

The Policy Implications of End to End

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Panel 5: Jerry Faulhaber and Mark Nuway

MODERATOR: Okay. The afternoon session we're going to split between two domains. One is the domain of cable and the other wireless. The structure here, I think, is probably transparent. But I don't want to pretend like I'm hiding anything. The set of issues that we raised from this morning, both about innovation and also about leveraging power, are well-presented in the context of both people and in ways that I think we don't yet have a good sense of wireless. So cable is the context where there's been the most heat in this debate. Some of us have screamed at each other; some of us have been screaming with each other. And so there's a lot to negotiate to make sure this is a useful conversation.

But I wanted to have Jerry Faulhaber give an introduction to this, because in the middle of one of these screaming matches, he gave a presentation that I saw at Berkeley which, though, not taking the position I take in this matter, was the most enlightening of the presentations that I've seen talking about this. So it nicely segues from where we were just before we broke, and I'd like to ask you to start by taking us through the next session.

MR. FAULHABER: Thank you, Larry. I should start off by indicating I'm an economist. My day job is teaching at the Wharton School of the University of Pennsylvania. However, I am currently the chief economist at the FCC, following in the footsteps of Howard Shelanski.

I do this as a one-year stint. And it's an interesting one because one of the things is I'm pretty much surrounded by lawyers, and I sort of feel like I'm spaceman Jerry who has crash-landed on planet law. And I guess I've been force-fed enough law in the last few months to last well beyond my current expected lifetime.

Also, I should say, in a previous life I was actually a Bell Labs techie and learned assembly line [??] and then helped design

the number one ESS, which is the [??] programming control CL, or, I should say, in this company the [??] central office. And, I will say, there was one brief shining moment when I was actually an activist and advocate; but let's not discuss that.

What I'd like to do is discuss a little bit about how an economist sees this e2e stuff. And what I'm going to try to do is share with you a little bit about the plan in economics. First of all, economists focus really in three areas. And I'm going to use a word that I haven't heard yet today, and that's the word "customer." We focus on customers, producers and markets. We aren't ends; okay? These are not ends, these are people, customers, producers and then, of course, markets.

When we do normative economics, presuming to say what's good and what's bad, our measure of value is the economic surplus realized by those markets for both consumers and producers. That's how we make our value judgments. That's what we look at.

Now, we view law — how we view laws is, we view law as establishing the rules that essentially enable markets, that make them work effectively, such as contract law, enforcing property rights, commercial law, fraud law, providing personal safety and the securities law, so forth. In addition, we also see laws and regulators intervening directly in the markets presumably — and I will quote Miami Trust friends here — “to make markets work more competitively to maximize surplus.”

Now, how economists view technologists is a much more nuanced set of issues. And let me kind of give you three levels of views about this. At the simplest, economists sort of think of, well, technology is out there kind of generating stuff, and it basically hands to producers what we call a technology set, and they use that technology set as a set of constraints about what can be produced using various factor inputs, and producers essentially choose what those factors inputs are on the basis of price constrained by the technology set. That's the kind of Kenneth Arrow (phonetic), general equilibrium view of the world. In essence, technology comes to us from God or technologists or [??] or something.

Now, of course, a more nuanced view would be that in fact technology is really part and parcel of the market process, that technology is one which responds to the needs of customers and pushes forward the frontiers in ways that will add value, so that in fact it is not outside the market system; it in fact is part of the market system and is a necessary input. Certainly Joseph Shumphater (phonetic) would have taken that point of view.

A third, which is one I hear today, in which I think is of particular concern to those of us concerned with policy, and that is — well, the second view is pretty benign. The third view is possibly not so benign and gets to some issues about discrimination that Larry asked me to address. Adam Smith, who we all think of as the greatest advocate of the free market, was the first to point out that producers never meet, but that they conspire against the public. And it's almost a direct quote from the Wealth of Nations. And his view, of course, was that producers were always trying to figure out how to monopolize and otherwise get more profits out of the public. And it was only because there were a whole lot of them competing that they weren't able to get away with that. But, nevertheless, they continue to try.

And I should say, one of my jobs at the Wharton School is to teach them how to do that. And nobody's embarrassed about it, including me. So — and it's only the competition which keeps them in check. But producers will always search for ways to escape competition — okay? — through marketing, customer lock-in, predatory pricing, network effects, et cetera, et cetera.

And technology is simply one more set of strategic variables in the [??]. One of the things we hear, and this is that sort of technology is a destiny story, is that technology is just a piece of this. Can we structure our technology in ways which essentially permit us to build barriers to entry, so that in fact technology is endogenous to the market in two ways: One is it does respond to consumer needs, but it may also respond to the strategic needs of producers to erect barriers to entry or to destroy barriers to entry that have been erected by others. So the process is really a very dynamic one and one which is rather difficult to predict.

