

FEDERAL TRADE COMMISSION

I N D E X

1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
21
22
23
24
25

Opening Remarks by Chairman Majoras -- Page 3

Panel I: Technical Background -- Page 12

Panel II: What is the Debate Over
"Network Neutrality" About? -- Page 69

Remarks by Commissioner Leibowitz -- Page 140

Panel III: Discrimination, Blockage, and
Vertical Integration -- Page 152

Panel IV: Quality of Service, Tiering, and Charging Fees
for Prioritized Delivery -- Page 221

P R O C E E D I N G S

- - - - -

CHAIRMAN MAJORAS: Well, thank you very much, Maureen, and many thanks to all of you, for being here, live. It's good to see that some of us still value being live in the audience. But we do have many I also want to thank, who are watching us online today. So, thanks to everybody.

I particularly want to thank our distinguished panelists. We have what I consider to be a dream team line-up of panelists on this issue, and I think this is a great opportunity for all of us to hear from some of the most knowledgeable -- and, I could probably say, passionate -- people who are involved in this very significant debate over so-called network neutrality.

In a short time, the Internet has fundamentally changed our lives. It's made the world bigger, in the sense that it expands our reach in offering and acquiring knowledge, opinions, and goods and services, and it's also made the world smaller, in the sense that it makes communicating and transacting around the world a synch.

For our children, geographical and spacial limitations are quickly diminishing, as they can play games with friends who are sitting across town, communicate with a classroom halfway around the globe.

1 Their circles of friends and influences increasingly come
2 less from geographic neighborhoods, and more from social
3 networking neighborhoods.

4 Whereas we have grafted the Internet onto our
5 lives, they are growing up in it, and have never known
6 otherwise. And they will shape it, ultimately, into
7 something that we cannot fathom. Our job, in the
8 meantime, is to not screw it up.

9 Beyond providing a means to communicate and get
10 news and entertainment, the Internet, of course, has
11 fostered and, in some cases, actually created competition
12 in countless markets. The FTC's job is to protect that
13 competition online and offline, and we use a lot of
14 different tools in this effort.

15 For over a decade, now, the FTC has
16 investigated and brought enforcement actions, using both
17 the consumer protection and the anti-trust laws, in
18 matters involving Internet access. From combating spam

1 cases is that tried and true principles of competition,
2 truthful and complete disclosures, and securing sensitive
3 consumer information still apply, both in the offline and
4 the online environment.

5 So, we often find that our existing legal
6 authority is sufficiently flexible to allow us to address
7 new competition and consumer protection challenges as
8 they arise.

9 In addition to law enforcement, the Agency
10 actively engages in competition advocacy to inform policy
11 makers of the competitive and consumer implications of
12 their proposed legislation, or policies. And this is
13 actually an extremely important complement to our private
14 enforcement work. Because, from the market's
15 perspective, government-imposed restrictions on
16 competition or barriers to entry may be more harmful than
17 even private exclusion can be.

18 So, increasingly, we see our advocacy efforts
19 targeting proposed restrictions on electronic commerce.
20 Just within the past year, for example, we have responded
21 to invitations to analyze proposed legislation involving
22 online auctions, online wine sales, legal matching
23 services -- I said "legal matching services," not "dating
24 matching services" -- as well as a "do not e-mail"
25 registry.

1 A recurring theme in many of these advocacies
2 in the area of eCommerce, and of course, elsewhere, is
3 that policy makers need to be wary of regulations that
4 are clothed in terms of protecting consumers, because
5 that's what groups always say that they want to do, that
6 in practice would hamper competition, or raise barriers,
7 while benefitting only particular vested interests. And
8 this is particularly a concern of ours, when we are not
9 seeing evidence of consumer harm.

10 Another potent tool that we have that we use at
11 the FTC is innovative and timely consumer education.
12 Now, people sometimes look at me when I say this, like,
13 "Okay," like as though that is sort of the soft side of
14 what we do. Much to the contrary. Education is what
15 empowers consumers to protect themselves in the market
16 place. And nowhere is that more critical than in the
17 online environment.

18 Foremost among our education efforts is
19 onguardonline.gov, which is a multi-media website,
20 designed to educate consumers about computer security
21 issues such as phishing, spyware, issues raised in online
22 shopping, and wireless security.

23 Our latest effort in the area of consumer
24 education is a home page that just went live on our
25 website this morning, titled, "Competition in the

1 Technology Marketplace." And there, consumers can learn
2 about the FTC's actions to promote and protect
3 competition in technology markets.

4 Now, the final tool that we use is our -- is
5 robust research and information gathering, which, in
6 turn, then, informs our enforcement, our advocacy
7 efforts, and our education. And this research can take
8 the form of studies. You may be familiar with our
9 municipal Wi-Fi report that was issued last October,
10 which provides an analytical framework for policy makers
11 for considering whether and how municipalities should
12 provide wireless Internet service.

13 But we also increase our knowledge by holding
14 public workshops, such as the one that you're attending
15 today. Last August I announced the formation of our
16 Internet access task force. My rationale was simple. I
17 wanted us to gather more facts and less rhetoric. After
18 being asked increasingly about our views on network
19 neutrality, from both the competition and consumer
20 protection perspectives, I began doing more reading on
21 the issue, and talking to folks, to try to learn a little
22 bit more.

23 And frankly, I was a little surprised by the
24 lack of constructive public debate. What I found were
25 too many sound bytes, too much talking past one another,

1 and not enough acknowledgment that this is a tough issue
2 that poses risks on all sides.

3 So, when I announced the formation of the task

1 technical background on the workings of the Internet, to
2 make sure that we are all speaking the same language over
3 the next two days.

4 The second panel will attempt to define the
5 parameters of the debate over network neutrality. One of
6 the things that we have found is that the terms that
7 we're using in this debate sometimes mean one thing to
8 one person, and another to someone else, and people have
9 different concerns.

10 So, we're going to review the regulatory
11 changes at the FTC and in the courts that have sparked
12 the debate, and air the court concerns of proponents and
13 opponents of regulation. And we will attempt to try to
14 identify the potential and actual harm to consumers that
15 we are most concerned about.

16 In the afternoon sessions later today, we will
17 have two panels devoted to the two main areas of the
18 debate: data discrimination; and prioritization. And in
19 the first of these, we will have five economists
20 addressing the incentives of ISPs to discriminate against
21 content or applications provided by unaffiliated parties,
22 as well as the risks and benefits of vertical integration
23 by ISPs into content and applications.

24 And then, the second of the panels will address
25 the many issues associated with ISPs and other network

1 operators charging content and applications providers for
2 prioritized delivery of data.

3 Tomorrow morning, our first panel -- hopefully,
4 we will have a tomorrow morning; well, we will have a
5 tomorrow morning.

6 (Laughter.)

7 CHAIRMAN MAJORAS: Hopefully, we will have a
8 tomorrow morning here. We will address the current and
9 future state of broadband competition in the United
10 States.

11 Our task force, frankly, has heard many
12 divergent views on that subject, with some characterizing
13 the broadband market as a duopoly, at best, and others
14 touting existing or imminent alternatives to DSL and
15 cable modem, such as wireless, broadband over power line,
16 and others.

17 The competition panel will offer views on the
18 competitive significance of these alternatives, and
19 debate whether robust competition in the market for
20 broadband Internet access is the best way to address the
21 potential harms envisioned by proponents of regulation.

22 Our second panel tomorrow morning will explore
23 consumer protection issues in this area, including the
24 disclosure of material terms in Internet access
25 agreements. As ISPs are providing more differentiated

1 and panelists for being with us today, and for all your
2 efforts you have put into this.

3 We, frankly, had more volunteers than we could
4 accommodate, as far as speakers go, and we are sorry
5 about that, although we were delighted by the response.
6 But there is still time for filing written comments, up
7 until the end of the month. So please keep that in mind.
8 I hope that all of us will benefit from listening to the
9 differing views offered -- emphasis on listening.

10 (Laughter.)

11 CHAIRMAN MAJORAS: So, it is now my pleasure to
12 turn things over to Charles Goldfarb, of the
13 Congressional Research Service, who has graciously agreed
14 to moderate our first panel. Thank you very much.

15 (Applause.)

16 MR. GOLDFARB: Welcome to the opening panel of
17 the FTC broadband workshop. I am very happy to be
18 participating in the workshop for two reasons.

19 First, I began my public policy career in the
20 FTC's bureau of economics, way back from 1974 to 1978, so
21 this is a nice reunion for me. And second, in my current
22 position, where I cover telecom and media competition
23 issues at the Congressional Research Service, it's my
24 responsibility to help frame public policy issues, and to
25 provide balanced and non-partisan policy analysis to my

1 involve technology and policy issues of computer and
2 telecommunications networks, electronic commerce, and
3 technology policy.

4 William Lehr, who is up in Massachusetts right
5 now, is a research associate at the computer science and
6 artificial intelligence lab at MIT. His current research
7 with the communications futures program, and previous
8 research with the MIT research program on Internet and
9 telecommunications convergence focus on emerging
10 broadband and wireless technologies and their
11 implications for industry structure, business, and public
12 policy.

13 This opening panel has a relatively narrow
14 mission to provide a factual, technical base that can be
15 used in the various public policy discussions that will
16 follow over the next two days. We face the challenge of
17 providing information on the technologies available to
18 operate and manage broadband access networks without
19 bogging down the non-technologists, who are essential
20 participants in the public policy debate.

21 Our plan is as follows. First, Jon will
22 discuss the technologies available today -- or soon to be
23 available -- that allow broadband network access
24 providers to discriminate or differentiate among
25 applications or users.

1 Then, Bill will discuss the technologies
2 available to independent applications providers and end
3 users for counter-strategies, if they face discrimination
4 or differential treatment. I will then pose several
5 questions to the panelists, and then we will take
6 questions from the audience. So, Jon?

7 MR. PEHA: Okay. So, I'm going to begin with a
8 discussion of some of the underlying technology, and then
9 its economic and policy implications.

10 We have heard -- and will certainly hear over
11 the next two days -- advocates of network neutrality
12 saying that networks have the ability and the incentive
13 to limit customer choices through discrimination today.
14 We will also hear opponents of network neutrality say

1 from where I think the issue is.

2 So, what is net neutrality? I don't know. I
3 have been following this debate for a while, and I don't
4 have a clue. Definitions have not converged, as best I
5 can tell. But if I go back to the principles endorsed by

1 based on the concept of packet-switching. That is, we
2 will take -- all information sent, we have to divide it
3 up into little discreet pieces, to each of those pieces
4 we will slap on some control information at the front and
5 the back, which we call a header and a trailer, kind of
6 like you put control information on the outside of an
7 envelope when you mail it. And each of these packets is
8 sent separately.

9 So, based on traditional Internet technology --
10 might have been a better phrase -- delivery of these
11 packets is entirely best effort. That is, packets can be
12 lost, packets can be delayed. Packets can come, but not
13 in the order you sent them. And it's entirely up to the
14 sender and the receiver to sort that out, and to request
15 retransmissions where needed.

16 Traditionally, most resources have been
17 allocated on a first-come-first-served basis. Actually,
18 the protocol for 35 years has allowed priority. But, for
19 the most part, people haven't used it. Or even
20 implemented it.

21 And in general, there has been little
22 intelligence within the network. The idea is push the
23 intelligence to the outside of the network, and try to
24 keep up with packets as fast as you can, which, among
25 other things, means that there was traditionally little

1 ability to defend against security threats inside the
2 network, because it just wasn't built in.

3 This is changing. In many ways, there is more
4 intelligence going in the middle of the Internet. And I
5 won't talk about all of it, except related to
6 discrimination. And discrimination, I would argue, has
7 two components. First, you have to decide which packets
8 or users or streams you want to favor or harm, and then
9 you have to figure out what it is you want to do to
10 benefit or harm them.

11 So, beginning with the first, how do you
12 determine which streams to favor? The traditional way to
13 do that was to look at each of these packets as they went
14 by. Look at the fields and the header, that control
15 information that was tacked on, one packet at a time.
16 And things like IP address and port number, you can learn
17 who the sender is, you can learn who the recipient is.
18 Sometimes you can learn who the device manufacturer is,
19 for that device at the edge, depending on where you're
20 monitoring.

21 Once upon a time, you could learn who the
22 application was, through something called a port number,
23 but that hasn't been reliable or meaningful for a number
24 of years.

25 But some new methods have emerged -- actually,

1 they're not that new; they have been in universities for
2 a while. But they're actually products on the market
3 that do new and interesting things to differentiate among
4 packet streams.

5 One is called flow classification. Something
6 new will actually keep track -- it is called stateful --
7 I will keep track of every stream that is going by my
8 monitoring device. And for each of these, I will keep
9 track of things like packet size, and the time between
10 packets and stream duration, and I can learn a lot about
11 the application that way. Even if you encrypt it, I can.

12 I can do something -- also do something --
13 called deep packet inspection, where not only will I
14 maintain state for every stream of packets going by me, I
15 will actually capture some of those packets, and I will
16 reassemble them, as if I were an application. I will
17 take a bunch of your packets together, and I will
18 reassemble that e-mail message, if I want to.

19 And in fact, if I am doing that, I can actually
20 even go a step further. As long as I have got state on
21 every session, and I am pulling this information, I can
22 also use this to cross-index with other information I
23 might have, like your billing information, or your credit
24 information, or whatever you want.

25 And when you put all this together, I can have

a really detailed information about who you are, and what

1 algorithm, which says the buffer is going to overflow;
2 what do you throw away? Or, routing algorithms. Which
3 path should this packet take?

4 And I can, if I want, introduce discrimination
5 in to any or all of those.

6 A fourth thing I can do is sometimes called
7 content billing or content charging. I can look into
8 your packets, and I can decide to adjust your bill -- I
9 guess up or down -- based on your application, based on
10 content, based on subscriber. This is, actually, in
11 fact, a little easier than managing your quality of
12 service in real time, is to adjust your bill.

13 So, what do I do with all this stuff? Well,
14 first, let me make the argument that discrimination is
15 wonderful, that I can do really useful stuff with this.
16 One thing I can do, for example, is I can watch for
17 security threats and block them. I can watch for
18 viruses, I can watch for denial of service attacks.

19 I should caution. Some of the proposals
20 actually have a carve-out for security. Of course, the
21 hard part is defining what it is to exempt security, what
22 that means. And particularly, I mean, I have students
23 right now back at Carnegie Mellon University, who are
24 using deep packet inspection to find security threats,
25 particularly spyware, and we're trying to develop some

1 new techniques.

2 And I can tell you also that there are false
3 positives and there are false negatives. And if I block
4 something that I am 95 percent sure is a security threat,
5 am I going to get fined 5 percent of the time? It's
6 tricky.

7 I can also block traffic from non-conforming
8 devices. It's a way to make sure that all of the devices

1 the Internet, presumably the last mile connection. I now
2 have extensive information on who you are and what you're
3 doing, and I can use that information to try and set the
4 price as close as possible to what -- to how much you
5 value the service, to your willingness to pay.

6 And the economist will tell you that you are
7 then extracting the consumer surplus, you are shifting
8 benefit from the users to the carrier. And users, in
9 this case, means both consumers and content, or service
10 providers. And I can do that pretty effectively -- the
11 more information I have, the more effectively I can do
12 that. I will also probably intentionally degrade quality
13 of service so that those who value a better service will
14 pay for that better service. And in fact, we see that
15 coming.

16 Now, nothing surprising here. This is in the
17 broadband market, the transport of bits. If you have a
18 monopoly in the broadband market, I expect to see you're
19 going to try and get monopoly rents in the broadband
20 market.

21 What is really interesting is that you may move
22 into other markets. There are many upstream markets --
23 or some people say downstream markets -- but in any case,
24 markets that depend on the Internet for their existence:
25 electronic commerce; communications, like video

1 conferencing or voice-over IP; information distribution,
2 whether it's video streaming or MP3's, or something else,
3 or online advertising.

4 And I can try and affect those markets, as
5 well. And just as with the broadband market, I can
6 exploit the extensive information I have. I can
7 deliberately degrade quality of service to further
8 segment the market where that's useful, and I can try and
9 set price as close as possible to what consumers are
10 willing to pay in each market.

11 So, I may want to separate -- I won't treat all
12 packets the same, so I will separate, for example, the
13 voiceover IP market with a download of digital products.
14 And within the latter, I will separate a four megabyte
15 PDF from a four megabyte MP3 music file. I may even
16 differentiate one song from another.

5

1 voiceover IP, you know, \$.10 per minute on voiceover IP.
2 What's particularly interesting about that is that if you
3 -- you can turn what is possibly a low price alternative
4 to a high price alternative, which is useful if you are
5 offering telephone service.

6 So, some observations. I can use these
7 techniques to protect my legacy services -- that is,
8 telephony for DSL provider, or video for a cable
9 provider. I can try to extract monopoly rents from
10 competitive markets. That is, the consumer may pay the
11 equivalent of monopoly price, even in a competitive
12 market, which -- I'm not sure that meets the definition
13 of anti-competitive practices, which is where our anti-
14 trust comes to play. So I'm not sure how this interacts
15 with current law.

16 And I can do this without entering the market,
17 or affiliating with a provider. So, people who talk
18 about this as an issue of favoring affiliated versus non-
19 affiliated content or service providers, there is more to
20 it than that.

21 There could also be content filtering for other
22 reasons. Perhaps for political reasons I will want to
23 limit access to advocacy groups for issues I oppose, or
24 candidates I oppose. For commercial reasons, I might
25 want to limit access to commercial rivals or consumer

1 complaints or labor unions.

2 Oh, there is a line missing from this slide,
3 but it says that there are accusations -- oh, okay, no,
4 sorry, it's there -- there are accusations that some of
5 this is happening already, and there are denials. I
6 don't claim whether it's happening or not, but it's
7 certainly technically possible.

8 So, where does that leave us? It leaves me in
9 the hope that we can find a policy that -- what I call a
10 balanced policy, that prevents networks from fully
11 exploiting market power, you know, from using
12 discrimination in a manner that limits discrimination to
13 prevent them from fully exploiting market power to
14 seriously harm users, but does not prevent them from
15 using discrimination to greatly benefit users, which may
16 not be simple.

17 I would conjecture that the impact on upstream
18 markets is probably most important for the serious harm.
19 And one observation is that when you're doing that, you
20 might see prices inconsistent with costs. For example,
21 the price for carrying voiceover IP might differ greatly
22 from the cost for carrying voiceover IP, and that might
23 help us figure out when the problems are occurring. But
24 it remains to be seen.

25 So, some conclusions on discrimination.

1 Discrimination can benefit users greatly. It can improve
2 security, it can improve quality, decrease infrastructure
3 costs, and allocate resources to those who value them the
4 most. And so, imposing network neutrality, a policy that
5 prevents these things, could do real harm.

6 On the other hand, discrimination can harm
7 users, if the network operator has sufficient market
8 power. It's because the network has access to a great
9 deal of information, and it can use this information to
10 discriminate, to extract consumer surplus in both
11 broadband and upstream markets, even if the upstream
12 market is competitive, and even if the network is not
13 affiliated with any upstream provider. So, not imposing
14 network neutrality could do real harm.

15 My final conclusions on network neutrality, I
16 think that means we need to focus on the specifics of a
17 balanced policy. I don't hear a lot of talk about
18 specifics. You know, can we deter the most harmful and
19 allow the most beneficial? I don't think it will be
20 necessarily possible to eliminate all harmful, and
21 preserve all beneficial. And therefore, really strict
22 litmus tests like that are probably going to get us into
23 trouble, too. It's a little more subtle than that.

24 I would also argue -- and I don't have time for
25 this -- that the debate has been misframed. It's not

1 about the inherence of discrimination, because
2 discrimination can be useful. It's not about unfair
3 affiliate relationships -- it can be broader than that.

4 And the right of networks to differentiate, or
5 the freedoms of end users are interesting concepts, but
6 they don't provide us enough guidance as to what is
7 really -- what really should be allowed or not allowed.

8 And for those who want more, there is a paper
9 with much of the content I have just presented. Thank
10 you.

11 (Applause.)

12 MR. GOLDFARB: We shall now experiment to see
13 if we can hear from Bill. Hopefully, this will work.
14 And if not, Jon will be helping out. But Bill, are you
15 ready to go?

16 MR. LEHR: Yes, I am. I am here in Concord,
17 and my great apologies for only being able to be down
18 there virtually. Can you hear me?

19 MR. GOLDFARB: Can the audience hear? Yes. It
20 seems to be working. I guess what you may have to do is
21 inform whoever is moving the slides when you want to move
22 to the next slide.

23 MR. LEHR: Okay. Well, why don't you just get
24 to my very first slide there, and let me again apologize
25 for not being there. They canceled my flight in

1 that we are going to be living in, to talk a little bit
2 about why it's reasonable to believe there might be a
3 problem about net neutrality, and addressing that
4 problem. Then, talk about the joint paper that I wrote
5 with Jon Peha and my other colleagues about what we call
6 the net neutrality arms race and the sorts of responses
7 that end users can have, and then wrap up with a brief
8 just discussion of what I think that means about the
9 policy agenda, and about further technical work that
10 needs to get done.

11 Next slide -- and if you can click through to
12 the end of the slide, because I have put animation in
13 these slides that is particularly difficult in this
14 situation.

15 Okay. So, a vision of the broadband future. I
16 think that it's pretty obvious to anybody that is engaged
17 in work on the Internet, following these technologies,
18 following these industries, that the future of the whole
19 information communications technology value chain is
20 heavily dependant on the Internet. And the future of the
21 Internet is a broadband, wireless Internet.

22 If you look at the really big things that have
23 happened in this space that have been the sort of
24 paradigm-shifting changes that have driven major growth,
25 it was the growth of the Internet in the 1990s, mobile

1 communications, also in the 1990s, delivering, on the
2 first hand, mass market data communications services, and
3 then on the second hand, mass market personalized
4 communications services.

5 And then, starting in the 2000s, the growth of
6 mass market broadband, which really sort of unlocked the
7 capability of the Internet. In the future, in computer
8 sciencespeak, we're moving towards a world of pervasive
9 computing. We already have computers in our cars, in our
10 consumer appliances, in all kinds of things we're not
11 even aware of, that are always on. And all of this
12 computing power is much more valuable and useful if it's
13 everywhere connected. And increasingly, a lot of that
14 connectivity is going to be unaware. That's what we mean
15 by the world of pervasive computing.

16 We could also see this coming in things like
17 RFID and sensors, smart network edges, and the emergence
18 of post-PC devices, all kinds of things that have
19 computer chips in them that are communicating on our
20 behalf, that businesses are using and increasingly
21 consumers will be using, that we may not even be aware
22 of, that are taking advantage of all this Internet.

23 That means we're going to have lots of
24 networks, and that no one-size-all solution or treating
25 or thinking about these networks is either desirable or

1 possible. You're going to have wired networks of many
2 different types: coaxial cable, copper, and fiber. And
3 you're going to have lots of different sorts of wireless
4 networks, from the Wi-Fi networks that there has been a
5 lot of talk about, to 3G and fourth generation mobile
6 types of networks, WiMAX technology, ultra-wideband, free
7 space optics, different kinds of satellite technologies,
8 on and on and on.

9 This heterogeneous technology is a
10 characteristic of the future environment that's being
11 driven by convergence and the need for interoperability
12 and connectivity, but it will also pose challenges for
13 all of those things.

14 You're going to see a much more complex,
15 competitive landscape, where the definition of who is a
16 carrier, what constitutes a carrier, what service markets
17 they operate in, making those definitions in a clean way
18 is going to be increasingly difficult.

19 And that broadband is really local and more
20 local than traditional Internet access has been, because
21 you're going to have very different sorts of environments
22 that are going to require and make possible different
23 kinds of technologies. Certain kinds of wireless will
24 work in places like the west, but won't work in the
25 heavily treed and more rainy northeast.

1 Also, markets are going to differ significantly
2 in their ability to attract and sustain infrastructure
3 competition. Some markets are going to be lucky enough
4 to have multiple fibers passing every home in the market.
5 Other markets will be lucky if all they can get is some
6 sort of wireless technology.

7 And you're going to have overlapping
8 generations of technology, because the pace of change in
9 this sector, if anything, has accelerated. So that the
10 differences of the -- and the issues that are going to be
11 relevant, in terms of what broadband looks like in one
12 market may be really different, even across town, in the
13 same market because of the, you know, terrain issues,
14 what, you know, legacy infrastructure was available, et
15 cetera.

16 And finally, we need a lot more investment in
17 last mile access networks of all sorts all over. Okay?
18 So I think that is the sort of technical future that,
19 when you think about policy and the net neutrality
20 debate, you really have to be thinking about when you
21 address this.

22 Okay, let's go next slide, please. Is it
23 plausible to believe there is a problem? First off, as
24 we begin -- as we have sort of gone over the cusp, and
25 increased the capacity of broadband connections,

1 broadband traffic is growing exponentially.

2 Before we had significant amounts of broadband
3 access, you know, sort of pre-2000, the fact that most
4 people who accessed the Internet were still doing it over
5 dial-up connections throttled the ability of individual
6 users demand to reveal itself as how bursting and peaky,
7 indeed, it can be.

8 And the kinds of services that Jon has already
9 talked about -- peer-to-peer, different kinds of rich
10 media, gaming, interactive media -- means that the
11 Internet is having to handle a much wider array of
12 traffic types, and a much greater volume of all traffic
13 types that have different tolerances for their quality of
14 service needs.

15 So, for example, you know, voice telephony is
16 very sensitive to delays. And so, if the packets don't

1 applications? There is not a lot of great data in the
2 public sphere to make informed policy decisions about
3 that.

4 And even the carriers don't really know what
5 this broadband traffic is going to look like, because
6 this is a growing and emerging phenomenon. Users are
7 learning how to use these broadband networks, and as they
8 use them, they change their behavior. And as their
9 behavior changes, the carriers are finding they are
10 having to address ever-new challenges for managing this
11 traffic.

12 Another important issue is that -- you're a
13 slide too far ahead -- penetration saturates. And so,
14 revenues growth slows. And the question is that if we
15 want the industry to continue to meet the growth in
16 traffic, we have to figure about what the incentives are.
17 And there is a number of kinds of solutions that we may
18 look at, and all of these have problems with them.

19 You can look at different kinds of traffic
20 quotas -- and those are potentially an issue -- let me
21 just jump ahead to the next slide, to catch up where you
22 guys are. Okay.

23 So, at any rate, hopefully what I am trying to
24 explain thus far -- and we have a paper that we have,
25 that talks about this at greater length -- is that,

1 indeed, there is a real problem for the continued
2 exponential growth of the traffic, and the market's
3 current attraction to sort of flat-rate pricing that
4 means that provisioning continual investment to address
5 the real growth in traffic is not an obvious outcome that
6 is going to, indeed, happen, and that if that were to be
7 forestalled, I believe that would have deleterious
8 effects for the whole Internet value chain. So let's go
9 to the next slide.

10 So, scenarios for network neutrality arms race.
11 And the reason we call it this is because we believe that
12 there isn't an obvious outcome, that whatever efforts a
13 carrier -- who, let's assume, has the power to
14 discriminate -- might undertake, there are responses that
15 the end users could do to that, that, in turn, would
16 induce further responses from the carriers, and so on.

17 So, in this paper, what we looked at, we said,
18 "Let's assume there is no net neutrality regulation,"
19 i.e., let's just ignore any kind of regulatory policy
20 interventions that might discourage the sorts of behavior
21 that Jon suggests might be possible by a carrier with
22 sufficient power and capabilities. And that, indeed,
23 those things are done to discriminate.

24 And I put discrimination in quotes to move away
25 from the loaded term of -- you know, as an economist may

1 think about it, or as folks may think about it as a
2 pejorative, bad thing that may be done. And just to say
3 focus on suppose a carrier does something an end user
4 doesn't like. Well, what can an end user do? Okay?

5 So, when we think about this, we say, "Why is
6 net neutrality a concern?" Can we go to the next slide?
7 The fear is that they're going to engage in this -- click
8 through this slide, please, this has a lot of animation
9 on it. Basically, a lot of the points here I think we
10 have already addressed. The fear that motivates the
11 concern for net neutrality is that these carriers will
12 block access to content, will offer differential quality
13 of service, or will price-discriminate. And Jon has
14 explained how that can happen.

