

STATE OF VERMONT
PUBLIC UTILITY COMMISSION

Docket No. 7316

Investigation into regulation of Voice over)
Internet Protocol ("VoIP") services)

Order entered: 2/7/2018

I. INTRODUCTION

The provision of telecommunications services to consumers has traditionally been regulated by the Vermont Public Utility Commission ("Commission").¹ This regulation has included oversight of the terms and conditions of service, to ensure that consumers are treated fairly and offered high quality services. Technological change has seen the introduction of competitors in the marketplace that offer what consumers perceive to be the same telecommunications services, primarily the ability to make and receive voice calls, but that uses a different underlying method for conveying the information. This technology, known as Voice over Internet Protocol² ("VoIP"), is expected to become the primary system for managing the modern telecommunications network.

This proceeding was opened to determine the scope of the Commission's authority to regulate VoIP services and, to the extent that the Commission had jurisdiction over VoIP services, to determine the manner in which the Commission should exercise that jurisdiction.

1. Pursuant to Section 9 of Act 53 of the 2017 legislative session, the Vermont Public Service Board's name was changed to the Vermont Public Utility Commission, effective July 1, 2017. For clarity, activities of the Vermont Public Service Board that occurred before the name change will be referred to in Commission documents as activities of the Commission unless that would be confusing in the specific context.

2. As the Commission found in its Order of October 28, 2010, in this docket, a "protocol" is "a specific set of rules, procedures or conventions relating to the format and timing of data transmission between two devices." Order of 10/28/10 (the "Phase I Order") at 8, Finding 2. Internet Protocol refers to the network protocol or format that is used to transmit information across the Internet. This network protocol conveys the same information as do traditional networks, but in a manner that is more flexible, adaptable, and efficient.

The Commission previously concluded that fixed VoIP³ services were telecommunications services under Vermont law and that the Commission's authority was not preempted by federal law.⁴ The Commission also ruled that regulation of VoIP services that were "nomadic" had been preempted by federal law. The state law determination was upheld by the Vermont Supreme Court on appeal.⁵ However, the Court remanded the proceeding to the Commission for a determination of whether Interconnected VoIP services were telecommunications services or information services under federal law, which could affect the scope of the Commission's jurisdiction to regulate them.

This Proposal for Decision considers the question remanded to the Commission by the Supreme Court, recommending that the Commission conclude that under federal law, Interconnected VoIP service is a telecommunications, not an information service.

II. BACKGROUND

This Docket was opened on May 16, 2007, in response to a petition from the Department asking the Vermont Utility Commission ("Commission") to undertake a generic investigation into the nature and extent of Voice over Internet Protocol ("VoIP") services offered in Vermont and to clarify the regulatory status of VoIP service providers operating in this state.⁶

On October 28, 2010, the Commission issued an Order, in which it determined that fixed VoIP services offered in Vermont fall within the statutory definition of a "telecommunications service" under Vermont law, and that the Commission's authority to regulate fixed VoIP services is not preempted by federal law. The Commission also directed the Hearing Officer to continue

3. Interconnected VoIP service is defined in 47 C.F.R. § 9.3 as a service that: (1) enables real-time, two-way voice communications; (2) requires a broadband connection from the user's location; (3) requires Internet protocol-compatible customer premises equipment (CPE); and (4) permits users generally to receive calls that originate on the public switched telephone network and to terminate calls to the public switched telephone network. In this Proposal for Decision, it is also referred to as "fixed" or "non-nomadic" VoIP.

4. Phase I Order.

5. *In re Investigation into Regulation of Voice Over Internet Protocol ("VoIP") Services*, 2013 VT 13 (March 29, 2013)(referred to herein as the "VoIP" Order).

6. The procedural history prior to the Commission's February 2, 2012, Order closing the docket is described in detail in that Order and in the October 28, 2010, Phase I Order and is not repeated in detail here.

Phase II of the investigation, which would determine what, if any, regulation would apply to VoIP services.

On February 2, 2012, at the request of the Department, the Commission issued an Order closing this docket. The closure of the docket would permit Comcast to appeal the Phase I Order and seek closure on the issue of the scope of the Commission's authority to regulate VoIP services.

Comcast appealed the Commission's final Order to the Vermont Supreme Court. On March 29, 2013, the Court issued a decision that remanded the matter to the Commission to determine whether VoIP is an information service under federal law.

On April 12, 2013, the Commission issued a procedural order on remand for further proceedings to comply with the Court's mandate and complete the investigation. The Order appointed Donald Kreis as Hearing Officer.

On April 30, 2013, the Hearing Officer convened a status conference to determine the next steps. The parties reached agreement on a schedule for the remand portion of the proceeding, which was set out in a procedural order issued on May 15, 2013.

The schedule was subsequently amended by orders dated September 6, 2013, and October 3, 2013.

An evidentiary hearing was held on January 15, 2014.

The Phase I Order and the Supreme Court Decision

Phase I of the investigation into VoIP services had two objectives: determining the nature of the VoIP services that are being offered in Vermont and determining whether these facts support the legal conclusion that VoIP services constitute "telecommunications services" under Vermont law that are, as a result, subject to jurisdiction of the Commission (to the extent that regulation of aspects of these services has not been preempted by federal law).

The Commission's analysis first examined VoIP service itself. The Commission recognized that IP was "simply a language for sending data through the traditional telecommunications system," noting that VoIP technology transmitted the information by converting the contents into digital packets which could then be transmitted to the end user

where they would be reconstituted. Nonetheless, the Commission observed that VoIP service offered essentially the same service as traditional telecommunications service and that providers of VoIP service had marketed it as a substitute for traditional land-line telecommunications service. The Commission concluded that, from the customer's perspective, there would be no real difference from traditional telecommunications service.

Turning to the legal analysis, the Commission found that, from a technical perspective, interconnected VoIP service fell within the definition of telecommunications service in 30 V.S.A. § 203(5). It included transmission of electromagnetic signals through wires or related media. As a result, the Commission concluded that VoIP service providers operating in Vermont were subject to all rights and responsibilities associated therewith.

The Commission then examined whether, notwithstanding the finding that VoIP service met the state law definition of a telecommunications service, the Commission might still be preempted by federal law. The Commission acknowledged that regulation of telecommunications services was not solely a question of state law, but was a responsibility shared with the FCC. The Commission concluded that the FCC had affirmatively preempted the state of Vermont in one area — regulation of nomadic VoIP providers. In reaching this determination, the Commission relied upon the FCC's determination in *In re Vonage Holdings Corp. Petition for Declaratory Ruling Concerning an Order of the Minn. Pub. Utils. Comm'n*, 19 F.C.C. Rcd. 22404 (Nov. 12, 2004) ("*Vonage*").⁷ In *Vonage*, the FCC found that the geographic endpoints of the communications offered by Vonage Holdings Corporation's digital VoIP service could not be determined, making it "impossible" to know whether a specific communications was interstate or intrastate. As a result of the impossibility, the FCC preempted Minnesota's regulation of the service as such regulation conflicted with the federal rules and policies related to interstate communications. Applying this test, the Commission concluded that regulation of AT&T CallVantage, a nomadic VoIP service, was preempted.

The Commission reached a different conclusion with respect to non-nomadic VoIP services. First, the Commission explained that it had the requisite authority under state law to rule on the legal status of VoIP absent preemption by the FCC. Second, the Commission noted

7. The FCC's ruling was affirmed in *Minn. Pub. Utils. Comm'n v. FCC*, 483 F.3d 570 (8th Cir. 2007).

that the *Vonage* preemption was expressly limited to instances in which the jurisdictional nature of calls could not be determined. This was not the case for the non-nomadic VoIP services. Third, the Commission concluded that the FCC, the agency with primary jurisdiction over determining whether VoIP was a telecommunications or an information service, had declined to make a decision on the issue. Finally, the Commission explained that the consideration of federal preemption of particular types of regulation was premature, since the decision as to how non-nomadic VoIP should be regulated was deferred until Phase II.

In the Vermont Supreme Court, Comcast argued that “the [Commission] erred in holding that it could resolve the jurisdictional issue without first determining whether CDV is an information or telecommunications service under federal law.” The Court found that the critical question raised by Comcast was whether the Commission’s authority to regulate fixed interconnected VoIP telephony was preempted by federal law.

In its Order, the Court first looked to whether VoIP telephony, and CDV in particular, fell within the Commission’s jurisdiction under 30 V.S.A § 203(5). Here, the Court held that the Commission “did not err” in reaching this conclusion, stating that there were no grounds to disturb the Commission’s finding.⁸ In doing so, the Court also concluded that the Commission’s determination that CDV could be separated into interstate and intrastate components was amply supported by evidence in the record demonstrating that CDV calls originate from a fixed location that can be identified by the provider.

The Court also stated that it found no error in the “[Commission’s] general approach to the preemption question.” First, the Court concluded that the proper framework for analysis was conflict preemption. In reaching this conclusion, the Court observed that, even if the Commission found that CDV was an information service under federal law, it would not necessarily mean that state regulation was prohibited. The Court cited to an FCC decision that examined a service offered by Free World Dial-up. In that case, the FCC found the service to be

8. Order at ¶ 22.

an information service, but concluded that any question of federal preemption of state regulation was one of conflict preemption.⁹

Second, the Court found that the Commission was required to resolve the federal preemption issue, since classification of CDV as an information service would mean that some preemption would occur. The Court rejected the Commission's rationale for deferring a ruling on the classification issue until the FCC had acted, stating that "the [Commission] is fully capable of deciding the scope of federal law and determining whether that law preempts state regulation, and there is no reason not to do so."¹⁰

As a result, the Court reversed the Commission's Phase I Order in part and remanded it to the Commission for further proceedings.

III. FINDINGS

In accordance with 3 V.S.A. § 811(c), I hereby report the following proposed findings of fact to the Commission. All proposed findings not adopted herein are rejected. These findings are in addition to the findings made by the Commission in the Phase I Order. To reflect the passage of time and changes in Comcast's network, I recommend additional findings in this Proposal for Decision that update several factual determinations made in the Phase I Order.

Fixed VoIP Service

1. Comcast Phone of Vermont, LLC ("Comcast Phone") does not offer retail voice services; it offers network services and wholesale interconnection services. Kowolenko supp. pf. at 1.
2. Comcast IP Phone II, LLC (referred to herein as "Comcast"), an affiliate of Comcast Phone, provides retail telecommunications service in Vermont. Kowolenko supp. pf. at 1.

9. Order at ¶ 26, citing *Petition for Declaratory Ruling that Pulver.com's Free World Dial-up is Neither Telecommunications Nor a Telecommunications Service*, 19 F.C.C. Rcd. 3307, 3316 (Feb. 19, 2004).

10. Order at ¶31.

3. Comcast IP Phone offers both residential and business VoIP service. For residential customers, this service is branded “XFINITY Voice.” For business customers, the service is branded as “Comcast Business.” Kowolenko supp. pf. at 2.

4. In the past, the XFINITY Voice service was called Comcast Digital Voice (“CDV”). Tr. 1/15/14 at 10-11 (Kowolenko); Goldstein pf. at 8.

5. The customer subscription to XFINITY Voice is tied to the location of a cable modem. Tr. 1/15/14 at 29 (Kowolenko).

6. Comcast’s CDV customers do not need to subscribe to Comcast’s high-speed internet service. Goldstein pf. at 8.

7. Comcast residential customers have the option of taking Comcast’s “Local with More” or “Unlimited” service. “Local with More” customers pay a lower base subscription fee, but incur charges for toll calls; “Unlimited” customers pay a higher monthly fee, but do not incur domestic toll charges. Kowolenko supp. pf. at 2.

8. Comcast Business has a more variable feature set, although the voice calling features of both the business and residential service share many core characteristics. Kowolenko supp. pf. at 2.

9. XFINITY Voice does not send calls across the internet; it uses the same multiplexing protocol as the internet, which is generally referred to as Internet Protocol, or IP. By comparison, much of the legacy circuit-switched network equipment used by incumbent carriers employs Time Division Multiplexing (“TDM”) to transmit signals, although these carriers also may use IP in their networks. XFINITY Voice also uses Comcast’s own facilities from the eMTA/eDVA to the Media Gateway that hands off most calls to other carriers. Goldstein pf. at 10; exh. DPS-Goldstein-2.

Additional Features of XFINITY Voice

10. Comcast has expanded the service features that are part of its service. One feature is “Voice 2go,” an application that is installed on a mobile device for use in placing calls when the mobile device is connected to the internet. This feature is a supplement to Comcast’s underlying voice service. Kowolenko supp. pf. at 4; Goldstein pf. at 10, 30.

11. Voice 2go is not available for use with computers. It is only for use through applications installed on mobile devices. Tr. 1/15/14 at 25-27 (Kowolenko).

12. Voice 2go is not available to customers who select the "Local with More" service. These customers have service available only at the billing address. Tr. 1/15/14 at 13-14 (Kowolenko).

13. A service is generally considered to be nomadic when it can be accessed from multiple locations. A fixed service, including a fixed VoIP service, can only be accessed from one location. Goldstein pf. at 9. *See also*, Phase I Order, Finding 15.

14. Voice 2go is a nomadic feature that supplements Comcast's underlying voice service. Comcast can identify the calls that are made using the application, but cannot identify the physical location from which the call originated. The XFINITY Voice basic service is not nomadic. Tr. 1/15/14 at 35 (Kowolenko); Goldstein pf. at 10.

15. Because access to the communications network is available through an application on a smart phone, Voice 2go enables calls and text messages over a WiFi network or using a customer's 4G or 3G wireless data plan. Exh. DK-1.

16. Although Comcast's Voice 2go service is generally bundled with (and marketed with) Comcast's fixed-line services, it is a functionally separate service. Goldstein pf. at 9.

17. Voice 2go is an add-on feature that Comcast has elected to bundle as part of its service offering; it is not a necessary component of the basic XFINITY unlimited service. Tr. 1/15/14 at 53 (Kowolenko).

18. Comcast's business customers have similar nomadic features, referred to as Business VoicEdge ("BVE"). Kowolenko supp. pf. at 5-6.

19. BVE has two feature sets. (1) "Be Anywhere" functionality allows subscribers with Unified Communications ("UC") subscriptions (or "seats") to make and receive calls from any device at any location with only one phone number. Like Voice2Go, this feature requires the use of an application on the subscriber's mobile device, if a mobile device is used. (2) BVE UC subscribers also have access to a "softphone," an online, "over-the-top" software application that routes VoIP calls over an Internet connection from the mobile device. The softphone allows users

to utilize their Comcast BVE phone number to place and receive calls over any Internet connection. Kowolenko Sup. pf. at 5-6.

20. Another feature is “Advanced Call Forwarding” which allows customers to receive calls on their mobile devices and using the Voice 2go feature. Kowolenko supp. pf. at 5.

21. Comcast has introduced similar nomadic features for business customers. Kowolenko supp. pf. at 5-6; Wimer supp. pf. at 2-3.

22. These features effectively allow customers to use their phone numbers remotely. This includes the ability to send and receive text messages using their Comcast phone numbers. Kowolenko supp. pf. at 6-7.

23. Comcast also provides access to its XFINITY CONNECT Communications Center, an online web portal that allows customers to access account information, calendars, and voicemail through the internet.¹¹ Kowolenko supp. pf. at 6.

