

# Center for American Progress



## **SPECIAL PRESENTATION:**

**“THE GREAT DEBATE: WHAT IS NET NEUTRALITY?”**

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MR. CARL MALAMUD: Welcome to the Center for American Progress. My name is Carl Malamud. I'm the chief technology officer here. This event is "The Great Debate: What is Net Neutrality?" or as Boing Boing put it in their post, "The Net Neutrality Smackdown." Hopefully, it won't be that bad. (Laughter.) We are streaming this out to the net. We are taking questions two different ways. If you're on the net, you can send your questions in by instant messaging. That's to [Malamud@jabber.org](mailto:Malamud@jabber.org). If you're in the audience here, we have little cards. If you could fill those out and just hold them up, people will collect them and bring them up to the front.

Our order of battle today – we flip this laptop and it came up keyboard, so Vinton, he goes first. After that will be Professor Dave Farber. We're going to do ten minutes each of prepared statements and then we will begin a discussion, rebuttals, general question and answer and try to, in 90 minutes, shed some light on what neutrality is and what it isn't.

Our two discussants are actually quite distinguished. They have been working on the net for ages and ages. Professor Farber from Carnegie Mellon actually began work professionally in computer science in the early 1960s, often called the grandfather of the internet. Many of his students were people like Jon Postel, who ran the IANA and did a lot of the core protocols on the net. Paul Mockapetris was one of his students, who invented the Domain Name System. Marshall Rose was one of his students who made fundamental contributions to network management and electronic mail. Dave is a board member of the Electronic Frontier Foundation. He is a former chief technologist at the Federal Communications Commission and has done many other things on the net.

Vint Cerf, the other person speaking here representing the small, you know, kind of start-up, in his case Google. (Laughter.) Vinton is a – the chief evangelist for Google, but he's also the chairman of the Internet Corporation for Assigned Names and Numbers. He has long played a leadership role on the net. He was chairman of the Internet Society, he was chairman of the Internet Architecture Board, and has kind of made a lifetime out of working not only to advance the net, but to help policymakers understand what the implications of the network are.

And so without any further ado, we're going to start with Vint Cerf. Net neutrality, what is it?

MR. VINTON CERF: Thank you very much, Carl and good morning everyone. Thank you for joining us today. I'm going to try to summarize in a few minutes what I think are the key things that we should be discussing this morning. I hope that what we will discover is that our objectives are in fact quite similar and that Dave and I probably don't have much disagreement there. If there is disagreement, it may revolve around how

to achieve those objectives and whether, for example, legislation is either desirable or needed in order to achieve those objectives.

So I'm going to try to cover the following questions: what do we collectively want for the internet? What threatens that desired outcome? What if anything should be done to mitigate the threat? And if there is legislation, what should be in it? Let me go back to some important principles behind the internet. One of them, which many of you have heard and I'm sure is called the end-to-end principle.

The idea behind the network's architecture was that the net itself didn't do very much. It moved packets from point A to point B, but it didn't have much knowledge of the underlying transmission systems, not did it have much knowledge, if any, of the applications riding on the packets, so it's a very, very neutral environment for moving packets from one point to another in a complex of networks.

The fact that it's application neutral or application insensitive has been very helpful because it has been able to support new applications that people have invented over a period of time and people didn't have to get permission to try out some of these new applications. They simply did it. They simply emitted packets into the net to some destination or destinations and that's been a very important element in the network's architecture because it has in fact helped to stimulate and to sustain the innovation in the network from its earliest period.

It became a commercial operation in 1989 with some of the first commercial networks like UUNET, PSINet and Surfnet coming into operation in the United States. So in that period from 1989 to the present, people have been able to try out many new applications with little or no constraint. In fact, it was – the framework in which the net was built allowed it to operate in that way. For a good many years after the net became commercially available, people got access to it by dialing up to modems through the public switch telephone net. That was a stunningly egalitarian way to get access to the net because you had a choice of many internet service providers. There were at one point perhaps as many as 7,500 of them in operation; some very small and some much larger. But the important part was that users had the choice of any ISP they wanted to go to pretty much, by simply choosing what phone number to dial to get to the proper modem bank.

When broadband came along, we encountered a significantly different environment. There were very few broadband service providers. In fact, that's true today. The two primary providers of broadband service, the global exchange carriers offering DSL of one kind or another and the cable companies offering cable modem service, broadband access to internet. In fact, it's not even uniformly the case in the United States that everyone has a choice of one or the other of those two because half the people in the country do not have a choice. In fact, 20 percent of the people in the country don't have access to broadband at all; 30 percent have a choice of either broadband through DSL or broadband through cable, but not both; and the the other half have a choice of only one. The other technologies, like broadband over power line or

wireless broadband, are minuscule in penetration of the market. Half a percent or thereabouts of the total broadband market is currently served by those alternative technologies. So at this point we have at best a duopoly and half the time not even that much.

The threat that has been made, frankly, to this otherwise open environment has come from the broadband service providers who are saying “Gee, it’s costing us a lot of money to build the broadband facilities out. We’re not happy with the business models we have. We’re going to start charging parties for access to the broadband service.” What does that mean?

Well, certainly, you’d expect them to charge the users for access to the broadband service. That’s been the way the internet has been for all of its life. Everybody who had access to the internet paid for access to it and each party paid to get access and then after that they exchanged traffic without any further consideration. What the threat has been made by especially some of the digital subscriber line providers is that they won’t allow access to the broadband facility for traffic from a service provider – from an application service provider to get to an individual subscriber to broadband service unless the application service provider also pays for access to that broadband facility in addition to whatever payment the subscriber has made.

Some of us think that’s double charging. Some of us are worried that what that will do is inhibit innovation in the networks. Suppose you have a new idea and you want to try it out, but it happens to require some broadband access: even if there are a collection of customers out there with access to the broadband facility, unless you also pay for access to the broadband facility to deliver your application, you won’t get access to it – your application may never get off the ground. And if you’re a start-up, you may not have the kind of money that’s needed in order to meet that kind of demand.

So I’m worried, frankly, that such business model will seriously impair innovation in the network. It also inhibits user choice because this might imply that the subscriber who thought he/she was getting access to all of the 400 million machines on the internet simply by subscribing to broadband access to it, suddenly discovers that not all the services are available; only those which you paid for the privilege of allowing their packets to go on the broadband portion of the access system.

So that threat I think has been made quite visibly and publicly. I’d like to correct one assertion that was made by Carl in the introductions. I don’t intend here to be representing solely Google. My interest here is representing the users of the internet and their interest. I believe that the positions I’m taking are compatible with that point of view and I believe they also are compatible with Google’s position, but I don’t want it to be misunderstood that I am here solely representing Google’s interest.

