atis UPDATE
Advancing ICT Industry Transformation
Summer 2018

IN THIS ISSUE

PRESIDENT'S MESSAGE

Emerging technologies such as artificial intelligence, distributed ledger, increasingly complex cybersecurity, the 5G evolution and more are transforming the way our industry does business — creating new opportunities for both service providers and their customers. ATIS plays a key role in advancing this industry transformation. In this issue of *ATIS Updates*, you will be learning about some of our most recent initiatives, including:

- ATIS' being selected as the Governance Authority for the industry-led effort for the timely deployment of the SHAKEN/STIR protocol, critical to authenticating telephone calls and a lead priority in industry efforts to mitigate the robocalling problem.
- Our new initiative to leverage distributed ledger/blockchain technology for ICT industry applications.
- Our Connected Vehicle Cybersecurity work, which is bringing ICT industry insight to reducing the threat of cybersecurity breaches in a new world of vehicles connected through the telecommunications network.
- Our work to help service providers leverage advances in artificial intelligence to advance industry transformation.

I hope you enjoy learning about these initiatives. To stay updated on our work's evolution, visit us online at atis.org. Follow us on Twitter at @atisupdates.

Sincerely,

Susan M. Miller
President & CEO

FEATURED INITIATIVES

MITIGATING UNWANTED ROBOCALLING AND CALLER ID SCAMS

Providing critical input to advance industry, FCC and consumer objectives.

Mitigating unwanted robocalling is a top industry priority and ATIS, with the SIP Forum, has been a key driver behind the techniques that are addressing the problem. Reducing the threats posed by unwanted robocalls and illegitimate Caller ID spoofing will require a multi-faceted approach. ATIS is active on several key fronts.

Most recently, we are pleased to announce that ATIS has been selected to establish an industry-led Governance Authority (GA) for STIR/SHAKEN protocols and operational procedures. The SHAKEN, *Signature-based Handling of Asserted Information using toKENs*, protocol (ATIS-1000074) was developed by ATIS and the SIP Forum and is critical to authenticating telephone calls. The FCC directed the Call Authentication Trust Anchor Working Croup (CATA WG) of the North American Numbering Council (NANC) to investigate a variety of issues associated with implementing the STIR SHAKEN system. Among its recommendations, the NANC CATA WG report recommended that industry take the lead in expeditiously selecting a Governance Authority (GA) that will coordinate stakeholders to ensure that telephone calls can be authenticated. In late May, the industry stakeholders agreed to establish this GA under the auspices of ATIS.

ATIS is now convening the initial GA Board, which will consist of representatives from service provider companies and organizations including: ACA, CCA, CTIA, INCOMPAS, NCTA, NTCA, USTelecom, VON, and TEXALTEL/The Western States CLEC Coalition. AT&T and Comcast will be at-large members.

In addition, ATIS and the SIP Forum continue collaborating to produce technical reports that build on the SHAKEN specification:

- The *Technical Report on a Framework for Display of Verified Caller ID* (ATIS-1000081) provides a framework for signaling verified Caller ID information from the network to a User Equipment (UE), and displaying the information on the UE in a uniform manner, independent of technology. The goal is to produce display guidelines that help meet the goals of regulators and consumer protection agencies for empowering consumers with simple and effective information on the displayed Caller ID. This will help consumers know if a call is from who it says it is from so they can make an informed decision on whether to answer. The deployment of verification, as provided for in the STIR/SHAKEN protocol and application of call analytics are expected to occur in stages over an extended period of time, beginning before the end of this year. The operations experience gained from network deployment is expected to provide feedback and input to future updates of the new report. As such, the report is being treated as a living document.
- The *Technical Report on SHAKEN API for a Centralized Signing and Signature Validation Server* (ATIS-1000082) provides additional detail on one possible implementation of the SHAKEN specification in service provider networks. It defines a RESTful interface (API) that can be used in the SHAKEN framework to interface with a centralized server to sign and verify telephony identity for multiple nodes within a network. Implementing SHAKEN authentication and verification functions in a centralized server that can be accessed via an API may enable a more cost-effective network implementation.

To promote service provider adoption of SHAKEN, ATIS has created the ATIS Robocalling Testbed, hosted by the Neustar Trust Lab, which serves as the industry interoperability test facility to validate the effectiveness of SHAKEN as an implementation framework for service providers to better combat robocalls and call spoofing on IP-based networks. Testing is currently ongoing. Initial results will be

provided in the ATIS Testbeds Focus Group report which will be complete by the end of 2Q18. A more detailed report, containing anonymized results, will be published before the end of the year. This information will help support the widespread implementation of the STIR/SHAKEN protocols to address the robocalling problem.

