 wireless as well, and so I think that, yeah, you



1 are going to continue to see improvements in that  
2 area.

3 MR. SHEN: Also, you look at the  
4 enterprise spectrum, it has several segments,  
5 which I think Gerry just implied here, the T1  
6 line, the T3 line, and even higher bandwidth  
7 access. So the spectrum is the bottleneck. You  
8 might be able to replace that T1 line with an  
9 802.16d line, and then the question is how many  
10 market shares you really can achieve through the  
11 spectrum allocation and through the tower kind of  
12 infrastructure there.

13 MS. BURCHUK: Any more questions from the  
14 audience?

15 ATTENDEE: Hi. I noticed the gentleman  
16 from Sprint and I believe the gentleman from  
17 DigitalBridge both talked about the deregulation  
18 of special access charges as a prohibition or  
19 something or slowing them down deploying the  
20 networks and WiMAX technologies, and I was  
21 wondering if that was true for the gentleman from  
22 Clearwire and also what the economist thought that

1 the deregulation of special access charges had  
2 worked or needed some reform.

3 MR. HAZLETT: I haven't looked at the  
4 special access market. So I can't help you on  
5 that one. I'm sorry.

6 MR. SALEMME: We have been using wireless  
7 backhaul on all of our markets at the current  
8 time, though we do share the concern about special  
9 access, but we really have focused in a lot of  
10 what we consider our business model, to be  
11 wireless all the way along, also for reliability.  
12 So it is not just cost, but the reliability of our  
13 wireless network is actually better.

14 Our only failure was in Jacksonville when  
15 our T1's went down on the wired network after the  
16 hurricane.

17 MS. BURCHUK: Another one?

18 ATTENDEE: My name is Jim Johnston.

19 Going back to the content question, it is  
20 one thing to provide content and make it  
21 available. It is another thing to be open and to  
22 allow anyone else to provide content on the same

1 terms that you are providing content.

2           When you say you are open networks, do  
3 you mean you are going to be open to everyone?  
4 Will you allow everybody else's video service to  
5 compete with yours?

6           MR. SHEN: Yes. It is an open Internet.  
7 So we expect people will provide the same kind of  
8 video service, which is actually driving us to  
9 really think hard, what kind of video service we  
10 want to offer.

11           I will give you some examples. Some  
12 video service, if you can see from the YouTube  
13 example, it doesn't probably make sense for us to  
14 offer, but video chat, you can do an ad hoc video  
15 chat by any kind of off-the-shelf software, but if  
16 you really want to have a great experience with  
17 end-to-end quality control, you basically need to  
18 really watch out what type of devices, what kind  
19 of client software you use, managing the network  
20 quality, and you put a lot of resources behind  
21 that, too. Hopefully, you can charge some premium  
22 out of that, too.

1           So those kinds of instances are really  
2 adding the value. I think this will be one of the  
3 millions of applications that we will probably  
4 choose to offer here.

5           MS. BURCHUK: A number of people earlier  
6 today talked about voice over IP, and some  
7 analysts predicted that users could grow from  
8 virtually zero today and to 250 million in 2012.  
9 Does your company have a plan to offer voice  
10 services, and how important is this to the overall  
11 success of your business?

12           MR. SALEMME: We now sell voice over IP  
13 in a facility-based voice over IP network that is  
14 in every one of our markets where we currently  
15 provide -- almost every one of our markets where  
16 we currently provide services. It is not an  
17 over-the-top service that is a resold service like  
18 Vonage, and we have gotten a very strong take rate  
19 with our customers who take our broadband service.

20           We don't try to market it to people who  
21 are outside of our actual -- you know, we sell it  
22 for our customers over our broadband network, and

1 we intend to do that, continue that as we move to  
2 the next voice application.

3 MR. WALLACE: Yes. We would have a very  
4 similar approach, and we anticipate anywhere from  
5 15 to 20 percent of our data customers to end up  
6 being voice customers.

7 An interesting aspect about this market  
8 is that there are hosted VOIP services, and our  
9 service carrier is very much like Clearwire.  
10 There are hosted VOIP providers where you can go  
11 and get a turnkey solution. You don't need to  
12 necessarily become a voice provider. You can by  
13 end-to-end using your own network and resell it.

14 MR. KAFKA: From a technology standpoint,  
15 I think one thing that is interesting to note is  
16 that if you look at WiMAX and LTE, the way they  
17 are defined, they do not define a circuit voice  
18 mode. If you are doing voice over WiMAX or voice  
19 over LTE, it is voice over IP.

20 MR. SHEN: We think this is a great idea  
21 for the home and the office next year.

22 MR. HAZLETT: This is a great example of

1 where a bundled service which is not offered on a,  
2 quote/unquote, "open platform," as defined in some  
3 questions, which may have been your question, is  
4 extremely efficient.

5 Clearwire has no market power in the U.S.  
6 voice market. I am going to assert that, and  
7 Clearwire hopes it is profitable and will acquire  
8 market share to be considered possibly having  
9 market power, but it is an entrant into this  
10 market. To fashion a customized solution for its  
11 customers that is not generally available to other  
12 providers, including those independent third  
13 parties that might want to say "Hey, we want to  
14 use the Clearwire infrastructure and spectrum to  
15 do exactly what Clearwire is doing" would not  
16 advance consumers' interest. In fact, quite the  
17 reverse, it would kill incentives through  
18 overregulation, essentially, of the entrants.

19 I think this is a very nice example of  
20 it, and I have actually assigned it as a test  
21 question.

22 [Laughter.]

1 MS. BURCHUK: Any questions in the back?

2 ATTENDEE: This is a question for Hank,  
3 mostly.

4 You just bought a bunch of 700-megahertz  
5 spectrum from Aloha, and I assume you are going to  
6 want to augment that in the auction. I don't know  
7 if any of the other folks that are active in 2-dot  
8 fiber are looking at 700 megahertz, but that is  
9 really the last big auction.

10 There's 20 megahertz of unpaired spectrum  
11 in 2 gigahertz left. There is some available,  
12 MMDS, ITFS, left over as well that you guys talked  
13 about. What do you do after that? Where does all  
14 the spectrum come from when these last couple  
15 auctions are over?

16 MR. KAFKA: I am going to decline to  
17 answer that question because we are getting pretty  
18 close to the quiet period around the 700 auction,  
19 and I have been cautioned to stay away from any  
20 specific spectrum questions on those lines at this  
21 point in time.

22 After the auction, we can talk.

1 MR. SALEMME: Peter, just two items.

2 One, I think that you have to really look at one  
3 of the things Tom had on his chart which was the  
4 3.65 is unlicensed. Those rules could be changed,  
5 so that more spectrum could be made available, and  
6 that could be converted actually to licensed  
7 spectrum, and I think you may find that you would  
8 maximize its value and also provide better  
9 services to consumers and get more competition  
10 because the more spectrum you have, the more  
11 services you can bring, the better speeds you can  
12 provide, and therefore, more competition.

13 So I would suggest that that may be  
14 another place, and you still have AWS3, the MMD  
15 spectrum that may come out in the future.

16 Think about it. There was a time when we  
17 actually used 3.6 in Europe, and five years ago,  
18 no one would have thought that you could be  
19 providing service on 3.6. The technology -- and  
20 Hank will tell you this -- has really made  
21 spectrum a lot more valuable.

22 I remember when we were in the duopoly



1 system in cellular, in the old McCaw cellular  
2 days. Nobody thought that 1.9 PCS stuff was going  
3 to work. That's for sure.

4 MR. KAFKA: What has been interesting, if  
5 you go back and think in current times, some of  
6 the higher frequency spectrum actually works  
7 better with MIMO technology than the lower  
8 frequency spectrum does. So technology can have a  
9 significant impact on what you can get and where  
10 you can get it and how it can work.

11 MR. HAZLETT: Let me also say, just to be  
12 provocative, the spectrum is terribly  
13 underutilized. Your assertion is that it is all  
14 used up and it is crowded, and that is what we  
15 have said for a long time.

16 I just wrote a paper quoting the National  
17 Journal in 1990 saying the last slice of available  
18 spectrum was being given out for air phone  
19 service. This is 1990, before PCS, AWS, 700 or  
20 anything else.

21 The television band, post-digital TV  
22 transition, is 294 megahertz of almost entirely

1 wasted spectrum.

