

ATIS Overview

2022

Advancing ICT Industry Transformation



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From the President and CEO



Creating a solid foundation for North American leadership in 6G and beyond, developing standards that secure the 5G supply chain, preparing for the network impacts of a quantum computing future and more — these are just some of the ATIS successes you will learn about in our 2022 Overview. This work advances not only our industry's transformation, but also our members'

business priorities. Most recently, it is:

- Taking a fast-forward approach to the 6G future through the work of our [Next G Alliance](#).
- Incorporating environmental sustainability goals into future networks as the industry accelerates progress toward 6G.
- Architecting industry-led solutions and standards that play a critical role in creating a more competitive and secure landscape for technology-dependent goods and services.

In helping the industry prepare for the future and creating the foundation for a transparent and open competitive ecosystem, ATIS' work helps fuel the U. S. innovation economy. In a world that grows increasingly connected, the need for our solutions has never been greater. I hope you enjoy learning about them in the 2022 Overview.

Sincerely,

Susan M. Miller
ATIS President & CEO

A handwritten signature in black ink that reads "Susan M. Miller". The signature is fluid and cursive, matching the printed name above it.

ATIS BOARD OF DIRECTORS

ATIS is where the leading information and communications technology (ICT) companies come together to develop solutions to the industry's most critical current priorities and address challenges on both the more immediate and long-term horizons.

- In looking to the future, our strategic initiatives and the Next G Alliance are delivering results, including setting the stage to put North America at the forefront of wireless leadership for the next decade and beyond.
- For solutions needed on a more immediate horizon, our committees hold a position of North American leadership in developing globally recognized standards and solutions.

The value our organization delivers our industry is made possible by our board of directors. ATIS' board brings together C-level executives from the leading ICT companies to set the organization's strategic, technical and operational direction. This leadership ensures alignment on the priorities that are defining the industry's future while addressing members' business objectives. Action on these priorities takes place through our board-driven Innovation Agenda.

ATIS BOARD OF DIRECTORS - LEADERSHIP (OFFICERS)

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ATIS BOARD MEMBER COMPANIES



ADVANCING INDUSTRY TRANSFORMATION



ATIS' VALUE-DRIVEN MISSION

ATIS brings the ICT industry together to address common, critical priorities. Here's how we create value:

- ATIS brings together all the key companies to deliver technology innovation for the future. Our Next G Alliance is a key example.
- ATIS' strategic initiatives and solutions/standards work progresses new business opportunities, solves common industry challenges, and creates a platform for collaboration with other industries.
- Members innovate and compete using ATIS' foundational work. Collaborative efforts across industries can lead to greater scale and customer adoption.
- Identifying and defining where and how to align and collaborate. Sharing resources, effort and cost to develop large-scale, interoperable solutions for a "common industry good" is both critical and beneficial to the industry.

A DIVERSE AND ROBUST PORTFOLIO OF DELIVERABLES

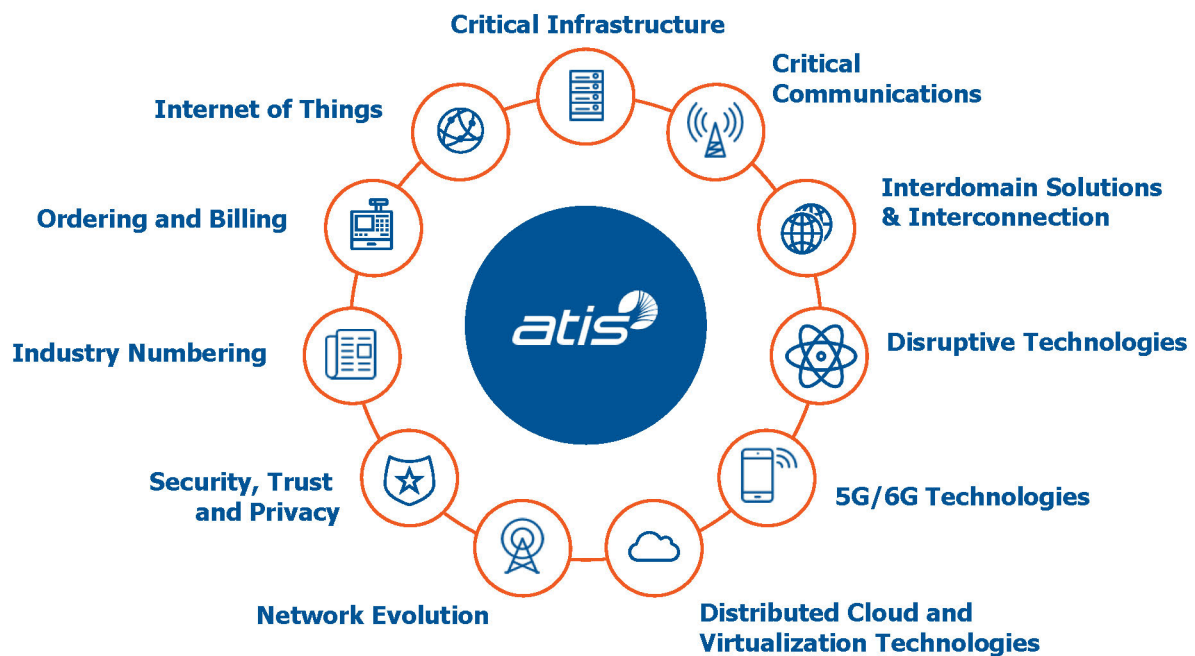
ATIS' portfolio includes strategic initiatives, technology and standards development, global partnerships, and regulatory/policy advocacy. Specifically, we are engaged in:

- Delivering technology innovation for the future
- Solving near-term deployment and implementation challenges
- Developing critical industry standards
- Driving global leadership and collaboration
- Advancing technology policy
- Engaging membership to advance industry transformation and collaborate.

ATIS PRIORITIES

Our priorities change with market and member demands. Current technology focus areas are shown below:

TECHNOLOGY FOCUS AREAS



NATIONAL ACCREDITATION AND GLOBAL LEADERSHIP

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).

STRATEGIC INITIATIVES



THE NEXT G ALLIANCE: ADVANCING 6G

Building the foundation for North American leadership in 6G and beyond

While ATIS' many committees and fora address critical areas advancing our industry's transformation, charting the course to the 6G future is a major area of focus. The work takes place through the Next G Alliance, which brings together 80 leading organizations and over 600 subject matter experts from industry, academia and government to ensure North American leadership in 6G. Through the Next G Alliance, this work is setting the stage to put North America at the forefront of wireless leadership for the next decade and beyond.



Roadmap to 6G Positions North America at the Forefront of Wireless Technology Development

In 2022, the Next G Alliance presented the first 6G vision for North America by publishing the *Roadmap to 6G*. The report describes major steps that industry, government and academia should take to ensure North American wireless leadership for the next decade and beyond.



The *Roadmap* offers a timeline to promote coordinated R&D, market-readiness and adoption strategies for 6G technologies with the goal of creating a vibrant marketplace for North American 6G innovation. It describes social and economic, technology, spectrum, applications and sustainability opportunities in creating North American 6G leadership and recommends governmental actions and standardization strategies for achieving them. The industry-driven approach focuses on North American priorities as well as the region's global alignment goals.

This *Roadmap* will ensure our region proactively aligns all critical sectors vital to 6G success to create a foundation for North American global leadership. Beyond its technical contributions, it shows how 6G can benefit society and industries in a variety of sectors – as well as how North America will become an epicenter of innovation-driven economic growth in a new era of wireless.

Building Sustainability into Future Generations of Wireless — 6G and Beyond

Another 2022 deliverable from the Next G Alliance is a white paper showing how the information and communications technology (ICT) industry can contribute to reducing overall energy consumption and achieving environmental sustainability objectives as it accelerates progress toward 6G.



Green G: The Path Towards Sustainable 6G identifies key improvements the ICT sector, including the mobile infrastructure, radio access technology, data center industry and device manufacturers, has made over the last decade in reducing the overall energy consumption per compute and network traffic. It also highlights the importance of sustainability in future generations of wireless in a world that grows more connected with users' data needs increasing each year.

In addition to minimizing ICT's impact on the environment, next-generation mobile networks will be a major sustainability enabler for other industries and verticals to achieve their own sustainability goals.

A Vision for 2030 and Beyond

The International Mobile Telecommunications (IMT) systems for 2030 and beyond will be developed as a global standard to better serve the communication needs in every continent of the world. In October, 2021, ATIS' Next G Alliance submitted a [contribution](#) to the ITU-R,

responding to a request for input to the "IMT Vision for 2030 and Beyond." The ITU has a rich history in the development of radio interface standards for mobile communications. The input of the Next G Alliance will contribute to shaping the ITU-R recommendation on IMT-2030 — the vision recommendation for the next generation of radio interface.

5G TECHNOLOGIES

Delivering a detailed analysis and alignment with specific 3GPP activities, highlighting North American priorities

As part of its global leadership role, ATIS is the North American founding Organizational Partner of [3GPP](#). 3GPP unites seven standard development organizations (ARIB, ATIS, CCSA, ETSI, TSDSI, TTA, TTC), known as "Organizational Partners (OPs)," and provides their members with a stable environment to produce the specifications that define 3GPP technologies, including LTE and LTE-Advanced. Since the completion of the first LTE and the Evolved Packet Core specifications, 3GPP has become the focal point for mobile systems beyond 5G. Currently, it is moving the industry beyond [5G](#), an area in which ATIS has North American leadership, and planning for the 6G and beyond future through our [Next G Alliance](#).