THE INNOVATION AGENDA

A framework for advancing industry transformation.

The ICT industry is at the forefront of information, connectivity and automation – the "Digital Transformation" – and ATIS' Innovation Agenda is advancing it. Our work is helping the industry manage change in a landscape being shaped by a diverse range of drivers. With emerging technologies continually enabling the creation of new products and services, business models and customer expectations are being reinvented. This is leading to process improvements and operational innovation. Industry transformation is also leading to a flatter network, coupled with an expanding horizontal business landscape. New business models leveraging emerging technologies require strong collaboration with vertical industries and Internet platforms (e.g., smart cities, UAVs, connected car). Greater regulatory flexibility is required for transformation in networks and business models.

ATIS' Innovation Agenda provides a framework to address these realities. Most of the work in the "Featured Initiatives" section of the newsletter stems from the Innovation Agenda. As you read this section, it provides a high-level overview of some of the key areas of work that are advancing ICT industry transformation.

BLOCKCHAIN/DISTRIBUTED LEDGER

A new initiative to leverage distributed ledger/ blockchain technology for ICT applications.

Drawing on input from members, ATIS continues to assess major strategic technology trends for areas of opportunity, focusing on technologies that are still in exploratory and developmental phases but have the potential for high industry impact. Distributed ledger technology/blockchain is currently one of the most widely discussed technologies and appears to be a promising decentralized data management framework. Blockchain is a distributed ledger technology that uses strong encryption to record digital transactions or data to provide a transparent and verifiable record of transactions. The core attributes of blockchain's distributed ledger approach help provide data immutability, integrity, fair access, and transparency across the participating ecosystem for all points in a transaction process.

Recognizing the importance of this technology, ATIS launched the Distributed Ledger Technology Initiative on June 6, with the goal of examining the role of this technology in enabling new business models and revenue streams governed through use of smart contracts. By identifying practical examples of applications that can benefit from the technology, ATIS will assess whether a distributed ledger is appropriate for a given use case, undertaking to fully understand the required trust assumptions, application requirements, involved parties and technical characteristics such as throughput and latency. Items also under consideration include the establishment of clear rules for governance; understanding how operations on the ledger relate to the broader regulatory environment; and understanding how to maintain integrity, security, and privacy of the data stored on a ledger.

CONNECTED VEHICLE CYBERSECURITY

Bringing ICT industry insight to reducing the threat of cybersecurity breaches in a new world of vehicles connected through the telecommunications network.

ATIS' collaboration with automobile original equipment manufacturers (OEMs) continues to advance. The initial phase of our C-CAR cybersecurity program generated a detailed white paper laying out a roadmap for an industry-to-industry collaborative cybersecurity program. The report has clearly identified the value that the ICT industry could bring to the table. Ground-breaking in nature, *Improving Vehicle Cybersecurity: ICT Industry Experience and Perspectives* received a great deal of media coverage — not only in the ICT press, but also in auto industry publications. It has been hailed as a blueprint for effective collaboration between the ICT Industry and connected vehicle manufacturers. Since it was published, ATIS has continued garnering support for a joint cybersecurity program between the ICT industry and the Auto OEMs to develop a program that would be beneficial to both industries. An initial component of this work is reaching out to the Auto OEMs and the Automotive Information Sharing & Analysis Center (Auto ISAAC) and educating them on the details of our work. The initial feedback has been universally positive, from companies such as GM. The next step is to establish an active joint program that will define initiatives to directly enhance cybersecurity. Work toward that goal is now underway.

CONTEXT-AWARE IDENTITY MANAGEMENT

Helping service providers leverage the vast wealth of context-aware information to make identifying users and devices (and granting them access to authorized services) easier and more secure.

Launched in 4Q 2017 as an Innovation Agenda initiative, ATIS' Context-Aware Identity Management (CaIdM) work recognizes the near-term intersection of contextual information and robust IdM solutions. The work extends ongoing research and exploration of this topic to the development of a CaIdM architectural framework. It is designed to help network providers and enterprises leverage new opportunities related to CaIdM. It assumes that any CaIdM solution will depend on situational data that enhances the identification, authentication and/or authorization of a user, device or object, and is relevant to a specific application or process.

New techniques and technologies are causing growth in the IoT-based contextual data now available. In fact, Forbes Communications Council noted "Context is the secret to growth for modern businesses." This growth stems from massive expansion in the IoT market size, the number of connected devices and the data they can collect.

