

Before the
FEDERAL COMMUNICATIONS COMMISSION
Washington, D.C.

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In The Matter of

Inquiry Concerning High-Speed Access to the
Internet Over Cable and Other Facilities

GN Docket No. 00-185

To: The Commission

COMMENTS OF CHARTER COMMUNICATIONS, INC.

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SUMMARY

Charter's massive upgrade of its cable systems and its delivery of high-speed Internet access have been met with a vigorous competitive response by telephone companies, fixed wireless and satellite providers. DSL providers have specifically targeted cable modem customers. They selectively cut prices where we offer modem service (and keep them high where we do not); prey upon consumer concerns over the technology of a shared cable network; and serve as powerful rivals that runs neck and neck in market share and sometimes surpasses us. Wireless alternatives are operating in several of our markets, and the new "two-way" direct satellite Internet access has specifically targeted one of our most advanced systems. Regardless of what some economists may think, our customers also see us in competition with dial-up, and the vast majority of them continue to take dial-up service in lieu of our competitive alternative. As predicted by the Commission, this vibrant, competitive market has rapidly provided substantial consumer benefits. Charter can prosper in such a competitive environment only if it continually strives to offer the consumer the best benefits available and only if it remains free of unnecessary and burdensome regulations.

Charter designed its plant and deployed its modem services using the destination routing over which traffic flows through the Internet backbone. That design allowed rapid deployment of an alternative method for accessing the Internet, but it does not lend itself easily to "open" or "forced access" as the terms are being used in this Inquiry. Charter is not wedded to one ISP, but has arrangements with a number of Internet participants, including High Speed Access Corp., Earthlink, Digeo, and Excite@Home. Charter is actively working on the myriad of technical and operational issues that are raised by the prospect of redesigns to support multiple ISPs on its cable systems. These comments report Charter's evaluation of the current technical options; the engineering costs for each "solution;" its plans for testing a new technical solution in the middle of

2001; and the variety of business and consumer issues that need to be addressed in any arrangement to route cable modem customers through third party ISPs.

Unlike telephone architecture, cable has no dedicated “loop” to unbundle. Each cable modem customer’s utilization of bandwidth affects the availability of the remaining bandwidth for the remaining customers, unlike a dedicated telephone loop. Each engineering choice affects the availability of spectrum for other services, such as video-on-demand, gaming, security, video conferencing, telecommuting, and enhanced video. Each choice affects system performance. Some choices defeat the Quality of Service designed into DOCSIS 1.1. Some will compromise the ability to offer dial-tone in competition with ILECs. When making technical decisions to provide customer choice in ISPs, one must be scrupulous in protecting bandwidth, or risk squandering thirty years of development for an illusion of “choice.” Systematic and methodical engineering cannot be collapsed into a single governmental edict.

Customer care, such as isolating and curing faults when Internet access fails, must occur seamlessly, or cable modem service will gain a troubling and long-lived image of a service plagued by helpless help desks, finger pointing, and blame shifting, much as many software manufacturers are today. Cable must protect the customer experience. Our competition has not been shy about pointing out real or imagined shortcomings, and we have found in the video business that even a small percentage of errors will far outweigh positive consumer experiences in collective memory and anecdote.

Imposition of a regulated forced access model would also thwart the development of many innovative business models. There is as wide an expanse of economic models on the web as there is imagination, and no one model has proven to be the single default model for all transactions. A government imposed model, whether a cost-based, pay for capacity lease arrangement or a vague

requirement for non-discrimination, would thwart the development of various commercial models, and in so doing, undermine the viability and development of different sizes and types of ISPs.

A forced access mandate would inevitably lead to a call on the Commission to define a “non-discriminatory” price and “reasonable” provisioning. Yet, a new version of price regulation, cost-of-service regulation, interconnection, Unbundled Network Elements, and OSS, all rolled into one is an overwhelming regulatory burden ill-suited for the swiftly changing Internet. If it were to impose forced access, the Commission will be faced with the pleas of companies that would prefer that “wholesale” “transport” be deeply discounted in order to provide the artificial margin within which to operate their businesses over a network built with someone else’s risk capital. It will also need to recognize the investment-backed expectations of those who placed their capital at risk to build these networks, and the consequences in the investment community of artificially reducing returns for one technology while leaving another technology untouched. The resolution of that tension by government edict will inevitably distort investments in the market.

There are salutary lessons to be learned from how the Commission, Congress and the courts have answered such questions for earlier “new technologies.” FM subcarriers, television VBIs, telephone “dark fiber,” electric utility fiber, and DBS all faced claims that they should be regulated as some form of tariffed common carrier platform, and the FCC wisely resisted. Underlying these decisions is the need to ensure rapid investment and deployment of new technologies. They also recognize the engineering and market realities that also characterize cable modem service. For example, the Commission concluded in *Norlight* that the utility’s fiber, like Charter’s cable plant, was designed for the utility’s own use, and would rightly be shared only pursuant to individually negotiated arrangements that protected the integrity of the system. Likewise, the Communications Act draws a distinction between what is appropriate for a company

with 95% of the access lines and what is appropriate for a new competitor that, like cable, is offering consumers a choice of something other than dial-tone. At least one court has concluded that the fundamental architecture of cable, under which subscriber use of a shared network affects all other uses of the network, has Constitutional consequence.

Charter's specific experience demonstrates that cable operators are in no position to monopolize or control the market, particularly in light of aggressive and well-funded responses from DSL, wireless, and DBS competitors. A government-imposed model might well aid competitors, but it will defeat the competitive delivery of consumer benefits. It would frustrate creative business and technical arrangements for meeting customer demands, and the innovations that the free market produces. The marketplace will maximize consumer benefits—and offer choices among ISPs—under a wide variety of engineering and business arrangements. That market is designed to deliver precisely what customers want and value. It is the single most effective tool in the FCC's arsenal—but it requires continuing to give the market a chance.

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To: The Commission

COMMENTS OF CHARTER COMMUNICATIONS, INC.

Pursuant to the Commission's Notice of Inquiry ("NOI") in the above captioned matter, Charter Communications, Inc. ("Charter") submits the following Comments regarding the provision of Internet access service over cable television systems.

I. INTRODUCTION

The Commission's ultimate goal in Inquiries such as these should be to identify the path most likely to provide sustained consumer benefits. Charter's massive upgrade of its cable systems, its delivery of high-speed Internet access, the vigorous competitive response by telephone companies, fixed wireless and satellite providers, and the flexibility Charter has demonstrated in structuring arrangements for consumer benefits are all direct results of vibrant market forces. Those market forces are working to secure numerous, sustainable alternatives for consumers to access the Internet and for consumers to receive a choice in dial-tone. Without intervention from regulators, the Internet has spawned an entirely new economy that has driven economic and employment growth to new heights. Absent government intervention, 7,000 ISPs have developed, 135 million¹

¹ http://cyberatlas.internet.com/big_picture/geographics/print/0,,5911_151151,00.html (visited
Continued

Internet users have gained access to new markets and service, and at least 5 different access technologies have developed—so far. Charter is only one of several customer options. These comments will begin by describing the vigorous competition Charter faces from rival facilities-based Internet vehicles, and the actual marketplace in which it operates. Charter can prosper in such a competitive environment only if it continually strives to offer the consumer the best benefits available.

Charter entered this competitive market by offering customers a choice of Internet access other than the prevailing dial-up services. Charter, like other cable operators, designed its plant and deployed its modem services using the destination routing over which traffic flows through the Internet backbone. That design allowed rapid deployment of an alternative method for accessing the Internet, but it also involved delivery of a service in which “Internet access” was integrated with “transportation,” much as delivery of cable programming is integrated with the cable network. One consequence is that the network does not lend itself easily to “open” or “forced access” as the terms are being used in this Inquiry. At present, each ISP and each web site is available to cable modem customers through the cable modem service. But this Inquiry focuses on the need and prospects for restructuring the service so that a variety of ISPs can offer service directly to cable modem customers, using the cable network as a transportation vehicle. Charter is actively working on the myriad of technical and operational issues that are raised by the prospect of redesigns to support multiple ISPs on its cable systems. These comments will report Charter’s evaluation of the current technical options; its plans for testing a new technical solution in the middle of 2001; and the variety of business and consumer issues that need to be addressed in any arrangement to route cable modem customers through third party ISPs. Locking in a single

Nov. 7, 2000).

technical or operational arrangement, and failing to accord all parties the latitude to structure creative business arrangements, will inflict irreparable harm on Charter, on the vibrant competitive process, on government regulators, and on the customer experience with Internet access.