24. The XFINITY CONNECT Communications Center web portal does not support call origination. Tr. 1/15/13 at 69 (Kowolenko).

25. XFINITY Voice also now includes Universal Caller ID that provides incoming call data on the home phone and, optionally, on television and computer screens. Kowolenko supp. pf. at 7.

26. Features such as Voice 2go, Business VoiceEdge, enhanced voice mail, and Universal Caller ID contain functionality that is common throughout the telecommunications industry and is not unique to IP. Wimer supp. pf. at 2.

27. Integrated Services Digital Network ("ISDN") is a set of international standards for digital services and interfaces on the PSTN. ISDN defined three types of services: bearer services, supplementary services, or teleservices. Bearer services are those which actually provide telecommunications, carrying user information, such as voice and data, from point to point. Supplementary services are essentially features that are associated with bearer calls, such as Caller ID2, Call Hold, and Three-way Calling. Teleservices are applications performed across

11. XFINITY Connect replaces a product known as “SmartZone,” which was referred to in Finding 46 of the Phase I Order.

the network, such as telefax. American carriers were not involved with teleservices at the time that ISDN was being developed, primarily the late 1980s and early 1990s. Goldstein pf. at 29.

28. Supplementary services work in conjunction with bearer services (*i.e.*, the services that transport the information), which are telecommunications, to increase their utility. They do not act on the payload of bearer services. Goldstein pf. at 29.

29. Vermont's independent telephone companies have the technical capability to offer the same features as Comcast offers to complement traditional telephone service. These features are not unique to VoIP services. Wimer supp. pf. at 3-4.

30. Local exchange carriers, such as the ILECs, can offer a service like Voice 2go through the use of an application purchased from their softswitch vendor. The application would allow the Independents' customers to place and receive calls from their Independent-assigned telephone numbers, including the numbers associated with the voice lines at their residences, using a mobile device. The Independents' customers can also place and receive calls from their Independent-assigned telephone numbers via computers connected to the Internet. Wimer supp. pf. at 7.

31. The Independents offer a feature analogous to Comcast's Advanced Call Forwarding. Through "call forwarding," the Independents can forward calls to other locations and other devices and through the use of an application, the Independents can also forward calls to mobile phones and tablets. Wimer supp. pf. at 7, 13.

32. The Independents can, through the use of their soft switches, provide a "find me" service which allows calls to Independent voice subscribers to ring at multiple locations and on multiple devices, including mobile phones and tablets through the use of an application. Wimer supp. pf. at 2-4, 7, 12.

33. Many of the Independents provide their customers with an online web portal that allows access to the customer's voice calling features, their Independent-provided email account(s) and other features associated with the Independent's high-speed Internet service. Many Independent customers can configure their account settings and set up call forwarding. Wimer supp. pf. at 16-17.

34. Caller ID can be displayed on any device that can read the voice signaling. Caller ID displayed on a TV has been available in the communications industry since the late 1990's with the Nextlevel technology video deployment. Wimer pf. at 17; Wimer supp. pf. at 5.

35. The ability to display caller ID information is not limited to VoIP or cable television products. Wimer supp. pf. at 5.

36. Caller ID displayed on the television, the customer's ability to control ordering and activation of services and features directly, the ability to view call detail records on line, and the ability to have a telephone number that is not associated with the geographic location of the customer are all services offered by incumbent local exchange carriers without the use of VoIP technology to implement the services. Wimer pf. at 18.

37. The functionality embodied in Voice 2go, Business VoiceEdge, enhanced voice mail, and Universal Caller ID is common throughout the telecommunications industry. Wimer supp. pf. at 2; Wimer pf. at 17.

The eDVA/eMTA Devices

38. Comcast still contractually limits XFINITY Voice subscribers to using their residential EVDA only at its originally installed location. Kowolenko supp. pf. at 8.

39. In the past, Comcast leased an eMTA to each residential subscriber. Today, customers have the option of leasing the eMTA (or the eDVA, which is an upgraded device for users on the IMS network) or using a device they own.¹² Kowolenko supp. pf. at 3-4, 9.

40. Comcast sells these devices to customers; it is possible that a consumer could purchase a device elsewhere, such as through eBay. Tr. 1/15/14 at 17 (Kowolenko).

41. XFINITY Voice customers who choose to purchase their own eDVA must purchase devices approved by Comcast from specific retailers. Only a limited number of stores are authorized to sell the eDVA and only specific models are authorized for use by the consumer. Goldstein pf. at 14; exh. DPS-Goldstein-3.

42. In Vermont, a Comcast customer may purchase an eDVA either directly from Comcast or at a Best Buy retail location. Exh. DPS-Goldstein-3.

12. This finding updates Finding 28 from the Phase I Order to reflect changes in Comcast's practices.

43. Although customers may purchase their own eDVA, Comcast still exercises functional control over the device. Goldstein pf. at 13.

44. Comcast manages the capabilities of the cable modem, even if it is owned by the customer. As part of the installation process, the eDVA is updated with the latest certified firmware to ensure compatibility with Comcast's network. This update is performed remotely by Comcast. Goldstein pf. at 13; tr. 1/15/14 at 113 (Goldstein).

45. Comcast also associates a telephone number with the IP address of the device as part of the installation process. This process is controlled by device-specific configuration files. Goldstein pf. at 14.

Network Structure and Call Routing

46. Comcast's original network for VoIP calls was built around a series of regional soft switches. The soft switch serving Comcast's Vermont customers on its legacy network is located in Massachusetts. Comcast has upgraded its network to IP Multimedia Subsystem ("IMS") network architecture that relies upon several geographically redundant cores that provide the switching nationwide.¹³ Kowolenko supp. pf. at 8-10.

47. The IMS architecture enables customers to access the network using a variety of methods and from different locations. Kowolenko supp. pf. at 8.

48. In order to interconnect other carriers using the public switched telephone network ("PSTN"), Comcast must convert outgoing calls from IP to TDM before the calls are handed off to Comcast Phone and must convert incoming calls from outside Comcast's service area from TDM to IP. This function is performed using a "Media Gateway." Kowolenko supp. pf. at 11.

49. The conversion of calls between IP and TDM that Comcast performs is not any different than would occur if a different carrier were converting between these protocols, such as if a customer using Verizon's fiber-to-the-home service called another customer who happened to be on a TDM network. Tr. 1/15/14 at 61 (Kowolenko).

50. In the fiber networks deployed by several ILECs, the voice service is in IP format from the optical network unit ("ONU") at the customer premises to the line side of the soft switch.

13. This finding updates Finding 36 from the Phase I Order to reflect changes in Comcast's network.

The ONU provides the same protocol conversion as does the eMTA/eDVA. Wimer supp. pf. at 11.

51. Calls between Comcast subscribers do not traverse the media gateway and are transported in IP. Kowolenko supp. pf. at 12; Phase I Order at 13, Finding 40.

52. In some markets, Comcast interconnects in IP, so does not convert the call. Kowolenko supp. pf. at 12.

53. Nationally, some incumbent local exchange carriers allow VoIP carriers to interconnect in IP. Tr. 1/15/14 at 83-4 (Goldstein).

54. As the evolution to IP continues, all calls may eventually be handed off between carriers over IP. Goldstein pf. at 13; Wimer supp. pf. at 7.

55. Routine conversions take place in all networks. For example, analog telephone lines operate in one protocol while Signaling System 7 operates in a different protocol. Similar protocol conversion occurs between the analog user network protocol and the TDM interface. Tr. 1/15/14 at 86-87 (Goldstein).

56. Many features of Comcast's VoIP services depend on Comcast using database information linking subscribers, their Comcast-assigned telephone numbers, and the IP address from which they access the service. Kowolenko supp. pf. at 13.

57. The retrieval and utilization of database information that Comcast performs is functionally the same as telecommunications service providers employ when accessing the SS7 database for call routing or as would a telecommunications carrier using a softswitch to route calls. Tr. 1/15/14 at 62-3 (Kowolenko).

58. Comcast also converts the NANP-based numbers it assigns to XFINITY Voice subscribers into IP addresses in order to route calls. Kowolenko supp. pf. at 13.

59. Comcast uses internal databases to match IP addresses to telephone numbers for all calls, irrespective of whether it uses IP or TDM. Kowolenko supp. pf. at 14.

60. The PSTN has long changed the form or content of calls in ways that are not perceivable by the end-users. These changes within the transmission of a call are part of the management, control, or operation of a telecommunication system. Goldstein pf. at 7.

61. Protocol conversion occurs within the PSTN, and has been part of basic telecommunications services for many years. Protocol conversion was required to convert from analog to TDM digital format, and to ISDN format, in the 1980s. This includes net protocol conversion from analog telephone lines to digital interfaces including ISDN. Goldstein pf. at 7, 30.

62. PacketCable is a multi-vendor interoperable standard adopted by the cable industry. It makes use of reserved capacity taken from the DOCSIS cable modem to provide a path for IP packets that carry telephone calls. Prior to the introduction of PacketCable, some cable systems offered CLEC telephone service that used TDM, rather than IP, to multiplex calls within a bit stream carried on a radio frequency channel. Standardizing on PacketCable created a less costly way to provide similar service. Goldstein pf. at 22.

63. Internet voice services are multiplexed in IP packets that are transported across the internet on a "best efforts" basis. Under normal operation, some of these packets are dropped. IP packets carrying XFINITY Voice calls are transported on a "managed basis," encapsulated in lower-layer protocols that prioritize voice traffic. Operation on a managed basis does not routinely lose packets and thus has a higher quality of service. Goldstein pf. at 19.

IV. DISCUSSION

A. Description of Fixed VoIP Service

In the traditional public switched telecommunications network or PSTN, the caller initiates a call by picking up the telephone. The telephone then converts the sound into an electrical signal that is transmitted over the network to the call recipient, where the signal is converted back into the sound that the user at the other end of the call hears. The content of the call, the voice communication, is the same at both ends.

The PSTN is generally characterized as a circuit-switched network. For communications on a circuit-switched network, a path for the call is established at the outset with a circuit dedicated for completion of that call. Over time, various enhancements have occurred to increase the efficiency of the transmission. For example, call set-up is performed outside of the normal circuit, through a system referred to as Signaling System 7 ("SS7"). SS7 includes

databases that contain calling name information and routing instructions that are used for calls within the PSTN.

Circuit-switching was also enhanced by the use of a multiplexing technology known as Time-Division Multiplexing or TDM, which enables multiple signals to be transmitted on the same circuit. Essentially, information from each call is broken into pieces, with these pieces being transmitted over the dedicated circuit and interleaved with pieces from other communications during transmission. With the multiplexing, once the call is set up, it is carried in TDM through one or more switches along the circuit that has been established for the call, but portions of the path are shared with other communications. Within the PSTN, calls could be transmitted in either analog or digital format. Even within the PSTN, however, there were variations on this theme, with technologies such as Integrated Services Digital Network ("ISDN"), a digital service that had to be converted to and from TDM to enable communications with other users of the PSTN.¹⁴

Today, the telecommunications network is evolving from the circuit-switched topology to one based upon "packet-switching" technology.¹⁵ Whereas circuit-switched networks generally reserve dedicated resources for a call along a path through the network, IP networks route call traffic without the need to establish an end-to-end dedicated path for each call. This is achieved by sending the call information in packets that are individually addressed and thus do not require a dedicated path.¹⁶ Call routing uses what are referred to as soft switches, which are not

14. Goldstein pf. at 7, 30.

15. See *In the Matter of Connect America Fund*, 26 F.C.C. Rcd. 17663, 17671-72, ¶ 15-16 (2011)(discussing the need to update policies that aid the transition to an all-IP world).

16. *In the Matter of IP-Enabled Services*, 19 F.C.C.Rcd. 4863, 4869-70, ¶ 8 (2004)(referred to as "*IP-Enabled Services NPRM*"). The FCC described packet switching as follows (footnotes omitted):

In Internet Protocol networking, data is segmented into packets which are individually addressed and then transmitted over a series of physical networks which may be comprised of copper, fiber, coaxial cable, or wireless facilities. When packets are transmitted via IP between two points, the network does not establish a permanent or exclusive path between the points. Instead, routers read packet addresses individually, and decide - sometimes on a packet-by-packet basis - which route to use for each packet. Thus, the routes that packets will take to the same destination may vary, depending on the best routing information available to the routers. Indeed, packets traveling in the opposite direction on the return communications between the same sending and receiving pair may follow an entirely different path. Moreover, these packets may carry any type

(continued...)

necessarily along the communications path. For example, Comcast's network used a soft switch located in Massachusetts in the past, but has more recently evolved to a network that uses several geographically redundant cores that provide switching nationwide.¹⁷ The reference to the term "IP" does not, however, imply that communications travel via the internet. In fact, Comcast's VoIP calls do not travel over the internet, but rather over Comcast's network and the PSTN.

As the FCC has observed, interconnected VoIP service enables users to receive calls from and terminate calls to the PSTN or other VoIP users.¹⁸ Consumers are increasingly using interconnected VoIP services in lieu of traditional telephone service.¹⁹ The different network operated by VoIP providers also means that in order to interconnect other carriers using the PSTN, calls from customers of interconnected VoIP providers to callers on the PSTN must be converted from IP to TDM before the calls can be handed off to the PSTN. Similarly, interconnected VoIP providers must convert incoming calls from outside the VoIP provider's network from TDM to IP. This conversion function is performed using a "Media Gateway."²⁰ Calls within an IP provider's network, however, do not need to be converted to TDM, although there is still a conversion from the analog telephone device to the IP format and back.

Notwithstanding the differences in the manner in which calls are transmitted, from the consumer's perspective, there is no perceived difference between the VoIP service and traditional landline service.²¹ The consumer who switches from telecommunications service provided by an incumbent local exchange carrier to a provider of VoIP service uses the same telephone to call and receive calls.²² The telephones plug into the same receptacles. The voice communication

16. (...continued)

of information for applications offering widely disparate functions, including those facilitating voice communications.

17. Kowolenko supp. pf. at 8-10.

18. *In the Matter of Numbering Policies for Modern Communications*, 28 F.C.C.Rcd. 5842, 5845, ¶ 6 (2013). The FCC has referred to VoIP services as those offering "real-time, multidirectional voice functionality, including, but not limited to, services that mimic traditional telephony." *IP-Enabled Services NPRM*, 19 F.C.C.Rcd. at 4866, ¶ 3, fn. 7.

19. *In the Matter of the Proposed Extension of Part 4 of the Commission's Rules Regarding Outage Report*, 27 F.C.C.Rcd 15168, ¶2 (2012).