2           So I know it is Washington, D.C. You are  
3 not supposed to talk like this. We are not  
4 supposed to notice. We are not supposed to notice  
5 it is wasted spectrum, but if you issued overlay  
6 rights to a lot of this stuff, including the  
7 television band, you know, 50-megahertz nationwide  
8 AWS, grandfather all the existing users in and let  
9 new players come in and make deals to rearrange  
10 that spectrum, you could have all the over-the-air  
11 broadcasting you wanted, which may be more, but  
12 you could do it on a small fraction of the 294  
13 megahertz.

14           Of course, it might be terribly efficient  
15 just to go all cable and satellite, and you could  
16 arrange that for a very small number of billions.  
17 In fact, it is pretty close to what we are using  
18 to subsidize the 1941 technology when we talk  
19 about digital TV boxes being subsidized by U.S.  
20 taxpayers.

21           Anyway, there is a lot out there. Under  
22 the current political constraints, it is very

1 tough. That is why people on this panel are  
2 screaming about access to spectrum. There are  
3 entrants in the market. They need more bandwidth.  
4 I think everybody really ought to take a look at  
5 that. I would love to see the Department of  
6 Justice take a look at that.

7 MS. BURCHUK: Do you have a question,  
8 Carl?

9 MR. WILLNER: Since I was exploring  
10 wireless substitution with my panel this morning,  
11 I would like to follow up with a few of you, with  
12 DigitalBridge, Clearwire, and Sprint. This was  
13 touched on I know in one of the presentations, but  
14 I would like to ask each of you what your sense is  
15 about the extent to which your services are  
16 growing the market and to what extent they are  
17 taking business away from the telcos and cable  
18 companies that they would otherwise have gotten.

19 MR. WALLACE: Our sample is pretty small  
20 right now, but I would say half of our customers  
21 are growing the market, meaning turning dial-up  
22 customers into broadband customers, and half of

1     them are taking broadband customers from cable or  
2     DSL.

3             MR. SALEMME:   A little over 40 percent of  
4     our customers come from existing DSL or cable  
5     modem customers.

6             MR. SHEN:   Well, in our projection, we  
7     try to be conservative because we are not in the  
8     marketplace yet.  We think it is very reasonable  
9     to take 15 percent of market share in the  
10    marketplace, but we really think it will be  
11    expanding the broadband opportunities that are  
12    really the key things in the early years.  Then I  
13    think we have more and more vital kind of  
14    competitiveness in the whole broadband area.

15            If you look at the wireless voice kind of  
16    adoption there, you can see wireless adoption  
17    expands first and now how many households really  
18    don't have a landline anymore.  So we do think  
19    that that trend line will probably also apply.

20            MS. BURCHUK:  We are getting close to the  
21    end here, and I would like to ask each of the  
22    panelists, starting with Bill, DigitalBridge,

1 about your number-one barrier to entry, and  
2 describe any solutions that could be implemented  
3 by the government agencies that might make your  
4 life easier.

5 MR. WALLACE: I will just reiterate one  
6 point I made in my presentation, and that is  
7 related to the wide-space auction, just keep it  
8 competitive, keep it open for anybody that  
9 participates, and no barriers provided there, as  
10 well as kind of reiterating what Tom said. Just  
11 keep the spectrum coming, and make it efficient  
12 and available.

13 MS. BURCHUK: Okay.

14 MR. SALEMME: I think that has been my  
15 mantra here that spectrum really is the lifeblood,  
16 and you have to have enough of it. The wide-space  
17 auction is one. Finding other spectrum  
18 alternatives in 3.5 are allowing spectrum to be  
19 most efficiently used. In recognizing that the  
20 idea of a spectrum cap is really a misnomer, as we  
21 heard earlier in the panel, there was a time when  
22 a spectrum cap was very helpful in bringing new

1 entrants when you had a narrowband perspective and  
2 you were using it for a very limited voice  
3 application in a narrowband world.

4 I think now if you really want to make  
5 wireless become an alternative across that  
6 convergent multidimensional technology, whatever  
7 we heard Tom mention earlier, then you really do  
8 have to allow people to have the spectrum to  
9 provide those services.

10 MR. SHEN: Well, spectrum clearly is  
11 number one. To talk from an operational point of  
12 view, Clearwire is exploring a lot of backhaul  
13 alternatives. We are doing that, too.

14 But one part of the reason to explore  
15 that is it is very difficult to go through the  
16 incumbent kind of access market, and so I think  
17 that is probably priority one from an operational  
18 point of view.

19 MR. KAFKA: I think from my standpoint, I  
20 am not an antitrust expert, as I said, but if I  
21 kind of look at what is happening in the  
22 marketplace, we have got multiple traditional

1 carriers trying to bring wireless broadband  
2 extensively. We have got the national kind of new  
3 players coming in. We have got regionalized new  
4 players coming in.

5 It doesn't look to me like there are any  
6 major barriers to entry right now. It is a very  
7 competitive, very dynamic growing marketplace.

8 I will kind of talk from a regulatory  
9 standpoint, what kinds of things could help. I  
10 think the spectrum issue is a good point.

11 Spectrum rules from a technology  
12 standpoint do need to get put into place. What  
13 power levels are there, what is upstream and  
14 downstream can have an impact because if I have  
15 got 5 megahertz of spectrum here and somebody else  
16 has 5 megahertz of spectrum here, in order for us  
17 to coexist, we both have to follow some sets of  
18 rules from a technology standpoint. That is just  
19 kind of laws of physics. It isn't going to work  
20 if you don't. So that kind of regulation and rule  
21 is important, but to say it has got to use this  
22 technology or this technology or has to follow

1 this business model or can't follow this business  
2 model, those kinds of rules I think, if anything,  
3 would stifle innovation and stifle competition  
4 rather than help it.

5 MR. HAZLETT: Just to join the mantra,  
6 but to refine it just slightly, the spectrum  
7 question is to get spectrum out there with very  
8 broad swaths.

9 A lot of these border issues, which we  
10 think are endemic to spectrum, are not endemic to  
11 spectrum. It is only endemic to spectrum if you  
12 are doing it wrong. We have much too narrow a  
13 slice that we put out in the market, and then we  
14 wonder why people fight over interference issues  
15 all the time. We have broad swaths. We need  
16 liberal rules. We need overlay rights, so that  
17 the relocation or reallocation, reharvesting,  
18 so-called spectrum, can take place by private  
19 actors making efficient deals in the market.

20 We have done it before in PCS. We have  
21 done it with AWS, moving the incumbents out  
22 through the grandfathered overlay rights and so



1     forth.  So we have done it.

2                   If you want a more ambitious scheme, look  
3     to the OFCOM policies right now going on in the  
4     U.K. that they are liberalizing quite dramatically  
5     and are moving very far ahead of the U.S.

6                   The other thing I just want to mention,  
7     it is below the radar screen in most cases, but it  
8     is the fact that the U.S. has a very major problem  
9     given our federal system with local government  
10    extractions and hold-ups on siting issues.  When  
11    you see that the County of San Francisco will  
12    greet Google that wants to come in and do  
13    municipal WiFi, greet them, boasting that they  
14    haven't issued a permit for a new cellular tower  
15    in seven years -- and this is in the plus column  
16    -- by the way, at the same time they are  
17    litigating with relatively small upstarts like  
18    MetroPCS that can't get into that market because  
19    they can't get sited on a new tower and has to  
20    litigate against the County of San Francisco and  
21    so forth and so on.  All over the country, there  
22    are problems here.

1                   Entrants face these barriers at that  
2 level that could be quite excruciating, quite  
3 costly to fight this land war in Asia, so to  
4 speak, where you have to go city to city, county  
5 to county, state to state, and in some cases,  
6 litigate just to get a tower put in place. So  
7 that is something that I think federal regulators  
8 ought to take much more aggressive interest in.

9                   MS. BURCHUK: I would like to thank all  
10 the panelists for their interesting and  
11 informative discussions. I know I learned a lot  
12 today, and I hope the audience did as well. Thank  
13 you for your attention.

14                   Now we are going to take about a  
15 15-minute break and reconvene for the last panel.

16                   [Break taken from 3:58 p.m. through 4:15  
17 p.m.]

18                   **Panel IV**

19                   **Other Alternative Broadband Technologies**  
20 **Including Satellite and Broadband over Power Line**

21                   MS. GOODMAN: I think we are ready to  
22 start the final panel of the day.



1 looking at some other alternative technologies  
2 that consumers might be able to use to get  
3 broadband connections instead of either a cable  
4 company or a landline telephone company.