ATIS' work seeks to assess the new landscape of applying contextual information to identity management solutions and creating a more robust ecosystem that benefits from the many new sources of context-aware data. The report will include a CaIdM architectural framework that can be built on top of existing IdM infrastructure and a description and functional requirements for a new "context manager" element. A Context-Aware IdM Report is expected in late 3Q18.

THE EVOLUTION OF CONTENT-OPTIMIZED NETWORKS

Providing the essentials for advancing service providers toward the ICN-based network of the future.

In March, ATIS released the *eCON Value Assessment Report: A Comparative Study of ICN Versus Conventional Approaches*. The report is the work of ATIS' Evolution to Content-Optimized Network (eCON) initiative, which is providing solutions to advance service providers in their evolutionary path from today's IP-based routing network to a future network that leverages the increasingly important role of content. The March report provides an in-depth analysis of Information-Centric Networking (ICN)-based solutions as compared to IP-centric architectures from the perspective of a network architect or network

planner. One of the key findings is the recognition that ICN solutions can leverage existing IP core networks and can co-exist in support of many future applications.

In a new era of content-rich applications, such as those that deliver augmented reality and context-aware services, evolving the network to work better with named-content approaches is critical. The *eCON Value Assessment Report* assesses several content-centric use cases that provide a comparative assessment of ICN and IP solutions at both a quantitative and qualitative level. These are then applied to develop a set of early findings that can assist in making informed network evolution choices. The Assessment can be seen as a valuable implementation-level guide to related standards development activities addressing ICN requirements, protocols and architectures. It is ATIS' intent that service providers can use the report to make well-informed, tactical planning decisions and develop their evolutionary strategy to prepare for a new world of sophisticated content and the demands it places on the network. Access the eCON report here.

NETWORK-ENABLED ARTIFICIAL INTELLIGENCE

Advances in artificial intelligence are creating a burgeoning range of possibilities for advancing network transformation. ATIS is helping service providers leverage these technologies.

By applying a cross-operator perspective, ATIS is discovering how sophisticated new AI capabilities can be best used to address some of the leading challenges our industry faces today, and, beyond that, spur innovation. Among other benefits, advanced AI makes it possible to use data gathered from the network to help systems automatically react to changing traffic patterns, faults and other capacity and performance-impacting events in real time. This means higher network performance with less effort on the part of the service provider. To help better understand the role AI can play in the network, ATIS is most recently examining Network Use Cases in the following areas:

- Network security
- Radio access network optimization
- Dynamic traffic and capacity management
- Network resiliency and self-healing
- AI and orchestrated management
- AI-based marketing insights
- AI-assisted customer support and sales
- AI-based content processing and management
- AI-based network optimization

Our work leverages existing developments in the industry while integrating and extending these efforts to create an advanced perspective of telecom-centric AI. The work takes place with an eye toward how industry collaboration can help advance solutions in this area. A report with key insights on these topics is forthcoming in summer 2018.

5G

Advancing new use cases on 5G-enabled services for Enterprise.

ATIS continues to provide the solutions that are fueling the 5G evolution. A 2017 GSMA Intelligence report notes that 89% of mobile service providers see enterprise services as an important area for 5G incremental revenue.

To help them exploit this opportunity, our work in this area has focused on exploring new 5G-enabled services that are both valuable and consumable by the Enterprise.

Specifically, our work is exploring:

- Traffic segmentation and partitioning
- Resource reservation for connection characteristics

- Application prioritization and QoS categorization
- Enterprise control of identity applied to QoS classes and monitoring visibility
- Security for enterprise end points and traffic routing
- Multi-operator Enterprise control through "standard" approaches
- Zero touch provisioning of things

This work includes discussion of Enterprise Neutral Host and Roaming architectures. Discussions addressing current challenges related to these architectures have included use of block chain/ distributed ledger implementation for charging. Work is also underway to determine if any changes to existing standards are required for implementation. Also, a compendium of use cases related to 5G-enabled services for Enterprise will be assembled into a full report examining the current industry roadmap; areas needing additional development; as well as recommended interfaces, APIs and methods.

THE 5G/AI CONVERGENCE

Looking ahead at how these two elements can be co-harnessed for benefit to service provider—as well as examining the broader implications.

