

Before the  
FEDERAL COMMUNICATIONS COMMISSION  
Washington, D.C. 20554

**In the Matter of GN Docket No. 14-28, *Protecting and Promoting the Open Internet* and GN Docket No 10-127, *Framework for Broadband Internet Service***

**Comment of MFRConsulting**

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**Internet Technology and “Telecommunications Service”**

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**Summary**

A recent letter to the Commission by Richard Bennett<sup>1</sup> presented an analysis (hereafter referred to as Analysis) of the technologies and activities involved in IP (Internet Protocol)-based networks. He concludes that Title II reclassification of Internet Service would be an error, on the grounds that the Communications Act allegedly clearly defines it as an Information Service.

However, while this Analysis presents a useful discussion of the technology of IP networks, it is incorrect in its application of this technology to the definitions of Information Service and Telecommunications Service. Therefore, its conclusion is false. The Federal Communications Commission (FCC) has the authority under this Act to reclassify broadband access infrastructure used to access the public Internet, as well as other networks, under Title II.

Furthermore, if the Commission does not take this step (necessary even if insufficient), it will lack the ability to curb the major U.S. broadband operators from abusing their increasing power over the entire Internet value and supply chain. This power derives from their position in the uniquely uncompetitive broadband market segment of the Telecommunications-Information-Entertainment sector. They enjoy

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<sup>1</sup> Letter, December 30, 2014 at <http://apps.fcc.gov/ecfs/document/view?id=60001011505>

this position thanks to the privileged access to scarce public resources variously awarded to them by Federal, state and local authorities. The privileges and benefits they have acquired, though licenses and franchises, substantially protect them from competition.

There has been an outpouring of comments from individual consumers, as well as multiple diverse business organizations, public interest groups and local governments in the Open Internet Proceeding. These comments have provided compelling evidence of instances of abuses of power that have already occurred, and of the solid basis for predictions that they will be multiplied in future, absent countervailing forces to the incentives for these operators to abuse their power. These forces must be built on enforceable rules imposed on the broadband operators that establish limits on their ability to take anti-competitive actions that harm the public interest at their sole discretion.

### **The Relationship between Technology and Services**

The Analysis lays great stress on the extensive processing associated with and required for the delivery of traffic in IP-based networks. This processing is much more intensive and complex than that involved in the PSTN (Public Switched Telephone Network). Nevertheless, the first question to consider in relating technologies to the proper classification of the service in which they are applied, is whether the information payload carried in the traffic involved in the service is thereby changed, and is intended to be changed as an outcome, or as part of the value delivered by the service.

A Telecommunications Service does not involve a change in the content that is transmitted, which is one criterion that should be applied in determining whether a service belongs in this category. However, there are Information Services that also do not change the content, e.g., a cloud-based storage service, so this criterion alone is insufficient. But since an Information Service necessarily depends on a Telecommunications Service, the second question is whether the latter is or should be separable from the former for the purposes of regulation.

Arguments have been put forward that in the case of broadband Internet access services the “telecommunications” component is inseparable from the Information Services delivered over these transmission channels<sup>2</sup>. This assertion is nonsensical. A plethora of Information Services Providers do not offer broadband access service, and some broadband access providers do not (or at least not yet) offer Information Services. These entities are capable of distinguishing between the Telecommunications and Information components of a Service, even if the

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<sup>2</sup> See for example the CTIA’s filing at <http://apps.fcc.gov/ecfs/document/view?id=60001010832> and the letter from economists to Chairman Wheeler at <http://cei.org/sites/default/files/Economists%20Letter%20to%20FCC%20Chairman%20Tom%20Wheeler%20on%20Competition%20in%20Communications.pdf>

proponents of “inseparability” are not. The regulators in many countries also make this distinction, as in the European Union, where the term “electronic communication service” includes broadband. To the best of my knowledge only in the U.S. is broadband classified as an Information Service, or as an inseparable component of this category of service.