5 The particular technologies that we are  
6 going to be discussing are broadband over power  
7 line and satellite broadband services.

8 We have a panel that is going to talk  
9 about various aspects of those two technologies.  
10 Plus, as I will explain in a minute, there is  
11 going to be a little bit of a spillover from some  
12 of the other panels.

13 Obviously, the two issues that we are  
14 going to be looking at are, one, to what extent  
15 these technologies will, in fact, put competitive  
16 pressure on what are the more traditional dominant  
17 technologies, and in addition, there will be some  
18 discussion, I believe, from the panel about  
19 whether or not these are technologies that can  
20 help to solve some of the problems that are often  
21 discussed as to underserved or unserved areas of  
22 the country.

1           I know that is somewhat of an issue with  
2 all of the discussion about whether or not the  
3 United States lags behind other countries in terms  
4 of broadband penetration and that there are a lot  
5 of different projects and potential legislation  
6 going on related to encouraging greater  
7 penetration.

8           As everybody else has done, I will  
9 basically tell you that the statistics that the  
10 FCC puts out suggesting that these technologies,  
11 although they have been around for a while, have  
12 so far not racked up very large numbers of  
13 subscribers, although I don't know whether the  
14 panel will be able to tell us that the FCC numbers  
15 undercount subscribers, especially since the  
16 numbers that I have are back from 2006.

17           In June of 2006, the FCC reported  
18 something like 500,000 high-speed lines being  
19 served by satellite and only 5,000 being served by  
20 broadband over power line.

21           So, with that introduction, I am going to  
22 introduce the panel, and then they are going to



1 responsible for the formulation and execution of  
2 their broadband and bundling strategies. He  
3 previously worked in Time Warner Cable and America  
4 Online and is also a lawyer who was in private  
5 practice before that.

6           Following Evan, your program says we are  
7 going to hear from Tom Casey. Unfortunately, Mr.  
8 Casey had another obligation this afternoon, and  
9 so he has sent us Brandon Herron who is Vice  
10 President of Corporate Development and Strategy  
11 for Current Communication. They are a broadband  
12 over power line company, and they have a number of  
13 large deployments. So I think we are going to  
14 hear about those from Mr. Herron.

15           Just as way of background, he is probably  
16 going to get up like everybody else and say he is  
17 not a lawyer, which is not true for the rest of  
18 the panel. He has had a lot of experience,  
19 especially involving acquisitions and mergers and  
20 development, corporate development.

21           The next speaker will be David Brown who  
22 is the Senior Vice President and General Counsel

1 and Secretary of WildBlue Satellite Communications  
2 Company, obviously specializing in providing  
3 broadband services especially to residential and  
4 small business customers.

5 Mr. Brown also was previously a lawyer in  
6 private practice specializing in corporate  
7 finance, securities, mergers, and acquisitions.

8 The last speaker that we have is Blair  
9 Levin, who probably a lot of you have either read  
10 his newsletters or are already familiar with him.  
11 He is the Managing Director and the principal  
12 telecom media and tech regulatory and strategy  
13 analyst for Stifel Nicolaus, previously with Legg  
14 Mason.

15 Mr. Levin also in his long career served  
16 as the chief of staff for Chairman Reed Hundt at  
17 the Federal Communications Commission.

18 Having said that, I will let Mr. Grayer  
19 start.

20 MR. GRAYER: Thank you, Nancy. It is a  
21 pleasure to be here. I just want to warn  
22 everybody, I have a two-month-old son at home.



1 So, if I fall asleep, it is not you. It is me.

2           It is true that this is kind of almost  
3 like a family gathering here because I have spent  
4 a lot of time with everybody on this panel. We  
5 have deals in place, both with Current and  
6 WildBlue, and I read your newsletter, Blair.

7           Today, what I would like to talk about is  
8 what the situation is today for DirectTV with  
9 respect to broadband and voice. Everyone knows  
10 where we are with respect to the video. We have  
11 over 16 million subscribers, 16 million  
12 households, and we are the second-largest  
13 multichannel video provider in the United States.

14           Then I want to talk about specifically  
15 what we are doing with satellite broadband in our  
16 relationship with WildBlue, what we are doing with  
17 broadband over power line and our existing  
18 relationship with Current, and also, though this  
19 was part of the previous panel, I would like to  
20 talk about what we are doing with Clearwire and  
21 also with wireless broadband in general.

22           So the situation today, if you read the

1 press, you would think that our company is falling  
2 apart because we don't have our own triple-play,  
3 but in fact, we have been doing phenomenally well.  
4 In the last quarter alone, we added over a million  
5 subscribers gross ads. Wire subscribers are  
6 coming to us. They are coming to us mainly  
7 because of our superior video product, but also,  
8 there are very complementary broadband and voice  
9 packages out there, both for our existing  
10 relationships that we have with the phone  
11 companies, they have the ability to sell a true  
12 bundle that includes DirectTV and their DSL and  
13 voice packages, and we have the ability to sell  
14 their existing products as well.

15 In addition, consumers go out there, and  
16 they buy things a la carte. So, a lot of what we  
17 have been focusing on inside the company is  
18 figuring out how to convey information about  
19 broadband options that people have and about voice  
20 options that people have because it turns out that  
21 even if we are not able to offer a package, which  
22 we often are, it turns out that customers can do a

1 lot better going with DirectTV than they can going  
2 with the Comcast triple-play bundle for \$99 when  
3 you get a far inferior data product and a far  
4 inferior video product.

5 So a lot of what we have been focusing on  
6 is the retail side in figuring out how to convey  
7 information to customers about what are the  
8 options out there.

9 But we know -- and we know there is a  
10 strategic issue out there -- that, number one,  
11 there are areas that are just not covered by DSL,  
12 and number two, the phone companies are building  
13 out IPTV networks and they intend to compete with  
14 us in major markets. So we know that we need to  
15 have answers for consumers in those areas.

16 One of the first things we have done is  
17 we have established several wholesale agreements.  
18 The field is littered with failed wholesale  
19 arrangements. I used to be at AOL. If you look  
20 back at AOL's arrangements with the phone  
21 companies trying to wholesale DSL, it didn't work  
22 very well. Why? And people can disagree on this.

1 I think it didn't work very well because the phone  
2 companies perceived AOL as competing with them,  
3 and so they didn't really want to push or make it  
4 easy for AOL to take away their retail customers,  
5 and two, it is just really hard for two companies  
6 to interact, especially when you are dealing with  
7 customer service problems of a technical nature.

8           So we have spent a lot of time figuring  
9 out how to break the code on wholesale, and the  
10 first place we have started is with WildBlue.  
11 There is a lot of IT work that goes into this and  
12 a lot of communication that goes into this, and  
13 you need a wholesale partner who is really  
14 interested in having you sell wholesale. Both  
15 WildBlue and Current fall into that category.  
16 I don't think the RBOCs, especially in the past,  
17 fell into that category with the Internet players.  
18 Satellite broadband, what is the market space?  
19 This was one of Nancy's primary questions.  
20 I don't think satellite broadband competes in  
21 areas where there is cable and DSL or other  
22 terrestrial wireless alternatives. It is really

1 for that part of the country that doesn't have  
2 other broadband options, and that is 10 to 15  
3 percent of the country. So you are talking about  
4 a pretty large market.

5           These areas are places where even the  
6 wireless broadband alternatives that were  
7 discussed earlier are not going to reach because  
8 the household penetration is that dispersed.

9           Satellite broadband has been around for a  
10 while. DirecTV itself had a direct PC service  
11 that we shut down. So why are we getting into  
12 this again? The reason is that dial up just  
13 doesn't cut it anymore the way it did 5, 10 years  
14 ago. If you want to be in the mainstream, if you  
15 want to be able to download iTunes, if you want to  
16 get on YouTube, you need a broadband service, and  
17 WildBlue provides that kind of service, and dial  
18 up does not provide that kind of service.

19           One thing to be aware of when you are  
20 talking about satellite broadband is the  
21 difference between speed and latency. A 1.5-meg  
22 satellite service is not the same -- and, David, I

1 think you would agree with me -- as a 1.5-meg DSL  
2 service, but the download speed is as good. So,  
3 if you are interested in downloading iTune songs  
4 as one example, it is going to be a much better  
5 experience than you would have on dial up. It  
6 might not be as good a web surfing experience, but  
7 what I am saying is there is much more of an  
8 emphasis these days on these kind of download  
9 services, and people just want to be part of the  
10 mainstream.