II. CHARTER'S EXPERIENCE DEMONSTRATES THAT THE COMMISSION'S EXISTING POLICY HAS LED TO SUBSTANTIAL COMPETITIVE RESPONSE

As the Commission knows, the overwhelming majority (over 90%) of customers obtain access to the Internet using dial-up ISPs who use the existing copper loop of incumbent local exchange carriers ("ILECs").² Even among Internet access technologies offering "broadband" speeds, cable modem service is only one option among several.

In *Broadband Today*, the Commission's Staff concluded that:

The Bureau is not persuaded that consumers are at risk of cable establishing a bottleneck monopoly in broadband services in the absence of immediate regulatory action. There have been no developments since the release of the Section 706 Report earlier this year to alter the Commission's conclusion that no monopoly exists. Moreover, the monopoly argument wrongly assumes that cable is the only viable broadband pipe available in the near term to provide Internet access to the home. As deployment of DSL, satellite, and wireless advances, in large part spurred by rapid cable modem deployment, consumers will have alternative platforms to use for high-speed data access, telephony, and video services. We have already seen evidence that these alternative technologies are attracting new subscribers at an exponential rate, and that prices for these new services are falling.³

Charter's experience in the marketplace confirms the Commission's findings, and demonstrates that the Commission's existing policies are allowing the Internet access market to develop and flourish.

² Deborah A. Lathen, FCC Cable Services Bureau, Staff Report, *Broadband Today* at 32 (Oct. 1999) ("*Broadband Today*").

³ *Broadband Today*, at 42 (internal footnotes omitted).

Charter is in an intense competitive battle with alternative Internet access systems. Thanks to rapid upgrades and sophisticated marketing, generally Charter has earned a larger market share than DSL. But in some markets, DSL has the higher market share, ranging from 2.7 to 5.6 percentage points better than Charter's cable modem service.⁴ In a majority of its key markets, Charter's and DSL providers' shares are virtually identical.⁵

Competition is not restricted to DSL. For example, Charter faces competition from wireless Internet access providers, particularly in Gwinnett, Georgia.⁶

One-way satellite Internet access has long been available through DirecPC. Competition has now arrived from two-way satellite providers. Just as DSL has responded to cable modem offerings, so has the first (of several) two-way satellite providers. Take the case of our system in LaGrange, Georgia, which is famous for its aggressive roll-out of high-speed Internet access capability to every home. When StarBand launched its two-way high speed satellite Internet access service nationwide on November 6, 2000,⁷ StarBand specifically targeted LaGrange, Georgia for special marketing promotions to demonstrate its competitiveness against other high speed access alternatives.⁸

The competition from DSL has been particularly intense. In *Broadband Today*, the Commission's Staff recognized that "ILECs' aggressive deployment of DSL can be attributed in

⁴ Declaration of Paul Conner (attached hereto as Attachment 1).

⁵ Conner Decl.

⁶ Conner Decl.

⁷ Peter S. Goodman, *Dishing Up A New Link To The Internet*, Washington Post, Nov. 6, 2000, at A01.

⁸ Attached hereto as Attachment 2 is a copy of a letter sent to residents of LaGrange.

large part to the deployment of cable modem service.”⁹ Charter’s experience confirms the Staff’s point. DSL response to Charter’s introduction of service, as well as DSL’s pricing and marketing responses to Charter’s entry have been robust – without regulatory intervention. For example, in the Greenville/Spartanburg, South Carolina area, BellSouth is now using color large-format direct mailings and billing inserts that directly address cable modem service to advertise its competing DSL service.¹⁰ BellSouth’s television and radio ads are seen regularly.¹¹ BellSouth’s marketing extends well beyond the supposed distance limitations on DSL service, indicating that DSL is a far more extensive competitor than first imagined.¹² In a comprehensive examination, the Wall Street Journal reported that telephone companies were installing new equipment that would remove the distance limitation.¹³ On January 25, 2000, for example, SBC explained that “At year-end, SBC’s installation run rate for DSL was about 1,100 a day” and “the company expects to have more than 6,200 neighborhood gateways deployed by the end of this year. These gateways will allow SBC to overcome loop-length limitations.”¹⁴

In addition, in Greenville/Spartanburg BellSouth is offering a special where customers get 2 months for the price of 1, a free DSL modem, free activation and no installation

⁹ *Broadband Today* at 27.

¹⁰ Declaration of David Seibold (attached hereto as Attachment 3).

¹¹ Seibold Decl.

¹² Obviously, broadcast television and radio advertisements cover the region indiscriminately. Even BellSouth’s direct mailings, which presumably BellSouth could tailor, are being directed to persons living well beyond the alleged 18,000 foot limitation on DSL service. Seibold Decl. (BellSouth mailings sent to home 33,000 feet from nearest central office).

¹³ For Phone Companies Wiring the Web, a Surprising Speed Bump, *Wall Street Journal*, February 17, 2000, B1.

¹⁴ http://www.sbc.com/Investor/Financial/Earning_Info/docs/IB214.pdf

fee.¹⁵ DSL competition also comes from DSL wholesalers. In the Greenville/Spartanburg area, Charter faces competition from numerous DSL providers, including Telocity, Northpoint, and Trivergent that are operating using resold capacity from BellSouth.¹⁶ Those companies are also advertising their services using multiple local media outlets.¹⁷

When Charter offers cable modem service, customers benefit even if they subscribe to DSL, because DSL responds to cable modem offerings with price cuts. In areas where cable modem service is available, DSL providers reduce their price, but not in parts of the area where Charter does not yet offer cable modem service.¹⁸ This is one more illustration of how market solutions provide tangible benefits to real customers.

Even this level of robust competition, and consumer options, does not tell the whole story. While some economists might theorize that high-speed Internet access is its own market, real customers think otherwise, as Charter faces substantial competition from dial-up access. Most cable modem customers come from dial-up, and some Charter offerings are specifically priced with that in mind. For example, in some of its markets, Charter now offers a 256K cable modem service for \$24.95 per month specifically to appeal to consumers presently obtaining dial up access at the average price of \$19.99 per month.¹⁹ Dial-up remains a formidable competitor. In almost all of Charter's markets, dial-up access still holds over 90% of the market for Internet access, even in

¹⁵ Seibold Decl.

¹⁶ Seibold Decl.

¹⁷ Seibold Decl.

¹⁸ Kenneth Brown, *Regulating Internet Access: An Idea Where Time Never Came*, The Alexis de Tocqueville Institution, Mar. 6, 2000, at 2.

¹⁹ A copy of Charter's direct-mailing introducing this offering is attached hereto as Attachment 4.

markets where Charter has offered cable modem service for as long as two years.²⁰ For example, in Greenville/Spartanburg, Charter has been offering cable modem service to the entire market since January, 1999 (and in some parts since April, 1998), yet it only has 6.5% penetration of the homes it passes.²¹ This market reality—that customers have a choice between dial-up and cable modem service—is one reason that courts have recognized that cable modem service is not an “essential facility.” For example, in his recent *Broward County* decision, Judge Middlebrooks, held that “[c]able operators control no bottleneck monopoly over access to the Internet. Today, most customers reach the Internet by telephone.”²² Charter’s customers also have the option of DSL, two-way satellite, and wireless for gaining high-speed access to the Internet. As the Commission recently noted “cable operators can hardly be said to maintain monopoly control of either the Internet content or Internet access markets. Thus, there does not appear to be a market failure that would require either the Commission or local franchising authorities to regulate. . . .”²³ Charter’s experience has confirmed that the market is operating to provide competitive choices to customers, at competitive prices. Charter can succeed in such a market only by striving to surpass its competition in consumer benefits.