15 He has also explained that the ability to block
16 access to content may be useful for detecting and
17 protecting against distributed denial of service attacks,
18 or viruses, or other sorts of malware, that
19 differential quality of service may be useful and
20 required for traffic management, and that price
21 discrimination may be useful for recovering of sunk and
22 shared costs on the network -- what economists call
23 "Ramsey pricing," something I am sure you will hear more
24 about later in the day.

25 So, the question is, you know, is what they're

1 doing really discrimination? You know, and if there is
2 really no problem -- you know, I don't think most people
3 would have a problem with a carrier trying to recover the
4 higher costs for more resources used. So, for example,
5 if you're getting preferential caching for your service,
6 your video service, and that's costing the carrier more,
7 then the carrier ought to charge you for that. And if
8 you don't care about that, because you're providing free
9 content, then maybe you shouldn't have to pay for that
10 preferential caching.

11 Similarly, there is the literature on two-sided
12 markets, which I will leave to folks later today to talk
13 about. So, the goal needs to be to protect against
14 harmful discrimination, but there is lots of types of
15 traffic management that are not likely to be harmful.
16 And it's important to note that in the sorts of responses
17 we talk about here today -- and this was sort of one of
18 the insights we gained from writing this paper -- that
19 end users' ability to respond doesn't really matter if
20 what the carrier is doing is actually something socially
21 we like or not.

22 End users who can have ability to respond may

1 know, their capabilities, and that sort of stuff. So
2 there may be another kind of concern here, that hasn't
3 really been talked much about, which is the concern of
4 what do you do about end users who are sort of doing the
5 end run around good management practices on the Internet.

6 So, what are the kinds of responses that an end
7 user can have, if a carrier does something that an end
111111111

1 So, let's go to the first strategy, strategy
2 one, bypassing differentiation. Next slide. The most
3 obvious way that you can get around the problem is take
4 advantage of multiple bit paths. Now, if there is
5 facilities-based competition, that may be sufficient to
6 render the whole concern over non-neutral treatment by a
7 carrier mute, so that, you know, the -- you know, as an
8 economist, I would believe that if there is adequate
9 competition, the competition would result in carriers
10 offering consumers what they want, and so a carrier that
11 tried to abuse consumers and do something they didn't
12 want would find those consumers switching to other
13 carriers.

14 But even in a situation of where there appears
15 to be ample competition in the originating market, as Jon
16 explained -- and I'm sure other folks will talk about
17 today -- there may still be a terminating problem, where
18 the -- an individual end user doesn't necessarily know

1 end user is able to multi-home. So, for example, if it's
2 a business, the business may actually -- and this is
3 typical of a lot of businesses -- have service provided
4 by multiple carriers. And so, the content provider can
5 go to that user across any of those, because the user has
6 those.

7 That's less likely to be an option for the
8 typical mass market customer, although in the future,
9 that may become a little bit more of an option through
10 things like cooperative access sharing, and things like
11 scalable mesh networking.

12 And there are ways in which -- and, you know,
13 we know of situations of folks doing this already today,
14 although it is, at this point, a technical -- that is
15 able to do this -- but where people are doing things
16 like, you know, I have a Comcast connection and you have
17 a DSL connection, and the two of us are able to share
18 that, because we are on the same local area network that
19 we have set up. And so we now have routing diversity to
20 get out to the Internet, and we have a way to actually
21 share that, and you can do even more interesting things
22 like that. So, upstream aggregation and consumer
23 networks are a way to do this.

24 A second way is broadband resale. So,
25 different types of technologies and uses that allow

1 broadband connections to be shared more generally can
2 help here. And there are different sorts of models that
3 a number of folks have put forward for how this can
4 happen, and we are sort of seeing experiments with this
5 in the market place.

6 And then, finally, by end users sort of -- you
7 know, in a much more concentrated way, organizing
8 alternative access connections, and municipal networking
9 where communities get together, maybe with the help of
10 their local government -- usually with the help of their
11 local governments or local utility, but not necessarily
12 -- get together and provision a network. And if that
13 network is an open access network, then that provides
14 another way to deal with this.

15 And we stress the importance of it being --
16 considering it as an open access network, because
17 otherwise, it's just another network. And so, in
18 principle, that will help, because more choices is
19 better. But it's possible that the municipal network, if
20 it's not an open access network, could also be guilty of
21 non-neutral treatment. There is no reason to presume
22 that your municipal carrier, if it has market power, may
23 be any better behaved than an investor-owned carrier.
24 Next slide.

25 So, the second class of strategies are end user

1 counter-measures. And we sort of organized those into
2 non-technical and technical. The non-technical
3 strategies are if a bunch of end users don't like
4 something that a particular carrier is doing, in the
5 Internet space they have demonstrated a remarkable
6 ability to organize and bring serious consumer pressure
7 on this. We call this shining a light on the rats.

8 So, if there is a particular behavior that a
9 carrier is doing, some sort of quality of service
10 differentiation that really has no justification in cost,
11 and looks really high-handed, it's very common for this
12 to get, you know, blogged in real time, and for this to
13 embarrass the carrier so that -- I mean, the carriers and
14 the operators -- and force them to change their behavior.

15 Now, you know, is this something we want to
16 rely on absolutely? No, but I don't think -- perhaps
17 not, but I don't think that we should neglect it when we
18 think about the power of this, or underestimate it.

19 Another sort of response is the ability to sort
20 of lie on applications. A lot of the discriminatory
21 techniques -- and I'm not -- again, I'm using
22 "discrimination" in a non-judgmental way here -- are
23 attempts by the carriers to get users to self-classify.
24 So they say, "If you're a business user, then tell us,
25 and you'll pay more." And the reason you pay more is

1 because, as a business user, we expect you to use more
2 expensive resources.

3 But if you don't really want to pay more, you
4 just sign up for a residential DSL line, and then run
5 your home business on it. And I think most small home
6 businesses, that's exactly what they do. They don't opt
7 for commercial services. And maybe -- whether or not
8 they should or shouldn't, you know, is another question.
9 But the ability to sort of misrepresent your user
10 behavior in very non-technical, simple, you know, sort of
11 old-world ways, is another sort of end user counter-
12 measure.

13 And, of course, you know, if there is -- some
14 of these sorts of behaviors are more likely to be able to
15 work if the end users -- if the discrimination is
16 widespread, as opposed to, you know, idiosyncratic or
17 distributed.

18 There is also a lot of different sort of
19 technical options, and the paper goes into these. And
20 the technical options really depend on the level at which
21 the blocking is taking place. So, in other words, is it
22 happening at the application port? In other words, in
23 some of the blocking -- for example, peer-to-peer
24 applications -- is based on identifying the ports used by
25 those applications.

1 is a higher quality of service for a higher price, it's
2 very hard to get that by hiding your -- the nature of
3 what you're doing, unless you pay more.

4 Well, on the other hand, if what they're doing
5 is they're degrading your traffic if they can figure out
6 what it is, then these responses are more effective. So,
7 the quality of service enhancing types of discrimination
8 are much, much harder to respond to by these sorts of
9 technical end user counter-measures, all of which, you
10 know, that we talk about, essentially rely on hiding the
11 basis of the discrimination.

12 Next slide, please. The last category of
13 technical responses they'll talk about are learning to
14 live with the differentiation. And by this we mean,

xtNetflixmination effectively, suppose they discriminata8sd userdiscrielk abTs14tecase

1 a number of computer scientists are, you know, fondly
2 quoted as reminding people that one should never
3 underestimate the bandwidth of a bunch of tractor
4 trailers loaded with DVD ROMs.

5 So, there is a lot of kinds of options that you
6 can do to -- and a lot of applications and business
7 models for delivering services that need to be
8 considered, when one thinks about, you know, how much
9 these would actually harm individual consumers.

10 One of the kinds of strategies that you know
11 broadly -- one of the kinds of strategies someone could
12 do here is buffering. In other words, they stream the
13 technology at a slower rate than was really, let's say,
14 required by the broadband, and they store it on the
15 digital video recorder, and then their ability to view it
16 at whatever quality of service, or capacity, or rate that
17 they want isn't affected by the service they're getting
18 delivered from the networks. They're using whatever the
19 plain vanilla low service is, and then they're getting
20 the high quality experience.

21 This will work for any applications that aren't
22 real real-time. And for example, that works for a lot of
23 television, and a lot of -- I mean, a lot of video
24 entertainment viewing experiences, but not for all. It
25 won't work for real sports for most people, you know.

1 Will work even for some people, but, you know, probably
2 not for that. Certain other kinds of programming, like
3 old reruns or something, you know, those are things that
4 may be really not dependent upon having very real-time
5 access.

6 But, of course, the ability to do strategies
7 like this isn't going to work if the carrier controls
8 your set top box, or your digital video recorder, in
9 which case that's just an extension of the network.

10 And another thing that could happen here is if
11 you're pre-loading contingent content -- in other words,
12 this is content that you might want to watch, but you're
13 not really sure -- then this sort of end user response
14 puts additional stresses on the network, because you're
15 loading traffic that, in effect, you do not really need
16 to load, and you're doing this because you don't want to
17 deal with the fact that the quality of service you will
18 experience may not be what you want it to be.

19 You could also do a lot more with distributed
20 caching. In other words, capture traffic and keep it
21 local. If someone in your neighborhood was viewing a
22 movie cached out locally, and then other people have it
23 available locally to view, you know, the question is for
24 what types of content will this work?

25 It won't work for really live content, but it

1 obviously makes sense where it works. And so, I think
2 you will see a lot more of this.

3 And then, finally, there's different kinds of
4 end user processing substitutes for conduits. So,
5 broadly, computing, communications and storage are all
6 substitutes for each other along some dimension. And so,
7 if you have more limited transmission capacity, you can
8 use more processing to compress those streams and get an
9 equivalent experience.

10 Again, this costs money by having fancier boxes
11 at either end of the connections, and you know, you may
12 have some degradation in quality, depending on what it
13 is, exactly, you're doing. But those are the sorts of
14 things you can do.

15 Next slide -- and click through this. So, what
16 do we learn? What we learn from this exercise is that
17 end users do have lots of strategies to respond to
18 carrier differentiation, and that when one thinks of the
19 problem that net neutrality is trying to address,
20 technically one has to consider what the "but for" world
21 would be, in a world where there aren't any rules. And
22 in that "but for" world, one has to consider what these
23 kinds of responses would be, and do a little bit more
24 thinking about, you know, what the implications of that
25 might be.

1 Another learning that we took away from this is
2 that the end user responses can occur even when the kind
3 of traffic management differentiation we're seeing is
4 good. And so, there may be another problem that really
5 hasn't been adequately addressed yet in the debate, and
6 maybe something we're going to have to sort of observe.

7 It's certainly something that the carriers
8 perceive themselves having to deal with when, for
9 example, they look at certain types of users that they
 feel are using dramatically more resources, and they're

1 And so, technologies for doing that, and options for
2 doing that -- more facilities-based competition -- are
3 all critically important in addressing that challenge.

4 The other thing that comes out of this is as
5 you begin to unpeel this onion, you realize that, as with
6 most interesting problems, the complexity gets worse, not
7 easier, as you go forward. So the net neutrality problem
8 is complex, and it's going to remain a concern that we
9 think the welfare and efficiency and equity gains of this
10 -- of not having it and allowing the market just to play
11 it out, the implications are ambiguous.

12 It's not clear whether or not the net -- you
13 know, what happens with this arms race, and what those
14 costs of playing out the arms race, in the absence of
15 regulation would be. But if we had the regulation, we
16 understand that there could be real problems with
17 discouraging effective market behaviors.

18 Last slide -- and with this slide I will
19 conclude -- so, the broadband future we see is complex
20 and heterogeneous. And so I think, you know, my own view
21 is that there needs to be a nuanced response, and along
22 the lines of something like what Jon was suggesting, and
23 that, you know, there is a real need to try and get some
24 free -- clear framework, a regulatory framework, so that
25 the industry and everybody knows what the game is going

1 to be, and what the critical concerns are going to be.

2 The key -- since the key element is going to be
3 to -- you know, the key element in ensuring that end
4 users do have responses and ability to avoid addressing
5 this whole net neutrality problem is more facilities-
6 based alternatives, then there are some obvious issues,
7 in terms of infrastructure investment.

8 Let me just, you know, focus here on the
9 technical issues. With respect to municipal entry, a lot
10 of folks, you know, make the false conclusion that when
11 local governments, or local communities build
12 infrastructure, or get involved in the infrastructure
13 provisioning question, that that's a -- you know, that's
14 a sort of binary good/bad thing, and they do it one way
15 or they don't do it.

16 The answer is, it's a very complex mix of

1 communities. And other alternative sorts of strategies,
2 if they make sense at all, need to be evaluated in this.

3 The other thing is that a lot of the sorts of
4 alternatives that we talk about really depend a lot on
5 wireless, and new sorts of wireless technologies. So,
6 making sure that we have a really vigorous commercial
7 market for new wireless technologies, I think, is
8 critical to addressing this problem. And there are so
9 many different wireless technologies -- we may get a
10 little bit into that in some of the question/answers --
11 but spectrum reform is, obviously, a key element in that.

1 possible.

2 If you have mobility, somebody moving from Wi-
3 Fi hotspot to Wi-Fi hotspot, some of the techniques
4 become harder. If you have sharing -- which you do in a
5 lot of these systems -- let's say you have a big WiMAX
6 broadband system, and you are, in effect, sharing
7 capacity. That actually may make the technology of
8 discrimination a little harder, but it may make the need
9 for it a little greater, because now you're sharing. You
10 have reason to -- greater reason -- to worry that a small
11 number of users will dominate the resource.

12 So, there are some subtle differences. The
13 market differences may be more important than the
14 technical ones here, though.

15 MR. GOLDFARB: Bill?

16 MR. LEHR: Yeah. Well, first off, everybody
17 should be very clear in their mind. Point one is
18 spectrum is perceived to be a very scarce resource, RF
19 spectrum. So that, generically, your bandwidth is more
20 of something -- a resource you're going to be more
21 concerned with in the wireless world.

22 So, you know, equivalent levels of performance
23 are, in some sense -- so the need to, for example,
24 carefully manage traffic on a wireless network is
25 greater.

1 A second important issue is that, you know, the
2 architectures of mobile networks versus these other
3 alternative sorts of, you know, broadband wireless fixed
4 networks that are just emerging, based on things like Wi-
5 Fi and meshes, and newer technologies like WiMAX, that
6 are just now beginning to roll out, are pretty different.

7 And, for example, with the, you know, sort of
8 mobile carriers, because of the way they actually
9 provision customers, they're probably in a better
10 position to discriminate on a customer-by-customer basis,
11 if they wanted to. And end users' abilities to sort of
12 do much about that, because of the closed nature of the
13 current mobile networks, is sort of -- is tougher. It's
14 sort of more attenuated.

15 With these other sorts of, you know, sort of
16 mesh, WiMAX types of networks, I think Jon, you know,
17 addressed most of the key points there that I would have
18 mentioned.

19 MR. GOLDFARB: Okay. I encourage more
20 questions to come up. I have a few. They may be verging
21 a little more on policy than on technical, so I encourage
22 people to ask technical questions for this group.

23 But one question that came up was the
24 fundamental question of incentive assumes that the
25 service provider owns the transport. Why not correct

1 U.S. broadband networks providing less bandwidth than
2 some foreign networks.

3 In my conversations with Bill and Jon, the two
4 of you have suggested what might be viewed as two
5 technical truths. One, that no network architecture has
6 a bandwidth constraint that the network provider can't
7 buy its way out of. And -- but -- and secondly, that to
8 attain a higher data rate with any given network, you
9 must serve fewer homes or less distance.

10 So, it seemed like there was -- one was looking
11 at it dynamically, you can always sort of buy your way
12 out of it, but there are certainly constraints when you
13 have a given capacity.

14 You know, so this seems to suggest that -- the
15 first one suggests that the constraint is cost, or the
16 time to develop necessary hardware and software, rather
17 than a technical constraint. The second one, where
18 you're saying, "Well, there is only a limited amount of
19 homes that you can serve or distance," suggests a
20 technical constraint. And I am sort of curious about
21 this trade-off of cost and technical constraint.

22 Assuming it's an important goal, to
23 substantially increase the bandwidth capacity of our
24 broadband access networks, since there is the argument
25 that we don't have very high capacity, at least to the

1 end user, which of the various wireline and wireless
2 technologies potentially available for broadband access
3 are likely to face the fewest technical or cost obstacles
4 to achieving this goal?

5 And for the wireless option, is lack of

1 interesting opportunities in the digital television
2 transition that some 700 megahertz spectrum becomes
3 available.

4 There may also be some opportunities to share
5 spectrum more than we have in the past, at frequencies
6 that allow you to cover large areas and rural areas.

7 MR. GOLDFARB: Bill?

8 MR. LEHR: Yeah. Let me just say a couple of
9 things. First off, you know, broadly, when one talks
10 about the available bandwidth, the technical limits,
11 different media, physical media, have different
12 transmission. When Jon and I were talking earlier with
13 Charles, we were saying that, essentially, those
14 technical limits are unlikely, really, to be the binding
15 concern, although they are relevant.

16 So, you know, broadly, you know, it's harder to
17 get bandwidth across air, so wireless is the technology
18 that generally is going to have, you know, less capacity
19 than copper wire. And copper wire has more capacity, if
20 you go over copper wire for shorter lengths.

21 So, you know, DSL at a megabyte per second
22 works, you know, pretty far from the central office. But
23 if you want to go at much higher rates, then you need to
24 be going -- driving that copper wire much closer to the
25 home.

1 Coaxial cable used by the cable television
2 carriers has a lot -- you know, it's bigger, thicker
3 wire, and it has a lot more bandwidth on it. But the way
4 they use that is a shared cable that passes many
5 different homes. And so, the bandwidth that is available
6 in an individual home, you know, sure, you can't compare
7 that as the whole cable on an average rate, although
8 potentially on a burst rate you can.

9 And then, of course, the biggest capacity that
10 you get into a home is if you have fiber all the way to
11 the home. The cost of scaling any technology depends on
12 the up front investment in how far you want to go. So,
13 if you know you want to be able to arbitrarily scale the
14 amount of bandwidth to accommodate lots of competitors,
15 or you know, dramatically do expansions in use, then put
16 in fiber. But putting in fiber is expensive, and so that
17 affects the cost model.

18 The architecture of the different technology --
19 and that may -- that depends very much on who the carrier
20 and the provider of the facilities are, and what it is
21 you're trying to do -- is going to influence how easy it
22 is to scale. And so, key elements of the architecture
23 include the choice of media. Is this copper wire,

1 aggregation. How many homes are you serving off of a
2 nade -- you're pulling over a common wire until you're
3 eventually connecting to the upper Internet. All of
4 those sorts of decisions have big implications for your
5 ability to expand the capacity at a low cost to
6 additional homes. Whether the traffic is symmetric, how
7 much upstream versus downstream traffic do you expect,
8 and are you provisioning for.

9 And finally, which is, I think, the thing that
10 has been over-dominated -- or really dominated most of
11 the net neutrality discussion, is what are you doing, in
12 terms of managing the traffic, especially over the shared
13 elements of that network?

14 If you cut that shared infrastructure into
15 silos, for example -- say, you know, this infrastructure
16 is, you know -- you know, this is dedicated to this
17 application, and this is dedicated to that other
18 application, you're going to have less effective capacity
19 than if you're able to share the whole infrastructure,
20 using the advanced kind of techniques that Jon talked a
21 little bit about.

22 But, of course, as soon as you're sharing all
23 of that as one common infrastructure across applications
24 and potentially providers, then you're going to have
25 quality of service spillover effect, which means you're

1 going to have some of these sorts of net neutrality
2 concerns that you're going to need to try and mediate.

3 MR. GOLDFARB: Well, some technical questions
4 have come in. This one is for you, Bill. It's how
5 realistic are the consumer strategies? Many consumers
6 have no choice of carrier, or tote no technical expertise
7 to deal with harmful discrimination.

8 MR. LEHR: I think it's a really important
9 question, and I think that there are sort of two -- there
10 are a couple of things here. First off, the question is,
11 the net neutrality issue is largely a perspective one,
12 because there isn't a lot of evidence that currently,
13 today, really bad things are happening, which is good,
14 from the point of view of the end user responses, because
15 a lot of the end user responses we talk about are things
16 that are not easily or really widely able to be done
17 today.

18 The other bit of response is you of course
19 don't need every user to be able to do this, to have the
20 benefits of these sorts of strategies out there showing
21 up in the market.

22 For example, a lot of the kinds of application
23 programs, especially if they have automatic updates, the
24 users aren't even aware of how these new application
25 programs are responding or changing to market conditions.

1 And so -- you know, a few folks out there can
2 actually do the work of a much larger consumer base.

3 On the other hand, as we conclude in the thing
4 -- we think that the end user responses are somewhat
5 limited, and are likely to be most effective against the
6 least sophisticated versions of discrimination. And so,
7 that's the reason why we conclude that this really is a
8 valid concern, and that is it not sufficient, based on
9 our analysis of the fact that end users have options to
10 conclude that there is no problem here.

11 MR. GOLDFARB: I'm not sure which one this
12 question goes to, which of you, but could we switch to a
13 different network structure, where video and heavy
14 content doesn't run on TCPIP networks?

15 MR. PEHA: We have long had an infrastructure
16 where video doesn't run on TCPIP -- the question is
17 whether we should switch the other way.

18 And, I mean, from a technical perspective,
19 either are certainly possible. I would say packet
20 switching has an advantage when you are not always
21 downloading -- you know, if you are always downloading
22 all content all the time, there isn't a big reason to
23 move to packet switching. If you move to a more on-
24 demand model for video, if TiVo is the model -- is closer
25 to the model of the future video, as opposed to what

1 too much area is a problem. That is, somebody who only
2 wants to serve urban areas may get the license and ignore
3 the rural areas.

4 Having a license that covers too little area is
5 a problem. We have seen cellular carriers have to piece
6 together lots of licenses over the years, because by no
7 fault of -- the FCC can't know the future. It seems,
8 with 20/20 hindsight, that perhaps some of those were too
9 small.

10 I guess I'd like to see more efficient
11 secondary markets, so that we can correct the fact that
12 we cannot absolutely predict the future, and deal with
13 some of these problems. But I don't know whether the
14 best way to go at the moment is a nationwide network or a
15 bunch of regionals.

16 MR. LEHR: Well, I mean, from the technical
17 point of view, certainly operating down in lower
18 frequencies -- the guard -- the beachfront property in
19 spectrum is below one gigahertz, because spectrum --
20 because signals at that level, at that low rate, don't
21 meet line of sight. And so that's really, really
22 valuable. It means lower cost for deploying
23 infrastructure.

24 And so, making spectrum available down there,
25 more spectrum available down there for commercial

1 communication services, would open up new options to help
2 alleviate last mile facilities competition concerns. And
3 so I think it's very important that we try to figure out

1 both Jon and Bill and ask if you have any closing remark
2 or statement, or anything that has come up in this hour
3 that prompts you to want to expand on what you presented.

4 (No response.)

5 MR. GOLDFARB: And if not, we will be in the
6 very unusual situation of being 5 minutes ahead, rather
7 than 20 minutes behind on our schedule. Bill, thank you
8 so much. And, Jon, thank you. Look forward to using
9 some of the information they've provided in the next two
10 days. Thank you both.

11 (A brief recess was taken.)

12 MS. OHLHAUSEN: Well, thank you, everyone, for
13 getting back so promptly. We are going to move now into
14 our next panel, which is, "What is the debate over
15 network neutrality about?"

16 I am Maureen Ohlhausen. As I mentioned
17 earlier, I am the Director of the Office of Policy
18 Planning at the Federal Trade Commission. As our
19 panelists, who are with us today, we have Chris
20 Libertelli. He is the Senior Director of Government
21 Regulatory Affairs for Skype Limited, a global Internet
22 communications company. Before joining Skype in July
23 2005, Chris was the senior legal advisor to FCC chairman
24 Michael Powell.

25 I am doing this in the order in which they're

1 collect those, and they will bring them up for me to pose
2 for the panel.

3 With that, I will just say I think it's pretty
4 obvious from the description in the agenda, this is meant
5 to be a framing panel, much like this morning's panel, to
6 define some of the parameters of the debate over what is
7 network neutrality, why are we talking about this at this
8 point in time, who is in favor of it, who is opposed to
9 it, what are the possible harms of either having it or
10 not having it.

11 I really appreciate all our panelists joining
12 me today to address these important issues. So with

1 easy, and removing barriers to more natural forms of
2 communications.

3 The Skype community currently stands at 171
4 million users, in just about every country on the planet.
5 If Google's goal is to organize the world's information,
6 it is Skype's goal to enable the world's conversations.

7 And like most good innovations, they come from
8 the bottom up, from our user community. Skype offers
9 various products, including the ability to make free
10 Skype-to-Skype calls on the broadband Internet, to make
11 video calls, to transfer documents via Skype, or to send
12 an instant or a text message. Skype is not simply about
13 voice competition, but a range of features that cannot be
14 found on the phone network.

15 And though our products are many, our software
16 shares a few basic characteristics that are relevant to
17 the debate over net neutrality.

18 First, it's Skype software that enables users
19 to connect to each other. We do not operate any
20 centralized -- any significant centralized -- resources.

21 Second, Skype users purchase broadband Internet
22 connectivity separately. And in the U.S., that means
23 largely from cable and DSL providers. In this way, Skype
24 stimulates the demand for broadband.

25 Third, we develop the software for various

1 operating systems, including Windows, Windows Mobile,
2 Mac, Linux, et cetera. We have a growing ecosystem of
3 partners and an open API program that allow our partners
4 to extend the Skype experience on the Internet. We
5 develop software that operates on a multiplicity of
6 devices, including mobile phones and PDAs.

7 And so, this brings us to the question of this
8 panel. What is the debate over network neutrality about?
9 And for Skype, network neutrality is about protecting our
10 users' ability to connect to each other, whenever and
11 wherever they want. We support net neutrality, because
12 it embodies a policy of decentralized innovation. For
13 us, net neutrality is not a theory, but a concrete
14 example of what is possible on the Internet when entry
15 barriers are low.

16 The founders of my company began in a basement
17 bar in London, and were able to invent a way for a global
18 community of users to talk to each other for free on day
19 one. Such a fee is hard to imagine, if they were
20 required to cut a deal with every incumbent in every
21 country where people are using Skype. Without a neutral
22 network, they would have had to spend a great deal of
time on planes to achieve what they have achieved.

1 commercial arrangements, or do you want them spending
2 time innovating and thinking up innovating ways of
3 delivering things like free phone calls. In other words,
4 open Internet networks keep entry barriers low.

5 Now, none of the competition policy issues in
6 the net neutrality debate are new. The use of market
7 power to leverage from one market to an adjacent market
8 is certainly not an unfamiliar problem for this agency.
9 What has changed is that we are working against a
10 backdrop of changed law. In particular, the Supreme
11 Court's Brand X case, which removed Internet access from
12 Title II of the Communications Act.

13 Whatever the merits of treating cable and DSL
14 Internet access as a non-common carrier, this decision
15 has pushed us into a brave new world, an uncertain world
16 where this agency may have new-found jurisdiction, but
17 where government policy, in our view, has become
18 dangerously unbalanced.

19 Now, this imbalance appears to us to emphasize
20 the interest of network owners over all other competing
21 concerns. For Skype, network neutrality rules are
22 designed to reset that balance so that network owners and
23 software companies serve the interests of consumers. And
24 we try to be humble about this issue, recognizing that
25 Skype and network owners are part of an inter-connected

1 Internet ecosystem.

2 We support and share the goal of increasing
3 broadband penetration in America. Applications like
4 Skype provide consumers with another reason to subscribe
5 to broadband, or purchase a new computer, or buy a PDA.
6 If government policy becomes too focused on the interests
7 of network owners, we put at risk all of the innovation
8 and software development that has allowed the Internet to
9 thrive.

10 In short, we risk building an Internet bridge
11 to nowhere, or at least only to the places the network
12 owners allow you to go. It seems to us that competition
13 policy is advanced when there is competition at the
14 software layer for services like voice or video, and at
15 the physical layer between wireline and wireless
16 networks.