The Analysis presents definitions from the Communications Act as follows:

*“Information service is the offering of a capability for generating, acquiring, storing, transforming, processing, retrieving, utilizing, or making available information via telecommunications, and includes electronic publishing, but does not include any use of any such capability for the management, control, or operation of a telecommunications system or the management of a telecommunications service.”*

*“Interactive computer service means any information service, system, or access software provider that provides or enables computer access by multiple users to a computer server, including specifically a service or system that provides access to the Internet and such systems operated or services offered by libraries or educational institutions.”*

*“Telecommunications service refers to the offering of telecommunications for a fee directly to the public, or to such classes of users as to be effectively available directly to the public, regardless of the facilities used.”*

*“Telecommunications’ means the transmission, between or among points specified by the user, of information of the user’s choosing, without change in the form or content of the information as sent and received.”*

The Analysis asserts that this last definition only encompasses telephony, characterized as the sole information exchange that promises to send and receive information between end points without alteration of the information’s form or content. Yet presumably customers expect that data and videos they transmit or are sent to them over broadband channels will be delivered to their destination(s) without being materially altered in the process, just as they expect that their voice calls will be transmitted clearly and without gaps, added words or impairments that make them incomprehensible.

The Analysis argues that the much greater complexity and amount of processing involved in delivering traffic over IP-based networks compared to the traditional circuit-switched telephone network somehow transforms IP-based traffic delivery services into the category of “Information Service.” This interpretation is incorrect both in the context of the legitimate expectations of the customers (accurate transmission of faithfully reproducible content from end-to-end), and with respect to a reasonable understanding of the exclusion of a capability from the category of Information service (no matter how complex) that is used, as stated in the definition

above, “...for the management, control, or operation of a telecommunications system or the management of a telecommunications service.”

Furthermore, if the argument is accepted that a telecommunications service cannot change the “form” of the information that is transmitted, and hence if it does it is an information service, then even voice telephony, in its implementation in earlier generations of technology, could be classified as an information service. For example analog voice signals submitted to the telephone network are converted into digital streams in TDM (time division multiplex) networks and then back again for delivery to the receiver. In CMRS (Commercial Mobile Radio Service) adaptive codecs, with different speeds and quality, are used to cope with the variable bandwidth that may be available, at different times and places, to serve an individual mobile user.

A service that transforms a voice message into a text message – or vice versa – is a change in form (mode) of information that does meet the definition of an Information Service. But changes in the coding or packaging of information that preserve its mode and content, or dynamic hop-by-hop changes in Layer2 addresses<sup>3</sup>, in order to achieve efficient and reliable carriage, that do not, and are not, intended to change the information payload that is ultimately delivered to its destination - whether a human or a machine – fall into the category of a “... capability for the management, control, or operation of a telecommunications system or the management of a telecommunications service.” They do not miraculously transform a Telecommunications into an Information Service.

The Analysis also refers to the routing function as an example of what is involved in IP packet transfer that disqualifies it as a Telecommunications Service. But in the PSTN (public switched network) there is also a capability to look ahead and then to select and set up the most appropriate route for the call depending on network conditions (although one end-to-end path is established for the duration of the call or communications, whereas packets belonging to the same communication may follow different paths), thanks to Signaling System 7(SS7)<sup>4</sup>.

Further discrediting the idea that only telephony qualifies as a telecommunications service is the historical fact that common carrier regulation has always covered more than just voice communication, for example message service providers (telex and TWX) such as Western Union. The FCC classified these services as “non-voice”.

A definition from the Act not explicitly presented in the Analysis is:

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<sup>3</sup> Layer 2 refers to the Data Link layer of the commonly-referenced multilayered communication model, Open Systems Interconnection (OSI)

<sup>4</sup> For a description of the SS7 architecture, which uses a separate signaling network to set up and tear down calls, see for example <http://www.cs.rutgers.edu/~rmartin/teaching/fall04/cs552/readings/ss7.pdf>

“A *telecommunications carrier* is any provider of telecommunications services, except that such term does not include aggregators of telecommunications services (as defined in section 226 of the Act). A telecommunications carrier shall be treated as a common carrier under the Act only to the extent that it is engaged in providing telecommunications services, except that the Commission shall determine whether the provision of fixed and mobile satellite service shall be treated as common carriage. This definition includes CMRS providers, interexchange carriers (IXCs) and, to the extent they are acting as telecommunications carriers, companies that provide both telecommunications and information services. Private Mobile Radio Service<sup>5</sup> providers are telecommunications carriers to the extent they provide domestic or international telecommunications for a fee directly to the public.”