Now, how can we deal with this problem? Bob Pepper, who’s in the audience and I hope we will hear from him later in the Q&A period, suggests that this debate has turned into something of a bumper sticker exchange and that’s actually very bad for

careful consideration of the issue, so I commend the CAP for allowing us to have this discussion in order to shed, we hope, some light on the issues as opposed to simply hurling bumper stickers back and forth at each other.

If it is true that there is a threat and that consumers are going to lose their choices and that innovation is going to suffer, what can we do? Well, there are several things that are available to us. The FCC has some jurisdiction, the Federal Trade Commission has some jurisdiction, and the Department of Justice has jurisdiction, each of them in different domains: the FCC with regard to statutory use of communication systems, the FTC with regard to consumer protection, and the Department of Justice with regard to antitrust. So if it were the case that the supplier of broadband service were to abuse his/her control over the broadband transmission pipe to also control what is done with it and by whom, one could possibly argue where there is a case for antitrust action, so that might lead one to the Department of Justice. A consumer might complain that his choice has been impaired unfairly and that might lead to the FCC, FTC.

There is something that happened last October, I believe, at the FCC and that was the shift in a position with regard to internet. It had occupied the Title II component of the telecom act. You've been shifted over to Title I, which is essentially unconstrained applications, thereby losing what had been called Common Carriage. And I'd like to suggest that the loss of the common carriage notion, which says that you take the package and you deliver it for anyone who's willing to pay the freight and you don't limit what's in the package, you don't limit who asked you to send the package – that common carriage concept has served well for a long time, several hundred years in fact. I won't go back into history because I don't have time, but the concept has been around well before communications but has been applied to communications to good advantage as far as the internet's concerned.

So my concern, quite frankly, in this discussion is that there are very clear potential hazards and threats coming from unfair and potentially abusive control over broadband access to the internet in the United States and that in the absence of satisfactory legislation there is a high risk that we will not have the open internet that we have had since it became commercially available in 1989 and since we have watched over that period of time the dot boom, the dot bust, and the continuing flowering of the applications on the network uninhibited by any kind of abusive control.

So I'll end my remarks there and thank Carl for the opportunity to begin and turn my partner loose, Dave Farber, to respond.

MR. DAVE FARBER: I'm not sure the term respond is correct. Not surprised that Vint and I are not in serious disagreement on a lot of points and may be in disagreement on other points. I'd like to look and reflect a little bit – rather than respond to Vint, to reflect independently of Vint some of the things that have happened. The whole discussion on net neutrality has turned into a show. Everything in the kitchen sink has been brought to be on the net neutrality banner including freedom of speech, et

cetera. I think it's obscured the fundamental question that should be addressed and that's the future of our communications system.

We're in a period of dramatic change. The network architecture that we know and love may be subject to dramatic change over the next 5, 10 years. There are a number of research activities that will pour a fair amount of very good talent into looking at what the next generation – real next generation internet should be. The NSF (Genie ?) project is a good example of that.

Whatever we do, we have to make sure that we don't sort of prejudge the path the technology takes, and that's the thing that worries me the most. There was – a lot of the stuff that I'm going to mention in the course of these remarks comes from a number of people. I'll try to credit them when I can. There was a very analysis done by Jon Peha at CMU of some of the technical issues that were raised by some of the net neutrality arguments and, in fact, what it shows is that for every negative you sort of get a positive. For instance, looking at some simple (term of ?) the ability of a carriage to redirect traffic can be used for both good purposes and poor and bad purposes. And if you go through the whole liturgy of the things that people are concerned about the carriers doing, you find that some of them – most of them have both a good side and a bad side to them and it's very difficult to judge which of those should take the major role.

That makes it very, very complicated for both the Congress and the regulatory organizations to deal with this. There are a lot of very serious and very detailed, technical questions that arise. And for those questions to be woven into law – solutions to those questions to be woven into law may cause us to have more obstacles than we can have in the future evolution of our networks.

Four of us got together, actually, at the University of Pennsylvania – it was sort of a joint activity between Carnegie Mellon and Penn – to look at some of these issues and there were four people involved: myself, Gerry Faulhaber, who was Chief Economist at the FCC; Michael Katz, who served the Justice Department; and Chris Yoo, who is professor of law and was on Senate staff, trying to understand what the issues were and what the solutions are.

The path we came to is not in dramatic difference from the one that Vint has recently – at least recently I've seen, adopted, which is there are plenty of mechanisms in place to solve and to change bad activities on the part of a carrier. There's the antitrust actions which can be brought and can be very effective as Microsoft. At least in this country, they can be extremely effective. There's the FCC. There's Justice Department, as Vint said.

Many of us have concerns of who does what. The FCC has not had a spectacular track record in some areas of making subtle judgments and pricing evaluation, et cetera. The unbundling nightmares – I think that's a nice term – of the '90s was a good example of getting bogged down in regulatory mechanisms. In the case of the internet, the FCC is

just not in a position to be able to evaluate that the pros and cons of individual complaints and even if it does evaluate it, it can – its responses can be challenged in courts and things can be strung out and the regulatory mechanisms become part of your competitive edge. If you don't like what some company is doing, you bring a complaint. If you don't like the answer that comes out of the regulatory, you bring a lawsuit and essentially you stall things out for a long, long time. And that's what happens in many areas.

It can also be highly responsive for things like overt inability to – for service to operate the Voice over IP. Action was fast and to the point. And to have the Congress pass hazy laws and then to expect our regulatory mechanisms to be able to rapidly adjudicate those and rapidly be responsive to new technologies and new ways of doing things is probably expecting too much.

A little aside, just as an aside, the network has never been a very fair place. People – large companies use bypass carriers – (Alchemy ?) and others – to get better performance. A start-up company may have real trouble being able to afford to use those mechanisms unless they have a very large stock IPO, so it's always been unfair. There's nothing I can see in the rational responses of the carriers that would indicate that they are about to commit legal and antitrust suicide, and so the mechanisms seem to be there to protect us.

I would point out one other thing by the way. In the cable industry it's often the cable carrier that pays for content. If you want – if you have competition and you want a particular channel because your customers want it, you pay the supplier to be able to carry that channel. There's no reason to believe that won't happen in the internet space. Now, if Google for argument's sake decided that they wanted to only sell to a given company, say a DSL company, the real fear is to be had in other – in the cable operators because in fact the customers can shift quite dramatically and quite rapidly. I and many others do that on an almost routine basis if we have choices. So I think the issue is do we have choices? How do we make sure that choices exist? How do we allow whatever we do to rapidly be responsive to technology?

