

Opening Statement of Gary R. Bachula, Vice President, Internet2
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All too often, net neutrality gets characterized as nothing more than a debate between big and powerful telecom and cable companies and big and powerful content companies. Nothing could be further from the truth. This debate includes thousands of not-for-profits, community groups, state and local governments, public interest groups, educational and research organizations, and many more, who use the Internet everyday to do their work. It's not just business vs. business.

A case in point: I am here today representing EDUCAUSE and Internet2, two organizations representing those who build and manage Information Technology systems within our nation's colleges and universities. EDUCAUSE represents the IT professionals in over 2500 colleges and universities, from the CIOs down to the systems guys that manage the LAN closets.

Internet2 is a not-for-profit partnership of 209 research universities, 70 companies and over 50 affiliated organizations, including many federal government agencies and laboratories. Our mission is to advance the state of the Internet, and we do that primarily by operating for our members a very advanced, private, ultra-high-speed research and education network that enables millions of researchers, faculty, students and staff to "live in the future" of advanced broadband. By providing very high speed, uncongested, pipes – 10,000 times faster than home broadband, in our backbone – we enable our members to try new uses of the network, develop new applications, experiment with new forms of collaboration, experiencing today what we hope the rest of America will be able to have and use in just a few years.

Our colleges and universities are large consumers of the Internet, we cannot accomplish our research and education missions without it. But we are also big providers of content, and we are innovators in new applications that use the Internet. We do research on future networks and network architectures; we innovate in the network and we innovate on how the networks are used.

Our nation's colleges and universities have come to depend upon a robust, neutral, Internet to educate and train our nation's workforce, to distribute classroom content, to communicate with students, to deliver healthcare from our medical centers, to conduct collaborative research across the nation or around the world. While we build and manage advanced networks on and between our campuses, we still depend upon the commercial public Internet to reach our faculty, staff & students in our local communities – as well as students and alumni around the world. MIT is putting all of its courseware online, including multimedia objects; Stanford and 100 other universities are beginning to follow suit.

We support simple rules designed to enforce net neutrality in the public Internet. Those rules could be general guidelines along with effective enforcement mechanisms. Those

rules could be no more complicated than the 75 or so words used to guarantee net neutrality in the recent AT&T agreement with the FCC.

Those rules would be designed to preserve the neutrality that began with the original network design and was underpinned by the common carrier rules, the neutrality that led to an explosion of innovation in applications at the “edge” of the network.

The Internet is important to our mission of education and research; it is equally important to all elements of our economy and our society. It is important to free speech, political discourse and advocacy. Universities are fierce defenders of the right of all Americans to speak their thoughts, to debate, to advocate. While they claim they would “never” suppress First Amendment rights, just look at the debate about net neutrality and television franchise legislation last year: there were complaints that some cable companies would not permit TV ads from telephone companies criticizing cable business practices.

We also believe the Internet has become a vital underlying infrastructure for our information economy, “the central nervous system” of our information economy.

As such, we are persuaded by arguments that label the Internet as an “essential facility” that could give a network provider control and an unfair advantage in other upstream markets. This topic was discussed by Commissioner Rosch this past November in France, a speech that is on his web page. Last mile broadband facilities can indeed be a bottleneck to upstream providers and we believe there should be a duty to deal with those upstream content and application providers fairly and pro-competitively.

But don't the new uses of the Internet – video, for example – require network providers to discriminate? Don't sound “network management” principles require the use of Quality of Service packet prioritization? We have heard in this workshop that new router technologies exist that can discriminate, but must we? Are there less expensive alternatives?

When we first began to deploy our Internet2 network, our engineers started with the assumption that we should find technical ways of prioritizing certain kinds of bits, such as streaming video, or video conferencing, in order to assure that they arrive without delay. For a number of years, we seriously explored various “quality of service” techniques, conducted a number of workshops and even convened an ongoing Quality of Service Working Group. As it developed, though, all of our research and practical experience supported the conclusion that it was far more cost effective to simply provide more bandwidth. With enough bandwidth in the network, there is no congestion and video bits do not need preferential treatment. All of the bits arrive fast enough, even if intermingled.