17 So, in this regard, we take Chairman Majoras's
18 admonition to do no harm seriously. We understand that
19 there is an impulse for regulators to rely on markets to
20 self-correct and solve problems in advance of government
21 solutions. For example, she has emphasized the need to
22 focus on actual anti-competitive conduct by network
23 owners.

24 So, let's take, for example, the market for
25 wireless broadband, or 3G services. We offer two

1 examples designed to allow you to test assumptions
2 surrounding whether markets will naturally self-correct
3 for anti-consumer behavior.

4 First, all of the wireless carriers that offer
5 3G services specifically prohibit the use of those
6 Internet access services for things such as VoIP, peer-
7 to-peer, or "heavy" machine-to-machine connections, even
8 as they are advertised as unlimited.

9 So, when we hear that wireless broadband is a
10 competitive threat to the cable/DSL duopoly, that
11 possibility rings hollow for us, because the major
12 carriers have contracted with their users in a way that
13 does not permit Skype on their networks. This kind of
14 conduct is set against a backdrop of a wireless market
15 with HHI values of, on average, 2,700 -- well above
16 1,800, which the FTC and DoJ consider highly
17 concentrated.

18 Second, because voice has become untethered
19 from the underlying access network, the decisions this
20 agency makes will have profound effects on competition
21 and downstream markets -- like, for example, the markets
22 for 3G devices. Take, for example, the Nokia E61. This
23 is a device that first arrived in Europe. However, in
24 the U.S., it was presented to consumers as the E62, a
25 crippled version of the E61, that made it impossible for

1 users to access the Wi-Fi connectivity in the phone.

2 In the words of one MSN columnist, Gary Krakow,
3 "What some carriers fear most is the E61's ability to
4 handle voice calls when you're near a friendly wireless
5 network. That's why we won't see Wi-Fi on the E62."

6 Relatedly, the Apple iPhone was recently
7 announced. But as Blair Levin, an analyst for Stifel
8 Nicolaus, observed, "The true service break-through for
9 U.S. consumers will come when the market for such
10 unlocked phones develops, and manufacturers offer pure IP
11 devices that allow for the provision of voice as a mobile
12 web application."

13 And this is not to say that wireless carriers
14 do not face unique challenges in managing their networks.
15 They do. Differentiating services and charging more for
16 users who use more bandwidth can be pro-competitive. But
17 we encourage policy makers to scrutinize network
18 management practices, so that they are not used as an
19 excuse for otherwise anti-competitive behavior.

20 And so, observers and industry reps have raised
21 a number of objections to network neutrality rules. When
22 you hear arguments that net neutrality will destroy the
23 deployment incentives and network operators or reduce
24 competition, we ask that the FTC consider whether those
25 claims are exaggerated.

1

Allowing network owners to discriminate against

1 given the incentives that are present in this market.

2 So, in closing, our request to this Agency and
3 policy makers is to adopt a policy that is balanced.
4 Tools such as increased disclosure, or language along the
5 lines of the AT&T merger condition are good starts.
6 Competition would be enhanced, and consumers would have
7 more choices, if government adopts a net neutrality
8 approach that respects the interests of network owners
9 and, equally, the interests of innovative application
10 providers like Skype.

11 Thank you, and I would be happy to answer any
12 questions.

13 MS. OHLHAUSEN: Thank you so much, Chris. I
14 just have a quick question to follow up on. You were
15 mentioning entry barriers being low, with the end-to-end
16 principle, that once you're on you can reach anyone.

17 One of the issues that some network neutrality
18 opponents raise is, will that rule really benefit the
19 incumbents, who have already gotten on in this world, and
20 built up a base and an infrastructure, and that for
21 providers of new applications providers who haven't built
22 up something that can give them a certain level of
23 quality of service, will they be prevented from
24 purchasing that if it is seen as discriminatory.

25 I was wondering if you had any comments on

1 that.

2 MR. LIBERTELLI: Yes, this is an argument that
3 I think is a bit upside down. Because if it were true, I
4 think you would expect us to be against net neutrality.

5 Our business is built on the idea that once you
6 distribute a software onto the Internet, users can
7 connect to each other. And in the absence of entry
8 barriers, or discrimination, or intentional degradation
9 of our traffic, those users will continue to be able to
10 speak to each other, and use all the functionality of the
11 software.

12 Net neutrality is not about locking out the
13 next innovation. I think, indeed, it is the contrary.
14 It is about creating the conditions so that people who
15 are developing software can reach their users. And you
16 know, we operate in a highly competitive environment. We
17 are one innovation away from being replaced by another
18 entity that can develop software in a borderless
19 environment with low entry barriers.

20 So, you know, we try to apply the same
21 principles to ourselves, and say, you know, "We're fine
22 to slug it out in the market, and compete based on the
23 features of our software, as long as there is a level
24 playing field for competition at that layer."

25 MS. OHLHAUSEN: Thanks, Chris. And now I will

1 move on to Bob Pepper.

2 MR. PEPPER: Yes. Thank you, Maureen, and
3 thanks for the opportunity to be on today's panel. I
4 will be making three key points.

5 First, next generation services require
6 intelligent networks. It's a false choice to say that we
7 need innovation either at the edge of the network and
8 applications, or that we need innovation in the core. We
9 need it in both places.

10 Second, there is no clear definition of network
11 neutrality. We have already heard a little bit about
12 that today.

13 Third, the best way to address potential
14 competitive and consumer problems is to, first, determine
15 the extent to which a real problem exists, and then to
16 weigh the benefits and costs of alternative approaches to
17 preventing and then remedying the problem.

18 I conclude at this point, weighing the facts
19 and the potential benefits and costs, new detailed ex-
20 ante regulation would be counter-productive. And
21 instead, the FTC should play a leadership role in
22 protecting consumers and competition, by exercising its
23 authority, experience, resources, and expertise on a
24 case-by-case basis.

25 Before addressing what is network neutrality,

1 and what policy makers should do about it, it is
2 important to understand the network that some want to
3 make neutral.

4 The Internet is at a transition point, as we
5 enter the second phase, commonly known as Web 2.0.
6 Services like web browsing e-mail, instant messaging,
7 Voice over IP, and low-quality streaming video do not
8 require high broadband speeds, and with a few exceptions,
9 can actually tolerate interruptions and short delays in
10 transmission.

11 Dumb networks that merely send packets along
12 and randomly drop packets during periods of congestion
13 have been mostly sufficient to handle these types of
14 applications. But they're not going to be sufficient if
15 we are to realize the potential, full potential, of Web
16 2.0, which will focus on new applications like high-
17 quality video, user-generated content, multi-media
18 applications. And these new applications are going to
19 require a ubiquitous broadband Internet, where any
20 consumer can easily use any standard space device to
21 access and use content applications, of their choice in

1 addition, different services require different
2 transmission characteristics, such as speed, latency,
3 jitter, symmetry, bursting, and capacity that Jon talked
4 about earlier.

5 For instance, Voice over IP does not require
6 high speed, but it does require low latency and very
7 little jitter. Video downloads, on the other hand, need
8 high speed, but can handle some level of latency and
9 jitter. And new technologies, such as tele-presence,
10 that provide a real-life experience for virtual, in-
11 person meetings, requires high speed, low latency, and
12 symmetry.

13 Complex devices and networks will work together
14 to make it seem simple to consumers. Simplicity in the
15 foreground, but it's going to be complexity in the
16 background. Intelligence in the network is necessary,
17 not merely to allocate scarce bandwidth at times of
18 congestion -- though this is important -- it is also
19 necessary to identify, configure, authenticate, and
20 secure devices, applications, and systems.

21 The notion that we must choose between
22 intelligence at the edge or intelligence in the core is a
23 false choice.

24 So, what is network neutrality? As we have
25 already heard, the term has never been clearly defined.

1 It means different things to different people, and has,
2 therefore, become very subjective and is probably
3 meaningless, although it's a great bumper sticker.

4 As the debate over the issue of network
5 neutrality has evolved, I think, actually, it is
6 analytically useful to focus on four sets of questions
7 that have emerged, and that people have labeled as net
8 neutrality.

9 First, the first is whether the Internet is an
10 open and inter-connected network. This is sometimes
11 called the end-to-end principle. Or, put more simply,
12 can I go where I want and get what I want over the
13 Internet, without being blocked, steered, or degraded?

14 The answer, I think first, came from the high-
15 tech broadband coalition's connectivity principles in
16 2003, which articulated the Internet's version of
17 consumer interconnection rights. Specifically -- and Jon
18 already raised this -- consumers should have the access
19 -- the right to access -- any legal content, run any
20 legal application, connect any non-harmful device to the
21 network.

22 And in addition -- and, in my mind, perhaps
23 most importantly -- have sufficient information to make
24 informed decisions about what to buy. Markets, after
25 all, work best if consumers have that kind of information

1 treating different packets differently is necessary for
2 the effective delivery of many services.

3 As more real-time interactive services dominate
4 Internet traffic, it's going to be more important to
5 differentiate among packets. It's important to note --
6 and I underline this -- that differential treatment does
7 not have to equal anti-competitive treatment. Right?
8 And this is a really important point.

9 Along these lines, a pure non-discrimination
10 requirement, as some people have argued in Congress, goes

10 waisemselv.

1 prices high, and that was the world we lived in in the
2 long distance business, until we finally got rid of
3 tarriffing.

4 The last set of questions on net neutrality
5 concern who can be charged for what service on broadband
6 connections. Should the Internet access be funded solely
7 by consumers, or can the cost be shared with content
8 providers and application providers?

9 Well, it's clear that broadband access
10 providers cannot unilaterally impose charges on a third
11 party. It would be very difficult. Several legislative
12 proposals would make it illegal for third parties to pay
13 for improved quality of service, even if they wanted to
14 do so voluntarily. Web 2.0 services have classic
15 characteristics of two-sided markets.

16 And to prohibit these kinds of business
17 relationships from developing could seriously harm
18 consumers. Sender-pay services, or advertiser-supported
19 services have long provided consumers with more choices
20 at lower prices. To prohibit third-party payments in
21 other areas of communications would have prohibited toll
22 free 800 service or advertiser-supported television.
23 Worse, it would socialize Internet access pricing,
24 effectively forcing light users to subsidize heavy users.

25 So, what are the problems we should really be

1 focusing on? For the most part, I think there are really
2 two key problems that are sort of wrapped up in this
3 debate. First is anti-competitive conduct by broadband
4 access providers, right? If broadband providers have
5 sufficient market power, they could leverage the market
6 power to restrict competitors' access to consumers, or
7 raise competitors' costs. That would lead to higher
8 prices for consumers.

9 Alternatively, they could use the control of
10 the physical access network to deny applications and the
11 application competitors, access to certain services or
12 functionalities, thereby foreclosing portions of the
13 market. These are classic problems associated with undue
14 market power in any market, and they are not unique to
15 the Internet, or broadband.

16 The second concern is really whether net
17 neutrality regulation designed to prevent anti-
18 competitive conduct could limit, or prohibit consumer
19 welfare-enhancing network functionality and management,
20 as well as discourage innovation. In other words,
21 regulation is not costless.

22 Network facilities are extremely expensive to
23 construct. You will hear more about this. Even in
24 situations where physical networks are adequate, the cost
25 to upgrade electronics and other functionalities is non-

1 trivial. Regulations that constrain what services and
2 network operators may offer, and prices, terms, and
3 conditions of those services, could constitute a strong
4 disincentive to invest in functionality.

5 There is a natural tension, therefore, between
6 the goals of preventing anti-competitive behavior, and
7 providing incentives for consumer welfare enhancing
8 innovation. Strict network neutrality regulations may
9 eliminate potential for anti-competitive conduct. On the
10 other hand, the same regulations could also eliminate
11 deployment of pro-consumer, pro-competitive, and pro-
12 innovative services applications and functions. Any
13 attempt to resolve the tension needs to weigh benefits
14 and costs of various approaches.

15 The case for intrusive neutrality regulation is
16 predicated an on assumption that network operators have
17 undue market power, and yet there is plenty of evidence
18 that these markets are functioning much more
19 competitively, in terms of prices and service and
20 functionality competition. Consumers are getting more
21 services at lower prices. But there is more competition
22 that needs to come.

23 In addition, to date there has only been one
24 case of anti-competitive conduct that could harm -- that
25 harmed competition and consumers that has been brought to

1 the FCC. And this, of course, was the Madison River
2 case, which was quickly remedied by the Commission in
3 2004. Since then, there have been no formal complaints
4 of broadband access providers blocking, degrading,
5 inhibiting any Internet application, nor have there been
6 allegations of anti-competitive conduct.

7 I am finishing up. So, rather than debating
8 whether theoretical problems require theoretical
9 regulation, it would be much more productive to examine
10 whether current laws and regulations are sufficient to
11 handle anti-competitive conduct problems if they arise,
12 while maintaining an environment that encourages
13 innovation and network facilities and function.

14 Without significant new detailed ex-ante
15 regulation on network neutrality, case-by-case
16 enforcement of access principles, and anti-competitive
17 conduct is available to the FCC, and the anti-trust
18 enforcement agencies, including the FTC.

19 Post facto enforcement is superior to ex-ante
20 regulation on several accounts. First, it ensures the
21 costs of regulation are limited to the benefits.

22 Second, in a rapidly changing technological
23 environment, it is difficult to narrowly target ex-ante
24 regulation to future harms, and you can have over-broad
25 regulation.

1 Third, should widespread anti-competitive
2 conduct arise later, you can always -- there is no
3 technical or business barrier to subsequently impose
4 regulation.

5 And fourth, new ex-ante regulation is likely to
6 inhibit investments. Therefore, in the absence of a

1 MR. PEPPER: Well, yes. That is a -- technical
2 detection is an issue. But it's an issue, whether or not
3 there is ex ante prohibitions, or whether it's a case-by-
4 case approach, but there are techniques that consumers
5 actually have readily available to them to test their own
6 bandwidth and performance and latency between, you know,
7 the home, or the office, and the first POP, right?

8 And so, those techniques are actually
9 relatively available. The problem is that, depending
10 upon the service you're trying to download, the
11 application that you're using, it may -- you may be going
12 through two or three hops, or as many as a dozen hops
13 across the Internet. When you go across multiple hops
14 across multiple networks, it's more difficult for a
15 consumer to know.

16 But the standard, you know, sort of
17 relationships, in terms of what is called, you know, hot
18 potato routing and cold potato routing, which we can talk
19 about, among the networks and the applications providers
20 minimizes -- or attempts to minimize -- the numbers of
21 hops. That's number one. Number two, a lot of these
22 large providers made enormous investments in big server
23 farms to bring content closer to consumers with their
24 caching servers. Bringing content closer to consumers
25 reduces the need to go across multiple hops.

1 Finally, if consumers are not getting the
2 performance they need -- again, whether it's ex ante or
3 ex post enforcement, the large service provider
4 application providers -- you know, Chris's company --
5 have the ability to identify where these problems are.
6 And in fact, the FCC received the complaint about Madison
7 River, because a consumer couldn't get service for
8 Vonage, complained to Vonage. Vonage figured out where
9 the problem was.

10 So, it's not as opaque as, you know, some
11 people would want to argue. But it's not completely
12 transparent. And that's why I think it's important that
13 consumers have information available to them to help make
14 those decisions.

15 MS. OHLHAUSEN: Thanks, Bob. Now we turn to
16 Gigi.

17 MS. SOHN: I would like to stand up, because
18 sometimes it is hard to see me.

19 (Laughter.)

20 MS. SOHN: Well, good morning, everybody. I
21 love Bob Pepper -- he is my colleague at USC -- but I
22 disagree with every single thing he said.

23 (Laughter.)

24 MS. SOHN: That's not actually true. I want to
25 thank the Commission and Maureen Ohlhausen. You guys

1 While broadband wireless is held up as the
2 great savior of competition, Professor Tim Wu's recently
3 released paper -- and he will talk about it tomorrow --
4 demonstrates that, instead, it is a closed system where
5 music, movie, and game downloads and streaming, and use
6 of Voice over IP can be reasons for termination, and

greet sav7aper -- anD(21 Tj-5555a

1 code have that access. So I have access to three
2 providers, RCN, and I know that not everybody in 2008 has
3 access to that. So it's completely flawed.

4 I think a better assessment of the broadband
5 market and the potential for discrimination was made in a
6 June 2006 report written by Chuck Goldfarb for the
7 Congressional Research Service. And I quote, "To the
8 extent that the broadband network providers seek to
9 maximize their revenues for what they perceive as the
10 killer broadband applications, they will have the
11 incentive to build, operate, and manage their broadband
12 network in a fashion that favors their own applications.
13 With only limited alternatives to the cable and telephone
14 broadband duopoly for the foreseeable future, and with
15 the cable and telephone companies pursuing largely the
16 same business plan, the broadband providers might have
17 both the incentive and ability to exploit their control
18 over access to end users to restrict competition and harm
19 consumers."

20 So, now I talked about what the debate is
21 about. So let me talk about what the debate is not
22 about. It is not about whether consumers should be
23 charged more for greater bandwidth and faster speeds. Of
24 course they should, just like today.

25 It is not about whether content and service

1 providers should pay for the ability to get to their
2 customers faster. They already pay at the originating
3 and terminating ends. This is about whether the last
4 mile provider will deny them the opportunity for better
5 service, so as to advantage their proprietary services.

6 The debate is not about making broadband access
7 a dump pipe. We do not oppose broadband providers owning
8 applications, content services that flow over the
9 pipes, or engaging in legitimate network management to
10 ensure the proper operation of the network. Every
11 legislative proposal had an exception for legitimate
12 network management. We just don't want the providers to
13 favor those services or other services in which they have
14 a financial interest.

15 It is not about -- the debate is not about a
16 new undefinable regulatory concept. Non-discrimination
17 appears over 60 times in the Communications Act, and
18 indeed, at least one broadband provider, Verizon, has
19 taken advantage of the FCC's program access rules, which
20 require cable operators to make cable programming
21 available to competitors on reasonably non-discriminatory
22 bases.

23 This regulation has been going on for 14 years.
24 It hasn't led to tariffing, hasn't led to price
25 regulation. I mean, that is -- you know, that's a big

1 scare that the program access rules have been self-
2 effectuating, have worked really, really well, and seem
3 to work well for the broadband providers.

4 In addition, last year, cable operators sought
5 to ensure that the telephone companies did not
6 discriminate against their Voice over IP services in the
7 draft telecom bill. As I said, Dr. Pepper set up a
8 couple of straw men. Intrusive net neutrality
9 regulation, detailed regulation, those don't have to be
10 the choices here. And there are models.

11 I think a good place to start for the
12 definition of non-discrimination is in the AT&T/BellSouth
13 merger conditions, in which AT&T agreed not to "provide
14 or sell to Internet content application or service
15 providers, including those affiliated with
16 AT&T/BellSouth, any service that privileges, degrades, or
17 prioritizes any packet transmitted, based on its source,
18 ownership, or destination."

19 So, there goes the argument that you can't
20 define that neutrality. That's a pretty darn good
21 definition.

22 So, what should the FCTC (sic) do? At a
23 minimum, we believe the FTC should investigate and act on
24 allegations of anti-competitive conduct by broadband
25 Internet access providers filed by consumers, content

1 comfort to those consumers that have little or no real
2 competition, for whom the cost of switching service
3 providers is high. But it can help to complement the
4 FTC's authority over anti-competitive market practices.

5 So, in closing, I want to make clear that
6 although we believe that the FTC can be helpful in
7 preserving net neutrality, any activity it undertakes
8 pursuant to its current authority will not be sufficient
9 to preserve an open Internet. The FCC is better suited
10 to act quickly on complaints, and we will continue to
11 press the agency and Congress to clarify the FCC's
12 authority to address discrimination by broadband
13 providers.

14 The FCC and FTC often have concurrent
15 jurisdiction, and the public would be well served if that
16 were the case here, as well. We would also support
17 Congress giving the FTC specific enforcement
18 responsibility over discrimination claims, similar to
19 that provided in H.R. 5417, The Internet Freedom and Non-
20 Discrimination Act of 2006, which was reported out of the
21 House Judiciary Committee last congress. Thank you. I
22 look forward to your questions.

23 MS. OHLHAUSEN: Thank you, Gigi. I have a
24 question for you, and you can answer in your chair or up
25 in the podium, your preference.

1 I understand that you believe that competition
2 in the last mile is not sufficient at this point. At
3 what point do you think competition in the last mile
4 would be sufficient to overcome concerns about
5 discrimination? Or, do you think that it is just so much
6 of an inherent problem that it's not the number of
7 providers, it's the inability of consumers to detect, or
8 other issues?

9 MS. SOHN: I just think we are so far away from
10 a competitive market that it's almost not even worth
11 talking about. I mean, again, to the extent that there
12 are any technologies that are substitutable, it's just
13 cable and DSL.

14 The other -- you know, I could read off the
15 numbers of the percentage of the market that some of the
16 satellite and fixed wireless broadband have. It's
17 minuscule. It's under one percent, each one. So it's
18 hardly -- I think it's hardly worth even talking about.
19 But you have to get to a place where the different
20 services are substitutable. And nobody is going to give
21 up their DSL or cable modem service for Verizon EV-DO,
22 which won't let you download three-quarters of the things
23 that consumers want.

24 You know, I just think we are a very, very long
25 way from there. And, you know, when we get there we will

1 know it. But we are not even close.

2 MS. OHLHAUSEN: Thank you. Okay. Now we turn
3 to Greg.

4 MR. SIDAK: Thank you. I would like to present
5 more of an economic perspective on these issues, and tell
6 you why I think much of the views that have been
7 expressed so far this morning are missing the big issue
8 here.

9 I do not think that blocking of content is the
10 serious issue here. Network operators provide a
11 complementary service to Internet content. They do not
12 have an interest in reducing the supply of a complement.
13 The one exception would be something like VoIP, which
14 competes against the network operators' voice services.
15 All the major network operators have pledged not to block
16 VoIP. The one instance in which it has occurred has been
17 a rural telephone company, and that is not a set of facts
18 from which we can extrapolate to the behavior that would
19 be followed by network operators supplying service to the
20 vast majority of Americans.

21 A year ago we didn't hear proponents of network
22 neutrality say much at all about the wireless industry.
23 It's interesting to me this morning to hear that that is
24 now the new focus of the blockage issue.

25 Obviously, there are very different network

1 architecture considerations for wireless networks than
2 for wireline networks. I am not a network engineer, so I
3 cannot answer the questions that you might have about
4 that. But I think there is a lot more digging that has
5 to be done on that, before we can seriously believe that
6 in markets in which there are wireless competitors, that
7 we have a problem.

8 If there is a kind of business conduct that is
9 simultaneously pursued by firms in a competitive market,
10 the presumption is that that is a business practice that
11 is efficient, because it is what you see in a competitive
12 equilibrium.

13 The real issue, I think, in the network
14 neutrality debate is revealed when you ask, "What are the
15 interests of the major adverse economic players in this
16 market?" Follow the money. Who has an ox that will be
17 gored through the enactment of network neutrality
18 regulation?

19 I think here that the big issue, and the one
20 that has not been adequately addressed yet this morning
21 is the increasing conflict between network operators and
22 Internet content and portal providers. Because of the
23 radically different business models that they employ,
24 network operators traditionally have been subscriber-
25 based services. The Internet companies give away a lot

1 of stuff for free, because they are advertiser-supported
2 business models.

3 What will be the ability of network operators
4 to gravitate toward a more advertiser-based business
5 model in the future? It is strongly in the interest of
6 the incumbent Internet content providers and portal
7 operators to try to limit the ability of very large
8 potential competitors from getting into their same kind
9 of business model, and competing for the very substantial
10 amount of revenue that is generated by Internet search-
11 related advertising, for example.

12 So, it is useful, then, to also ask, "What,
13 specifically, are proponents of network neutrality
14 regulation asking for," apart from the blockage issue,
15 which I think is not the major concern?

16 What they have been asking for for the past
17 year or so is to prohibit, by enactment of law, a
18 transaction between a network operator and a supplier of
19 Internet content for prioritized delivery of packets.
20 This is the accessed tiering transaction. These
21 transactions don't really occur right now. This is all a
22 hypothetical argument.

23 The proponents of network neutrality regulation
24 -- and I will take Larry Lessig, of Stanford, as the
25 principal advocate -- do not have a problem with end

1 users paying for prioritized delivery of content.

2 In other words, they don't have a problem with
3 network operators and end users contracting for
4 prioritized delivery.

5 The problem they have is with network operators
6 directly contracting with suppliers of content. Well,
7 why do you need to have a federal law prohibiting one
8 kind of transaction, when you're perfectly happy with the
9 other? The reason, if you follow the money, is to look
10 at the viability of the advertiser-supported business
11 model.

12 In the event that suppliers of content or
13 Internet portal services have to start competing for
14 prioritized delivery of their content in a world in which
15 there are increasing bandwidth constraints -- if there
16 are no bandwidth constraints, this is an unimportant
17 issue, this is not worth talking about. If there are
18 bandwidth constraints, then priority of delivery matters.

19 If you are an incumbent Internet content
20 provider, and you do not want to see other firms enter
21 your very lucrative sandbox, you would like to prevent
22 their ability to differentiate their services through
23 prioritized delivery. So it's important to realize that
24 there are potentially anti-competitive effects of
25 enacting a prohibition on access tiering.

1 around the country and building Wi-Fi mesh networks, but
 2 they just wanted to show that it's possible to have more
 3 broadband competition.

4 Well, if that's the case, then it seems to me
 5 that Google has just removed one of the two principal
 6 arguments that have been made in favor of network
 7 neutrality regulation -- the supposed absence of
 8 competition in the broadband access market.

9 The other justification, of course, that has
 10 been presented traditionally for network neutrality
 11 regulation is that we have to promote innovation on the
 12 edges of the network, as opposed to innovation within the
 13 network. I completely agree that innovation is an
 14 important consideration. But it is a completely
 15 amorphous concept, as it has been discussed so far in the
 16 network neutrality debate.

~~The (301) 870-8025 advice. I would go to the FTC or, phourvmdsa~~

T23 one piece of adIne tork r

1 into the welfare of consumers. But is there any reason
2 to believe that there is a shortage of innovation on the
3 edges of the network? Indeed, how could we ever prove
4 that there was or wasn't?

5 In this respect, I think it's interesting just
6 to look at a time line. In December 2001, Larry Lessig
7 declared, "The Internet revolution has ended, just as
8 surprisingly as it began." In February of 2005, YouTube
9 released its first video. In February of 2006, Lessig
10 testified on a panel that I was on in front of the Senate
11 that access tiering would reduce innovation, it would
12 kill this innovation at the edges of the network. In
13 October of 2006, YouTube was purchased by Google for \$1.6
14 billion.

15 So, there was no shortage of innovation on the
16 edges of the network there. And bear in mind that the
17 argument put forward is that the mere prospect of these
18 access tiering transactions are so threatening that
19 unless there is congressional legislation to prohibit
20 them, those innovators in garages in Palo Alto are --
21 they're just going to fold their tents. Obviously, the
22 people at YouTube were not intimidated by that prospect.

23 So, I would conclude just by saying it's
24 important to try to separate the purely hypothetical
25 harms that might occur from the problems that have been

1 observed and remedied, and also to try to get some
2 specificity in this debate. What is it that the economic
3 interests are advocating, or opposing?

4 Access tiering, I think, is at the heart of it.
5 Why? Because it implicates the fundamental conflict
6 between two business models that represent the true
7 convergence of traditional telecommunications and
8 Internet services.

9 MS. OHLHAUSEN: Thanks, Greg. I have a
10 question. You are talking about the broadband last mile
11 providers changing business models to more of an
12 advertising base, where they can get some of the cost of
13 the service paid for by the content providers, rather
14 than by the consumers directly.

15 One of the questions I have in that regard is
16 that this morning one of the speakers talked about
17 concerns about the abilities as broadband providers have
18 to find out more about consumers, so that they will
19 actually be able to extract more rent from the consumers,
20 based on knowing a lot about them. And things, to me,
21 suggest you've got a business model kind of going one
22 way, and this creates a tension: the broadband providers
23 may have an incentive to get money from the content
24 providers, but someone is suggesting that they have an
25 equal incentive to try to extract more money from

1 consumers.

2 So, I was wondering if you had any views on do
3 these things make sense, or are there these tensions
4 between incentives, or does it seem unlikely?