Now, where does the e2e argument figure into this? Well, the e2e advocates are essentially arguing, if I translate this into planet economics, that e2e in engineering is the equivalent of the perfect competitive market that economists know and love. It's the thing that makes it all transparent, it's open, anybody can do anything. This is cool; okay? So, you know, economists love competition too. We think this is great. They allocate resources sufficiently, everybody's striving very, very hard to please consumers, and under certain conditions we get competitive markets yielding socially optimal outcomes. Sounds a lot like e2e; right? So in fact we all agree and we're all kissy-poo, so we can go home; okay? But in fact that's not the way the real world works. It's neither the economist nirvana of perfect competition nor is it the engineers' nirvana of e2e. It doesn't work that way.

First, we notice that customers actually don't behave as we would wish them to. They keep insisting on things like "I'd rather buy a bundle. I'd rather buy it from one person. I'd rather not have to worry about solving complexity; I'd rather somebody else solve complexity for me," all of which present enormous profit opportunities for businesses and opportunities to change the technology. And at one level this is what consumers want and this is how it's going to evolve.

I'll give you an example, I'll give you two examples. The first is, and the most obvious, is you should read Dave Clark's and Marjorie Blumenthal's paper, which was supposed to be required reading, which will show you that the principles of e2e tend to get violated essentially when, at least in some of the cases that he mentions, customer demand is pushing them to be there. The couple of issues he raised, one is operating in an untrustworthy world, more demanding apps, less sophisticated users.

One of these we seen and we all sort of pooh-poohed, us, you know, cool Internet guys, is the rise of AOL; right? As they put it, somewhat understating the case, "We're for the people" — "We're the ISP for the people who go to Jiffy Lube, not the ISP for the people that change their own oil." And we all pooh-pooh this and we call them "newbies," and their market share is huge. There's a market demand for all those nasty things they're doing. And consumers like it. If we think they're newbies, tough. So e2e may very well be violated for reasons which are really lower cost or higher value to customers.

Second, if the e2e arguments are violated in the course of increasing customer value, and I understand — and I would recommend Mark Gaynor's paper about attempting to evaluate using real option theory — the value to customers of maintaining openness, but even if we take that into account, if the principles of e2e are violated in the process of creating customer value, then it's too bad for the engineers. Because whether — you know, our view as economists is that it's the surplus that gets generated by customers for customers in the market and not engineering [??] and not even economist [??]. So — and that's — that's what we mean by the — in terms of our normative analysis. We may not see our dreams of perfect competition satisfied. You may not see your dreams of e2e satisfied. Tough toenails for both of us. Customer value is what should be paramount.

Third, the engineering assumption that once we set the sort of architecture for the whole system, then the game is over. Everybody's playing within that structure. If the cable operator,

for example, just to name a random example, can, you know, use their monopoly strategically to destroy American society and all that we stand for all for their own personal profit, then the game is over. But in fact, actually, we're being a little presumptuous in there, because in fact architectures get decided by markets. And one of my favorite [??] which is now called "Verizon," you may remember in the middle 80's decided they were going to introduce an architecture which migrated everything to the center. It was called The Intelligent Network. Do you remember that? Okay. And it was rejected by the market. So these things happen. And we could give a number of other examples where people have tried to impose architectures but in fact get rejected by the market.

Okay. Let me get to cable for the moment. Oh, yeah, one of things about — I sort of — what markets tend to do, and this is something Larry asked me to do — first of all, tend to drive the stuff that consumers want, but they are also open to possible strategic behavior, certainly if there's barriers to entry. So sometimes we see behavior and we don't know whether it's good or bad.

We've talked about discrimination. And, of course, using the word "discrimination," it's just like it's a value-laden word; right? It must be bad. But in fact the world is filled with different range of goods. You know, "I really don't want to buy a Lexus. I prefer a Chevy. And I don't want to pay the amount of money I would for a Lexus." And guess what? The market lets that happen. It happens when you go into any retail store. In the supermarkets you see a range of goods, different prices, different qualities, and all is right with the world. That's the way it's supposed to be. However, discrimination can also be used for product differentiation, or whatever you'd like to call it, in a way which is a little more iniquitous, and that would be if firms are using some technical or market means to discriminate in such a way that reduces the competitiveness of the market. The fact is, we can't say product differentiation or discrimination is good or bad. It depends on what the market outcomes are. But the iniquitous uses of it basically arise out of market failures. They don't arise out of people maximizing profits. Everybody maximizes profits, everybody. It's competition that constrains them from using these things in an iniquitous way.

Okay. Let me get the cable access broadband open to [??]. Now, I should say there is a merger case going on, it's under active consideration. I won't tell you the name of it. Merger case going on, it's under active consideration now with the commission, so there's a limited amount I can say, but I'll see if I

can find something to annoy people anyway.