ATIS' work in both 5G and AI well positions us to deliver insight into how these two elements will work together. We most recently did so at the 5G North Americas event held May 14-16 in Austin, Texas. ATIS Principal Technologist Jim McEachern delivered a presentation on AI and the 5G Network, noting the challenging management requirements 5G deployments can present:

- Management of dense mmWave 5G deployments with carrier aggregation and adjacent small cell and macro overlays can present new complex challenges
- 5G network expectations for enhanced security (e.g. SPAM and DDoS detection/mitigation, improved identity management), core network optimization, and network reliability with automated fault management and self-healing
- 5G optimized user experience encompassing seamless and mutually beneficial marketing insights as well as in the area of customer care and sales support

AI provides a major opportunity to address these challenges by automating and optimizing all facets of a 5G network. To harness the potential inherent in the 5G/AI convergence, McEachern also addressed ideas for mitigating these challenges, including redundant systems, creating aggregate AI systems that not only create an output but also explain why it is recommended, setting thresholds/limits, decomposing AI systems to separate modules so that intermediate data-points are available for verification and traceability, as well as learning best practices from within the industries as well as other industries, such as self-driving cars and AI stock trading automation. Thus, complex AI solutions will likely be systems composed of AI components that address the concerns/mitigations outlined here and provide a means for understanding outputs.

ATIS also notes that in light of the sea change on the horizon, government should play a role in helping society transition as AI emerges, including training the workforce to have the right skills as well as providing federal funding for basic scientific research and addressing displaced workers' needs. Partnering with industry, government can set up guidelines to encourage ethical deployment of AI and to prevent usage that would hurt the public. AI will not reach its potential in closed systems that receive an input and produce an output, but offer no explanation as to why or how decisions are made.

SMART CITIES

Delivering a data platform to help cities manage and monetize their data into the future while securing the network and devices.

In February, ATIS announced release of its *Data Sharing Framework for Smart Cities*, which provides recommendations to help Smart Cities develop the robust data sharing ecosystem needed to deliver value from their Smart Cities data. The release marks the launch of an ATIS initiative to engage cities, towns, counties or municipalities of any size in exploring and collaborating to learn how to use the Framework to realize the opportunities inherent in the data they are generating. The Framework was set into motion by an initial analysis, *ATIS Smart Cities Technology Roadmap*, that found, among other things, that Smart Cities data management platforms can collectively create value, but interworking of data beyond city boundaries will be a formidable challenge as Smart Cities solutions expand in the future.

Rapidly evolving Smart Cities technology is increasing the potential value that cities can gain from data sharing. If they are to reap these benefits, they will need a consistent approach to fully leverage the value of their data. This is what the Data Sharing Framework provides. It recognizes that data sharing is an evolutionary process. Most cities will initially focus on a set of first mover applications, open data portals and improvements to city efficiency. Static data will be progressively replaced with more dynamic real-time data. Smart Cities will expand to Smart Regions. Increasingly, cities will need to share data across other Smart City ecosystems and with state and federal government entities. Eventually, the focus will shift to sharing data and creating value with citizens and application developers. This will involve awareness of data file formatting, real-time analytics, privacy, ownership, and monetization – and the new Data Sharing Framework helps with all of this. At this critical juncture, cities and industry have a unique opportunity to collaborate and develop consistent approaches to exchanging, interworking and creating value from data.

ATIS is now working to engage cities to discuss the framework and explore collaborative next steps with cities, counties or municipalities of any size. For more information on this work, please contact Mike Nawrocki (mnawrocki@atis.org).

UNMANNED AERIAL VEHICLES

Advancing an emerging technology with important roles in operational and infrastructure aspects of communications.

In 2017, ATIS developed a key industry analysis. addressing how mobile cellular networks and services are essential to advancing adoption of unmanned aerial vehicles (UAVs) or "drones." The report showed the ways in which information and communications technology (ICT) boosts UAV performance, reliability and safe operation. This work is timely as UAVs are used for an increasing diversity of purposes including package deliveries, public safety surveillance, agricultural applications and many more. As the number of drones in the air and their flying time increases, safety, security and privacy concerns are coming to light. ATIS' report also addressed these.

Not only are networks supporting drone use, but drones are also being used for many different purposes in our industry. These include providing cellular coverage after outages, boosting coverage during large events, inspection of critical infrastructure including cell towers and more.

At the March ATIS Board of Directors meeting, the Board received a report from Alphabet, Google's parent company, on its Project Loon, which is using high-altitude balloons for disaster recovery as recently demonstrated in Puerto Rico after hurricane Maria. After major damage to ground-based communications infrastructure in Puerto Rico, Project Loon and other UAV-based solutions played an important role in providing temporary communication solutions. Building on this experience, ATIS has initiated work on a report "Use of UAVs for Restoring Communications in

Emergency Situations." This report will be useful to emergency planners and organizations that provide UAV-based communication services during disasters to assist with preparation and execution of disaster recovery.