5 MR. SIDAK: Well, let me react to that. Number
6 one, as I think Bob Pepper pointed out, it is not price
7 discrimination to sell two different products at
8 different prices. If one product is a higher priority
9 delivery of packets than another, and the faster service
10 is more expensive, that's not surprising. That is not
11 price discrimination.

12 But just for sake of argument, suppose that the
13 product is completely identical in the two instances, and
14 a different price is charged for different customers. Is
15 that a problem?

16 Well, if I call my travel agent this afternoon
17 and say, "I have to fly to Brussels tomorrow. Can you
18 get me on a flight?" I will pay \$8,000 to get a ticket.
19 If I had booked that flight 6 months in advance, I would
20 probably pay \$1,100, something like that. How many
21 airlines are there flying from Dulles to Brussels, or
22 some other hub in Europe from which I could connect?

23 Obviously, we observe price discrimination in
24 competitive markets all the time. If I go buy -- go into
25 Barnes and Noble, and I buy the hardbound copy of the

1 next Harry Potter book for one of my children, I pay more
2 than if I wait until the paperback comes out.

3 Intertemporal price discrimination. Again, it is a
4 pervasive phenomenon.

5 So, price discrimination, per se, is not
6 something that is unique to firms with market power. Any
7 firm that has some slight downward slope on its demand
8 curve may have the ability to engage in differential
9 pricing if the other conditions that economists well
10 document are satisfied.

11 With respect to consumers of broadband access,
12 I am certainly less worried about the network operator
13 exploiting a dossier of personal information about my use
14 of the Internet than I would be about Google doing the
15 same thing. If any of you have read The Search -- a very
16 good book about Google -- there is a phrase that the
17 author uses called "the database of intentions."

18 And it's really a remarkable concept. Every
19 click, every search, every pop-up you have clicked on, it
20 gets stored. And that's what creates value, in terms of
21 Internet search-based advertising, because when you type
22 in a word like "Casablanca," up will pop something about

1 are and what interests you.

2 I am a lot more concerned about the potential
3 abuse of that database than I would be with -- by -- far
4 less concerned than I would be with respect to some
5 network operator coming close to acquiring the same
6 capability.

7 But the last thing I wanted to say about price
8 discrimination is there is attention here. We have the
9 welfare of consumers who are not yet on the Internet as
10 broadband subscribers. What is the profile of the
11 marginal consumer of broadband? Economists talk about
12 marginal and inframarginal consumers. Inframarginal
13 consumers are the people who already are consuming
14 something, and who won't walk away if the price goes up a
15 little bit. The marginal consumer is the person who is
16 right on the edge between buying or not buying a product.

17 In the case of Internet broadband access, a
18 profile of the marginal broadband consumer, the person
19 who hasn't subscribed yet, is that he has lower income,
20 less education, and is more likely to be of a minority or
21 -- a racial or ethnic minority.

22 Traditionally, we like to bring up the welfare
23 of the marginal consumer. We can do that if it's more
24 affordable for people to subscribe to broadband networks.
25 That's one reason why price discrimination is a good

1 thing, in the sense that it allows the price to charge
2 the marginal consumer to come down, because there is
3 somebody else who values the product very highly, just
4 like I would value the ticket to Brussels tomorrow, if I
5 had to get there, that helps pay the common cost of
6 running the network.

7 That objective, that consumer welfare
8 objective, is something that undergirds all of
9 telecommunications for the last century. And it's
10 fundamentally quite different from the objective of
11 trying to promote innovation by the next billionaires in
12 Palo Alto.

13 MS. OHLHAUSEN: Great, thanks. For questions,
14 please write them on a card, and give them to a staff
15 member. Thanks.

16 Okay. Well, we have raised a lot of issues
17 here, and I know that there's lots of strong feelings.
But I want to start sorts of delingeoi52,sS.s0But I want tn

1 so --

2 MS. OHLHAUSEN: You made that comment.

3 MR. PEPPER: So -- yes.

4 MS. OHLHAUSEN: But --

5 MS. SOHN: We think there needs to be a fifth
6 principle, and that is a principle that prevents non-
7 discrimination.

8 I mean, it's not enough to say that consumers
9 shall have access to all content, that consumers shall
10 have access to information about their service -- which
11 they are not getting -- the consumer shall be able to
12 attach any equipment to the network, which, as Chris
13 mentioned so well, is not happening in the wireless
14 space. And I don't remember what the fourth principle
15 was.

16 But that doesn't guard against the possibility
17 that a network provider would favor certain applications,
18 content and services -- particularly that which it has a
19 financial interest, or that which it actually owns,
20 outright --

21 MR. PEPPER: But you do agree with the four --
22 I mean, because that is --

23 MS. SOHN: Yes. I would like to see them
24 applied to the wireless space and to the wireline space.
25 I don't have any significant information about what I get

1 over my RCN line.

2 And again, as Chris pointed out, the right to
3 attach does not exist in wireless, either for the
4 cellular phone service, or for broadband.

5 MS. OHLHAUSEN: Anyone down at this end of the
6 table?

7 MR. LIBERTELLI: Yes, I would just offer that
8 there is agreement that the four principles may be a good
9 place to start, but that there is sort of a necessary,
10 but not sufficient, protection of openness on the
11 Internet.

12 And, most importantly, I would say, you know,
13 one of those principles talks about the ability to run a
14 consumer's application of their choice. And that, for
15 us, is a very important part of those principles, and it
16 should be carried forward into whatever rules are applied
17 to Internet access providers.

18 I would also emphasize that this is -- we're
19 talking about a policy statement; we're not necessarily
20 talking about a binding rule of decision. And so, more
21 work could be done to make those principles binding on
22 the network owners.

23 MR. SIDAK: Hi. I would just add, why not be a
24 little more ambitious? Why are we defining principles
25 that apply to network operators? We are looking at an

1 industry in which Internet content providers, portal
2 providers, are increasingly providing services that
3 network operators have been providing on a subscription
4 basis -- voice telephony, for example.

5 If consumer disclosure is good for the network
6 -- traditional network operators, why not for the other
7 companies, as well? For example, when I download Skype,
8 it's very hard to figure out what the impact of Skype
9 software is on the processing capability of my laptop.
10 There is some very minimal language about how Skype will
11 use the computing horsepower of your computer.

12 Well, is that a big deal, or not? It's very
13 hard to -- for a typical Skype user, I suspect, to really
14 evaluate that.

15 MR. LIBERTELLI: I would encourage you to go to
16 the Skype share blog to find out how Skype operates on
17 your computer. All sorts of disclosures are made there.
18 It's a very open environment. I think people can
19 understand completely how the software runs on a given
20 computer.

21 And with regard to your other point, the reason
22 why we're here is because there is a concern that there
23 is market power in the market for broadband Internet
24 access. We can try to change the subject to the privacy
25 policies of Google, or other Internet applications, but

1 for us, you have to return to that fundamental point,
2 because that is the grounding in economic theory for why
3 we're here, seeking some level of net neutrality
4 safeguard.

5 MS. SOHN: Yes, and I think we ought to bury --
6 we really ought to bury -- that right here, right now at
7 noon on Tuesday, that this debate is not about what
8 Google does, or what Skype does. It's about competition
9 in last mile broadband. So let's just bury that one
10 right here, right now.

11 MR. SIDAK: Well, I fundamentally disagree. It
12 is not about --

13 MS. SOHN: I know you do, Greg, but it's not
14 what the issue is.

15 MR. SIDAK: -- competition on the last mile.
16 The FCC has had proceedings about this. And if your
17 position is that the FCC is misinformed, then take it to
18 the FCC.

19 MS. OHLHAUSEN: One of the questions I want to
20 pose here is do you think network neutrality is
21 consistent with the goals of the 1996 Telecommunications
22 Act, to the extent it sought to eliminate regulatory
23 barriers and allow greater integration of services?

24 A part of the question here is, Congress and
25 the FCC, did they get it right, or did they get it wrong?

1 And I think that that actually is something
2 going to, you know, Gigi's fifth principle, which I think
3 people don't appreciate, and that is that it's so way
4 over-regulatory, that would result in, you know,
5 tarriffing, and regulating things that we have never
6 regulated. It would result in regulating Internet, you
7 know, pricing. It could very easily result in regulation
8 of peering and transit relationships.

9 And, in fact, even the principle -- you know,
10 the provisions that Gigi referred to in the
11 AT&T/BellSouth condition, saying, "Oh, but these are
12 easy, this is nothing," you know, yes. So, what is
13 prohibited is privileging, degrading, or prioritizing any
14 packet transmitted, based upon source destination or
15 ownership.

W5j15.7 02NDQnd0rj5and-2ffADt4m5r1em9t0D(x5j-5y7i0 6D0d4

1 So, I think you need to look at it from both
2 sides of the coin. And to the extent that the 1996 Act
3 had, as one of its purposes, promoting competition, it
4 was a complete and total abject failure. So, I think
5 that -- and that's why we need Congress and/or the FCC
6 and/or this agency to step in.

7 But let me just address -- Pepper, I just have
8 to ask you, I just don't know where you get from a non-
9 discrimination principle inevitably leading to price
10 regulation. As I said before, the program access rules
11 are a perfect example of a self-effectuating regulation
12 where cable operators have to make their programming
13 available, on reasonably non-discriminatory terms, to
14 unaffiliated multiple video providers like Verizon FiOS,
15 you know, like --

16 MR. PEPPER: Right. So --

17 MS. SOHN: Like satellite.

18 MR. PEPPER: Right.

19 MS. SOHN: I mean, that hasn't led to price
20 discrimination. It's a simple regulation. It's like
21 five pages in the CFR. Why can't we have the same -- a
22 similar -- regime here?

23 MR. PEPPER: Well, actually, first, you know,
24 you -- that -- program access rules talk about reasonably
25 non-discriminatory. It's not non-discrimination, right?

1 It's more similar to the not unreasonably discriminatory
2 in 202 that actually allows for different deals among,
3 you know, different providers.

4 MS. SOHN: That's true.

5 MR. PEPPER: All right? The other point is
6 that it was not under Title II, so it didn't end up in
7 tarriffing.

8 Point number three is that it clearly
9 recognizes that there are different relationships, based
10 upon, you know, size, geography, programming, and so on.
11 But I also can tell you, having been on the inside on
12 some of these, they do look at prices, right?

13 And the fact is that the -- you know, and there
14 are people here from the Commission, and some of whom
15 used to work in the cable bureau -- the staff actually
16 does have to look at price, that there -- it does limit
17 the ability to have, you know, different kinds of deals.
18 But the reason that that was done -- again, it only
19 focused on vertically integrated content, and there are
20 still, you know, a range of relationships, which is very
21 different than talking about, you know, quality of
22 service, or talking about basing a -- different
23 arrangements that are negotiated, based upon where your
24 caching servers are, where your server farms are, how
25 many hops across the Internet you go. It's fundamentally

1 different.

2 And it did not take place under Title II, and
3 yet a lot of the advocates for regulation here want to
4 put all of this non-discrimination into Title II, which
5 is traditional tariffing, which is traditional price
6 regulation.

7 MS. SOHN: I don't know anybody who is talking
8 about going back to Title II. I mean, there are -- there
9 is a very, very limited number of folks. But that is not
10 what this debate is about.

11 MS. OHLHAUSEN: I would like to give this side
12 of the podium a chance, if you wanted to weigh in either
13 on the question about the 1996 Act, or anything that has
14 come up since.

15 MR. SIDAK: Yes, I think that the overriding
16 lesson of the 1996 Telecom Act is that it was an
17 incredibly -- and I am speaking of the local competition
18 provisions -- it was -- it turned out, in practice, to be
19 an incredibly complex framework to implement. It
20 produced endless litigation. It went to the Supreme
21 Court two-and-a-half times.

22 And in the end, it neither produced this
23 independent business model of CLEC that seemed to be
24 sustainable, and it went away, in practical terms,
25 because, ultimately, there were mergers of the two

1 biggest CLECs, AT&T and MCI, and Bell companies. So, we
2 spent 10 years, and we really didn't have much to show
3 for it.

4 Now, would it be easier or harder to write a
5 piece of legislation defining network neutrality, and
6 addressing the prices, terms, and conditions that would
7 apply to non-discriminatory access? I think it would be
8 a lot harder. In the 1996 Act, we were talking about
9 some pretty old fashioned technology: twisted copper
10 pairs going to central office switches. I think that the
11 complexity of the Internet is -- would make the task far,
12 far more difficult.

13 MR. LIBERTELLI: I have lots of things to say
14 about all this, having lived through the 251 proceedings
15 at the Agency. But I will be brief, and make two quick
16 points.

17 Net neutrality really isn't about the
18 traditional notion of non-discrimination that is found in
19 Title II of the Communications Act. And I think,
20 actually, Chairman Martin, at his Oversight hearing in
21 the Senate, put this question correctly. It is
22 different. What the Internet companies are asking for is
23 different than 251 or Title II-style non-discrimination
24 requirements. But it doesn't lead you inevitably to
25 tarriffing, or all the bad things that Bob was

1 describing.

2 The basic point is this. If you want an
3 Internet of commercial agreements, you want a cable
4 television system. And we have one of those. We like
5 the Internet. We kind of like the way it has created
6 innovation, and the ability of users -- of software
7 providers to reach users.

8 So, you know, nothing about our approach would
9 disturb the cable television model. But what we are
10 asking for is to build a wall between it and an open
11 Internet.

12 MS. OHLHAUSEN: Actually, Gigi, Chris's remark
13 actually feeds into a question from the audience that
14 says, "You remark that we start with net neutrality, as
15 set forth in the AT&T and BellSouth merger, why isn't the
16 appropriate definition of non-discrimination that found
17 in Title II of the Communications Act, sections 201 and
18 202?"

19 MS. SOHN: Well, as I said before, it's not
20 necessary to go there. And we are talking about
21 something that is fundamentally different. And we are
22 not asking for that kind of heavy duty regulation. And
23 we like the AT&T/BellSouth definition, because it doesn't
24 go there, it doesn't go that far.

25 And it is sufficiently -- I think one of the

1 things Pepper -- you know, Pepper talked about how broad
2 it is. But I think it's actually quite narrow. It says
3 that you can't -- that AT&T cannot privilege, degrade, or
4 prioritize any packet transmitted, based on its source,
5 ownership, or destination. That still allows you to
6 engage in legitimate network management. You just can't
7 say, "Well, these are Vonage's packets, so therefore, it
8 will get -- you know, it will not get the better
9 priority."

10 We don't need to go to Title -- back to Title
11 II.

12 MR. PEPPER: All right, but Gigi -- but how do
13 you deal with the -- so, Google negotiated an arrangement
14 with Verizon Wireless -- or YouTube, now Google, for
15 YouTube delivery of video YouTube content over Verizon
16 Wireless. All right? That was a market-negotiated deal.

17 Should Yahoo! be able to knock on Verizon's
18 door and say, "I want the identical deal," without having
19 to negotiate --

20 MS. SOHN: Absolutely.

21 MR. PEPPER: Well, go explain that to Google,
22 because that's not the answer that they give. I mean, so
23 what's interesting here --

24 PARTICIPANT: I don't think that is fair, Bob.

25 (Several people speak simultaneously.)

1 MS. SOHN: Well, looking at price is not the
2 same thing as price regulation, okay?

3 MR. PEPPER: Oh, come on.

4 MS. SOHN: Just because a regulator looks at
5 price, doesn't mean they're setting a price.

6 MR. PEPPER: And act on it. Excuse me.

7 MS. OHLHAUSEN: And, Greg, you --

8 MR. SIDAK: I have spent a large part of the
9 last 20 years working on various aspects of price
10 regulation in telecommunications, and I find that
11 statement to be completely untenable.

12 MS. OHLHAUSEN: Okay.

13 MR. PEPPER: Which one? Me or Gigi? I think
14 he means everything she said.

15 MR. SIDAK: No, that you do not implicate price
16 regulation under this regime that she is describing.
17 Just implausible.

18 MS. SOHN: Okay.

19 MR. PEPPER: Even in your cable access, it's
20 about price. It's volume --

21 MS. SOHN: It's about price, but it's -- okay.

22 AUDIENCE PARTICIPANT: Ask the audience how
23 many people think you have to --

24 MS. OHLHAUSEN: Okay. Sir, you are -- excuse
25 me, you are not a panelist and you are not a moderator.

1 So, please, respect the rules of the forum. Thank you.

2 MS. OHLHAUSEN: Okay. Here is a question from
3 the audience, a written one. Are similar debates on
4 network neutrality taking place in countries outside the
5 United States? And have these debates resulted in
6 regulation? And do you think that has been a positive
7 result?

8 So, stepping back a little bit, broadening it a
9 little bit, what's going on in the rest of the world?

10 MR. SIDAK: Not nearly as much as here, in the
11 United States. The U.S. is definitely in the lead. But
12 the OECD countries are interested. This is an issue of
13 -- receiving some attention in Canada, the Netherlands.
14 Those are the main places, so far.

15 MR. PEPPER: Yes. Maureen, actually, in the
16 European context, the issue has been sort of raised, but
17 the consensus, I think, at the European Commission and
18 among most of the national regulators is that since they
19 work under a competition framework that looks at
20 significant market power, that they believe that this is
21 actually not an issue at this point for them.

22 And, in fact, I think there are some things
23 that we can learn from that, in terms of looking at this
24 as a competition issue, using -- you know, they talk
25 about SMP, significant market power. Here, we tend to

1 VoIP services, such as GoogleTalk?"

2 MR. LIBERTELLI: Right. So, Skype has -- is
3 undergoing an effort to build an interoperability to
4 allow those two systems to talk to each other.

5 MS. OHLHAUSEN: Okay. And the follow-on is
6 they're assuming that Skype doesn't allow such
7 interconnection. And would that be a network neutrality
8 violation?

9 MR. LIBERTELLI: Again, this is more subject-
10 changing, but the simple answer is that the -- if you
11 wanted to call a Skype user, for example, you could call
12 that user through the distribution of a traditional
13 telephone number, which we will provide to somebody who
14 is running the application.

15 So, if you want to talk to a Skype user, Skype
16 has a service that would allow that, you know, a non-
17 Skype user to talk to a Skype user.

18 MS. OHLHAUSEN: All right. We have about 10 --
19 9 minutes left. And I was thinking that, rather than go
20 through some more questions -- and it might make sense to
21 give you all a minute or two to raise any points you
22 didn't get to make, or anything you wanted to re-
23 emphasize, or any last shots you wanted to get in, just
24 to give you an opportunity to do that.

25 How about we do in reverse order of our

1 questions --

2 MS. SOHN: As long as you don't talk about
3 Google, I don't care.

4 MS. OHLHAUSEN: Okay. So you are saying that
5 there is a lot of public benefit to the network being
6 open this way? There are a lot of externalities. And
7 so, that kind of raises a question, as it's privately
8 funded, however. The private companies provide the
9 services.

10 Are we asking them to be in an unfair position,
11 where we want to keep a structure a certain way, because
12 of the public benefits, but we want private companies to
13 provide that?

14 MS. SOHN: Well, first of all, the Internet was
15 not started by private companies, okay? It was started
16 by the government, the Department of Defense. So that's
17 where its roots are.

1 So, the notion that it's purely private
2 companies that built the Internet without any public
3 subsidy at all is just false.

4 MR. SIDAK: So the Internet is different from
5 cars, but it's inherently related to things like
6 telephone poles?

7 (Laughter.)

8 MS. SOHN: Greg, you know I didn't -- I'm not
9 even going to answer that, that's such a silly statement.
10 That's just silly.

11 MS. OHLHAUSEN: Bob?

12 MR. PEPPER: Yes. So, I think Gigi's right,
13 that this is about what we want the Internet to look
14 like. And I also think that there is broad agreement
15 that one of the terrific characteristics of the Internet
16 as its grown up is the end-to-end characteristics, that,
17 you know, I actually can go anywhere I want, unless of
18 course I subscribe to a service that identifies itself as
19 a walled garden.

20 But what's interesting -- and this actually
21 does go to, I think, part of -- Gigi -- one of the
22 questions of, you know, so what do we want to require --
23 or, Maureen, your question is -- you know, we have had
24 attempts at service providers putting together walled
25 gardens. And they uniformly failed, right? AOL was a

1 walled garden. People didn't want it.

2 Now, people liked the fact that they could go
3 within that environment and find content that they like,
4 and they want, and they feel comfortable with. But they
5 wanted a gate in the garden to go out to the wild wooly
6 Internet.

7 At home, on the -- you know, the cable
8 industry's initial attempt to do cable modem service was
9 built as a completely closed-walled garden, and then they
10 realized people wouldn't buy it as that, and the market
11 insisted -- right, consumers insisted through the market
12 mechanisms -- that it be opened up.

13 I fundamentally believe that this is about the
14 -- you know, what we want it to look like. But I think
15 that the consumer empowerment here -- because we do have
16 choices that are increasing; it's not yet -- I don't
17 think anybody would argue it is, you know, perfectly
18 competitive. But the fact is, we are seeing prices
19 decline, bandwidth go up, and the walled gardens fall.

20 And I think it's important that that tradition
21 continue, but also remember that this has essentially
22 been an unregulated world and market within which this
23 has developed. And I don't think that there is
24 sufficient evidence today to say that we should start
25 regulating things that were never regulated.

1 way of preserving openness. That openness allowed a
2 company like mine to build a software application that
3 dramatically reduced the costs of people's conversation.
4 And we think that's good for consumers.

5 If you're worried about the next Skype, the
6 next Google, then you would, as policy makers, adopt a
7 principle and policy of net neutrality that protects
8 innovation, because there are enormous sources of
9 competition out there on the Internet from software-
10 defined services.

11 MS. OHLHAUSEN: Well, I really want to thank
12 all of our panelists for bringing their knowledge and
13 their passion about these issues.

14 (Applause.)

15 MS. OHLHAUSEN: And I just wanted to remind
16 everyone we will reconvene here at 1:30.

17 **(Whereupon, at 12:25 p.m., a luncheon recess**
18 **was taken.)**

19
20
21
22
23
24
25

1 A F T E R N O O N S E S S I O N

2 MS. OHLHAUSEN: We now have Commissioner
3 Leibowitz.

4 COMMISSIONER LEIBOWITZ: Thank you so much,
5 Maureen. And if everybody wants to get seated, that will
6 be great, and I will get started. But let me first,
7 actually, start by congratulating Maureen Ohlhausen and
8 her staff, for putting together a forum where many of the
9 most important members of the network neutrality debate
10 get to air their positions in front of their most
11 knowledgeable and determined critics.

12 It's important, because, to some extent, the
13 debate has been about -- it's really been a battle of
14 sort of dystopian worlds, where each side warns of the
15 misery and wretchedness to come, if we don't listen to
16 them.

17 Now, some of those fears, of course, are
18 legitimate. But as I have listened to the debate over
19 the past few months, it seemed to me that each side
20 listens to the other side sort of just enough to mock it.
21 In order for us to move the debate forward, we need to
22 listen respectfully to the worst case scenarios
23 identified by the proponents and opponents of net
24 neutrality, and absorb the kernels of truth -- and there
25 are, of course, many kernels of truth -- from each.

1 I hope that the panels during the rest of the
2 day today and tomorrow will help us get to a policy
3 solution that we can all agree with. Or, failing that,
4 one that at least won't keep us up at night, worrying.
5 And I was here this morning, and I watched the first
6 panel. And it seemed to me it was a very good start.
7 I'm not so sure about the second panel.

8 (Laughter.)

9 COMMISSIONER LEIBOWITZ: But we will try to
10 make the third panel respectful, in a way that perhaps
11 the second panel -- issues came up in the second panel,
12 hopefully they won't in the third.

13 First, though, I should say, as we always do as
14 commissioners, that my comments today reflect only my own
15 opinion, and not the Commission's, or that of any other
16 commissioner.

17 Before I talk about competing nightmare
18 scenarios, let me talk about what we should all have in
19 common. Consumer rights on the Internet should, at the
20 very least, include the four Internet freedoms identified
21 by former FCC chairman, Michael Powell, in 2004.

22 Consumers must be free to: one, access their
23 choice of legal content; two, run any Internet
24 applications they choose; three, attach any device they
25 choose to any connection in their homes; and four,

1 receive meaningful information regarding their service
2 plans.

3 These four Internet freedoms are, it seems to
4 me, table stakes. Any set of principles regarding
5 consumer rights on the Internet should require all
6 companies -- and, really, all entities -- to ante up.

7 The fourth freedom is particularly important to
8 us at the FTC, though I'm told it's somewhat less
9 important to folks at the FCC recently -- that was a
10 joke. I know you're a geeky audience; it's okay.

11 (Applause.)

12 COMMISSIONER LEIBOWITZ: Some of the most
13 critical issues regarding the Internet involve
14 transparency and disclosure. Will carriers slow down or
15 interfere with applications or services? If so, will
16 consumers be told about this before they sign up?

17 To my mind, failure to disclose such material
18 terms or conditions should be considered unfair,
19 deceptive, in violation of the FTC Act. See, I think --
20 does anybody disagree with that?

21 (No response.)

22 COMMISSIONER LEIBOWITZ: Okay. Then we have
23 unanimity. That's very respectful.

24 Beyond those four freedoms, things get more
25 complicated. Right now, the last mile to the Internet is

1 its least competitive. Nearly all homes in the U.S. that
2 get broadband -- I think it's upwards of 98 percent --

1 This could turn the Internet into a broadband
2 anti-commons, where new applications never see the light
3 of day, even though their value to consumers could
4 potentially far outstrip their cost, because the cost of
5 negotiating deals and the cost of the deals themselves
6 with each carrier would likely exceed the profits from
7 the services.

8 In this dystopian view of the future, the
9 Internet simply runs in place, stuck where it is. It may
10 run faster, but the available content and applications
11 stop growing, and creativity atrophies, because of the
12 inability of start-ups, especially, to reach consumers
13 quickly and inexpensively.

14 And I focus on this world because much of the
15 innovation that has occurred on the Web has been premised
16 on its special economics, where once you get your content
17 or application on the Internet, you can reach
18 potentially, and at a low cost, billions of people.

19 These economics make possible the phenomenon of
20 the long-tail business model. In the long-tail business
21 model, a product can succeed, even if only a small
22 percentage of people are interested in it, because so
23 many people have access.

24 According to Chris Anderson, who coined this
25 term, "Many of Amazon's book sales -- perhaps as much as

1 a quarter or more -- come from books so unpopular that
2 Barnes and Noble doesn't even carry them in their
3 superstores." And my guess is the percentage of movies
4 carried by Netflix is probably much higher than that 25
5 percent than the percentage carried by the local
6 Blockbuster, or its competitor.

7 This type of business model, and the
8 accompanying array of choices that give the Internet its
9 vibrancy, could be threatened if cyberspace is subdivided
10 by broadband gate keepers imposing fees, conditions, and
11 surcharges.

12 Now, in response to this vision of misery and
13 wretchedness, the broadband providers say this. "You
14 know, we have no incentive to treat our own customers so
15 badly," and they do have a point. For example, why would
16 Verizon block Google, if that would make consumers less
17 interested in Verizon services? This argument is
18 particularly compelling when there is competition among
19 broadband providers. Consumers can simply switch to a
20 provider that sells better services.

21 And this notion that consumers buy more of what
22 they like than what they don't also resonates with many
23 at the Commission, and its implications should not be
24 ignored.

25 But it is persuasive only if the broadband gate

1 keepers have a good idea of which new Internet products
2 and services will succeed. The success of YouTube and
3 other firms like it is really a testament to the power of
4 competitive markets to deliver value to consumers, even
5 where that value might be hard to predict.

6 I mean, does anyone really believe that cable
7 companies or telcos -- or certainly FTC commissioners --
8 could ever have foreseen the success of YouTube? I'm not
9 even sure that the founders of YouTube knew just how
10 successful they would be.

11 Frankly, broadband providers did not have a
12 history of being particularly interested in -- or good at
13 -- developing new applications or content. And whatever
14 their theoretical incentives, the real-world risk of
15 leaving this decision in the hands of broadband providers
16 is that they just might not get it, and though you could
17 never quantify the harm, consumers would nevertheless
18 live with a less innovative, less magical content, and
19 less magical Internet.