11 So what are the issues that face  
12 satellite broadband? The biggest thing is that it  
13 has been too popular. In certain parts of the  
14 country, WildBlue has suspended sales, and is  
15 feverishly working to increase capacity, and  
16 anything the government can do to help us do that  
17 would be welcome because the way this technology  
18 works, there are spot beams that focus on certain  
19 geographies, and particularly in the Midwest, east  
20 of the Mississippi River, we have suspended sales  
21 because of limited capacity. So we hope to  
22 address those issues in the near term.

1           Broadband over power line. This is  
2 another technology that has been around for a long  
3 time, and it hasn't really taken off. Nancy, to  
4 your point earlier, there are not that many  
5 subscribers, and there have been deployments for a  
6 long time, one very close to here in Manassas,  
7 Virginia.

8           So why is DirecTV getting into broadband  
9 over power line? We think it actually has  
10 tremendous potential. We are launching a service  
11 with Current in Dallas. We are going to launch it  
12 next month. I think it is the first time we have  
13 said that. It is going to be up to an 8-megabit  
14 service, and it is going to be at a very  
15 competitive price. I am not yet going to say what  
16 that price is because we will launch it when we  
17 launch it, which will be in a few weeks.

18           This is now going to cover hundreds of  
19 thousands of homes. So this is very different  
20 from the tests that have been done in rural areas  
21 and in small towns, and what we want to do is we  
22 want to use this as a showcase and take this to

1 the other utilities and the other PUCs and show  
2 them what can be done with broadband over power  
3 line.

4           What have been the issues facing  
5 broadband over power line historically? Number  
6 one, the technology really hasn't been there, and  
7 now we are at a place where we are going to be  
8 providing an 8-meg service at an affordable price  
9 that is going to really compete well with the  
10 cable and telco options out there, but another  
11 issue is that it is pretty expensive to deploy.

12           Unless you are looking at multiple  
13 revenue streams coming in, not just the broadband  
14 revenue streams, but other revenue streams, it is  
15 really hard to justify the build of the network.

16           One of the things that Current was able  
17 to accomplish in Dallas is to get -- it was TXU --  
18 now Encore to pay for some of that deployment.  
19 How are they paying for it? They are paying for  
20 it by buying Smart Grid and automated metering  
21 services.

22           Now, I think of this as a real





1 execute on that, but what is the advantage of  
2 wireless? Wireless service can be a one-stop shop  
3 for consumers. You are not going to need to have  
4 a wireless subscription and a fixed broadband  
5 subscription.

6 Our belief is to the extent the speed is  
7 almost there, almost as good as the wireline  
8 alternative, consumers will be willing to make  
9 that tradeoff. They will be willing to sacrifice  
10 some speed to get the convenience and the cost  
11 benefits of having one service provider. So that  
12 is the trick. That is the challenge, is it going  
13 to be fast enough, and is it going to be  
14 inexpensive enough to compete in the home and also  
15 provide the benefits of mobility.

16 We talked about these earlier, for those  
17 who were here for the earlier panel. We talked  
18 about the tradeoffs between, say, the WiMAX  
19 technologies and the 3G technologies.

20 I think the benefits of 3G are that they  
21 are compatible with legacy networks. So, to the  
22 extent you are in AT&T and you are choosing a 4G

1 network, why remake the wheel? But the problem  
2 with some of those 4G, like the LTE -- generally,  
3 this was discussed in the panel -- it is generally  
4 an FDD solution. So, to the extent you have an  
5 asymmetric usage model, which most broadband is  
6 asymmetric, even if you set it up as symmetric,  
7 you are going to see more use on the download than  
8 on the upload. You are kind of wasting spectrum,  
9 to some extent, when you are using FDD. So the  
10 benefit of WiMAX is that is it more of a TDD  
11 solution, but the disadvantage is that it is not  
12 at the same scale.

13           We just saw that AT&T and Verizon are  
14 both going with LTE. So the trick will be getting  
15 WiMAX to the scale to take advantage of its  
16 inherent benefits of being TDD.

17           Then like I said, we have an agreement  
18 with Clearwire where we are really doing the same  
19 thing that we are doing with WildBlue and with  
20 Current, where we are going to learn how to really  
21 execute and maintain a mutually beneficial  
22 business arrangement in a wholesale context, and I

1 think that is a really hard thing to do. We are  
2 going to take it on.

3 That is it. Thank you.

4 MR. BROWN: Hi. Good afternoon. I am  
5 David Brown. I am the Senior Vice President and  
6 General Counsel of WildBlue Communications.

7 First, who is WildBlue? We are a  
8 privately held corporation based in Denver,  
9 Colorado, and as Evan has discussed, we provide  
10 satellite broadband to rural America principally.  
11 That is our target market.

12 We started offering our service in June  
13 of 2005, just over two years ago, and we now have  
14 more than 275,000 subscribers. So it has been a  
15 great and rapid ride, but as we will talk about a  
16 little longer, a little further into my  
17 presentation, the popularity of our service has  
18 been both the benefit and the bane of our  
19 existence.

20 How do we work? We provide our service  
21 from 2 Ka band satellites in geosynchronous orbit.  
22 One is Anik F2 which was launched in 2004. It is

1 owned and operated by Telesat Canada, and we  
2 licensed the entire Ka band payload that provides  
3 service into the U.S. Telesat actually provides  
4 precisely the same service through one of its  
5 partners in Canada.

6 The second is WildBlue 1 which was  
7 launched almost exactly a year ago in December of  
8 last year, and that is a WildBlue-owned satellite,  
9 WildBlue 1.

10 We operate 11 gateway stations around the  
11 country and one in Canada. In addition to that,  
12 we have our network operations center in Denver  
13 and the call center also in Denver.

14 How does the system work? It is  
15 beautiful for rural America because you have a  
16 modem that sits on your desk, and a dish very much  
17 like a DirectTV dish that would sit on your roof  
18 that transmits to our satellite, then down to one  
19 of our 11 gateways, then onto the Internet cloud,  
20 and we watch it all through our network operations  
21 center in Denver.

22 Once your signal has gone out and gotten

1 the web page you want, it reverses the process  
2 from the Internet cloud to one of our 11 gateways,  
3 back up to the satellite and down to your house.

4 We offer our service in a good, better,  
5 best way, three different packages, \$50, \$70, and  
6 \$80 a month for varying speeds and for varying  
7 fair access policy and those kind of things, a  
8 number of e-mail addresses and whatnot, but very  
9 typical, good, better, best system.

10 What is our target market? There are  
11 about 35 million homes in rural America, but only  
12 about 13 million of those are online at all. So  
13 we start there. We start at about 13 million, and  
14 we think the size of this market for the satellite  
15 space is about 8 million, give or take.

16 What are the key drivers to driving  
17 demand in our business? One is you have a lot of  
18 people now who have second homes that are in rural  
19 areas. People in rural areas need to commute. So  
20 they need to telecommute.

21 The price of the product is coming way  
22 down. When we started the company almost 10 years

1 ago, no one thought you could get the customer  
2 premise equipment for under \$1,000, and at that  
3 price, it was just not a consumer business. We  
4 have driven the price well below that principally  
5 because our modem and our system is based very  
6 much on DOCSIS standard cable modem standard. So  
7 we are riding those price curves. While there are  
8 only hundreds of thousands of satellite modems out  
9 there, there are tens of millions of cable modems  
10 out there, and the technology in the two devices  
11 is based on the same chip.

12 So where are our customers? Our  
13 customers are in that picture. We are service to  
14 rural America. So do we worry, frankly, about the  
15 Clearwires of the world? Do we worry about the  
16 Sprint Nextels of the world? We think they are  
17 great. We hope they push the broadband envelope  
18 more and more and more because we don't think they  
19 are coming to this area.

20 Seventy percent of our customers live in  
21 an area where there are 30 homes or less per  
22 square kilometer. We don't think the economics

1 for the Clearwires, et cetera, make sense in those  
2 areas, but it is interesting. If you look at this  
3 map of the U.S., every green dot you see is the  
4 center of a zip code that has a WildBlue customer.