5G North American Needs

The [5G North American Needs](#) group is a forum that collects views on regional priorities for 5G evolution and works to advance goals in 3GPP. The group has been active on issues including 5G spectrum, security and release content prioritization. While encouraging input from thought leaders in the North American region, ATIS has looked at advanced topics including Open Programable 5G from DARPA and research on Artificial Intelligence and Machine Learning in 5G.

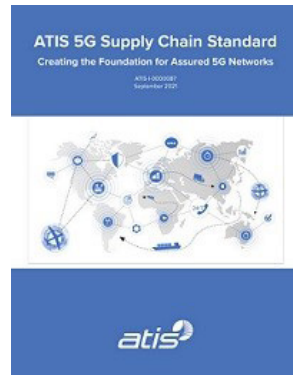
In the North American Needs group and in other discussions with ATIS 3GPP member companies, ATIS is active in updating 3GPP working methods to ensure that 3GPP remains productive despite the challenges imposed by Covid-19 and in planning for the post-Covid resumption of face-to-face meetings in 2022.

The 5G Operational and Regulatory Requirements

ATIS' [5G Operational and Regulatory Requirements \(5GORR\)](#) group is studying the support of non-public 5G networks. These networks offer 5G services in scenarios such as manufacturing facilities, enterprise campuses and major public venues that have special 5G coverage requirements targeting particular user groups or use-cases. The ability to deploy non-public networks is one of the new capabilities enabled by the 5G architecture but involves a range of operational and regulatory compliance questions beyond the scope of 3GPP standards. The 5GORR group is developing a white paper to capture the operational and regulatory requirements as well as technical deployment options for non-public 5G networks.

5G Supply Chain Standard to Map Path to Assured 5G Networks

In 2021, ATIS presented the foundational concepts being incorporated into the first-ever 5G supply chain standard that can be operationalized to deliver assured 5G networks. This work comes in light of increased 5G innovation that is driving new mobile technology deployments spanning vertical markets, massive IoT connectivity, public and private networks, and government applications. These new forms of device connectivity place new demands on the global 5G supply chain. This supply chain standard is essential to ensuring that products and services from both domestic and global vendors are trustworthy to operate in this new paradigm of 5G networks and applications.



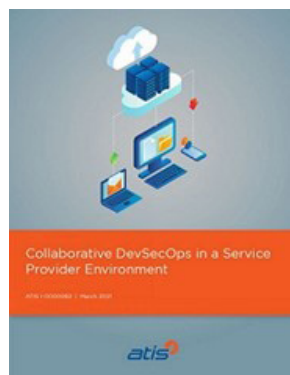
Solidly based on futuristic 5G use cases, the white paper *5G Supply Chain Standard: Creating the Foundation for Assured 5G Networks* provides an early view into the framework and standards-based model upon which detailed controls and requirements will be developed and applied to meet the complex needs of 5G networks over the next decade. ATIS' approach to assured 5G networks considers the 5G supply chain within the larger context of securing 5G infrastructure overall. The work sets forth a comprehensive, layered model to deliver a smarter supply chain focused on 5G's current and future evolution.

The final 5G Supply Chain standard will be based on an extensive list of requirements and controls that can be applied across multiple assurance levels based on the needs of the application environment. Following the publication of the standard in 2022, the Working Group will remain engaged in overseeing its application across the industry and recommend next steps to promote its adoption.

CYBERSECURITY

Addressing the complexities of security in cloud-native ICT services environment

Recent high-profile supply chain security events point to the industry need for advancing cloud-based security practices. A 2021 ATIS report, *Collaborative DevSecOps in a Service Provider Environment*, enables service providers to better manage complex collaborative cloud-based network software deployments while maintaining high levels of security. It explores the unique challenges of improving security in a cloud-native environment for ICT services and also provides best practices for creating and maintaining a secure environment.



To better manage the complexity of delivering services using large, integrated multi-component, multi-vendor systems, telecom service providers are migrating their software development, deployment and lifecycle environments to a cloud-native architecture. This trend dovetails with the use of DevOps for continuous delivery models and automation of system management. In the cloud-native DevOps model, development and operations teams are no longer siloed. They are merged into a collaborative team where the engineers work across the entire application lifecycle, from architecture, design, development and test to deployment and ongoing operations.