III. CHARTER HAS BUSINESS RELATIONS WITH SEVERAL ISPs AND PLANS TO TEST MULTIPLE ISP ACCESS

Despite the fact that Charter (and other cable operators) offer only one alternative among many, the current debate has often been erroneously framed around the myth that cable

²⁰ Conner Decl.

²¹ Seibold Decl.

²² *Comcast Cablevision of Broward County, Inc. v. Broward County*, 2000 U.S. Dist. LEXIS 16485 at *34-35 (S.D. Fla. Nov. 8, 2000).

²³ Barbara Esbin, FCC Office of Plans and Policy, OPP Working Paper No. 30, *Internet Over Cable: Defining the Future in Terms of the Past*, at 108 (August 1998).

operators are attempting to monopolize the Internet through a single, favored ISP. Part of the error arises from how this issue first arose at the Commission. The current debate over forced access first came to the FCC during the TCI/AT&T transfer, where TCI had an exclusive agreement with Excite@Home. That context has helped to shape and fuel an impression that every cable operator has an exclusive deal with a single ISP that it carries on all of its systems. That is not Charter's experience. Charter is not wedded to one ISP, but has arrangements with a number of Internet participants, including High Speed Access Corp., Earthlink, Digio, and Excite@Home. Charter has introduced cable modem service in its various markets with a flexibility that accommodates market forces and opportunities in each market.

Charter's willingness to experiment extends to its exploration of offering multiple ISP access to a cable system. Charter recently announced its intention to undertake a trial of the technical and operational issues raised by multiple ISP access to a cable system.²⁴ As discussed in greater detail below, Charter's engineers have been intensively studying different technical approaches and working with Internet router manufacturer Cisco to determine which approach the company should test.²⁵ Based on its investigation, Charter anticipates initiation of a trial using an entirely new routing method during the 2nd quarter of 2001.

Charter believes that it will succeed in the open market by offering subscribers the best services, not by confining the benefits we offer. But as with every engineering choice, offering benefits always entails costs. As we will discuss below, part of the process of providing consumer benefits is reaching sensible conclusions to genuine technical and operational issues, in order to

²⁴ *Cable Notes*, Warren's Cable Regulation Monitor, July 17, 2000.

²⁵ *Cisco Signs Broad Deal With Comcast, Invests In Liberate*, Communications Daily, July 18, 1999.

deliver optimal customer benefits at optimal cost.

IV. CAREFUL AND DETAILED STEPS MUST BE UNDERTAKEN TO RESOLVE TECHNICAL AND OPERATIONAL ISSUES BEFORE MULTIPLE ISP ACCESS COULD BE OFFERED TO THE PUBLIC

In the NOI, the Commission recognizes, with some understatement, that “there are remaining technical and operational issues concerning open access to the cable modem platform.”²⁶

The Commission is correct. Charter’s investigations have exposed a myriad of technical and operational issues that **must** be resolved before access to multiple ISPs could be considered for commercial introduction.

A. Background Discussion Of Internet Traffic And Differing Networks

When an Internet user types in or clicks on a URL, the request is sent upstream from the PC through the retail ISP. The ISP then connects its servers to Internet backbones, which also connect to each other. These deregulated backbone-to-backbone agreements are either “peering” contracts, in which the parties agree to carry each others’ traffic; or “transit” contracts, in which one backbone provider agrees to transfer traffic across its network towards the ultimate destination of the signal, even if the traffic is destined for a third party’s network. It is through this free market solution, in which the Internet “network of networks” is interconnected over a deregulated grid, that any Internet consumer can connect with any other web site and retrieve content offered by any ISP on the web. When a web site, such as Amazon.com, “connects” with its “customer,” it most likely terminates on networks with which it has no contractual relationship. When the customer’s ISP carries her URL to the Internet, it routes traffic to terminate over facilities that it neither owns nor leases.

²⁶ NOI ¶ 47.

The subscriber networks through which an individual reaches an ISP are very different, and thus present very different issues. When an ISP uses the telephone network to connect its server to the customer, the traffic is carried on a dedicated loop from the customer premise to the central office. In the case of dial-up access, the customer has arranged to lease a loop (the telephone line) over which it dials up the ISP. In a typical DSL arrangement, the ISP has purchased DSL loops in bulk at wholesale, and retails the DSL loop plus Internet access for a single price to the customer. In either event, the customer has a public Internet (“IP”) address (from a block of addresses assigned to the customer’s ISP) and a dedicated loop, so when Amazon receives the URL, it knows to send the page downstream to that ISP, who knows which loop to route the page over to the subscriber. Because the telephone loops are dedicated and the Internet addresses are assigned to the respective ISPs, a customer may choose ISPs without serious complication.

The same backbone architecture prevails in cable modem service from the Cable Modem Termination System (“CMTS”)²⁷ out to the Internet backbone. Once a connection is made to the net, there are no restrictions on where the customer can go. Customers may reach any page, portal, or Internet service provider available on the web.

But from the CMTS (*i.e.*, the headend) to the customer, cable uses a very different architecture. Unlike telephone modems, all cable modems share the bandwidth on the cable system, such that data is commingled within a single frequency band. In other words, traffic to and from a home is packetized and sent in bits within a frequency band that is also carrying all other Internet

²⁷ The CMTS consists of a component of cable modem network architecture located at the cable headend that “communicates through the allotted channels with cable modems located in subscriber homes to create a virtual local area network (LAN) connection.” *Broadband Today*, at 23; *see also* CableLabs Data Over Cable Interface Specifications: Cable Modem Termination System – Network Side Interface Specification, SP-CMTS-NSII01-96072 at 9 <<http://www.cablemodem.com/specifications.html>>.

traffic within the cable system. A standard cable modem connection would send upstream traffic from the home to the CMTS in the 20-42 MHz band, and receive the data from the Amazon web pages downstream in the band above 650 MHz, typically.²⁸ There is no dedicated cable “loop” directly from the CMTS to the home, like that which exists in the traditional telephone network.

The management of such a shared network presents issues not present in telephone loops or DSL. An exemplary issue is that each cable modem customer’s utilization of bandwidth affects the availability of the remaining bandwidth for the remaining customers, unlike a dedicated loop. Our competitors have used this feature in marketing, lampooning cable modem subscribers as “web hogs” who slow down the Internet connections enjoyed by their neighbors on the same system.²⁹ To date, Charter’s traffic management designs have accounted for this issue in a single-provider environment. Subject to the availability of emerging technologies, if Charter were to offer any and all third-party ISP’s “nondiscriminatory access” it would seriously compromise Charter’s ability to deliver the service promised to the customer—high speed access. Today, Charter could not fairly manage the consumption of bandwidth in an environment truly open to large numbers of ISPs without addressing the different traffic intended by and used by ISPs. Providing a choice of multiple ISP’s requires a significant redesign of Charter’s traffic routing and management process as well as the operational process.

B. Access Technology Issues

When cable modem service was introduced, it very naturally used the same

²⁸ Declaration of Don Loheide (Attached hereto as Attachment 5).

²⁹ The “Web Hog” advertisements can be viewed at <http://www.adcritic.com/content/pacific-bell-dsl-laurel-lane-cops.html>. Because each subscriber is connected in a ring-like fashion to a central processing point or node over shared facilities, cable modem service is often referred to as a Virtual Local Area Network, or “VLAN.”

addressing techniques—destination routing—by which traffic was directed over the Internet backbone. Under destination routing, a packet of data is addressed with its destination, routed across any available backbone, and reassembled at the destination, regardless of the path taken. Destination routing supports full and open access to any web site, but does not support forced (or open) access in the sense it is being used in this proceeding. This is because the routers will send the upstream packets to the URL requested by the most efficient route, and the downstream pages will default to the cable CMTS to which the IP address has been assigned. At present, we know of only four technical “solutions” that would provide a choice of ISP, each of which has its own costs and trade-offs.

1. “Source based routing.”