The arguments for open access in the cable world or in any broadband world really, I think, are grounded in two things that are close to my heart. And one is that ensuring that customers have full access to the Web and the Internet and whatever content exists on it, including p2p stuff. And second, and I think this is one that Dale Hatfield always reminds me about, and that is to make sure — and I think it comes out in e2e — that developers are free to innovate on the edge without constraint.

So there's sort of two things about that, and I think these are both very important. But let me tell you what the cable open access stuff is all about. It's about ISPs. You may think those things are the same; they're not. The argument is about putting — you know, permitting ISPs to have access to the cable conduit. It's not about, except quite indirectly, letting everybody get access to content or, you know, developers — okay? — being able to do this. It's a different story. You may think it's a good proxy for that and it may be, but that's an argument that needs to be made and I haven't heard that made.

Let me actually be contrary on this one. Let me sort of talk about ISPs for a moment. This will, I'm sure, annoy a lot of people. Think about the basic ISP function, which is receiving a telephone call over a modem, connecting into the Internet, maybe doing your e-mail. It's a function which makes a whole lot of sense in a world where you connect to the Internet using an undifferentiated network like the telephone network because you have to mediate between the telephone network and the Internet.

Now, there are a very few providers that understood that that's a commodity-like function, and if you're going to create value you have to do a lot of other stuff. And the very few is called AOL. And they made a ton of money doing that. But still most ISPs are basically a pretty low functionality kind of a thing.

So we say, okay, how does that migrate to, let's say, the DSL or the cable modem business or the cable broadband business where, in fact, the connection is a dedicated one, it's not an undifferentiated telephone connection. Now, we say, well, do we really want to create a split in or maintain a split in the market where we have the conduit guy and then we'll have a whole separate layer, which would be the guy that does the connections to the Internet. Well, it could be we do. I don't know. But, I'll tell you, on the face of it, it's not obvious that that's the right industry structure for that industry. One could quite argue that the switching function and the conduit function

shouldn't really be integrated. But, note, that doesn't get to the content issue which is the one, I think, that really moves us.

What we're focused on is this IPS stuff, which is not content; okay? Now, it may be, but you have to make that argument. And in the meantime, we're all talking about open access, which I view as the ISP preservation act. Tell me how that's anything about the First Amendment.

Let me address one thing at the last. Now, we've heard something about regulation and that regulators need to step in and fix this problem of open access, and e2e is the touchstone for this. Now, I refer — the notion here is regulators will come in and fix it. And I would refer to this as the high school civics view of regulation. And since engineers really — oh, yeah, right — since engineers usually don't actually get to see how regulation is done, more or less like Bismark sausages, you can be excused for not understanding what this means. But lawyers who actually often take the same view really should — they see how it's made — understand what's going to happen.

So we all sort of think what's going to happen is a sensible rule gets made, and everybody says "Oh, yeah, that's very sensible." It's never the way it works. It's not like it — mostly it doesn't work this way. It never works that way; okay? It's what you got to understand.

First of all, of course, if you put a regulation in, the reason you put a regulation in is 'cause you're making somebody do something they otherwise wouldn't want to do. So they're going to object to that. So the first thing that happens is, you know, fifty lobbyists appear in my office, and they're all over the FCC like a cheap suit. So what you actually started is, you put into place, you know, you've put into training this long process of regulatory judicial and legislative hearings, filings, NOIs, MPRMs, years of essentially the FCC or somebody else sitting in the middle of commercial disputes.

Now, let the — we actually have some data on this, and I'm going to — this is usually not how it's viewed but I'm going to try this. The FCC actually — in Congress; right? Not just, you know, a piddly regulatory agency. It's like the house of the people — actually put into place about four years ago the equivalent of open access. Now, I mean this is the will of the American people. We're not fooling around here. It's not just a bunch of bureaucrats at the FCC. Congress told the FCC to oversee the opening up of telephone companies local loops. Now, we didn't call it open access, but that's effectively what it is — okay? — using unbundled network elements. And this is not

like some little thing that went off to the side; this occupied front and center the FCC and some of the smartest economists and engineers in the world to figure out how to do this.

Now, what this was supposed to give rise to was a new industry of competitive local exchange carriers. Now, one of the things I've got to tell you, is that "competitive" means they're not regulated. They're all over the FCC. If they're so competitive, what are they doing there? But we have this new business. So if competitive local change carriers...

Now, I could tell you the statistics of just how successful this enormous effort by the U.S. Congress and the FCC is, but, you know, the statistics are not meaningful; we learned that from Ronald Reagan. We need to have something much more direct. So let me do a little survey here just to kind of close this out.

