BEFORE THE
FEDERAL COMMUNICATIONS COMMISSION
WASHINGTON, D.C. 20554

In the Matter of	)	
	)	
Request for Comment on Implementation of Signaling System 7 Security Best Practices	)	PS Docket No. 18-99
	)	
	)	

VERIZON COMMENTS

As a committed leader on network security, Verizon constantly assesses potential security risks and implements fulsome security measures. Verizon has thus led the way in comprehensively addressing risks associated with SS7 signaling infrastructure.[1] Verizon also is taking appropriate measures to address the security risks associated with the "Diameter" signaling system used for the LTE and 5G technologies.

Verizon's network does not have the SS7 vulnerabilities inherent in networks that use the GSM technology standard. But our customers can be subjected to the SS7 vulnerabilities of other carriers when they roam on GSM networks, so Verizon's security teams implemented the relevant portions of the SS7 security measures recommended by the GSMA Fraud and Security Group.[2] One early step we took in this process involved working with our wholesale SS7 signaling aggregator on the reporting/blocking solution recommended by GSMA, which became one of the CSRIC recommendations.[3] We implemented that defense in the fourth quarter of

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[1] The Public Safety and Homeland Security Bureau requests feedback on the implementation and effectiveness of the March 2017 recommendations of the Communications Security, Reliability, and Interoperability Council (CSRIC) regarding SS7 security risks. *See* Public Notice, PS Docket No. 18-99, DA 18-333 (Apr. 3, 2018).

[2] *See* http://www.gsma.com/aboutus/leadership/committees-and-groups/working-groups/fraud-security-group.

[3] *See* "Signaling Aggregators," CSRIC V: Working Group 10, Legacy Systems Risk Reductions, at Section 4.5 (March 2017), https://www.fcc.gov/files/csric5-wg10-finalreport031517pdf.

2016, and used the functionality to proactively manage our global roaming relationships – both to address identified suspicious activity and to resolve false positives (i.e., potential red flags that turned out to be the result of benign causes like configuration issues).

Concurrently with those measures, Verizon worked with a vendor to develop and implement a signaling firewall, also a CSRIC recommendation. Verizon implemented that firewall, and had devoted a team of Verizon engineers dedicated to operating and maintaining it, by the fourth quarter of 2017. Verizon contracted with a third party to conduct penetration testing (simulated attacks to identify potential vulnerabilities that an attacker could exploit) on both a pre-firewall and post-firewall basis. The results have been favorable, and we continue to conduct periodic penetration testing as part of our ongoing security assessments.

In addition to those network security, monitoring, and assessment measures, Verizon is working collaboratively with other carriers on the full range of CSRIC recommendations that relate to consumer awareness and threat information sharing. As CTIA describes in the comments it is filing today in this docket, that includes continuing to strengthen existing information sharing mechanisms and educating consumers about encryption options for voice calls.

Beyond addressing risks presented by legacy technologies such as SS7, Verizon is committed to addressing emerging security issues, including ones associated with the Diameter signaling system used for LTE and 5G deployments. Verizon is therefore actively participating in Working Group 3 of CSRIC VI, and we support the recommendations in its recent report on

Diameter security.[4] We are leveraging the firewall described above, as well as other tools, to address the security risks present in Diameter environments.

Verizon looks forward to continuing to work with the Commission and other stakeholders on these and other important security issues.

Respectfully submitted,

/s/ Gregory M. Romano

Of Counsel:
William H. Johnson

Gregory M. Romano
Christopher D. Oatway
1300 I Street N.W., Suite 500 East
Washington, D.C. 20005
(202) 515-2470

Attorneys for Verizon

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[4] *See* "Final Report – Recommendations to Mitigate Security Risks for Diameter Networks" CSCRIC VI: Working Group 3, Network Reliability and Security Risk Reduction (Version 1.1 - March 14, 2018), https://www.fcc.gov/files/csric6wg3finalreport32018pdf.