20. Finding 48, above.

21. Phase I Order at 8-9, findings 7-8.

22. Phase I Order at 12, findings 29-30.

that is transmitted through the call is the same and is heard as the same at the receiving end.²³ Relying upon this similarity, Comcast markets its VoIP service as a substitute for existing landline communications services; in fact, it is designed and marketed to resemble a traditional telephone service.²⁴

With the evolution of telecommunications networks from TDM to IP as the preferred transmission protocol, the above description is a little simplistic. Many of the local exchange carriers in Vermont now provide some VoIP service. For these service customers, a call placed using a fixed VoIP provider would make several transformations (analog phone signal to IP, to TDM, back to IP, and then to the receiving analog format), with the transition to TDM largely for the purpose of interconnection between companies (which presently occurs in TDM). This means that the conversion of the signal would not occur within the interconnected VoIP provider's network, but rather within the network of the incumbent local exchange carrier (which would have to convert any remaining TDM transmission to IP for interconnection).²⁵

This technological evolution raises significant questions when applied to Comcast's arguments that its conversion from IP to TDM is the legally significant event that classifies the VoIP service an information service. It also means that the Commission's ruling in this case would have a significant impact beyond cable providers offering telephone services using VoIP over their cable infrastructure. For example, for a customer of one of the incumbent carriers who now has service provided through VoIP, calls to and from that customer undergo the same conversions as do calls from XFINITY Voice customers.²⁶ However, under the logic asserted by Comcast, these customers are no longer being provisioned with a telecommunications service.

Comcast offers interconnected VoIP service in Vermont in the form of the XFINITY Voice product. XFINITY Voice customers enjoy a number of features beyond the ability to make a telephone call between two locales. One offering is the Voice2go service, which is a

23. See Phase I Order at 8, finding 7.

24. Phase I Order at 13, findings 42-44.

25. Carriers are beginning to interconnect in IP, rather than in TDM, although this has not yet occurred in Vermont. As the interconnection transitions to IP, however, providers that use exclusively VoIP service (such as Comcast) will not have to convert the protocol on their networks.

26. The only distinction may be that Comcast requires that the customer locate the eMTA/eDVA on the customer's premises.

nomadic VoIP product. This service enables an XFINITY Voice customer to download an application on a mobile device that will permit them to place calls using their Comcast-assigned telephone number(s) remotely. This service uses the mobile device's connection (cellular or Wi-Fi) to connect the calls and may not travel at all on Comcast's network. A similar product is available for business customers.

Another added feature is Advanced Call Forwarding, which allows XFINITY Voice customers to have calls to their phone numbers forwarded to multiple devices. Comcast also includes Universal Caller ID as an added feature, allowing the phone number of incoming callers to be displayed on television sets and/or computer screens. Finally, Comcast provides XFINITY Voice customers with access to its XFINITY CONNECT Communications Center, an online web portal. This feature allows users to perform telecommunications and account functions on the web. As discussed below, it is Comcast's view that these features are integrated with the XFINITY Voice such that the bundled product is an information service.

B. The Issue Before the Commission

The Commission previously determined that fixed VoIP service was a telecommunications service under state law — Section 203(5) of Title 30. That decision was upheld by the Vermont Supreme Court. Now, in this phase of the proceeding, the Commission is charged with determining whether such VoIP services are information services or telecommunications services under federal law.

C. Federal Law Background

The Commission addressed the federal law framework for the regulation of telecommunications and information services in the Phase I Order. The following discussion expands upon that analysis.

The Federal Communications Act of 1934, as amended by the Telecommunications Act of 1996 (the "Act") defines two categories of services that are relevant to this case.

Telecommunications services are defined in Section 153 of the Act:

(46) Telecommunications service: The term "telecommunications service" means 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.

This definition encompasses the concept of telecommunications, which the Act defines as:

(43) Telecommunications: The term "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.

Telecommunications services are subject to regulation as common carriers under Title II of the Act. This includes obligations that charges be just and reasonable and that rates for customers be nondiscriminatory. It also triggers various obligations to interconnect with other carriers.²⁷ Section 152(b) of the Act also specifically reserves to the state's jurisdiction over the intrastate services offered by telecommunications service providers.

Information services are defined as follows:

(24) Information service: The term "information service" means 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.²⁸

Information services are not subject to regulation as common carriers and certain state actions to regulate them are preempted. The FCC described the scope of the preemption in *Petition for Declaratory Ruling that Pulver.com's Free World Dialup is Neither Telecommunications Nor a Telecommunications Service*, 19 FCC Rcd. 3307, 3316 (Feb. 19, 2004)(referred to herein as *Pulver*), stating:

We determine, consistent with our precedent regarding information services, that FWD is an unregulated information service and any state regulations that seek to treat FWD as a telecommunications service or otherwise subject it to public-utility type regulation would almost certainly pose a conflict with our policy of nonregulation.

27. See generally, Title II, including 47 U.S.C. §§ 201-209, 251.

28. 47 U.S.C. §153(20).

The distinction between telecommunications services and information services had its origin in a 1980 FCC decision related to data-processing services.²⁹ At that time, the FCC introduced two classifications: “basic” service and “enhanced” service. Basic service was defined as the transmission capacity for the movement of information between two or more points suitable for a user’s transmission needs. The FCC clarified that:

Use internal to the carrier’s facility of commanding techniques, bandwidth compression techniques, circuit switching, message or packet switching, error control techniques, etc. that facilitate economical, reliable movement of information does not alter the nature of the basic service.³⁰

Enhanced services encompassed “any offering over the telecommunications network which is more than a basic transmission service. In an enhanced service, for example, computer processing applications are used to act on the content, code, protocol, and other aspects of the subscriber's information.”³¹

Importantly, the distinction between basic and enhanced services was defined by reference to how the consumer perceives the service being offered.³² In addition, on reconsideration, the FCC clarified that protocol conversions that are performed internally to a carrier’s network and that are not manifested at the outputs of the network in end-to-end transmission are not enhanced services.³³ The FCC subsequently found that protocol processing involved in the initiation, routing, and termination of calls “is inherent in switched transmission and is not within the definition of basic service.” As to other protocol conversions, the FCC acknowledged that case-by-case determinations would need to be made.³⁴

29. *In the Matter of Amendment of Section 64.702 of the Commission's Rules and Regulations (Second Computer Inquiry)*, 77 F.C.C.2d 384 (1980)(referred to herein as the “*Computer II Order*”).

30. *Computer II Order*, 77 F.C.C. Rcd. at 419-20 (¶ 95).

31. *Computer II Order*, 77 F.C.C. Rcd. at 420-21 (¶ 97).

32. Goldstein pf. at 7; *National Cable & Telecommunications Association V. Brand X Internet Services*, 545 U.S. 967, 976 (2005) (referred to herein as “*Brand X*”). The *Brand X* decision reviewed the FCC’s decision in *In re Inquiry Concerning High-Speed Access to the Internet Over Cable and Other Facilities*, 17 F.C.C. Rcd. 4798 (2002) (referred to herein as the “*Declaratory Ruling*”).

33. *In the Matter of Amendment of Section 64.702 of the Commission's Rules and Regulations (Second Computer Inquiry)*, 84 F.C.C.2d 50, 60-61 (1980)

34. *In the Matter of Communications Protocols under Section 64.702 of the Commission's Rules and Regulations*, 95 F.C.C.2d 584, 592-96 (referred to herein as the “*Protocols Order*”).

The *Computer II* framework provided the backdrop when the Telecommunications Act of 1996 was enacted. As noted, the definitions of telecommunications service and information service added to federal statutes at that time are similar to the *Computer II* definitions of basic and enhanced services. Reflecting the definitional similarities, in 1996, the FCC examined the definition of information service and concluded that “all of the services that the Commission has previously considered to be ‘enhanced services’ are ‘information services.’³⁵ Nonetheless, the FCC stated that some services would be considered information services even if they were not deemed enhanced services.³⁶

In its *Computer II* decision, the FCC concluded that its definitions would make the demarcation between basic and enhanced services “clear-cut,” with the distinction focusing on whether the service was more than a transmission service.³⁷ This means that a service that met the characteristics of an information service would be treated as an information service. As the ongoing questions about the categorization of VoIP service has shown, and the Department’s testimony stresses, in practice the distinction has turned out not to be clear. For example, in *Frontier Telephone of Rochester, Inc., V. USA Datanet Corp.*, 386 F. Supp. 2d 144, 150 (W.D.N.Y 2005), the Court observed that “[i]t is obvious from continuing debates over the proper classification of broadband and VoIP services that the purported ‘bright line’ [between basic and enhanced services] that once separated these two classes of service increasingly is becoming blurred and subject to confusion.”³⁸ The FCC itself has noted that packet-switching technology challenged the key assumptions underlying the network and the regulation of the network.³⁹

35. *In the Matter of Implementation of the Non-accounting Safeguards of Sections 271 and 272 of the Communications Act of 1934, as Amended*, 11 F.C.C. Rcd 21,905, 21955, ¶ 102 (1996)(referred to herein as the “*Non-Accounting Safeguards Order*”), modified in part, 12 FCC Rcd 2297 (1997)(referred to herein as the “*Reconsideration Order*”).

36. *Non-Accounting Safeguards Order* at 21956, ¶ 103 (the FCC rules that live operator telemessaging services that did not involve “computer processing applications” fell within this category).

37. *Computer II*, 77 F.C.C. Rcd. at 420, ¶ 97.

38. Quoting Richard S. Whitt, “*A Horizontal Leap Forward: Formulating a New Communications Public Policy Framework Based on the Network Layers Model*,” 56 Fed. Comm. L.J. 587, 652 (May 2004)

39. *IP-Enabled Services NPRM*, 19 F.C.C.Rcd. at 4867, ¶ 4 (2004).

D. Positions of the Parties

Comcast argues that XFINITY Voice is an information service under federal law for three independently sufficient reasons.⁴⁰ First, Comcast maintains that its service offers the capability to perform a protocol conversion between IP and TDM. Comcast argues that because XFINITY Voice has the capability to convert voice data between the IP and TDM protocols, it is capable of “processing” and “transforming” information within the meaning of the information services definition in 47 U.S.C. § 153(24). Comcast asserts that “every federal court to have confronted this question has adopted this reasoning and held that interconnected VoIP is an information service.” Comcast further asserts that the XFINITY Voice service does not fall into any of the exclusions from the definition of information service set out in § 153(24).

Second, even if XFINITY Voice itself might be considered to be a telecommunications service, Comcast argues that it also offers information services associated with those voice calling features. Applying the FCC’s decision that was upheld by the Supreme Court in *Brand X*, Comcast contends that these services are “sufficiently integrated with the [telecommunications] service to make it reasonable to describe the two as a single, integrated [information service].”⁴¹ Comcast focuses on the fact that the use of IP allows it to integrate into the XFINITY Voice service access to a wide variety of capabilities, including nomadic voice service, that render the entire, integrated service an information service.

Third, Comcast argues that XFINITY Voice is an information service because Comcast must use internal databases to match IP addresses to telephone numbers every time a call is placed or enhanced features are used. Comcast asserts that its IP address lookup service is substantively identical to an Internet Service Provider’s DNS service that the FCC considered to be part of the information service in the *Declaratory Ruling*.

The Department and the Independents disagree with Comcast and argue that XFINITY Voice is a telecommunications service under federal law. They assert that its characteristics meet the federal definition of a telecommunications service. Moreover, they contend that XFINITY

40. AT&T Services, Inc. (“AT&T”), Verizon Access (“Verizon”), and the Voice on the Net Coalition (“VON”) support Comcast’s argument on this point.

41. *Brand X*, 545 US at 990 (2005).

Voice is not an information service because it falls within one or more of the exclusions set out in the definition of information service and in the FCC's *Non-Accounting Safeguards Order*. They also contend that XFINITY Voice and the features that Comcast makes available to its XFINITY Voice customers are not an integrated service that must be treated as an information service, but are rather separable elements.

E. Classification of Fixed VoIP as a Telecommunications Service

This Order employs the same framework the FCC used in the *Declaratory Ruling* and other proceedings, including the recent ruling in *In the Matter of Protecting and Promoting the Open Internet*,⁴² and by the Supreme Court in *Brand X*. Namely, the analysis first examines whether the service is telecommunications. Next, the FCC has resolved whether the service is a telecommunications service under the definition. Finally, consistent with the *Computer II* approach, the inquiry resolves whether, notwithstanding the classification of the service as a telecommunications service, it falls within the definition of an information service, so that it is treated as an information service, not a telecommunications service.

The parties do not question whether the fixed VoIP service constitutes either telecommunications or a telecommunications service under federal law. In the *Brand X* decision, the Supreme Court stated that the key inquiry in this classification is whether end-users perceive the service as offering the functionalities that meet the statutory definition.⁴³ Fixed VoIP is “telecommunications” because it transmits information of the user’s choosing, without change in the form or content of the information as sent or received.⁴⁴ Fixed VoIP transmits the verbal communications over the network that a caller seeks to send to the recipient.

The FCC recently addressed this question in the *Open Internet Order*. In evaluating whether broadband internet access service (whereby the user transmitted information over the broadband connection) was telecommunications, the FCC made clear that “it is the nature of

42. 30 F.C.C. Rcd. 5601 (2015)(referred to herein as the “*Open Internet Order*”). Petitions for review of this Order were affirmed in *United States Telecom Association v. FCC*, 825 F.3d 674 (D.C., 2016)(referred to herein as “*US Telecom*”).

43. *Brand X*, 545 U.S. at 986-99.

44. See *In the Matter of Petition for Declaratory Ruling that AT&T’s Phone-to-Phone IP Telephony Service are Exempt from Access Charges*, 19 FCC Rcd 7457, 7465, ¶ 12 (2004)(referred to herein as “*AT&T*”).

[packet delivery] that the ‘form and content of the information’ is precisely the same when an IP packet is sent by the sender as when the same packet is received by the recipient.”⁴⁵ The user also specifies the end point for the communication.⁴⁶

Further, interconnected VoIP service offers telecommunications for a fee directly to the public, thus plainly falling within the definition of telecommunications service.⁴⁷ As the FCC has found, a provider is a common carrier “by virtue of its functions.”⁴⁸

F. Classification of Fixed VoIP as an Information Service

Having established that fixed VoIP falls within the definition of a telecommunications service, the issue then is whether interconnected VoIP service is a telecommunications service. Under FCC precedent, if a service is an information service or a functionally integrated information service, it is classified as an information service, rather than a telecommunications service even if it meets the statutory definition of an information service. This requires an examination of the information service definition and the telecommunications systems management exception to that definition.

The starting point for any such analysis is the Act itself. As stated above, the 1996 amendments incorporated a definition of information service for the first time, one that was substantially similar to the preexisting FCC classification of enhanced services. The evidence indicates that fixed VoIP service offers the capability for transforming and processing information via telecommunications. In a fixed VoIP service, the content of a telephone call is not altered or transformed, but the format of that call is converted from one format (IP protocol) to another format, whether TDM or the analog signals used by the telephone at the consumer’s location.⁴⁹

This transformation function through the protocol conversion is not, however, sufficient to make the service an information service. The conversion of the signal between various

45. *Open Internet Order*, 30 F.C.C. Rcd. at 5763, ¶ 362.

46. *See Open Internet Order*, 30 F.C.C. Rcd. at 5762, ¶ 361.

47. *AT&T Order* at 7465, ¶ 12.

48. *Open Internet Order*, 30 F.C.C. Rcd. at 5763, ¶ 363.

49. *See Findings* 48, 49.

protocols is for the “management, control, or operation of a telecommunications system or the management of a telecommunications service” and thus falls squarely within the exception to the definition of information service.⁵⁰ As the FCC observed in the *Non-Accounting Safeguards Order*, services that facilitate the establishment of a basic transmission path over which a telephone call may be completed, without altering the fundamental character of the telephone service, fall within this telecommunications management exception.⁵¹

The basic components of the fixed VoIP service offered by Comcast are all used for the purpose of making sure that a call originated by a customer is successfully completed and that the content remains unchanged. This includes the eMTA/eDVA, which initially completes the call to IP format, and extends to the IP format itself.⁵² IP has as a purpose delivering the content, just as do networks using TDM — the difference rests largely on how the information is transmitted.

