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March 19, 2019

Ms. Marlene H. Dortch
Secretary
Federal Communications Commission
445 12th Street SW
Washington, DC 20554

Re: *VRS Access Technology Reference Platform and RUE Profile (CG Docket Nos. 10-51 & 03-123)*

Dear Ms. Dortch,

On March 17, 2019, the undersigned corresponded with Mr. David Schmidt, CGB, regarding the November 21, 2018 Ex Parte filing by the Joint VRS Providers.

The authors of this letter are recognized SIP experts who have been working on standards for VRS for many years, including the Provider Interface Profile (PIP) and the Relay User Equipment (RUE) protocol profiles. Professor Schulzrinne is well known to the Commissioners, having served as Chief Technology Officer and in other roles at the FCC from 2010 to 2017. He is also a primary author of the SIP specification. Mr. Rosen was the technical lead for the iTRS Database at Neustar, is currently the co-chair of the sipcore working group at the IETF, and is the current editor of the RUE specification. Mr Kyzivat is a primary author of a large number of SIP specifications, past co-chair of the IETF sipcore working group, and is the editor of the Provider Interface Profile effort at the SIP Forum.

VATRP (VRS access technology reference platform) is the open source implementation of the RUE specification, maintained by the MITRE Corporation. We disagree with the suggestion by VRS providers to pause this VATRP effort and believe that the VATRP effort is a very important part of standardizing the network protocol interface to VRS providers and ensuring that all providers conform to the RUE profile. In general, a reference implementation makes it far more likely that standards efforts are implementable, complete and sufficiently clear. The IETF, an open standards organization, considers "rough consensus and running code" among its cardinal principles (see https://www.ietf.org/about/mission/). The VATRP offers both providers and the Commission a neutral way to assess interoperability. Completing a RUE specification in the open also limits the extent to which any company can claim patent rights on features covered by the specification and thus reduces barriers to entry. Finally, the effort also grounds any estimates of implementation complexity and cost in actual experience and thus helps the Commission in making data-driven decisions.

The RUE profile enables users to place and receive calls using the default provider of their choice and offers a way for VRS users to get much better security and service functionality than today. Indeed, non-VRS services already offer this functionality: Mobile devices in the United States can

place and receive voice calls on any cellular carrier, just by swapping out a SIM card. Emerging standards such as RCS standardize messaging services across devices and providers. This common functionality still allows for ample differentiation in user interface, additional functions and service quality.

First, we object to a pause as it would further delay supporting modern security mechanisms in VRS. The current VRS systems are not secure in signaling and media. The mechanisms proposed in the current RUE draft specification represent the current state of the art in securing SIP-based communications. (Specifically, the RUE profile enforces the use of TLS to ensure the confidentiality and integrity of SIP signaling, and relies on SRTP to protect the confidentiality of media, drawing on the best-practice sets of cipher suites.) These security features should be implemented promptly and the VATRP accelerates their interoperable implementation. Pausing and allowing the providers to seek standardization of secure mechanisms for their SIP-based calling is a delay --- either it arrives at the same result as the current RUE profile, or it is likely to weaken the security of VRS below what is considered best current practice.

In addition to security, the VATRP effort is the best available approach to make key features available to VRS users in a timely manner, including:

1. *Multiple logins*: Most VoIP-based telephone systems allow multiple devices to log into the same account. All devices ring, any one of them can answer a call. Even ancient POTS phones have this capability, on the same line. All major smartphone operating systems allow users to receive and place calls from their laptop or desktop. (Note that this is an optional feature, i.e., providers do not have to support this.)

2. *Improved video quality*: The IETF recommends Temporary Maximum Media Stream Bit Rate Request (TMMBR) and Full Intra Request (FIR) to handle temporary changes in frame rate due to bandwidth constraints and requesting a full frame refresh when temporary network congestion causes loss of packets in the video stream. The RUE profile and its VATRP implementation use the current, interoperable standards for this functionality.

3. *Interoperable Video mail*: The Mail Waiting Indicator (MWI) is a fundamental capability of nearly every voice and videomail system in existence, and the RUE/VATRP mechanism is the universal standard way to implement this basic functionality.

Finally, we believe that the RUE/VATRP requirement to support the Next Generation 9-1-1 (NG9-1-1) standards provide the forward looking, but backwards compatible way for VRS users to get the best available location for emergency calls. We would be very disappointed if a pause resulted in a delay of VRS users getting this critical capability now that NG9-1-1 deployments are real, and growing and that commercial MLTS (multi-line telephone systems) are required to support better location accuracy for emergency calling.

We urge the Commission to reject the provider's request to pause the VATRP effort. Commercial VoIP telephony technology had made significant progress in the last decade; VRS systems should provide the functional equivalence that the ADA demands. Pausing the VATRP effort will only delay and possibly disrupt progress towards this goal.

Sincerely,

Henning Schulzrinne
Julian Clarence Levi Professor of Computer Science

/s/ Brian Rosen

/s/ Paul Kyzivat