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

In the Matter of	)	
	)	
Technology Transitions	)	GN Docket No. 13-5
	)	
Policies and Rules Governing Retirement of Copper Loops by Incumbent Local Exchange Carriers	)	RM-11358
	)	
Special Access for Price Cap Local Exchange Carriers	)	WC Docket No. 05-25
	)	
AT&T Corporation Petition for Rulemaking to Reform Regulation of Incumbent Local Exchange Carrier Rates for Interstate Special Access Services	)	RM-10593

COMMENTS OF CONSUMER GROUPS ON TECHNOLOGY TRANSITIONS

Telecommunications for the Deaf and Hard of Hearing, Inc. (TDI), through counsel, Association of Late Deafened Adults, Cerebral Palsy and Deaf Organization, Deaf Seniors of America, Hearing Loss Association of America, National Association of the Deaf, and the Rehabilitation Engineering Research Center on Telecommunications Access (collectively, the "Consumer Groups") respectfully submit these Comments in response to issues raised in a *Further Notice of Proposed Rulemaking* (*FNPRM*) contained in the *Report and Order, Order on Reconsideration, and Further Notice of Proposed Rulemaking* released by the Federal Communications Commission (FCC or "Commission") on August 7, 2015 in the above-captioned dockets.[1]

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[1] *Technology Transitions* et al., GN Docket No. 13-5 *et al.*, Report and Order, Order on Reconsideration, and Further Notice of Proposed Rulemaking, FCC 15-97 (Aug. 7, 2015) (*FNPRM*).

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I. INTRODUCTION & EXECUTIVE SUMMARY

Primarily, these Comments address the Commission's request for input as to "what IP-based real time text service would look like, including applicable standards, and . . . how it will be implemented."[2] The Commission is also seeking comment as to whether it should "set an end date for the termination of TTY services . . . [and] the appropriate length of a transition period during which both TTY text services and IP-based real time text would be available."[3]

The Consumer Groups believe that the interoperability of accessibility services should be one of the Commission's primary considerations as IP-based services are deployed. Accordingly, the Consumer Groups advocate that the Commission should adopt the Internet Engineering Task Force (IETF) RFC 4103 standard for RTT services for all networks and network devices that can support it, and require services on networks that cannot support it to be interoperable with RFC 4103. The Consumer Groups also advocate that the transition from RTT to TTY must be sufficiently gradual to allow all users of TTY services to safely transition to other accessibility services, and that testing should be performed to ensure that RTT services can communicate with 911 answering points.

Responding to other questions and issues raised by the Commission in the *FNPRM*, the Consumer Groups also advocate through these Comments that: (1) the Commission should consider as a criterion in evaluating a Section 214 discontinuance application whether a replacement or alternative service allows at least the same accessibility, usability, and compatibility with assistive technologies as the service being discontinued; (2) to ensure that consumers are fully aware of and understand the impact of a service discontinuance, carriers

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[2] *FNPRM* ¶ 223.

[3] *Id.*

must: (i) employ a range of accessible formats in providing notice of service discontinuance, and (ii) provide information in section 214 applications regarding the availability of IP-enabled devices that can be distributed to qualifying recipients under applicable state and federal programs; and (3) speech recognition technology, while a useful accessibility service, is not universally usable and not always reliable, so alternative means of conveying the same information should still be made available.

II. DISCUSSION

A. Real Time Text

Real-time text is a technology that transmits typed text instantly, allowing each text character to appear on the recipient's device at roughly the same time it is inputted by the sender.[4] Real-time text is a native IP accessibility solution that maintains the core function of TTY while also offering advantages to TTY in terms of availability, reliability on IP-based networks, and improved or additional functionalities. As the Commission has acknowledged, there is a "general agreement that overall use of TTYs has declined greatly," and that, directly relevant to this proceeding, there are "major technical barriers to reliably supporting TTY transmissions over IP networks."[5]

The Consumer Groups agree with the Commission's finding that the deployment of IP-based networks presents "an opportunity to implement IP-based real time text to replace TTY text services, as the key functionalities of both services are similar."[6] The substitution of RTT

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[4] Emergency Access Advisory Committee (EEAC), *Report on TTY Transition*, at 6 (Mar. 11, 2013), *available at* http://hraunfoss.fcc.gov/edocs_public/attachmatch/DOC-319386A1.doc.

[5] *Petition for Waiver of Rules Requiring Support of TTY Technology*, GN Docket No. 15-178, Order, ¶¶ 9-10 (Oct. 6, 2015).

