FINANCIAL MARKET PERSPECTIVES

NETWORK NEUTRALITY PRINCIPLE 5

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The following brief paper provides initial perspectives on how the financial markets might view the adoption of Network Neutrality Principle 5 ("Principle 5") that requires nondiscriminatory handling of Internet content, applications and services. Because the policy proposals from the Federal Communications Commission ("FCC") are still in the developmental stage, it is difficult to provide specific analyses regarding the impact of such proposals, but it is possible to offer substantive insights.

Balhoff & Williams ("B&W") explains below that investors in both debt and equities are likely to view new regulation as negative for capital formation if those rules *unnecessarily* limit the return potential of network infrastructure investment, restrict the competitive options available to network providers, and inject government "regulation" into an industry segment that was largely unregulated. The logic of this paper is summarized in the following bullets:

INVESTORS IN BOTH DEBT AND EQUITIES ARE LIKELY TO VIEW NEW REGULATION AS NEGATIVE FOR CAPITAL FORMATION IF THOSE RULES UNNECESSARILY LIMIT THE RETURN POTENTIAL OF NETWORK INFRASTRUCTURE INVESTMENT, RESTRICT THE COMPETITIVE OPTIONS AVAILABLE TO NETWORK PROVIDERS, AND INJECT GOVERNMENT "REGULATION" INTO AN INDUSTRY SEGMENT THAT WAS LARGELY UNREGULATED.

- The Internet is based on various "layers" that work in concert to provide to end-users high-speed access to applications, content and services; those layers include data, software, and infrastructure. The most costly, highest-risk "layers" of the Internet are those that include network infrastructure, where the greatest risk is concentrated in the end-user access plant, often referred to as the "physical layer."

- Because the risks associated with the physical infrastructure "layers" are the greatest (due to high investment costs, long cost-recovery cycles, and the potential for technological / competitive stranding of investment), investors who contribute capital to fund broadband network providers that supply the infrastructure "layers" will require a relatively higher return on very substantial capital commitments. As such, predictability, or the lack thereof, will be critical in determining the cost and availability of capital to support broadband networks.

- From a policy perspective, the physical "layer" is the most challenging to manage, as investment must occur to ensure that there is a network over which the Internet can operate. Therefore, policymakers should ensure appropriate incentives for network investment, including special mechanisms for high-cost regions, while avoiding unnecessary disincentives. Without a robust broadband infrastructure there is no Internet—open or closed.

- In this context, policymakers should be cautious about creating prophylactic regulations or policies that respond to problems that may not be real, particularly in an apparently competitive marketplace, as the result might be the creation of new and unanticipated problems that artificially chill critical new investment.

THE RATIONALE FOR PRINCIPLE 5

Policymakers are seeking input regarding a proposal that the FCC should adopt network neutrality Principle 5. The proposed rule is that . . .

> *5. Subject to reasonable network management, a provider of broadband Internet access service must treat lawful content, applications, and services in a nondiscriminatory manner.*

At first glance, the principle appears reasonable, especially when viewed from the perspective of policymakers who have overseen a highly-regulated telecommunications monopoly for more than a century. The proposed rule focuses on the infrastructure "layers" of the Internet where it is assumed that a network owner ("a provider of broadband Internet access service") may engage in discriminatory behavior that is viewed as anti-competitive.[1]

TODAY (1) THERE IS NO MEANINGFUL EVIDENCE OF SIGNIFICANT ANTI-COMPETITIVE BEHAVIOR ON THE PART OF NETWORK OPERATORS; (2) THERE ARE ALTERNATIVE COMPETITIVE PLATFORMS FOR INTERNET SERVICE DELIVERY; AND (3) THERE IS A GROWING NATIONAL CONCERN ABOUT NETWORK INVESTMENT TO ENABLE RAPID AND UBIQUITOUS DEPLOYMENT OF BROADBAND.