How many people in this room get their line-to-line telephone at home from a C-line? Me too, okay. Anybody else? Good. Do you think that's open access? That's how the regulatory process works. And it's not because people don't try. All right? These are some of the smartest people in the world trying to work this process. It's the way the process works. So if you think anybody's going to come in and say "open access" and it's going to happen tomorrow, forget it. It just doesn't work that way.

Thank you.

MODERATOR:Okay. There's a lot on the table, but right down to your right, to my left, though, Mark Nuway (phonetic).

MR. NUWAY:Okay. Well, all right. So I actually — rather than — there's a lot I disagree with and there's a fair amount I agree with. And rather than kind of responding, I want to raise two points and then kind of shift into a question that, I think, brings us back to the e2e analysis.

So I, too, will do a survey. How many of you at one time or another have gotten a call or a mail solicitation offering you long distance service from a company different than the one you currently have a long distance carrier? Anyone? There aren't only failure stories associated with introducing competition in the marketplace — right? — there are also success stories. Now —

FEMALE SPEAKER: (Off mic.)

MR. NUWAY:Yes, I am. Right. And, look, I'm not happy with it, and it may be getting less competitive now than it was five years ago. But I'll tell you what, in the 1970's when a small company with a new

idea for how to make long distance services tried and failed to interconnect people long distance outside the AT&T network because AT&T blocked them, that wasn't competitive. What we did, what we got was a quantum leap in innovation in long distance and a lot of associated other innovations in wireless communications and so on by virtue of having potential and, for a substantial number of people, actual competition in that area.

It seems to me that the relevant questions are these. Jerry's absolutely right about the costs of regulation and the fact that it's a really messy process. And he's absolutely right about the law of unintended consequences. And the fact is, we don't know how the Net will develop and how the telephone system will develop under one set of constraints or circumstances versus another. And the question is what should be our default rule? The question is, given that we don't know what an ISP will look like ten years from now, will it be a commodity that only gives you e-mail access or will it, as Larry and I have argued in other context, mutate its nature, come up with new kinds of competition that we haven't thought of yet, what is it that best gives us, preserves for us the capacity for that kind of innovation?

And what I took the lesson of this morning to be was, the principles of e2e are really useful — all right? — they contribute to developing innovation in lots of ways, but they have tradeoffs with particular customer demands. Sometimes customers want things that put pressure on the e2e architecture, whether it's quality of service guarantees, whether it's network security and so forth.

To bring that question from this morning into cable, it seems to me is what we ought to be asking. But what we want to know is, what is it about cable access that forces an e2e tradeoff? What is it that requires us to give up e2e architecture in order to — what we're doing in order to get what from the consumer perspective?

I'll tell you what I see, to be honest, is that we're being asked to give it up not because of consumers demanding a particular service but because the producers, the cable companies are in a position to demand it and they'd really like us to do it. But technologically I think the right questions are, well, what is it that we get out of suppressing e2e in the cable market, if anything, and is it worth the cost?

And then this leads me to the final point, which is I got a technological question that I'd just like to have somebody answer for me. I hear cable advocates argue a lot of things

about open access, and many of them are contradictory. But the one particular contradiction I want to focus on is sometimes people argue that it's just not possible to do open access — right? — it's technologically difficult. The FCC can't compel it 'cause it's hard. Sometimes people, and occasionally these are the same people, argue that we don't need the FCC to do it because cable companies will do it anyway. Now, both of these, of course, can't be true. All right? It's either impossible to do it or it will be done without the FCC requiring it to be done, but it can't, of course, be both. And what I'd like to hear from the technologists at some point in this debate is is it possible to build open access into the cable architecture and, if so, what does it look like.

MODERATOR: Okay. There are three things that are floating out there. Let me just see whether the one technologist we've got up here for sure and that one-half technologist, half economist that we've got up here wants to answer that question directly.

MALE SPEAKER: Absolutely not.

MODERATOR: But I — then I want to go to Mark for a second. Because at the very beginning, what Jerry said, you took a step, which I didn't quite see how you could take.

MALE SPEAKER: You should have raised your red flag.

MODERATOR: Yeah, well, I lost it. So — all right. Here's what you said, you said when we see consumers choosing certain bundles that might put — as Mark was saying, "put pressure on the e2e structure," what we should realize is that they're getting some sort of consumer value out of that and that's a good thing. And then you said — and Mark Gaynor's paper, with Scott Bradner, also identifies certain consumer value that comes from certain other structures about the way the market can be set up. But the ways in which that consumer value has manifested, the part that Mark's talking about, is very different from the way that consumers manifest their consumer value by selecting certain bundles.

And so what I'd like to hear from Mark is how you react to this picture of, "Well, if the consumers have chosen it, then it must be okay," given the particular type of value you've identified. Now, that means I'm inviting you to describe a little bit the value that you and Scott have identified from this particular market for this particular architecture.