[6] *FNPRM* ¶ 223.

technology for TTY is also the subject of another Commission proceeding pertaining to a Petition for Rulemaking filed by AT&T, and the Consumer Groups reiterate here their support for expanding access to RTT services.[7]

Discussed herein are the Consumer Groups' recommendations as to how RTT should be implemented. As set forth below, the Consumer Groups advocate that the Commission should: (1) adopt the RFC 4103 standard – a non-proprietary, open standard – for RTT services to ensure the interoperability of those services, and (2) ensure, through consideration of certain factors relevant to the implementation of RTT services and also by undertaking testing of RTT's ability to communicate with IP-ready Public Safety Answering Points (PSAPs), that the transition period from TTY to RTT is sufficient to allow all TTY users to safely move to RTT services or other IP-based accessibility solutions.

i. <u>The Commission should adopt the IETF RFC 4103 standard for RTT services, which will ensure the interoperability of RTT services and align RTT deployments with the recommendations of international bodies and with deployments in other countries.</u>

Interoperability of accessibility services is critical, and should be one of the Commission's foremost considerations with regard to IP-based accessibility services in the transition from TDM to IP networks.[8] To that end, the Consumer Groups advocate that the Commission should adopt the IETF RFC 4103 standard for RTT services for all networks and

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[7] *See* Petition of AT&T Services, Inc. for Rulemaking, PS Docket Nos. 11-153, 10-255, WC Docket No. 04-36, CG Docket Nos. 03-123, 10-213 (filed June 12, 2015) (AT&T Petition for Rulemaking). *See also* Comments of Consumer Groups, GN Docket No. 15-178 *et al.* (Aug. 24, 2015) (Consumer Groups' Comments on AT&T RTT/TTY Petition); Reply Comments of Consumer Groups, GN Docket No. 15-178 *et al.* (Sep. 9, 2015) (Consumer Groups' Reply Comments on AT&T RTT/TTY Petition); Telecommunications for the Deaf & Hard of Hearing, Inc. (TDI) *et al.* Notice of Ex Parte, GN Docket No. 15-178 (Oct. 19, 2015) (Consumer Groups' October 19 Ex Parte).

[8] Consumer Groups' Comments on AT&T RTT/TTY Petition at 2-3; Consumer Groups' Reply Comments on AT&T RTT/TTY Petition at 4-5; Consumer Groups' October 19 Ex Parte at 2.

network devices that can support it, and require that services on networks that cannot support it be interoperable with RFC 4103.

RFC 4103 is an open, non-proprietary standard for encoding text in RTT and is the clear choice for an interoperability standard. As AT&T and the Rehabilitation Engineering Research Center on Telecommunications Access have pointed out, the RFC 4103 standard is recommended by a number of communications organizations and standards setting bodies worldwide.[9] For example: (1) RFC 4103 is specified in the NENA i3 Solution for use in next generation emergency service developments;[10] (2) the 3rd Generation Partnership Project (3GPP), which is a combination of seven telecommunications standards organizations, also endorses the use of RFC 4103;[11] (3) the Access Board's proposed update of its accessibility requirements under Section 508 of the Rehabilitation Act references the RFC 4103 standard for RTT;[12] (4) the Commission has proposed to use the RFC 4103 standard in the Accessible Communications for Everyone (ACE) software program; (5) SIP Forum's profile for Video Relay Service providers specifies the use of RFC 4103 for RTT;[13] and (6) relay services in the Netherlands, Sweden,

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[9] *See* AT&T Petition for Rulemaking at 11 n. 19; Reply Comments of the Rehabilitation Engineering Research Center on Telecommunications Access, GN Docket No. 15-178 *et al.*, at 4-7 (Sep. 9, 2015) (RERC-TA Reply Comments) (RERC-TA states that "RFC 4103 has been implemented in services and products in the US and abroad.").

[10] RERC-TA Reply Comments at 6.

[11] Petition for Rulemaking at 11 n. 19.

[12] *See* Architectural and Transportation Barriers Compliance Board, *Information and Communication Technology (ICT) Standards and Guidelines*, Notice of Proposed Rulemaking, 508 Chapter 1 (Feb. 27, 2015) ("The proposed 508 Standards would incorporate by reference the following standards: . . . RFC 4103, . . . [which] describes how to carry real-time text conversation session contents in RTP packets.").

[13] RERC-TA Reply Comments at 6.