As I said, the discussion that the four of us did – we focused as a solution on the antitrust as being the most viable of those paths for a rapid response to real anticompetitive behavior. And as Vint also said, the focus of this should not be in my opinion protecting companies against companies; it should be protecting users against companies in general. I think that's about what I want to say.

MR. MALAMUD: Vint, any follow up on that?

MR. CERF: Yes, I do. Thank you very much. I have to say that we are in probably more in agreement than disagreement. However, I do have a couple of concerns. One of the bumper stickers that pops up is the complaint that the net neutrality proponents want to re-regulate the net. I'm not accusing Dave of having said that by the way.

MR. FARBER: Thank you.

MR. CERF: But I would like to dispose of the bumper sticker issue on that one by simply pointing out that the network flourished pretty well during the period of time when the common carriage rules were in place. And so there were some important protections there that have gone away and so the notion that re-regulating is merely to get back where we were before with common carriage as an important component of the framework of network service. What is of concern here is that many people have attempted to collapse the internet as an application – as many, many applications on top of the underlying transport system and claim that they're inextricably bound to each other and I would like to segregate those things again because the underlying transport is quite distinct from the applications that it supports.

Again, that's part of the underlying principle on the net. And by maintaining that distinction and by treating the underlying transport as a communication service, it's possible to allow for considerably more flexibility, in my opinion, than to lump those two things tightly together. And the transfer to Title I in a sense desegregated, if you like, the two mechanisms. It's probably a terrible term to have used. Maybe binding and unbinding would be a better phrase.

The other thing, Dave, you said something, but I didn't understand it about Google choosing – did I understand that you say that Google might choose to provide service to its users only through one service provider? I mean, that would be very stupid of us to do that, so surely you didn't mean that.

MR. FARBER: Well, what I was getting at, Vint, is not that Google would do it, but that some company could decide to charge a carrier for carrying their traffic – a reverse. In the TV industry as I understand it, in fact, some channels charge the carrier to carry their channels.

MR. CERF: Well, the – actually, the other way around, the cable company purchases access to the content. In the internet world it's quite inverted because most of the content is provided in the hope that people will find it useful. You can subscribe to content if you want to.

MR. FARBER: I'm not saying that Google would do it; I'm saying that it could.

MR. CERF: Yeah, thank you.

MR. FARBER: Let me make a comment on some –

MR. CERF: Okay.

MR. FARBER: First of all, if you look at the early days of the net, the net was not – particularly, the early days that I saw, which were the educational networks at the time when the government was running things, it was far from a common carriage. We

had appropriate use policies all over the place, which restricted what you could do on the net. They're still there in some of the major networks, especially those, again, which touch government funding. Internet Two has appropriate use policies; national – (unintelligible) – does not.

MR. CERF: Yes, but, I mean, you don't mind the back and forth?

MR. MALAMUD: No, absolutely. It's between you.

MR. CERF: Surely you would accept the distinction between the government sponsored research network environment, which one does understand might require AUPs, and the commercial ones. Now, there are AUPs in the commercial world, too. I accept that. We have – when I was at MCI we had some constraints like spam wasn't permitted. It might still happen, but it wasn't happening because we endorsed it; it was happening because we hadn't found a way to stop it. So I agree that there are AUPs, but they were uniformly applied and my concern is that some of these things don't sound uniform.

MR. FARBER: Well, you won't get an argument there. One of the things that does worry me a lot is that when the government starts putting its finger into the internet pie and asking the FCC, for argument's sake, to adjudicate what is and is not a valid thing on the net that it's almost irresistible – from past performance – for the Congress to continue to stretch that. And I could see some future congressional politics would say “Well, you know, we really don't want traffic on that net that for instance is X-rated. And we would like to stop that.” It's going to be very hard to keep from going down a very slippery slope and I'd just rather stay away from congressional actions that inspire them to go down that slippery slope and I suspect that they will do it. It will be irresistible. So we agree, I think –

MR. CERF: Well, that's a different kind of threat.

MR. FARBER: It's a different type of threat, but it's, from past performance, not an irrational threat. You see now in the cable industry now, where it's getting more and more difficult to do things which are perfectly reasonable for (the pack ?) audience and that worries me a lot.

I'll take one more not exception, but comment: the net architecture survived very, very well in the end-to-end World. I completely agree with that. Some of the new technology, in particular the all-optical systems, may or may not change that. It may or may not be wise to go back to an intelligent net. I hate that word, but sometimes called active networking. There the question is not whether the network has control as opposed to the end-to-end, but who controls that control? Who owns those things which live in the network and impact the communications between us? And there are some indications that in fact that's not a bad way to design a network if you can make sure that in fact the carriers are not the controlling entity, but the users or the suppliers provide – have the ability to control who puts those programs in or under what conditions.

You have to be careful that whatever rules develop, don't say "No, that doesn't work." And the other – we won't disagree on this one either, but the net is not a U.S. entity; it operates on a worldwide basis. And so it's not at all clear to me necessarily how you manage to keep that international aspect while you have organizations which may – regulatory agencies which may say "Well, that new protocol you intend to put in your routers is discriminatory. We would like not to have it." And how do you do that in practice, I don't understand and –

MR. CERF: Well, I wouldn't respond on that one. What we're concerned about is the access part of the net, not the core, not the backbone, but it's discriminatory access to the network itself. And over that part of the channel, I think you do have reasonable jurisdiction because the access component that we care about is here in American soil and therefore under American jurisdiction.

MR. FARBER: Yeah, I'll agree with that.

MR. CERF: Could I just add one more thing and then I know you want to get the questions? There has been a suggestion at least in one hearing that I attended that this whole question ought to be dealt with on a case-by-case basis. I expressed some concern about doing things case by case: for one thing, they wait until a bad thing happens and then you try to do something about it. Legislation is intended to put everyone on alert. They don't do these bad things because they were in fact going to be punished, but if we were to go down the case-by-case path, I would like to suggest several elements that I think would be important.

One of them is that this notion of discrimination that we're trying to deal with really needs to be legislated as an impermissible method of competition. That's really what – the only fundamental element that concerns me in regard to the legislation.

I think anyone should be able to file a complaint against a broadband carrier in particular if they are violating that discrimination prohibition. And once the showing has been made there is an issue, the broadband carrier should have the burden of proof to show they have not violated that principle. There should be strict deadlines – and this gets to Dave's point, that you could string things out forever in some methods, but strict statutory deadlines should be established for processing of the complaint and a number of injunctions and any kinds of remedies including damages could be incorporated into such a case-by-case process. And finally, we should make these decisions visible – published in the Federal Register. A lot of these kinds of judicatory procedures do not see the light of day and therefore they don't serve as a warning for others who might choose to violate the constraints to know that in fact they will be punished.