The FCC examined the statutory telecommunications management exception to the information services definition in the *Open Internet Order*. In that decision, the Commission examined whether broadband internet access service was a telecommunications service or an information service. After finding that it was a telecommunications service, the FCC examined whether it fell within the definition of an information service. In particular, the FCC examined Domain Name Service (“DNS”), which is used to translate domain names into numerical IP addresses that are used by the network, and caching, which involves the storage of copies of content at locations in a network closer to subscribers to speed retrieval of information.⁵³ The FCC found that these separate services, when provided with the broadband Internet access services, “fit squarely within the telecommunications management exception.”⁵⁴ In the case of DNS, the FCC reached this result because DNS allowed more efficient use of the telecommunications network⁵⁵ and did not affect the fundamental nature of broadband Internet

50. See Findings 52, 60.

51. *Non-Accounting Safeguards Order*, 11 F.C.C.Rcd. at 21958, ¶ 107.

52. Phase I Order, Findings 30-38.

53. *Open Internet Order*, 30 F.C.C. Rcd. at 5758, ¶ 356 and fns. 972-973.

54. *Open Internet Order*, 30 F.C.C. Rcd. at 5758, ¶ 356,

55. *Open Internet Order*, 30 F.C.C. Rcd. at 5768, ¶ 368 and fn. 1037. The FCC also found that DNS service was a capability for the “operation of a telecommunications system” and would not qualify as an information service for that reason.

access service.⁵⁶ Similarly, caching was found to facilitate the transmission of information as part of the service offering.⁵⁷

On appeal, the FCC's ruling in this area was upheld. Significantly, the Appeals Court for the District of Columbia Circuit stated that "once a carrier uses a service that would ordinarily be an information service — such as DNS or caching — to manage a telecommunications service, that service no longer qualifies as an information service under the Communications Act."⁵⁸

Like broadband internet access service, VoIP is divided between an underlying service whose purpose is the transmission of telephone calls and other functions involved in the management of those communications. The calls are converted to IP format as a means of conveying the information. The conversion itself is a necessary part of the network management.

The FCC still has not definitively classified VoIP services as telecommunications services or information services.⁵⁹ Nonetheless, FCC precedent supports the conclusion that interconnected VoIP is a telecommunications service, not an information service. The FCC first examined "phone-to-phone" IP telephony service in a 1998 Report to Congress.⁶⁰ At that time, the FCC reached the tentative conclusion that such services were telecommunications services, not information services. The FCC stated:

In using the term "phone-to-phone" IP telephony, we tentatively intend to refer to services in which the provider meets the following conditions: (1) it holds itself out as providing voice telephony or facsimile transmission service; (2) it does not require the customer to use CPE different from that CPE necessary to place an ordinary touch-tone call (or facsimile transmission) over the public switched telephone network; (3) it allows the customer to call telephone numbers assigned in accordance with the North American Numbering Plan, and

56. *Open Internet Order*, 30 F.C.C. Rcd. at 5770, ¶ 371.

57. *Open Internet Order*, 30 F.C.C. Rcd. at 5770, ¶ 372.

58. *US Telecom*, 825 F.3d at 706. The result of the Act and the FCC determination is that a service that would otherwise be considered a telecommunications service is an information service if it meets the definition of information service. But if the information service component is used to manage the telecommunications function, the service goes back to being a telecommunications service.

59. *In the Matter of Universal Service Contribution Methodology a National Broadband Plan for Our Future*, 27 F.C.C.Rcd 5357, 5387, n.167 (2012). The FCC recently reiterated this point in *In the Matter of Rates for Interstate Inmate Calling Services*, 31 F.C.C.Rcd 261, 278, n. 131 (2016).

60. *In the Matter of the Federal-State Joint Board on Universal Service*, 13 F.C.C.Rcd 11501 (1998)(referred to herein as the "Stevens Report").

associated international agreements; and (4) it transmits customer information without net change in form or content.⁶¹

The FCC further observed that the protocol processing that takes place incident to phone-to-phone IP telephony does not affect the service's classification "because it results in no net protocol conversion to the end user."⁶²

The evidence in this docket shows that fixed VoIP service meets all of the four conditions the FCC specified in 1998. It is offered as, and serves as, a substitute for traditional voice services.⁶³ Customers making VoIP calls use the exact same CPE or telephone that they used before switching from traditional TDM services.⁶⁴ Customers using fixed VoIP services may call any telephone number. And the content of the call, the voice communication, is transmitted without change to its form or content.⁶⁵

Last year, the FCC also implicitly recognized state regulatory jurisdiction in the order authorizing VoIP providers to obtain direct access to North American Numbering Plan telephone numbers from the Numbering Administrators rather than through intermediaries.⁶⁶ Given that the FCC had not previously designated VoIP providers to be telecommunications service providers, they had not previously been authorized to directly obtain blocks of telephone numbers because they did not have either a license from the Commission or a certificate of public convenience and necessity⁶⁷ from a state regulatory commission. In 2015, the FCC concluded that such authorizations were not typically available to VoIP providers, noting that at least 24 state jurisdictions had precluded utility commissions from regulating VoIP services and could not provide such authorizations. The FCC also acknowledged that it had preempted state market-entry regulation of certain VoIP providers, citing the *Vonage* decision concerning nomadic VoIP services. Accordingly, the Commission allowed access to North American

61. *Stevens Report*, 13 F.C.C. Rcd. at 11543-44, ¶ 88.

62. *Stevens Report*, 13 F.C.C. Rcd. at 11527, ¶ 52.

63. Phase I Order, Findings 42-44.

64. Phase I Order, Finding 29.

65. Phase I Order, Findings 26 and 43.

66. *In the Matter of Numbering Policies for Modern Communications*, 30 F.C.C.R. 6839, 6848, ¶¶ 20, 21 (2015).

67. In Vermont, the equivalent is a certificate of public good under Section 231.

Numbering Plan telephone numbers for VoIP providers that are unable to obtain state certification.

The FCC explanation that only certain state regulation of VoIP services was preempted or that the limits on state jurisdiction otherwise were imposed by state legislatures is a tacit acknowledgment that other states have retained jurisdiction to require market-entry regulation of fixed VoIP services. This follows from the FCC's statement that "[w]e conclude that authorization *by a state* or the Commission is necessary to protect against number exhaust, as well as to ensure competitive neutrality among traditional telecommunications carriers and interconnected VoIP providers in the competitive market for voice services."⁶⁸

Notwithstanding the fact that fixed VoIP services fall within the statutory definition of services used for the management, control, or operation of a telecommunications system, Comcast argues that the FCC has analyzed services that involved changes to protocols under a different framework, citing to the *Non-Accounting Safeguards Order* issued twenty years ago in 1996. In that Order, the FCC also ruled that stand-alone protocol processing services that essentially converted information from one format to another were information services.⁶⁹ However, the FCC further stated that:

we have treated three categories of protocol processing services as basic services, rather than enhanced services, because they result in no net protocol conversion to the end-user. These categories include protocol processing: 1) involving communications between an end-user and the network itself (e.g., for initiation, routing, and termination of calls) rather than between or among users; 2) in connection with the introduction of a new basic network technology (which requires protocol conversion to maintain compatibility with existing CPE); and 3) involving internetworking (conversions taking place solely within the carrier's network to facilitate provision of a basic network service, that result in no net conversion to the end-user).⁷⁰

Relying upon this framework, Comcast argues that the fixed VoIP service involves a net protocol conversion, and, thus, even if the VoIP service might fall within one of these categories, it must

68. *Id.* at 6850, ¶ 25 (emphasis added).

69. *Non-Accounting Safeguards Order*, 11 F.C.C. Rcd. at 21957, ¶ 105.

70. *Non-Accounting Safeguards Order*, 11 F.C.C. Rcd. at 21957-58, ¶ 106 (citing *IDCMA Petition for a Declaratory Ruling That AT&T's Interspan Frame Relay Service is a Basic Service*, Memorandum Opinion & Order, 10 FCC Rcd 13,717, 13,717-18 n.5 (Com. Carrier Bur. 1995)).

be treated as an information service under the *Safeguards Order*. AT&T, Verizon, and VON agree with this assertion.

1. New Technology Protocol Conversion

The second category of protocol conversions that are treated as basic services under the *Non-Accounting Safeguards Order* is protocol conversions associated with the introduction of new basic network technology. Protocol conversions are not new. They have been part of basic telecommunications services for many years. Protocol conversions within the PSTN have been necessary to convert signals from analog to TDM digital format or to ISDN format.⁷¹ In the 1987 *Computer III* inquiry, the FCC observed that:

The concept of permitting protocol conversions necessitated by the introduction of new technology to be offered as basic service was introduced to cover those instances in which “[basic network] technology is introduced piecemeal, and appropriate conversion equipment is used within the network to maintain compatibility [between user equipment and the network].”⁷²

In the 1983 *Protocols Order*, the FCC explained this concept in the context of the transition from an analog to a digital network. The Commission highlighted the types of changes that it considered to be within this exception to “include net analog-to-digital and digital-to-analog conversions performed within the network to enable end users using different types of network interfaces to communicate with one another.”⁷³ The FCC elaborated that this change from analog to digital could be viewed as a protocol conversion, thus presenting a potential problem if it were to be considered an enhanced service. As the Department’s witness points out in this proceeding, activities such as converting between analog lines and ISDN (a digital service), channelized T1, and carrier-provided multiplexing have been uniformly treated as telecommunications since the Act was passed in 1996. (Prior to 1996, they had been subject to

71. Goldstein pf. at 7, 30.

72. *In the Matter of Amendment to Section 64.702 of the Commission’s Rules and Regulations (Third Computer Inquiry)*, 2 F.C.C. Rcd 3072 , 3082, ¶ 70 (1987)(citing *In the Matter of Communications Protocols under Section 64.702 of the Commission’s Rules and Regulations*, 95 F.C.C. 2d 584 (1983)(referred to herein as the *Protocols Order*)).

73. *Protocols Order*, 95 F.C.C. 2d at 591, ¶ 16.

the requirement under the *Protocols Order* that the provider obtain a waiver pursuant to the second exception.)⁷⁴

The FCC has repeatedly made clear that it expects that the systems on which the PSTN has been based in the past will be replaced by a network using IP. The Commission opened a proceeding in 2004 with this expectation, observing that:

Carriers have begun to realize efficiencies associated with utilization of IP in both the backbone and the “last mile” of their networks. Customers are beginning to substitute IP-enabled services for traditional telecommunications services and networks, and we seek comment on the rate and extent of that substitution. Increasingly, these customers will speak with each other using VoIP-based services instead of circuit-switched telephony and view content over streaming Internet media instead of broadcast or cable platforms. By doing so, they will change, fundamentally, their use of these applications and services - consumers will become increasingly empowered to customize the services they use, and will choose these services from an unprecedented range of service providers and platforms.⁷⁵

That docket and subsequent proceedings have been directed towards incorporating IP technology into the PSTN and establishing the framework for such entry. This can be seen in the *Transformation Order*, in which the FCC laid out in detail certain rights of VoIP providers, and in the recent proceeding allowing VoIP providers to obtain direct access to telephone numbers (to name only two examples).⁷⁶ These and other orders make clear the FCC’s expectation that the network is changing from a circuit-switched to a packet-switched one as well, with the new network being based upon IP.

The protocol conversions that occur within the network are performed precisely to facilitate this compatibility between the newer IP-driven network and the legacy system — without these conversions, a call could not undergo the various changes in format that occur as the call data is directed to its destination. As such, the conversions between IP and TDM represent a textbook example of the second type of protocol conversion that is treated as a basic service outlined in the *Non-Accounting Safeguards Order* — namely, a protocol conversion that

74. Goldstein pf. at 7, 30.

75. *IP-Enabled Services NPRM*, 19 F.C.C.Rcd. at 4864, ¶ 1.

76. *In the Matter of Numbering Policies for Modern Communications*, 30 F.C.C.R. 6839 (2015).

is effected to ensure continued compatibility is not classified as an “enhanced service” (or information service), but rather is properly classified as a telecommunications service.

Comcast, AT&T, Verizon, and VON argue that this exception does not apply because, even with the introduction of new technology, there is a net protocol conversion from IP to TDM for many calls. Thus, according to these parties, XFINITY Voice qualifies as an “information service” because Comcast receives the voice communication in IP and, therefore, a net protocol conversion occurs when an XFINITY Voice call is completed to a customer served by the TDM-based PSTN.

This argument overlooks the FCC’s 1997 Order on Reconsideration in the Non-Accounting Safeguards proceeding. In that Order, the FCC stated that:

Upon further reflection, we conclude that *our statement that all three exempt services do not involve net protocol conversions is not strictly correct*, since the second category of excepted protocol processing services *includes services that may involve net protocol conversions to end users.*⁷⁷

The Commission thus recognized that the piecemeal introduction of new technology into the telecommunications system may lead to net protocol conversions. The Commission specifically recognized that the protocol conversions that fell within this category included “net analog-to-digital and digital-to-analog conversions performed within the network to enable end users using different types of network interfaces to communicate with one another.”⁷⁸ The same types of protocol changes are occurring during the move to IP-based services. Thus, under the *Non-Accounting Safeguards Order* cited by Comcast and others, protocol processing associated with introduction of a new technology is a telecommunications service, even if there is a net protocol conversion.

A net protocol conversion does not occur during the transmission of VoIP calls in any event. The FCC itself tentatively reached this conclusion in the *Stevens Report*, finding that the protocol processing that takes place incident to phone-to-phone IP telephony does not affect the

77. *In the Matter of Implementation of the Non-accounting Safeguards of Sections 271 and 272 of the Communications Act of 1934, as Amended*, Order on Reconsideration, 12 F.C.C. Rcd. 2297, 2298, ¶ 2 (1997)(emphasis added).

78. *In the Matter of Implementation of the Non-accounting Safeguards of Sections 271 and 272 of the Communications Act of 1934, as Amended*, Order on Reconsideration, 12 F.C.C. Rcd. 2297, 2298, fn. 6 (1997).

service's classification "because it results in *no net protocol conversion to the end user.*"⁷⁹ In this statement, and subsequently in the *AT&T* decision, the FCC made clear that in examining the existence of a net protocol conversion, the appropriate frame of reference for the analysis is the end user's perspective. For example, in *AT&T*, the FCC observed that in *Computer II* and *Computer III*, the Commission had found that services "that result in *no net protocol conversion to the end user* are basic services."⁸⁰

In the context of VoIP service, from the end user's perspective, there is no change in the form or content of the information or in the nature of the signal used to convey information. VoIP customers use the same telephone to place calls that TDM customers use. The output of the phone call, in the form of an analog signal, is the same. The call to another customer may undergo multiple conversions along the way, but in net, the signal is the same.