The first option is “source based routing.” This is the mechanism implemented by CISCO in order to meet the Canadian CRTC testing requirements. (It is also the mechanism in use in the Boulder trial).³⁰ Source based routing examines additional information for each packet of data, so that each router knows not merely where the packet is supposed to go, but who sent it. By examining the source IP address, each router can chose the “ISP path” designated by the source of the packet instead of just the destination address. For example, if the customer has selected Earthlink, the packet will be directed via Earthlink, rather than via any available route. Six months ago, source based routing was touted as the Holy Grail of open access, but it has not proven to be so. Source based routing works only if each router along the path is programmed with tables that can associate the source code with the desired path. And those tables must be manually re-programmed in each router every time an ISP amends or updates its IP addresses. This is very

³⁰ Jeff Baumgartner, *Even Open-Access Tests Are Complex*, Multichannel News, Aug. 7, 2000. Source based routing is also sometimes referred to as “policy” routing because it requires that
Continued

inefficient.

Testing of source based routing in a multiple ISP environment has revealed the performance degradation this “look up” function entails. In the case of 8 to 10 ISPs, there was a 25-30% loss of performance—a significant reduction in performance for a technology intended to improve the speed of interaction with the web.³¹ The introduction of more ISPs would further increase the loss of performance.³²

2. “Tunneling”

The second option is “tunneling.” Tunneling creates a virtual dedicated channel within the datastream through which an ISP can connect directly to the customer. It does this by insulating the packetized data between the ISP and the customer so that the ordinary routing function of the cable network will not direct that packet of data in any other way.

There are two ongoing trade-offs of tunneling, over and above any front-end costs of equipment. First is the loss of major functionalities of cable modem service. Early cable modems and DOCSIS 1.0 delivered service at one speed without prioritizing among packets or differentiating between time sensitive packets and those that could wait an extra nanosecond or two. DOCSIS 1.1, however, offers “Quality of Service” or “QoS” to prioritize packets and customize speeds. By reading information in or associated with the packet, a DOCSIS 1.1 modem can deliver IP telephony service without latency (lag time), and can support videostreams, such as those associated with video chat rooms. Tunneling, however, makes the packets inside the tunnel invisible to DOCSIS 1.1, thus basically turning off the CMTS features that DOCSIS 1.1 was

policy tables be established in the router for each IP address block. Loheide Decl.

³¹ Loheide Decl.

designed to support.³³ Thus, it potentially deprives the marketplace of an effective voice service alternative to the existing telephone industry.

The second ongoing cost is in network bandwidth management. Every telephone, LAN, and VLAN network is built on models of oversubscription. In other words, it is designed on the assumption that not every user will be utilizing the shared network's capacity at exactly the same time. Telephone networks and cable nodes are designed with these traffic models in mind. Charter designed its cable nodes, for example, on engineering assumptions about how many homes subscribe to cable, how many customers are on line, and how much simultaneous use there is.³⁴ If these networks were built to accommodate 100% usage 100% of the time, far greater resources would have to be devoted to smaller nodes, larger bandwidth, and more costly networks, most of which would then lie fallow for the vast majority of the time.³⁵ This is a highly inefficient use of resources and bandwidth, and would defeat much of the economics of the cable network on which the industry is based.

With tunneling, each "virtual" channel would need to implement its own over-subscription model, locking in enough capacity to accommodate each ISP's peak load.³⁶ Yet, as each "wholesale" ISP customer reserves adequate bandwidth for its peak loads, the cable network loses all of its efficiencies in aggregating all traffic into an over-subscription model. The upshot is that far more frequency has to be set aside by the cable operator for Internet than is required in

³² Loheide Decl.

³³ Loheide Decl.

³⁴ Loheide Decl.

³⁵ Loheide Decl.

³⁶ Loheide Decl.

optimal network design.³⁷ From the design and business point of view, valuable spectrum would be wasted and removed from other important, intended uses: video-on-demand, lifeline telephony, IP telephony, gaming, security, video conferencing, telecommuting, not to mention new and enhanced video. From the customer's point of view, the price of "tunneling" is either a far more expensive network (and thus service) or a loss in other services that the network would otherwise have offered.

3. "Tag switching"

The third option, and in Charter's view the current best candidate, is "tag switching" or Multiple Protocol Label Switching ("MPLS"). Tag switching is new. A data packet is assigned a "tag" at Charter's network edge device (*e.g.*, the CMTS), that directs every subsequent router to direct that packet in the customer-selected manner. This significantly reduces the inefficiencies of having each router look up tables to match source routing codes with preferred routes. At present, CISCO equipment supports tag switching, but does not interact well with components from other manufacturers of Internet components, such as a Juniper M40. Adequate mediation devices and standards have yet to be created.³⁸ Charter believes that this technology is the leading candidate for supporting choices of ISPs over cable. However, that approach, which has emerged within the last year, is 12-18 months from being marketplace ready. Government regulation at this time could very likely stifle the pace of innovation, which is so dramatic in Internet-related methodologies and equipment.

4. "Leased access"

We raise a fourth option to discard it. The "leased access" model, recently rejected

³⁷ Loheide Decl.

³⁸ Loheide Decl.

(on legal grounds) by the Commission,³⁹ also has high engineering costs. One can design and build a parallel network within a cable system: a separate CMTS, a separate 6 MHz downstream channel, and a separate 3.2 MHz upstream channel. But the design and performance costs are large. Downstream channel capacity is consumed unnecessarily. Upstream capacity is in even shorter supply. Upstream channels are allocated for pay-per-view ordering, interactive service, Internet, and telephony. Theoretically one could take upstream capacity from elsewhere on the spectrum than the 20-42 MHz band with which cable modems now interact. But that would require changing out the cable modems and the system amplifiers. There are also performance delays as the modems search for the “right” CMTS.⁴⁰ The necessary steps to combine and subdivide traffic to make certain that it finds its way is extremely labor intensive and inefficient. Such an approach places cable operators at a significant competitive disadvantage in today’s marketplace by providing an economically unacceptable alternative.

5. Making Technology Choices that Promote Competition in Telephony

For over three decades, the Commission has cultivated the cable industry as the emerging facilities based provider of competition to local exchange carriers. It has done so by promulgating cautious technical standards that accommodate innovation; by preempting parochial local standards that would frustrate innovation in national and international equipment markets; by encouraging “clustering;” by unlocking bottleneck poles for the deployment of competitive facilities; by allowing non-video signals to be carried on cable plant; and by implementing the 1996 Act to permit interconnection with the ubiquitous ILEC networks that have emerged from a century of monopoly collections from captive ratepayers. The infrastructure being deployed by Charter

³⁹ *Internet Ventures, Inc.*, 15 FCC Rcd. 3247 (2000).

⁴⁰ Loheide Decl.

(and other MSOs) at last provides the last mile to offer competing dial-tone. The forced access debate cannot afford to ignore the consequences to competition in dial-tone from a mis-step on this issue.

Incumbent telephone companies have not been blind to the potential for leveraging the forced access debate into a regulatory shield from competition. They have much to gain by disabling or delaying the rollout of a competitive high-speed product. Incumbent local exchange carriers (ILECs) are both competitors with DSL offerings, and the beneficiaries of significant revenues from second residential lines often used to access the Internet.⁴¹ They stand to lose customers and second line revenues to cable modem services, and core dial-tone customers to cable telephony offerings. Delaying and handicapping cable modem service directly benefits ILECs who may continue to harvest their narrow-band lines free from significant wireline competition, deploy DSL offerings on a schedule of their choosing, and delay customer choice in dial-tone. It is almost impossible for ILECs to resist the temptation to encourage technical solutions to forced access that consume the bandwidth intended for cable telephony

This larger competitive context has not been lost on many observers. When the national campaign for forced access was started, the FCC recognized the request as a request by one facilities-based competitor to handicap another. Most local franchising authorities, every State legislature, and each PSC appears to have reached the same conclusion.⁴² Judge

⁴¹ For example, SBC's 1998 Annual Report (page 7) reports extraordinary growth in second lines. It reported that 40% and 31% of access line growth in 1998 and 1997 was due to sales of additional access lines to existing residential customers.