So I just suggest that those are those are kind of elements that one would look for if you were going to trial, going down on a case-by-case path.

MR. FARBER: I find it difficult to agree with you on that because I keep worrying that in fact that becomes a mechanism for competition and for companies to be able to stall things out for periods of a year or so, and that worries me because, again, we're in a rapidly changing world of both application and technology and, you know, quite often – I think Bob would agree with this, too – Bob Pepper – that in fact the FCC is used as a competitive weapon often.

MR. CERF: Okay. I know you want to get to questions, so I'll just say that I did point out that one element included statutory deadlines. In other words, it's like an administrative law procedure. It's a very well defined sequence of events over a very well defined period of time. You cannot stretch it out, but let's –

(Cross talk.)

MR. MALAMUD: Okay. Well, let's take some questions from the audience. We have one here from our Sheena Fitzmaurice (ph) at Comcast. If regulation is needed to address potential behaviors that are not neutral, why should only transmission companies like Verizon be covered? Shouldn't there be rules that ensure neutrality of, let's say, computer operating systems, web browsers, search engines, auction sites?

Vint will want to handle that one first, but I'm sure you have something to say.

MR. CERF: Yeah, this is a red herring. The issue has to do with choice. There is plenty of competition in choice with regard to things like search engines and instantaneous, zero-cost switching to from Google to Yahoo to whatever else you want to go to. It's not so simple to switch back and forth between broadband carriers. In fact, in some cases it's impossible because you didn't have any other choice, and so here I don't think that the analogy is in any way applicable. All the other examples – changing operating systems and so on – you do have choice for that, except that it's a little painful to go from one operating system to another or even one version of the same operating system to another, but at least you have choice, whereas in this other matter you don't. So I don't think that's a fair analogy.

MR. FARBER: I think it's an interesting analogy. I think there was a case brought the United States against an operating system manufacturer who made the switch of web browsers very difficult to be done in practice. In fact, I testified at that for the government. If you have a choice (to?) decide if the transmission companies understood how to deal with broadband services, which I'm not sure they do – either cable or DSL – can I take a slight platform for a moment? This weekend my DSL – my actual cable service got blown up by a lightning strike, which is understandable.

Unfortunately, in order to get a new modem, I theoretically would have to wait four days for a truck to roll out because in fact there's no mechanism – no convenient mechanism at least to my neck of the woods, and including Pittsburg, for me to wander down to a store and either get the transmission company store and pick up a new DSL modem or a new cable modem and so, you know, they'd be perfectly happy to mail it to

me or wait four days for the truck. That's not the way the future works. My telephone, when it failed got fixed. My broadband service has to get fixed, too.

MR. CERF: Dave, you must have the wrong cable service because I have back-up modems sitting in my basement ready to go at a moment's notice, so you should try switching cable companies.

MR. FARBER: They gave you back-up?

MR. MALAMUD: Speaking of cable companies. We have actually two related questions here. One is from Wayne Rash at eWEEK. I think this is aimed at you, Dave. If antitrust is so effective, why is it that Comcast customers still can't see Washington Nationals games on television? (Laughter.)

From G. G. Sawm (ph) at Public College, Dave Farber says that antitrust law would mean be the rapid response to a net neutrality complaint. Can you explain the timelines involved in filing an antitrust lawsuit, investigation, discovery, et cetera, and do you feel that's really an effective mechanism?

MR. FARBER: Well, I should probably have not used rapid in that. (Laughter.)

MR. MALAMUD: Well, you're stuck with it now.

MR. FARBER: On the other hand, I would argue that it's probably not notably slower if you have a good case then going through other regulatory organizations, which can take a long, long time, because you have the equivalent: you have extensions, you have everything in the kitchen sink. And the (Commerce ?) deadlines have not tended to work very well in the past. Maybe they could work in the future, but I somehow doubt it.

So I apologize for "rapid" – rapid within the Washington context. (Laughter.) I couldn't resist that, I'm sorry.

MR. MALAMUD: Vint, do you have anything to say on that?

MR. CERF: No, I think Dave has adequately shot himself in the foot. (Laughter.)

MR. MALAMUD: Okay, well, here's one for you, Vint. This is from [Jay@timbali.cx](mailto:Jay@timbali.cx) (ph) online. He says, "Mr. Cerf, if ISP charges to content providers allow extended growth of broadband, increasing consumer choice, and allowing people to switch if they don't like filtering the one ISP does, doesn't that just eliminate the problem?"

MR. CERF: Well, I certainly would agree that having more competitive choice would eliminate the problem. If there were lots of choice for consumers to get broadband, I wouldn't be sitting here arguing in favor of net neutrality legislation. The fact is that there isn't much choice at all, and it isn't clear to me that that particular

scenario generates the choice. I mean, honestly, I do not understand the position that's being taken.

I believed in fact that there is demonstration that you can build services that are reasonably priced, but what I'm hearing from some of the broadband service providers is that they can't figure out how to build the service at such a price that it is attractive to the consumers, so they're looking for someplace else to get money from. That's basically what I understand of the argument to be. But then I look in places like Japan where – Dave perhaps you can help me with this – I understand that NTT is putting up 100Mbps service for about \$50 a month and you'll find this to be the case in Singapore and in Hong Kong and other places like that and in Stockholm you can get gigabit service, so they found a way to do this at a reasonable price and therefore they don't have to go looking for other revenues in order to pay for it.

What's going on here?

MR. FARBER: Well, I think part of it is the government attitude towards telecommunications. While I have yet to find proof there – now, there's a lot of government pressure on NTT to supply broadband services. In Korea there is certainly a lot of pressure – pressure that doesn't work very well in this country. Stockholm is a very compact city also. Now, I think there's a good point to be (not?) living in a state where a certain carrier promised us broadband, how many years ago, and hasn't delivered it yet.

MR. CERF: A long time ago, in a galaxy far, far away. Right.

MR. FARBER: And a couple billion dollars far, far away. One questions why in fact the dense areas of Philadelphia and Pittsburg, and we could even include Harrisburg if one wanted to, have not gotten into proper broadband service.

MR. CERF: What happened?

MR. FARBER: I am not – I am in no way defending the record of the carriers in this game.

MR. CERF: Okay.

MR. FARBER: What I'm arguing more is this relevant fine point is I want to make sure that what the Congress does and what the government does doesn't lead us down a path which we don't want to go down.

MR. CERF: And you and I are in agreement about that.