The FCC made a similar observation concerning protocols in the context of broadband internet access in the 2015 *Open Internet Order*, stating:

Broadband Internet access service may use a variety of protocols to deliver content from one point to another. However, the packet payload (i.e., the content requested or sent by the user) is not altered by the variety of headers that a provider may use to route a given packet. The information that a broadband provider places into a packet header as part of the broadband Internet access service is for the management of the broadband Internet access service and it is removed before the packet is handed over to the application at the destination. Broadband providers thus move packets from sender to recipient without any change in format or content, and "merely transferring a packet to its intended recipient does not by itself involve generating, acquiring, transforming, processing, retrieving, utilizing, or making available information."⁸¹

Comcast, AT&T, Verizon, and VON assert that VoIP differs from broadband, arguing that the appropriate point for measuring whether a net protocol conversion occurs is from the physical location at which the VoIP provider receives the call from the customer. Under this analysis, an IP call is received (or terminated) in IP because the conversion from analog to IP occurs on the customer's premises using the eMTA/eDVA. In the case of XFINITY Voice,

79. *Stevens Report*, 13 F.C.C. Rcd.at 11527, ¶ 52 (emphasis added).

80. *AT&T*, 19 F.C.C. Rcd. at 7459, ¶4 (emphasis added).

81. *Open Internet Order*, 30 F.C.C. Rcd. at 5762, ¶ 362.

Comcast requires that the customer position the device — the eMTA/eDVA — inside the customer's premises.

The FCC has previously used the concept of a demarcation point as a means of allocating responsibility for physical facilities between the customer and the service provider. The demarcation point on the network establishes which facilities are owned or controlled by the service provider and which facilities are owned or controlled by the customer.⁸² For cable television systems, the FCC has defined the demarcation point as follows: "For new and existing single unit installations, the demarcation point shall be a point at (or about) twelve inches outside of where the cable wire enters the subscriber's premises."⁸³ For inside wiring, the Commission has defined the network interface device as the demarcation point between the network and the inside wire.

However, the FCC has not invested the point of demarcation with absolute significance. For example, in the context of cable facilities, the demarcation point is clear under FCC rules, yet the cable television box that is on the customer side of the demarcation point is owned and controlled by the cable provider.

Comcast's argument that a net protocol conversion occurs is predicated, in part, on the assumption that the appropriate measuring point for determining such a conversion is the demarcation point. First, as discussed above, the FCC has repeatedly stated that the assessment of a net protocol conversion should be done from the customer perspective. Here, customers at both end of a call use the same devices and generate and receive signals in the same format.

Second, Comcast has not shown any legal precedent for identifying the demarcation point as the relevant point on the network for determining the existence of a net protocol conversion. Moreover, particularly in the context of the eMTA/eDVA, there appears to be no compelling reason for assigning such relevance to the demarcation point. Comcast is the entity that has arranged its system so that the conversion takes place in a device located on the customer's premises. Although customers can now buy their own eMTA/eDVA devices, the models are

82. *In the Matter of Rural Health Care Support Mechanism*, 27 F.C.C. Rcd. 16,678, 16748, ¶ 154 (2012).

83. 47 C.F.R. § 76.5(mm)(1).

prescribed by Comcast.⁸⁴ Comcast also exercises functional control over the device, managing its capabilities and remotely updating firmware.⁸⁵ Thus, customers may own their devices, but they actually have no control over the conversion to and from IP format that's occurring within the device. By comparison, customers have the ability to select and control the traditional telephones they use to place phone calls and that are considered customer-premises equipment. Effectively, Comcast is still the controlling entity notwithstanding the location of the device.

Finally, there are practical considerations that show it would be poor regulatory policy to classify VoIP as an information service due to a net protocol conversion. Even under Comcast's paradigm, only some calls actually undergo any net protocol conversion. Calls between Comcast customers using VoIP service undergo no protocol conversion. Similarly, many customers of local exchange carriers, such as the Independents, are now served by fiber-optic facilities, with service provided using VoIP. A call from a Comcast customer to these customers would also undergo no net protocol conversion. Extending the logic, a call from one customer of an Independent served by TDM to an Independent customer served by VoIP would be an information service under Comcast's view of the law.

These facts create a conundrum. Traditionally, the FCC has examined regulatory issues based upon the services. With the infusion of VoIP into most, if not all, telecommunications networks, protocol conversions are occurring within all of these networks, including those of the Incumbents. Under Comcast's logic, this would result in even existing networks being information services. Alternatively, one could view the question of net protocol conversion from the perspective of individual customers. No party has cited to FCC precedent that would support such reasoning, which would create a scenario that would be impossible to implement from a practical perspective. In fact, the second exception to the treatment of protocol conversions from the *Non-Accounting Safeguards Order* as clarified by the Order on Reconsideration was clearly crafted to address such network and technology transition issues.

84. See Finding 40.

85. See Findings 42, 43.

2. Internetworking

The protocol conversions involved in providing fixed VoIP service also fall within the third exception to the characterization of protocol conversions as information services cited in the *Non-Accounting Safeguards Order*, namely, the internetworking exception. The FCC considered the internetworking exception in the *AT&T* declaratory ruling. In that proceeding, the question was whether a service offered by AT&T that used IP telephony was exempt from access charges otherwise applicable to circuit-switched interexchange calls.⁸⁶ The calls at issue originated on a local exchange carrier's network, were converted by AT&T to IP, transported over AT&T's internet backbone, and then converted back from IP format for delivery to the local exchange carrier serving the call recipient. The FCC decided that access charges did apply to these calls that used IP telephony for a portion of the call, stating that, to the extent that "protocol conversions associated with AT&T's specific service take place within its network, they appear to be "internetworking" conversions."⁸⁷

The protocol conversions associated with fixed VoIP service are intended to facilitate (and, in fact, enable) the provisioning of a basic network service, which is the standard in the third exception. This applies both to the initial change from analog to IP format and to the later transformation from IP to TDM to allow for transmission of the calls to the PSTN. The specific language of the internetworking exception refers to transformations within a carrier's network. Under the evidence in this case, the conversion from IP to TDM occurs within the VoIP provider's network. Also, as discussed above, Comcast has functional control over the conversion from analog to IP at the eMTA/eDVA. This means that all the conversions occur within the VoIP provider's network. Even if this were not true, the Commission explained in *AT&T* that its analysis applied whether only one interexchange carrier used IP transport or instead multiple services provided such transport.⁸⁸

86. Access charges are paid by interexchange carriers to the local exchange carrier serving the customer, primarily for the cost of using the local exchange carrier's network.

87. *AT&T*, 19 F.C.C. Rcd. at 7465, ¶ 12.

88. *AT&T*, 19 F.C.C. Rcd. at 7457, ¶ 1. The FCC also determined that, for AT&T's service, no net protocol conversion occurred.

3. VoIP as an Integrated Product

Comcast next argues that XFINITY Voice service is an information service because it offers a single, integrated service that is not severable into distinct information service and telecommunications service components. Comcast asserts that XFINITY Voice offers numerous services that are information services: Voice2go, Advanced Call Forwarding, access to the XFINITY CONNECT Communications Center, and Universal Caller ID. Comcast contends that these are services that are enabled by the IP-based nature of Comcast's network and that, consistent with the FCC's approach that the Supreme Court upheld in *Brand X*, they represent an integrated information service.

Comcast also argues that its use of stored databases and lookup capabilities makes XFINITY Voice an information service. Comcast describes the XFINITY Voice service offering as being "virtually identical" to the Domain Name Service ("DNS") that the FCC relied upon in the *Declaratory Ruling* and the Supreme Court examined in *Brand X*. Comcast asserts that its service translates telephone numbers into an IP address using lookup capabilities that are essentially identical to DNS. From Comcast's perspective, what is key is that Comcast utilizes common technology and network elements and that the IP technology permits broader integration of service (citing *Vonage*).

The Independents disagree with Comcast, arguing that Comcast has not demonstrated that the ancillary service offerings are integrated. The Independents contend that the bundling of adjunct services does not transform the character of the underlying telecommunications service. For example, they cite the fact that voice mail has been determined to be an information service that is ancillary to basic service. As to Voice2go, the Independents observe that it does not use Comcast's facilities-based network. And, unlike nomadic VoIP, the service is available only to customers who elect to use it on certain devices. As to Comcast's argument that the database access is sufficient to classify fixed VoIP as an information service, the Independents argue that all telecommunications networks have databases that store routing information and network addresses associated with completing calls.

The Department also disputes Comcast's assertions, arguing that Comcast has misapplied *Brand X*. According to the Department, *Brand X* related to data transmission service, not voice

transmission. In addition, the Department argues that Comcast's comparison of the database lookup and DNS service is incomplete and that DNS is not similar to Comcast's database lookup function.

First, the U.S. Supreme Court has made clear that an entity may not avoid Title II regulation of a telecommunications service simply by bundling that service with an information service.⁸⁹ As the Supreme Court found in reviewing the *Declaratory Ruling*, the FCC did not rule that any bundle was automatically unregulated. Rather, the Court concluded that where a telecommunications input used to provide an information service is not separable from the data-processing capabilities of the service, but is instead "integral" to the information service's other capabilities, the integrated service is not a telecommunications service.⁹⁰ The Court went on to explain that:

a telephone company that packages voice mail with telephone service offers a transparent transmission path—telephone service—that transmits information independent of the information storage capabilities provided by voice mail. For instance, when a person makes a telephone call, his ability to convey and receive information using the call is only trivially affected by the additional voice-mail capability.⁹¹

The FCC has consistently applied this approach, classifying certain added functionalities offered by telecommunications carriers as "adjunct-to-basic" services. Under the FCC's interpretation, these are services that might meet the literal definition of an information service, but were, in fact, "incidental" to an underlying telecommunications service and did not alter the fundamental character of that service. To qualify as an adjunct-to-basic service, a service had to be "'basic in purpose and use' in the sense that [it] facilitate[d] use of the network, and . . . [it] could 'not alter the fundamental character of the [telecommunications service].'"⁹² These adjunct-to-basic services do not transform the underlying telecommunications service into an

89. *Brand X*, 545 U.S. at 997-98 (citing *Universal Service Report*). *Open Internet Order*, 30 F.C.C. Rcd. at 5769, ¶ 369.

90. *Brand X*, 545 US at 997 (citing *Declaratory Ruling*, 17 F.C.C. Rcd. at 4823, ¶ 39).

91. *Brand X*, 545 US at 998.

92. *US Telecom*, 825 F.3d at 705 (citing *Open Internet Order*).

information service.⁹³ In the *Non-Accounting Safeguards Order*, the FCC explained that such services included speed dialing, call forwarding, computer-provided directory assistance, call monitoring, caller i.d., call tracing, call blocking, call return, repeat dialing, and call tracking.⁹⁴ According to the FCC, these features fell within the “telecommunications management exception” to the definition of information services.

Subsequently, in *In the Matter of Federal-State Joint Board on Universal Service*, 22 F.C.C. Rcd. 11811 (2007), the FCC examined features that were not simply network management functions, finding that added functionalities such as advertisements, the time, date and temperature, account balance, available talk time, other customized messages, and certain call screening and redirection functions were adjunct-to-basic. Similarly, in examining a conferencing service offered by Intercall, Inc., the FCC considered whether features offered in conjunction with the conferencing service altered the “fundamental character of InterCall’s telecommunications offering so that the entire offering becomes an information service.”⁹⁵

In the *Open Internet Order*, the FCC reiterated its consistent view that such “adjunct-to-basic” services fall within the telecommunications systems management exception to the “information service” definition. In that Order, the FCC stated that services that fell within the exception: (1) must be incidental to an underlying telecommunications service — *i.e.*, “‘basic’ in purpose and use” in the sense that they facilitate use of the network, and (2) must “not alter the fundamental character of [the telecommunications service].”⁹⁶

Applying these standards, the Commission examined DNS service. DNS is a service that matches the website address that an end user types into the browser with the IP address of the

93. *Open Internet Order*, 30 F.C.C. Rcd. at 5765, ¶ 365. In its decisions, the FCC has included some features that clearly constitute telecommunications management functions. However, the FCC has also used the “adjunct-to-basic” analysis to examine features that were offered in conjunction with the underlying telecommunications service, that depended upon that service, but that were incidental.

94. *Non-Accounting Safeguards Order*, 11 F.C.C. Rcd. at 21958, ¶ 107 and n.245.

95. *In the Matter of Request for Review by Intercall, Inc. Of Decision of Universal Service Administrator*, CC Docket No. 96-45, 23 F.C.C. Rcd. 10731, 10735 (2008) (concluding that features such as muting, recording, erasing, accessing operator services, validation functions, and billing did not alter the underlying transmission component).

96. *Open Internet Order*, 30 F.C.C. Rcd. at 5766-67, ¶ 367.

web page's host server.⁹⁷ In the *Declaratory Ruling*, the FCC had found that DNS service was an information service when provided in conjunction with internet access, making the integrated service an information service. Nonetheless, in the *Open Internet Order*, the FCC concluded that DNS service was “not so inextricably intertwined with broadband Internet access service so as to convert the entire service offering into an information service.”⁹⁸ The FCC found that it fell within the telecommunications systems management exception and that “it does not affect the fundamental nature of broadband Internet access service as a distinct offering of telecommunications.”⁹⁹

The foregoing FCC decisions thus establish that added features that do not alter the fundamental characteristics of the telecommunications service do not convert that service into an information service.

Examining the functionalities that Comcast provides to XFINITY Voice customers, the record demonstrates that none of these services alter the basic telecommunications function that is offered by Comcast's XFINITY Voice. They also are not so integrated into the telecommunications service that the overall offering must be treated as an information service as in the *Declaratory Ruling*. Further, the incorporation of a nomadic feature does not alter the character of the underlying service as a non-nomadic one.

In the case of Voice2go, the parties do not contest that it provides a nomadic function. An XFINITY Voice customer who uses the Voice2go option can use a mobile device (such as a cell phone or tablet) with the XFINITY application to make and receive calls using the telephone number assigned to the landline. However, the testimony in this case shows that this service is a functionally separate service that is an option for customers.¹⁰⁰ A customer can freely make and receive normal telephone calls on the XFINITY Voice service without activating or using the Voice2go features. Comcast's witness acknowledged that Voice2go was not a necessary component of the XFINITY service, but was instead an add-on feature that Comcast elected to

97. *Brand X*, 545 U.S. at 999.

98. *Open Internet Order*, 30 F.C.C. Rcd. at 5769, ¶ 370.

99. *Open Internet Order*, 30 F.C.C. Rcd. at 5770, ¶ 371.

100. Goldstein pf. at 9.

bundle as part of its service offering.¹⁰¹ Voice2go does not even require the VoIP system, but rather uses Wifi or cellular connections to initiate and receive calls. The evidence also makes clear that other telecommunications service providers, including the ILECs in Vermont, have the technical capability to offer such a feature to consumers, supporting the conclusion that the Voice2go functionality is separate from the underlying service.¹⁰²

This leads to the conclusion that Voice2go is not so integrated with the XFINITY VoIP service as to convert the telecommunications service into an integrated information service. Similarly, Comcast has presented no precedent suggesting that by bundling a nomadic feature with a non-nomadic service, the latter is suddenly treated as nomadic.

The same conclusion applies to the Advanced Call Forwarding feature of XFINITY Voice. As discussed above, the FCC found in the *Non-Accounting Safeguards Order* that call forwarding was an adjunct-to-basic service and did not change the nature of the underlying telecommunications service. Comcast's Advanced Call Forwarding feature simply adds the ability to forward calls made to the customer's Comcast phone number to other remote devices, including nomadic products. The underlying telecommunications product is not altered, nor does the evidence indicate that the functionality of Advanced Call Forwarding is intertwined with the underlying VoIP product.