MARK: I mean my question is what does open access mean and what are the important aspects of it? To me as a consumer, I want to be able to offer any service that I decide is good or I want to

experiment with or I want to be able to use any service. I don't want an ISP [??] to tell me "No, you can't have this video because it's not on our network and we don't make any money on it."

For example, I'm teaching, I'm helping to teach a course at Harvard and we offer it over the Internet. Anybody should be able to view that. No ISP should be able to say "I'm not making money at this; therefore, you can't use it." I don't — so that, to me, is open access and that's an important aspect of it.

But do I care who manages my cable modem? Not at all. As far as choice of ISPs, what is an ISP? To me an ISP is plumbing. It's IP dial tone. As long as I can get an IP packet from anyplace and send an IP packet to anyplace, I feel that I can do what I want. I don't really care if I can make one call to get my troubles solved; chances are they can't solve them anyway.

I had a problem with my cable modem just a couple days ago. It was out for a whole day. I called MediaOne. They claimed that there was nothing wrong, it must be on my side. And two minutes later it started working. It could have been a coincidence, but I don't believe so.

So, to me, it's if you want to innovate, that's fine, but at what level do you need open access? Do you need it at the point where an ISP can manage my modem, or do you need it at a point where an ISP does not have the ability to tell me what service I can use and what service I can't?

MODERATOR: Okay. But your paper identifies a particular value here that's relevant to the set of values that we should be considering; right? So this is the second invitation, this is a pleading.

MALE SPEAKER: If you don't do it this time, Mark, I'm going to do it.

MARK: What we tried to look at is what is the value of experimentation versus market uncertainty. And what we came up with was, if you know what to do, experimentation doesn't help you very much because every experiment falls within a very narrow range and it meets users' needs. But if you don't know what customers want, if you have to experiment a lot — and a lot of experimentation is very valuable because you might get an outlying service that has a huge amount of value that nobody expected. And that, to me, is the key, that's going to come from someplace that you don't expect.

And I think the prime example of that is the Web. And look how [??] Web was created. There was a guy in Switzerland [??] who was trying to support his own users. He wasn't really trying to change the Web, he was trying to help people that he was

servicing. And he had a great idea and it caught on and people used it. And that's an example of some guy doing an experiment that was, you know, just an off-shot and it happened to work very well. And you don't want to restrict that; you want anyone to be able to experiment because you don't know what's going to be good and what's going to be bad. And the higher the market uncertainty, the greater the range of experiments are going to be, and so the more value you have by having an architecture like e2e that allows these experiments.

In my paper I don't say it has to be e2e; I say you need an environment that allows you to experiment, and e2e happens to be one particular architecture that allows you to do that.

MODERATOR: Okay. Now, this is a value that the market as a whole experiences; right? And the particular consumers aren't choosing one way or the other based on this particular value. I mean we're realizing that the market as a whole, it's a value that's shared by everybody in the market if the architecture is e2e. That's the claim; right?

So this is the sense in which I'm trying to make clear that there are two different kinds of value here, one that the consumer might be choosing, that's the bundle that Jerry was talking about, but the other is a value which the consumer individually is not choosing at all. It's a value that the market as a whole realizes and that the consumer's choice might be inconsistent with; right? You would agree with that; right?

MR. FAULHABER: Let me try to capture that because what's interesting about Mark's paper is he used something called "real option theory" to put a dollar value, in principle, on flexibility. And I think that's a good way to go, and it kind of sets up a nice tradeoff, which is something that Dave mentioned or Dave [??] mentioned earlier, which is to say, you know, it gives you "comparability." It doesn't say "e2e [??]"; it says, you know, there's a value to e2e and there's a value to other stuff and they need to be traded off. But it captures that value.

Now, what Larry is saying, which I think is very interesting, is what you might call sort of the Joni Mitchell theory here, which is to say "You don't always know what you got till it's gone." And the view here is that there's a kind of an external effect to this which is not captured in actual market transactions. And I guess I would say yes to that point, but I would also say, as we witness the Internet versus the telephone network, that there is still a market operating at competing infrastructure levels. Which is to say, if we sell off our birthright for a mess of pottage, which would be giving away e2e, and it turns out in the end that's bad,

that maybe we did that with the telephone network, there will again, we would hope, arise a structure which might encourage at some higher level that kind of experimentation. So it's not like —

MULTIPLE SPEAKERS: (Unintelligible.)

MODERATOR: The other Jerry. I'm sorry.

JERRY: So what I was going to say is that it seems to me we're discussing short-term certainty — I can get a 700-kilobyte per second line from MediaOne tomorrow — versus long-term uncertainty in which the technology is going to be changing and someone is going to come up with a bright idea for something that requires a two-megabyte line that I won't be able to get from these people, but they meanwhile have frozen me in on this 700-kilobyte line or something. So the value that you're talking about is based on short-term horizons, I think.