MR. MALAMUD: So, Vint, I have a question then and I've heard this from several folks. You picked net neutrality as the debate, right? You're not debating the video franchising, you're not debating the audio broadcast flags. Why net neutrality and

how is that particular fight going to help us get 1Gbps into every home, into rural areas? How are we going to bridge the digital divide? Why this particular fight? Is this the most important one that we could have picked?

MR. CERF: Well, first of all, I certainly would like to see those other matters dealt with. Having access to broadband facilities everywhere in the country is important. The reason that we picked this particular fight is that it posed, at least in my view, an immediate threat to our ability to deliver services to customers. I mean, we consider our customers to be the billion users of the internet and I would dare say that many of our colleagues at Amazon and Yahoo and elsewhere would feel the same way: that there are customer bases all over the world. And the immediate rhetorical threat that we were faced with earlier this year was specifically that we would not have access to the broadband channels that the subscribers were subscribing to unless we paid an additional amount of money. We didn't understand why that was a good thing.

MR. MALAMUD: Well, but you pay money already and so you'd have to pay a little bit more.

MR. CERF: We pay a lot and the claim that we were getting a free ride was pretty insulting. Google in particular builds and operates a very large background network and we connected to the public internet at considerable expense. So we paid our share on the other side of the net, so to speak, in the same way that everyone else does. So this is just – the claim that we should suddenly have to pay an additional amount to reach a subscriber seems completely out of the ball park.

MR. FARBER: Just a little comment on that. One little aside. It is beyond me why Whittaker (sp) actually stirred up this hornets nest. Reading his past history, he's not a sort of wildcard, and yet I don't understand the reason for it. One of the problems that at least some people I know in the Congressional Research Office is it? I forget the exact title – is the breath of some of the legislation is sort of scary. It may read, for instance, on the wireless world, where in fact it would be difficult to see how the neutrality arguments play out on the limited spectrum that we have for broadband over wireless. I'm not talking about Wi-Fi; I'm talking about the license band.

The other thing that I think is hazy in my mind is how it plays out upon proposals which I wish would get some traction for changing our entire spectrum policy, which is ancient, broken, doesn't recognize modern technology and there are many proposed solutions, some of which my friends at the FCC think are fairly good, and yet we're not moving on that. When we do move on it, I don't want personally to have rules that don't lead correctly on to that new spectrum activity being – stopping it. And again, this is question of could it cause damage? Not that it will, but it could.

MR. MALAMUD(?): Related to the spectrum issue, Preston Marshall, who heads one of the Advanced Technology Offices at DARPA, had a quote that I thought was pretty impressive. He says that "Well, all spectrum in the United States is allocated.

Less than 2 percent is being used at any point in time.” Now, I don’t know if that number is right, if it’s 2 percent or 20 percent.

MR. FARBER: It’s right.

MR. MALAMUD(?): But I think that we have a natural resource sitting out there, that is vastly under utilized. That’s my editorial.

MR. FARBER: Paul Barren periodically monitors in the Valley at least, which should be high usage area, and 2 percent may be being generous.

MR. CERF: This probably should be the discussion of another meeting. We should come back to this discussion on net neutrality, but I agree that it would be interesting to have a discussion about better use of and allocation of the spectrum.

MR. MALAMUD: Steve Verona (ph) from Educause for Dave. Would you favor a straightforward common carriage mandate for internet providers? And related to that, Harold Feld (sp) from the Media Access Project, Dave Farber – I’m sorry, wrong question there. Why don’t you just do that one and then I’ll do Harold’s afterwards.

MR. FARBER: I’m not a lawyer to know what the common carriage pluses or minuses are. When I was at the FCC, I thought that in the cable area there was an interesting approach tried with the AOL-Time Warner merger, which unfortunately didn’t produce the type of result we wanted, and that was to try to make sure that there were multiple ISPs on the cable data channels. For a whole host of reasons, that didn’t play out correctly. I’m just not sure about common carriage itself and, again, I’m not a lawyer, luckily, although I can almost argue constitutional law if I’m forced to.

MR. MALAMUD: Harold’s question: “Dave Farber suggests that net neutrality will tempt government to try to regulate content, but the government already tries and sometimes succeeds. There’s COLEA (ph), there’s net gambling. Isn’t the government genie already out of the bottle” and I would add to that, so what’s the harm in just a little additional legislation on net neutrality?

MR. FARBER: The government has been out of it. I think you want to take COLEA a little bit off on a different track. That’s a much more complicated space than online gambling. Online gambling I think is unenforceable, but we’ll play that one a different time. I’m afraid that the same thing it’s doing on the cable world, okay, it will be tempted to do on the internet space given any entry into it. I mean, it is real rough to have programs anymore that speak in an uninhibited way on cable television and certainly live television. The FCC, under pressure from the Congress, has tended to move it down and that could happen easily.

MR. CERF: So not to put any words in Dave’s mouth, but are you suggesting that it would be a dangerous precedent to have any legislation at all about the internet? Is that right?

MR. FARBER: Do you want my personal feeling on that? Yes, I think the –

MR. CERF: Do you have an impersonal feeling about it, too? (Laughter.)

MR. FARBER: No, it's a very strong personal feeling. I think we've managed to keep the government off the legislating the internet except in the COLEA case and some others there. And given a foot in the door, I'm just afraid that in fact the door will open quite –

MR. MALAMUD: Isn't the door open?

MR. FARBER: No, it's not open. I don't think the Congress understands that it could be open. As far as they're concerned, I don't think it's open.

MR. CERF: All right. Yeah, I don't agree with that, but I think the door has gotten opened in some dimensions. It's true that we work very hard to avoid taxing various aspects of internet, access to it for example, and there is reasonable concern in many quarters that any kind of legislation about the internet could lead to such ideas as "Oh, we should tax the net as another resource of revenue," et cetera, et cetera. But I am worried, Dave, that in the course of expressing that concern that it does ignore some of the things that have happened with regard to the communications world; in particular, this loss of common carriage principles, which protected the internet and its users and that loss is significant in my view and that's one of the things that I believe legislation is needing to reinstate.

So I don't know whether we disagree about that, but that would not be adding anything more than we had. We had something taken away, which I thought was a very important principle.

MR. FARBER: I think one could have a very good and fruitful discussion on the common carriage principle. I don't think that's what's happening when we talk about net neutrality, though.

MR. MALAMUD: Well, why isn't it, Vint? If common carriage is important, why isn't that the sound bite the bumper sticker? Why is net neutrality the bumper sticker?

MR. CERF: Well, the problem, of course, that Bob Pepper points out is that it has become a bumper sticker and it's a war of bumper sticker phrases. The net neutrality issue and the common carriage question have been part of my testimony in various quarters, but maybe that hasn't boiled down to a bumper sticker yet.

