ATIS STANDARD

ATIS-0500046

Analysis of Non-IP Call Authentication Mechanisms in Support of Emergency Services

TECHNICAL 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.

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ATIS-0500046, *Analysis of Non-IP Call Authentication Mechanisms in Support of Emergency Services*

Published by

Alliance for Telecommunications Industry Solutions
1200 G Street, NW, Suite 500
Washington, DC 20005

ATIS-0500046

ATIS Technical Report on

Analysis of Non-IP Call Authentication Mechanisms in Support of Emergency Services

Alliance for Telecommunications Industry Solutions

Approved March 28, 2022

Abstract

This Technical Report analyzes non-Internet Protocol (IP) call authentication mechanisms to determine their applicability to the handling of 9-1-1 calls in the context of Enhanced 9-1-1 (E9-1-1) and transitional Next Generation 9-1-1 (NG9-1-1) architectures.

Foreword

As a leading technology and solutions development organization, the Alliance for Telecommunications Industry Solutions (ATIS) brings together the top global information and communications technology (ICT) companies to advance the industry's most-pressing business priorities. ATIS serves the public through improved understanding between carriers, customers, and manufacturers.

The Emergency Services Interconnection Forum (ESIF) provides a forum to facilitate the identification and resolution of technical and/or operational issues related to the interconnection of wireline, wireless, cable, satellites, Internet and emergency services networks.

The ESIF Next Generation Emergency Services (NGES) Subcommittee coordinates emergency services needs and issues with and among SDOs and industry forums/committees, within and outside ATIS, and develops emergency services (such as E9-1-1) standards, and other documentation related to advanced (i.e., Next Generation) emergency services architectures, functions, and interfaces for communications networks.

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

At the time of initiation or issuance of the letter ballot for this document, the committees responsible for its development had the following leadership:

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The **NGES** Subcommittee was responsible for the development of this document.

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1 Scope, Purpose, & Application

1.1 Scope

Regulators and industry stakeholders initially focused on supporting caller identity authentication and verification for calls carried over Internet Protocol (IP) networks using the Session Initiation Protocol (SIP) to address concerns related to robocalling and illegitimate caller identity spoofing. Caller authentication techniques, such as those described in ATIS standards related to Signature-based Handling of Asserted Information Using toKENs (SHAKEN) and IETF RFCs related to Secure Telephone Identity Revisited (STIR), have been developed to allow calls traveling through interconnected IP-based carrier networks to have the legitimacy of the caller's identity evaluated by the originating carrier and validated by the terminating carrier, facilitating the delivery of an indication of the legitimacy of the caller identity information to the called party. The ATIS Non-IP Call Authentication Task Force has defined call authentication mechanisms that will operate in the non-IP portions of voice service provider networks that may be useful in supporting the Second Report and Order [Ref 1] adopted and released by the Federal Communications Commission (FCC) on October 1, 2020.

This Technical Report discusses call authentication in the context of emergency services offered using legacy Enhanced 9-1-1 (E9-1-1) and transitional Next Generation 9-1-1 (NG9-1-1) architectures. It considers non-IP call authentication mechanisms that are being defined in a non-emergency context by the industry and discusses the impacts of call authentication on the processing of 9-1-1 calls.

1.2 Purpose

This Technical Report provides an analysis of the applicability of non-IP call authentication mechanisms being considered by the industry to legacy E9-1-1 and transitional NG9-1-1 architectures.

1.3 Application

This Technical Report applies to emergency (9-1-1) calls that originate in legacy networks and are routed via legacy Selective Routers (SRs) to legacy Public Safety Answering Points (PSAPs), as well as emergency (9-1-1) calls that originate in legacy networks and are routed via NG9-1-1 Emergency Services Networks to legacy or NG PSAPs. In addition, this Technical Report applies to emergency (9-1-1) calls that originate in IP Multimedia Subsystem (IMS) networks in North America and are routed via legacy SRs to legacy PSAPs, and emergency (9-1-1) calls that originate in IMS networks and are routed via NG9-1-1 networks to legacy PSAPs.

2 References

The following standards contain provisions which, through reference in this text, constitute provisions of this Standard. At the time of publication, the editions indicated were valid. All standards are subject to revision, and parties to agreements based on this Standard are encouraged to investigate the possibility of applying the most recent editions of the standards indicated below.

[Ref 1] Federal Communications Commission. *Second Report and Order In the Matter of Call Authentication Trust Anchor* (WC Docket 17-97). FCC 20-136.[1]

[Ref 2] ATIS-1000096, *Signature-Based Handling of Asserted Information Using Tokens (SHAKEN): Out-of-Band PASSporT Transmission Involving TDM Networks.*[2]

[Ref 3] draft-ietf-stir-servprovider-oob-01, *Out-of-Band STIR for Service Providers.*[3]

[Ref 4] ATIS-1000095, *Extending STIR/SHAKEN over TDM.*[2]

[Ref 5] ATIS-1000679, *Interworking Between Session Initiation Protocol (SIP) and ISDN User Part.*[2]

[1] This document is available from the Federal Communications Commission (FCC) at: < http://www.fcc.gov/ >.

[2] This document is available from the Alliance for Telecommunications Industry Solutions (ATIS) at: < https://www.atis.org/ >.

[3] This document is available from the Internet Engineering Task Force (IETF) at: < http://www.ietf.org >.