A closer look, however, leads to a more informed view. The more detailed view reveals that today (1) there is no meaningful evidence of significant anti-competitive behavior on the part of network operators; (2) there are alternative competitive platforms for Internet service delivery; and (3) there is a growing national concern about network investment to enable rapid and ubiquitous deployment of broadband, including services to uneconomic areas that are often rural. Thus, the fundamental question for policymakers is whether there is a valid rationale for requiring Principle 5—a rationale based on truly well-defined risks or harms, and based on the sufficient probability that the principle itself will not have a detrimental effect on a growing national imperative that the U.S. should keep pace in the Internet economy.

INVESTMENT RISK IS CONCENTRATED IN PHYSICAL LAYER

The Internet is not a single service, nor is it provided by a single industry. It is a complex set of services that include data sources, applications, management services, peering and transport facilities, switching and routing, as well as access plant, among others. Policymakers understand this complexity that is, in some ways, extraordinarily difficult to manage.

The U.S. has grown increasingly concerned about its national communications infrastructure policy, as other nations appear to be leading in terms of broadband network deployment, at least based on certain studies. While vast network infrastructure remains fundamental to the Internet, the U.S. has relied almost exclusively on private investment to enable the Internet business opportunity, even in the face of major capital risks. The most basic capital risk is that networks are very

[1] The concept of layers is often traced to MCI which worked to define different layers, from highest to lowest, as application, presentation, session, transport, network, data link, and physical. The logic was that certain layers might be "chokepoints" and should be regulated differently, with the lower levels, such as the transport, data or physical treated as more highly regulated commodity services. Principle 5 appears to reflect the same viewpoint and concerns.

costly, as new and rapidly changing technologies must be deployed in ever shorter investment cycles to allow networks to cope with escalating demand for greater bandwidth and speed. Second, the majority of the network investment is concentrated in the end-user access plant, particularly for wireline operations where the labor component is high, and where stranded investment can be costly if the customer does not subscribe or cuts off service for any reason. Third, the competitive value proposition is based on a complicated combination of consumer judgments that can change quickly, including reliability of the network, throughput speeds, pricing, content (e.g., NFL network or local sports or other video programming), end-user devices (modems, iPhones, etc.), and convenience (e.g., wireless mobility). Finally, there is meaningful risk in terms of the technology cycle. The competitive performance of the technologies grows shorter and shorter by contrast with traditional telephony, for example, and alternative platforms continue to leap-frog the performance of today's networks, with faster cable technologies, the promise of mobile LTE and WiMAX, and growing fiber capacity. The risks are already high, and performance is evaluated carefully and actively by the consumer and by the investor. These capital risks apply in all geographic areas, but policymakers should be aware that the risks are exacerbated in lower-density rural markets that are particularly costly to serve.

WHILE THERE ARE RISKS TO ALL COMPANIES IN THE INTERNET VALUE CHAIN, IT IS CLEAR THAT THE MOST SIGNIFICANT CAPITAL COMMITMENTS ARE BEING MADE BY NETWORK PROVIDERS. AND, THIS PHYSICAL "LAYER" IS MOST CRITICAL TO THE DEVELOPMENT OF A STRONG INTERNET ECONOMY.

While there are risks to all companies in the Internet value chain, it is clear that there are extraordinarily high financial risks arising from the significant capital commitments being made by network providers. And, this physical "layer"[2] is most critical to the development of a strong Internet economy. Other elements remain important, but companies such as Google or eBay or Yahoo or peering companies provide services over an Internet which makes their products available to all who are connected. However, the capital investments of the application and service providers are not remotely as large or as risky as those of the network providers. While companies supplying other Internet "layers" face different and unique challenges, none of those companies must manage investment requirements and financial uncertainties that are as significant as those of the network providers.