5 Now, if you had shown me this picture 10  
6 years ago when we started the company, I would  
7 have told you not a chance. The density that you  
8 see over, let's just say, in the Montana area and  
9 the Rocky Mountain West doesn't look very good,  
10 and that is where I thought all of our customers  
11 would be, and you wouldn't see so many people east  
12 of the Mississippi where the population densities  
13 are much greater, but you forget if you go too far  
14 out of even the Washington, D.C., area, you are  
15 quickly going to get to an area where the  
16 population density is very, very low. So this is  
17 actually a relatively recent snapshot of exactly  
18 where our customers are, and it demonstrates the  
19 problem that Evan discussed before.

20 In some of those beams where you can  
21 barely see any of the United States, under our  
22 little green dots, you see the large green circles



1 are a fairly accurate representation of our  
2 satellite spot beams, we are full. So we are  
3 suffering from our own success. It is very much a  
4 double-edged sword. So that was the macro level.

5           Now let's look at it on a state level.  
6 We have done a map for every state in the country  
7 that looks something like this. The white areas  
8 are where there is no cable, there is no DSL, and  
9 there is no fixed wireless. That is where we  
10 play, and each of the dots you see is either cable  
11 modem or DSL or both. So that is Iowa, a lot of  
12 white space, but look at Texas. Now, there aren't  
13 a whole bunch of people in west Texas out by El  
14 Paso, but there's an awful lot of white space.

15           Our takeup rates, interestingly, in the  
16 truly rural west is about double our takeup rate  
17 east of the Mississippi and along the West Coast.  
18 So we are penetrating there. We are doing a great  
19 job selling there, but there are just so few  
20 people that even a higher percentage is still not  
21 quite enough people. So our challenge going  
22 forward is how do we reach those markets and

1 penetrate even more.

2           What has been the driver of our success  
3 is our distribution partners. We sell both in a  
4 retail way through about 1,500 dealers around the  
5 country, and we have wholesale distribution  
6 agreements with AT&T, DirectTV, Dish Network, and  
7 the National Rural Telecommunications Cooperative.

8           We also have a small enterprise business  
9 through approximately 50 value-added resellers, a  
10 relatively small part of the business. We really  
11 are focused to the consumer, to the home.

12           How do we look at the broadband market by  
13 technology? This is as of the end of last year.  
14 You see the two relatively blue bars are cable and  
15 DSL -- virtually, everybody. Satellite is a  
16 little, as Nancy mentioned -- satellite is very  
17 small relatively to these numbers, and fixed  
18 wireless also. We tried very hard to make our  
19 piece of this graph show up, but it is pretty  
20 small.

21           There are a lot of different ways to get  
22 broadband or Internet access into your home. The

1 most obvious is dial-up, but not very interesting  
2 anymore. Cable and DSL are a great service. We  
3 are not out to compete with those guys. If we do,  
4 we are just going to have to start competing on  
5 price. We are going to have to start competing on  
6 speed. Really, if you live in the city and you  
7 have access to cable or DSL, if you want our  
8 service, that is great. We are happy to sell it  
9 to you, but it is not really where we are going.

10 The fixed wireless guys and the  
11 Clearwires of the world, we think they are just  
12 great. They have got their place. If you have  
13 noticed, they started talking about rural America,  
14 but as they have begun to deploy, where are they  
15 deploying? They are deploying in the cities and  
16 what we refer to as "exurb," just outside the  
17 cities, and we think that is great.

18 Keys to success. We have access to  
19 Internet architecture that is very cheap. It is  
20 affordable bandwidth on very efficient satellites.  
21 We build our network to keep the cost of our CPEs  
22 low. It is a small outdoor unit.

1           Some of the old first-generation  
2 satellite broadband technologies had a very large  
3 dish, and there was some resistance to that. Ours  
4 is quite a bit smaller. We have great  
5 distribution relationships and excellent  
6 technology.

7           What are we looking for in the future?  
8 We are working on designs for future satellites  
9 that are much more efficient. We are working on  
10 designs for the network that reduce the effects of  
11 latency that Evan correctly pointed out. There is  
12 a big difference between web-serving speed that  
13 deals with latency and file transfer speeds.  
14 Actually, we think our file transfer speeds are  
15 actually quite a bit better than DSL because we  
16 get a little more on the upstream. So we compare  
17 favorably on that.

18           We are going to keep pushing down the  
19 cost to increase the size of the market, and the  
20 challenges, consumers are looking for more and  
21 more. A couple of years ago, nobody heard of  
22 YouTube. It didn't exist. I think our

1 third-highest-hit website on our network is now  
2 YouTube. It didn't exist when we designed the  
3 network. Things are changing. Demands of the  
4 customers are definitely changing.

5 Thanks very much.

6 MR. HERRON: I am Brendan Herron from  
7 Current. Thank you for having me today.

8 I wanted to start and talk a little bit  
9 about how broadband over power line works, and  
10 then I will talk about our service offerings and  
11 the competitive advantages of broadband over power  
12 line.

13 Evan gave a very good commercial. So he  
14 hit on some of the highlights.

15 Broadband over power line is a hybrid  
16 network. We use fiber or wireless out into the  
17 electric distribution grid, and then we ride on  
18 the medium-voltage and the low-voltage lines into  
19 the house. What that does is it allows us to take  
20 advantage of the existing utility infrastructure  
21 and the third wire into the home.

22 The other advantage of the technology is

1 that it allows us to monitor what is happening on  
2 the electric grid, what Evan referred to as the  
3 Smart Grid, and I will talk a little bit about the  
4 benefits of that as we go through.

5 Our service that we offer, we offer both  
6 a retail and a wholesale service. Evan mentioned  
7 with DirecTV, also with Earthlink.

8 If you look at the lower right-hand side  
9 of the slide, you see the little black modem. It  
10 looks very much like what you plug into the wall  
11 for a cell phone charger, and that is our CPE.  
12 You can plug your Ethernet cable into that modem.  
13 That also can be purchased in a wireless version  
14 or UBS version, and that is your Internet access.

15 If you want to have Internet access in  
16 another room in the house, you can pick that modem  
17 up and move it to the other room. You can add a  
18 second modem. So we can eliminate the need for  
19 things like routers and allow easy sharing within  
20 the home and make access very easy. It is a very  
21 simple-to-use service.

22 We also partner with Google on our home

1 page.

2           The advantages of our service are first,  
3 we can offer up to 10 megs. It is a  
4 near-symmetrical service. So our upload speeds  
5 are very similar to our download speeds, as  
6 compared to most cable and DSL services where they  
7 may give you an up-to-3 or an up-to-5 download  
8 speed, but they are capping the upload speed to  
9 256 or 512.

10           This becomes more important when we start  
11 to look at things like photo sharing or YouTube or  
12 BitTorrent or Slingbox, all the other kind of  
13 applications where people are sharing high video  
14 information.

15           As I mentioned, it is a multipurpose  
16 network. So we have a revenue stream, and Evan  
17 touched on this, a revenue stream from the Smart  
18 Grid services and also a revenue stream from the  
19 communications services, and that helps to fund  
20 our network.

21           There are additional services. Because  
22 we are located with Internet connectivity, at

1 every pole, the electrical grid, we can provide  
2 other services in densely populated areas, things  
3 like homeland security, various centers, weather  
4 monitoring, wireless backhaul, other types of  
5 technologies such as metropolitan WiFi.

6 Marketshare has been touched on. The  
7 marketshare is very small right now, but we think  
8 it is going to grow, and there's a couple reasons  
9 we think it is going to grow. It is primarily  
10 related around the benefits of a Smart Grid.

11 To touch on Smart Grid, Smart Grid is the  
12 ability to manage the electrical grid. The  
13 Electric Power Research Institute estimates that  
14 Smart Grid distributed throughout the United  
15 States could save 5 to 10 percent of electric  
16 usage and cut carbon dioxide emissions caused by  
17 electricity by up to 25 percent. That is  
18 significant when you consider that electricity is  
19 the single highest emitter of carbon dioxide of  
20 the United States. It is the coal-fired  
21 powerplants that cause the emissions and account  
22 for approximately 40 percent of overall CO2



1 emissions. So we are talking about the ability to  
2 reduce emissions in the United States by up to 10  
3 percent overall, and that is before we start to  
4 consider things like the ability to use plug-in  
5 hybrid vehicles which will allow us to move from  
6 using oil-required cars to electric cars and have  
7 the benefits of that.