<http://www.sbc.com/Investor/Financial/Annual/Report/98/sbc-ar98.pdf>.

⁴² *3 More States Abandon Open Access Legislation, Cable Monitor*, February 21, 2000, page 2; "Regulatory Interest in Open Access on the Wane," *Communications Daily*, March 23, 2000, pages 5-6 (reporting that open access bills have been rejected or tabled in CA, DE, ID, IA, IN, Continued

Middlebrooks reached the same conclusion when he ruled a GTE-inspired and financed “open access” ordinance to be unconstitutional.⁴³

When making technical decisions to provide customer choice in Internet, one must be scrupulous in protecting the bandwidth that is being installed to offer choice in dial-tone. Otherwise, one risks squandering thirty years of development for one moment of illusory “choice” of ISPs.

6. Making Technology Choices in Dynamic Markets

In making technology choices, it is also important to recognize how inadvisable it is to select one technology for all situations. It is quite likely that networks deployed at different points in time will utilize different configurations. The Boulder test uses source based routing. Charter plans to test the tag switching approach. By next summer, we anticipate that components will also be available with integrated software that will connect to the network and provide routing instructions to each device. (This is a necessity to eliminate the presently-required manual reformatting of IP address tables in each piece of the network’s equipment, which is both costly and

IL, KS, MD, NH, PA, UT, VA); *Joint Petition of AT&T Corp. and MediaOne Group, Inc. for Approval of a Transfer Of Control of Cable Television Systems*, Order Approving Transfer, Case 99-V-0973, (NY PSC, February 16, 2000); *In the Matter of an Investigation into Proposals to Require Access to Cable Modem Broadband Networks by Independent Internet Service Providers*, Order Ending Investigation and Closing Docket, Docket No. P-999/CI-99-1718 (Minnesota PUC, February 29, 2000)(“while cable modem broadband networks do appear to be one of the few facilities-based alternatives to local telecommunications monopolies -- making them potentially key players in the transition to competitive markets -- these networks are still far from being mature competitors. Their market share is meager, their customer service infrastructure still developing, their service offerings still evolving.” “The Commission is reluctant to divert the resources of these new market entrants . . . to an in-depth probe of complex legal, technical, and policy issues that may fade away as the market develops”).

⁴³ *Comcast Cablevision of Broward County, Inc. v. Broward County*, 2000 U.S. Dist. LEXIS 16485 at *34 (S.D. Fla. Nov. 8, 2000) (“The ordinance was adopted at the behest of a telephone company seeking to eliminate or hamper a competitor”).

of inconsistent quality to the customer.) Yet further innovation can be expected in a field marked by rapid innovation and product deployment over time. (One can see the same pattern in analog cable deployment, where systems were built at 550 MHz, 750 MHz, and 860 MHz largely dependent on their date of deployment).

Charter has always regarded its cable modem service as providing benefits (and choice) to customers. It offers an alternative path to the Internet without blocking access to any web site or service provider. Offering an “open access” *choice* to customers among ISPs over cable does not in and of itself offer superior customer *benefits*, because every engineering choice carries with it engineering costs and lost opportunities (such as lost bandwidth and services, or reduced competition in dial-tone) that will eventually be visited upon the same customers. Governmentally-controlled forced access would assist competitors to cable, but would not necessarily benefit the consumer. It requires creative, flexible and dynamic engineering to make the right choices and to offer the best consumer benefits within the available technology.

The right choices can occur in the marketplace, but they cannot occur by fiat. Attempting to address and resolve the considerable technical issues in a manner which preserves bandwidth for a host of other competitive choices requires systematic and methodical engineering that cannot be collapsed into a single governmental edict. The Canadian experience is illustrative. The Canadian CRTC ordered “open access” in 1996. After four years of testing, the technical “solution” (source based routing) is still in testing and has (in our view) been supplanted with a superior technology.⁴⁴ Likewise, we submit, an FCC order commanding the “open access”

⁴⁴ The “GTE Experiment” involved a very small number of ISP’s, was never subjected to peer review, and was ridiculed in the trade press as a public relations stunt rather than an engineering solution. *PC Week*, July 12, 1999 at 76 wrote: “This demonstration was done with all the technical savvy of Ma and Pa Kettle using a tin can and string. ... The way in which AOL and Continued

technology *du jour* (source-based routing) would frustrate the development of the superior tag switching technology, and of technologies yet to come. Finding, vetting, and perfecting engineering solutions requires rigorous analysis, cooperation among vendors, buyers, and standard setting organizations, and sensitivity to changing technologies and consumer demand. It is not foot-dragging to pursue this path systematically, particularly when the result of premature deployment could be irreparable consumer dissatisfaction. As we explain next, the potential for getting it wrong and losing a consumer is immense.

V. ONE SIZE DOES NOT FIT ALL – A FORCED ACCESS OBLIGATION WOULD THWART THE DEVELOPMENT OF INNOVATIVE BUSINESS SOLUTIONS

As it recognizes in the NOI, the Commission is statutorily required to encourage the deployment of advanced telecommunications capability in the United States on a reasonable and timely basis.⁴⁵ The Commission's hands-off policy has supported the meteoric rise of Internet access and use, and stimulated intense competition to provide solutions to the customer by various DSL providers, fixed wireless and satellite providers, and cable operators. Imposition of a static forced access model, however, would thwart the development of many innovative business models, and ultimately the deployment of the advanced telecommunications capability desired by Congress.

A. Operational Questions Present Numerous Issues That Must Be Resolved To Prevent Customer Alienation

To understand how choices of multiple ISPs would operate in a commercial setting, it is helpful to walk through the Internet service from the perspective of the customer care needed to

GTE proposed provisioning the cable plant looked like the work of fiendish elves who have been drinking lots of Jolt cola.”

⁴⁵ § 706, Pub. L. 104-104, Title VII, Feb. 8, 1996, 110 Stat. 153, reproduced in the notes under 47 U.S.C. § 157; *High-Speed Services for Internet Access: Subscribership as of June 30, 2000*, Industry Analysis Division, Common Carrier Bureau, at 1 (October, 2000).

minimize what can go wrong and to remedy what does go wrong. Suppose a newly installed customer sits down at the PC, and the Internet does not work. Who do they call? The problem could be an RF (radio frequency) problem, if a signal is not reaching the home due to a break in the cable connection. Or the problem could be with the ISP, either in losing connectivity with that IP address, losing connection to the web, an overloaded server, or some similar problem. Before multiple ISP access could be offered to this customer, business arrangements must be established to establish preferred demarcations for who handles the incoming trouble call.

If the call is supposed to go first to the ISP, then the ISP must have adequate staff and lines to handle the incoming telephone traffic. If the ISP is supposed to diagnose the problem, it will either need to be given rights to “ping” to the CMTS, and then coordinate with the cable operator’s NOC (Network Operations Center) to ping inside the network; or it will need to be given rights to ping through the firewall inside the cable network, in which case the cable operator needs to protect against a myriad of security problems, such as viewing non-customers. Alternatively, customers might be trained to trace the route of their traffic, and be brought into the diagnostic chain.

If the cable operator is supposed to take the call and diagnose the problem, then we must negotiate similar issues in reverse: how does the operator hand off a trouble call once he concludes that it is not an RF or CMTS problem. Indeed, even if the ISP has a “direct” relationship with the customer, the cable operator will still need to be involved with a customer profile in its office in order to restore service painlessly.

The same issues arise as consumers change operating systems (*e.g.*, upgrade to Windows 2000), buy new computers, install home LANs, lose configurations, crash, or suffer any of the other changes to their PC settings that can affect Internet connectivity. Processes for initial

provisioning of service and for various types of re-installation must be worked out before multiple ISP access can be offered to subscribers with a coherent customer care model.