The risk related to the physical "layer" network investment is substantial and is likely to continue to grow as technologies and competitive pressures evolve. Verizon is dedicating $20+ billion to deploy what it hopes is a "future-proof" fiber-based wireline network in a high-risk initiative, while AT&T is upgrading its U-verse investment (pegged at $7 billion to $10 billion) to provide broadband services with current speeds of up to 24 Mbps downstream (in addition to video). Rural-focused ILECs, such as CenturyLink, Frontier Communications, Windstream, Consolidated Communications and Iowa Telecom, are achieving very high broadband availability using combinations of fiber and newer copper technologies even in very low-density markets. In addition, the largest wireless carriers will soon upgrade to Long-Term Evolution ("LTE") network technology with 5-12 Mbps download speeds, while Clearwire (in partnership with Sprint and several cable operators) continues to invest heavily to expand a WiMax 4G wireless

[2] For purposes of this paper, the "physical" layer is the access plant, involving end-user connectivity and devices, as well as the electronics that support those connections.

network. Meanwhile, cable companies report that they have committed more than $146 billion to their U.S. plant since 1996, and that they invested nearly $15 billion in 2008 alone.[3] The cable operators are enhancing their broadband network capabilities through Data over Cable Service Interface Specification ("DOCSIS") 3.0 modems that can deliver speeds that they represent as approaching 200 Mbps.

INVESTORS FOCUS ON HIGH RISKS FOR THE PHYSICAL LAYER

THE FINANCIAL MARKETS ARE NOT FACTORING ANY POLICY-RELATED RISK INTO BROADBAND NETWORK COMMITMENTS TODAY. THE REASON IS THAT THE FCC AND CONGRESS HAVE MAINTAINED POLICIES THAT, IN TERMS OF ADVANCED NETWORKS AND BROADBAND, ENSURED THAT THE COMPETITIVE MARKETS WOULD BE DETERMINATIVE OF THE OUTCOMES.

As described above, the U.S. broadband "policy" to-date has relied heavily on Internet capabilities developed through private investment. The reality is that the system has "worked" because investors believed that they had the potential for sound and appropriate returns on their investment in network operators. However, policymakers generally realize that the providers of capital to competitive enterprises have always and will always require a risk-adjusted return-on-investment that is almost certainly higher than the rate in the traditional monopoly utility model.[4]

Investors continue to assess carefully recent network investments that are high-risk. For example, Verizon's major commitment to FiOS was (and is still) viewed somewhat skeptically in terms of the company's ability to generate appropriate returns on a huge investment.[5] As a result, most telecommunications financial analysts have understood that the markets valued Verizon's stock at a discount to its peers, premised on the uncertain FiOS returns. Verizon pushed ahead with its investment plans in spite of that skepticism, but was able to do so only after regulators clarified that fiber-to-the-premise investments would be exempt from traditional telephony regulation.

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[3] See data from the National Cable and Telecommunications Association, available at http://www.ncta.com/StatsGroup/Investments.aspx.

[4] The FCC is today attempting to determine how to assure appropriate investment, based on appropriate returns and supplementary universal service funding through the National Broadband Plan, including assuring service in uneconomic regions. *See* Public Notice # 19, Comment Sought on the Role of the Universal Service Fund and Intercarrier Compensation in the National Broadband Plan, GN Docket Nos. 09-47, 09-51, and 09-137, DA 09-2419 (rel. Nov. 13, 2009). *See, also,* A National Broadband Plan for Our Future, *Notice of Inquiry*, 24 FCC Rcd 4342, ¶ 5 (2009).

[5] See Om Malik, *Who Wins: Verizon FiOS vs AT&T U-Verse,* August 19, 2008, available at http://gigaom.com/2008/08/19/who-wins-verizon-fios-vs-att-u-verse/; "Verizon recently launched its FiOS TV and fiber-based broadband service in New York City, The New York Times is taking stock of the service, which seems to be doing well. Verizon's $23 billion investment into FiOS wasn't viewed kindly, and Wall Street viewed AT&T's cheaper U-Verse plan as more practical and affordable. Despite such early shellacking on Wall Street, the company's decision to go with the more expensive fiber is proving to be smarter, even though it is still not clear if (and when) Verizon is going to start making big money on its bet . . ." See also, Saul Hansell, A bear Speaks: Why Verizon's Pricey FiOS Bet Won't Pay Off, August 19, 2008, available at http://bits.blogs.nytimes.com/2008/08/19/a-bear-speaks-why-verizons-pricey-fios-bet-wont-pay-off/?pagemode=print; citing Sanford C. Bernstein analyst Craig Moffett, "Mr. Moffett has tried to figure out all the money Verizon will spend building and selling FiOS, the interest it pays on the money it borrowed to pay for it, the savings because the new system is cheaper to maintain and all the fees its customers will pay. He compares this to what he figures Verizon would have earned had it not built FiOS. Add up all the figures and discount it to present value and Mr. Moffett figures that FiOS puts Verizon some $6 billion behind."