With security expertise and responsibilities tightly integrated within the DevOps processes, the result is DevSecOps. Together, cloud-native and DevOps/DevSecOps enable the creation of loosely coupled systems that are scalable, resilient, manageable, observable and secure. ATIS is currently monitoring NIST for applicable updates and assessing advances in crypto-agility.

DISTRIBUTED LEDGER TECHNOLOGY

Applying distributed ledger technology for robocalling mitigation

Increasing the options for implementation in the VoIP ecosystem to mitigate illegal robocalls, a technical report *Enterprise Identity Distributed Ledger Network: Providing Enterprise and Telephone Number Allocation Authentication for Originating Service Provider SHAKEN Attestation* was published in 2021. A new specification set forth in the report enables enterprises to establish verifiable credentials for their identity and the telephone numbers they use by applying distributed ledger technology and its cryptographic principles. This work extends the capabilities of Signature-based Handling of Asserted information using toKENs (SHAKEN), an essential contribution to the industry's work to mitigate illegal robocalling.

This new specification based on Self-Sovereign identity allows an enterprise to prove its identity to any participant of the VoIP ecosystem. This helps the originating service provider (OSP) authenticate the calling enterprise identity and their right to use an originating telephone number. Once verified and authorized for use, the OSP can apply SHAKEN A-level attestation to the call. This boosts trust for the call recipient that the call is from who it says it is. Ultimately, this new specification will serve to increase the value and integrity of the telephone number for the benefit of enterprises, consumers and service providers.

Further, ATIS has demonstrated fully authenticated enterprise SIP calls using distributed ledger technology in support of the SHAKEN protocol at the 2021 STIR/SHAKEN VIRTUAL SUMMIT.

MULTI-NETWORK ENTERPRISE SOLUTIONS

Helping service providers expand their offerings in vertical markets

Enterprises have the freedom to use a wide variety of networks and network technologies, including public and private cellular, office WLANs and public Wi-Fi hotspot services, SD-WANs and application-specific networks such as LoRa for IoT. But this freedom brings challenges. Each network often has different authentication credentials with separate identity providers. They also have different security capabilities, policies, levels of performance and coverage domains. These variables create complexity, which drives up network management costs. How can the complex enterprise network environment be optimized to deliver services and solutions to a diverse and growing set of vertical markets?

ATIS' Multi-Network Enterprise Solutions Initiative (MNES) has made a major industry contribution toward discovering how. This work supports a standardized industry approach that not only integrates and simplifies the management of today's complex enterprise network environment but also enhances the overall reliability/resiliency, performance, and security of the end-to-

end system. In 2021, ATIS released the *Multi-Network Enterprise Solutions* report, which sets out the technologies that enterprises can use to address this complexity, including methods to support identity federation, multipath, and network-wide policy propagation. The report sets the groundwork for expanding the features and services that communications service providers can offer — a critical industry priority given the growth of services in the enterprise and vertical markets.

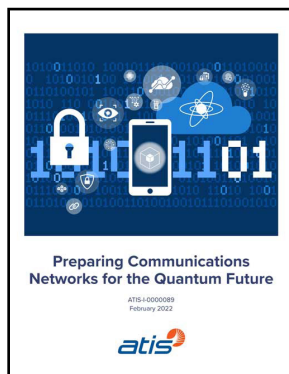


QUANTUM-SAFE COMMUNICATIONS

Addressing quantum computing's background, opportunities and threats

Computational problems that would take a classical computer tens of thousands of years to complete can be solved in seconds by a quantum computer – making quantum computers' power exponentially greater than computers in use today. Yet, with this innovation, there are concerns that quantum's computational power will eventually compromise current encryption algorithms widely used by network operators. New cryptography algorithms and technologies will be required to secure communications and data from quantum computers.

Network operators should begin to understand quantum's implications on current communications and data management now. Identifying the key business and operational risks this innovative new technology presents as well as their impact is key. To help them, ATIS' Quantum-Safe Communications and Information Initiative has published the white paper, *Preparing Communications Networks for the Quantum Future*.



The paper provides a high-level overview of the current activities to ensure communications and information will be resistant to quantum challenges in the future. It discusses the potential risk areas for communications infrastructure and the potential timelines for when those risks will emerge, identifying indicators for organizations to assess crypto agility and business risk so that they can plan for this eventuality. The goal is to help operators:

- Create awareness of quantum risks to security.
- Implement a new approach to managing security.
- Assess the enterprise's readiness to become crypto-agile and resistant to future classical or quantum challenges.
- Monitor the development of postquantum cryptography standards and solutions.
- Get started by acting today to set their organization on a path to be quantum-resistant.