TECHNOLOGY AND OPERATIONS COUNCIL INITIATIVES

OS-IOT

Bringing the power of oneM2M to lightweight applications.

In May, ATIS announced that it has successfully demonstrated devices using its OS-IoT Software accessing cloud-based oneM2M standard services over the public LTE network. This means the OS-IoT open source client platform is now available to allow lightweight devices to access oneM2M IoT clouds without having to run full oneM2M database and routing functions. The global oneM2M standard defines a common, interoperable, platform for IoT systems, providing application-independent building blocks that fulfill core tasks of secure data collection, management and distribution.

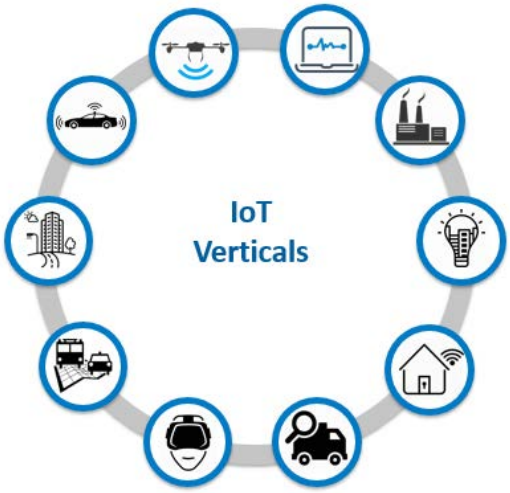
This milestone is important as oneM2M already has interworking to multiple other IoT technologies and transport technologies and is now being used successfully in a number of industrial and consumer applications in the areas of Smart Cities, eHealth and the Smart Grid. However, until ATIS developed OS-IoT, no open source lightweight client platform existed to bring the power of oneM2M to smaller scale applications. Now with OS-IoT and oneM2M successfully interworking, oneM2M benefits can be brought to a burgeoning market of developers and innovations in the areas of wearables, low-cost environmental monitors and smart metering to name just a few. OS-IoT simplifies development of oneM2M support for the many IoT devices that need to meet aggressive targets for device cost and power consumption. ATIS provides test cases and extensive documentation of the library at https://www.os-iot.org.

IOT CATEGORIZATION

Examining the IoT from a network-centric perspective.

Growth in the IoT ecosystem — in terms of the number of connected devices globally and in total spending on end-point devices and services — is driving a range of new uses, and this is creating new network infrastructure requirements. ATIS is helping the ICT industry better understand these through our IoT Categorization (IoT Cat) initiative.

Existing IoT initiatives take an application-centric approach, often from the perspective of a single application or industry vertical. IoT Cat takes a broader approach, examining the IoT from a network-centric perspective. The goal is to determine an effective way to categorize the IoT into a small number of "categories" with similar requirements from a network/platform perspective. These are both based on device types, applications, services, or a combination of these, considering business, technology and regulatory implications. Ultimately, these categories will provide a basis to identify specific network capabilities, enhancements and requirements to support a robust IoT network platform.



The analysis considers a broad range of devices, and for each application, examines device

characteristics including E2E latency, jitter, data rate, availability, reliability, mobility and many more. Industry vertical references are used where available. Some of the application groups to be examined include Smart Cities, Smart Energy, Intelligent Transportation Systems, Industrial Automation, Smart Health and Wellness, Unmanned Aerial Vehicles, Public Safety, Entertainment, and Asset Management.

ATIS will share the classification system that is developed with appropriate industry vertical organizations. Feedback gained will be integrated into a final analysis targeted for 4Q18, with follow-on activity to be determined from there. Learn more.

SOLUTIONS AND STANDARDS

EMERGENCY SERVICES COMMUNICATION

Advancing The Interworking Of Public Safety Mission Critical Communications

A joint initiative advancing the goal of preparing our public safety communications for the future.