France, and Norway utilize RFC 4103.[14] Adopting the RFC 4103 standard would therefore align RTT with the recommendations of standards-setting bodies and be consistent with international deployments.

Additionally, adopting an interoperability standard is beneficial to emerging technologies and enhances competition and consumer choice, as recognized by the White House Office of Science and Technology and by the Commission.[15] In a 2011 Report, the White House emphasized how "interoperability standards . . . serve to support the development and deployment of emerging technologies."[16] The Report also discussed how standards prevent consumers from being "locked-in" by companies utilizing proprietary technologies that make their products incompatible with competitors' products.[17]

The Commission recognized as much when it adopted measures to ensure interoperability in the 700 MHz band.[18] There, the Commission stated that the creation of "non-interoperable

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[14] *Id.* at 7; *see also* Consumer Groups' October 19 Ex Parte. In a performance testing study commissioned in Sweden, RFC 4103 performed substantially better in poor network conditions than another RTT protocol, "Safe text". The Safe text implementation, for example, experienced 42% text loss at a reduced bandwidth of 256 kbps, while the RFC 4103 implementation only experienced a 0.3% text loss at the same bandwidth; even at a severely reduced bandwidth of 64kbps, the RFC 4103 implementation only experienced a 4% text loss. Orebro County Council, Swedish Video Relay Service Bildtelefoni.net, *Protocol verification and capacity tests for text transport over the internet* at 1-3 (Oct. 7, 2011), *available at* http://www.itu.int/ITU-T/worksem/trs/.

[15] *See* Consumer Groups' October 19 Ex Parte at 6-7; Exec. Office of the President, Nat'l Sci. & Tech. Council, *A Policy Framework for the 21st Century Grid: Enabling Our Secure Energy Future*, (2011) (White House Grid Report), *available at* https://www.whitehouse.gov/sites/default/files/microsites/ostp/nstc-smart-grid-june2011.pdf; *Promoting Interoperability in the 700 MHz Commercial Spectrum* et al., WT Docket No. 12-69 *et al.*, Report and Order and Order of Proposed Modification, FCC 13-136 (Oct. 29, 2013) (*700 MHz Interoperability Order*).

[16] White House Grid Report at 26.

[17] White House Grid Report at 27.

[18] *See 700 MHz Interoperability Order*.

band classes" in the 700 MHz band had had numerous negative effects, including that "customers are unable to switch between [providers] . . . without purchasing a new device.[19] The Commission stated that the interoperability measures it adopted, which required compatibility with a standard band class, would "serve the public interest by enabling consumers . . . to enjoy the benefits of greater competition and choices, and by encouraging . . . investment, [and] job creation" as well as the development of "innovative" services and equipment.[20]

The benefits of adopting an interoperability standard identified by the Obama Administration and the Commission are equally applicable here. If service providers were to adopt proprietary standards such that RTT services are not interoperable, RTT users might not be able to communicate with other users or with 911 services, and might have to purchase a new device when changing providers, which is a barrier to competition and consumer choice. It is also critical that innovation and advancement of RTT technologies match the rapid pace of innovation in telecommunications technologies generally. Establishing a standard for RTT services will ensure interoperability and drive innovation.

In this way, the standard will set a floor, not a ceiling, from which carriers, service providers and manufacturers can innovate and provide greater functionalities and, as appropriate, adopt a different and potentially superior standard in the future.

Note that standardizing RTT on RFC 4103 today does not prevent the industry from adopting and using other standards in the future just as it has done for voice codecs. This is accomplished by introducing the new standard in parallel, using that standard when possible (*i.e.*, when all networks and network devices in use support the new standard) but falling back on the

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[19] *Id.* ¶ 10.

[20] *Id.* ¶ 1.

existing standard as needed, and then switching to the new interoperability standard once it is fully supported. This is the existing process for other telecommunication and interoperability standards. In sum, adoption of RFC 4103 at this point as the interoperability standard does not bar the evolution to new standards in the future.

ii. The transition period from TTY to RTT services must be sufficiently gradual so as to allow consumers as well as governmental entities and businesses to substitute RTT technology for TTYs.