SELF-SOVEREIGN IDENTITIES

Examining how telecom operators can leverage innovation in self-sovereign identity to not only comply with privacy regulation, but also create new business opportunities

The new [User-Controlled Privacy](#) initiative is designed to help the industry adopt and advance innovations that would make it possible for users to establish a self-sovereign (i.e., self-managed) identity (SSI). Combining this SSI along with verifiable credential proofs of information greatly enhances individuals' control and rights over their personal data. This work is both timely and strategic. Privacy regulation in both the U. S. and Canada is growing at both the state and provincial levels. It comes in response to recent data breaches, hacking cases and problems with centralized data management. In the

emerging regulatory environment, handling customer data grows more complex. Businesses must realign operations to adapt.

SSI can address personal data in a way that fosters greater trust between consumers and businesses, while also helping companies comply with new privacy regulations. This new initiative will provide operators with practical insight into the new technology being developed to enable secure user-controlled privacy.

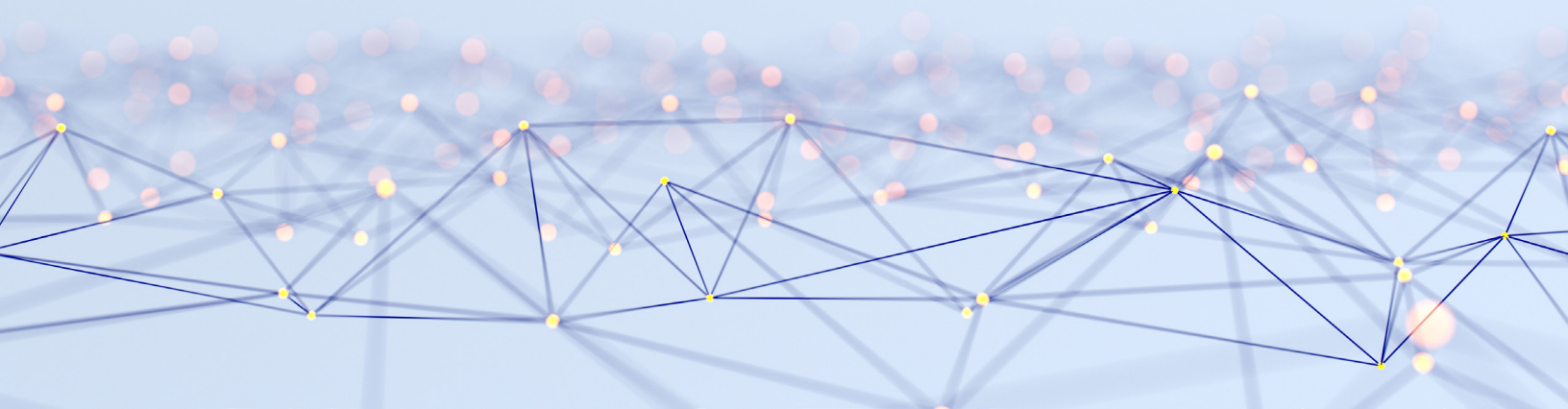
THE FUTURE OF VOICE

Why now is the time for industry to start assessing the voice services' future

Voice capabilities are an increasingly vital part of communications. Think voice assistants, smart devices, gaming and other machine-driven applications. A new Voice Architecture initiative explores how operators can deliver a high-quality voice experience across a range of new applications. The work will conduct an architectural assessment of the next generation of voice as the industry progresses from current IMS/SIP based platforms to future architectural voice platforms.



REGULATORY INITIATIVES



THE STI-GA: MITIGATING UNWANTED ROBOCALLING AND CALLER ID SCAMS

Tremendous growth in the SHAKEN ecosystem advances the industry-driven work to mitigate illegal robocalling

Operating under the auspices of ATIS, the [Secure Telephone Identity Governance Authority \(STI-GA\)](#) is the industry group leading the efforts to mitigate illegal robocalling and Caller ID scams. Developed by ATIS and the SIP Forum, STIR/SHAKEN is the solution to authenticate calling telephone numbers that was first selected by the industry and later mandated by the FCC.

To set SHAKEN into action, the STI-GA oversaw selection of iconectiv as the STI-Policy Administrator (STI-PA) to enforce the STI-GA policy and authorize entities to participate in the SHAKEN ecosystem. In the short time since inception, the STI-GA further authorized the first four STI-Certification Authorities (STI-CAs) and met the FCC's December 2019 deadline to launch the

SHAKEN framework. In 2020, the STI-GA continued its work to ensure the SHAKEN framework was both fully implemented and stable, and created the policies necessary to allow the ecosystem to grow and remain secure. This work positioned SHAKEN for the results delivered in 2021.