- The public safety community in the United States is made up of more than 60,000 independent agencies and organizations. For decades, these organizations have built a Push to Talk (PTT) voice capability leveraging Land Mobile Radio (LMR) technology for their mission critical voice needs. Estimates of the capital value of these LMR assets are often in the billions of dollars. As the public safety community continues to build a nationwide broadband capability using 3GPP's technology, it will be more important than ever to protect the capital investment these public safety agencies have made in LMR by creating a capability allowing mission critical PTT voice and associated supplementary service communications between Public Safety LMR networks and the Nationwide Public Safety Broadband Network (NPSBN). A recently launched joint ATIS/TIA initiative will develop a standards-based solution that will provide a Public Safety Mission Critical communication interworking service between subscriber units operating on Public Safety TIA-102 (P25) LMR systems and conventional mutual channels, and subscriber units operating on the NPSBN.
- The goal is to create a broadband public safety system that interoperates with older systems that may continue to operate for 5, 10, 15 years or more. A joint ATIS/TIA specification(s) on use cases, requirements, architecture, call/message flows, and implementation guidelines will be developed. These will define interworking of standard interfaces for published or future LMR standards to the 3GPP interworking specifications. The joint activity will coordinate with 3GPP and TIA committees to identify and address problems and evolve standards as needed.

Advancing a National Emergency Address Database

New contributions to help 9-1-1 call centers respond to emergencies.

In 2016, CTIA established the National Emergency Address Database (NEAD) LLC to implement a national database of access point (e.g., Wi-Fi hotspots) and beacon (e.g., Bluetooth Low Energy) location information that will enable wireless service providers to deliver a dispatchable location that will help Public Safety Answering Points (PSAPs) or 9-1-1 call centers respond to emergencies. The NEAD platform will be implemented using ATIS standards. ATIS is working with the NEAD LLC to advance the build-out of this critical resource for providing lifesaving dispatchable location information.

As one of the standards developed to advance the NEAD, in 2016, ATIS released *Location Accuracy Improvements for Emergency Calls* (ATIS-0700028 v1.1), which defined the architecture and requirements for the build out of the NEAD. To advance this work, ATIS is most recently finalizing the *Guidelines for Emergency Call Location Selection*

and Reporting by Originating Networks (ATIS-0700039). The new standard provides guidelines on the acquisition and derivation of Heightened Accuracy Location Information (HALI) related to an emergency call, as applicable to ATIS-0700028 v1.1. As defined in ATIS-0700028v1.1, HALI may include one or more of a Dispatchable Location, a geodetic location, details on source position methods that were used to obtain a geodetic location, and uncompensated barometric pressure. The purpose of this standard is to assist vendors and Commercial Mobile Radio Service (CMRS) providers in developing and deploying systems to support HALI delivery to PSAPs.

NRSC Task Force Announces New Resource to Notify PSAPs Of Outages

The product of a collaborative effort to get vital information to a Public Safety Answering Point in the rare event of an outage.

ATIS' Network Reliability Steering Committee (NRSC), in conjunction with the Association of Public-Safety Communications Officials (APCO), the National Association of State 911 Administrators (NASNA), and the National Emergency Number Association (NENA) recently completed the first deliverable from a joint initiative to improve Public Safety Answering Point (PSAP) notification in the event of a service outage. *Service Providers: Outage Reporting Structure and Potential Types of 9-1-1 Outages* provides recommendations for standardized content and delivery which will help reduce confusion associated with notifications independent of the service provider type. This resource presents consensus-driven expert insight to help service providers and Public Safety organizations communicate critical information in the rare event that an outage occurs. The template and definitions contained within are the product of a task force that includes representation from carriers, third-party providers, 9-1-1 industry associations, and the PSAP community.

Advancing the Wireless Emergency Alert System

Continued innovation on a life-saving alert system.

The Federal Communications Commission (FCC) is considering creating rules to specify technical requirements for enabling multimedia content in Wireless Emergency Alert (WEA) messages. In the 2016 WEA Report and Order and Further Notice of Proposed Rulemaking (WEA R&O and FNPRM), the Commission recognized that additional standards development remains necessary to achieve this goal. ATIS is providing input to update the record on the feasibility of including this form of content in WEA messages.

Since the release of the WEA R&O and FNPRM, the FCC has taken measures to strengthen WEA as a tool for emergency managers to communicate with the public. ATIS has been a major contributor to the efforts to ensure the WEA system meets its required goals. This work has delivered results in areas such as improving the accuracy with which WEA messages are geo-targeted; supporting the inclusion of embedded references (i.e. URLs and phone numbers) in WEA messages; and supporting longer WEA alerts, with the maximum Alert Message length increasing from 90 to 360 characters for 4G LTE and future networks. If the new multimedia requirements move forward, ATIS is prepared to take part in enabling this innovation.

NUMBERING

Numbering Portability

Understanding what is needed to enable the ability to port an E. 164 geographic telephone number beyond current limits to any area in the nation.