MR. MALAMUD: We have two related questions here. One is from Mark Woodyzack (ph) from Out of Nowhere – is the name of the institution: "How would you

address the observation that net neutrality does not exist thanks to peering relationships or traffic shaping and so this entire issue is really about Voice over IP.”

MR. CERF: Oh, (good heavens?).

MR. MALAMUD: And then related to that, Cameron Wilson from the Association for Computing Machinery: “So put yourself in the shoes of a regulator with a mandate from Congress to ensure nondiscriminatory treatment of packets. How can we tell that the operator is being discriminatory if, for example, they’re managing jitter on the network, traffic burst. Doesn’t every network discriminate by design? Isn’t that just part of the engineering of a network?”

MR. CERF: All right. So, that’s a rather big package of questions all at once. This is not just about Voice over IP. This has to do with the ability to get access to the network at all and for those who access the net to get access to all the services available in every country in the world from any provider in the world.

My concern is that the way in which the broadband service providers have expressed their intent that that freedom of choice is being taken away. That’s my concern, so I don’t believe that this is just about Voice over IP.

Now, with regard to things like jitter and other kinds of technical matters, no, I don’t consider that to be discrimination in the bad sense that I’m worried about. If you have to do certain things in order to achieve a certain service quality, that’s an engineering matter, but to prevent someone from getting access to a particular source of content or information because they didn’t pay you is a different matter.

MR. FARBER: Unfortunately, Vint, many of the discussions don’t make that distinction and that again bumper stickers confuses everything. I would be hard pressed to disagree with you on the point that in fact the pricing models need a lot of thinking and could be highly discriminatory, but that’s not where the discussion often ends up.

MR. CERF: There is – I have walked around that exact point with some parts of the broadband community asking maybe there is a better business model that we can help them develop that would in fact generate more revenue than what they propose. And it seems to me that one of the interesting things about internet up till now has been the remarkable ability to invent new products and services. It doesn’t – there is very little limiting people’s ability today to try new things out. That generates new kinds of businesses. Google didn’t exist until 1998. It has generated a substantial business. The same can be said for Amazon and EBay and others.

And what I am concerned about is that we keep that innovation pipe flowing. The broadband carriers, especially the local exchange carriers seem to want to reinvent cable television. This looks to me like their general interest right now and it’s an odd choice from the revenue production point of view because it goes after a more or less fixed

entertainment pie, which is already pretty heavily contested by cable companies and satellite television providers. So they're entering into a market in which they can only compete for some market share. I think if they keep things very open, that indeed there will be new products and services invented in which they themselves can participate.

So I wouldn't want this to be misunderstood, that I believe the local exchange carriers or the broadband carriers should be only pipe providers and that's all they get to do. By no means do I suggest that. I would like for their pipes to be freely accessible to everyone who wants to provide services and for them to use those same pipes to provide competitive services. I just don't want them to use the fact that they control the pipe to inhibit competition from others.

MR. MALAMUD: A question here from Anonymous. How does net neutrality apply to wireless carriers like Verizon Wireless or Cingular?

MR. FARBER: Well, that's – yeah. It is claimed by people in Congressional Research Office –

MR. CERF: Congressional Research Service is what it's called now.

MR. FARBER: Thank you. That they believe that the bill reads on that also and that is a big, big potential problem. You're not dealing – you're dealing with a totally different space and it's not at all clear what a net neutrality argument means, say, on a Cingular network for a Verizon phone.

MR. CERF: Well, could I try to respond to that?

MR. MALAMUD: Yeah.

MR. CERF: It seems to me that just from the internet point of view that one would hope that if you are told you have internet access from your mobile phone or from your Blackberry or what have you, that you could reach any site on the net. Now, will the quality of the service that you get necessarily be adequate? Probably not for many cases. Maybe streaming video won't work very well. But that's a performance problem and not a problem based on deliberate discrimination. Oh, I'm sorry, you can't go there at all.

MR. FARBER: Well, again though, Vint, there's an argument of what you can "attach to the net" and if under some interpretations of net neutrality I can attach anything I want to this wireless net and that may or may not cause trouble in that world.

MR. CERF: Gee, that sounds a lot like a long ago thing about attaching something to the network causing harm. We already had that debate back in 1968 when we demonstrated that that wasn't an issue.

MR. FARBER: It's not at all clear it's not an issue in that wireless space and one could argue that's a historical property of a badly designed wireless system in this country. It is badly designed.

MR. CERF: I think that we should distinguish radiating in the same band and causing interference and having access through on of these devices that we carry around. I think those are not the same and I can certainly understand radiating in band and causing a lot of interference –

(Cross talk.)

MR. FARBER: But in fact the devices we carry around are very similar to the argument in the old days of in order to attach to the phone system, you need to use one of our devices. Right now, in order to attach to the wireless service, you need one of their compatible phones.

MR. CERF: And no one is as far as I am aware, at least in my end of the spectrum here, is arguing that any differently. We're not –

MR. FARBER: I'm just commenting that, in response to this question that Congressional Research Service expressed the concern, at least to me, that it could be read on.

MR. MALAMUD: But we're back to the problem with how do you interpret the language of the bill?

MR. FARBER: How do you interpret the language of bills, which are not notoriously crisp?

MR. MALAMUD: Well, since we're talking about bills in the House and the Senate, here's a political question for you folks. So this really has come down to a fairly partisan divide in the House and the Senate. It's Democrats versus Republicans. We've seen this play out a lot. So let's say folks in the audience are out on the net, want to do something about this. This is a question from Joe Malloy (sp) at CAI Inc. is: "Within the House and the Senate, who are the legislators who possess the knowledge and the influence to address the network neutrality issues to develop effective and fair legislation?" Who should they write to?

MR. CERF: Wow. Okay. Well, this is interesting. The question is do you write to the ones who understand it or do you write to the ones who don't get it? The list of don't get it is longer than the list of get it, and just to pick two on the House and the Senate side, John Sununu gets it. He understands the technology quite well and Congressman Markey get sit on the House side, just to name a couple of people. But I think the big problem is not the ones who get it; it's the folks who don't and how to help them get educated.

MR. MALAMUD: And you're not going to name them?

MR. CERF: Well, I was going to suggest that you do a Google search for tubes and (laughter) and internet and see what comes up.

MR. FARBER: I think it would be more effective no matter what side you're on here to sharpen the focus of what we talked to the House about, or talk to the Hill about. They seemed to be very confused because they hear different things from different people on the same side of the argument. The claims that somehow the freedom to talk is going to be damaged by some carriers' actions. On the other hand they – something that deals with, say, Google's right to service you. It gets very confusing. Again the bumper sticker problem: too many bumper stickers, too much noise, and not enough facts in digestible form are being put up there. They are also – while we're at it, we have severely blown it on getting the Hill to understand what the network is.