20 On the other hand, the broadband providers can
21 present dystopian visions of their own. In their
22 dystopian world, net neutrality would prohibit them from
23 using their own wires in potentially the most pro-
24 competitive ways.

25 Many of these companies also argue that they

1 are spending enormous sums of money to wire communities,
2 because of the profits they expect to make from selling
3 combined television, telephone, and broadband services
4 over those wires. And if they can't charge higher prices
5 for these services, they may not be able to justify big
6 investments in broadband.

7 To be sure, there has certainly been a lot of
8 new investment in the last mile. And we are currently in
9 the middle of what may be an unprecedented swell of
10 competition between cable and telephony, which have been
11 dominant in their own turf for years, but which are now
12 on the verge of entering each other's markets.

13 On the telco side, both AT&T and Verizon are
14 spending billions to upgrade their networks with fiber,
15 all so that they can sell video in competition with cable
16 companies. For their part, the cable companies are
17 working to upgrade their own networks to compete, and
18 many are already offering telephone service. I happen to
19 have Comcast telephone service. Moreover, each is
20 expanding broadband Internet services in competition with
21 the other.

22 At the same time all this is happening, many
23 municipalities are beginning to build sort of semi-fast
24 networks, as well -- for example, in Philadelphia, in San
25 Francisco, in Madison, Wisconsin -- and they are often

1 using some version of wireless networking, in partnership
2 with companies like Earthlink and Google.

3 All this is good. Actually, all this is really
4 great for consumers. And we need to be careful not to
5 create a policy that stops this new competition before it
6 really gets underway.

7 What do I think? Well, like Bill Clinton and
8 Tony Blair, more generally, and Rob Atkinson and Phil
9 Weiser -- I don't know if Phil is here today; I know he
10 is on a panel tomorrow -- more specifically, many of us
11 are looking for a third way. There should be room for
12 broadband providers to compete in the way they want, and
13 there should be incentives for them to innovate.

14 But at the same time, my sense is that some
15 form of net neutrality, some restriction on their ability
16 to charge for tiered access, may be important and may be
17 very important if we are going to continue to get the
18 types of creative new content and applications from the
19 Web that we have marveled at over the past few years.

20 One possible approach -- and, by the way, let
21 me just make clear that I haven't reached any final
22 conclusions, and I think all of us at the Commission are
23 really trying to think this issue through -- we always
24 learn something new when we do these workshops. We
25 always learn something new when we write reports.

1 Michael Salinger has told me that on many occasions --
2 our head of the bureau of economics.

3 But one possible approach would be to use the
4 consent order for the recent AT&T/BellSouth merger as a
5 point of departure. In AT&T/BellSouth, AT&T agreed not
6 to charge web-based application and content providers to
7 access AT&T's last mile. The restriction included some
8 exceptions, principally relating to a television
9 subscription service that allows AT&T to use its own
10 network in ways that other could not.

11 It seems possible that there are other services
12 that could be provided better over a private network,
13 than over the Internet. Perhaps when a carrier can
14 demonstrate that such use is pro-competitive, it should
15 be allowed to do so in an unfettered way.

16 In the AT&T/BellSouth merger, for example, AT&T
17 wanted to use its network to compete in otherwise very
18 concentrated cable television markets. Broadband
19 providers could also be allowed to do more when the
20 market for the services that it wants to sell is
21 otherwise competitive, as might be the case if there is a
22 third broadband piped to the home, whether that's
23 broadband by power lines, municipal broadband, broadband
24 by implants through the brain, whatever.

25 (Laughter.)

1 will take one or two questions, then I will let you guys
2 go to the panel. Unless there are no questions, in which
3 case I will let you guys go right to the panel.

4 (No response.)

5 COMMISSIONER LEIBOWITZ: All right. Thank you
6 so much.

7 (Applause.)

8 MR. SALINGER: Thank you, Commissioner. As
9 Commissioner Leibowitz mentioned, I am Michael Salinger,
10 I am the Director of the Bureau of Economics at the FTC.

11 This panel, we are going to talk about what is,
12 in some ways, a new issue, with respect to net
13 neutrality. But in other ways, an issue that has come up
14 whenever we have had to deal with the delivery of
15 content. There was delivery and content, so we -- even
16 going back to movie theaters, at least, and there is
17 probably something going back to ancient Rome.

18 We have a very distinguished panel today to
19 help us with these issues. We're going to start out with
20 Joe Farrell.

21 More years ago than either of us would like to
22 admit, I can tell you that Joe Farrell was a great
23 ultimate frisbee player, which was the first time that I
24 realized that he understood the delivery and reception of
25 things through the air.

1 be paid, in substantial part, by customers of broadband
2 competitors. And that raises, potentially, some serious
3 competition policy concerns.

4 Secondly, there is a concern if you allow last
5 mile providers to make charges on content providers,
6 there is a concern about possible expropriation of
7 successful content providers. And third, there is a
8 possible concern about inefficient or harmful leverage.

9 However, although these concerns are all, I
10 think, substantial and worth worrying about, at least
11 some of them are quite uncertain. The economic
12 conditions for them to be significant problems are not
13 only real conditions -- that is, they might not be real
14 problems -- but also very hard to observe, and pin down.

15 So, the real issue is what to do in a case
16 where there are potentially serious problems, but things
17 may, in fact, be okay. And following on Commissioner
18 Leibowitz's suggestion of a third way, I am going to ask
19 whether there is an appealing middle ground.

20 Okay, so the first issue that I want to raise
21 is actually not, I think, the most important, but is
22 perhaps the clearest, in terms of the incentives. In
23 traditional telephony, we have what has been known as the
24 terminating access problem, and that is the following
25 issue.

1 level, that desire encourages good platform management,
2 which means, among other things, encouraging attractive
3 applications providers.

4 But, of course, that's not the only thing that
5 it wants. Okay? And, in particular, given that it does
6 face some competition, there may well be an incentive for
7 a large broadband provider to weaken independent content
8 providers, or assign them to exclusives, in such a way
9 that a smaller rival has less attractive content
10 available to it. And it might be worth doing that, even
11 if, as a collateral cost, the content available to your
12 own subscribers is not quite as appealing as it might
13 otherwise be.

14 A second reason for concern is the desire --
15 which I think is going to be very strong in this
16 business, with substantial short-run market power, to say
17 the least, and very large fixed and sunk costs -- second
18 concern is the desire to do price discrimination. Price
19 discrimination, as you have probably all heard many
20 economists say in forums like this, is not necessarily
21 harmful. And that's correct, given the other
22 alternatives available.

23 But the desire to be able to engage in price
24 discrimination is an important motivator for extending
25 control beyond what is efficient. So, how do we think

1 suggested -- that because these problems are, in a broad
2 sense, competition problems, you could address them ex
3 post with anti-trust. I will hope to say more about this
4 later in the discussion. I am not convinced that anti-
5 trust, as currently enforced, is going to do a good job
6 on those potential problems.

7 How do you poise yourself to act, then, if
8 that's the way to go? Perhaps you need to establish some
9 clear understanding of what the principles are, and set
10 up some agency -- which could be courts, or could be some
11 other agency, with a will and ability to act.

12 One interesting point here is there are two
13 models of doing that. One is you're going to prevent
14 problems as they come up, ex post, you're going to cure
15 them. For that, you need rapid and predictable
16 enforcement. Another is you're not going to try to do
17 that; you're going to deter misbehavior through some kind
18 of -- to put it crudely -- punishment strategy. For
19 that, of course, you don't need rapid or predictable
20 enforcement, you just need very hard-nosed enforcement.

21 All right. Is there a middle ground?
22 Broadband providers mostly say they want to be able to
23 control harmful content, they want to be able to charge
24 for congestion and higher speed, and so on. Net
25 neutrality advocates, I think, mostly say they are

1 concerned about expropriation and about leverage. I
2 haven't heard many of them talk about the terminating
3 access problem, but you could add that.

4 There is a gap in there. Does that gap suggest
5 the possibility of win-win rules? And if so, an
6 important thing to do would be to explore those, explore
7 how they work, and make sure they're win-win-win, where
8 the third win is perhaps the most important: consumers,
9 rather than just the participants.

10 MR. SALINGER: Thank you, Joe. I'm going to
11 turn next to Greg Rosston. GregtT7Pbrrently the deputy
12 director of the Stanford Institute for Economic Policy
13 Research at Stanford. He alsoT7-- has had a career at
14 the FCC, where he was the deputy chief economist. He has
15 written extensively about the application of economics to
16 telecommunications, and I am sure he will tell us about
17 those principles now.

18 MR. ROSSTON: Thank you. And itgtT7sort of
19 tough going after Joe, because I agree with almost
20 everything he said. What I will dogtT7I'm going to
21 expand on a couple of ideas that I had that will,
22 hopefully, complement what he has said on these things,
23 and express a little bitgmore -- as the guy from Silicon
24 Valley, I don't have any Power Point slides.

25 (Laughter.)

1 MR. ROSSTON: So, the first thing for me -- and
2 I think an important question for the FTC -- is to think,
3 you know, what is network neutrality? What does it mean?
4 And you get lots of different definitions. And I think
5 that's a key question in order to say, "Should we do
6 something?" Well, what is it you're planning to do, and
7 what do you mean?

8 And I think that was -- and that's part of what
9 Joe said, was, you know, should we do something? Well,
10 it depends on what "do something" means. Whether, you
11 know, in addition to what's the probability of there
12 being a harm, what's the action you're going to take, in
13 order to do that?

14 This debate has sort of been, you know, about
15 -- again, you've heard this -- the horribles on one side
16 versus the horribles on the other side. You know, both
17 of them, I think -- I think both sides overstate things.
18 When I hear the cable companies and telephone companies
19 say, "Well, there is no need to regulate because we don't
20 do anything bad, and we're not doing these things you're
21 going to regulate and prevent us from doing," I think,
22 "Well, then you shouldn't have a problem, if you say
23 you're not going to do them."

24 (Laughter.)

25 MR. ROSSTON: On the other hand, you know,

1 there is this problem of regulating and not knowing what
2 the incentive effects are from a regulation. So you need
3 to think about both sides of this, and try again -- I
4 think that putting this as a more dispassionate argument
5 about thinking about what people's incentives are, and
6 what are the effects of regulation, are really the
7 important way of doing this.

8 Again, to compliment Joe and Phil Weiser, I
9 recommend that everybody read their ICE paper. It is --
10 it really sets forth the incentives for a vertically

1 sense, you do have a -- you do have market power, still,
2 in this terminating monopoly. But in most other
3 instances, this vertical relationships issue goes away
4 substantially if you have competition instead of market
5 power at the level.

6 But when you do have this market power, you do
7 have issues -- and I won't go through them -- these
8 vertical relationship -- do have incentives for somebody
9 to exploit it. They can expropriate and cause problems
10 for innovation.

11 In this case, I think the key that I want to
12 focus on is that -- one of the key policies that should
13 be promoted is, how do you get rid of this duopoly that
14 we have, and get triopoly, quadopoly, whatever you want
15 to call it, and get more competition at the level of
16 bringing broadband access to people's homes? And that
17 would go a good way to solving a lot of the problems.

18 There have been people who still are concerned
19 with this terminating access problem. I want to -- you
20 know, one of the ideas is that you look at Europe, and
21 the cell phones have extremely high terminating payments
22 for calls. But one of the things that happens there --
23 and this is where I slightly disagree with Joe -- is that
24 if you call a landline phone in Europe, you pay a
25 different price than if you call a mobile phone. So

1 order to get a new entrant, in order to compete.

2 So, you may want to think about how do we
3 balance between regulations on incumbents versus new
4 entrants. There may be a justification for differential
5 regulation, if you think there is a problem and your
6 whole goal is to encourage new entry.

7 So -- but on the other hand, you do need to
8 have incentives to -- for the incumbents to upgrade their
9 networks, as well, and to try to provide higher-speed
10 access. So, you want to make sure that people have
11 incentives to upgrade, but also to not have incentives to
12 take advantage of customers and to forestall innovation.

13 I realize this has sort of been a high-level
14 talk. And not coming down on a particular side, but
15 trying to highlight the issues that you need to be
16 concerned with in thinking about what regulations might
17 be.

18 The other thing that I want to talk about is
19 what do you do, as a regulator? What would one do if one
20 said, "Okay, you need to think about whether you want to
21 institute a regulation ex post or ex ante" -- or ex-ante
22 regulation or ex-post enforcement. And you want to think
23 about the two pieces that Joe said, the probability and
24 the efficacy of ex-post enforcement, the probability of a
25 harm, but you also need to think about the relative

1 effectiveness of ex-ante regulation and ex-post
2 enforcement, and also what incentives these create for
3 firms to provide services to consumers.

4 So, my bottom line is, try to increase the
5 competition to get rid of the market power problem at one
6 level, and worry about -- think about the terminating
7 access problem, but I'm not sure that that's as big a
8 problem as making sure that you get competition there.
9 So I think I will leave it at that.

10 MR. SALINGER: Great, thank you. Our next
11 speaker is Simon Wilkie. He is the director of the
12 Center for Communications Law and Policy at the USC Law
13 School, and professor of economics at the Annenberg
14 School of Communications. And he is also a former chief
15 economist at the Federal Communications Commission.

16 MR. WILKIE: I am going to do a multi-media
17 presentation to myself. I have got slides, I have got
18 notes, and I have props. And what I want to do is
19 achieve three things in this talk. The first thing is I
20 want to follow up on Joe and Greg, and basically I am
21 going to be singing the same tune. So you all have heard
22 that before. And in fact, Commissioner Leibowitz set the
23 tone exactly right. Let's find the third way.

24 Then I am going to -- one of the requests that
25 was put to us is if there is an issue, what do we look

1 at? What data should we be looking at? I am going to
2 give some examples of what the data looks like, and where
3 you can find it, where the bodies are buried, if you
4 will.

5 And third, I am going to discuss policy
6 alternatives in the light of what the current real-world
7 situation is. There is a lot of, frankly, nonsense
8 written on this topic, particularly in Washington, D.C.
9 And because I only have 10 minutes, I am actually going
10 to start with the punch line and work backwards.

11 So, I think the punch line is that, as
12 everybody here has suggested, the rhetoric in D.C. on
13 both sides is too extreme. It's not really reflective of
14 reality.

15 So, therefore, one extreme I think I would not
16 support, for example, the Markey bill. I think the
17 Markey bill causes a lot of harm, potential harm, by
18 discouraging potential innovation. It is also fairly
19 badly worded, in terms of not defining terms in a
20 transparent manner, I feel. I am not a lawyer; I am just
21 pretending to be one.

22 On the other hand, I don't accept the proposal
23 that this is a competitive market, and it can be
24 completely deregulated. In particular, for the issues
25 that Joe and Greg have mentioned, that the terminating

1 monopoly is a real issue. It's an issue in every
2 telecommunication market where people interconnect. And
3 the key point is -- and the language, formal language of
4 economics, when we study two-sided markets, when
5 consumers at one end, single home versus multi-home.

6 And I will talk about a subtle difference.
7 When I was at the FCC, when I felt that we could
8 completely deregulate a market versus why I think that's
9 an issue here. And it's all got to do with the
10 difference between single homing and multi-homing,
11 something that, again, Joe has written on.

12 I also want to emphasize a point Greg raised
13 that -- a good point for people to start with is to read
14 Joe and Phil Weiser's paper. And I would suggest, given
15 -- this is where I'm paid off by Joe, here -- I would
16 also suggest that people could also learn a lot by
17 looking at the works that Pat DeGraba did while he was at
18 the FCC, where he studied the rationales for
19 interconnection regimes based on bill-and-keep and
20 Atkinson and Barnekov.

21 It turns out, for a surprisingly wide level of
22 situations, what we have today is actually optimal. So
23 that suggests that perhaps we don't have to do much. So
24 that's my punch line. So, let me back up to where we
25 are.

1 Before that, I want to give a pitch. As was
2 mentioned, I am at the Annenberg Center, amongst other
3 things. The Annenberg Center is a fantastic location
4 with lots of money in a beautiful building in Los
5 Angeles. And one of the things that we like to do there
6 is to take people out of D.C., wine them and dine them.
7 We recently celebrated the tenth anniversary of the 1996
8 Act with dinner at Patina and a couple of cases of 1996
9 -- seems, how we were looking backwards, we thought we
10 should have French wine. Sorry.

11 So, one of the things we did is we locked the
12 industry participants, who are normally vociferous in
13 Washington, D.C., in this nice environment, to see if we
14 could come to some consensus. Remarkably, we almost did.
15 And those principles that people, at one level, would
16 agree with -- it's not a complete consensus, as I
17 mentioned -- are on our website, which is
18 www.cclp.usc.edu.

19 And basically, the idea is to sort of modify,
20 if you will, Michael Powell's four Internet freedoms to
21 say that, rather than enforcing non-discrimination, that,
22 essentially, the gist of the proposal is that consumers
23 should have the choice of a net neutral package being
24 offered to them. That is, we should establish a floor, a
25 baseline level.

1 So, for instance, at 1.25 megabits per second,
2 we can deliver that to pretty much everybody in America,
3 with the current infrastructure that we have now. So
4 we're not discouraging any new potential investment. So,
5 if firms offered vanilla, which is a net neutral package
6 that everybody can get today, and then above that level
7 all bets are off, that would be one approach.

8 The caveat might be that you might want to add
9 that tiering and offering higher levels of prioritization
10 are allowable, but they would have to be offered on a
11 non-discriminatory basis, or what economists call "second
12 degree price discrimination," that is, the prices are
13 functions of the level of functionality offered, not the
14 identity of the customer. Okay. So that would, in
15 particular, exclude foreclosure.

16 So, there was a fair amount of consensus to
17 support those type of ideas. So, working backwards from
18 my conclusion to my second point, which is where are the
19 bodies, as Joe mentioned, the terminating monopoly
20 problem -- and Greg alluded to the issues in Europe --
21 the data can be found at the end of the FCC's wireless
22 competition report each year, where it compares countries
23 where, like the United States and Canada -- and Hong
24 Kong, where the user pays, or I pay for every call coming
25 in, that means I actually see the entire cost of my phone

1 bill, right?

2 So, if my phone company -- if T-Mobile decides
3 to raise the rates to me, then I can switch to Verizon.
4 There is a lot of competitive pressure for me to shop
5 around.

6 On the other hand, in countries in Europe, the
7 billing goes the other way. That is, it's the person who
8 initiates the call pays the termination fee. That way,
9 if my carrier raises its termination rate, it doesn't
10 affect me. I, the customer, as Joe pointed out, have no
11 incentive. So we have just changed, if you will, the
12 property rights of who is paying for the call. It's not
13 really a regulatory issue.

14 And the equilibrium changes from a competitive
15 equilibrium to the monopoly equilibrium. There is a
16 great paper written by Jean Jacques Laffont and Patrick
17 Rey in the Rand Journal several years ago, which explains
18 how this change in the rules gets you to the monopoly
19 equilibrium. This is an endemic problem in Europe.

20 And -- I think Chris Libertelli is in the room
21 -- if you use Skype, you see that Skype-to-Skype calls
22 are free to Europe. I think to a landline it's three
23 cents. As Greg mentioned, there is a disparity in the
24 termination prices, and the disparity shows up in the
25 Skype pricing. I think it's \$.03 to a landline, and \$.21

1 -- these are Euro cents -- oh, it's \$.02 -- Chris has got
2 two fingers up there -- so it's \$.02 to a landline, and
3 \$.23 to a cell phone. So the terminating monopoly price
4 is \$.21.

5 How does this impact consumers? Well, in the
6 U.S., we pay -- my data is a year old, because these
7 slides are a little bit old -- an average of -- carriers
8 receive revenue of \$.08 a minute, per minute calls. It's
9 now down to \$.07, I think. If there is anybody from the
10 wireless bureau? The U.S. consumer yaks on their phone
11 for an average of 680 minutes a month. Some of the
12 cheaper carriers are even higher.

13 If we go to the UK, which also has five large
14 carriers, it's basically prices are four times higher,
15 and consumers use the phone one quarter of the time. So
16 we go to an average revenue of \$.21 a minute from \$.07 a
17 minute -- well, 3 times, then -- and they use the phone
18 for about 150 minutes a month.

19 Germany, it's even worse. So, basically, just
20 that single change of where the fee is recovered for
21 terminating the call, the closer you get to the end
22 point, the bigger the problem. Okay?

23 We can look at that is it's the same across
24 every country in the world. In the U.S., Greg also
25 mentioned we have the problem with the rural, and the

1 comparable, we had the problem of the CLEC money pump,
2 that I could set up a CLEC, just take ISPs as my
3 customers, that have a very high termination charge.

4 By the way, this is going on at the moment.
5 Does anybody use freeconferencecalls.com?

6 (No response.)

7 MR. WILKIE: So, here we have this thing going
8 in spades, exactly. You can do it for free, because they
9 are stiffing your carrier of the termination charge.

10 The other example is in the international
11 settlements arena, where at one of our conferences we had
12 the former chief of the international bureau saying how
13 these international competitors negotiated the deals,
14 where the U.S. would say, "Well, how about \$1 a minute,"
15 and the other country would say, "Well, why not \$2?" And
16 the U.S. is, "\$2.50." So, we bargained our way all the
17 way up to the monopoly price.

18 The U.S. became enlightened, and became the
19 force of bargaining these calls down to zero, which, in
20 the model, turns out to be the efficient optimal price,
21 in many cases. That led to a new phenomenon called whip
22 sawing. So, you know, in the international arena, the
23 U.S. fights this in the WTO. Whip sawing is where a
24 country plays one U.S. carrier against each other, trying
25 to offer monopoly rights to reach that country.

1 So, it's exactly the type of foreclosure that
2 certain opponents of net neutrality say can never happen.
3 We deal with it all the time in telecom. So, the FTC can
4 look at these cases.

5 My final example that I wanted to talk about is
6 what happens in Australia, in the Australian cable
7 market. So, for instance, Australia was late to the
8 cable market. Australia is very similar to the United
9 States, in terms of population and demographics. The
10 U.S., we have 88 percent market penetration for cable TV
11 or satellite, for pay-TV -- MVPD, in the arcane lingo of
12 the FCC.

13 Australia decided to go one better, that rather
14 than licensing monopolies, they would license duopolies,
15 so that we would have two competitors, okay? However, in
16 the U.S., we have what are called the program access
17 rules, which says a cable company couldn't foreclose its
18 competitors by buying programming, vertically
19 integrating, and not selling that programming to its
20 competitors. This has been a very effective tool to spur
21 competition. It's a regulation; no doubt about it.

22 Australia did not have that. So what happens
23 in Australia? You have two cable systems, both with half
24 the channels. If you want to watch both Cary Grant and
25 Humphrey Bogart, you're out of luck. What's the market

1 penetration in Australia? Twenty-two percent.

2 So, again, you get this diminution of consumer
3 surplus by a huge margin. And so, the argument that you
4 can't have this emerging -- this sort of vertical
5 foreclosure emerging in equilibrium is just nonsense,
6 because the incumbents have the maximum incentive to
7 differentiate the product.

8 That said -- and I am out of time -- on the
9 contra side, there still is this issue of providing
10 enough money to incent the last mile investment. So
11 therefore, try and stop the absolute abuse of monopoly
12 power, but don't stop charging a premium for
13 enhancements. Thank you.

14 MR. SALINGER: Thank you, Simon. For people
15 concerned about foreclosure of content by delivery
16 providers, I would observe that the FTC is the deliverer
17 of this conference, and we have had a lot of people from
18 the FCC -- former officials from the FCC. But we do have
19 one former FTC official, which is Tom -- briefly -- Tom
20 Lenard worked at the FTC, as well as the OMB and the
21 Council on Wage and Price Stability.

22 Currently, he is the senior fellow and senior
23 vice president at the Progress and Freedom Foundation.
24 He has written extensively on telecommunications issues,
25 including a recent book about net neutrality. Tom?

1 MR. LENARD: Well, I think I am going to be
2 less of a third way type than the previous speakers, if
3 that's the way they describe themselves. However, I will
4 join them in heartily endorsing the Phil Weiser paper,
5 which is a great paper.

6 You know, I think the question really is
7 whether we ought to be concerned about what really are
8 pretty hypothetical concerns about market failure and
9 market power, and those types of issues, when it's really
10 not even clear yet what viable business models for
11 broadband are going to look like, and how we are going to
12 be able to develop viable business models that are going
13 to cover, you know, the really large costs of building
14 out the infrastructure.

15 It seems to me there are three pretty salient
16 facts about the broadband business. One is that it is a
17 very young business, if not still in its infancy, not
18 very far out of it. The second is that it is a
19 distribution business. And the third, that it is a
20 business that is characterized by very large, up-front
21 costs.

22 So, you know, as the industry evolves, it is
23 unclear what the viable business models are going to look
24 like for this industry. But arrangements that might be
25 viewed as not neutral, or discriminatory, are very common

1 in the distribution business -- and they are very common
2 in businesses in which there are a large portion of the
3 costs are up front, which is obviously the case with both
4 the broadband distribution business and with the content
5 that it delivers.

6 And, in fact, such non-neutral business models
7 may very well be essential to provide sufficient revenues
8 to cover the costs of these investments. In addition,
9 some viable business models are almost certainly going to
10 require that broadband be bundled with content, which is,
11 again, very typical of distribution businesses. So what
12 may be needed for a successful business model may be a
13 bundled product offering that is sufficiently attractive
14 to attract enough consumers to become subscribers at
15 prices that are going to pay off the costs of these very
16 large investments.

17 While these bundled broadband content business
18 models may be needed to drive the necessary increases in
19 subscribership, it is also going to be the case that
20 consumers are going to demand broad access to the
21 Internet, and to the content that is available. I mean,
22 it is very common for vendors and distribution businesses
23 that sell consumer goods and services to consumers to
24 sell their own products and services, along with those of
25 other vendors.

1 Competitors content can increase subscribership
2 at very low, or perhaps even zero, marginal cost. So
3 it's not going to be in the provider's interest to block
4 content that consumers want, and thereby lose subscribers
5 that are going to be high-margin subscribers.

6 And I think it is also critical to think about
7 net neutrality regulation in terms -- and it's been
8 mentioned before, obviously -- of its effect on entry.
9 So, the ability to bundle, make exclusive deals,
10 otherwise have non-neutral business models, may be key to
11 facilitating entry.

12 So, a possible example of this is the Clearwire
13 Bell Canada deal in which Clearwire entered into some
14 sort of an exclusive deal with Bell Canada to provide
15 services in exchange for a \$100 million investment.

16 Now, Clearwire doesn't block other VoIP
17 providers, apparently, but assume, for the sake of
18 argument, that it does discriminate in favor of its own
19 VoIP provider in some way. A net neutrality requirement
20 would preclude such a deal, and might deter a company
21 like Clearwire from entering the market as a new platform
22 to compete with the incumbent platforms, and certainly
23 would make such entry more difficult, which is exactly
24 the opposite of what we want to do.

25 And, of course, all of this is before we

1 consider capacity constraints, because obviously, under
2 congested conditions, efficiency is going to require
3 charging positive prices, and some of these pricing
4 arrangements might also be considered non-neutral, or
5 discriminatory, from a regulatory perspective.

6 Now, what if there is insufficient competition?

7 In my view, at the present time, even with a relatively
8 small number of competitors, there is pretty intense
9 competition for customers. And the recent FCC data
10 indicates that, actually, that competition is growing
11 pretty rapidly. With the most recent report, all of a
12 sudden, you know, 11 million mobile broadband wireless
13 subscribers.

14 But even if broadband was a monopoly, the case
1 a monoprs.

1 rent theorem, which claims that, "Even a monopolist has
2 incentives" -- this is a direct quote -- "to provide
3 access to its platform when it is efficient to do so, and
4 deny such access only when access is inefficient." So,
5 it's not, in a monopolist sense, just in general, to try
6 to monopolize an adjacent market and exclude competitors'
7 applications.

8 So, but what about the exceptions, which were
9 more persuasive to the authors of the article than they
10 were to me? Well, the one that seems to me to be most
11 relevant is the one where, you know, you have a
12 competitor in the adjacent market, which can threaten the
13 primary monopoly. You know, this is what the Microsoft
14 case was all about. A court found that Microsoft had
15 undermined the Netscape browser, because of concerns that
16 it threatened Microsoft's position in the operating
17 system market.