This definition refutes the idea that broadband access operators cannot be treated as common carriers. Indeed they must be if, as the penetration of multi-purpose broadband IP networks expands, the very principle of common carriage is not to be inexorably eroded and eventually disappear from the U.S. telecommunications sector, despite the immense benefits that it has brought for over eight decades, and continues to bring to this country’s economy and society.

The issue the FCC has to decide is whether it is a reasonable interpretation of the Communications Act to find that a transport service offered to the public for profit that necessarily has to exploit public resources, to which privileged rights of access and use have been awarded to network operators, and does not add anything to the information that is sent and received, qualifies as a telecommunications service that should come under a common carrier regime. For the purpose of classification it is not pertinent how the packets, within which the payload is contained, may be processed to ensure or maximize the chances that this payload will be transmitted correctly and intact with the best possible quality of service.

A computer service for connecting computers does not belong in the same category as a computer-based information service, even if they both have the words “service” and “computer” in their descriptors. Use of a computerized database of addresses and routing paths to ensure the accurate and efficient transmission of information, is not the same as use of a database of information on history, or science, or another branch of knowledge or culture. Algorithms applied to manage or mitigate congestion problems in a network do not place the Telecommunications Service within which they are applied in the same category as the service provided by the algorithms used in a search engine.

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<sup>5</sup> The CTIA argues that mobile broadband falls under the PMRS not the CMRS category (<http://apps.fcc.gov/ecfs/document/view?id=60001010832>), which is not only incorrect (<http://apps.fcc.gov/ecfs/document/view?id=60001011858>), but does not allow mobile broadband operators to escape the common carrier designation according to this definition.

In summary the Analysis is conflating the processing of information needed to transport information (payload) with the processing of information in the payload, and drawing a false conclusion with ultimately destructive consequences based on a misunderstanding of the definitions of “Telecommunications” and “Information” service. These consequences can be foreseen by taking a look at the state of competition in the broadband market that the Analysis completely ignores.

## Competition and Regulation

It is remarkable that nowhere in the Analysis is the word *Competition* to be found, or the question of competition in the market for the services covered (both Telecommunications and Information) discussed. Yet a key factor in the analysis of the end-to-end supply and value chain of Internet- or more widely Broadband-delivered services in the determination of where, and whether, significant regulation is justified, is whether and where there may be a lack of competition or bottlenecks. Bottlenecks create choke points enabling organizations in charge of them to abuse their power to the detriment of competition (and innovation) throughout the value chain, with adverse effects on customers.

Broadband access service, whether connected to the Internet or other networks, is the place where these choke points exist. The major broadband access operators assert that they confront intense competition in the provision of this service. However, the realities of the market and of the deployment of networks, as well as the experiences of millions of consumers who have intervened in the *Open Internet Docket 14-28* and *Docket 14-57 (The Applications of Comcast Corp., Time Warner Cable Inc., Charter Communications, Inc., and SpinCo For Consent To Transfer Control of Licenses and Authorizations)* demonstrate that this is a false characterization<sup>6</sup>.

A filing by the i2Coalition<sup>7</sup> lays out the history of competition thanks to Open Access to the Internet that was fostered by the Commission over many years. More recently broadband competition has been severely, and increasingly, eroded as a consequence of the Commission’s decisions in the 21<sup>st</sup>. century to mistakenly classify broadband as an Information Service. These decisions were based on completely wrong predictions that competition in broadband access services would flourish without Open Access. We now know that these predictions have proved to be false.

The alternatives for the Commission in order to re-energize competition, and cut the Gordian knot of choke points, are to: (i) Restore Open Access to broadband access transmission infrastructure, which requires a healthy wholesale broadband market

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<sup>6</sup> Examples of the many rebuttals from multiple sources of the assertion of intense competition in the market for broadband access service can be found at:

<http://apps.fcc.gov/ecfs/document/view?id=60000871444>,  
<http://apps.fcc.gov/ecfs/document/view?id=60000871445>, and  
<http://apps.fcc.gov/ecfs/document/view?id=60000871446>

<sup>7</sup> <http://apps.fcc.gov/ecfs/document/view?id=7521480927>

that does not exist in the U.S., or if this is not feasible, (ii) Protect the Open Internet with enforceable no-blocking and anti-discrimination rules, based on its Title II authority. Section 706 does not provide an adequate legal foundation for such rules.