Today our Internet2 network does not give preferential treatment to anyone's bits, but our users routinely experiment with streaming HDTV, hold thousands of high quality two-

way video conferences simultaneously, and transfer huge files of scientific data around the globe without loss of packets.

(The statement made by the Level3 representative yesterday underscored this: they don't use QoS in their backbone, because there is enough capacity to deliver all of the bits as fast as they need be. If there is a problem in the last mile, local loop, in terms of capacity, the solution is not QoS, it is more capacity.)

We would argue that rather than introduce additional complexity into the network fabric, and additional costs to implement these prioritizing techniques, the telecom providers should focus on providing Americans with an abundance of bandwidth – and the quality problems will take care of themselves.

A simple design is not only less expensive: it enables and encourages innovation.

There is no technical, nor economic, imperative for telephone and cable companies to build prioritization into their networks. We are concerned that their current policy is to create scarcity so they can charge more, restricting output in order to raise price, charging monopoly rents.

Some have argued that competition solves this problem. There simply is not sufficient competition for broadband service in the last mile. Even if you have two competitors in a market, a phone and a cable company, economic analysis says that two competitors is never enough. But in many markets, there are not even two broadband providers. For instance, at my home in McLean, Virginia, I can only get broadband service from Cox Cable. I cannot obtain Verizon DSL or Fios service.

But I am less concerned about whether I have a second choice for broadband service than whether one or both of those choices would interfere with my right to go anywhere on the net or access any service or application by favoring their own services or those with which they have a separate economic agreement.

If telephone companies are in the upstream market, either directly with their own services and content, or indirectly by contracting with particular service or content providers, they have an incentive to give more favorable treatment to those services or content – it is simply logical profit-maximizing behavior.

But for colleges and universities, who are non-profit producers of content (we provide course lectures, research, telemedicine applications), we have no profits to give the cable and telephone companies. The priority is going to be given to commercial interests – and especially providers of entertainment – and not educational institutions. To use an over-used but accurate analogy, educational institutions will get left on the dirt road while commercial providers can purchase access to the 4-lane superhighway.

So what is the remedy? First, simple “oversight” will not be sufficient. The cable and telephone companies have already announced publicly that they intend to offer certain

providers with premium access to their networks. They have orders placed with companies like Cisco to build prioritization technologies into their networks –once it is clearly permissible.

Second, relying on after-the-fact enforcement through the antitrust laws is not a practical remedy for universities. Universities often do not have the time or resources to pursue an antitrust action if they face anticompetitive behavior. Educational institutions may or may not have standing to pursue an antitrust claim, and even if they do, those cases often take years to pursue, with enormous legal cost.

Our preference is for the government – either the FTC or the FCC, or both – to issue specific and enforceable guidelines to ensure that the cable and telephone companies maintain open and nondiscriminatory networks. These guidelines must be enforceable, unlike the FCC’s “four principles.” The guidelines should put an obligation on each broadband service provider to ensure that each application or service provider is able to send its information without distortion or degradation through the network, and that consumers are similarly able to receive that information.

We have had a number of presentations by economists here over the past two days. President Ronald Reagan once said, “One definition of an economist is somebody who sees something happen in practice and wonders if it will work in theory.” Internet neutrality has worked in practice – for 13 or 14 years in the commercial Internet and for 20 years before that when the Internet resided in our research community. Internet neutrality sparked enormous growth in both use of the Internet and in the applications and content available to Internet users.

The Internet has become an essential piece of our economic infrastructure, a foundation of the information economy. The Internet enables productivity increases across the board in the economy – from manufacturing to banking to airline reservations to real estate to e-government. The Internet has permitted businesses to re-engineer their processes, eliminate “middlemen” and become more efficient. We should be very wary of tampering with this engine of economic growth – by permitting behavior that has been taboo for the entire history of the Internet.

The key is the end-to-end architecture of the Internet that encourages, enables, permits innovation by the users – without permission, without negotiating new service from the ISP, without setting new technical standards within the backbone. Changes that tamper with the end-to-end architecture threaten that innovation. Innovation in the network itself has and will continue, but it is no where as important as “innovation using the network.” To achieve the former by sacrificing the latter would be a disaster.

To compete in this new global economy, we need a simple, inexpensive, and open network, not a costly, complex and balkanized one.