All of this must occur seamlessly, or cable modem service will gain a troubling and long-lived image of a service plagued by helpless help desks, finger pointing, and blame shifting. The cable industry is in a fiercely competitive race for customers, and our competition has not been shy about pointing out real or imagined shortcomings.⁴⁶ The cable industry must be particularly vigilant in protecting the consumer experience with cable modems. Even in the video business, we have found that even a small percentage of errors—missed appointments, installation errors, lost channels—will far outweigh positive consumer experiences in collective memory and anecdote. It can take 10 years to live down a poor installation experience. We would prefer customers not to hold us responsible for events beyond our control, such as service problems of a third-party ISP. But we have had sufficient experience with being blamed for sunspots, satellite outages, and power grid failures to know that consumers are not always so discriminating when upset.⁴⁷ This concern for the customer experience is not unique to cable operators. Dial-up and DSL providers have faced similar challenges. Pac Tel, for example, has suffered well-publicized DSL problems from which it is still trying to recover.⁴⁸ Therefore, adequate business processes must be worked out in order to

⁴⁶ See “Web Hog” ads, *supra* note 29.

⁴⁷ There is already ample evidence of customer unwillingness to accept even minor delays in installation or trouble resolution. The web itself is littered with postings and chat boards where individuals air the early troubles experienced with cable modem service. See, e.g., New Cable Modem Not Working – MacFixIt Forums www.macfixit.com/ultimate/forum7/HTML/001136.html; Do I Recommend Road Runner, <http://people.qualcomm.com/karn/rr/advice.html> (viewed Nov. 10, 2000). Indeed, one subscriber created a web page initially entitled “My Cable Modem @ Hell,” in which to vent his frustration. <http://members.tripod.com/redcat2421> .

⁴⁸ See, e.g., Clint Swett, *DSL Delays Leave Many Fuming*, Sacramento Bee, Sept. 27, 2000, at A1; Andrew LePage, *Pac Bell moving on DSL demand Tests*, Sacramento Bee, Aug. 24, 2000, at Continued

protect the consumer experience with cable modem service, or cable operators (not merely ISPs) will be left holding the blame in a highly competitive market with ample alternative choices for accessing the Internet.

How these business and operational procedures and costs are handled is also crucial for maximizing consumer welfare. It is uncontroversial to say that the benefits of competition can include consumer choice, lower prices, improved service quality, innovations, new services and bundles of services, and greater customer responsiveness on the part of service providers. In network industries, such as cable television, there is an important difference between facilities-based competition and competition that involves the competitor using some or all of the former monopoly's network facilities or services. To date, consumers have enjoyed the enormous benefits of facilities-based competition between cable, DSL, wireless, satellite, and dial-up.

In a resale (forced access) model, the competition arises principally in the marketing or sales component of the service, and potential consumer benefits will be greatly reduced compared to the case of facilities-based competition. Indeed, forcing access to broadband Internet service carries a substantial risk of producing a net harm to customers. Where the competitor simply resells the service to customers, there is no real competition except for the sales and marketing components of the service, which is likely to produce trivial benefits. At the same time, substantial costs must be incurred to reconfigure the cable network and in establishing business procedures for ordering, provisioning, scheduling service installations, fault isolation, repair, and so forth. The immense investment and continuing disputes to provide such service in local telecommunications markets

C1; *Pacific Bell Sued Over Access to High-Speed Internet Lines*, San Francisco Chronicle, Aug. 17, 2000, at C2; Todd Wallack, *Fast DSL Is Slow To Install: Backlogged orders for Internet access*, San Francisco Chronicle, Apr. 26, 2000, at D1.

give a good preview of what would occur if forced access to cable networks were established through government mandate. These additional costs must be recovered somehow. If all service providers share equitably in the additional costs, then they will be recovered from customers, although the ability of any of the broadband service providers using the cable facilities to recover these costs will be limited by the prices charged for competing services using other facilities. If a disproportionate share of the costs are pushed off onto the incumbent cable provider, it is even less likely that these costs can be recovered from customers. Costs that are not recovered from customers will be recovered from stockholders, reducing their return and increasing the incentives to divert investment to other technologies. The market's ability to provide the optimal mix of competitive services is clearly compromised.

Simply put, governmentally mandated "forced access" does not necessarily improve consumer benefits. It quite likely requires consumers to pay higher prices (or to accept a lower quality service) simply so that they have the choice of purchasing the same, or nearly the same, Internet access service using the same facilities from a variety of service providers. Government mandates increase the cost to consumers while providing few if any offsetting benefits. What is called for instead are negotiated solutions.

B. ISPs And Cable Operators Can Use Numerous Creative Business Solutions That Would Be Thwarted By Government-Mandated Access

There is as wide an expanse of economic models on the web as there is imagination, and no one model has proven to be the single default model for all transactions. A government imposed model—whether a cost-based, pay for capacity lease arrangement or a vague requirement for non-discrimination—would thwart the development of various commercial models, and in so doing, undermine the viability and development of different sizes and types of ISPs.

The market is experimenting with different economic models for the Internet, trying to develop an advertiser supported model, and multiple revenue stream economics. The combination of services in web commerce is commonplace today. SBC and Bell Atlantic charge \$20 less for Internet capable DSL when purchased with AOL than without.⁴⁹ Compuserve (an AOL property) is bundled with new computers.⁵⁰ Computers are discounted—even to zero—if customers use a favored ISP.⁵¹ Combining different revenue streams in Internet commerce is not different in kind from combining advertising revenues and subscription fees in order to underwrite basic cable television programming.

What “open access” proposes is to impose one view of the appropriate “bundle” of services and one view of the revenue support for those services, rather than allowing the market to develop commercial solutions. Yet, in the relationship between cable operators and ISPs, no one size necessarily fits all. There could be joint investment in front-end plant and equipment and a revenue share. There could be sharing of advertising by an ad-supported ISP. There could be payments in equity or warrants. There could be leases of capacity fully engineered by the cable operator, or turn-key arrangements where the ISP designs the system plant upgrade. There could be a percentage commission on transaction based services. All of these models have analogues in the Internet space and in e-commerce.⁵² Different ISPs might reach different deals with cable

⁴⁹ Mike Farrell, "AOL, SBC Ally on ADSL Service," Multichannel News, Mar. 15, 1999, at 6.

⁵⁰ http://www.compuserve.com/cp/pressreleases/cs_news34.asp

⁵¹ See, e.g., *Prodigy Reports Third Quarter Financial Results*, Business Wire, Oct. 27, 2000 (discussing free computer with DSL subscription);

⁵² See, e.g., *Pacific Century Cyberworks, Telstra Sign Agreement*, Asia Pulse, Oct. 13, 2000 (outlining joint venture with 50/50 equity split); *High Speed Access Corp. Reports First Quarter Results*, PR Newswire, May 3, 2000 (discussing turnkey deal between HSA and Charter); Steve Donohue, *Diva Rolling Out Remote Technology: New System Could Raise PPV Profits*, Electronic Media, Nov. 30, 1998 (equity and warrants); Teresa Poole, *Meet Mr. Freeserve*, The Continued

operators, just as different video channels have different economic models and therefore different carriage arrangements with cable operators. Shopping channels typically pay cable operators commissions on transactions. Pay channels split revenues, basic channels provide ad avails. Leased access channels rent time. Some new channels were launched with marketing support fees or equity.

To force only one economic model onto the Internet, in which transport must be priced independent of content or advertising, would significantly distort the developing market for Internet services and may have a severe negative impact on consumer Internet service options. Given today's constraints on customers' willingness to pay for web content, "unbundling" cable modem "transportation" and content may result in high access charges and low content charges—just as PCs today cost \$400 more if you buy them *without* pre-subscribed Internet access.⁵³ It is doubtful that consumer savings would result.

If the market is allowed to continue working, ISPs of all sizes and varieties will be able to thrive and succeed. They will simply do so by finding the business niche that fits their business plan and particular abilities, rather than having their business plan prepared for them under a Commission-created and administered wholesale business. Allowing ISPs and cable operators the flexibility to work out these arrangements in the free market is the best means for assuring benefits by consumers of various Internet offerings, with far more potential for product differentiation than would arise under a government-managed regime of forced access.

Independent (London), June 30, 1999 (mentioning importance of commissions from e-commerce for ISPs).

⁵³ *Getting On The Net With The Right ISP*, New Jersey Business, Sept. 1, 2000 at 40 (discussing CompUSA \$400 discount to customers agreeing to 3-year contract with CompuServe).