8           This slide shows you just some of the  
9 statistics of what the benefit would be from  
10 cutting electricity usage and demand, and the  
11 Smart Grid enables that by allowing the utility to  
12 know what happens on the grid below the  
13 substation.

14           Today, they have no intelligence of what  
15 is happening below the substation, very similar to  
16 the telecommunications infrastructure 25 years  
17 ago, and our Internet overlay allows us to provide  
18 that background that they don't have today and  
19 that information.

20           This is another slide that just touches  
21 on the benefits of Smart Grid, and as I talked  
22 about, why there is going to be a higher adoption

1 level. The higher adoption level is because right  
2 now utilities are faced with an uncertainty about  
3 how and where they can build powerplants, with the  
4 issues surrounding greenhouse gases, and aging  
5 work force, and renewable portfolio standards that  
6 are driving utilities to change from a centrally-  
7 fed grid to a distributed grid which needs more  
8 intelligence than they have today.

9           So the electric grid of the last 100  
10 years won't work 15 or 20 years from now when we  
11 have distributed generation, distributed  
12 resources, solar. In Portugal, for example, they  
13 are talking about 40 percent of the households  
14 having solar panels on the roof. So that is a big  
15 change when the utility has gone from feeding  
16 those 40 percent of those households to having  
17 those households actually feeding back into the  
18 grid. It requires a totally different grid,  
19 totally different intelligence, and that is one of  
20 the benefits of broadband over power line in our  
21 infrastructure.

22           Evan mentioned Texas. We are rolling out

1 for Oncor, electric delivery, the former TXU  
2 electric delivery, a broadband and Smart Grid  
3 network. It is going to eventually cover 1.8  
4 million homes. Today, it covers approximately  
5 125,000. We have been building for about six  
6 months now, and we are continuing to roll out. It  
7 is focused around the Dallas-Fort Worth  
8 metropolitan area. We will be offering  
9 competitive broadband services, both in a retail  
10 and up through DirecTV. We also will be providing  
11 Smart Grid services for Oncor electric delivery,  
12 and that network is up and running today.

13 We also have a second broadband over  
14 power line network here in the United States with  
15 Duke in Cincinnati. That is our first-generation  
16 technology. It has been up and running for  
17 several years now, and the interesting thing about  
18 that is it proved that we could be competitive on  
19 the broadband basis because we ended up with  
20 approximately 20 percent of the households buying  
21 our service -- a service that had speeds lower  
22 than the competitors, but people liked the ease of

1 use, and they liked to be able to move around, and  
2 they liked the synchronous speeds. They were  
3 willing to buy the service, even though it didn't  
4 offer the triple-play or voice service or the  
5 other things that we hear so much about today.

6 On a regulatory front and what is keeping  
7 broadband over power line from being adopted in  
8 the United States, to successfully roll out  
9 broadband over power line, we first have to get  
10 onto the electrical grid, first and foremost.

11 Unfortunately, because electric utilities  
12 today are still traditionally rate-based  
13 utilities, they have no incentive for efficiency  
14 or, in most cases, even for reliability. They may  
15 have some penalties, but they are actually  
16 compensated on how much volume they sell, how much  
17 power goes through their grid.

18 So, when they are efficient or invest in  
19 efficiency, they are actually taking away from the  
20 rate recovery. So we need to change that in the  
21 United States. We need to encourage people and  
22 encourage the utilities to invest in efficiency.



1 rules, and thus, we can attach.

2 As we have rolled out in our markets, in  
3 both cases, we have been faced by lawsuits,  
4 slowing down pole attachments by incumbent  
5 telephone carriers. So it is an area that we see  
6 that there is a role for regulatory intervention.  
7 There are people attempting to delay us rolling  
8 out.

9 That is all I have.

10 MR. LEVIN: Nancy, thank you very much  
11 for inviting me. It is a pleasure to be here. It  
12 has been a really interesting day.

13 I have to say that I don't know if you  
14 recall the first speaker of the day, but he  
15 painted a picture of Verizon as this kind of  
16 pitiful new entrant into the video business that  
17 was struggling under the burden of all this  
18 regulation and very, very tough. Whereas, Sprint  
19 and Clearwire in the last panel and this panel  
20 talking about how it is just so great to be a new  
21 entrant, you have got all of these opportunities,  
22 and things are going fantastically well.



1 concluding comment and open it up to questions.

2           First of all, technologies themselves are  
3 promising, but that is not the same as a promising  
4 business prospect. So I am not making any  
5 judgment about technology. There are lots of  
6 questions about the ability of some of the  
7 technologies people talk about to scale, but the  
8 key point is the history of technologies over the  
9 last 10 years. I am actually old enough to  
10 remember a technology called LMDS, but more  
11 recently, something like Vonage which was a very  
12 high technology, IPO -- 17 bucks. I think the  
13 stock is about 2 today. Muni WiFi was a big hyped  
14 technology. People have talked about that. None  
15 of those things I think are going to have a big  
16 competitive impact on the marketplace because in  
17 order to do that, you have to have not just a good  
18 technology, but right timing, right business  
19 model. A number of factors have to come together.

20           Secondly, new technologies will be  
21 entering a maturing broadband product market.

22 When I was at the FCC, we held the first auctions,



1 and at that time, there were I think maybe 10-,  
2 15-, 20 million mobile phone subscribers. We are  
3 now at about 230 million, meaning that 90 percent  
4 of the market was essentially greenfield, that is  
5 the customers were not spoken for at the time of  
6 the first auction.

7           When we hold the 700-megahertz auction in  
8 January, by the time the folks get the spectrum  
9 and can actually build it out, about 90 percent of  
10 the addressable broadband market will already be  
11 taken; that is to say, the customers are already  
12 signed up with someone. As anyone in marketing  
13 knows, it is much more difficult to take a  
14 customer away who is already signed up with  
15 someone who is offering that service, and it is  
16 great that Gerry mentioned that Clearwire is  
17 taking 30 to 40 percent from -- I think that is  
18 the number he used -- cable and DSL, but I think  
19 if you look at the statistics at least so far, the  
20 cable/telco broadband dominance has been very  
21 consistent over the last five years, and it is  
22 going to get tougher to take their customers away,

1 not easier.

2           And that is because of the third thing I  
3 would mention which is that new technologies are  
4 competing against competitors with significant  
5 advantages of brands, bundles, economies of scale.

6           Look, they have spent billions of dollars  
7 advertising the brands, and I think it has a very  
8 significant advantage. It is not an accident that  
9 AT&T and Verizon are very much focused on saying  
10 things like "it is the network" because that  
11 encourages people to think that there is -- and  
12 there may well be -- a superior advantage to going  
13 with a name company. It makes it hard to leave it  
14 if something called Current, which you have never  
15 heard of, is offering this service. You are going  
16 to say to yourself, "Gee, do I really want to  
17 leave it?"

18           So there are an awful lot of advantages.  
19 I could mention a lot, kind of looking at business  
20 models. I will mention one that I find fun, and  
21 there is nothing illegal about this, I don't  
22 think. It is just good business practice. You

1 sell a product, as they do with wireless or they  
2 do with broadband, over a certain period of time.  
3 So you are saying, "We will give you this deal,  
4 broadband, for 40 bucks, but you are signing up  
5 for a year." That means there is only a small  
6 window when a customer is willing to churn or to  
7 move. Who knows where that window is? The  
8 incumbent, not the new entrant. So the new  
9 entrant has to waste lots of marketing dollars  
10 trying to get that customer to churn when, for  
11 many months, of course, they can't, or they will  
12 have disincentives to do so.

13           Whereas, the incumbent, the month before  
14 the subscription is going to run out or the time  
15 period, can just come in and say, "For you, only  
16 this week, we have this special deal," but there  
17 are lots of different economies of scope and scale  
18 that this department knows extremely well that the  
19 incumbents will enjoy.

20           The fourth is that the new technologies  
21 for the most part don't have any functional  
22 advantages in delivering broadband transmission

1 service.

2 In saying that, there is one obvious  
3 functional advantage that folks have talked about,  
4 which is mobility. I am going to put that aside  
5 for a second, but just say that in terms of  
6 everything else, it really is kind of a commodity  
7 product. It is all about throughput. Yes, there  
8 are distinctions, speed, latency, and all of that,  
9 but at the end of the day, what drives the  
10 adoption is not that. It is the ability to go to  
11 Google or to watch YouTube or anything else. So  
12 there is no functional advantage.