18 And similarly, net neutrality proponents
19 sometimes argue that broadband providers that are
20 dominant in video or voice markets might discriminate
21 against independent video or Voice over IP, which
22 obviously could potentially occur, but it seems very
23 unlikely that this is going to occur when there is at
24 least some competition in the market. It is hard to
25 envision the Microsoft campaign against Netscape, if

1 there had been even one significant operating system
2 competitor.

1 First, there is intense competition in local
2 markets, even sometimes when there are only two
3 providers. And the competition is growing. So, a
4 provider who denies access to content or applications
5 that consumers find valuable is going to reduce the
6 demand for its services.

7 And moreover, the market for content is not the
8 local market, it is really a national, or even
9 international market. And so, it's very difficult to
10 envision a case where an innovator will not be able to
11 find some outlet for an innovation that truly is
12 worthwhile.

13 And finally, of course -- which has not really
14 been mentioned much -- there is the well-known
15 distortions associated with common carrier regulation,
16 which is what net neutrality really is. And so, it's
17 really, in my view, much better to apply some sort of a
18 case-by-case approach for alleged abuses to attempt to
19 sort those out that are really anti-competitive. Thanks.

20 MR. SALINGER: Thank you very much. Our final
21 speaker today literally wrote the book on regulation --
22 or at least the book on regulation that many of us had to
23 read when we were economics students.

24 MR. KAHN: A long time ago.

25 (Laughter.)

1 MR. SALINGER: He had a distinguished career as
2 a regulator, having chaired the New York Public Service
3 Commission, and he had the ultimate regulatory task of
4 being the chairman of President Carter's Council on Wage
5 and Price Stability. But he is perhaps best known as a
6 deregulator for his stint of having been chairman of the
7 Aeronautics Board, overseeing airline deregulation. He
8 is professor -- I assume emeritus -- at Cornell.

1 neutrality.

2 I certainly begin with a very strong
3 presumption in favor of the deregulation by pointing out,
4 first of all, that I am the only person in the room, I am
5 certain, who ever took a course with Joseph Schumpeter.

6 (Laughter.)

7 MR. KAHN: How is that for a qualification?
8 And particularly, in the circumstances that Schumpeter
9 envisioned, in which no one could deny we have the most
10 extreme example of competition by innovation, of the
11 wisdom of being very careful of interfering with those
12 incentives.

13 Now, I know that every liberal reform in the
14 last -- every reform that has ever been proposed met the
15 objection that it would interfere with investment
16 incentives. But I think also that it's clear that in
17 this particular industry, this dynamic kind of
18 competition is certainly as close to unique as any could
19 be.

20 And so, I think the lesson of history is be
21 very, very careful that you don't meddle with a process
22 that is clearly characterized by Schumpeterian
23 competition.

24 The -- now, of course, there is no certainty
25 among economists about the sufficiency of competition

1 under duopoly. By the same token, it is possible to
2 observe the presence of competition, and the progress of
3 competition. And I testified for Tellus in Canada, that
4 said, "Well, we will talk about deregulation only where
5 we see competition," and particularly facilities-based
6 competition, because facilities-based means low marginal
7 costs, sunk investments.

8 And therefore, competition, once begun, is not
9 going to be quickly abandoned, particularly when one
10 entrant has a very small part of the market, and has the
11 facilities in place. And in those areas in which the
12 facilities can be reached, and where we have competitive
13 behavior, there above else, the wisdom, I think, of
14 experience is to wait and see what kinds of problems
15 emerge.

16 Now, the only case I know that has been cited
17 as an argument for some sort of regulatory intervention
18 is the one -- the Madison River case. And a more obvious
19 case of an abuse of a vertical position I cannot imagine.
20 And of course, it was properly treated, pre-emptorally,
21 both in the United States and Canada. That does not get
22 to the sufficiency of the competition in other
23 situations. And the question is the definition of
24 exclusionary tactics. But this, the one that everybody
25 cites, is the most obvious case for which there is a most

1 obvious answer, I think.

2 A second observation I want to make is that, so
3 far, in my reading of the literature on network
4 neutrality, I don't see any perception of the meaning of
5 discrimination. Now, the question of what is
6 discrimination or what is not discrimination, it would --
7 and the opposition to tiering, which seems to be at the
8 heart of the proposal, never -- I never see anybody
9 answer the question whether tiering is discriminatory.

10 I would have thought that we know that certain
11 uses require much more instantaneous connection --
12 forgive my using old descriptions -- than voice, VoIP.
13 We know that that is particularly demanding, just as --
14 God, I hate to go to say something, and now I can't
15 remember what I was going to say -- but the -- I don't
16 see that there is any -- anyone has confronted the
17 question of whether their charging for this preferential
18 delivery is really discriminatory, or whether it does not
19 involve either short-term opportunity costs -- they are
19

1 I mean, take the wonderful case of remote
2 medical analysis, prescription and, indeed, treatment.
3 Well, if it has opportunity costs in the short run, then
4 it's not discriminatory to charge more for it. And if it
5 has long-term costs, in terms of necessitating more
6 investment in broadband, just as, let's say, video
7 competition by telephone companies with cable companies
8 requires more broadband, then again, it's not
9 discriminatory if it has higher short-term opportunity
10 costs and long-term investment costs.

11 Now, the one aspect of the network neutrality
12 case that does seem to be demanding of attention is the
13 one that you have described as the terminating access
14 problem. I had certainly, until fairly recently, thought
15 that the presence of competition among originators'
16 access to the Internet would be sufficient to protect a
17 Google in the issuance of access to ultimate customers.

18 And it was only in time that I became aware
19 that while I saw every reason to charge originators of
20 content, in contrast with some consumer advocates who
21 shall be nameless, who say, "No, all the payments should
22 be made by the ultimate subscribers," well, the analogy
23 to me -- and that's the only way I can think, with
24 analogies -- would be to newspapers.

25 Would you say that newspapers should be

1 prohibited from charging advertisers, and should get
2 their money entirely from the people who buy the
3 newspapers? Well, there is the two-sided market, and it
4 is obviously absurd to say that.

5 Well, the same thing is true of Google, the
6 originators of content, who want access to the public,
7 for purposes of advertising. So again, it is absurd to
8 say charge only you and me, who are the subscribers to
9 DSL or cable modem service. So the two-sided charging is
10 necessary.

11 Now, that does -- I thought that the presence
12 of competition at the originating level would be
13 sufficient to protect content suppliers in the continued

1 Internet, that was sufficient to give it the access to
2 the market that it required.

3 Fortunately, I have a grandson-in-law who
4 understands that much better than me, and finally said,
5 "No, you have to have some sort of what they call peering
6 agreement, which is that the -- in order for Google to
7 have access to all possible users of its services, even
8 if it originates with one, that does not assure -- if it
9 originates with AT&T, that does not ensure that it gets
10 carried by Comcast, and reverse.

11 And the light came on over my head, and I said,
12 "Well, what you're really talking about is mandatory
13 interconnection." And that, I gather, the word is
14 "peering." I thought peering was secretly looking in
15 places.

16 (Laughter.)

17 MR. KAHN: And so, I see -- again, I think
18 partly influenced by Joe -- that mandatory
19 interconnection seems to be the necessary element to give
20 Google the protection of competition that it requires,
21 and give it the access to the market that, in some sense,
22 it deserves, and avoid being held up at the terminating
23 end.

24 And, of course, that fits with my basic
25 argument, that anti-trust can and must be sufficient to

1 handle -- and, remember, mandatory interconnection is an
2 old anti-trust doctrine.

3 And so, as far as I can see, anti-trust -- I
4 hate to take responsibility away from a regulatory
5 agency, just as I don't like the Trinko decision, which
6 leaves entirely with the ex-post approach, and so I see
7 the intervention of the CRTC in the Madison River kind of
8 thing and the FCC as very important, because it can be
9 done expeditiously.

10 And finally, of course, if you read the latest
11 article of mine, you will see a repetition of my ancient
12 argument in a book I published with Joel Kerlin 53 years
13 ago, called "Fair Competition: The Law and Economics of
14 Anti-Trust Policy," that fairness of equality of
15 competitive opportunity is the most important aspect of
16 anti-trust, and clearly has to be applied in this kind of
17 situation in the most pre-emptory way possible.

18 And that, of course, means applying the
19 component pricing, which I call the principle of
20 competitive parity in the cases of people competing with
21 a vertically integrated firm of which they are also
22 dependent.

23 And beyond that, I would say, for God's sake,
24 don't tinker. We are moving into an age in which
25 liberalism is becoming converted into what people call

1 is charging us a lot, because we are successful, and
2 that, in the long run, is going to weaken our incentives
3 to innovate and be successful," I don't think you would
4 get past summary judgment. I think the opposing lawyers
5 would say, "Trinko, we don't have to deal with you at
6 all, and so go away."

7 So, if there are doctrines of fair competition
8 -- and maybe this is an FTC thing more than it's a
9 Justice Department thing -- maybe section five of the FTC
10 Act could and would step in here, I'm not enough of a
11 lawyer to know. But I think Sherman Act, and other kind
12 of primary anti-trust statutes are not going to do much.

13 I think, Fred, you said Madison River was clear
14 cut, but you also said ECPR, so I am wondering if Madison
15 River had said, "Yes, you can use Vonage, but you have to
16 pay us our quasi-profit for each minute of use of voice
17 telephony that you don't use because you're using
18 Vonage," would that have been okay, or not okay, in your
19 thinking?

20 MR. KAHN: It sounds to me as though it would
21 not be okay. And I know that the Vonage decision, the
22 intervention by the FCC, didn't handle the terminating
23 monopoly question.

24 But what I need persuasion, in full recognition
25 of the dangers of regulatory meddling in this situation,

1 whether the imposition of a requirement of
2 interconnection, in effect, would not suffice to handle
3 the danger of exploitation of the -- at the terminating
4 end. But, of course, that's on the assumption that the
5 competition at the initiating end is sufficient.

6 And I certainly cannot contend that I assure
7 you that the competition is sufficient. But it's a kind
8 of a -- such a dynamic situation, that I think the costs
9 of trying to impose regulations at that level, I mean, I
10 don't think -- here is an area in which I am totally
11 unqualified, so let me qualify what I am saying.

12 But if it's true that within a very short time
13 we are going to see the probability of broadband over
14 power lines, and we already have hundreds of cities that
15 have hot spots, Wi-Fi hot spots, and Sprint Nextel is
16 talking about spending -- in conjunction with -- spending
17 several billion, \$3 billion over the next 10 years --

18 MR. FARRELL: Intel.

19 MR. KAHN: And extending a nationwide WiMAX
20 facility, I mean, for Christ's sake, keep out of the --
21 expropriate them later, if you will, but don't do it in
22 advance.

23 MR. SALINGER: Greg, you said something about
24 making sure we enforce the anti-trust laws correctly.
25 What is essential that we need to take the hands off now

1 and rely on anti-trust later?

2 MR. ROSSTON: Well, this -- actually, what I
3 said was -- "Make sure we enforce the anti-trust laws,"
4 was in response to making sure we get entry in wireless,
5 and it's not that new companies -- that we have multiple
6 companies providing wireless access. It's not that we
7 have the same companies providing both wired and wireless
8 access. So that was what I was saying, was making sure
9 we get additional competition at the last mile level.
10 That was the point about anti-trust laws being enforced
11 correctly that I was trying to make.

12 MR. SALINGER: Tom, Simon talked about the
13 Australian experience with cable. Why -- how can we be
14 so sure that we are not going to have similar problems
15 with the Internet?

16 MR. LENARD: Well, I guess what strikes me
17 again about this is that we -- you know, we're talking
18 about kind of -- we're talking about hypothetical
19 problems, or things that may have happened, you know,
20 elsewhere. But we're not -- nobody here has really
21 mentioned any problems here, other than hypothetical
22 problems, things that could happen, you know. There is -
23 - they are theoretically possible, that they might
24 happen.

25 But to -- it seems to me to, you know, to -- in

1 the real world of the way regulatory agencies work, with
2 all the pressures on them, all the imperfections in them,
3 to start to institute a regulatory regime that nobody
4 really has a very good idea of how it would actually
5 work, to solve a -- problems that are hypothetical just
6 -- it seems to me to be just -- I mean, I just don't see
7 any way that that could turn out, you know, happily.

8 MR. SALINGER: Now, I realize --

9 MR. FARRELL: I'm sorry, can I --

10 MR. SALINGER: Yes.

11 MR. FARRELL: I think the "wait and see"
12 approach is likely to be a good approach if conditional
13 waiting and seeing actual problems, we are prepared in

1 MR. FARRELL: I don't think people have been
2 talking about it, because I think people have been
3 saying, "Let's wait and let anti-trust do it."

4 MR. ROSSTON: I can sort of give a little bit
5 more about -- you know, cable television started out by
6 investing in programmers, and having this because they
7 wanted to get content on the cable systems. And that was
8 one way of sort of -- vertical relationships between the
9 cable programmers and the stuff that rode along.

10 Now, we have a very different situation in
11 cable, and one of the things you may be -- some people
12 may be concerned or not about something like the NFL
13 Sunday Ticket, which is an exclusive deal with one
14 provider of broadband services, and it may be the case
15 that you think, "Okay, well, NFL decided that this is
16 what they wanted to do."

17 It could be that, in other cases, that you
18 might have somebody -- if AT&T or Comcast says, "No, you
19 can only be exclusive on us," and -- so if you were
20 concerned about these vertical relationships, these are
21 some examples that may come up that people might be
22 concerned with about how vertical relationships might
23 work.

24 Sort of conversely, you think about the AT&T
25 case, and what happened in the AT&T case. It was about

1 know, on the landing end.

2 But to go back to Joe's point about
3 expropriation, we also have evidence right in front of us
4 today, which I am going to do -- here is my cheap stunt
5 -- if I go into the streaming video business, and want
6 to, you know, show goofy videos to people online, if they
7 want to access them with this device, it's perfectly
8 fine. Why? Because of the legacy Title II regulation,
9 much of which shouldn't be swept away.

10 If I want consumers to be able to access this
11 content with this device, which is under a different
12 regulatory framework, then the carriers in the U.S.
13 demand 50 percent of my revenue, in order to get on to
14 the device.

15 So, suppose I invent a product with a 40
16 percent profit margin that creates huge benefits to
17 consumers, it's not going to be delivered to this device
18 in the equilibrium in the United States at the moment.

19 If we go to Korea -- I just had an
20 international conference of regulators at my center -- in
21 Korea, the number is 20 percent. In Japan, the number is
22 11 percent. Now, this is actually where I agree. I even
23 say, "Is there a cause for regulatory action and
24 intervention? Should we start regulating content on
25 these devices?" I would say no.

1 Actually, the problem is the lack of spectrum.
2 This is an identifiable problem. It impedes innovation.
3 And we know it, just by looking at the difference in the
4 video content available for this, versus the video
5 content available for this. So it is a real problem.
6 Don't deny that it's just hypothetical, but I don't think
7 it actually requires regulatory action. So in that
8 sense, I'm right with -- I agree with Fred.

9 MR. SALINGER: We have a question from the
10 audience.

11 MR. WILKIE: And Greg --

12 MR. SALINGER: Fred, you said that, really, all
13 we need to do is mandate interconnection. But that begs
14 the question, interconnection at what price? If we
15 mandate interconnection, are we necessarily going to get
16 into messy price regulation?

17 MR. KAHN: I don't know the answer, but under
18 the peering arrangement, how -- do you know how the
19 pricing -- the charging by the connecting carrier is
20 arranged, or is it simply this kind of bill-and-keep?

21 MR. WILKIE: It's bill-and-keep at the tier one
22 level. The big eight guys do bill-and-keep.

23 MR. LENARD: But they agree to it themselves.
24 That's not mandated.

25 MR. WILKIE: It's not regulated, correct.

1 MR. KAHN: It's not regulated, yes.

2 MR. WILKIE: Right.

3 MR. SALINGER: So, this is a question for
4 anyone. Do lock-in or substitutability matter? Is it
5 better to reduce lock-in, or increase substitutability
6 through government action, rather than to regulate
7 behavior?

8 I mean, Greg, you were talking about
9 encouraging entry.

10 MR. ROSSTON: Right.

11 MR. SALINGER: Maybe I will start with you on
12 that.

13 MR. ROSSTON: I mean, you know, there -- when
14 this debate first started as open access in this debate,
15 I think, you know, actually, the debate started in 1887
16 with the ICC Act. But in this current incarnation,
17 people talked a lot about, "Well, you're locked into your
18 cable carrier, your DSL provider." I don't think the
19 lock-in effects are that high. I have switched between
20 cable and DSL, and I think a lot of people have switched.
21 So lock-in doesn't seem like it's a big problem right
22 now.

23 If it became -- you know, the bigger problem
24 was e-mail addresses, and it seems like Google has solved
25 that for a lot of people. They're not locked into their

1 ISP e-mail. So lock-in doesn't seem like it's a big
2 problem, and it should be a big issue in this debate.

3 MR. SALINGER: Anyone else want to pick up on
4 that?

5 MR. ROSSTON: Joe is tempted.

6 MR. SALINGER: Okay. Another question from the
7 audience.

8 No current wireless provider, including Q
9 Satellite Network, offers Internet connectivity. So, is
10 that --

11 MR. FARRELL: I don't know that that's
12 factually accurate.

13 AUDIENCE PARTICIPANT: Just read the card,
14 please.

15 (Laughter.)

16 MR. SALINGER: Okay, okay. I will read the
17 card.

18 AUDIENCE PARTICIPANT: Try not to edit.

19 MR. SALINGER: They all restrict traffic types
20 that are allowed. How do we get true high-speed Internet
21 connections, when last mile providers restrict both in
22 wired and wireless markets? Terms of service for most
23 wired last mile providers restrict port access, just like
24 wireless now.

25 I don't think that was a question, so I think

1 of the openness and opportunity model, which one can, to
2 some extent, contrast against the control and incentives
3 model.

4 So, on the Internet, there has been a vast
5 amount of innovation that an economist would look at
6 what's going on and say, "Those people have very little
7 incentive to write for Wikipedia, or to set up an
8 interesting blog," and yet they're doing it.

9 And I think one of the lessons of the Internet
10 has been, hey, a lot of people actually enjoy creativity,
11 and although, as an economist, I certainly agree that
12 there are kinds of innovation for which you really do
13 need to make sure that the financial incentives are
14 there, I also think it's important to remember that
15 openness to many, many millions of people doing little
16 stuff is quite important.

17 Now, I think the question on the card was, to
18 some extent, about whether price discrimination creates
19 an incentive to wantonly -- or at least irresponsibly --
20 not invest in the low-level capacity, so as to be able to
21 charge extra for the higher-level capacity.

22 There are two conflicting economic forces here.
23 On the one hand, you want the product to be good for
24 everybody, so that you can charge everybody a lot. On
25 the other hand, when you're doing what I would call price

1 discrimination -- I know Greg Sidak, this morning,
2 claimed that it wasn't, but I think that's an
3 unproductive debate -- when you want to charge
4 differently for different qualities of service in a way
5 that isn't simply charging for the increased marginal
6 cost, there often can be an incentive deliberately, to
7 degrade the low quality service.

8 The industrial organization book by Tirole, I
9 think, quotes the classic example of the French railroads
10 that spent money to rip the roofs off some railroad cars,
11 so that they could sell really unpleasant service to poor
12 people. So, yes, there is a possibility of that. It is
13 part of the conflicting forces. And we don't necessarily
14 know which direction it goes.

15 MR. SALINGER: Someone else want to pick up on
16 that?

17 MR. LENARD: You weren't suggesting that the
18 networks are going to get built by volunteers, earlier?

19 MR. FARRELL: No, no. I am saying both matter.

20 MR. SALINGER: If we take a "wait and see"
21 approach, how are -- given that the technology is

1 suppose you could do an investigation and find some
2 smoking documents, or something. But I think, in
3 general, it would be very difficult to know. Yes.

4 MR. WILKIE: I mean, I am -- I think it would
5 be very difficult to know, other than doing, you know,
6 some investigation. And, really, it's a question for the

1 can't have different versions?" I think that -- you
2 know, the idea of saying you can't charge for higher
3 speed access would probably be substantially worse than
4 this worry about the lower end.

5 Again, this degrading the lower end becomes
6 less of a problem, the more competition you have for
7 access. And --

8 MR. FARRELL: Yes.

9 MR. ROSSTON: And I think that's the key to
10 this question, is thinking about that issue.

11 MR. FARRELL: Yes. I think some of the issues
12 we have been discussing, I am not convinced that moderate
13 access competition of the kind we have or are likely to
14 get is going to solve it. But on that one, I suspect it
15 would.

16 MR. KAHN: Simon?

17 MR. WILKIE: Mm-hmm?

18 MR. KAHN: You made this contrast between the
19 share that you have to contribute for access of these
20 several countries. Is that simply a description of the
21 inadequacy of competition in the United States in that
22 case? Why is it --

23 MR. WILKIE: That's a really good question. I
24 couldn't get a good answer when we were asking people,
25 because you sort of have the same market structure,

1 right? You have different countries with similar numbers
2 of players, and the prices, you know, the rent extraction
3 factor, if you will, varies from 50 to 0.

4 I think the low numbers in Asia have more to do
5 with the sort of, you know, tacit bullying nature of the
6 government, rather than it being a different equilibrium.
7 That's the best I can come up with, because this -- the
8 only difference is also they have more spectrum.

9 So, interestingly I guess, Deutsche Telecom --
10 T-Mobile in Europe is moving towards an open access, or
11 essentially zero termination model. So it might be that
12 they have sufficient spectrum for somebody to break the
13 equilibrium there. That's my conjecture, but it's just a
14 conjecture.

MR. SALINGER: Another question from the

1 the question, and maybe it's worth clarifying.

2 I think Fred was addressing why not have
community ownership of one network, one access provider,

1 MR. LENARD: The -- you know, the fact is that
2 the studies that have been done -- I think pretty much
3 without exception -- of these publicly-owned,
4 municipally-owned telecom networks show that they are
5 really a terrible deal for the taxpayers who are forced
6 to support them.

7 They go in, typically, you know, with the
8 rationale that, you know, these services are not being
9 provided by the private sector, they are not -- and
10 that's generally not true, which -- there usually is,
11 typically is, both a telecom company and a cable company.

12 And when you're talking about, you know, the
13 fiber -- the ones that are laying a lot of fiber, which
14 is very expensive, I think really, without exception,
15 they just lose lots and lots of money, which the
16 taxpayers or the electricity rate payers -- because
17 sometimes these are connected with electric systems --
18 essentially pay. You know, and citizens are essentially
19 forced to be involuntary shareholders in a bad business.

20 Now, the wireless ones, I think, are -- in a
21 sense, are too new. But I don't think any of them have
22 been successful, except in very small -- you know, very
23 small areas.

24 MR. ROSSTON: On the wireless one, you know,
25 it's -- one of the problems is these cities turn around

1 and act like monopolists again. San Francisco is
2 essentially saying, "We are going to allow one Wi-Fi
3 service to be covering the city. We're going to lease
4 our lights, poles, and conduits to one provider, and
5 we're going to do a deal, and that deal is going to have
6 all sorts of sweet deals for City Hall, and other things
7 like that." It's a really bad idea. It's not serving
8 the citizens, it's serving the elected officials.

9 What they should do is say, "We like the idea
10 of people providing networks using the city's facilities,
11 but we will allow anybody to use the city facilities, and
12 have more competition." I also -- you know, if this --
13 if cities do want to put in their own systems, I think --
14 you know, I think it should be allowed. I am glad I'm
15 not in a city -- that I am paying taxes to a city that is
16 doing it, but I think, you know, for private companies to
17 object to a city coming in would be a really bad thing.

18 MR. SALINGER: You know, if we look at past
19 technologies where these issues have arisen between -- a
20 relationship between the city and government, the argument

1 With the Internet, it seems like there is ample
2 supply of content. So, what would be wrong with saying,
3 "You're either in delivery or you're in content, but
4 you're not in both?"

5 MR. FARRELL: I don't think that's a stupid
6 idea. I mean, going back to what I was saying a few
7 minutes ago, an access provider, a delivery provider,
8 does have additional incentives to innovate in content,
9 because they capture the complementarity revenues.

10 On the other hand, once you allow the access
11 provider to be vertically integrated into something that
12 almost, by definition, is going to be profitable at the
13 margin, you create incentives for them to either exclude
14 or charge -- in a way that's going to be very difficult
15 to keep, aside from expropriation -- rivals in that
16 business.

17 And so, I am actually -- I would say the
18 vertical separation model is worth exploring. Let me
19 step back. I mean, where are we on this?

20 I think this topic has been debated, Greg says,
21 since 1800-something. I'm aware of it since 2002, or
22 something.

23 (Laughter.)

24 MR. ROSSTON: That's the advantage of gray
25 hair.

1 MR. FARRELL: Yes. I have to say I think the
2 quality of debate that I have seen has been abysmal, and
3 I hope that we can start to debate things at a somewhat
4 higher level. And it seems like we have lost five years,
5 or something, in not doing that.

6 So, vertical separation, I think, could be part
7 of the discussion, as could some of these other things.
8 And I think we should get going on a high-level attempt
9 to debate this, and get away from the, "Oh, it's
10 terrible; oh, there is no possible problem" level of
11 debate.

12 MR. SALINGER: I have a feeling that you're not
13 going to be a fan of vertical separation --

14 MR. LENARD: I hate to always be disagreeing,
15 but the --

16 MR. SALINGER: Well, that's why we chose you on
17 the panel.

18 MR. LENARD: Right. I mean, first -- let me go
19 back -- well, first of all, I don't think there is -- you
know, theTdl-el t'ua-- y-10

goiit, especiof yng, or somethll, thatso importan gesIoeba

1 pretty young industry, and exactly what -- you know, to
2 freeze -- you know, and a very complicated and fast-
3 moving technology -- and to freeze a particular structure
4 in place now just seems to me to be, you know, when you
5 don't know what the thing would look like in five years,
6 just seems to me to be extremely risky, I mean, just --

7 MR. KAHN: I certainly agree with Tom, partly
8 out of ignorance. But I think of the times when we had
9 the rules, the financial interest and syndication rules
10 prohibiting broadcasters from having interest in the
11 programming, the trend has been away from that,
12 particularly in the situation of innovation, that to have
13 vertical separation at this time, I -- Joe may want to
14 respond to it, but I would be opposed to freezing this
15 structure.

16 MR. ROSSTON: There may be efficiencies. You
17 know, there are lots of efficiencies from vertical
18 integration that could arise that -- when you say ample
19 supply of content on the Internet, it's true, there is a
20 lot of stuff out there. But it may not be the right
21 stuff that people want to use that, for example, may
22 cause people to increase their demand for broadband, even
23 though it may be a zero profit on the content side.

24 So, there are all sorts of relationships that
25 can improve efficiency by having vertical relationships.

1 And so, I think ruling it out is probably a bad idea.
2 There is -- you know, there are the fears of these ideas
3 of, you know, of expropriation or other things that may
4 come about, but -- and you should worry about those --
5 but I think ruling out vertical integration is probably a
6 bad idea, at this point in time.

7 MR. SALINGER: Joe, what would raise the level

7

7

1 not the only thing that's important for innovation.

2 And as Fred was saying, there has been a trend
3 away from vertical separation, and I think that's largely
4 been driven by increased attention to these incentive
5 issues. And I think we want to be very careful not to
6 throw the baby out with the bath water, and lose track of
7 the fact that, although incentives are very important,
8 they are not the only thing that is very important here.

9 MR. ROSSTON: Fame is an incentive.

10 MR. KAHN: I got confused about who was the
11 baby, and who was the bath water.

12 (Laughter.)

13 MR. LENARD: Let me ask a question. Joe, would
14 it be a bad thing if a network operator wanted to start a
15 search engine?

16 MR. FARRELL: Wanted to start surcharging for
17 what?

18 MR. LENARD: Search engine.

19 MR. FARRELL: Oh, a search engine. Well, I
20 think if -- let me deal with the easy case, first.

21 I think if the network operator wanted to start
22 a search engine, and not accompany that by either
23 blocking access to Google, or saying to Google, "We now
24 have a private opportunity cost, also known as a lost
25 profits component of private cost of dealing with you, we

1 are going to charge you some allegedly ECPR-like amount
2 of money."

