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Before the Committee on Energy and Commerce

Subcommittee on Communications and Technology

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Good Morning Chairman Walden, Ranking Member Eshoo and distinguished members of the Subcommittee. Thank you for the opportunity to appear before you today.

I spent roughly twenty five years working as an investment analyst, covering the communications industry, before retiring as an analyst at the end of 2010. I have no clients at this time and represent only myself at this hearing. I ask that my full written statement, including attachments, be included in the record.

The Internet has become central to the lives of most Americans—it is certainly something I rely on almost every day for news, information and communications. I agree with the stated goals of the FCC's Order: the desire for an Open Internet, for transparency, for an environment in which innovation and investment flourish to the benefit of both consumers and providers at all levels of the Internet ecosystem. I am concerned, however, that some aspects of the Order will ultimately result in unintended but nevertheless detrimental consequences to investment and innovation, both at the edge and the core.

The Order appears to be premised on a view of the Internet ecosystem that assumes that the edge is embryonic and innovative and the core is mature and static. Application providers, including content and service providers, are free to transform their business plans at will. One of their key inputs—transport—is provided to them gratis over the networks of broadband Internet access providers, carriers with whom they may compete at the application level. Conversely, the Order restricts the carriers' flexibility in designing their business plans, limits their sources of revenue, dictates that they spend capital to expand their networks at the edge-providers' will, and forces them to subsidize competitors who cannibalize their customer base.

To characterize this as a transfer of wealth from broadband Internet access providers to application providers is accurate, but it does not begin to grasp the problem for <u>both</u> parties. A transfer of wealth between two independent parties can be beneficial to one at the expense of the other. A transfer of wealth that will ultimately cripple the party on which the other relies for its very existence is profoundly harmful to both.

Thus, it is the Order's implicit assumption that it is possible to protect the edge at the expense of the core that concerns me most. The two are inextricably entwined: To protect the edge, it is vital to protect the core. Far more devastating to Google, Skype, or Netflix than being charged for transport on the Internet is an Internet whose evolution and capacity are flash-frozen for lack of investment.

Consumers are attracted to the Internet for its applications, but those applications can only reach consumers over the network. Internet applications may as well not exist at all without the networks that are the core of the Internet, and innovative applications can only follow a step behind the networks' upgrades in capacity and quality. The fastest, highest quality, most creative edge content is at the mercy of the slowest link in its path from provider to consumer. The Order recognizes that, of course--that's why it seeks to prevent blocking. But, in my view, the Order goes too far beyond that in its attempt to nurture applications at the expense of the network.

Networks have a voracious and unending need for capital—for fiber, copper, coax, electronics, radios and all the labor that digs trenches, strings wire, builds cell sites, and places equipment. Just as no application can safely rest on its laurels, neither can networks. They must constantly be upgraded, to satisfy the need for ever increasing speed, quality, and security.

But carriers can only raise capital to invest if they have enough revenues to cover their costs. To raise the necessary revenues, companies need flexibility. They need to be able to adjust their business plans to changing market conditions. Above all, they need to be able to charge for their services and to have flexibility in doing so. Just as professional application providers cannot afford to give away their content and services for free, neither can the carriers.

To its credit, the FCC recognizes the need for revenue, at least to some extent. It permits broadband Internet access providers to charge end users, and indicates that it would even consider permitting tiered end-user pricing plans. Why is that not enough? For one thing, the FCC places so many restrictions on the way those plans can be designed that the carriers' marketing will be restricted to one dimension—price for quantity carried--while consumers may well want very different things. Far more significant, however, is that the Order assumes that the revenues carriers depend on today can continue to support the network, even as the Order radically undercuts the sources of those revenues.

Broadband Internet access was added as an incremental service on networks that were originally designed for other services, voice in the case of wireline and wireless networks and video in the case of cable. To build a subscriber base, broadband was priced as incremental to the revenues generated by the original services, and it comes nowhere near paying for any of those networks' full costs. As long the original revenues are there to fund the network, there is no problem. But when the original voice and video sources dry up, broadband will have to carry the full cost of its network.

As I explained in my December 31st report which is attached to my written statement, that will raise the cost per broadband subscriber substantially, forcing carriers to raise broadband access prices, cut capital investment, or both. That impact is bad enough when the original revenues evaporate because of competition from facilities-based competitors who employ genuinely lower-cost technologies. If a wireline carrier loses voice customers to a wireless carrier because wireless is an inherently lower-cost technology or because customers want mobility, that may be unfortunate for the wireline carrier and its remaining subscribers but it's unavoidable. Better technologies ultimately win. More importantly, there will be some natural limits to the loss, because the wireless carrier also has substantial costs, must cover them, and is therefore forced to price rationally.

But if the wireline carrier is losing customers to Skype, Vonage or Google Voice because the FCC permits over-the-top VOIP providers to use the carrier's enormously expensive network resources for free, that's regulatory arbitrage of the most destructive sort. The wireline carrier is forced to either lose its voice customers altogether or give away its voice service free to its retail customers as well as to the wholesale VOIP providers. Either way, the carrier will have to make its broadband service cross-subsidize its own voice service, just as it subsidizes Skype's. The most likely and undesirable results will be much higher broadband end-user pricing, consequent loss of broadband subscribers, and a throttling back of investment in the network.

Over time, the same scenario is likely to play out on the video side, as cable revenues are cannibalized by over-the-top video. That result is not only damaging to the wireline and cable carriers, it is also damaging to the application providers that ride the carriers' networks and are constrained by the capacity and quality limitations of those networks.

My concern is that there is a false dichotomy that drives the net neutrality debate, that views the edge as separate from the core, as needing to be protected from the core, as able to prosper only at the expense of the core. But because the two are inextricably linked, because innovation at the application level is so completely tied to investment and innovation at the transport level, the edge can only exist if the core prospers. The best way to encourage innovation, investment and jobs at the edge is to also promote innovation, investment, and jobs at the core. The FCC's goal of Internet openness is laudable, but I believe that the combination of restrictions and demands it places on broadband Internet access providers threatens the long-term viability of the core, and thus also threatens the edge.