Comcast also cites the Universal Caller ID feature as an example of an integrated VoIP product that must be treated as an information service. However, as with Advanced Call Forwarding, the FCC found in the *Non-Accounting Safeguards Order* that caller ID was an adjunct-to-basic service.

Another feature available to XFINITY Voice customers is access to Comcast's XFINITY CONNECT Communications Center. This feature is a web portal that allows customers to make various account adjustments and to access email and voicemail. Comcast has not shown, however, how these features are so intertwined with the underlying telecommunications functionality that the combined service must be treated as an integrated offering.

101. Tr. 11/5/14 at 53 (Kowolenko).

102. Findings 30-32.

In sum, the features cited by Comcast all clearly fall into the adjunct-to-basic construct and do not alter the character of the telecommunications service. As the Commission has ruled, these adjunct-to-basic services fall within the telecommunications management exception.¹⁰³

4. Accessing and Processing Stored Information

Comcast also asserts that XFINITY Voice service is an “integrated information service” because it involves access to and processing of stored information. Comcast cites to its use of stored databases and lookup capabilities to access its users’ IP addresses, which it contends constitutes the retrieval and use of information. In support of its assertions, Comcast observes that in *Brand X*, the Supreme Court upheld the FCC’s determination that the process of identifying and encoding IP address information constituted an information service.¹⁰⁴ Comcast argues that its service is virtually identical to the Domain Name Service (“DNS”) at issue in *Brand X*. In particular, Comcast states that it uses databases for call routing and for translating telephone numbers into IP addresses. AT&T, Verizon Access, and the VON Coalition also raise this argument.

The Department disputes Comcast’s comparisons to DNS, arguing that they are incomplete. The Department asserts that DNS has very little in common with the database lookup performed by Comcast. The Department comments that the PSTN has been driven by databases and the need for inquiries into those databases for years, a point echoed by the ILECs. The Department argues that the only difference between the existing lookup functions and the VoIP service is whether the telephone number is expressed as an IP address, as it is in the latter case. This function, according to the Department, resides wholly within Comcast’s network, is not seen by customers, and is entirely a network management function.

The ILECs agree with the Department that all telecommunications networks have databases that store routing information. The ILECs contend that these database lookups are internal to the network and are used for network management.

103. *US Telecom*, 825 F.3d at 705.

104. Citing *Brand X*, 545 U.S. at 998-99.

The arguments of Comcast, AT&T, Verizon Access, and the VON Coalition that rely upon *Brand X* are misplaced. These parties are correct that, in the *Declaratory Ruling*, the FCC ruled that DNS service was integrally linked to the underlying telecommunications service, converting the whole to an information service. However, in the *Open Internet Order*, the FCC engaged in a more comprehensive examination of the issue. As discussed above, the FCC has found that bundling DNS with broadband Internet access service does not convert the latter into an integrated information service.¹⁰⁵ Thus, even if Comcast's comparison were valid, the FCC ruling means that the classification of the underlying telecommunications service is not affected by the management functions provided by transmission using IP.

The FCC also addressed the relevance of database look-up functions in this context. The FCC ruled that such functionality would not convert what was otherwise a telecommunications service into an information service.¹⁰⁶ Overall, the Commission concluded that these look-up functions were part of the management of the service itself, which it characterized as the transmission of data to and from all or substantially all Internet endpoints.

The same analysis applies here. The database functions, translation of phone numbers into IP addresses, and other routing functions are all part of the management of the transmission of the voice telephone calls. They are necessary to perform that function, just as DNS was needed for internet access to work, but they do not alter the classification of the voice service.

V. CONCLUSION

Based upon the foregoing, I recommend that the Commission conclude that, under federal law, fixed VoIP services are telecommunications services, not information services. This conclusion does not, however, resolve how the Commission should regulate providers of VoIP services pursuant to its state law authority; that issue is for Phase II of this investigation.¹⁰⁷

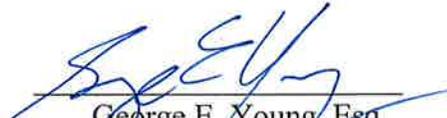
105. *Open Internet Order*, 30 F.C.C. Rcd. at 5770, ¶371.

106. *Open Internet Order*, 30 F.C.C. Rcd. at 5769, ¶369.

107. See Order of 3/7/08; Order of 10/28/10 at 4-5.

This Proposal for Decision has been served on all parties to this proceeding in accordance with 3 V.S.A. § 811.¹⁰⁸

Dated at Montpelier, Vermont, this 9th day of December, 2016.


George E. Young, Esq.
Hearing Officer

108. The Independents submitted a number of corrections to the PFD. As these do not materially affect the findings and recommendations set out above and are in the nature of corrections rather than proposals for substantive changes, I have incorporated most of them into this PFD.

VI. COMMISSION DISCUSSION

The Commission received comments from Comcast, the VON Coalition, the Department, the Independents, and Green Mountain Power Corporation (“GMP”). The Department and GMP support the Hearing Officer’s findings of facts and conclusions of law and request that we adopt them. The Independents also “strongly support the PFD” but submitted some technical corrections.¹⁰⁹ Comcast filed extensive comments on the PFD, requesting that the Commission adopt different findings and recommendations in many instances. Comcast also requested an opportunity for oral argument, which the Commission granted.¹¹⁰ AT&T, Verizon, and VON also filed comments arguing that the PFD incorrectly concluded that VoIP services were telecommunications services under federal law.

We address the comments below.

A. Changes to Findings

Comcast argues that the PFD “inexplicably declines to adopt many of Comcast’s proposed findings.” Comcast also objects to a number of findings, stating that they are irrelevant, unsupported by the record, or otherwise require modification. We address each of Comcast’s specific objections to findings below.

Finding 2

Comcast argues that the entity noted in the finding, Comcast IP Phone II, LLC, is no longer active, with its successor now known as Comcast IP Phone, LLC. We have no reason to question Comcast’s representation. However, the finding is based upon the evidence in the record whereas Comcast’s proposed revision is not, so we decline to adopt it.

109. These changes were not adverse to any party and were in the nature of technical corrections. The Hearing Officer incorporated them into the PFD.

110. The oral argument was held on February 16, 2017, with Comcast, AT&T, Verizon, VON, and the Department participating.

Finding 9

Comcast asserts that the portion of the finding that states that “XFINITY Voice does not send calls across the Internet” is not consistent with the evidence. Comcast states the calls placed using the Voice2go feature do transit the internet and proposes a revision to reflect this fact.

We do not agree. This finding is discussing the basic XFINITY Voice service, not the add-on Voice2go feature, which enables calls to be placed remotely using an app. As Comcast suggests, the Voice2go feature uses the internet. However, all parties agree that calls placed by the wired VoIP service are carried on Comcast’s network. We will modify Finding 9 to add the word “basic” to clarify that the finding pertains to the wired system.

Comcast also asks that we revise the portion of the finding that states that “XFINITY Voice also uses Comcast’s own facilities from the eMTA/eDVA to the Media Gateway that hands [off] most calls to other carriers.” Comcast asserts that the finding implies that inside wire constitutes Comcast’s own facilities. This finding is based upon the testimony from Mr. Goldstein and is identical to that testimony. It does not state, as Comcast suggests, that the eMTA/eDVA is a demarcation point.

Finding 9, as revised, reads as follows:

9. Basic XFINITY Voice does not send calls across the internet; it uses the same multiplexing protocol as the internet, which is generally referred to as Internet Protocol, or IP. By comparison, much of the legacy circuit-switched network equipment used by incumbent carriers employs Time Division Multiplexing (“TDM”) to transmit signals, although these carriers also may use IP in their networks. XFINITY Voice also uses Comcast’s own facilities from the eMTA/eDVA to the Media Gateway that hands off most calls to other carriers. Goldstein pf. at 10; exh. DPS-Goldstein-2.

Findings 10, 14, 16, and 17

Comcast objects to the PFD’s statement that Voice2go is a supplement to Comcast’s underlying voice service. Comcast states that the record shows that the XFINITY Voice service includes both nomadic and non-nomadic features, not that Voice2go is a supplement. Similarly, Comcast objects to Finding 16, which states that although the Voice2go service is generally bundled with Comcast’s fixed-line service, it is a functionally separate service. Comcast also argues that Finding 14, which maintains this distinction between the basic XFINITY service and its components and features, is also in error.

We disagree. We understand that Comcast has chosen to offer a bundled product to its customers that includes the basic wired service and the nomadic Voice2go. However, the Hearing Officer concluded, after hearing testimony from Comcast and other parties, that the service was functionally separate. In part, this relied upon the testimony of the Department's witness, Mr. Goldstein. In addition, Comcast's own witness, Mr. Kowolenko, made similar statements. In response to questions from the Hearing Officer, Mr. Kowolenko first acknowledged that Voice2go was not a necessary part of the basic XFINITY unlimited service. He went on to answer "yes" to whether Voice2go was simply an add-on service that Comcast elected to bundle and to a follow-up as to whether there "is no necessary connection between the two."¹¹¹ Comcast's argument is thus directly contradicted by its own witness's testimony.

We note that this issue is linked to Comcast's broader claim that its VoIP product is an integrated service that includes many different features, which the Hearing Officer rejected (pages 35-40) and we address below.

Findings 26-33, 36-37, 50

Comcast objects to Findings 26 and 37, which conclude that XFINITY Voice's advanced features are common throughout the telecommunications industry, as irrelevant to the classification of XFINITY Voice. Comcast further argues that Findings 27-28 concerning ISDN are irrelevant because there is no evidence that the legal framework of the 1996 Telecommunications Act maps into "the ISDN's categorization system for services utilizing the PSTN." Comcast also contends that Findings 29-33 and 36, which relate to the capabilities of the Independents, are irrelevant to this proceeding.

This phase of the proceeding requires the Commission to decide whether VoIP services are telecommunications services under federal law, with specific reference to the service offered by Comcast. However, the determination as it relates to Comcast is not decided in a vacuum. Any ruling made in this proceeding that relates to specific features of Comcast's service would likely apply equally to other companies offering the same types of services. For example, Comcast asserts that the net protocol conversion between IP and TDM has legal significance

111. Tr. 1/15/14 at 53 (Kowalenko).

requiring XFINITY Voice to be classified as an information service. If this functionality is dispositive, then other carriers that are providing VoIP services would likely also be information services. For example, various Vermont incumbent telephone companies provide voice service in IP format to some of their customers.¹¹² Under Comcast's argument, these services could mean that those companies are also information service providers. The findings in question highlight the fact that the legal determination might also affect the regulatory classification of many of Vermont's incumbent local exchange carriers.

As to the findings related to additional features, these are relevant to Comcast's argument that the bundling of these features creates an integrated service. For example, Caller ID has been available in Vermont since the early 1990s.¹¹³ Comcast seeks to assign significance to its inclusion in the bundle of services, suggesting that the integration of this information service into the XFINITY Voice platform transforms the service. If this is dispositive, then the rationale would apply equally to other similarly situated companies, including all of Vermont's local exchange providers. The logical implication would be that these companies have been information service providers for decades, which has been recognized by neither the Commission, the FCC, nor the carriers themselves. This same logic applies to other add-on features and functionalities. It does not necessarily mean that Comcast is incorrect (although as we discuss below, that is our conclusion), but understanding the framework in which we are rendering a decision is highly relevant.

Finding 26

Comcast also argues that Finding 26 is vague. Moreover, Comcast asserts that the statement that it is not unique to IP is not supported by the record. We disagree. Except for the clause "is not unique to IP," the statement is almost a direct quote from Ms. Wimer's supplemental prefiled testimony at page 2.¹¹⁴ Ms. Wimer goes on to explain her statement in more detail over the next few pages. This includes a statement that the Independents can offer

112. See Finding 49 and 50.

113. See *Investigation of New England Telephone & Telegraph Company's Phonesmart Call Management Services*, Docket 5404, Order of 2/12/92.

114. The only change is to condense the concept from two sentences in the testimony to one in the finding.

the same features to complement the traditional telephone service (*i.e.*, the TDM-based offering).¹¹⁵ This supports the finding's statement that the functionality is not unique to IP.

As to vagueness, Ms. Wimer's testimony from pages 2 through 7 explains the basis for the testimony reflected in Finding 26. The finding fairly summarizes this testimony. Comcast had a full opportunity to cross-examine Ms. Wimer on these issues. We thus reject Comcast's assertions concerning both the accuracy of the finding and the vagueness.

Finding 29

Comcast also contends that Finding 29 is "based on vague and conclusory testimony." Comcast might disagree with the testimony. But it had an opportunity to rebut the testimony and inquire into the bases behind it if it believed the testimony was unsound. The Hearing Officer concluded, after hearing all of the evidence, that the testimony was accurate and reached a factual determination to that effect. We agree with that conclusion.

Findings 30 and 31

In addition to the relevance objection cited above, Comcast objects to these findings as speculative because the Independents have not actually deployed the functionality. We disagree. The question posed by Comcast relates to the uniqueness of its integrated service offering, which, it argues, requires the Commission to treat Comcast as an information service. In understanding how this might affect the classification of the independent telephone companies, the appropriate consideration is not whether they have deployed the service to date, but whether it can be deployed on a TDM network, so that it is not unique to the IP-based platform offered by Comcast.

Finding 33

In addition to the relevance objection addressed above, Comcast contends that the evidence does not suggest that the web portals available to the Independents provide similar

¹¹⁵ Wimer supp. pf. at 3. See also, page 4, where Ms. Wimer explains how the Independents can offer these features *without IP*.

functionality to that provided by Comcast in its XFINITY Connect platform. Comcast states that the testimony cited by the finding, Ms. Wimer's supplemental prefiled testimony, does not exist.

Comcast is correct that the citation in the finding is incorrect. It should be a citation to Ms. Wimer's original prefiled testimony, not the supplemental testimony. We have set out the corrected finding below. As to the merits of the finding itself, Comcast has not shown that the finding is incorrect. The evidence and the finding do not state, or imply, that the functionality that the Independents provide is identical, as Comcast seems to suggest. However, Ms. Wimer's prefiled at pages 16-18 and her supplemental prefiled testimony at pages 2-6 set out the functionality that the Independents' systems can provide, which, from an end user's perspective, is similar.

The revised finding reads as follows:

33. Many of the Independents provide their customers with an online web portal that allows access to the customer's voice calling features, their Independent-provided email account(s), and other features associated with the Independent's high-speed Internet service. Many Independent customers can configure their account settings and set up call forwarding. Wimer pf. at 16-17; Wimer supp. pf. at 2-6.

Finding 36

Comcast suggests that this finding is misleading insofar as it refers to the ability to use a telephone number that is not associated with the geographic location of the customer without the use of IP. Comcast states that the testimony does not support the conclusion that this functionality can be provided without IP.

We disagree with Comcast's objection. Ms. Wimer's testimony at page 17 makes clear that the functionality discussed in the finding is not related to VoIP technology. It goes on to state that these are features that "VoIP carriers have adapted from non-IP services." This statement supports the finding. We have, however, revised the finding to cite to page 17, rather than 18, of Ms. Wimer's testimony.