3 If neither of those things happen, and they
4 just started a search engine, I think that would be fine.
5 If they did one of those things, that would not
6 necessarily be bad. What that would do was that would
7 enable them to set a pricing structure in which, at some
8 level, whether by money or ads or something, they were
9 charging for the use of the search engine. That would be
10 enabling them to do a more complicated price structure
11 than they would have, otherwise.

12 And that could help with the second-best
13 pricing problem. It would move us further away from
14 first-best pricing, and it would also raise, I think, a
15 variety of concerns that wouldn't necessarily be a big
16 problem, but that might easily be a problem, having to do
17 with, well, what are they really doing to the incentives

1 you are.

2 MR. ROSSTON: I just -- you know, I think there
3 are -- you know, that my view of this is there are
4 concerns about what a firm, an ISP with market power, can
5 do.

6 The most important thing, I think, is that the
7 FCC should get more spectrum in the market place, to try
8 to ensure that there are multiple providers of high speed
9 Internet access to consumers, so that consumers have the
10 choice, and that that will help discipline a lot of the
11 problems that we have talked about today.

12 MR. SALINGER: Simon?

13 MR. WILKIE: Partially just to echo Greg's
14 comments, but also to add that I think that, you know, to
15 the extent that there is a real issue here, it's not so
16 much the discrimination issue that's been talked about,
17 in terms of speeds.

18 The tiering is a sensible market approach. But
19 the terminating monopoly problem, the problem of final
20 interconnection is real. And we have something already
21 in place that deals with it. So, just proceed with
22 prudence and caution.

23 MR. LENARD: Yes, I would kind of stress the
24 Schumpeterian aspect that Fred was talking about, and the
25 relative youth of this industry, that it is, you know,

1 it's a young, rapidly changing, dynamic industry. And
2 even if things are not, you know, perfect, it is hard to
3 believe -- it's hard to really see how an ex-ante
4 regulatory scheme would make it better.

5 MR. KAHN: Well, by chance, I have a close
6 analogy between my reference to immediate medical
7 diagnosis, access to records, diagnosis, and treatment
8 requiring this very high-speed access, and an old medical
9 proverb. Above all else, do no harm. And I think that
10 applies to premature efforts to jump in and regulate this
11 industry.

12 MR. SALINGER: Joe, you get the final word.

13 MR. FARRELL: Thank you. Well, I think I led
14 off by saying you might not be able to tell where I come
15 out. And, actually, probably five years ago now, Tom
16 Lenard organized a conference on this, where he said he
17 wanted to put together a balanced panel, and I offered to
18 be a balanced panel all by myself.

19 (Laughter.)

20 MR. FARRELL: I am very well aware of, I think,
21 most -- certainly a reasonably representative sample --
22 of the arguments on both sides. I am certainly well
23 alert to the dangers of regulation. I am well aware of
24 the importance of providing good incentives for network,
25 as well as content, investment, and innovation.

1 So, it's very easy to be the famous two-handed
2 economist. And I'm pretty good at that, actually.

3 I thought, however, it would be a little
4 irresponsible not to let you know what I would say if I
5 were woken up at 3:00 in the morning and asked to make an
6 immediate decision. And so that's what I would like to
7 leave you with.

8 Being aware, as I am, of all the -- or many --
9 good, sound, serious arguments on both sides, as a
10 consumer, I would regard it as very worrisome if I woke
11 up one morning and there was AT&T or Comcast plunging in
12 to the kind of integration and negotiations that we have
13 been talking about.

14 I have to disclose that that worry is, while
15 informed by my professional expertise, not implied by my
16 professional expertise. It's perfectly possible to be an
17 expert economist and not worry about that. But to be
18 honest, I worry about it. And so, I would like to feel
19 that there is some kind of protection against that kind
20 of thing happening, and against the Internet becoming
21 balkanized.

22 Whether or not that would be profitable,
23 whether or not it's a very likely concern, I would like
24 to feel protected against it.

25 MR. SALINGER: Well, thank you to the

1 is different from the title of the last panel, but
2 prioritization isn't all that different, conceptually,
3 from discrimination.

4 And I suspect that the talk is going to focus
5 on many of the same issues. We're going to try to be a
6 little bit more of sort of a technical bias, as opposed
7 to a policy bias, but we will see what emerges, and you
8 know, those of you who are Shakespeare fans know that
9 Richard III is playing a few blocks down the street, and
10 you know, if you run that two or three or four times, the
11 way we're running similar types of themes, there is
12 somewhat different variation in how it actually presents.
13 So, we are going to be going through, again, familiar
14 issues, but with a slightly different twist.

15 Each of the panelists is going to speak for
16 about 10 minutes with a kick-off set of comments. You
17 know, if they're a little bit long, I'm not going to give
18 them the cane. I will tell you, though, in all
19 seriousness, our order of presentations was chosen by
20 lot, and there is a story behind that, but I am not going
21 to share it right now.

22 First off will be Alan Davidson, who is
23 Washington policy counsel for Google, a company that I am
24 sure is known to all of you.

25 Those of you who are in the industry would know

1 Level 3, as well. But those of you who are not regulars
2 in the industry, our second speaker, John Ryan, is senior
3 vice president and assistant general counsel for Level 3.
4 And Level 3, for those who are not in this stuff day-to-
5 day -- well, anybody who is in it day-to-day would know
6 that Level 3 is one of the six tier one backbone
7 suppliers in the U.S., basically something that emerged
8 from the old Peter Kiewit Sons, way back when.

9 But it is mainly in the -- well, is it fair to
10 say, John -- the wholesale side of things?

11 MR. RYAN: Arguably, now in the retail side of
12 things, after the past year.

13 MR. BLUMENTHAL: In the retail, as well. Best
14 known, probably, though, as a backbone supplier.

15 Third speaker is going to be Walter McCormick,
16 who is the president and CEO of the United States Telecom
17 Association, which is a trade association representing --
18 well, the term that is used is the "converged
19 telecommunications industry." I think probably fair to
20 say that most often associated with kind of big telecom.
21 Fair to say? No?

22 MR. MCCORMICK: Well, our 800 small members
23 think that --

24 (Laughter.)

25 MR. MCCORMICK: We have 2 large members, AT&T

1 discussions, here in Washington. So we really appreciate
2 that.

3 I am Alan Davidson, I am senior policy counsel
4 with Google here in Washington. And I just really wanted
5 to quickly touch on three things that I wanted to cover
6 briefly: first of all, why we believe net neutrality is
7 so important for the health of a competitive Internet,
8 very briefly; secondly, the problems that -- and risks --
9 that we see with certain types of last mile router-based
10 prioritization, which I really think are the core of the
11 issue that we're here to discuss; and the third thing is
12 to just talk briefly about some of the myths that we see
13 surrounding prioritization and the net neutrality debate.

14 So, first, net neutrality is critical for the
15 health of a competitive Internet. I have heard a lot
16 about this already today. The Internet has created one
17 of the most innovative and competitive markets in
18 history. Services that we could never have imagined,
19 even a few years ago, now drive economic growth,
20 democratic discourse around the world, and the free
21 exchange of ideas.

22 And much has been said about this. Success has
23 many fathers. But I think many people acknowledge that
24 this innovation has been made possible by the
25 architecture of the Internet, the open architecture of

1 the Internet.

2 On the Internet, consumers choose what they're
3 going to see and do, what services they have access to,
4 what content they are going to access. There are no gate
5 keepers to tell them what they can see and do online.
6 And that principle was a conscious design choice made by
7 the founders of the Internet. It has enabled innovation
8 at all layers of the network, not just at the edge, but
9 in fact, in the network itself. And we value that
10 innovation.

11 It's that principle that actually enabled
12 companies like Google to rise. Google didn't exist eight
13 years ago. We're a second grader. And we now help
14 nearly 500 million people, users around the world every
15 month, find information and reach services online,
16 billions of searches done here in the United States
17 alone, each month.

18 As our founders have said, two graduate
19 students in a dorm room with a good idea would not have
20 been able to create this service if the first thing that
21 they had to do was to hire an army of lawyers and try to
22 reach carriage agreements with providers all around the
23 world.

24 And so, we are very eager to preserve the
25 innovation and openness of the Internet that has allowed

1 companies like Google to develop. I sense that there is
2 actually a lot of agreement around that idea.

3 You know, we are here because there has been a
4 change at that -- that puts that openness in jeopardy.
5 It's all the things that people have been talking about.
6 We will continue to explore the situation, in terms of
7 competitiveness in the last mile, the change in the long-
8 standing rules that have governed the openness of the on-
9 ramps in the Internet, and the stated intentions of some
10 of the last mile providers, in terms of what they hope to
11 do and achieve in this environment.

12 And because of that, we think it's very
13 important that we are having these discussions, and that
14 we have a dedication to try to preserve network
15 neutrality. And I think that's why we have seen such an
16 outpouring of small businesses, consumers, public
17 interest groups from the right, from the left, the
18 Christian Coalition, the AARP, Consumers Union, a million
19 Internet users who signed a petition last year in a "Save
20 the Internet" campaign to preserve the openness of the
21 Internet. So this is something that is obviously of
22 great concern -- and should be of great concern -- to
23 Internet users.

24 My second point is that prioritization in the
25 last mile creates real concerns. Particularly, we are

1 concerned that prioritization through router-based
2 discrimination in the last mile degrades computing
3 services, and creates incentives to relegate some of
4 those computing services to a slow lane.

5 So it's this very particular set of
6 prioritization approaches that we are concerned about.
7 Because in that -- what we're worried about is in that
8 context, the power to prioritize in the last mile
9 effectively becomes the power to control the applications
10 and content that customers can effectively use.

11 So, imagine, for example, that a last mile
12 provider with market power might be able to use
13 prioritization to, for example, relegate a competing
14 Voice over IP provider to a lower quality slow lane. It
15 might prevent a competing video provider -- prevent a
16 competing video service from accessing a higher tier of
17 priority necessary to provide good service, and
18 preference its own services instead.

19 Not all network management is anti-competitive
20 prioritization. And there are a lot of things I think
21 many of us agree that are not problematic in this
22 context. So, charging end users, whether it's businesses
23 or consumers, more for more bandwidth, not a problem
24 here.

25 Providing caching services, like Akamai does?

1 Not a great concern. Created dedicated IP TV channels
2 for television services? None of us have argued that
3 last mile providers shouldn't be able to do that. We
4 welcome that kind of competition for the existing cable
5 television networks. Stopping denial of service attacks?
6 Not a problem. We think those are all the kinds of
7 reasonable network management that should not be
8 precluded by network neutrality.

9 The problem is really with this very small set
10 of prioritization activities in the last mile. The ones
11 that give carriers the incentive to degrade competing
12 traffic, and pick winners and losers in the last mile.
13 So what we're worried about is, you know, prioritizing
14 some traffic at the router level in the last mile, at the
15 expense of other traffic. That's one thing that we're
16 worried about.

17 We're worried about blocking traffic in order
18 to preference other traffic. We're worried about
19 degrading traffic, the same way that Rogers Cable in
20 Canada degraded network video traffic there. We are
21 concerned about creating a fast lane tier of traffic that
22 is susceptible of exclusive dealings. So, things that
23 provide an incentive for there to be a slow lane.

24 And that's really, you know, I think the core
25 of the concern, is that the only way that you can have a

1 fast lane that you can charge for, that is useful, is if
2 there are also slow lanes that are less useful, and less
3 attractive.

4 And so, prioritization that provides an
5 incentive to create slow lanes so that you can charge
6 people for the fast lanes is something that we think is
7 problematic.

8 Some of the biggest impacts of that kind of
9 prioritization, probably the first and foremost is that
10 it puts new entrants at a major disadvantage, that only
11 those with the ability to pay will be able to benefit
12 from this prioritization. And so, we are quite concerned
13 that the next Google will have a very difficult time
14 being able to get access to these faster lanes.

15 And as I have said, that that could give a
16 great deal of control over the future services that
17 consumers have access to, to the last mile providers. I
18 would also note that it's not clear to us exactly how
19 this is going to work. You know, it's -- you can't
20 control priority, end to end, right?

21 So, last mile providers who want to give some
22 sort of priority service, you know, only have control
23 over their own network. It's not obvious to us how you
24 can offer this kind of end-to-end service. It's not
25 obvious to us how you identify the traffic in order to

1 segregate it, that you're going to give priority to. And
2 how do you do this segregation without degrading other
3 traffic?

4 Very quickly, a couple of the myths surrounding
5 prioritization. You know, in most cases, prioritization
6 is a solution in search of a problem. It's not clear
7 that there is a compelling need for last mile router-
8 based prioritization. Voice over IP is a great example.
9 There are in excess of 100 million happy Skype users who
10 are getting excellent voice service over the Internet
11 without a prioritization regime in place.

12 A lot of Voice over IP providers are providing
13 that service without -- over narrow band connections. So
14 this notion, for example, that we have already heard
15 mentioned a couple of times today, this notion that you
16 need prioritization to be able to make services like VoIP
17 work, is just simply not true.

18 In most cases, the best way to deal with any
19 concerns about prioritization is to provide better
20 broadband, higher bandwidth offerings to consumers. And
21 that's going to be the way to deal with prioritization.

22 You know, the other thing that we would note is
23 that prioritization is not needed to fund network roll-
24 out. Another argument that is made is, "Hey, if you
25 don't let people do prioritization, they are never going

1 to be able to fund all this investment in high bandwidth
2 networks."

3 And you know, there are billions of dollars
4 being spent by consumers and businesses to access the
5 Internet. There are billions more in special access fees
6 being shared by broadband providers. There are going to
7 be new IP TV offerings, there are going to be caching
8 services. All of those are excellent things, and should
9 be -- and we welcome the chance for broadband providers
10 to have these great incentives to invest.

11 It is simply this very small set of
12 prioritization activities that we worry about. And also
13 that are a tiny, tiny part of the full pie of income
14 that's going to pay for this broadband roll-out, we
15 really actually question how valuable these
16 prioritization services are going to be, ultimately, to
17 the providers.

18 And so, we think -- you know, I would just
19 summarize by saying, first of all, we welcome the FTC's
20 involvement here. There has been a number of ideas put
21 forward about the potential role of the FTC investigating
22 complaints, requiring disclosure -- which we think is a
23 very welcome idea, and won't be enough to protect
24 consumers, but is a very, very good starting place -- and
25 the kinds of approaches that have been put forward in the

1 -- for example, by the House Judiciary Committee, in
2 their bill last year. All of those are good places for
3 us to look, in terms of ways to deal with the real
4 concerns here.

5 There is a good deal of agreement about the
fact that more broj-8 is as9ild deoose are gos ed9 openild deoose44

1 to encourage the continued migration to broadband
2 services, and frankly, encourage and increase the speed
3 and the performance of the broadband services that are
4 delivered to subscribers.

5 Broadband, in the hands of consumers, is an
6 extremely powerful tool. Sometimes contains powers that
7 even the networks that deployed it didn't understand.
8 And I will demonstrate this by giving you an absurd, or
9 ridiculous, hypothetical.

10 Let's assume it is five years from now, and
11 broadband over power line has become perfected, and it's
12 being delivered in the market place. And let's assume,
13 at the same time, some innovative applications designer
14 figures out a way to create a marketplace for the
15 purchase of electricity so that you can buy electricity
16 from competing electrical providers over your BPL
17 connection.

18 Now, it doesn't take a Ph.D. in economics to
19 figure out that that's going to cause concern to the BPL
20 providers. They now have a potential conflict between
21 these two principles. If we permit blocking, or
22 degradation of those electrical purchase bits, the
23 subscriber's use of the Internet is potentially impacted.

24 On the other hand, if we prohibit blocking, the
25 companies with the ability to deploy broadband might not

1 do so, because they're going to cannibalize their core
2 revenue.

3 This absurd and ridiculous hypothetical already
4 happened. Companies in the late 1990s and at the turn of
5 the century were deploying broadband over DSL, only to
6 find out two years later, bingo, Vonage. And those same
7 companies that were deploying DSL suddenly realized
8 they're putting into the hands of their subscribers a
9 tool to make them irrelevant.

10 So, these are two very important objectives,
11 from a policy perspective. We need to keep our eye on
12 how to satisfy both of those objectives, as we look at
13 potential legal solutions, or policy solutions, to these
14 issues.

1 interconnection stinks. It may have gotten us where we
2 are on the public switch telephone network, but it is
3 horribly inefficient.

4 And if you look at the innovation that has been
5 done on the PSTN over the last 100 years -- namely, zero
6 -- you will realize that one of the reasons for that is
7 regulated PSTN interconnection. When you're sitting down
8 and talking to those folks, they do what's in the regs,
9 and that's it.

10 I have five full-time attorneys and a \$2
11 million outside counsel budget to handle PSTN
12 interconnection. I have half an attorney and zero
13 outside counsel budget to handle IP interconnection. So,
14 if you want to regulate IP interconnection, understand
15 the wet blanket that you're potentially throwing on what
16 appears to be working right now.

17 Now that we have covered some of the
18 background, I would like to discuss what prioritization
19 is happening. The OECD, I think, has a paper circulating
20 that actually has a very good discussion of packet
21 prioritization. I will borrow a little bit from that,
22 but I will tell you that I am going to correct a little
23 bit, in terms of erroneous terms that I see in the OECD
24 discussion.

25 They separate prioritization into three

1 different areas: what they call best efforts
2 prioritization; what they call needs-based
3 prioritization; and then, what they call active
4 prioritization, which I will call source, or type
5 prioritization. That's what Alan was referring to as the
6 third type of potential prioritization.

7 First, let me be clear. IP networks do
8 prioritize. They have, from the beginning of time. The
9 prioritization that they had in the network at its
10 inception was basically a first in line prioritization,
11 first in/first out. So it's prioritization based on
12 time, and time alone.

13 That appeals, I think, to our fundamental sense
14 of fairness as a society, although I now am a frequent
15 flyer, so I get to violate that. But it's like the cuts
16 in line that you see at the airport. Doesn't seem fair.
17 "Gee, that guy got to cut in line. Doesn't seem fair."
18 So this notion that first in/first out is the fairest,
19 and therefore, should be the mandated approach to
20 prioritization, we think is a little bit too broad.

21 The second is needs-based prioritization, and
22 this is happening in the network right now. Needs-based
23 prioritization is a situation where the customer or the
24 user of the network identifies the packets that require
25 delivery quickly. So there are certain time-sensitive

1 applications that are already running over the Internet.

2 Video over IP is one example, live streaming

Videomrny567aof andDfrens ednd d lkordelayike And they do priorit

1 prioritization matters, is in those last mile networks.

2 Well, what's the risk of -- let me back up. I
3 will say I am not willing to concede that all forms of
4 source or type prioritization are anti-competitive. And

1 I think it's only theory right now, as Alan indicated --
2 where first-in/first-out doesn't treat time-sensitive w1
3 packets sufficiently well, and could be viewed as anti-
4 competitive.

MR. BLUMENTHAL: Well, toi8h5.1 0 TD(4)Tj1 Cou. 0 alter?

w0

1 spending an hour in traffic; a world where, if your child
2 needs tutoring, or if you have a sick parent, they can
3 get the help that they need, help that is far more
4 sophisticated, in terms of the communications technology,
5 than a plain old telephone call.

6 We are confident that a broadband future means
7 a variety of consumer applications that have enormous
8 societal benefits. Broadband can make it possible. But
9 it will take policies that will encourage investment. It
10 will take policies that understand how the Internet
11 works, and reflect the importance of network management,
12 quality of service, and prioritization.

13 A better Internet doesn't simply come by adding
14 capacity. Like road networks, rail networks, electrical
15 networks, and traditional telephone networks, the
16 advanced networks that comprise the Internet cannot
17 function efficiently and cost-effectively without
18 management. No network has ever been built without
19 regard to prioritization of traffic, peak loads, and
20 capacity management.

21 Indeed, as John said, traffic is managed on the
22 Internet today. Network management reduces spam, it
23 controls viruses, it enables a host of privacy and
24 security measures which protect consumers. It allows us
25 to manage jitter and latency, making possible phone calls

1 over the Internet that we can actually understand. It
2 makes possible video streaming.

3 With regard to prioritization in particular, no
4 doubt that we can all agree that certain services are
5 objectively more important. A communication about your
6 health, for example, is clearly more important than how
7 quickly your kid can download a video featuring the
8 antics of someone's pet hamster.

9 Those who say outlaw prioritization, prohibit
10 discrimination among bits, require that all packets be
11 treated the same and travel at the same speed -- which is
12 exactly what legislation introduced on Capitol Hill right
13 now would require -- would prohibit a wide array of
14 practices that currently increase the value of the
15 Internet for consumers, and they ignore the need to
16 address the capacity issues that present real challenges,
17 going forward.

18 One recent report noted that if YouTube alone
19 goes high-def, that would double the capacity needs of
20 the entire Internet. The data involved in one hour of
21 video can equal the total in one year's worth of e-mails.

22 I am joined on the panel today by Alan. Alan's
23 company and the companies I represent, don't usually sing
24 Kumbaya in a circle. But this past week, Google's chief
25 of TV technology expressed concern that the capacity

1 being required by new Internet video services -- file
2 swapping and downloads -- may overwhelm existing Internet
3 offerings and degrade consumers' overall quality of
4 service.

5 MR. DAVIDSON: I actually don't think that's
6 what he said, so I look forward to having that
7 conversation in the Q&A, but I just want to set the
8 record straight.

9 MR. MCCORMICK: Okay, we can --

10 MR. DAVIDSON: That is really not what he said.

11 MR. MCCORMICK: Seems like the quotations
12 around his comments were taken out of context.

13 MR. DAVIDSON: I think they were.

14 MR. MCCORMICK: But these remarks, these
15 concerns about capacity are a welcome acknowledgment, if
16 so, if Google has any concerns about capacity. Concerns
17 about capacity, I think, are a welcome acknowledgment
18 that consumer interest in a better Internet cannot come
19 from policies that limit innovation to edge services.

20 We need investment in innovation, in
21 intelligence, in the network itself, and the freedom to
22 engage in network management.

23 So it's important that any national policy
24 regarding the Internet do some prioritization of its own,
25 focusing first and foremost on the consumer. Consumers

1 deserve to have a constantly improving Internet, which
2 requires investment and network management.

3 Consumers deserve to have an Internet where
4 they can access any lawful website, where their access is
5 not blocked, impaired, or degraded. Consumers should be
6 able to run any legal application. Consumers should be
7 able to attach any lawful device. As service providers,
8 we have made these commitments. Initially, we made them
9 because they represent good business practices.

10 But today, they carry with them an FCC mandate.
11 It is one that the Chairman of the FCC has made clear
12 that he has both the authority and the will to enforce.
13 Consumers can go anywhere they want on the Internet
14 today. They will continue to be able to do so tomorrow.
15 There is no problem that requires regulation.

16 And perhaps most importantly, the market is
17 competitive. Speaker after speaker after speaker today
18 has said that, "Where there is market power, where
19 consumers lack a choice, there may be a problem. If
20 there is market power or consumer's lack of choice." The
21 FTC is an agency of expertise. There is a rigor and a
22 dispassion and an intellectual discipline to the FTC's
23 approach to competition policy and antitrust analysis.
24 It is an analysis that examines trade practices without
25 regard to the technology in question, but rather, with

1 regard to the characteristics of the market and the
2 behavior in question.

3 So let's examine the market. First, is it
4 competitive? Do consumers have choices for last mile
5 access? They do. Today, there are more than 1,200
6 broadband service providers in our nation. You can
7 obtain high speed Internet access from your telecom
8 company, your cable company, your wireless company, your
9 satellite company, in coffee shops and on airports and on
10 college campuses, and in many municipalities, you can
11 access the Internet via Wi-Fi hot spots.

12 Electric utilities are beginning to invest in
13 delivering broadband over power line. In fact, analysts
14 expect 2.5 million Americans to get their high speed
15 Internet in this way within 4 years. That's a six-fold
16 increase.

17 So, second, do telecom companies have a
18 dominant share of the broadband market, the last mile
19 market? No, we do not. The latest FCC data shows that
20 DSL's market share is at about 36 percent. Cable's
21 market share is at about 44 percent. And we see a
22 rapidly growing other category of about 20 percent, led
23 by wireless broadband, that saw a 58 percent increase in
24 the first half of last year.

25 So, neither the entire DSL industry, nor the

1 entire cable industry, has a market share that rivals one
2 single company's control of the Internet search market.
3 Google is the gateway through which the vast majority of
4 Internet searches go today -- some estimate as high as 70
5 percent.

6 Third, do telecom companies have market power,
7 defined as the power to control price? Clearly not.
8 Broadband prices are coming down, with entry level
9 offerings as low as \$15 a month. Speeds are going up --
10 and these are signs of a healthy, competitive market.
11 And Google and others are readying plans to offer
12 broadband service themselves, for the eminently
13 attractive price of free.

14 Finally, is the market contestable?
15 Absolutely. With the availability of unlicensed
16 spectrum, the rising tide of municipal Wi-Fi, and rapidly
17 expanding BPL options, this market is open to anyone who
18 is willing to invest.

19 In fact, if you think of all the different
20 companies and all the markets that play a defining role
21 in the ability of a consumer to access and navigate the
22 Internet, the broadband access market is among the most
23 competitive pieces of the puzzle.

24 Just consider this. In order to access the
25 Internet, you need a computer with a chip. There are two

1 companies, Intel and AMD, who share a 60/40 split of the
2 chip market. That's two companies, not two industries.
3 You need an operating system. Microsoft and Apple are
4 your basic choices. You need a browser. Microsoft's
5 share of that is -- that market -- is 85 percent. And
6 Internet networks depend on routers to direct traffic.
7 You're back to two big players, Cisco or Juniper. And
8 finally, you need a search engine. Here, as I mentioned,
9 Google controls a share estimated by some to be as high
10 as 70 percent, and climbing. One company.

11 My whole industry has nowhere near the market
12 share in Internet access that Google has in Internet
13 search. So, from the standpoint of the FTC's
14 jurisdiction, there is competition. Consumers have
15 choices. There is no dominance in the last mile. The
16 market is contestable to anyone willing to invest, and
17 consumers are experiencing no problems.

18 Therefore, we say, "Why would anyone now start
19 asking for government regulation of the Internet?" Let
20 consumers continue to drive the market, and they will
21 reap the greatest benefits from the next generation of
22 broadband innovation. Bill, thanks.

23 MR. BLUMENTHAL: Walter, thank you. And Alan,
24 I know you're going to want to rejoin. But before we do
25 that, let me hear from our last two speakers.

1 MR. RYAN: And really, you have something to
2 say?

3 MR. BLUMENTHAL: Let me turn the floor over to
4 Professor Schwartz.

5 MR. SCHWARTZ: I will stand. It's the
6 professor in me. If I try to do something different, it
7 won't work.

8 So I was worried that you might dismiss my
9 remarks as being too hands off, but now I can be the more
10 reasonable man. So, thank you.

11 (Laughter.)

12 MR. SCHWARTZ: Let me agree with many of the
13 speakers today, who said we should try to get past the
14 labels and drill down into the issues. And exhibit one
15 here is the term "net neutrality." The traditional model
16 of the Internet, where traffic is treated uniformly or
17 first come first served priority-based, really is not
18 neutral, right? If different applications require
19 different network performance, then uniform treatment is
20 not neutral. Point one.

21 And so, the question is, what kind of
22 departures from that model are sensible? To date, the
23 debate in the U.S. has focused over what departures would
24 be allowed by residential broadband network providers --
25 access network providers, on the perception by some that

1 that's where there is a fair bit of market power, and
2 more so than in other segments. As you can see, that
3 claim is being contested, and I am sure we will have more
4 of it.

5 But I don't want to get into that question of
6 just how much market power there is there, because that's
7 the subject for tomorrow's panel. Let me just make one
8 remark on that, which is we are not in a monopoly model.
9 That's for sure. So, there are two strong platforms, DSL
10 and cable. And economics tells us that even a "duopoly"
11 can be quite different from a monopoly. Behavior in
12 duopoly can range from perfect collusion, on the one
13 hand, to quite competitive, on the other.