C. A Government Mandate Would Be Administratively Burdensome And Is Unnecessary

As Chairman Kennard has recognized, governmentally compelled business arrangements are easier to imagine in broad strokes than to implement in reality.

I also know that it is more than a notion to say that you are going to write regulations to open the cable pipe. It is easy to say that government should write a regulation, to say that as a broad statement of principle that a cable operator shall not discriminate against unaffiliated Internet service providers on the cable platform. It is quite another thing to write that rule, to make it real and then to enforce it. You have to define what discrimination means. You have to define the terms and conditions of access. You have issues of pricing that inevitably get drawn into these issues of nondiscrimination. You have to coalesce around a pricing model that makes sense so that you can ensure nondiscrimination. And then once you write all these rules, you have to have a means to enforce them in a meaningful way. I have been there. I have been there on the telephone side and it is more than a notion. So, if we have the hope of facilitating a market-based solution here, we should do it, because the alternative is to go to the telephone world, a world that we are trying to deregulate and just pick up this whole morass of regulation and dump it wholesale on the cable pipe. That is not good for America.⁵⁴

Chairman Kennard was correct. A forced access mandate would inevitably lead to a call on the Commission to define a “non-discriminatory” price and “reasonable” provisioning. In an early filing, SBC asked for cost-of-service rate regulation of the “wholesale” price.⁵⁵ Embarking on a new version of price regulation, cost-of-service regulation, interconnection, Unbundled Network Elements, and OSS, all rolled into one is not likely to be a successful model for regulating the Internet. The Commission alone has spent years and issued thousands of pages implementing and addressing issues raised by the 1996 Act’s interconnection requirement. Even with the

⁵⁴ CONSUMER CHOICE THROUGH COMPETITION,” Remarks by FCC Chairman William E. Kennard at the National Association of Telecommunications Officers and Advisors 19th Annual Conference, Sep. 17, 1999 (visited Nov. 8, 1999) <<http://www.fcc.gov/commissioners/kennard/speeches.html>>

⁵⁵ Comments of SBC-PacBell in CS Docket No. 98-178, at 15.

assistance of State Commissions the burden of addressing disputes over pricing and terms has been mammoth. The regulatory burden that the Commission would assume with the adoption of any forced access requirement would be even more overwhelming.

However necessary such a regime has been for restructuring and unlocking a dominant monopoly network established through a century of exaction from ratepayers, a government mandate is unnecessary to provide choice in Internet access.⁵⁶ The Internet has already established its ability to resolve interconnection issues without any government assistance. The emergence of workable, unregulated peering and transit agreements that are the heart of the Internet demonstrate that the free market can resolve interconnection issues. As the Commission's recent Working Paper on the Internet Backbone explained, "market forces encourage interconnection between backbones and thereby protect consumers from any anti-competitive behavior on the part of backbone providers."⁵⁷ An "unregulation" approach to Internet access will continue to reap the same kinds of rewards, as consumers benefit from choices between technologies and providers.

It would be quite challenging for FCC regulation of cable modem service to keep up with an industry that changes daily in Internet time. AOL buys Time Warner. Microsoft either is or is not divided in three parts. Netzero goes public with free Internet access. Juno follows suit by giving Internet access away, and today the basic business model of charging for service as an ISP is

⁵⁶ It is important to realize the difference between the forced access context and the 1996 Act's mandate of interconnection by Incumbent Local Exchange Carriers. In that case, Congress was faced with opening systems that were built on a century of government-supported monopoly, universal deployment, and nearly 100% market share. Cable modem service is not universally deployed, has existed for only a few years, and has only a single digit share of the Internet access market. *See* Conner Decl.

⁵⁷ Michael Kende, "The Digital Handshake: Connecting Internet Backbones," OPP Working Paper No. 32, at 1 (rel. Sept. 26, 2000).

suddenly under attack.⁵⁸ Each of those players is willing to jockey for customer loyalty through investments on spec, differentiated products, and experimental arrangements, all with the knowledge that they can change their approach whenever rapidly changing marketplace demands compel it. A regulatory approach is incapable of accounting for the fast-paced competition now underway among multiple, facilities-based providers. This is why the Commission should continue to give these competitors breathing room within which to deploy competing facilities.

D. A Forced Access Regulatory Scheme Would Harm Investment To The Benefit Of Competitors Not Consumers

No business can deliver benefits to customers without capital. Charter raised \$3.5 Billion in risk capital in order to upgrade its systems and offer a variety of advanced services, cable modem service, cable telephony and other innovative services for a “wired world.” Both Wall Street and Silicon Valley have previously explained to the Commission that the overhang of government regulation in and of itself has a negative effect on capital.⁵⁹

In the context of this NOI, mandating access to a cable system would inevitably draw the Commission into pricing regulation. On the one hand, it will be faced with the pleas of companies that would prefer that “wholesale” “transport” be deeply discounted in order to provide the artificial margin within which to operate their businesses over a network built with someone

⁵⁸ Jayson Matthews, *Bulk of Soaring Online Growth Going To Free ISPs*, ISP Planet, [wysiwyg://41/http://www.isp-planet.com/research/tri_report.html](http://www.isp-planet.com/research/tri_report.html) (visited Nov. 30, 2000); *Free ISPs Gain Market Share In U.S.*, ISP Planet, [wysiwyg://36/http://www.isp-planet.com/research/free_isps.html](http://www.isp-planet.com/research/free_isps.html) (visited Nov. 30, 2000) (reporting free ISPs will provide primary path to the Internet by 2003).

⁵⁹ Joint Letter to FCC Chairman Kennard from investment community representatives (Merrill Lynch, Donaldson, Lufkin & Jenrette, Paine Webber, and First Boston Credit Suisse) (December 18, 1998). Letter from Intel, Compaq, Cisco Systems, IBM, Novel to FCC, October 8, 1998. *Broadband Today* at 34. Letter from Donaldson, Lufkin & Jenrette, to FCC, October 7, 1998.

else's risk capital. On the other hand it will need to recognize the investment-backed expectations of those who placed their capital at risk to build these networks, and the consequences in the investment community of artificially reducing returns for one technology while leaving another technology untouched. The resolution of that tension will inevitably distort investments in the market. Investment capital in today's networks carries very high risk, and investors demand a commensurate return. The imposition of forced access obligations could severely damage cable's ability to attract further investment, and promote investment in alternative technologies that require no government assistance (*e.g.*, DSL and satellite). Moreover, harm to investment in cable's infrastructure could also impact rural consumers. Given that the economics of constructing networks in rural areas are difficult to begin with, a reduction in infrastructure investment would likely be felt in rural areas first.

Government mandates are very poor substitutes for the market when it comes to optimally allocating investment capital and facilities investment. It should be consumer benefit that drives those decisions.

Governmentally-controlled forced access is a solution designed to assist competitors to cable, rather than the consumer. That is not the purpose of government regulation. Yet, none of the aforementioned effects of forced access would help consumers. Rather, it would be for the benefit of competitors. By imposing the regulations sought by cable's competitors, the Commission would be providing artificial competitive advantages on multiple levels, none of which would directly benefit consumers. Consumers already have, or will very soon have, multiple choices in delivery technology.⁶⁰

⁶⁰ Industry Analysis Division, Common Carrier Bureau, *High-Speed Services For Internet*
Continued

As discussed previously, ISPs of all sizes and varieties can survive and thrive without mandatory access regulations. It will simply be through creative, market-based business solutions that reflect their respective attributes and abilities—rather than a government-imposed mandate that artificially reconfigures business and market equities and advantages. Imposing forced access would ultimately harm cable operators and their investors, while artificially pushing subscribers into using other ISPs—precisely as forced access proponents would wish. The Commission should not allow itself to be drawn into aiding one set of competitors over another.