2021 – Growth Advancing SHAKEN's Reach and Effectiveness

2021 was a year of tremendous growth for the SHAKEN ecosystem. It began with 74 service providers (SPs) authorized by the STI-PA, ending with more than 400 — a more than fivefold increase in STIR/SHAKEN participation within a single year. Ensuring the framework could grow to such an extent without sacrificing its dependability and security was a critical STI-GA goal. As of December 31, 2021, the STI-PA had authorized a total of [408 SPs](#).

The STI-GA Board added another STI-CA to the framework, bringing the total number to ten. Eight of the ten STI-CAs are public in that they serve the entire industry. (Access the [list of public STI-CAs](#) on the STI-PA website.) The number of SPs using SHAKEN is poised for continued growth in 2022 as the STI-GA continues to receive applications from prospective STI-CAs.

Enhancing STIR/SHAKEN Functionality to Authenticate a Broader Range of Calls

In another major 2021 accomplishment, the STI-GA announced the launch of new STIR/SHAKEN functionality, expanding caller ID authentication reach with the use of delegate certificates and by allowing Resp Orgs, the companies responsible for assigning toll-free telephone numbers, to directly join the SHAKEN ecosystem.

Delegate certificates, as defined in an ATIS standard, are optional tools designed to help providers better determine the proper level of "attestation" for a call, or a caller's right to use a certain phone number. Determining this right is one of STIR/SHAKEN's most important contributions. A call receives the top level of attestation (A-level) only if the service provider signing it can identify the end user and attest to their right to use that telephone number for outbound calls.

Broadening STIR/SHAKEN applicability by adding this new functionality arms consumers with increased confidence that the number displayed on their caller ID is from a party with the legitimate right to use the phone number and that phone number has not been "spoofed."

2022 – And Onward

Since the launch of the SHAKEN framework, the ecosystem has grown rapidly and is poised for continued growth in 2022. As more SPs and Resp Orgs participate in the SHAKEN ecosystem, a greater number of calls will be signed. Increasing the number of verified calls benefits consumers. Helping SPs to better assess a caller's right to use the telephone number that is displayed in the caller ID means consumers can answer their phones with greater confidence. The work is serving to address a major industry challenge that had been the leading cause of consumer complaints to the FCC.



ATIS ADDRESSES NON-IP CALL AUTHENTICATION

In 2021, ATIS published a technical report and two standards addressing the challenges of call authentication for calls that traverse TDM networks. The technical report provides a framework to evaluate non-IP call authentication and discusses approaches to accommodate the limitations of call authentication for non-IP systems. These approaches are provided through new standards that rely on either underlying TDM capabilities or alternate IP capabilities. While these standards do not cover all non-IP networks or all service scenarios and additional standards work is required, they are a critical step toward mitigating illegal robocalling for consumers whose calls travel over TDM networks.

As of June 30, 2021, the FCC requires providers of voice services to implement the STIR/SHAKEN authentication framework, created by ATIS and the SIP Forum, in their internet protocol networks. Providers are also required to take reasonable measures to implement an effective call authentication framework in the provider's non-internet protocol (i.e., TDM) networks. One of the new ATIS standards makes an important contribution toward addressing this goal and the other presents an approach to addressing situations where there is TDM in the middle of a call path between IP end points.

Additional standards work on Non-IP Call Authentication continues in 2022. Updated baselines for both ATIS-1000095, *Extending STIR/SHAKEN over TDM*, and ATIS-1000097, *Technical Report on Alternatives for Call Authentication for Non-IP Traffic*, are anticipated to go to letter ballot in 2022.



HEARING AID COMPATIBILITY

Industry leadership advising on requirements to make covered wireless handsets hearing aid compatible

With a long-standing track record serving as a key focal point for ICT industry collaboration with the deaf and hard of hearing community, ATIS is the administrator managing the Hearing Aid Compatibility (HAC) Task Force (TF). The TF brings together key stakeholders to make recommendations to the FCC on its proposed requirement that 100% of covered wireless handsets be hearing aid compatible.

Since inception, the HAC TF has established the body's leadership structure, operating procedures, working groups, and its work plan for initial research projects. The Working Groups (WGs) are:

- WG1 - *Available and Alternative HAC Technologies* established to study available and evolving HAC technologies.
- WG2 - *Consumer Usage of HAC Technologies and Alternatives* to study consumer usage of HAC technologies and alternatives.
- WG3 - *Analysis of Changes to C63.19* to determine the impact on the HAC TF's work.

The Executive Committee (EC) was established in February 2021 to help resolve disputes among TF members and provide guidance on time-sensitive issues arising between Task Force meetings. The TF has also

agreed that the EC would engage in the selection of the third-party market research firm, work to prepare the final HAC TF report, and address Ancillary Topics/Questions. The market research firm Northstar was hired to conduct both the Hearing Aid Consumer and Hearing Health Care Professional Surveys.