While TTY use has declined, TTYs continue to be one of the only or even the only accessibility service in use by individuals and by federal, state, and local governments. It is also the only technology that works for those who have only PSTN and no IP service available to them. Any transition period must allow a reasonable time for TTY users to safely transition to newer technologies and for those who only have PSTN to get IP service. A reasonable period for a safe transition must account for: the complexity of RTT services to new users; the rate of decline in the use of TTY services; how quickly RTT services are implemented and available to the public; the availability of IP services generally; the rate at which RTT services are adopted by the public; whether and when RTT users are able to communicate effectively with 911 answering points; whether and when RTT services are fully interoperable across all networks; whether carriers, service providers and other entities provide instructional information regarding the use of RTT services; and other considerations.

During the transition, users of legacy technologies such as TTYs who have not yet transitioned to newer technologies must still have access to communications services. In response to AT&T's Petition regarding the RTT/TTY transition, the Consumer Groups have advocated that RTT services must be backward compatible with TTY to be considered a

regulatory alternative.[21] This is an important condition that will ensure that TTY users are not isolated by the TDM to IP transition. During the transition period, gateways can be used to facilitate RTT-TTY communication.

It is also important that, prior to the transition period, thorough testing be performed to ensure that RTT services can communicate effectively with PSAPs. This testing must evaluate the limitations of using RTT through a gateway versus through native support when communicating with PSAPs.

Finally, to more fully understand the potential impact of a "termination" of TTY service, the Consumer Groups also propose that the Commission seek comment in this proceeding on the following questions: What will be the impact of a termination of TTY service on the Americans with Disabilities Act requirements for TTYs in hotels, hospitals, and public pay phones as well as 911? How will these facilities meet the ADA telephone accommodations requirements? Will establishing a termination date for TTY services require the Department of Justice to revise its rules under the ADA? Will the ADA Title IV regulations need to be modified to reflect the termination of TTY?

B. Accessibility, Usability, and Compatibility with Assistive Technologies as a Criterion for Evaluating Adequacy of Substitute Service

The Consumer Groups support the Commission's tentative conclusion that it should consider whether a carriers' proposed replacement or alternative service "allow[s] at least the same accessibility, usability, and compatibility with assistive technologies as the service being discontinued."[22] As the Commission stated in the *FNPRM*, "the importance of ensuring that

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[21] Consumer Groups' Comments on AT&T RTT/TTY Petition at 2, 4; Consumer Groups' Reply Comments on AT&T RTT/TTY Petition at 8; Consumer Groups' October 19 Ex Parte at 2.

[22] *FNPRM* ¶ 222.

consumers with disabilities can utilize assistive technologies over communications networks is indisputable."[23] If a proposed replacement or alternative service does not allow "at least the same accessibility, usability, and compatibility with assistive technologies as the service being discontinued" then the service is *not* actually an adequate substitute and should not be considered such.

The potential practical impacts of the transition on persons with disabilities identified by the Commission clearly demonstrate that accessibility considerations must be a factor in a discontinuance analysis. Specifically, the *FNPRM* states that the TDM to IP transition presents "several possible areas of impact" on persons with disabilities, including "degradation of voice service quality" that may compromise a hard of hearing persons' ability to communicate effectively.[24] This is a consideration that gets to the core of the Commission's discontinuance analysis, the touchstone of which is a "functional" analysis focusing on the "practical impact" of the service change on consumers.[25] If a service change might degrade voice service quality such that a hard of hearing person's ability to communicate is impacted, then that practical impact must be a consideration in the Commission's discontinuance analysis.

In sum, the Commission must – as it has tentatively concluded it should – consider whether an alternative or replacement service allows "at least the same" accessibility, usability, and compatibility with assistive technologies as the service to be discontinued.

C. Form and Methods of Notification of Service Discontinuance

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[23] *FNPRM* ¶ 222.

[24] *FNPRM* ¶ 222.

[25] *Technology Transitions* et al., GN Docket No. 13-5 *et al.*, Notice of Proposed Rulemaking and Declaratory Ruling, 29 FCC Rcd 14968, ¶ 5 (Nov. 25, 2014).

In the *FNPRM*, the Commission seeks comment as to: (1) what forms of notice of discontinuance of service the Commission's rules should allow or require, including what "accessible formats" should be considered,[26] and (2) whether carriers should be required to include in section 214 applications information regarding the "availability of IP-enabled devices that can also be distributed to selected and qualifying recipients under applicable state and federal programs[.]"

The Consumer Groups advocate, as discussed below, that the Commission should require that carriers utilize a wide range of accessible formats for notices of discontinuance. The Consumer Groups also recommend that carriers should be required to provide information regarding the availability of IP-enabled accessibility solutions.

i. Carriers should utilize a wide range of accessible formats for notices of discontinuance in order to ensure that all consumers are apprised of service transitions.

