ATIS-0300104

ATIS Standard on -

Next Generation Interconnection Interoperability Forum NGN Reference Document

NGN Basics, Emergency Services, NGN Testing, and Network Survivability

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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 and major U.S. contributor to 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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Next Generation Interconnection Interoperability Forum (NGIIF)

NGN Reference Document

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Alliance for Telecommunications Industry Solutions

Updated June 2017

Abstract

This document provides basic information regarding Next Generations Networks, as applicable to the Next Generation Interconnection Interoperability Forum (NGIIF).

Foreword

The Alliance for Telecommunications Industry Solutions (ATIS) serves the public through improved understanding between carriers, customers, and manufacturers. The Next Generation Interconnection Interoperability Forum (NGIIF) addresses next-generation network interconnection and interoperability issues associated with emerging technologies. Specifically, it develops operational procedures which involve the network aspects of architecture, disaster preparedness, installation, maintenance, management, reliability, routing, security, and testing between network operators. In addition, the NGIIF addresses issues which impact the interconnection of existing and Next Generation Networks (NGNs) and facilitate the transition to emerging technologies.

The mandatory requirements are designated by the word shall and recommendations by the word should. Where both a mandatory requirement and a recommendation are specified for the same criterion, the recommendation represents a goal currently identifiable as having distinct compatibility or performance advantages. The word may denotes an optional capability that could augment the standard. The standard is fully functional without the incorporation of this optional capability.

Suggestions for improvement of this document are welcome. They should be sent to the Alliance for Telecommunications Industry Solutions, NGIIF, 1200 G Street NW, Suite 500, Washington, DC 20005.

At the time of consensus on this document, NGIIF, which was responsible for its development, had the following leadership:

A. Hindman, NGIIF Co-Chair (Verizon Wireless)

R. Ryan, NGIIF Co-Chair (Comcast)

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1 Scope, Purpose, & Application

1.1 Scope

The suite of NGN Reference Documents provides basic information regarding Next Generation Networks (NGNs), as applicable to the Alliance for Telecommunications Industry Solutions (ATIS) Next Generation Interconnection Interoperability Forum (NGIIF). The NGN is a multi-service, multi-vendor, multi-provider managed packet-based network, which is able to provide telecommunication services and is able to make use of multiple broadband, quality of service (QoS)-enabled transport technologies and in which service related functions are independent from underlying transport related technologies.

[Text from ATIS-0300109] This document identifies items that could potentially impact government-managed emergency services, such as Government Emergency Telecommunications Service (GETS), Wireless Priority Service (WPS), and Telecommunications Service Priority (TSP), when telecommunications facilities in the NGN are consolidated and newer technologies (e.g., IP, fiber, Ethernet) are implemented.

This document describes the effects of adoption of NGN National Security and Emergency Preparedness (NS/EP) priority services. Included in the document are descriptions regarding Enhanced Overload Performance (EOP) precedence in Code Division Multiple Access (CDMA) networks, Universal Mobile Telecommunications Standard (UMTS) handover to Global System for Mobile Communications (GSM), and the transition to Next Generation 9-1-1 emergency services.

[Text from ATIS-0300112] This document has been developed to assist network managers by providing guidelines to serve as a general framework in planning for traffic management during high level congestion events or disaster conditions, such as the following (not all inclusive):

- Network congestion due to facility failures or abnormal calling periods
- Switch or network failures or extended outages
- SS7 network failures
- Voice over IP (VoIP) network failures
- Natural disasters
- Pandemic events
- Major accidents
- Civil disturbances

This document addresses survivability of communications networks and the services those networks provide under failure conditions. Communications networks should be designed and should operate to meet users' expectations regarding network survivability. There should be a common understanding of network survivability assessment techniques. This document references the architectures and services of communications industry segments (i.e., wireline, Internet, wireless, cable, and satellite) and provides references for further information.

1.2 Purpose

[Text from ATIS-0300109] The purpose of this document is to outline several aspects of the NGN, some of which include communicating to the industry the effects of transitioning emergency services from circuit switched to NGN and providing basic testing information and references for testing in an NGN environment.

[Text from ATIS-0300112] This document was also published to assist interconnected network operators in developing and implementing strategies that ensure the continued operation of communication/facilities before, during, and after an incident.

1.3 Application

[Text from ATIS-0300109] This guideline should be used by emergency service providers and vendors to understand the effects of transitioning emergency services from circuit switched to NGN.

2 References

The following documents/standards contain information which is referenced within this guideline. At the time of publication, the editions indicated were valid. All documents/standards are subject to revision, and the reader is encouraged to investigate the possibility of applying the most recent editions of the standards and/or documents indicated below.

ITU-T Recommendation Y.2001 (12/2004), *General Overview of NGN.*[1]

ATIS-1000018, *NGN Architecture.*[2]

ATIS-0100002, *Reliability Aspects of Next Generation Networks.*[3]

ATIS TOPS Council Next Generation Network (NGN), *Part 1: NGN Definitions, Requirements and Architecture.*[4]

ATIS-1000113, *Signaling System No. 7 (SS7) – Integrated Services Digital Network (ISDN) User Part.*[5]

IETF RFC 3935, *A Mission Statement for the IETF.*[6]

ATIS-1000061, *LTE Access Class 14 for National Security and Emergency Preparedness (NS/EP) Communications.*[7]

3GPP TS 36.331, version 8 or above, *Evolved Universal Terrestrial Radio Access (E-UTRA), Radio Resource Control (RRC); Protocol specification.*[8]

ATIS-1000009, *IP Network-To-Network Interface (NNI) Standard for VoIP.*[9]

ATIS-1000026, *Session Border Controller Functions and Requirements.*[10]

ATIS-1000038, *Technical Parameters for IP Network to Network Interconnection Release 1.0.*[11]

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[1] This document is available from the International Telecommunications Union. <http://www.itu.int>.

[2] This document is available from the Alliance for Telecommunications Industry Solutions (ATIS) at <https://www.atis.org/docstore/product.aspx?id=22964>.

[3] This document is available from ATIS at <https://www.atis.org/docstore/product.aspx?id=22979>.

[4] This document is available from ATIS at <http://www.atis.org/members/TOPS/Deliverables/ATIS-I-0000008.pdf >.

[5] This document is available from ATIS at <https://www.atis.org/docstore/product.aspx?id=24941>.

[6] This document is available from the IETF <http://www.ietf.org>.

[7] This document is available from ATIS at <https://www.atis.org/docstore/product.aspx?id=28193>.

[8] This document is available from the Third Generation Partnership Project (3GPP) <http://www.3gpp.org>.

[9] This document is available from ATIS at <https://www.atis.org/docstore/product.aspx?id=25486>.

[10] This document is available from ATIS at <https://www.atis.org/docstore/product.aspx?id=27968>.

[11] This document is available from ATIS at <https://www.atis.org/docstore/product.aspx?id=25437>.