And the thing that we're doing from the other side, namely there is significant value to — you need more experimentation in the face of uncertainty. Because the world is changing so rapidly — we're getting factors of ten, hundred or a thousand in a decade in pricing of various things and new ideas show up in response to this — the uncertainty in the long term, for the long term isn't that far away anymore, is enough, perhaps, to overwhelm the short-term, immediate — the consumer can see what he wants and goes and buys it.

MODERATOR: Well, let's take it — let's take it —

PANELIST: That — hold on. Well, yeah, but, I tell you, I have been sitting here very quietly. I know the First Amendment, it's not about the First Amendment; it's about ISPs. And here I am as a First Amendment person on this panel, and we need to talk about — we need to talk about the third value. And we're talking about technology values of experimentation and we're talking about the market value of competition, but there's another value that we haven't, which is the democratic value. And I think they're very much in line, which is why we have been, you know, very interested in promoting open access and the e2e theories is because we want people to be able to have this access to all the content.

And you said, well, there has to be some sort of proof that ISPs are the means to that end. And I think that there's been some very important ideas that were raised in some of the papers that were distributed that ISPs are a proxy for the users in a lot of ways.

So there's two points that I want to make about the ISPs. One

is, I think there's been a concept raised that well, e2e doesn't necessarily requires the user to be intelligent and to have all this sophistication. And so one of the barriers to moving things to the end is that you have unsophisticated users.

Well, in reality, you can have a sophisticated seller or producer of something that everybody can purchase and download and put on their computer, and therefore they don't need to understand all the complexities; they will be able to be participating as an end, but they'll be purchasing their knowledge from somebody who — you know, we can call it "ISP," we can call it some unknown [??] going to come forward, but for these purposes, let's just use the IP as the [??].

I think the second thing is very important about why we need open access and why we want to have the ISPs in there, is preserving this competition. One of the — one of the concerns that we have, competition in the marketplace, we have folks who want to provide content; that a huge economic incentive for certain players to participate in the market because they have this content, and the way that they're going to earn all their money in the marketplace is through — being providing value added services and they're going to provide this content. I think we want to allow AOL and Time Warner to do that. We want to allow them — and I won't — one named cable company and other ISPs, for example — to be able to offer these value-added services, but we need there to be choice. We need there to be choice because we are a country that values democracy and a variability of content, so how do you allow Time Warner to offer this content, offer its conduit, and yet also preserve choice and experimentation while you allow these other third parties in, and then you get the best of both worlds.

JERRY:

Okay. So I think from a technologist's point of view, I have to come back and agree strongly with the other Jerry, namely that the proposals for open access fundamentally are ISP preservation proposals and that it isn't clear that ISPs are the right way to do this kind of thing. ISPs, in my mind, are artificial entities that sprang up because the world wasn't quite ready for the Internet. And at this point to say, well, the way that we preserve — I think you got the right set of values. The values you're after are ones that we would like to try to capture. And I'm — but I'm very concerned about the idea of trying to capture them by allowing ISPs to wedge additional hardware into the head end of my cable company, 'cause that just doesn't seem like the right way to do it.

I think the fundamental issue of what the people who are on the values side that you're describing of long-term utility and ability

to experiment and so on, and First Amendment and ability to get at all content, the right way to go at that is a slightly different point, and the question is phrased wrong. It seems to me the fundamental issue that we're into is something much deeper, namely content versus carrier.

The guy who owns the pipe to my house also makes a profit from the content that he can deliver. And I find that is where there is an inherent conflict of interest in the situation. And if we separated both things — and this is a place where regulation might be required in order to convince people that they have to separate it, 'cause they wouldn't want to, if you want to separate those two ideas so that the guy who's carrying it and is providing the plumbing has no direct financial interest in the content, at that point the pipeline into my house becomes a peer connection to the Internet and I can get at AOL or Time Warner or anyone else who has content. And I think a lot of the issues we see disappear all of a sudden.

FEMALE SPEAKER: (Off mic.)

MODERATOR: That's a good question.

MULTIPLE SPEAKERS: (Unintelligible.)

MODERATOR: Wait, wait, wait, this is going so well.

FEMALE SPEAKER: (Off mic.)

MODERATOR: This is not the FCC, government.

MALE SPEAKER: Yeah, it is, no matter what she says.

FEMALE SPEAKER: (Off mic.)

JERRY: I've heard this argument. I've heard it from AT&T, say "We will not — we won't wire your city up if you insist on open access." I'm very skeptical of it.

FEMALE SPEAKER: (Off mic.)

JERRY: Right. I think that there is actually considerable economic benefit to selling cheap stuff in large quantities. So it's entirely — and it's not obvious.