WG1 has already compiled data on HAC-rated device offerings and cross-referenced it with hundreds of HAC-rated devices such as wireless handsets with the voice service providers offering those devices and with hearing devices with means of coupling.

With the completion of the Hearing Aid Consumer and Hearing Health Care Professional Surveys, WG2 will work to analyze those results to make a recommendation to the Federal Communications Commission (FCC) as to the achievability of a 100 percent FCC HAC compliance requirement for wireless handsets such as cell phones.

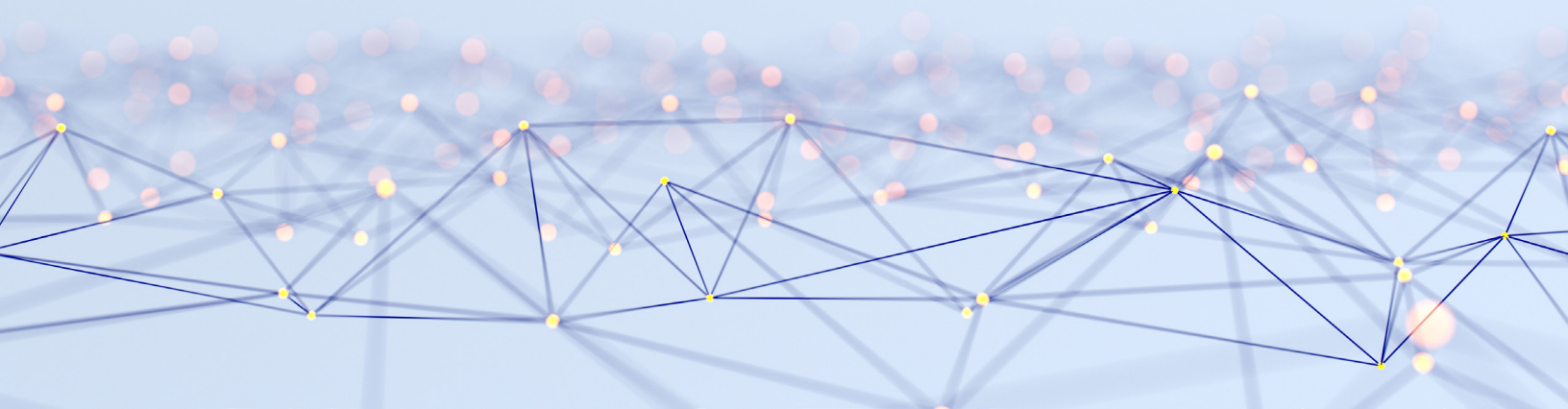
WG3 has begun to collect information on the current status of mobile devices and hearing aids to pass the C63.19-2019 standard, as well as evaluate the final FCC decision on the adoption of C63.19-2019 once it is issued. This data will help the group understand the changes between the 2011 and 2019 versions of the ANSI hearing aid compatibility standards C63.19.

HEARING AID COMPATIBILITY

T A S K F O R C E



STANDARDS AND SOLUTIONS



ATIS Committees and Forums

ACTA



Administrative Council for Terminal Attachments

AIDC



Automatic Identification & Data Capture Committee

ESIF



Emergency Services Interconnection Forum

INC



Industry Numbering Committee

IOC



International Mobile Subscriber Identity Oversight Council

NGIIF



Next Generation Interconnection Interoperability Forum

NRSC



Network Reliability Steering Committee

OBF



Ordering and Billing Forum

PTSC



Packet Technologies and Systems Committee

SNAC



SMS/800 Number Administration Committee

STEP



Sustainability in Telecom: Energy and Protection Committee

SYNC



Synchronization Committee

TMOC



Telecom Management and Operations Committee

WTSC



Wireless Technologies and Systems Committee

EMERGENCY COMMUNICATIONS

In 2020, then FCC Chairman Ajit Pai commended ATIS' progress on the Wireless Emergency Alert (WEA) system and requested the development of best practices to further support the system. ATIS' [Wireless Technologies and Systems Committee](#) agreed to work on the development of WEA best practices. [WEA 3.0 Practical Hints for Alert Originators](#) was published in 2021. The document is being provided to Alert Originators free of charge. ATIS is working with several organizations (i.e., FEMA, NWS, USGS, CalOES, and PBS) to identify companies or organizations that should be targeted.

The WEA system is a critical tool for federal, state and local officials to warn the public about imminent threats. ATIS' WEA standards, among other things, specify a range of permissible values for wireless providers and equipment manufacturers to use as parameters for enhanced WEA geotargeting, particularly when mobile devices are in motion. Chairman Pai had requested that ATIS refine discretionary parameters to further improve enhanced WEA geo-targeting.