The FCC asked the industry and the North American Numbering Council (NANC) to determine what changes to existing infrastructure and procedures are required to permit users to port an E. 164 geographic telephone number beyond current limits to any area in the nation.

In response, ATIS PTSC issued its *Technical Report on a Nationwide Number Portability Study* (ATIS-1000071) in July 2016. In November 2017, the FCC released a Notice of Proposed Rulemaking to seek comment on how to advance complete Nationwide Number Portability (NNP). Emphasis was placed on promoting competition between all service providers and encouraging efficient call routing. In November 2017, the FCC Commissioner announced the re-chartered NANC and identified the working groups. In February 2018, NANC's NNP Issues Working Group (WG) membership was named and meetings were convened. The FCC sought recommendations in several key areas from the NANC NNP Issues WG.

To address these, most recently, ATIS PTSC developed a *Technical Report on Assessment of Nationwide Number Portability* to provide further technical assessment of the potential approaches to NNP as they were identified in the initial study (ATIS-1000071). The new Report includes a deeper analysis of the previously identified potential NNP solutions with the goal of providing additional information on the technical and systems-related impacts needed to support NNP. It also identifies any new standards or changes to existing standards/solutions that would be necessary to implement NNP, as well as implications for existing networks, in particular circuit-switched networks. PTSC has shared the progress of its Report to NANC's NNP Issues WG. The Report is currently in the approval process and will be published as ATIS-1000083.

Streamlining Key Industry Numbering Resources

Combining two major industry resources and making them easier for end users to understand.

ATIS' Industry Numbering Committee (INC) is combining the *Central Office Code (NXX) Assignment Guidelines (COCAG)* (ATIS-0300051) and the *Thousands-Block Number (NXX-X) Pooling Administration Guidelines (TBPAG)* ATIS-0300066. This combination streamlines the Guidelines for obtaining numbering resources, making them more user friendly. INC created the Central Office Code (NXX) Assignment Guidelines in the 1990s during the transition of central office administration to the NANPA under FCC contract, and then created the Thousands-Block (NXX-X) Administration Guidelines also in the 1990s, when the FCC mandated thousands-block pooling. The INC has continued to maintain the two sets of Guidelines to address the processes for the separate NANP resources due to the different assignment procedures, different timelines, and different Number Administrators contracted by the FCC.

Although there are separate processes for central office codes versus thousands-blocks, there are also many similarities in administration and there are also processes that involve both codes and blocks. The INC has been discussing the administrative efficiencies that would be gained by combining the two sets of Guidelines and reached consensus to move forward with the combination of the COCAG and TBPAG. The draft combined Guidelines are anticipated to be complete this July.

2D BAR CODE TECHNOLOGY

Seeking industry input to advance innovation of 2D product labeling.

In April, ATIS' Automatic Identification & Data Capture (AIDC) Committee issued a survey on the use of 2D bar code symbols, which was sent to ICT industry personnel who may have a vested interest in the information to be contained within a 2D bar code symbol. 2D product labeling has been in place for ten years. AIDC is currently considering expanding the use of a 2D symbol and re-evaluating what data should be standardized in the 2D symbol. The intention is to further enhance data for Enterprise Resource Planning (ERP) systems. The confidential survey results will facilitate AIDC's review of these issues.

NEWS

ANNOUNCING THE 2018 ATIS AWARD WINNERS

On May 1, during the 2018 ATIS Annual Meeting of the Committees Member Recognition Luncheon, ATIS announced the recipients of its 2018 Annual Awards. The event took place as part of ATIS' Annual Meeting of Committees in Kansas City, MO. Seven technology leaders and industry subject matter experts were acknowledged for their critical contributions to information and communications technology (ICT) solutions development in support of ATIS' strategic initiatives.

Awards were presented in three categories: the ATIS President's Award, Leadership and Achievement.

Peter Musgrove of AT&T received the ATIS President's Award for years of leadership in the development of critical ATIS Wireless Technologies and Systems Committee (WTSC) standards, specifically, ATIS' work in originating and evolving the Wireless Emergency Alert (WEA) system.

The Award for Leadership is given to a leader whose vision and leadership over the past 12 months resulted in the timely creation of one or more of ATIS' industry solutions. This year, **Andy Gormley** of **T-Mobile USA** received the award for his work as the Chair of the Network Reliability Steering Committee, which addressed network reliability, 9-1-1 outage notifications, industry Best Practices, and preparation for and response to natural disasters.