The rules for “Net Neutrality” must be formulated and enforced in the context of “Broadband Neutrality.” Otherwise broadband operators will be able, in some circumstances, to circumvent and frustrate the purpose of rules that only apply to broadband channels that are part of the infrastructure of the public Internet.

These rules must be focused on the conditions of access to, and use of, broadband infrastructure that is essential to sustain the economic, social and cultural vibrancy and diversity of this country. This infrastructure is for the most part under the operational control of fewer than a handful of large operators, and in many areas only one or two.

One important justification for the imposition of these rules, not to be forgotten, is that these operators are exploiting scarce public resources, to which they have been awarded privileged rights of use that substantially shield them from competition. Yet they are seeking to avoid the obligations that accompany the benefits they derive from these rights.

There is a growing body of evidence that the leading U.S. broadband operators are trying to focus on serving the most profitable customer segments and areas, neglecting the social contract and the goal of meeting the needs of all residents of the U.S. These obligations or responsibilities are the *quid pro quo* for the benefits they receive through the franchises they have been awarded.

Increasingly these operators are also contradicting themselves in their pronouncements as they seek to evade the responsibilities associated with the precepts of common carriage. In his comments at the Citi Global Internet, Media & Telecommunications Conference on January 6, 2015 Chairman and CEO of Verizon Lowell McAdam has provided a very recent example of the intentions and contradictions inherent in various assertions and policy recommendations by the leading broadband operators. He stated<sup>8</sup>:

*"I've also said there are certain assets on the Wireline side that we think would be better off in somebody else's hands so we can focus our energy in a little bit more narrow geography. We are also, I would remind the audience, that we are doing an awful lot of trimming back the copper and modernizing the network by moving people off of copper onto FiOS. That's a very positive thing for the customer and for us. And we're moving a lot off of copper onto wireless, as well, especially for voice services and lower speed DSL. And that allows us to have the maintenance savings and gives*

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<sup>8</sup> The transcript of his remarks can be downloaded at <http://www.verizon.com/about/investors/citi-2015-global-internet-media-telecommunications-conference/>

*the customers frankly better service than they would on antiquated copper. So we're doing a number of things to sort of prune the assets down and be a bit more focused."*

First, the remark about "focus our energy in a little bit more narrow geography" raises the question of what criteria Verizon will apply to selecting geographies for divestment, and whether they will involve simply leaving less commercially attractive areas (and customers) to other entities. These entities may be less able to fund the investments needed to upgrade and improve service in these divested areas, since they will not have access to the cash flows generated from areas that are sources of larger and more profitable revenues per \$ of investment.

Second, the remark about "antiquated copper" is at odds with Verizon's opposition to the FCC's proposal to define broadband at 10 Mbps download versus 4 Mbps,<sup>9</sup> since in many cases copper cannot support 10 Mbps.<sup>9</sup> Third, the remark about moving "a lot off copper onto wireless" conflicts with the position advocated by the CTIA, in which Verizon is the largest member as a wireless operator, that wireless should be treated under a different regulatory regime from fixed access networks.<sup>10</sup>

## Conclusion

The Analysis provides an exposition of the capabilities and applications of the technologies used in providing broadband access to the Internet. However no matter how accurate this exposition, by then using incorrect definitions of the terms Information Service and Telecommunications Service, the Analysis reaches the wrong conclusion that Internet Service must necessarily be classified under Title I, according to the Communications Act, or equivalently that there is no such thing as a broadband service that should be classified under Title II.

Moreover, the Analysis ignores the realities of ineffective competition in the U.S. market for broadband access service, as well as the visible evidence of the behavior and intentions of major U.S. broadband operators that harm the public interest. Effective competition will not be restored and the public interest will not be upheld unless either an Open Access regime is reinstated for broadband access networks, or rules of non-blocking and anti-discrimination applied to broadband transmission are introduced and enforced under Title II.



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<sup>9</sup> <http://www.geo-tel.com/2014/att-verizon-object-fccs-10-mbps-broadband-definition/>.

<sup>10</sup> <http://www.ctia.org/policy-initiatives/policy-topics/net-neutrality>