ATIS-0100065

Network Reliability Steering Committee 2015-2016 Operational Report

As a leading technology and solutions development organization, the Alliance for Telecommunications Industry Solutions (ATIS) brings together the top global ICT companies to advance the industry's most pressing business priorities. ATIS' nearly 200 member companies are currently working to address the All-IP transition, 5G, network functions virtualization, big data analytics, cloud services, device solutions, emergency services, M2M, cyber security, network evolution, quality of service, billing support, operations, and much more. These priorities follow a fast-track development lifecycle — from design and innovation through standards, specifications, requirements, business use cases, software toolkits, open source solutions, and interoperability testing.

ATIS is accredited by the American National Standards Institute (ANSI). The organization is the North American Organizational Partner for the 3rd Generation Partnership Project (3GPP), a founding Partner of the oneM2M global initiative, a member of the International Telecommunication Union (ITU), as well as a member of the Inter-American Telecommunication Commission (CITEL). For more information, visit www.atis.org.

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TO: Stakeholders of the Nation's Public Communications Networks

Service disruptions, although infrequent, remind us how dependent we are on the communications networks. During these events, communication providers demonstrated how seriously they take their responsibility to provide reliable services for consumers and businesses, expending significant efforts to mitigate outages and quickly restore service. Once service is restored, equal efforts are expended to analyze the disruption, identify areas for improvement, and implement those improvements. The owners and operators of these networks, along with the equipment vendors they partner with, are firmly committed to building and maintaining reliable and resilient networks. This commitment has been demonstrated again and again – on a day-to-day basis, and in the face of natural and manmade disasters.

The Network Reliability Steering Committee (NRSC) remains committed to this effort by analyzing outage and reliability trends and recommending actions that can help prevent outages or reduce their impact. Its members work together to ensure that communication systems continue to remain secure and reliable. These efforts ultimately benefit consumers, business, the industry, and the nation as a whole.

This report provides a snapshot of the issues addressed by the NRSC over the last two years. As you will see, the efforts of the NRSC, guided by input from member company subject matter experts as well as the FCC, are primarily directed toward ensuring that meaningful data is being collected and analyzed to better understand the cause and mitigation of outages. Ultimately, the NRSC utilizes this information to develop industry guidance that directly impacts and improves the nation's networks. These efforts build upon previous NRSC work and form a strong foundation for ensuring that communication networks continue to be reliable and resilient. This foundation is especially useful in light of ongoing momentous changes to the communications network, including the significant growth of wireless networks and the evolution to an All-IP network. The nation depends on these networks to provide emergency communications, enable commerce, and support individual communications. As these changes to the network occur, the NRSC remains committed to, and will continue working toward, maintaining network reliability and resiliency.

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Executive Summary

About the NRSC

The Alliance for Telecommunications Industry Solutions (ATIS) NRSC addresses network reliability improvement opportunities of service providers and vendors, in a noncompetitive environment, and allows participants to develop standards, technical requirements, technical reports, Bulletins, Best Practices, and reports on the health of the nation's communications networks. The NRSC also coordinates industry improvements in network reliability through outage analysis. The mission statement of the NRSC is:

> ***The NRSC strives to improve network reliability by providing timely consensus-based technical and operational expert guidance to all segments of the public communications industry.***[1]

The NRSC is deeply committed to intra-industry collaboration, which is essential in ensuring that the industry's expertise is available to monitor and address critical trends in the reliability of our nation's public communications networks. The NRSC addresses these critical trends by:

- Identifying potential network reliability issues through an opportunity evaluation process;
- Establishing teams to work specific reliability issues;
- Conducting special studies to develop industry recommendations and/or Best Practices;
- Providing industry feedback to the Federal Communications Commission (FCC) Public Safety and Homeland Security Bureau (PSHSB) on network reliability and on the FCC's Network Outage Reporting System (NORS) and Disaster Information Reporting System (DIRS); and
- Serving as a public educational resource on network outage trends and the industry's ongoing efforts to resolve network reliability concerns.

This Operational Report covers the period of 2015 through 2016. A brief history of the NRSC is provided in the *Introduction* of this report (page 1).

[1] NRSC's Mission Statement is available on the ATIS NRSC site < http://www.atis.org/nrsc/index.asp >.

Changing Regulatory Environment & Changing Industry

The 2013-2014 NRSC Operational Report cited an increased focus on issues related to network reliability and resiliency and to the obligation of industry to report communications outages. This focused attention has, if anything, increased over the last two years, with numerous regulatory measures being enacted and industry responding to various high-profile service interruptions. Continuity of emergency services, cybersecurity, and the move to an all-IP network have received the bulk of attention, although reliability of legacy networks remains a critical piece of the equation.

Extension of Outage Reporting to Voice over IP (VoIP)

In 2012, the FCC extended its outage reporting rules to interconnected VoIP service providers, noting that consumers are increasingly using interconnected VoIP services in lieu of traditional telephone service. The interconnected VoIP rules are based on the existing legacy network reporting rules, and in 2014, the FCC indicated they are planning on revising those rules, possibly in 2015, to more accurately reflect the realities of an All-IP network.[2]

Network Reliability and Resiliency

In 2013, the FCC proposed improving the resiliency of mobile wireless networks by requiring public disclosure, on a daily basis, of the percentage of cell sites operational during a disaster for each carrier, and perhaps extending this requirement to all network types.

911

In 2013, the FCC released a Report and Order aimed at maintaining 911 service during a disaster. The report suggests that network operators undertake activity in four primary areas: maintain adequate central office backup power; have reliable network monitoring systems; conduct periodic audits of 911 circuits; and notify 911 call centers of problems. The Report and Order requires operators to report on these areas, certifying either implementation of specific Best Practices or implementation of alternative measures.

Cybersecurity

With the transition to an all-IP network, cybersecurity has taken on added significance and the FCC has increased its attention to this topic. During the FCC's Communications Security, Reliability, and Interoperability Council (CSRIC-IV) and its Technological Advisory Council (TAC), the FCC chartered a CSRIC Working Group (WG-4) to determine how best to ensure implementation of cybersecurity measures. That Working Group delivered a 300+ page Final Report, and the FCC immediately issued a Public Notice about this report, seeking comments on how well the Final Report met the goal and what other measures could be taken to ensure cybersecurity.

While the industry and the underlying network technologies may be evolving, the role of the NRSC remains constant. The NRSC provides expert industry guidance regarding communications reliability issues to ensure that US communications networks remain highly reliable and robust, even during their constant evolution.

[2] The FCC adopted the *Amendments to Part 4 of the Commission's Rules Concerning Disruptions to Communications NPRM*, (DA No. 15-710) (Dkt No 15-80), on March 30, 2015.