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June 5, 2014

Marlene H. Dortch, Secretary
Federal Communications Commission
445 12th Street, S.W.
Room TW-A325
Washington, D.C. 20554

Re: *Protecting and Promoting the Open Internet*, **GN Docket No. 14-28**; *Amendment of the Commission's Rules Related to Retransmission Consent*, **MB Docket No. 10-71**; *Applications of Comcast Corp. and Time Warner Cable Inc. For Consent to Assign or Transfer Control of Licenses an Authorizations*, **MB Docket No. 14-57**

Dear Ms. Dortch:

On May 30, 2014, I made a presentation summarizing the main points of an academic paper at the Experts' Workshop on the Future of Broadband Regulation co-hosted by the FCC and the Institute for Information Policy at the Pennsylvania State University. The following employees of the Commission attended all, or part of the Workshop:

> Allison Baker, Office of Strategic Planning (OSP); Tim Brennan, Chief Economist (also OSP); Amanda Burkett, OSP; Ellen Burton, Wireline Competition Bureau (WCB); Robert Cannon, OSP; Jonathan Chambers, Chief, OSP; Caitlin Cronin, Office of General Counsel; Soumitra Das,WCB; Jack Erb, OSP; Chris Heitzig, OSP; Sherille Ismail, OSP; Walt Johnston, Office of Engineering and Technology (OET); Padma Krishnaswamy, OET; William Layton,WCB; Wayne Leighton, Wireline Telecommunications Bureau (WTB); Jonathan Levy, Deputy Chief Economist (also OSP); Omar Nayeem, OSP; Eric Ralph, Chief Economist, WCB; Jon Sallet, General Counsel; Paroma Sanyal, WTB; Henning Schulzrinne, Chief Technologist (also OSP); Susan Singer, Chief Economist, WTB; Gigi Sohn, Office of the Chairman; Tom Spavins, Enforcement Bureau; Walt Strack, Chief Economist, International Bureau (IB); Matt Warner, WCB; Rodger Woock, WCB; and Irene Wu, IB.

The purpose of the workshop was to promote analysis on the future of broadband regulation through a series of academic presentations and discussions between scholars and

Commission staff. I attach a copy of my presentation slides and a paper entitled *Net Bias and the Treatment of "Mission-Critical" Bits.*

The presentation and paper constitute my unsponsored views on the business, regulatory, judicial and social issues generated by consumers' interest in accessing bandwidth intensive video content via broadband links. I currently hold the Pioneers Chair and serve as Professor of Telecommunications and Law at Penn State, but note that the views expressed in the paper and slide presentation are mine alone.

My presentation assesses whether and how Internet Service Providers ("ISPs") can satisfy consumers' interest in their operation as open and nondiscriminatory conduits, while also ensuring the timely and high quality transmission of video content. I provide a legal analysis confirming that ISPs can provide higher quality of service to promote the likelihood for speedy delivery of video content bitstreams without degradation caused by congestion and other factors.

My presentation offers a balanced assessment of options for ISPs to provide enhancements to conventional "best efforts" routing of traffic. Providing "better than best efforts" routing constitutes a form of price and quality of service discrimination, but of a type that, with safeguards, can enhance consumer welfare while also providing ISPs with additional revenues. I explain that such paid prioritization can occur without making it possible for ISPs to engage in unreasonable discrimination and blocking of traffic.

My presentation includes a forensic examination of new traffic interconnection and financial compensation arrangements that provide alternatives to the traditional two options of peering (barter) and transiting (transfer payments). New carriers and interconnection models have arisen in large part to address increasingly unbalanced traffic flows triggered by substantially more downstream video traffic volumes. A new type of carrier, commonly referred to as a Content Distribution Network ("CDN"), has a business plan aiming to serve high volume content providers and distributors. These CDNs by design have more traffic needing downstream delivery via ISPs serving end users than what these "retail ISPs" will have for upstream delivery. As a result of this asymmetrical traffic imbalance, CDNs typically compensate retail ISPs as occurred when Level 3 and Comcast renegotiated their peering agreement. Alternatively, content creators and distributors, such as Netflix and YouTube, can negotiate directly with ISPs and reduce or eliminate the use of CDNs through a direct, paid peering option.

The presentation notes that pressure to renegotiate interconnection and compensation agreements has increased the number of disagreements between carriers, content distributors and content creators. The widely reported interconnection dispute between Netflix and Comcast attests to the high financial stakes involved as well as the growing reluctance of retail ISPs to accommodate ever increasing downloading volumes without securing additional compensation.

If a retail ISP cannot reach closure on a new interconnection agreement with upstream carriers, content distributors and content creators, then the retail ISP may refuse to deliver traffic, or may reduce the delivery speed and use other tactics that can cause an immediate and identifiable degradation in service. Consumer tolerance for such an outcome is quite limited, because content downloads quickly become congested, degraded and qualitatively inferior to previous performance. Additionally consumers do not readily know the cause of the problem, or the party responsible.

My presentation includes an assessment whether broadcaster-cable television operator content carriage negotiations provide a model for the appropriate level of regulatory oversight. When such retransmission consent negotiations do not reach closure before a deadline, cable subscribers are denied access to "must see" television, just as IPTV consumers may lose access to "mission critical" video bitstreams when ISP negotiations reach loggerheads. I endorse regulatory restraint and the reliance on marketplace-driven, commercial negotiations.

However, I also recognize that retail ISPs may have an incentive to discipline and punish upstream ISPs, content distributors and content creators that refuse to pay a surcharge. The possibility exists that such upstream operators, even ones with insignificant traffic volumes, might experience downstream delivery problems not caused by actual congestion, but instead by tactics employed by retail ISPs to nudge or push them to pay a surcharge, or to migrate to a better and more expensive delivery arrangement.

I suggest that the risk of artificial congestion and other tactics to leverage, or coerce higher payments may result in more disputes that the Commission can and should attempt to remedy. I suggest that the FCC use its "good offices" and considerable staff talent to support resolution of complaints. Additionally I encourage the Commission to use its lawful statutory authority to require that ISPs operate with transparency, including the disclosure of interconnection arrangements that deviate from the traditional best efforts standard.

Respectfully submitted,

Rob Frieden

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