14 So, we're not -- you don't want to presume it's
15 a monopoly, firstly. And secondly, it's not a blockaded
16 duopoly. There are prospects for entry. How strong, I
17 don't know, but it's not blockaded. All right? Now,
18 let's keep that thought in mind as we move forward.

19 The -- so broadband providers seek discretion
20 to prioritize, they say, in order to get better network
21 performance -- prioritize and price, based on priority.
22 And in order to finance investments. Okay? Net
23 neutrality opponents say, "Well, wait a minute. You guys
24 have market power. If we give you unfettered discretion,
25 you can abuse this discretion." And what constitutes

1 abuse?

2 So, we agree you need some discretion to
3 control viruses, spam, et cetera, but we're worried that
4 if we leave it completely unfettered, you can abuse it.
5 And what's abuse? Well, largely, the concerns have been
6 about discriminatory treatment of content and
7 applications, as opposed to quality tiers for consumers.
8 So I'm going to focus on the content and application.

9 And to sharpen the analysis, I think it's
10 helpful to show two classes of concerns. One is
11 foreclosure, or leverage, that was discussed in the
12 previous panel. That is the broadband provider reduces
13 competition in adjacent markets for applications of
14 content -- I will say "applications" for short, from now
15 on -- by either giving preferential treatment to its own
16 affiliates, or to favored partners. Okay? So that's
17 foreclosure.

18 The second concern is what I am going to call
19 value-based pricing, that network owners are going to
20 tailor the pricing that they charge for transmission
21 services, access services, to how much the consumers or
22 the suppliers of the applications are willing to pay.
23 Okay?

24 And they can do that, according to net
25 neutrality proponents, by threatening that unless you

1 regulated monopoly era, where there are strong incentives
2 to foreclose, and those examples cannot be directly
3 transplanted into this setting. Okay? If we have time,
4 I can flesh that out.

5 The second point I would make is if foreclosure
6 does rise to the level of a serious competitive problem,
7 the right response is to address it at the time, on a
8 case-by-case basis -- at least that's my view. All
9 right.

10 Stricter remedies, like equal access rules or
11 prohibition against vertical integration as a pre-emptive
12 measure, are things we typically reserve only for a
13 regulated monopoly regime, as was done with AT&T,
14 historically, under the line of business restrictions.
15 Okay?

16 So, let me now turn to value-based pricing.
17 This concern can be quite independent of foreclosure. So
18 if the network operator simply says, "I am going to
19 charge all applications of voice X dollars for the right
20 to use the pipes, and I am going to charge video
21 providers Y dollars," okay, I am not going to say
22 foreclosing either voice or video, I am just "taxing"
23 their services.

24 All right. Now, let's subdivide that into two
25 pieces, this issue. The first is, should the broadband

1 provider be allowed to treat and price traffic
2 differently, depending on the underlying application?

3 The second question is, should the broadband
4 provider be allowed to "charge" applications provider, as
5 opposed to charging only his consumers? That's the two-
6 sided market question that we have heard of. All right.

7 So, let me take the first one, the differential
8 network treatment and pricing. Jon Peha, this morning,
9 gave, I thought, a very nuanced discussion of the issue,
10 which is, differential treatment can be good, can be bad.
11 It can be -- you can't easily pigeon-hole it.

12 The claim that maybe we don't need any
13 prioritization, let's just build bigger, dumb networks,
14 that may be true in a particular context. It may be true
15 that in the backbone today there is excess capacity. I
16 don't think you want to put it forth as a general design
17 principle. Economically, it doesn't make sense that the
18 solution is always to build more. That's going to
19 involve carrying a lot of excess capacity, which is going
20 to be expensive.

21 So, tools like prioritization are going to help
22 you reduce the amount of capacity. You don't have to
23 size it for maximum congestion, for maximum traffic use.
24 You, instead, cope with congestion to prioritization and
25 other tools, and in doing that, it makes sense to use the

1 Well, the problem with that, of course, is that
2 consumers may not require a uniformly higher quality for
3 all their applications. They may require and be willing
4 -- two minutes? Two Biblical minutes.

5 (Laughter.)

6 MR. SCHWARTZ: So, that's a problem with that.
7 Okay.

8 The unpaid application tiering, what's the
9 logic behind that? Logic behind that is let's allow the
10 network operator to prioritize, because then he will make
11 a judgement. If voice really needs it, let's prioritize
12 that ahead of other stuff. But we won't let him charge
13 for it, because if he has the ability to charge, he can
14 use the threat of withholding priority and degrading
15 quality as a vehicle to shake out payments from the
16 suppliers. Okay? So that's the idea.

17 The problem with this solution is who decides
18 which things deserve and which things don't deserve
19 priority? The consumers and the application suppliers,
20 really, are in the best position to decide that. And
21 that gets revealed by their willingness to pay for it.
22 Okay?

23 Moreover, the requirements for priority can
24 differ, even for a particular application across
25 different suppliers. If I am supplying an application

1 that's high quality, high price, and another guy is
2 supplying a low quality, low price version, I may be
3 willing to pay for priority, but the other guy may not.
4 Okay?

5 The push-back is using this as a price
6 discrimination device, which I have mentioned. All I am
7 going to say on that is, yes, price discrimination is not

1 however, I think it's productive if we separate
2 broadbands -- the other application services -- from the
3 Internet.

4 I only want to talk about the Internet. I get
5 it, the telcos need to recover on their investments.
6 They can do that. But just don't do it on the back of
7 the Internet.

8 So, the ERA membership started as a community
9 for those selling products on cable networks. Cable is
10 an example of a closed network. Carriage is not
11 guaranteed. Pricing is both arbitrary and
12 discriminatory, and businesses must negotiate with
13 regional cable providers throughout the country to reach
14 their consumer.

15 Now I am going to walk you through the steps of
16 what somebody has to go to to get carriage. Take a
17 company like QVC or HSM. What they must do to reach
18 their customer. Step one: they have to get carriage.
19 The negotiations begin with each regional cable network
20 provider, each with the power to decide if they will add
21 the live shopping channel to their programming mix.

22 If they're successful with step one, then they
23 move to step two, which is pricing. Pricing can be based
24 on the number of cable subscribers and/or percentage of
25 sales. In most cases, my members have to pay both. And

1 it doesn't stop there. The live shopping company must
2 then negotiate with the cable provider over channel
3 placement. The winners get placed next to premium
4 content, while the losers are regulated to outer space,
5 or the higher channels.

6 Often, these decisions are impacted by existing
7 deals other live shopping companies have already
8 negotiated. That is how a closed network works for
9 retailers. Carriage is not guaranteed, and companies can
10 be discriminated against by being placed in the slow
11 lane, or higher channels. These decisions determine if a
12 live shopping company can survive.

13 Within the last two years, we have seen two
14 large live shopping channels with revenues of over \$100
15 million cease operation, due to problems associated with
16 a closed network. This problem is not exclusive to live
17 shopping, however, as other small content providers
18 struggle with the same deal-makings.

19 The model is this. Large players, like ESPN,
20 are paid for their content, leaving smaller players to
21 foot the bill. And that's if they can get carriage at
22 all. We have all seen the commercials, "If you would
23 like a certain program, call your local cable provider."
24 Consumers are essentially told, "Here is the deal, here
25 are your 500 channels. We packaged it with what works

1 for us, and what makes us the most money." Hardly a
2 consumer-friendly environment.

3 I share this with you because the cable model
4 is an example of how a closed network prioritizes
5 content. It is solely based on the network provider's
6 ability to maximize its profits.

7 Contrast this closed cable system to what an e-
8 retailer experiences today on the open Internet. Today,
9 a retailer simply has one business relationship to gain
10 access to the world, as does the consumer. What more
11 needs to be said?

12 Under an open network scenario, the Internet
13 has thrived. Today, however, it is under attack by those
14 that are building broadband networks. They claim that
15 they need to recoup their costs. Although, I would argue
16 they have already been paid for their build-out through
17 public subsidies and incentive programs.

18 We do not disagree that they should be able to
19 sell additional broadband services, like video and phone.
20 It is important, however, to distinguish between these
21 applications and the Internet. The Internet is comprised
22 of interconnected networks that do not distinguish
23 service based on source or content.

24 As such, I want to be very clear. As we
25 discuss net neutrality today, I am not advocating for

1 regulation that represents a return to the old telecom
2 rules for provider's broadband offerings, as some might
3 suggest.

4 Rather, I am making the case that basic rules
5 are needed for the Internet, much like those recently
6 agreed to by AT&T, as it sealed the deal with BellSouth.
7 We applaud AT&T for taking this step, and helping to
8 define net neutrality. This position keeps the Internet
9 as open network, where my small retailers can continue to
10 provide consumers with the content the consumer wants.

11 Because in today's world, the consumer is in
12 charge. In fact, there is currently a revolt against
13 top-down, force fed content. So why would network
14 providers want to model their next generation Internet in
15 a similar fashion, as the closed cable model?

16 We often hear that someone has to pay for the
17 additional capacity providers are offering on the
18 Internet. Those in my industry have never asked for a
19 free ride, and, in fact, pay their own way. That's
20 right. They are already paying millions of dollars to
21 access the Internet.

22 However, they are now being asked to subsidize
23 the roll-out of broadband providers' triple-play: phone,
24 Internet, and television. All that we ask is that the
25 Internet portion of these offerings remain a viable

1 market place, where providers can recoup their -- viable
2 market place, with fair rules of the road. We believe
3 that providers can recoup their investment and create

1 like to see it, that we have sent to the Hill, in
2 response to the letter that our friends at USTA sent to
3 the Hill just, I guess, maybe yesterday.

4 You know, it would be better if, instead of
5 digging up random quotes from Google employees overseas,
6 we actually had a conversation about what, you know, we
7 really mean, which is that we really do believe that net
8 neutrality is an important issue, and we value the role
9 that broadband providers play, which is what our engineer
10 said. And I look forward to working with everybody to
11 have more broadband.

12 And I would just say, you know, I hope that we
13 can stick to a discussion about the problem that we're
14 here to talk about, which is the broadband market, and
15 not all the other markets that got mentioned, I think.
16 They are radically different markets, and we could talk
17 about why, but I think everybody understands that.

18 MR. BLUMENTHAL: Did any of the speakers want
19 to comment on Barbara Tulipane's comments? In
20 particular, the proposal to distinguish between broadband
21 and Internet services, and in particular, to recover
22 future investment from the broadband side, alone?

23 MR. RYAN: Well, I can -- let me make a couple
24 of observations. First, is I am not sure that there is
25 an accepted definition or understanding of what the

1 Internet is. I know that there is an accepted definition
2 of what broadband is, which is absurd, frankly.

3 But the notion that the Internet itself -- I
4 mean, I think there is this perception that the Internet
5 -- and partially, we're to blame for it, because our
6 engineers draw a cloud to represent the Internet. It's
7 not a cloud. It's a series of tubes.

8 (Laughter.)

9 MR. RYAN: But there are a series of, I would
10 say, blunt, not very sophisticated commercial
11 arrangements between network operators that form the
12 Internet.

13 Those agreements, which -- sometimes they're
14 referred to as peering agreements, sometimes they're
15 traffic exchange agreements, they have a variety of terms
16 -- they are not sophisticated, at all. And they,
17 frankly, need to be. And I think it is incumbent upon
18 the folks who operate the Internet to show that those
19 commercial arrangements can result in solutions to these
20 problems.

21 But I think there are opportunities to solve
22 this problem, in particular, prioritization of traffic
23 through those peering agreements. Because there is a
24 sense between the eight or so -- certainly between the
25 eight or so tier one networks, there is a sense, truly,

1 of mutually assured destruction. And that encourages
2 good behavior.

3 So, as those agreements mature, I think that
4 there is a possibility that these problems can be
5 addressed.

6 MR. MCCORMICK: I guess I would like to respond
7 to Barbara's comments, too. I mean, I understand the
8 concern. I mean, hearkening back to a day when the cable
9 industry had a monopoly, and video delivered by wire, a
10 day when the telephone industry had a monopoly and voice
11 telephone service delivered by any means, I understand
12 the concern.

13 And today, it's an entirely new world. I mean,
14 for example, over the air broadcasting you now get on
15 your cell phone. And those who are broadcasters are
16 concerned about is there going to be a new bottleneck?
17 The cable industry is delivering voice telephone service.
18 The telephone industry is beginning to deliver video.

19 We have come to the place where all of these
20 services are being delivered -- or will be delivered --
21 pursuant to a technology that is basically Internet
22 protocol technology.

23 So, when Jon says, "Well, what's the Internet?"
24 everything is going to be -- is moving towards sort of an
25 IP-based delivery mechanism, whether it's being delivered

1 wirelessly, whether it's being delivered by satellite,
2 whether it's being delivered by a cable wire, or whether
3 it's being delivered by a fiber or a twisted copper pair
4 by the telephone industry.

5 At the end of the day, I think that the basic
6 concern is the traditional antitrust concern. Is there
7 market power? Is there a market where the consumer
8 doesn't have choice? Is the market contestable? And
9 what we see in the Internet market is that technology has
10 brought us to the place where the market is competitive.

11 For those of you sitting right here in this
12 room, you can access the Internet by Wi-Fi -- because I
13 can tell that it's on in the room -- which then connects
14 to a landline, or you can access it pursuant to EVDO,
15 that's being offered by several different providers,
16 right here in this market, right in this room, right here
17 today, you can access the Internet in a variety of ways.
18 You have a variety of choices.

19 So, the traditional analysis of whether there
20 is market power, whether the market is contestable,
21 whether or not there is the power to control price, those
22 are the right analyses. And we support an analysis in
23 that regard. And if there is a problem, address it in
24 the traditional way that is done through trade regulation
25 by the FTC. But let's not engage in hypotheticals or

1 to be guaranteed a quality of service in the last mile
2 offering, and that the individual would like to be able
3 to offer it at a fairly low cost to the consumer, but the
4 only way to do that is to spread the cost into the
5 network, as opposed to doing the device as a last mile
6 device.

7 I think that it would make sense for a network
8 provider to be able to offer to such an entrepreneur the
9 ability to go into that kind of service. You know, when
10 you look at VoIP services, VoIP does require
11 prioritization.

12 I mean, here is a situation where there is an
13 independent examination by the Washington Examiner of
14 service that was offered by Vonage, and he didn't like
15 it. But now, Vonage is offering a device for \$199 that
16 you can add on to your Vonage service that makes sure
17 that when you're using VoIP services, it prioritizes the
18 packet, over others, coming from your computer network.

19 So, I mean, this is a last mile add-on, \$199.
20 Well, why do we necessarily have to charge the consumer
21 \$199 if we could offer to Vonage the ability to build
22 that into the network, as a network service?

23 So, again, I think that this kind of
24 flexibility is important, and there is nothing bad about
25 it when we have a competitive environment, when consumers

1 have choices.

2 This is traditionally the case. When you go
3 into McDonald's, you can't order a Pepsi. And when you
4 go into Kentucky Fried Chicken, you can't order a Coke,
5 because there are relationships. When you go on Google,
6 and you put "buy books," you are going to have a
7 prioritization that's going to give you Amazon, because
8 they have done a deal with Amazon.

9 I mean, in fact, if any of us want to kind of
10 envision what prioritization on the Internet might look
11 like, I mean, I think the clearest understanding of what
12 we know prioritization would be is looking at a Google
13 search page.

14 MS. TULIPANE: But, see, this is what I mean
15 about not productive conversation, because it's such a
16 silly argument to say the two relate -- that the
17 Pepsi/Coke -- I mean, the reality is, you can go to
18 McDonald's, and if you don't like that they serve Pepsi,
19 you can go right next door and make a different choice.
20 So that's choice.

21 But let's be very clear. I mean, the GAO had a
22 study that came out and said that we absolutely have a
23 duopoly. So there is not choice. So -- and I don't want
24 to get into tit for tat, because I don't think it's
25 productive. And what I always see are the arguments

1 thrown at the Google. And I get it. It's hard to feel
2 sorry for a big company. So, let's put those companies
3 aside, and let's talk about the average retailer out
4 there, and what that will mean to them.

5 MR. DAVIDSON: And I would just say there is so
6 much to talk about in Walter's example, starting with the
7 fact that I think that many providers of Voice over IP do
8 not believe that they need prioritization in order to
 offer their service, including, you know, Google has a --

1 disagreement about that. But even beyond that, I think
2 this is where we are in agreement, which is that there
3 shouldn't be this kind of blocking. And we welcome the
4 fact that -- Walter said this in congressional testimony,
5 I think it's great, and companies have said that.

6 I think what we're hearing -- and this gets to
7 the nub of the argument -- is that prioritization itself,
8 of certain kinds, can be tantamount to blocking, because
9 what happens if you don't pay for the prioritization?
10 Are you relegated to a degraded service, or a slower
11 service, that doesn't get consumers what they need? And
12 that's, I think, the issue that we need to keep

1 The one observation, just harking back to a
2 discussion about five minutes ago, I suspect that most of
3 you in the room are drawn predominantly from the Internet
4 and telecoms community, and not from either the antitrust
5 or the soft drink community.

6 (Laughter.)

7 MR. BLUMENTHAL: But having represented Coca-
8 Cola for many years before joining the FTC, I would just
9 point out to you that Coke and Pepsi actually litigated
10 this issue. It was very lucrative for the law firms, and
11 it went on for about a decade before ultimately getting
12 resolved, I think, in some settlements.

13 But the issue of selectivity and foreclosure is
14 not clearly ordained, one way or the other, and that's
15 true even in a duopoly or a triopoly situation. I want
16 to come back to the duopoly/triopoly point in a second,
17 but let me just sort of -- one point of characterization.
18 I have the same question somebody from the floor had
19 passed up.

20 Is there agreement, when we focus on
21 prioritization, that it's a last mile issue? Do all of
22 you agree with that?

23 MR. DAVIDSON: I think that we are here to talk
24 about the last mile prioritization issue, and I think
25 there are other forms of prioritization that broadband

1 prioritization, and that's really part of the thing, this
2 discussion.

3 And I would note, you know, that there is quite
4 a bit of disagreement about the level of competition, and
5 you have painted a picture that I think most people would
6 argue is not entirely accurate, in terms of the --

7 MR. MCCORMICK: But I'm just asking, with
8 regard to last -- would you treat all last mile exactly

1 biggest concerns are. There are others who have talked
2 about the wireless environment, and the extent to which
3 there are issues there. And the openness there. I think
4 that --

5 MR. MCCORMICK: But specifically, what are you
6 advocating, Alan?

7 MR. DAVIDSON: Right. No, I think that --

8 MR. MCCORMICK: I'm not sure I exactly
9 specifically --

10 MR. DAVIDSON: -- what we have -- sure.

11 MR. MCCORMICK: -- what it would be --

12 MR. DAVIDSON: Right.

13 MR. MCCORMICK: So the government would say
14 that, with regard to last mile services --

15 MR. DAVIDSON: Right.

16 MR. MCCORMICK: Which services would be
17 covered?

18 MR. DAVIDSON: Right. Well, I think we have
19 said -- you know, we have said that it is the last mile
20 services.

21 MR. MCCORMICK: Of all last mile providers?

22 MR. DAVIDSON: Yes. It's very much similar to
23 what was in the AT&T agreement, merger agreement, and
24 that's exactly the sort of approach that all of us --
25 it's quite simple. It's really -- it's one sentence.

1 It's the notion that there cannot be this kind of
2 discrimination in the last mile, based on the source or
3 content of a communication.

4 And, you know, it has been very simply put by
5 the FCC in that merger agreement. We would be the first
6 to say there might be multiple ways that you can get at
7 this problem, and that's why it's great to be here,
8 talking at the FTC about this. But it's actually an
9 extremely simple set of things.

10 And the only reason I use these examples is
11 simply to give everybody some sense -- we're not talking
12 about some massive regulation of the Internet, or some
13 kind of regime that people weren't living under until
14 about a year-and-a-half ago, anyway. I think we're
15 talking about something that is very simple, and is not a
16 heavyweight kind of regulation, and it's aimed at a very
17 particular set of practices.

18 MR. MCCORMICK: Well, just one more question,
19 then I will shut up. I still don't understand the
20 something, but if I have some concept of it, then a last
21 mile provider by WiMAX, such as Google is, and Google
22 will offer WiMAX access for free, if you agree to take a
23 prioritized delivery of advertising from Google, that
24 would be outlawed?

25 MR. DAVIDSON: No, our network is offered in a

1 neutral way, our Wi-Fi network in Mountain View. And we
2 would encourage others to do exactly the same thing.

3 MR. MCCORMICK: So when I call it up and I get
4 an ad, that's a prioritized delivery that that advertiser
5 is paying to Google.

6 MR. DAVIDSON: That's not a -- I don't see
7 where that's a prioritized delivery, honestly. We offer
8 a neutral network you can --

9 MR. MCCORMICK: If it's the first one I receive
10 over the WiMAX network?

11 MR. DAVIDSON: You know, I think that there are
12 -- we -- I would like to know what you're talking about,
13 because honestly --

14 MS. TULIPANE: Could we move the Google and the
15 USTA conversation to another time? It always ends up to
16 be about Google, and I think that's a switch and bait,
17 and not productive.

18 MR. BLUMENTHAL: Fair enough. I was actually
19 about to say, Walter, same question back to you with a
20 slight variation.

21 First, just to clarify, is it -- I understand
22 that your position is that there are enough sources of
23 competition right now that the issue ought to be moot.
24 But if there were not enough sources of competition, if
25 there was, say, a single provider in a particular

1 locality, would you, in that case, acknowledge the
2 legitimacy of the concerns that the neutrality --

3 MR. MCCORMICK: I would say several things
4 first. Is the market contestable?

5 MR. BLUMENTHAL: Okay.

6 MR. MCCORMICK: Second, is there a real
7 definable problem that merits government intervention?

8 MR. BLUMENTHAL: Okay.

9 MR. MCCORMICK: And, third, what are the
10 ancillary costs of dealing with that particular solution
11 that is being offered?

12 MR. BLUMENTHAL: Okay.

13 MR. MCCORMICK: In this instance, I can't quite
14 get a handle on exactly what the problem is. Number two,
15 there is competition. And number three, the market is
16 clearly contestable. I mean, so that -- I think those
17 are the --

18 (Laughter.)

19 MR. BLUMENTHAL: I'm not sure if that was a
20 chuckle of support or not, but it was one way or the
21 other.

22 MR. MCCORMICK: I don't know.

23 MR. BLUMENTHAL: But let me just ask two
24 follow-ups to just make sure I understand.

25 First, for purposes of market share

1 calculation, since you are identifying all of the
2 different technologies that presumably are hitting this
3 building one way or another, but the bulk of the traffic
4 out of the building is going on one particular one, for
5 purposes of market share measurement, is it your view
6 that we should be doing sort of a one-over-N analysis
7 where all of the different technologies are given equal
8 share, or for purposes of measuring shares, should we
9 actually look at the amount of traffic going over the
10 different modalities?

11 MR. MCCORMICK: Well, I think if you're going
12 to start defining the relevant market, you know, you have
13 to begin with what exactly is the market that we're
14 looking for? I think that if --

15 MR. BLUMENTHAL: Assume it's broadband
16 services.

17 MR. MCCORMICK: If it is last mile broadband
18 access, the FCC's own statistics show that the growth in
19 that area -- which was 26 percent growth in the last mile
20 broadband connections in the first 6 months of 2006 --

21 MR. BLUMENTHAL: Right.

22 MR. MCCORMICK: -- showed that 58 percent of
23 those new connections were wireless.

24 MR. BLUMENTHAL: I --

25 MR. MCCORMICK: And so, what I am saying is

1 that you do have a variety of providers. I mean, you're
2 not going to --

3 MR. DAVIDSON: I think you have really got to
4 look at what most people have access to. I mean, if you
5 look at those broadband statistics -- and we will hear
6 all about it tomorrow, and they're terribly flawed -- but
7 99.6 percent of Americans are getting their broadband
8 access through their incumbent cable or telephone
9 provider. And almost 34 percent of Americans only have 1
10 option for a broadband provider; 13 percent have none,
11 right? That's from the latest statistics, okay, right?

12 So, there is going to be a whole panel tomorrow
13 to discuss this part of it, but I think you really got to
14 look at what kinds of stuff people actually have access
15 to.

16 MR. BLUMENTHAL: All right. Well, we will sort
17 out the facts.

18 MR. MCCORMICK: Oh, sure.

19 MR. BLUMENTHAL: And I was just trying to get
20 to that doctrinal issue. Is it a one-over end, or is it
21 actual analysis? But that is -- you know, for those of
22 you who are from the antitrust community, you know that
23 is a pretty familiar type of analysis. So we will look
24 at that.

25 Walter, the one other question I had for you on

1 market share measurement, to the extent that the
2 providers of the wireless broadband services are
3 subsidiaries of the same companies that are providing the
4 DSL, typically we would aggregate those. Do you have any
5 issue with that, or do you think those should be
6 disaggregated?

7 MR. MCCORMICK: Well, I think that the way in
8 which a lot of those services are now being marketed is
9 as full alternatives. And so, I think that it should be
10 disaggregated at this point in time. Because what we're
11 talking about are completely alternative services for
12 purposes of last mile Internet access. And I think that
13 what we're going to see in the future is we're going to
14 see even greater kinds of mixes of services being
15 offered, both wireless -- wireline and wirelessly, so --

16 MR. BLUMENTHAL: Let me --

17 MR. MCCORMICK: I think disaggregated, for now.

18 MR. BLUMENTHAL: Okay. Let me ask, I guess,
19 one last question. It may end up being the last question
20 that we have time for this afternoon, but I wanted to
21 come back to the two-sided market issue, and in
22 particular, some -- well, it was triggered in a bunch of
23 places.

1 notes from the various speakers -- and back when Alan was
2 speaking, I jotted a note down to myself that simply
3 said, "Settlement mechanism?"

4 And the basic intuition is that when you look
5 at two-sided markets, you know, a blanket licensing by
6 ASCAP and BMI, stock exchanges, Mastercard and Visa,
7 there are well-established mechanisms for figuring out
8 how financial settlements is going to occur, so that you
9 don't have to have 80 different contracts, or 80,000
10 contracts, you simply have one payment from any given
11 player.

12 To the panel as a whole, to the extent that
13 people are thinking about some surcharges, or some
14 selective charges, other than to one of the players at
15 either point, but somebody who is not in privity with one
16 of the players at the end, would have a mechanism for
17 surcharging somebody who is not their historical
18 customer, what's the settlement mechanism you're all
19 thinking about?

20 MS. TULIPANE: We're not.

21 MR. BLUMENTHAL: Okay.

22 MR. RYAN: I don't think anybody is, actually.

23 MS. TULIPANE: Yes.

24 MR. RYAN: And that was one of my observations
25 about how intercarrier compensation works or doesn't work

1 end up charging to make sure that their content is seen.
2 I just think we don't know about it, and so we are left
3 with this kind of miracle of the network that we have
4 right now, which is where people are able to get online
5 by paying, and paying, you know, quite a bit to their own
6 service provider, to get access to the network.

7 MR. BLUMENTHAL: Well, we are running long as
8 it is. So, with that, let me draw this panel to a close.
9 To those of you who sent forward questions that we didn't
10 have a chance to get to, I apologize for that. I am
11 going to make sure that we have them in the hands of the
12 organizers, for purposes of tomorrow's panels, where I
13 suspect these same issues will come up, perhaps with a
14 slight twist.

15 But let me ask you to join me in thanking the
16 panel for the comments.

17 (Applause.)

18 (Whereupon, at 5:20 p.m., the meeting was
19 adjourned.)

20

21

22

23

24

25

1 C E R T I F I C A T I O N O F R E P O R T E R

2

3

DOCKET/FILE NUMBER: V070000

4

CASE TITLE: BROADBAND CONNECTIVITY POLICY

5

HEARING DATE: FEBRUARY 13, 2007

6

7

I HEREBY CERTIFY that the transcript contained
herein is a full and accurate transcript of the notes
taken by me at the hearing on the above cause before the
FEDERAL TRADE COMMISSION to the best of my knowledge and
belief.

10

11

12

13

DATED: 2/23/2007

14

15

16

17

C E R T I F I C A T I O N O F P R O O F R E A D E R

18

19

I HEREBY CERTIFY that I proofread the transcript for
accuracy in spelling, hyphenation, punctuation and
format.

20

21

22

23

24

25