B&W believes that the financial markets are not factoring any policy-related risk into broadband network commitments today. The reason is that the FCC and Congress have maintained policies that, in terms of advanced networks and broadband, ensured that the competitive markets would be determinative of the outcomes. Further, investors have seen that there are no meaningful signs that anti-competitive or discriminatory behavior is a real threat to consumers. From a financial point of view, then, investors view network-based companies as relatively free to compete effectively while attempting to generate appropriate returns on very high levels of capital investment.

What will investors think about Principle 5, which adds some undefined limitations to a network provider's potential return on investment? B&W suggests that investors, at least initially, will focus on three simple conclusions. First, government is adding regulatory constraints on an industry (Internet and broadband) where there was light regulation previously. Adopting regulatory principles that potentially reduce returns on previously invested capital will be viewed by the financial markets as the government changing the rules in the course of the game. As such, investors' will estimate that regulatory risk and uncertainty in the industry are greater. Second, once government begins to regulate more actively, Wall Street will assume the probabilities are higher still that more regulation will be forthcoming. Third, because there is elevated regulatory risk and uncertainty regarding operations, investors will require more certitude to commit capital for investment (slowing incremental investment) and/or higher returns to reflect the perceived risks. For carriers serving rural areas where capital costs and operating costs are particularly high, access to external capital at reasonable terms is particularly important in order to continue advancing the policy goal of universal broadband availability for the benefit of customers.

As such, there is real risk that *unnecessary* controls on network investment could commoditize network services, reduce expected returns on investment, and choke the critical capital formation process.

POLICY CHALLENGE IS TO CREATE INVESTMENT INCENTIVES AND AVOID UNNECESSARY DISINCENTIVES

IF THE BROADBAND NETWORK IS IN FACT A CRITICAL COMPONENT IN ASSURING THAT AMERICA REMAINS COMPETITIVE IN THE INTERNET ECONOMY, THE CHALLENGE FOR POLICYMAKERS IS TO ASSURE THAT A ROBUST NETWORK INFRASTRUCTURE EXISTS AS WIDELY AS POSSIBLE.

Most recent national conversations regarding broadband networks concern the creation of incentives for more infrastructure upgrades. If the broadband network is in fact a critical component in assuring that America remains competitive in the Internet economy, the challenge for policymakers is to assure that a robust network infrastructure exists as widely as possible.

There are other concerns in terms of changing telecommunications regulations, intercarrier compensation regimes, and universal service funding. However, the migration toward robust and constantly evolving communications networks available in all markets—urban, suburban, and rural—appears to be the overriding policy imperative. And, to some extent, the challenge is even greater in more tenuously economic regions where policymakers are seeking more rapid and greater investment in the next years.

B&W believes that regulators and legislators have important roles in advancing policy outcomes, or in protecting against abuses, but the current challenge remains that investment capital should be properly channeled to expand and enhance broadband networks, and this will require a rigorous focus. Without a robust broadband infrastructure there is no Internet—open or closed.

B&W believes that the competitive markets are working effectively today in terms of capital commitments. As noted above, policy is not working everywhere and government likely will have to intervene in support of rural geographic areas where the economic case for investing in high-cost broadband network deployment and operations is tenuous or non-existent. Additionally, it is possible that policymakers should provide other incentives even in economically viable areas to speed the deployment and upgrade of services. However, there do not appear to be substantive examples of policy failure in the majority of the markets regarding discriminatory handling of traffic.