In the old days, we used to expend the fair amount of energy trying to educate them – the ACM, the IEEE, et cetera. That sort of dropped off on the assumption that everybody on the Hill must know what the network is because, after all, they use it. The Congress (unintelligible) quite often don't use it and they don't understand it.

MR. CERF: Actually, some of us still do go out on the Hill and we try. Irving (unintelligible) and I were on the Hill both on the House and Senate side briefing staffers about current state-of-the-art in the net and what was happening, what legislative issues there were. It is a never-ending challenge partly because we have newly elected senators and congressmen, we have new staffers coming in and out, and the network itself is evolving and changing and so this is a continuing battle.

One thing I have been tempted strongly to do is to create a kind of congressional internet comic book that – and I'm quite serious about that. I don't mean it to sound in any way demeaning. Comics turn out to be a remarkably terse and effective way of communicating basic ideas and it's been in my mind for some years now that that medium might turn out a perfectly good way of getting basic facts in place.

MR. MALAMUD: Professor James Boyle of Duke has recently issued a comic book on the question of fair use for artists trying to understand what materials they can use and that's highly recommended and so you've got some precedent. Maybe you should talk to Jamie and ask him to help you on the comic book.

MR. CERF: So noted.

MR. MALAMUD: Here's a question. Kind of – I think from left field. This is Barbara Cherry (sp) at the Federal Communications Commission. And I'm going to read this word for word. "The 2003 Bush taskforce on the postal system found the current business model the U.S. postal system to be financially unviable due largely to electronic substitution over the internet and the recommendation of the task force is to increase the postal system's use of the internet to provide service. So the question is, shouldn't the

net neutrality debate also include the discussion of consequences for the postal system? How can the postal system maintain common carriage obligations over the internet?"

MR. CERF: Well, I remember an attempt to do something like that called zap mail, which didn't work out because of privacy concerns actually. What do you mean you want me to take this paper down to your office and run it through your copying machine and then transmit it over a satellite and then you're going to bring it back and what happened to the copy that you had. So that didn't work out.

I don't know whether that's possible, but I wouldn't resist looking at and, in fact, hoping that the U.S. postal service would consider using the internet if it made sense for some of their services, but most of the time they deliver physical objects and that's what they're good at. And you'll notice, by the way, that the internet has increased their business, as it has increased the business of UPS and FedEx. People order things on the net and then they have to get them delivered physically, so the postal service actually should be seeing an increase in business as a consequence of the use of internet.

MR. FARBER: Yeah, but I believe that's an increase in relatively low profit business. The postal service as long as by memory almost goes back has been studying what to do about the impact of the internet on the postal services. The electronic billing or electronic payment of bills over the internet – all those, the package billing that's beginning to happen, all those sort of take business away from the postal service. It's very difficult to see what the future of the postal service is and it's a national problem.

MR. CERF: I think we should get some real data before we come to any conclusions about this given, you know, the increase in purchasing on the net and delivery – physical delivery. When you say that's a low-margin business, it's certainly a highly competitive business. I don't disagree with that, but the bulk of the stuff I get from the postal service would be called spam in the electronic domain. I would certainly not want to have them increase the amount of spam on the network as a way of reducing the amount of paper that they deliver into my mailbox every day.

MR. FARBER: We agree.

MR. MALAMUD: So, Vint, you're saying that you want to wait for real data before deciding what the policy is. Why net neutrality now if there's no real data? It's just the threat –

(Cross talk.)

MR. CERF: I'm sorry. That's a dirty trick, Carl.

MR. MALAMUD: Yeah, I know it is. I know it is. (Laughter.)

MR. CERF: I was speaking of the postal service question and the absence of any data that I can see in front of me about what their business looks like as opposed to this question of net neutrality.

MR. MALAMUD: No, but it's – it really is – one CEO, you know, made a couple statements –

MR. CERF: Oh, no.

MR. MALAMUD: – it's a perceived threat, it's – is there a real issue today or is it – are you just worried about the future?

MR. CERF: Well, I am certainly very worried about the future and my concern is that if we wait to see if something bad happens – this isn't to say there haven't been a few bad things happening and they were mentioned earlier, things like the attempt to block Voice over IP in cable companies or the attempt to block them actually by countries. Panama was blocking Voice over IP – demanded that Voice over IP be blocked by ISPs serving that country for example. So there is some evidence there is some bad things happening, but it's the threat that worried us, because I think it's a very actionable threat. That is to say, it could be – these constraints and limitations could easily be carried out.

So that's why I don't think that we should ignore the problem and wait till something bad happens. If we aren't able to get legislation at all, and as I said, there are series of other things that one could turn to, but I haven't given up yet.

MR. MALAMUD: And so, Dave, to kind of turn that one around, you say there is existing legislation, that is antitrust, there's FTC, there's FCC. What's the harm of a little bit more hazy legislation and just one more provision in the law?

MR. FARBER: The harm in my view is another piece of hazy legislation in fact is going to open the door for increased mischief and less abilities to actually apply laws, hazy terms, just –

MR. MALAMUD: But there's lots of hazy laws out there –

MR. FARBER: They're too many.

MR. MALAMUD: So what's the harm of one more? (Laughter.)

MR. FARBER: There's no harm in one more unenforceable law. There's notoriously harm – but I'll tell you another problem, too. There's notoriously harm in hazy laws that can be interpreted in a lot of ways. The other problem is the behavior of the Congress – that as you come towards reconciliation between various bills, it becomes a garbage dump for any particular idea that could be tacked onto it. And quite often the garbage dump phenomena can lead you to a bill that in fact can do harm – can do serious harm and that's worrisome.

You can see that happen every time the telecommunications industry bills have been renegotiated. There's always been a pile of stuff put in at the – usually at the very end that does harm.

MR. CERF: Of course, I'm sure you wouldn't argue there should be no laws.

MR. FARBER: I'd never argue that. No. I'm not that much of a libertarian.

MR. MALAMUD: Or a chaos freak.

MR. FARBER: Yeah.

MR. MALAMUD: So, plainly, to the extent that we have agreement here, I think it is that if there is going to be legislation it needs to be unambiguous.

MR. FARBER: It needs to be unambiguous –

MR. MALAMUD: And actionable.

MR. FARBER: And actionable and address a very concrete set of – what I would tend to do at this stage of the game, although I will hate to say this, is to actually get a law which requires a report to the Congress in a fairly short amount of time that says what in fact the threats are, what are real, what are not real, and then expect the Congress to take action based on real solid fact.