E. The Regulatory Approach Should Not Limit Development Of Business And Operational Options

Charter understands that the legal debate continues to rage over whether cable modem service is “cable,” “information,” or “telecommunications,” “advanced” or otherwise, and whether forced or open access can survive a rigorous statutory or Constitutional analysis. We will not belabor these comments by reiterating that debate. We do believe, however, that there are salutary lessons to be learned from how the Commission has answered such questions for earlier “new technologies.” Commission studies have previously noted how the statutory “hands-off” policy exemplified in Section 230 also animated the FCC’s successful policy towards enhanced services.⁶¹ The same pattern has been followed in technology after technology. FM subcarriers,

Access: Subscriberhip as of June 30, 2000, at 3-4 (Oct. 2000) (reporting that high speed services were available in about 70% of zip codes, and that 95% of population lived in those 70% of zip codes).

⁶¹ 47 U.S.C. § 230(b)(2); *U.S. Government Working Group on Electronic Commerce, First Annual Report* (Nov. 30, 1998) (“*E-Commerce Report*”) at 25 (“The Administration . . . support[s] open and vigorous competition as the principal means of developing [broadband] infrastructure . . . we seek to encourage competition among various technologies and industry segments in the development and deployment of advanced services”); *Broadband Today*, at 47 (internal footnotes omitted).

television VBIs, telephone “dark fiber,” electric utility fiber, and DBS all faced claims that they should be regulated as some form of tariffed common carrier platform, and the FCC wisely resisted.⁶²

The rationale underlying these decisions is grounded not merely in the sensible choice to harness market dynamics to ensure rapid investment and deployment of new technologies. The decisions were also premised on engineering and market realities that also characterize cable modem service. For example, in *Norlight*, the Commission concluded that the utility operating the fiber network had quite naturally designed its network for its own use, and would, quite naturally, allow third parties to use it only after individually negotiating arrangements to protect the integrity of the system for meeting its primary and original communications needs. *NorLight*, 2 FCC Rcd. 132 ¶¶ 21-23 (1986). Likewise, the Communications Act, and early analogues in FCC regulation, draw a distinction between what is appropriate for a company with 95% of the access lines (like SBC or GTE) and what is appropriate for a new competitor who is offering consumers a choice of something other than dial-tone.⁶³

Just like in *NorLight*, before allowing an ISP access to its system, Charter “will have to screen each potential [ISP] carefully to make sure it complies with system requirements before

⁶² See, e.g., *Amendments of Parts 2, 73, and 76 of the Commission’s Rules to Authorize the Offering of Data Transmission Services on the Vertical Blanking Interval by TV Stations*, 57 RR 2d 832, ¶ 15 (1985); *Amendment of Parts 2 and 73 of the Commission’s Rules Concerning Use of Subsidiary Communications Authorizations* 48 FR 28445 (1983); see also *Southwestern Bell Tel. Co. v. Federal Communications Comm’n*, 19 F.3d 1475, 1484 (D.C. Cir. 1994)(reversing Commission determination that individual case basis (“ICB”) dark fiber offerings were common carriage); *In re Policy and Rules Concerning Rates for Dominant Carriers*, 5 FCC Rcd. 6786, 6810 (1990)(recognizing that in some cases ICB services feature new technologies); *National Ass’n of Broadcasters v. FCC*, 740 F.2d 1190 (D.C. Cir. 1984) (affirming FCC rejection of calls to impose common carrier, or other legacy regulatory schemes on DBS).

⁶³ See, e.g., 47 U.S.C. §§ 251 & 252.

allowing it to use the [Charter] network.”⁶⁴ Moreover, as discussed below, in its cable modem service offering, Charter is the new competitor with a miniscule portion of the market. It would be inappropriate to impose government-mandated access on Charter when Charter is only just beginning to even enter the market.⁶⁵

At least one court has concluded that the fundamental architecture of cable, under which subscriber use of a shared network affects all other uses of the network, has Constitutional consequence. In *Comcast Cablevision of Broward County, Inc. v. Broward County*, 2000 U.S. Dist. LEXIS 16485 (S.D. Fla. Nov. 8, 2000), the court concluded that because cable modem service shares a common network, and has irrevocable impact on all of the cable operator’s other content it can deliver, the County’s forced access requirement violated cable operators’ First Amendment rights. Whether or not the Commission agrees with the court’s constitutional analysis, it must agree that the underlying cable technology means that a technological blunder—such as adopting a government order locking in a particular technology or business arrangement—can have grave repercussions in constraining the delivery of new and innovative services over the cable system. Such repercussions do little to provide the incentives for technological investment and innovation that the Commission and Congress seek to promote.

VI. CONCLUSION

As the foregoing comments demonstrate, there is no need or basis for imposing government controlled multiple ISP access obligations on cable operators. The market for Internet

⁶⁴ 2 FCC Rcd. 132, ¶ 23.

⁶⁵ Indeed, the Commission should keep in mind that cable modem service is not even ubiquitously deployed. Government mandated access would thus be regulating and burdening cable operators like a market monopolist, when in many parts of the Country they have not even entered the market yet.

access is growing rapidly, with numerous participants providing services at a variety of speeds. Charter's specific experience demonstrates that cable operators are in no position to monopolize or control the market, particularly in light of aggressive and well-funded responses from DSL, wireless, and DBS competitors. A government-imposed model will potentially prevent the development of various creative business and technical arrangements that would otherwise promote a diversity of technical and business arrangements and a flexibility in meeting customer demand. Finally, government-mandated access will inevitably create rules that dictate technology, price, operational support systems, and business arrangements that are not yet tested, and which would otherwise quickly be replaced by new and better advancements. Government intervention could lead to consumer dissatisfaction with cable modem access to the Internet, and harm to the reputation of cable operators—which would be contrary to the Communications Act's goal of promoting the development and deployment of advanced technologies.

In a world of regulatory forbearance, multiple media players are prepared to invest in competing facilities and offer choices to customers. If they serve their customers well, they will profit. This compels them to innovate. By contrast, the government-sanctioned, regulated telephone monopoly left the nation with 56 kbps dial-up Internet access, even though DSL had been available as a technology for years. Once cable operators offered cable modem service and Direct PC beamed down high-speed Internet access, ILECs ramped up DSL. It is the customer who wins through such competitive choices.

Declaring cable as the telecommunication provider of choice for broadband Internet access, and regulating it as a common carrier (through another name), is especially inappropriate when cable is a new entrant in an infant Internet access industry. Such a regulatory approach is doomed to failure. The marketplace will maximize consumer benefits—and offer choices among

ISPs—under a wide variety of engineering and business arrangements. That market is designed to deliver precisely what customers want and value. It is the single most effective tool in the FCC’s arsenal—but it requires continuing to give the market a chance.

Respectfully submitted,



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December 1, 2000

**Before the
FEDERAL COMMUNICATIONS COMMISSION
Washington, D.C.**

In The Matter of

Inquiry Concerning High-Speed Access to the
Internet Over Cable and Other Facilities

GN Docket No. 00-185

To: The Commission

DECLARATION OF PAUL CONNER

I, Paul Conner, declare as follows:

1. I am the Vice President Market Research for Charter Communications, Inc. Prior to holding my present position, I was Director of Market Research for Charter for two years. As part of my job responsibilities, I oversee the collection of data regarding Charter's performance, and the performance of its competitors, in different locations.

2. Our data, from a study of our cable customers in 70 key markets, reflects that in the second and third quarters, 2000, Charter, via our high-speed cable modem service, has a significantly greater market share of Internet access than DSL providers in 22 of these markets.

3. In the majority of these markets, however, dial-up access still controls at least 90% of the Internet access market.

4. In some cases, Charter's high-speed cable modem service's market share is smaller than its DSL competitors, with DSL's market share ranging from 2.7 to 5.6 percentage points better than Charter's cable modem service.

5. Charter's market share is essentially identical to that of DSL in 44 of these 70 markets. This includes areas in each of Charter's 12 regions covering virtually all areas of the

continental United States (*e.g.*, Western states, Rocky Mountain states, Midwestern states, Northeastern states, Southeastern states, etc.).

6. Charter is experiencing some competition from wireless access providers as well, particularly Gwinnett, Georgia.

I swear that the foregoing is true and correct to the best of my knowledge.

Paul Conner

Paul Conner

November 30, 2000