MARK: Why — I mean why isn't the answer to that "I charge a price that the market will bear for it"; right? And perhaps we can talk, as we sort of started to get at the edges of this morning about how I ought to be charging that price — right? — maybe graduated so that the people who want real-time video or telephony can pay a higher price than someone else. But you can certainly charge on the basis of bandwidth and separate it from the particular content that you're doing. And if the answer is you don't want to be in the business of a dumb pipe, then I guess

the question is, well, why not?

That is, if — if it's — right. Because there's two possible answers. One is, I don't think I will make enough money to survive at it. If that's right there, we've got a problem with our pricing mechanism and we have to fix the pricing mechanism. But if the answer is "I think I'll make more money if I can bundle content with the pipe, then if I just sell the pipe . . ." Well, I'm not sure, from a societal perspective, that's the answer that we ought to be particularly happy with.

MODERATOR: I want to — pardon?

FEMALE SPEAKER: That might be true, and, again, this is 100 percent [??], this is not the FCC [??]. That may be true if in fact my [??] from a rate of return. I've got the money to build this now, you know, from taxpayers and everybody else. You can [??]. But should it be true, if I go out to the marketplace and leave the pamphlets, should I not have the choice of whether or not I want this to be a dump pipe or not?

MR. FAULHABER: This is easy.

MODERATOR: And you think it's easy because —

MR. FAULHABER: Oh, yeah. The issue is that "It's smart versus dumb. We made this mistake at the time of the [??]. Do you remember at the time of [??] and anybody who was still alive back then, everybody thought AT&T was just going to clean up. Do you remember that? Because they were going to have all the intelligence and it was — you know, the operating companies were going to be like the water company. I just never understood that. It's like they had the monopoly. It's not smart versus dumb. It's who has the monopoly. If I have a dumb pipe and I have an [??] — let's just stipulate the cable guys have [??], I don't care how smart it is. I can get all the money. It's called the one-monopoly rent [??]."

MALE SPEAKER: (Off mic.)

MODERATOR: Okay. There's an aspect of the [??], though I don't want to use, that when you — when the two Jerrys were agreeing — this is a bad panel if you think about first names.

MULTIPLE SPEAKERS: (Unintelligible.)

MODERATOR: But I want to pick up on where the two Jerrys were agreeing for a second. So both Jerrys were saying this is the ISP Protection Act. And Jerry No. 1, Jerry on your right, was saying that he hasn't heard the argument that shows how ISPs are really good proxies for consumers here.

Now, here's the question: If you are worried about certain

strategic behavior, which you identified in your talk as being engaged in by, let's say, an infrastructure companies like cable companies, isn't the likelihood of that strategic behavior significantly reduced if there's a large number of other competitors who get to play on the same line? Isn't that at least one function that open access for ISPs is serving, namely to change the business model of the infrastructure game?

MR. FAULHABER: No.

MODERATOR: And why would that be?

MR. FAULHABER: Let me repeat, there's the one monopoly rent theorem, which is to say — and let's stipulate for the — I don't actually believe that this — but, you know, it seems to be what we all believe here, which is to say that there will be the cable provider and they will be the monopoly. Yeah, let's pretend DSL is [??] and let's pretend that [??] don't exist, let's pretend market opportunities for this great new stuff aren't going to actually happen.

FEMALE SPEAKER: You could ask everybody whether they have local telephone competition. And now all of a sudden, these people are completely [??] competitors? I mean you can't have it both ways.

MR. FAULHABER: The telephone company?

FEMALE SPEAKER: The local — you just said nobody had local competition in their house with telephone service. But yet somehow the DSL [??] are going to be this, you know [??].

MR. FAULHABER: No, I said that that was [??]; okay? Sorry. Okay. So let's just —

FEMALE SPEAKER: (Unintelligible.)

MR. FAULHABER: Let's — let's suppose that they are the monopoly; okay? They will capture the rents and they can control what's going on. Now, would it be in their interest, for example, to say "Well, we want to have an ISP like AOL, for example," which has a particular kind of forum. But you know what else we could do, we could also use our channel to have a gamer's ISP, which is focused on meeting that particular need, or, let's say, a family ISP or a number of others. And I think the answer is yes, they will control the show if they're the monopoly because of they're the monopoly.

MODERATOR: If they can control what the ISPs do too.

MR. FAULHABER: They will choose the ISPs that control the [??].

MODERATOR: That's what I mean.

MULTIPLE SPEAKERS: (Unintelligible.)

MR. FAULHABER: Let me give you another example. There is almost no place in the real economy where the people that are running the infrastructure don't get to choose who's in it. You go to your supermarket, you get — what choice of goods do you get? What the supermarket chooses to put out; okay? But if you go to a mall, what stores do you see? The one the mall operator gets to [??].