ATIS WTSC WEA has completed work on ATIS-0700050, [Wireless Emergency Alert \(WEA\) 3.0 Operational Considerations for Commercial Mobile Service Providers \(CMSPs\)](#), which was published on December 6, 2021. This ATIS document was created for the purpose of presenting information with regard to broadcast channel and core network impacts, device impacts, user experience impact, and other considerations related to the configurable operational settings within the Commercial Mobile Service Provider (CMSP) networks.

The document provides additional information on the purpose of the flexible operational settings and illustrates the advantage to having these operational settings remain flexible. It also describes the expected benefits and/or impacts to the users associated with an increase or decrease in the value settings. The document includes the influencing factors of the Geo-Fencing Wait Time Setting, Repetition Period, Wireless Handset Action (WHAM) Settings, and Current Location settings and includes recommendations based on system design knowledge and ongoing operational experience regarding the balancing of these benefits and impacts.

ATIS' [Wireless Technologies and Systems Committee](#) continues to address new and emerging issues related to WEA.

EMERGENCY PREPAREDNESS AND RESPONSE

As the result of learnings from COVID-19 and other disasters, the [Network Reliability Steering Committee \(NRSC\)](#) published a revised [NRSC Emergency Preparedness and Response Checklist](#). The Checklist supports the industry in its efforts to minimize the impact of a disaster and ensure network stability by presenting recommended actions to be taken to prepare, respond to and recover from a disaster. The update incorporates additional best practices derived from industry response to increasingly common wildfires, hurricanes and other recent disasters.

EMERGENCY SERVICES INTERCONNECTION

The year 2021 marked the publication of several documents by ATIS' Emergency Services Interconnection Forum (ESIF) covering the following areas:

- [Study of SHAKEN Impacts on 9-1-1 Calls and Callback Calls](#)
- [Implementation of 3GPP Common IMS Emergency Procedures for IMS Origination and ESInet/Legacy Selective Router Termination](#)
- [Overview and Operational Considerations Related to the Application of Information Spoofing Mitigation Techniques to 9-1-1 and Callback Calls in an End-State NG9-1-1 Environment](#)
- [Interworking of 2D and 3D Shapes Across Industry Standards](#)

NUMBERING

ATIS' [Industry Numbering Committee \(INC\)](#) continues to update and maintain its standards, including the *Thousands-Block (NPA-NXX-X) & Central Office Code (NPA-NXX) Administration Guidelines*. INC is actively working to update its standards in preparation for the newly combined NANP Administration System.

ORDERING AND BILLING

The [Ordering and Billing Forum \(OBF\)](#) released the [Access Services Ordering Guidelines \(ASOG\) Version 64](#), a major industry operations support resource, in September 2021, which was scheduled for March 2022 implementation. ASOG Version 64 includes a new code to identify delays caused by permit Issues on the Clarification/Notification Request) Form as well as an update to indicate that a Reason Code is only valid before the Access Service Request has been confirmed.

POWER DISTRIBUTION TECHNOLOGIES

The [Sustainability in Telecom: Energy and Protection \(STEP\) Committee](#) published a Technical Report on Fault Managed Power Distribution Technologies – Human Contact Fault Analysis in December 2021. Created through the work of a special STEP Task Force, it establishes a methodology to determine fault managed power system response to various simulated human contact scenarios, such as whether a risk of ventricular

fibrillation exists in powering systems evaluated to the criteria described in the TR. A software-based Random Complex Irregular Waveform Analysis application was created and included with the standard to perform fault current waveform analysis and produce a test result report.

SYNCHRONIZATION

ATIS' [SYNC Committee \(SYNC\)](#) develops and recommends standards and prepares technical reports related to telecommunications network synchronization interfaces. SYNC actively provides input into high-level governmental decision-making regarding timing and sync issues. SYNC continues to monitor activity and policymaking in the GPS and Position, Navigation and Timing (PNT) spaces.

Innovation in synchronization and timing systems makes innovation in a broad range of industries possible: Telecom (e.g., 5G) – Financial Services – Electric Grid/Power – Transportation/Automotive – Industrial Internet-Broadcasting and Multi-Media to name a few.

ATIS' annual [Workshop on Synchronization and Timing Systems \(WSTS\)](#) brings together the leading corporate and government experts to shed light on the diverse and exciting needs for sync and timing innovation across multiple vertical industries. In 2021, WSTS was held virtually and successfully reached more than 550 attendees from 40 countries — making it a premier global sync and timing event.

WSTS 2022 takes place May 9 – 12 in Denver, Colorado. Register at wsts.atis.org.





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