13 There might be a price advantage, though  
14 I sincerely doubt that, particularly when you are  
15 selling against a bundle, but I want to talk about  
16 mobility for a second.

17 If we go back and we think about mobile  
18 voice, it wasn't actually a competitor.  
19 Certainly, when I got my first mobile phone when I  
20 was a lawyer down in North Carolina -- and I was  
21 driving all over the state, my law firm got it for  
22 me, spending about 1,200 bucks a month, a huge

1 thing in my car, but since I was billing by the  
2 hour, it was actually worth it. Certainly, no one  
3 would say that was competitive with the fixed line  
4 voice service.

5 Even as late as in 2005, if I recall  
6 correctly, when the DOJ was looking at the AT&T  
7 SBC deal, they didn't regard wireless voice as  
8 competitive. That is probably changing, and with  
9 Femtocells, the new technology that will increase  
10 the quality of the voice, I do think that  
11 certainly over time, mobile voice and fixed line  
12 voice will be kind of in the same competitive  
13 markets.

14 I have three kids, and looking at them,  
15 they will probably never have a fixed line voice  
16 service, but I am not sure that is right about  
17 broadband, and I want to take issue with what the  
18 person from AT&T was saying.

19 He is saying there is wireless mobile  
20 broadband that is competitive today. Certainly,  
21 from a Wall Street perspective, that is not the  
22 case. No one would regard that, and I would be

1 surprised if the DOJ would come to that  
2 conclusion, but I am not making really an  
3 antitrust argument here.

4           What I am saying is there is a reason  
5 Verizon is building FiOS. There is a reason cable  
6 is going to have higher and higher speeds, and the  
7 reason is there is going to be higher and higher  
8 demand for certain kinds of services. What the  
9 incumbents are hoping and should be hoping for is  
10 that we are going to drive applications,  
11 particularly high-definition video, that at the  
12 end of the day, mobile will never really be able  
13 to do well. If that is the case, mobile will end  
14 up being a complementary product. But if we don't  
15 get those applications, then absolutely mobile  
16 will compete with fixed, and it is going to have a  
17 lot of advantages and everything that Craig McCaw  
18 and others have always said will be certainly  
19 true, and then those huge investments that some of  
20 the economists talked about that Verizon and  
21 Comcast are making are going to be as worthless as  
22 some subprime mortgage entity.



1           The other one that hasn't been mentioned  
2   today that I do want to mention, because I have  
3   seen it, is intellectual property, and that  
4   doesn't necessarily affect the access providers,  
5   though it might, but because of the Vonage  
6   lawsuits, in the minds of capital markets, they  
7   are now asking for any big investment that is kind  
8   of in this space, if we sink a lot of money into  
9   this, what is the lawsuit that somebody could  
10  bring that there is no way of knowing about.

11           The uncertainty about lawsuits -- and I  
12  got a lot of calls from the capital markets guys  
13  when all those Vonage lawsuits were taking place,  
14  and I am not criticizing Verizon, AT&T, Sprint,  
15  and others for bringing them. I am just saying as  
16  a practical matter, it is a drag on competition to  
17  have that kind of uncertainty about who owns the  
18  intellectual property for these things.

19           So that is why I am skeptical, that other  
20  than in discrete geographic markets, there is  
21  going to be extensive competition.

22           Let me just close by saying that I do



1 want to kind of open this up to a slightly  
2 different question which is why do we care. Of  
3 course, we care about competition because this is  
4 the Department of Justice Antitrust Division, but  
5 when Tom Barnett gave a speech the other day  
6 talking about maximizing welfare through  
7 technological innovation, he was talking about  
8 leap frog dynamic efficiency which according to  
9 his speech -- and I think it is right -- about  
10 87.5 percent of GNP growth in the U.S. was due to  
11 technology changes that really create all kinds of  
12 new efficiency by developing new ways of doing  
13 business.

14           What the last 25 years have taught us is  
15 that that kind of innovation doesn't happen easily  
16 to incumbents. There is a great book on this,  
17 "The Innovator's Dilemma," but particularly when  
18 we look at this space, it is just very interesting  
19 to note that all the great innovations, e-mail,  
20 VOIP, instant messaging, P-to-P voice, search,  
21 video on the net, social networking, numerous  
22 others, they weren't really invented by or brought

1 to the market by the incumbent network providers.

2           So, to a certain extent, I think one of  
3 the things we want to consider is how we make sure  
4 those changes keep coming, and that takes us into  
5 a slightly different topic about the relationship  
6 between innovation and networks and the  
7 relationship between the application side, the  
8 device side, and networks. That is a topic that I  
9 think is going to be very heated. It already has  
10 been heated over the last couple of years. It  
11 will continue to be heated.

12           Obviously, new networks. If Sprint is  
13 successful, if I am wrong, and Google buys  
14 700-megahertz at the auction and they build out a  
15 new network, those new networks will help  
16 facilitate that kind of innovation, but I also  
17 think that the relationship between the  
18 applications, the devices, and the networks is  
19 going to be an area where there is going to have  
20 to be an awful lot of thought and interest in the  
21 years to come.

22           Thank you very much.

1           MS. GOODMAN: I am going to start with a  
2 question that I had left over from the last panel  
3 and that you actually touched on, which is to what  
4 extent is there concern that what happened to  
5 Vonage in terms of their IP suits will actually  
6 affect WiMAX, for example, or any of the  
7 technologies that your companies represent.

8           MR. LEVIN: I will just quickly say that,  
9 first of all, the fundamental problem of Vonage, a  
10 company that I have a great deal of respect for,  
11 is not the IP suits. The reason the stock went  
12 from 70 to 2 was not because of that litigation.  
13 I think it is a fundamental business model that  
14 they were coming in with competing against cable,  
15 the incumbents, as well as hundreds of others.  
16 They just didn't have anything that was  
17 defensible.

18           Having said that, however, there is an  
19 awful lot of interest in the intellectual property  
20 stuff, and indeed, Qualcomm, a major company,  
21 bought a company called Flarion, spent I think  
22 \$600 million, really just for the sake of getting

1 the intellectual property, and I think there are a  
2 lot of people waiting to see what is going to  
3 happen and anticipating various suits, much like  
4 you see the Qualcomm/BroadCom/Nokia suits, you are  
5 going to see Qualcomm/Intel suits. Particularly  
6 from a capital markets perspective, that kind of  
7 stuff is really hard to quantify and is not the  
8 kind of stuff that a bunch of Wharton Business  
9 School grads who are very good at spreadsheets and  
10 very bad at technology want to even think about.

11 So I think it very much does affect the  
12 ability for new entrants to raise money.

13 MS. GOODMAN: Anybody else want to  
14 comment?

15 MR. BROWN: We have spent a lot of time  
16 and money making sure that we are clean in this  
17 area, but you don't know what you don't know, and  
18 certainly, one day somebody could pop up out of  
19 the woodwork and tell us that something we have  
20 deployed in our network is violating one of their  
21 patents, but it has not been a significant issue  
22 in raising money.

1           It always comes up. The bankers always  
2 do their diligence, and we feel pretty good about  
3 it, but it is there, but it is not a big problem  
4 for us yet.

5           MR. HERRON: We have invested quite a bit  
6 also in building our technology and our IP  
7 portfolio. We obviously have a different delivery  
8 mechanism. So we don't necessarily cross over  
9 into some of the existing delivery mechanisms, and  
10 it is an area that always comes up when you raise  
11 money, but it, again, has not been an issue for  
12 us.

13           MS. GOODMAN: I would like to just talk  
14 about bundling. It is a topic that has sort of  
15 been covered by a lot of the other panels, and I  
16 have to say that there's always a lot of  
17 discussion about how important it is to be able to  
18 offer a triple-play, but yet, Evan came and told  
19 us that it is not something that seems to be  
20 affecting DirecTV all that much.

21           The various statistics that people gave  
22 today ranged all over the place in terms of

1    whether it is 30 percent of people who buy triple-  
2    play or 80 percent or another number, and so I  
3    would like you all to comment on sort of what your  
4    experience is in terms of how important being able  
5    to offer a triple-play is, and also, I am sort of  
6    interested in some of Evan's comments, because  
7    your companies are to a large extent offering  
8    triple-play through joint ventures.  You are not  
9    able as a single company to offer the customer the  
10   option of having only one person to deal with.

11            So exactly how do you make it the same  
12   for your customers as it is when they deal with  
13   somebody who can offer all three services?