The revised finding states as follows:

36. Caller ID displayed on the television, the customer's ability to control ordering and activation of services and features directly, the ability to view call detail records on line, and the ability to have a telephone number that is not associated with the geographic location of the

customer are all services offered by incumbent local exchange carriers without the use of VoIP technology to implement the services. Wimer pf. at 17.

Finding 37

Comcast argues that the finding that these advanced features reflect functionality that is common throughout the telecommunications industry is “vague and generic, and lacks any factual support.” The factual support was explained above and exists at pages 2-7 of Ms. Wimer’s supplemental testimony. Comcast might disagree, but it has not shown that the factual finding is in error, despite having the opportunity to do so. We accept the finding.

Finding 41

Comcast argues that this finding, that there are only a limited number of models of the eDVA authorized by Comcast and a limited number of stores authorized to sell those devices, is inconsistent with Finding 40, which states that a consumer can get a device through the secondary market. We do not understand Comcast’s assertion as we see no inconsistency between the two findings. A secondary market can exist even with a limited supply of authorized devices.

Finding 43

Comcast argues that the finding should not be adopted because the term “functional control” is vague. Comcast also argues that to the extent Comcast’s management of the eDVA is being discussed, that fact is already laid out in Findings 44 and 45.

We adopt Finding 43. Finding 43, which should be read in conjunction with Findings 44 and 45, shows that the capabilities of the eDVA are managed by Comcast. This supports the conclusion that Comcast exerts functional control of the device.

Finding 52

Comcast asserts that this finding is incomplete and misleading. We disagree. As written, the finding is consistent with Mr. Kowolenko’s testimony. However, we agree with Comcast

that it could more completely capture all elements of his testimony, and for that reason we will adopt a revised finding.

The revised finding reads as follows:

52. In some markets, Comcast interconnects in IP, rather than TDM, with other VoIP providers or CMRS providers. In these instances, the call is not converted. Kowolenko supp. pf. at 12.

Finding 54

Comcast objects to the proposed finding, arguing that it is speculative and irrelevant to the current environment, and that there is no basis to believe that nationwide IP interconnection will occur any time soon. We disagree. We recognize that, at the present time, most traffic is still carried in TDM format. However, the FCC has made clear that it expects the entire network to transition to an IP-based network, rather than a TDM one. Even in Vermont, a substantial portion of traditional telecommunications services are now provided in IP format, by Comcast or by incumbent local exchange carriers. Moreover, this finding highlights an important fact about the IP transition — it will change the basic manner in which the PSTN itself will work, unlike other protocol conversions which the FCC has dealt with in the past.

Findings 55 and 61

Comcast argues that proposed Finding 55 should not be adopted because it reflects a legal conclusion regarding the term “protocol conversion.” Comcast asserts that there are no underlying facts in the record that would support the finding. Comcast makes a similar argument concerning Finding 61.

We disagree with Comcast. The findings accurately reflect the testimony provided by Mr. Goldstein as cited. Comcast might disagree with the fact or believe that there should be qualifications on the findings. But it had an opportunity to present evidence on this issue and to cross-examine Mr. Goldstein to demonstrate any significant limitations. It has not pointed to such evidence in the record. Thus, we accept the findings as fully supported by the record.

Finding 60

Comcast requests that the Commission not adopt the proposed finding. Comcast argues that the finding is a statement of law, not of fact, and does not cite to specific FCC Orders.

We disagree. As written, the finding does not purport to make a legal judgment as to the regulatory classification. Instead, it recites a fact based upon testimony presented into the record. This fact might have legal significance, which the PFD discusses and we address below. But the finding alone is supported by the testimony and we do not regard it as a legal conclusion.

Additional Findings

Comcast contends that the PFD declines to adopt a number of proposed findings that it set out in its initial brief. Some of these findings reflect changes to findings the Commission made in the original October 28, 2010 findings of fact. Comcast argues that each of these proposed findings is relevant to the decision and well-supported by the evidence.

We turn first to our obligation in making findings. Section 812 of Title 3 requires the Commission to rule on each proposed finding of fact submitted by parties. However, the Vermont Supreme Court has made clear that this does not require the Commission to make an individual ruling on each of these findings. Instead, the Commission's obligation is to demonstrate that it considered each of the proposed findings. The Court explained in *Petition of Village of Hardwick Electric Department*:

It is true that the [Commission] did not rule individually on each request, but it is not required to do so; it is sufficient if the record shows that the [Commission] considered and decided each proposed finding. *In re Young's Community TV Corp.*, 141 Vt. 53, 57, 442 A.2d 1311, 1313 (1982). This the [Commission] did. In its opinion it accepted many of petitioner's requests although not necessarily in petitioner's language. Any requests not previously dealt with were expressly rejected by the [Commission] in its order.¹¹⁶

Here, many of Comcast's proposed findings are essentially legal conclusions rather than facts. For example, prior proposed finding 12 would specify the "demarcation point" that the FCC has not explicitly ruled has legal significance in this context. Similarly, prior proposed

116. 143 Vt. 437, 445 (1983). *See also, In re Green Mountain Power Corp.*, 131 Vt. 284, 306-307 (1973).

finding 26 attempts to legally equate XFINITY Voice and Vonage. We agree that these are matters for legal discussion, not factual findings.

The Hearing Officer also (and the Commission previously) adopted many of the facts set out in the proposed findings submitted by Comcast, just in different language. For example, Comcast's prior proposed findings 20 and 22 and 36 through 39 address the transmission of XFINITY Voice calls. Our Phase I Order discusses the same concepts at Findings 30 through 32 as does the PFD at Findings 46 through 53. (Many of these findings rely upon Comcast's witness Kowolenko.) The same is true of numerous other proposed findings on Comcast's list.¹¹⁷ The concepts put forth in Comcast's proposed findings are reflected, just not the specific language.

In other instances, we conclude that the finding is not material to our final decision. For example, Comcast's proposed finding 15 states that the vast majority of Comcast subscribers subscribe to the "Unlimited" plan. We agree that the Hearing Officer was reasonable in not adopting this finding, which might be factually accurate but is not relevant.

In sum, our review of the PFD indicates that the Hearing Officer considered the issues set forth in Comcast's proposed findings. We have reviewed each of them in rendering this decision. We conclude that the PFD's findings, as modified above, coupled with the findings in the Phase I Order, reflect the relevant facts in this proceeding. To the extent that Comcast's proposed findings have not been incorporated into the findings, we reject them.

B. Protocol Conversion

Comcast next asserts that the PFD incorrectly concludes "that XFINITY Voice's capability to perform protocol conversion does not render it an information service."¹¹⁸ First, Comcast argues that the PFD ignores the federal cases that have found such protocol conversions

117. Further examples: Comcast proposed finding 23 is covered by Findings 10-12 and 15. Comcast proposed finding 26 is addressed in Finding 20. This is a non-exclusive list.

118. Comcast's comments at 13.

to be an information service.¹¹⁹ Further, Comcast asserts that protocol conversion functionality is generally considered an information service, unless an exception applies. Here, Comcast contends that neither of the exceptions from the *Non-Accounting Safeguards Order* cited by the PFD applies to the XFINITY Voice service.

AT&T, Verizon, and VON argue that the PFD erroneously finds that the net protocol conversion fits within two categories of protocol processing services that the FCC has stated are not information services. Like Comcast, they cite to several federal court decisions that concluded that VoIP involved a net protocol conversion, which meant that the service was an information service. AT&T, Verizon, and VON contend that the exceptions in the *Non-Accounting Safeguards Order* do not apply. As to the second exception (for protocol conversion in connection with the introduction of a new basic technology), they argue that the exception only applies where the conversion is needed for compatibility with an end user's customer premises equipment ("CPE"), not where it is needed for connection to the other provider's PSTN-based network equipment. They maintain that only the former falls within the second exception.

AT&T, Verizon, and VON also argue that the third exception only applies to conversion that take place solely within the carrier's network so that there is no net conversion to the user. According to these parties, this is not the case for VoIP.

Before we address the specific comments of the parties, it is important to understand the federal law issue before us. The FCC has established a body of precedent that addresses the introduction of new services into the marketplace. As part of this precedent interpreting the Telecommunications Act of 1996, the FCC has issued a number of rulings related to the introduction of services that involve changes in the protocols used to transmit information. All of this precedent, however, arose around services that were add-ons to the basic PSTN transmission of voice services. This goes as far back as the *Computer II* framework discussed in the PFD, which involved a data transmission service.

119. Comcast cited to four cases. Subsequent to the submission of comments on the PFD, Comcast filed a fifth federal decision in *Charter Advanced Services (MN), LLC v. Lange*, 259 F.Supp. 980 (D.Minn. 2017) (cited herein as "*Charter*").

At issue here, however, is not a service that augments the TDM-based network by providing additional functionality. Rather, as the FCC has made clear, IP technology is intended to replace the underlying TDM network. Comcast's XFINITY service offers a voice product that directly competes with the basic voice service that has been provided on the PSTN. Other incumbent telecommunications carriers in Vermont are deploying new facilities and transitioning portions of their networks to IP as part of the longterm evolution of the network. This raises questions about whether the deployment of VoIP throughout a local exchange carrier's territory suddenly means that that carrier is no longer providing telecommunications service.

The different factual context that VoIP presents makes it challenging to apply the body of law that the FCC has developed (which itself can be contradictory and unclear). The FCC itself has faced this dilemma, expending many pages of the *Transformation Order* providing VoIP providers with rights and obligations normally available to telecommunications, while nonetheless declining to rule on the jurisdictional nature of the service. The FCC's classification of broadband internet access service further highlights the conflict. The PFD uses the framework from the *Open Internet Order* in analyzing the jurisdictional nature of VoIP. Using that same framework, the FCC recently reinterpreted its precedent in *Restoring Internet Freedom*,¹²⁰ reaching very different conclusions. Some of the precedent that the FCC is reinterpreting has been examined in this proceeding and is discussed in the PFD (and below).

This uncertainty concerning the application of federal precedents appears in a brief the FCC filed in October as *amicus curiae* in the appeal of the *Charter* decision cited by Comcast. The FCC stated the following:

The district court examined several past FCC pronouncements, including the 1996 Non-Accounting Safeguards Order and the 1998 Stevens Report. Those FCC pronouncements remain good law: Contrary to Appellants' contentions, the FCC has neither explicitly nor implicitly disavowed or overruled them, nor would an FCC order cease to be valid precedent merely because time has passed and economic or technological circumstances have changed. At the same time, the principles adopted and applied in past orders do not always fully resolve the questions that arise when new technologies are introduced into the telecommunications marketplace. Thus, in our view, the various FCC authorities invoked by the district court and the parties continue to provide

120. Declaratory Ruling, Report and Order, and Order, WC Docket 17-108 (2018).

important guidance on how to interpret and apply the Communications Act, but none purports to decide (nor should be read to definitively resolve) the regulatory classification of VoIP service in general or of the particular VoIP service at issue in this case.¹²¹

In essence, this statement by the body with jurisdiction states that all of the FCC precedent does not tell anyone whether VoIP is a telecommunications service or an information service. The FCC (at page 29) also states that the *Non-Accounting Safeguards Order* did not purport to classify VoIP service. And, if one does not consider these FCC decisions that the FCC has told the court are not necessarily dispositive, you are left with the Telecommunications Act's definition of information service. As the PFD explains, since VoIP is used for management of the network, it would not qualify as an information service.

We have reviewed the parties' filings on the net protocol conversion issue and determined that we should adopt the PFD, subject to the clarifications set out in our discussion. The PFD reflects a sound reading of the statute and available FCC precedent (notwithstanding the FCC's above-quoted statement). Moreover, the PFD is reasonable from a crucial standpoint — from the consumer's perspective, VoIP customers perceive themselves to be receiving the same voice service that they did when they purchased landline service from incumbent telecommunications carriers.

Our conclusions are reinforced by the *Restoring Internet Freedom Order*. After proposing (and eventually adopting) a very expansive definition of the information service definition, commenters suggested that applying the definition would mean that even standard telephone service was an information service. In response, the FCC disagreed, focusing on the fundamental nature of the service. The FCC stated:

. . .the fundamental nature of traditional telephone service, and the commonly-understood purpose for which traditional telephone service is designed and offered, is to provide basic transmission—a fact not changed by its incidental use, on occasion, to access information services.¹²²

121. FCC Brief in appeal of *Charter* to the Eighth Circuit at 26-27.

122. *Internet Freedom Order*, ¶ 56.

In the case of VoIP, its primary purpose is to provide transmission of voice calls, consistent with the FCC's concept of traditional telephone service. Other aspects of the service, while providing access to information services or nomadic services, do not alter this "fundamental nature."

1. New Technology Protocol Conversion

Comcast, AT&T, Verizon, and VON assert that the PFD misinterprets the second category of protocol processing services that the FCC has treated as basic, rather than enhanced, services under the *Non-Accounting Safeguards Order*. They argue that the PFD misinterprets federal law. According to these parties, the second category applies only where the protocol conversion that occurs is necessary to maintain compatibility with existing CPE. In the case of VoIP, they contend, the conversion is for the purpose of maintaining compatibility between networks, not between CPE.

After reviewing the PFD and the relevant case law, we adopt the PFD on this issue. The parties objecting to the PFD appear to raise a valid point if one reads only the specific language in paragraph 106 relating to the second category of protocol processing services in the *Non-Accounting Safeguards Order*. That paragraph reads as follows:

we have treated three categories of protocol processing services as basic services, rather than enhanced services, because they result in no net protocol conversion to the end-user. These categories include protocol processing: 1) involving communications between an end-user and the network itself (e.g., for initiation, routing, and termination of calls) rather than between or among users; 2) in connection with the introduction of a new basic network technology (which requires protocol conversion to maintain compatibility with existing CPE); and 3) involving internetworking (conversions taking place solely within the carrier's network to facilitate provision of a basic network service, that result in no net conversion to the end-user).

However, this paragraph cannot be read in isolation, as the PFD explains in detail. Specifically, as the PFD discusses, the FCC clarified the intent of this provision in the *Order on Reconsideration* in that proceeding. As quoted above, the FCC clarified that the second category

of excepted protocol processing services includes “services that may involve net protocol conversions to end users.”¹²³

Moreover, in a footnote to the *Order on Reconsideration*, the FCC quoted its previous statement from the *Protocols Order* that the PFD quotes on page 29, which made clear that the purpose of the exception was to cover cases in which new technology was introduced in a piecemeal fashion. That is precisely what is occurring with VoIP. The entire PSTN is in the process of converting from a TDM platform to an IP one. In some cases, this is occurring on a line-by-line or area-by-area basis. The evidence here indicates that such conversion is occurring in Vermont. In other instances, companies are introducing an IP-based system, such as Comcast, or are converting their entire network. For example, Vermont Telephone Company, an incumbent local exchange carrier, has introduced a fiber-to-the-home system to most of its customers.¹²⁴ These conversions in the face of new technology represent what was being discussed by the FCC in footnote 6 of the *Order on Reconsideration*.

That same footnote also observed that conversions such as net analog-to-digital (or reverse) performed within the network “to enable end users using different types of network interfaces to communicate with one another” would fall within the second exception even if the result was a net protocol conversion. These analog-to-digital conversions were necessary as the network evolved from an analog one to a digital one. As the PFD discusses, VoIP represents a similar evolution.