The Consumer Groups advocate that the Commission should require carriers to employ a range of accessible formats for discontinuance notices to ensure that all customers are aware of service changes that will affect them. Specifically, the Consumer Groups recommend that accessible formats for notification should include, but not be limited to: large print text; applications or videos providing information in American Sign Language (ASL), captions and audio description; emails to consumers (opt-in); printed material; Braille with both 'tethered' and 'untethered' operation; informational posters in disability service centers; and ASL direct access lines. Formats using multiple foreign languages should also be considered. The Consumer Groups do not believe that any of these recommended methods presents a significant burden to

[26] *FNPRM* ¶ 239.

carriers and believes that these methods will ensure that *all* consumers are apprised of service discontinuances.

ii. The Commission should require the submission of information in Section 214 applications regarding the availability of IP-enabled devices that can be distributed to qualifying recipients under applicable state and federal programs.

As an additional measure to ensure that consumers have complete information regarding a service discontinuance or transition, the Consumer Groups advocate that the Commission should require carriers to submit information in Section 214 applications regarding the availability of IP-enabled devices that can also be distributed to qualifying recipients under applicable state and federal programs. Consumers may not be fully aware that a service transition might impact their existing devices, and this information can serve as notice to consumers of a potential impact on their communications services and devices while also enabling them to easily explore means of obtaining IP-enabled devices.

D. Speech Recognition Technology

The Commission is seeking comment on the state of development of speech recognition technology.[27] In the *FNPRM*, the Commission notes that "speech recognition technologies that can accurately convert speech to text" are under development, and finds that such technologies can "assist in the development of an all-inclusive network that will allow users to migrate away from the use of CTS and IP CTS[.]"[28]

Speech recognition technology can serve as an important accessibility solution as it potentially offers a private, fast means of communication; however, the Consumer Groups do not believe that speech recognition is a one-size fits all solution. For example, speech recognition

[27] *FNPRM* ¶ 224.

[28] *FNPRM* ¶ 224.

may not recognize words spoken by someone with a heavy accent. A hard of hearing person who is also blind may find speech recognition technology quite useful, while a hard of hearing person with a speech impediment might face great frustration using the technology. Also, speech recognition is not consistently reliable. Alternative ways of conveying the same information should be made available, and the ability to fall back to Captioned Telephone Service (CTS) enabled by a Communications Assistant should always be available when speech recognition fails. In this way, speech recognition can be adopted naturally without the potential for people being unable to communicate when the speech recognition technology – for whatever reason – does not work. And, to the extent that speech recognition technology is considered a direct alternative to CTS or IP CTS, performance requirements should be implemented that allow it to match or exceed the level of service provided by CTS and IP CTS and again, provide for fall back to CTS for those situations that the technology cannot yet handle.

Finally, it is encouraged that when text to speech is used, the result is sent to *both* the receiver and the sender. In this manner, the sender can detect important errors and re-speak (or use RTT to type) the misunderstood and miscommunicated words. This can both make the technology more robust and allow it to be successfully used sooner.

III. CONCLUSION

The Consumer Groups thoroughly agree with the Commission's finding that the transition from TDM to IP-based networks presents opportunities to expand access to new accessibility solutions but also raises certain consumer protection concerns. The Consumer Groups believe strongly that interoperability of accessibility services should be a primary consideration for the Commission with regard to the deployment of IP-based access accessibility services on IP networks, and advocate that the Commission adopt the IETF RFC 4103 standard

for RTT services. The Consumer Groups emphasize that the RTT to TTY transition must be sufficiently gradual to allow all users of TTY services to safely transition to other services, and testing should be performed to ensure that RTT can readily communicate with PSAPs.

Responding to other questions and issues identified by the Commission in this proceeding, the Consumer Groups advocate that: (1) the Commission should consider as a criterion in evaluating a Section 214 discontinuance application whether a replacement or alternative service allows at least the same accessibility, usability, and compatibility with assistive technologies as the service being discontinued; (2) to ensure that consumers are fully aware of and understand the impact of a service discontinuance, carriers must: (i) employ a range of accessible formats in providing notice of service discontinuance, and (ii) provide information in section 214 applications regarding the availability of IP-enabled devices that can be distributed to qualifying recipients under applicable state and federal programs; and (3) speech recognition technology, while a useful accessibility service, is not universally usable and not always reliable, so alternative means of conveying the same information should still be made available.

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