MODERATOR:[??] turn the whole table [??].

MARK: But it turns out there's more than one mall.

MR. FAULHABER: If you live in B.C., there's plenty of malls.

MODERATOR:But I just want to make clear, what you've said in response, when you said "no," your "no" assumed that the cable operator got to control what the ISPs did when the ISPs —

MR. FAULHABER: Absolutely.

MODERATOR:But if that assumption is not true, if they don't get to control what the ISPs do, then don't the ISPs present a competition to this strategic behavior business model that you are . . .

MR. FAULHABER: You realize they — even if they have multiple ISPs, there's technical things — where's the lady from 'Cisco — yeah, there is a lot of stuff they can do.

MODERATOR:Oh, now we know. (Unintelligible.)

FEMALE SPEAKER: [??] technically impossible.

MALE SPEAKER: I had a question for, actually not for Jerry, but because Jerry raised this thing that I used to believe in and now don't think I understand. [??] this idea of common carrier [??]. The question is, if I offer a common carrier but select the performance and characteristics on who's allowed to peer with me in such a way that it acts as a proxy for [??], then is that violating common carrier or is that a standard or is it so deep that you couldn't possibly regulate it?

MODERATOR:I want to reserve this question to the time when Peter Huber is on the panel, who is in a particular position to answer that question. 'Cause I don't —

JERRY: There's one interesting observation related to it, namely, if you have a common carrier who does not also have economic interest in content somewhere else, the motivation to do what you just said —

MODERATOR:Right.

JERRY: — incentives are very low. Whereas, if he owns the content, the

incentive to do what you just said is high. And that's the part I'm concerned about.

FEMALE PANELIST: And, actually, I have to say — and I [??] agree with Jerry, that in the abstract I would love it if there were a structural separation, and if you talk about it, you're talking about the FCC model between computer two and computer three. Well, computer two was a complete separation and computer three was non-discriminatory rules to prevent problems even though you had relationships between the companies providing those two different services.

So, yeah, in the abstract it would be wonderful if we could have them completely separate. But if you think we're having trouble asking for basic discriminatory policies on these unnamed cable companies, you know, try telling them that they just can't own it at all. I mean, you know, forget about it; that's not politically realistic.

So, yes, I would love your solution, but we're not getting that solution [??].

MALE SPEAKER: (Off mic.)

MODERATOR: Okay. We've got round two, and most of the people in round two have their hands up now. And I'm not going to call on them.

FEMALE PANELIST: Well, I think that's what I meant when I was talking about the IPs of the proxy and [??] is right, that there's no — that particular [??] is not really part of [??].

MODERATOR: Okay. But why don't you talk on the final thing on the ISP.

MARK: Oh, well, I mean I agree with that. And it seems to me, you know, it's a good thing too; right? I mean the question — I want to come back perhaps to the question that I asked first, which is what do we get by allowing the cable companies to control ISP access? Clearly one of the things we get — Jerry has [??] lobbyists in his office — right? — and has a proxy for. I mean, well, it is — it is right there is an administrative cost associated with this that we would be giving up if we just said —

FEMALE SPEAKER: (Unintelligible.)

MARK: But — but I guess — I mean it's a serious technical question, that is there something associated with giving the cable company control at the ISP level as well as at the dumb pipe level that gives us a consumer benefit analogous to the benefits that we get out of QOS or caching that we talked about this morning.

FEMALE SPEAKER: I promise to be real short. When you say "open access," is it multiple ISP access? Is it 5,000 ISP access? Where on this

continuum of ISPs do you [??]?

MARK: You can — you can pick whichever one you want if you'll answer the question — right? — that is — no, I mean I —

FEMALE SPEAKER: (Off mic.)

MARK: But it's also changing the subject.

FEMALE SPEAKER: I want to answer that question directly, because I think what Debra brings up is exactly the conundrum that we've had [??], which is open access means that a cable company has to provide interconnection to any one of 10,000 ISPs across the country, and the economic cost for that is very large.

MARK: What's the cost?

MULTIPLE SPEAKERS: (Unintelligible.)

FEMALE SPEAKER: That I don't know how to do. If it were — if the constraints were — and [??] a dozen ISPs or even a couple dozen ISPs, that's a cost I can begin to quantify.

MULTIPLE SPEAKER: (Unintelligible.)

FEMALE SPEAKER: But there is a different — certainly a different kind of economic cost of those few regulations.

And now what we've talked [??] not regulation, I think, from the definition that Jerry [??], forcing somebody to do something that they would otherwise not [?]. Now, regulations is an issue of limiting the degrees of freedom of the producer in such a way that is also going to significantly limit the degrees of freedom of the consumer.

MODERATOR: Well, I was worried this panel —