The arguments by Comcast, AT&T, Verizon, and VON also do not discuss the other FCC decisions cited in the PFD that indicate that the framework for analysis of protocol conversions is from the user’s perspective.¹²⁵ Instead, they focus on a few specific words without presenting them in the context of the other FCC decisions that have applied the specific language. The PFD has a comprehensive discussion of the federal context, which we do not need to repeat here.

123. *In the Matter of Implementation of the Non-accounting Safeguards of Sections 271 and 272 of the Communications Act of 1934, as Amended*, Order on Reconsideration, 12 F.C.C. Rcd. 2297, 2298, ¶ 2 (1997)(emphasis added) (referred to herein as the “*Order on Reconsideration*”).

124. *See, Petition of Vermont Telephone Company, Inc.*, Docket 7746, Order of 9/20/11 at 5, where the Commission found that Vermont Telephone was deploying a fiber-to-the-home system that provided IP-based video, voice, and internet access services.

125. *See*, for example, *AT&T*, referenced in the PFD.

Comcast also contends that the PFD erroneously “argues” that the start of Comcast’s network should be viewed at a point inside the house, not at the demarcation point that the FCC has identified for cable services. Comcast further objects that the PFD treats the eDVA/eMTA as part of Comcast’s network and not as CPE. As a result, Comcast asserts, the PFD incorrectly recommends that the Commission find that no net protocol conversion occurs.

First, we understand that the FCC has established a demarcation point for purposes of cable television systems.¹²⁶ As Comcast points out, the FCC has also set out rules for purposes of E911 and persons with disabilities that would appear to classify the eDVA/eMTA as CPE. The FCC has not, however, issued a rule applying those definitions more broadly. Nonetheless, for purposes of our decision, we assume that the device is CPE.

Second, we note that the PFD does not actually conclude that the eDVA/eMTA is not CPE. Instead, the Hearing Officer points out that Comcast has not cited to any precedent showing that the relevant point for measuring a net protocol conversion is at the demarcation point used for cable television services. The PFD explains that there might be valid reasons for using a different measurement point in the context of the VoIP service in which the provider dictates the type of device the user must employ. However, the recommended decision itself relies upon the broader analysis of the statute and FCC determinations discussed above and in the PFD. Its ultimate conclusion, which we adopt, is that FCC precedent shows that net protocol conversion is measured from the end user’s perspective, citing the *Stevens Report* and *AT&T*. The classification of the eDVA/eMTA in this context does not matter.

Third, as we explain above, even if there is a net protocol conversion, it falls within the type of conversion discussed in the *Order on Reconsideration* that the FCC recognized would still fall within the second exception. We discussed these above.

Comcast, AT&T, Verizon, and VON also contend that the PFD incorrectly applies the second exception because it only applies to protocol conversions that are necessary to maintain compatibility with existing CPE. This argument appears to track the specific language of the second exception. However, as explained in the FCC’s discussion in the *Order on Reconsideration*, the purpose of the exception was to accommodate the piecemeal introduction of

126. 47 C.F.R. § 76.5(mm)(1).

new technology, which, as we explain above, is what is occurring in the context of the transformation of the network from TDM to IP. Moreover, if the eMTA/eDVA is CPE, as we find, then the protocol conversion is necessary in order to allow telephone calls originating through this device to be completed on networks operating in TDM. Unless the signal is converted by someone into TDM, the telephone in the end user's residence cannot communicate with customers served using TDM. Thus, Comcast and the other parties are incorrect.

2. Internetworking

Comcast also objects to the PFD's conclusion that the VoIP service falls into the internetworking exception from the *Non-Accounting Safeguards Order*. Comcast first argues that the PFD's reliance on the *Stevens Report* is misplaced. Comcast asserts that the discussion in the *Stevens Report* only applies to situations in which IP is in the middle, not instances in which the format changes within a carrier's network.

We recognize that the *Stevens Report* does not represent a definitive FCC conclusion that VoIP services are telecommunications services. The FCC has made clear that it has not made such a determination. However, the *Stevens Report* represents an instance in which the FCC actually made an affirmative statement on the issue of whether VoIP represents a net protocol conversion. Comcast has cited to no contrary authority. The *Stevens Report* also does not appear to be limited to situations in which IP is in the middle, as Comcast argues. We also understand that the technology has evolved since the time of the *Stevens Report*. Nonetheless, as the report makes clear, the advent of IP telephone was anticipated twenty years ago. And, looking at that technology, as the FCC routinely does, the initial conclusion of the FCC was that no net protocol conversion occurred.

Comcast also argues that the type of conversion that actually takes place was addressed in *Paetec Communications v. Commpartners, LLC*, 2010 WL 1767193 (D.D.C. 2010). In that decision, the District Court for the District of Columbia examined whether VoIP was an information service. The Court noted that two federal courts had decided that the transmissions that include net format conversion from VoIP to TDM are information services, citing to

decisions in *Southwestern Bell Telephone, L.P. v. Missouri Public Service Commission*¹²⁷ and *Vonage Holdings Corp. v. New York Public Service Commission*.¹²⁸ The Court stated that it found their reasoning persuasive. However, the Court's decision contains no independent explanation about how the Court reached this decision or on the specific reasoning it found persuasive. Thus, we cannot determine how the Court arrived at its decision and, as a result, do not find it persuasive.

3. Other Court Decisions

Comcast, AT&T, Verizon, and VON cite to several court decisions that, they argue, run counter to the PFD. They fault the Hearing Officer for conducting a “*de novo* analysis of whether XFINITY Voice is an information service.”

We are somewhat surprised at Comcast's suggestion that the Hearing Officer was in error by analyzing the Telecommunications Act and FCC precedent in making recommendations. In fact, such independent analysis was exactly what was required of the Commission by the Vermont Supreme Court. Had the precedents cited by Comcast been dispositive, no remand would have been needed.

As to the precedents, Comcast first cites to *Vonage Holdings*, in which the federal District Court considered a request for a preliminary injunction against a New York Public Service Commission ruling treating Vonage Holding's VoIP service as a telecommunications service. The Court granted the requested ruling, citing to the *Vonage* decision discussed in the *Phase I Order*. However, there is no broad discussion of the federal law or any of the precedents discussed in this Order. We do not find any reasoning in that decision that persuades us to adopt a different conclusion in this case.

Comcast also relies upon the *Southwestern Bell* decision. In that proceeding, the District Court was considering whether access charges applied to VoIP services. The Court determined that net protocol conversion “is a determinative indicator of whether a service is an enhanced or

127. 461 F.Supp. 2d 1055 (E.D. Mo. 2006), *aff'd on other grounds*, 530 F.3d 676 (8th Cir. 2008) (cited herein as “*Southwestern Bell*”).

128. 2004 WL 3398572, Preliminary Injunction Order (S.D.N.Y 2004), *subsequent determination*, 2005 WL 3440708 (S.D.N.Y 2005)(cited herein as “*Vonage Holdings*”).

information service.”¹²⁹ The Court concluded that because packets of the IP technology were converted to TDM technology, there was a net protocol change.¹³⁰ The Court did not, however, analyze the broader FCC precedent considered here, including the *Non-Accounting Safeguards Order*, which described exceptions to the normal principle that services involving protocol conversions were information services. Consideration of these factors results in a different outcome, as we have explained herein. Moreover, the Court simply accepts the fact that because there is a protocol conversion, it is a net protocol conversion. We have addressed this issue above.

Intertwined Voice and Advanced Functionality

Comcast also contends that even if XFINITY Voice was not classified as an information service by virtue of the protocol conversion, it is still an information service because it is a unitary service that “combines advanced features with a real-time voice component.” Comcast says that this transforms the service offering to customers, so that the PFD is incorrect when it states that there is no perceived difference between VoIP service and traditional landline service.

In support of this argument, Comcast cites to the FCC’s determination in *In re Communications Assistance for Law Enforcement Act and Broadband Access and Services*¹³¹ where it argues that the FCC treated an integrated service combining basic telecommunications transmission with certain enhancements as an information service. Comcast asserts that the PFD makes three errors in rejecting its claim that XFINITY Voice service is an integrated service that therefore must be treated as an information service.

First, Comcast argues that the Hearing Officer erroneously concludes that certain features of the service are “adjunct-to-basic” services and that this concept is no longer applicable (having been displaced by the 1996 Telecommunications Act). Comcast also asserts that the “adjunct-to-basic” category of services was narrow and only applied to a limited range of services.

129. 461 F.Supp. at 1081.

130. *Id.* at 1082

131. First Report and Order and Further Notice of Proposed Rulemaking, 20 FCC Rcd 14,989, 14997 ¶15 (2005) (hereinafter cited as “CALEA”).

According to Comcast, its services, voicemail and Voice2go, would not fall within this category of services.

Second, Comcast contends that the PFD errs in analyzing each of Comcast's advanced features in isolation. Comcast states that the FCC's approach to assessing service classification is more holistic, looking at the complete set of functions that the end user is offered. When looked at in this manner, Comcast argues that the features "transform the nature of that service into one that can be accessed from anywhere."

Third, Comcast maintains that the PFD is wrong in finding that neither Voice2go nor the XFINITY CONNECT Communications Center is sufficiently integrated to be considered the same service offering for classification purposes. Comcast argues that under the FCC's *Vonage Order*, the FCC recognized the significance of the integrated service, although the FCC did not rely upon this determination in its final decision. Comcast further argues that the PFD incorrectly rejects its argument that the XFINITY CONNECT Communications Center was not sufficiently intertwined with the underlying telecommunications functionality to be treated as a unitary information service. Comcast argues that the XFINITY CONNECT portal is designed to operate in tandem with the voice function and "could not possibly stand on its own as a distinct, independent service." Comcast states that the relevant question is whether the XFINITY CONNECT Communications Center is intertwined with the voice component.

We agree that under FCC precedent, if a service meets the criteria for an information service, it is classified as such, even if it also encompasses a telecommunications service. Moreover, under *CALEA* and the *Declaratory Ruling* (on which the portion of *CALEA* cited by Comcast relies), a service may be so integrated that the telecommunications and information services cannot be separated, leaving the service treated as an information service. The Hearing Officer concurred with this framework for analysis at pages 23-24 and 36, while also noting that the bundling of services alone is not enough to change the regulatory classification.¹³² The question thus before us is a factual one as to whether the integration is so substantial as to require treatment of the service as an information service. This analysis is informed by the FCC's

132. Paragraph 56 of the *Restoring Internet Freedom Order*, quoted above, reiterates this point.

treatment of similar services, but those rulings are not dispositive. After consideration of Comcast's arguments, we adopt the PFD, subject to the clarifications set out below.

Comcast's first claim of error relates to the treatment of the features offered along with XFINITY Voice as "adjunct-to-basic" services. Here, we do not reach the conclusion that the added features are themselves "adjunct-to-basic" services.¹³³ That terminology has specific meaning for the FCC, but is not dispositive of the classification of the XFINITY features. However, we agree with the PFD that the decisions the FCC made in examining such services, and other similar information services that were added on to basic telecommunications services, provide relevant precedent for determining when a bundle of products should be treated as an integrated service. In both the *Open Internet Order* and the *Restoring Internet Freedom Order*, the FCC itself continues to cite to its "adjunct-to-basic" decisions in its examination of the regulatory classification of basic internet access service.¹³⁴ Moreover, as the PFD explains, in the "adjunct-to-basic" analysis, the FCC looked to whether the service was incidental to an underlying telecommunications service and did not alter the fundamental character of that service.¹³⁵

Comcast also faults the PFD for discussing each feature in isolation, rather than looking at the entire package. This argument seems to suggest that the analysis changes if a provider bundles enough services together, even if each added feature does not alter the character of the basic underlying service. We recognize that Comcast has elected to provide its XFINITY Voice customers with a large range of features that they can elect to use to supplement the service. For many customers, these features will provide added value (although we note that most local exchange carriers also offer bundles of services). Comcast does not, however, cite to any specific precedent demonstrating that creating a large bundle alone is sufficient to create an integrated service. We also are not persuaded that, as a factual matter, having more add-on

133. We think that Comcast misreads the PFD on this point. We do not find that the PFD ruled that the add-on features were "adjunct-to-basic" services. Instead, we read the PFD as using the FCC's prior decisions in that area as guidance for whether an add-on service changes the character of a service.

134. Comcast argues that the "adjunct-to-basic" classification of services essentially predates the 1996 Telecommunications Act, suggesting that it no longer applies. As the cases cited herein and in the PFD make clear, the FCC still relies upon those prior decisions in classifying present-day services.

135. PFD at 38.

options alters the fact that the primary function of the basic XFINITY Voice service is to provide a traditional telecommunications service. An XFINITY Voice customer can use the basic telecommunications functionality as a stand-alone product without accessing any of the features that Comcast has bundled and that Comcast argues transform the service.

Comcast's final assertion asks us to reject the Hearing Officer's determination that the Voice2go service and the XFINITY CONNECT Communications Center were not sufficiently intertwined to change the character of the service. Comcast has not shown that this factual determination was in error. After examining FCC precedent and the parties' filings, we are not persuaded that we should alter this conclusion.

We note that Comcast's comments on the PFD highlight the appropriateness of our conclusion. Comcast argues that the XFINITY CONNECT portal is designed to operate in tandem with the voice function and "could not possibly stand on its own as a distinct, independent service." Comcast does not argue that the basic XFINITY Voice service cannot provide the fundamental telecommunications function without the XFINITY CONNECT portal. The evidence would not support such a conclusion. Thus, the basic telecommunications function can operate on its own. The add-on features such as the portal and Voice2go rely upon the underlying basic service platform and do not alter it.

VII. CONCLUSION

After consideration of the federal law, as required by the Vermont Supreme Court, we conclude that VoIP service is a telecommunications service. This conclusion does not, however, determine how VoIP services should be regulated. We therefore remand this proceeding to the Hearing Officer for further consideration of these issues.

VIII. ORDER

IT IS HEREBY ORDERED, ADJUDGED, AND DECREED by the Public Utility Commission of the State of Vermont that:

1. The findings of fact, conclusions of law, and recommendations of the Hearing Officer are adopted, except as modified herein.
2. This case is hereby remanded to the Hearing Officer, who shall promptly convene a status conference in this Docket to establish a procedural schedule for the second phase of this investigation.

Dated at Montpelier, Vermont, this 7th day of February 2018.


Anthony Z. Roisman)

PUBLIC UTILITY


Margaret Cheney)

COMMISSION


Sarah Hofmann)

OF VERMONT

OFFICE OF THE CLERK

FILED: February 7, 2018

ATTEST: Janith C. Whitney
Clerk of the Commission

NOTICE TO READERS: This decision is subject to revision of technical errors. Readers are requested to notify the Clerk of the Commission (by e-mail, telephone, or in writing) of any apparent errors, in order that any necessary corrections may be made. (E-mail address: puc.clerk@vermont.gov)

Appeal of this decision to the Supreme Court of Vermont must be filed with the Clerk of the Commission within 30 days. Appeal will not stay the effect of this Order, absent further order by this Commission or appropriate action by the Supreme Court of Vermont. Motions for reconsideration or stay, if any, must be filed with the Clerk of the Commission within 28 days of the date of this decision and Order.