14            MR. GRAYER:  First of all, our customers  
15   do come to us because of our video.  They are not  
16   coming to us for a triple-play and we have "TV" in  
17   the name.  Right?

18            So far, we have been able, though, to  
19   offer a bundle together with the telcos to satisfy  
20   those people who are looking for a bundle.  So how  
21   much of our success to date is due exclusively to  
22   our video product and how much is due to the fact

1 that we do have the ability to quasi-bundle or  
2 really bundle today, it is hard to answer, but I  
3 can tell you that we are doing great right now.  
4 We are looking at the future as well when maybe  
5 some of these telco relations won't be the same as  
6 they are today.

7           Your question about is it a real  
8 impediment to have two service providers as  
9 opposed to one, we are pursuing both models right  
10 now. So we have this retail model where we sell  
11 the service of the phone company, and then we are  
12 pursuing the wholesale model as well. So we are  
13 going to find out if it makes a big difference,  
14 but I will tell you that people do appreciate kind  
15 of getting the best of both worlds. They get the  
16 best phone service, the DSL service they rely  
17 upon, and they get the best TV service.

18           I think what people are looking for is  
19 convenience in a bundle, and it is convenience in  
20 ordering more than anything. It is not  
21 necessarily having one bill. A lot of people pay  
22 their bill by credit card today. They are not

1 really dealing with the paper bill, but the idea  
2 of calling one person and getting it all done --  
3 look, a lot of people are buying these services  
4 when they are moving, and they just want to call  
5 up and get it over with. They can do that today  
6 by calling DirectTV or calling one of our partners,  
7 and if it ends up being on one bill versus two  
8 bills, I don't know that that is the big deal that  
9 some people think it is.

10 MR. BROWN: I think that WildBlue has  
11 benefitted from this phenomenon. Clearly, we  
12 partner with DirectTV. We partner with Dish  
13 Network. We partner with AT&T. If you call AT&T  
14 for DSL and they can't provide it, they qualify  
15 you by zip code, if they can't provide it, they  
16 offer you our service. So the desire for each of  
17 the bigger providers to fill in the gaps in areas  
18 where they don't provide the service or it is  
19 DirectTV, it has been great for us.

20 In terms of our offering some of these  
21 other services, people always ask us does your  
22 service support VOIP. It is a big question for



1 us. Right now, the answer to that is no. It is  
2 something that we look at, we continue to look at,  
3 and hopefully, down the road, that will be  
4 something we can offer, too.

5 MR. HERRON: I think that we see a number  
6 of circumstances. Obviously, we are partnering  
7 with Evan to offer our triple play on the video  
8 side, but there is a whole host of customers,  
9 especially the younger customers, who aren't  
10 interested in triple-play. They don't want a home  
11 phone.

12 There were conversations earlier today, I  
13 believe, about people using the mobile phone as  
14 their only phone. A lot of those people also only  
15 watch YouTube, only watch iTunes, things like  
16 that. So there is a set of customers who aren't  
17 necessarily even interested in a triple-play and  
18 are looking for a reliable broadband service.

19 The other thing we found is that in  
20 Cincinnati, 50 percent of our customers came from  
21 Bell or the cable company, and people are looking  
22 for an alternative. They want to move because



1 today, and I think that is a real key to their  
2 success, and I think long term a very, very smart  
3 strategy and one not dependent on the bundle.

4 But I will say that I don't think we have  
5 actually seen the work done on the impact of  
6 bundling yet. There are some advantages to the  
7 bundle, but at some point in time, somebody will  
8 figure out how to create a functional advantage of  
9 the bundle.

10 I am going to give you one that is kind  
11 of -- when your phone rings, wouldn't it be cool  
12 if you were watching -- or for me, the UNC  
13 basketball game, that you had the caller ID  
14 actually on the TV screen, so you would know  
15 whether to actually get up off the couch and  
16 answer the phone or just let it ring. Well, that  
17 is the kind of technology. Actually, you don't  
18 need that in a bundle, but it is just an awful lot  
19 more convenient.

20 When the bundle starts to produce things  
21 where there is actually some kind of integration  
22 of the various services, the bundle becomes a much

1 more powerful product I think than simply 5 bucks  
2 off this month.

3 MR. GRAYER: Just give me one little  
4 chance.

5 MS. GOODMAN: Sure.

6 MR. GRAYER: Two things. First of all,  
7 we have that on DirectTV today, number one, and  
8 number two --

9 MR. LEVIN: Until AT&T cuts you off.

10 [Laughter.]

11 MR. GRAYER: No. It is just the Caller  
12 ID coming into the box.

13 But I agree with your point. There is a  
14 difference between a bundle that is just all about  
15 price, which is what it is today, and if there  
16 becomes an integration of services. That could be  
17 a different thing.

18 Also, I just wanted to say our superior  
19 video product is not solely about HD.

20 MR. LEVIN: That is what you guys are -

21 MR. GRAYER: We have a lot of content  
22 that others don't have.

1           MR. LEVIN: Do you mean like exclusive  
2 content?

3           MR. GRAYER: Content.

4           [Laughter.]

5           MS. GOODMAN: I just wanted to give  
6 anybody in the audience an opportunity to ask a  
7 question because we are running out of time.  
8 Anybody have anything they wanted to ask?

9           [No response.]

10          MS. GOODMAN: I am going to just ask one  
11 more thing before we end, and that has to do with  
12 this underserved and unserved areas of the  
13 country.

14                 There are an awful lot of people talking  
15 about it, and some states I know have set up  
16 programs to identify these areas, and I was  
17 interested as to whether anybody had some  
18 positives or negatives about how people are going  
19 about that -- to identify areas that are  
20 underserved or unserved and to also encourage  
21 broadband deployment into those areas.

22          MR. BROWN: Subject to our capacity

1 constraints, if someone could teach me how to  
2 build a satellite in less than two or three years  
3 and for less than 200 million bucks, we would  
4 solve that problem overnight.

5           Subject to that, we offer our service  
6 anywhere, and satellite has -- there are some  
7 challenges that we face, no question about it.  
8 Satellite is 22,000 miles away. You can't  
9 overcome physics, but at the same time, we have  
10 some tremendous competitive advantages in those  
11 areas, the truly underserved or unserved by other  
12 broadband alternatives. I think it is going to be  
13 a long time before anybody is competitive with  
14 satellite.

15           MR. HERRON: We are dealing with  
16 broadband over power line mostly in the urban  
17 areas, urban/suburban-type areas, but if we  
18 provide automatic meter reading and other Smart  
19 Grid-type services to the electric utility, we are  
20 covering all the footprint within the area that we  
21 are covering. So we are touching communities,  
22 inner-city neighborhoods that maybe DSL or cable

1 has not been rolled out to and are able to provide  
2 services into some of those markets also.

3 MS. GOODMAN: All right. Well, thank you  
4 very much. It was very interesting, and I  
5 appreciate you all taking the time to come down  
6 and talk with us. Thank you.

7 [Applause.]

8 MS. GARZA: All right. I won't keep you  
9 very long, but on behalf of the Antitrust  
10 Division, I do want to sincerely thank all of our  
11 panelists today and other contributors for their  
12 participation, as well as the audience for their  
13 interest.

14 Forums such as this can be a great way to  
15 help us to inform our enforcement activities as we  
16 are called upon to review transactions or to  
17 review the competitive effects of certain conduct.  
18 It also helps to inform our competitive advocacy  
19 efforts which we view as being a key part of our  
20 agency's mission.

21 One of the panelists this morning said --  
22 and I am paraphrasing him -- that it would be





1 part to our understanding of the issues and the  
2 evolving facts in these industries.

3 As Tom Barnett said this morning, we have  
4 actually decided to extend the period for comment  
5 until December 31. So we encourage anyone perhaps  
6 in reaction to things that were raised today to  
7 submit any further comments you think we should  
8 consider.

9 The wonderful telecom staff that did such  
10 a great job of putting symposium together will  
11 synthesize those comments and issue some kind of  
12 paper report next year, but that won't be the end  
13 of our search for knowledge. In part, that will  
14 be a beginning and a continuation of a dialogue.

15 So I hope that you took some satisfaction  
16 out of this forum in that you will continue to  
17 help us in the future with similar kinds of  
18 inputs.

19 Thank you very much.

20 [Applause.]

21 [The symposium concluded at 5:23 p.m.]

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