Five individuals received an ATIS Achievement Award. This award is presented to those who provided crucial contributions to the completion of ATIS solutions and standards during the past year. The 2018 recipients are: **Tara Farquhar** of **Neustar**, **Letty Walker** of **CenturyLink**, **Ryan Jensen** of **T-Mobile USA, Mary Barnes** of **iconectiv** and **Greg Schumacher** of **Sprint**.

Learn more.

ATIS APPLAUDS AT&T'S DON ZELMER ON RECEIVING THE 3GPP LIFETIME ACHIEVEMENT AWARD

ATIS congratulates Don Zelmer, Principal Engineer, AT&T, for receiving a 3GPP Lifetime Achievement Award. ATIS nominated Zelmer for the award, which was given for his unparalleled perseverance and commitment to the work of 3GPP and ATIS' Wireless Technologies and Systems Committee (WTSC), which is a primary North American driver into 3GPP.

A participant in 3GPP since its inception, Zelmer has served as Rapporteur for several study and work items, including RAN work on Public Warning Systems, future FDD HSPA Evolution and for the introduction of the UMTS850 (Band V) into 3GPP specifications. He has served as Vice Chair of 3GPP TSG RAN (1999-2009) and now attends TSG RAN and RAN WG#2 as a lead AT&T delegate. Don regularly attends the 3GPP Project Coordination Group and Organizational Partner's meetings as a member of the ATIS delegation.

In addition to his leadership in 3GPP, Don has served as Chair of ATIS' WTSC, as well as its subcommittees. In nominating Zelmer for this prestigious award, ATIS noted that in both his 3GPP and ATIS work, he is a role model and mentor who generously has given support to all comers and ensured that all partners and members are treated with respect, equality and fairness.

ATIS WELCOMES CARROLL GRAY-PRESTON

ATIS is pleased to announce that Carroll Gray-Preston has joined the organization. Gray-Preston is an experienced information and communications technology (ICT) industry veteran with a track record spanning more than 22 years. Before joining ATIS, she served as VP of Strategic Operations and Customer Success at GENBAND (Nortel Networks). Her expertise spans Agile methodologies, platform and product strategy, cultural change and critical launch strategies. She holds patents in the areas of Multimedia Services and IP Interconnect.

At ATIS, Gray-Preston is leading a new IoT categorization initiative that is examining the multidimensional landscape of IoT across devices, applications, subscription type, technology, regulatory and market drivers to identify specific network capabilities and enhancements required for support of a robust IoT network platform. She is also overseeing the ATIS NFV initiative, having recently published the report *NFV Infrastructure Metrics for Monitoring Virtualized Network Deployments*, a resource for service providers who want to deploy a virtualized network and better manage it. Additionally, Gray-Preston is taking a key role in the ideation and development of ATIS Innovation Agenda priorities.

ATIS EVENTS

TIMING SECURITY: MITIGATING THREATS IN A CHANGING LANDSCAPE

The GPS system's vulnerability to jamming, spoofing and system problems poses a huge threat to the timing systems that are a critical part of our communications networks. Although highly reliable, GPS' dependability is also a drawback: many companies do not have back-ups for when the system goes down. Any form of failure can be catastrophic. But these threats can be mitigated. ATIS held a webinar on this topic on May 22. The webinar is now available for on-demand viewing.

WSTS 2018: NORTH AMERICA'S PREMIER TIMING AND SYNC EVENT

June 18-21, 2018
San Jose, CA

The 27th Annual Workshop on Synchronization and Timing Systems (WSTS), sponsored by NIST and ATIS, will take place June 18-21, 2018 in San Jose, CA. WSTS is a vendor-neutral technology workshop that addresses evolving sync requirements, as well as the roll-out of new sync systems and standards and their impact on industries and equipment manufacturers. The event builds on ATIS' positioning as an industry knowledge leader in the area of GPS and timing services. Learn more at atis.org/wsts.

INDUSTRY EVENTS

ISE EXPO

August 14 - 16, 2018
Denver, Colorado

Must See Session:
Learn the Latest in Surge Protection Technologies, Standards and Applications

Speaker:

- Jim Pelegris
  ATIS PEG Conference Chair

Visit website

IIT RTC CONFERENCE AND EXPO

October 13 - 14, 2018
Chicago, Illinois

The IIT RTC Conference and Expo is a globally recognized collaborative event, where industry and academia connect. Leveraging its unique academic setting, this annual conference brings together technical professionals and business executives from the data and telecommunications industry, standards bodies, policy and regulatory institutions, and academic educators and researchers to promote an open exchange of ideas to lead future development in the rapidly changing field of real-time communications.

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