It might also be pointed out that it is an *affirmative policy initiative* to continue applying a "light hand" to regulation of the Internet as there remain important uncertainties about the kind of network that will be required for the future, about the consumer demand for various kinds of products, about the technology platform that will provide the best foundation for evolution, and so on. It might also be argued that it is a *bad policy* to create uncertainties where no problems actually exist. B&W believes that the appropriate policy approach today should be to provide incentives and avoid disincentives that might raise meaningful concerns among investors about *unnecessarily* constrained returns.

SOLUTIONS FOR PROBLEMS THAT MAY NOT BE REAL

An important related debate surrounds the relative merit of *post facto* versus *ex ante* definitions of policy; that is, whether regulatory rules should anticipate potential problems before they develop or whether policy should wait and address specific abuses that consumers or firms are actually encountering in the market. The question is particularly apropos when there appear to be already-powerful market forces that provide protections for consumers in an environment that is changing rapidly.

NO STOCK PRICE OR DEBT SECURITY REFLECTS THE POTENTIAL THAT A SINGLE CARRIER OR INDUSTRY WILL BE ABLE TO CONTROL OR DOMINATE THE BROADBAND ACCESS SERVICES MARKET.

In response, some policymakers might ask whether failing to adopt Principle 5 means that network companies will be permitted to engage in anti-competitive or discriminatory behavior. The answer is that anti-competitive behavior generally occurs when a carrier or company has dominant market power. In this case, it appears that no such power is possible in today's communications markets, and it seems that there are sufficient substitute technologies and competitors to discipline any such behavior on the part of network operators. Investors appear to believe that this is the case, as they are requiring relatively higher returns on their investment due to higher capital risk and growing levels of competition. In fact, B&W knows of no stock price or debt security that reflects the potential that a single carrier or industry will be able to control or dominate the broadband access services market.

In the case of prophylactic regulation, then, adopting a fifth "network neutrality principle" in the absence of specific harmful behavior on the part of network owners will require policymakers to decide various issues based largely on speculations about the future, including the extent to which regulators should possibly intervene and impose traditional telephony-like regulatory controls on broadband networks. In a dynamic industry that is characterized by relentless improvements in technology and ever-increasing levels of competition, B&W believes that it is dangerous to speculate on how the industry will or should develop or how financial performance might evolve. A more appropriate approach is to allow competitive behaviors to unfold in response to market forces. If harmful discriminatory or anti-competitive actions by network owners should develop in the future, targeted solutions can be crafted to address those specific problematic behaviors. However, until those problems become real, it is unnecessary and risky to attempt to develop speculative solutions such as Principle 5 that ultimately may cause more harm than they deter.

PUBLIC POLICY IS A CONSTRUCT THAT SUPPORTS AND PROVIDES INCENTIVES IN ACCOMPLISHING SOCIALLY BENEFICIAL GOALS — AND THAT CONSTRUCT MUST ABIDE BY THE FINANCIAL REALITIES THAT ULTIMATELY DETERMINE WHETHER OR NOT COMPANIES SUCCESSFULLY CAN ACHIEVE DESIRED POLICY GOALS.

SUMMARY

The core insight of this paper is based on the financial "reality" that appropriate incentives and return opportunities are necessary for every "layer" of the Internet, if such segregation into layers is sensible at all. Most notably, because the risk is so great at the "physical layer" — huge capital commitments (particularly in lower density, higher cost rural areas), potential for stranded investment, rapid technological changes, competitive last-mile networks (wireless, cable, etc.) — the business case for ongoing broadband investment likely will require rigorous protection of the opportunity for meaningful and sustainable returns.

B&W believes that the financial realities of the business and capital formation process remain critical in framing policy outcomes. Public policy is a construct that supports and provides incentives in accomplishing socially beneficial goals — and that construct must abide by the financial realities that ultimately determine whether or not companies successfully can achieve desired policy goals.