We've done that in the past. We've don't that endlessly with the National Research Council. It has done studies – hopefully faster than that, focused on what the actual problems are. The Congress is then sometimes actually taking action to –

MR. CERF: One of the things which was troubling to me and one of the reasons it caused me to be more interested in this net neutrality question is the whole attempt to rewrite the '96 or to rewrite the '34 Telecom Act in 1996 or to add to it. And it intended to open up the door for competitive local exchange carriage, and that didn't happen. The landscape is littered by the bodies are dead CLECs.

Part of the reason for that, I think, is that it wasn't apparently possible to insist that the access that was supposed to be granted to these competitive local exchange carriers to local exchange carrier facilities was actually carried out in a timely way, and instead things didn't seem to happen very quickly and the CLECs couldn't get their businesses going because they couldn't get access to the appropriate facilities. And the FCC had a great deal of difficulty apparently in trying to enforce the provisions of the '96 act. Bob Pepper could speak to that more eloquently than I can. And so in a sense that observation supports really both of our concerns, Dave: one of them is that bad things can happen and have happened even in the presence of suitable legislation and the problem with legislation that is not clear enough makes it harder to enforce than one wants.

MR. FARBER: Let me just amplify that a little bit. One of the real weapons in any really effective net neutrality argument – I hate that term, by the way, because it’s too broad – is if a carrier offers a service as part of its business and you want to offer an equivalent service, you would like to be able to be price competitive with them. That means that in fact they should offer it to you what they offer it to one of their subsidiaries. That’s the claim.

Getting involved in what things cost was one of the things, if my memory serves me right, that killed the unbundling argument because nobody could quite figure out how to price anything of that business and many, many new companies ran into a big argument of – exactly how did you price that?

MR. CERF: Well, this is what led to proposals for a separation of the underlying transmission system from the applications above it. In other countries, in fact, that is one of the things it’s been called for. New Zealand, for example.

MR. FARBER: But we agree on that, I think.

MR. MALAMUD: Two more questions and then I think we’re going to get close to wrapping this up. The first one has to do with marketing and PR. There’s been, I hear, \$1 million a day been spent on ads and so my question for Dave is, why so much money? Why so much whoop-de-doo, if you will? And then for Vint, related to that: how do you feel about being quoted, misquoted in the anti-neutrality ads and what actions are you taking? So either one can start.

MR. FARBER: (Laughter.) The ads I’ve seen on this subject so confuse me that I’m – now, it’s again, how do you play the politics of this game? You try to drum up usually things that are easy to understand, provoke emotion, convey very little information. And I think that’s what’s happening on both sides. You’re talking about real money here. You’re talking about, from Google’s standpoint, I assume they would rather put money in their pocket than a carrier’s pocket, and from the carrier’s perspective there’s some tricky business cases there.

So there’s real potential money involved in this and they behave the way that you would expect both sides to behave in this, which is to obfuscate and politicize and do whatever they can to make their case, just like electing officials.

MR. CERF: Well, let’s see. Indeed, there does appear to be an awful lot of money being spent inside the Beltway. I don’t know whether these same ads are showing up in the rest of the country, but they certainly are showing up in newspapers in this area hoping, I am sure, to influence the discussions that take place both in the Senate and the House. One might ask why is all that money being spent? And it’s pretty clear that much of it is being spent by the broadband providers; notably, the local exchange carriers, who have for the past several years asserted that “just leave us alone and trust us

and we will do the right thing,” with regard to the network and broadband services and everything else.

For years, they would say that there is this little thing that’s in the way. If you will take that out of the way, then we’ll be able to provide you with broadband service. And it was just one thing after another that had to be removed as an obstacle until finally there are no constraints whatsoever.

Let me just remind you of a very interesting quote. It was a question: what’s worse than a regulated monopoly? And the answer is, an unregulated monopoly. I am very concerned that we do not have adequate competition today to act as a restraint on abusive practices by some of the broadband carriers and that until we have that kind of competition, I think we still need oversight and some form of constraint.

MR. FARBER: And some would argue that in fact the Federal Trade Commission and antitrust actions provide that oversight, and then the question is how rapidly can it be applied? Maybe we should take lessons from the European Community. They seem to do a better job. They certainly apply it fast and hard.

MR. MALAMUD: Are you suggesting their agriculture policy? (Laughter.)

MR. CERF: Don’t go there, Dave.

MR. MALAMUD: A final question and then we’ll wrap this up. So, Dave and Vint, what’s your worse case scenario? Be specific.

MR. CERF: Okay, shall I take the first shot on it? The worse case scenario is that there is no legislation at all and after the mergers are all settled and the best behavior policies are no longer needed, the local exchange carriers and perhaps other broadband providers begin to do as the threats have said: limit users’ access to the rest of the internet based on who pays them for the – to permit the customers to get to services around the world.

I don’t know how they’re going to implement this, but that’s the worse case scenario is that we suddenly lose open access as consumers and open access as providers of services on the net. And then, of course, we will have to go into a terrible battle to try to remedy that problem.

MR. FARBER: I would tend to agree with that worse case. I think it could apply the other way, too, that in fact a bad case would be that we get bogged down with the law and regulatory mechanisms that just slow us down to a crawl. If in fact – what puzzles me is that if in fact any carrier actually went to the point of actually producing a real case of that type of discrimination, whether in fact the Congress couldn’t react rather rapidly.

MR. CERF: The problem, of course, is that didn’t happen in the case of the CLEC business and there was inadequate response to that. And that’s the example that

worries me, frankly. So we actually share a common worry, which is that we won't have an effective way to inhibit the kind of abusive practice which is threatened, and that is scary.

MR. FARBER: Yeah, the CLEC, again, was also an issue of a very hazy – that's why crispness I think is the trick, so you can't hide behind the haze no matter which side you're on.

MR. MALAMUD: Okay. Well, thank you very much. I found this whole debate intriguing and I find it to be a different debate than what I see happening on Capitol Hill. And what I see happening on Capitol Hill is a debate between large, well heeled corporations – and, Vint, no offense intended – present company excluded. And the debate is about who's going to take the most money out of your pocket. It's not about the public interest. It's not about the common good. It's not about building up our economic infrastructure, making ourselves competitive, and that to me is the most disturbing thing about what I'm seeing.

These are fundamental, important issues. They are not going to be dealt with in one session and they're not going to be dealt with, I don't think, on this one particular issue, however important it may or may not be. I think the debate needs to be broader.

So thank you very much. I appreciate everybody coming.

MR. CERF: Thank you, Carl.

(Applause.)

(END)