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### ATIS EVENTS

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## PRESIDENT'S MESSAGE

ATIS helps the industry tackle some of its most formidable challenges, and this issue of *ATIS Updates* gets you up to speed on some of our recent initiatives. Much is happening in areas spanning network-enabled artificial intelligence, connected vehicle cybersecurity, context-aware identity management and more. Beyond these topics, results have recently been delivered in the areas of:



- *Smart Cities*. In early March, we published the [Smart Cities Data Sharing Framework](#) which provides recommendations to help cities of all sizes develop the robust data sharing ecosystem needed to deliver value from their Smart Cities data.
- *Robocalling*. Most recently, ATIS is serving a key role in the FCC Caller Authentication and Trust Anchor Working Group. We are also involving a growing number of companies in interop testing for the SHAKEN protocol.
- *Open Source Solutions*. Our work is delivering security enhancements that help IoT app developers more easily connect their products to the open, interoperable oneM2M ecosystem.
- *Wireless Emergency Alerts (WEA)*. Enhancing WEA capabilities to improve the accuracy with which emergency managers can geographically target the delivery of WEA Messages.
- *Number Portability*. Helping to remove the barriers to nationwide number portability.

Inside this issue, you will learn more about these exciting initiatives as well as have a glimpse of more of our innovative work that is on the horizon.

Sincerely,

Susan M. Miller  
President & CEO

## FEATURED INITIATIVES

ATIS' Board-driven Innovation Agenda is what sets many of ATIS' initiatives into motion. These priorities are addressing the ICT industry's latest imperatives and helping to advance the industry's transformation.

### SMART CITIES

*Giving cities the data-sharing platform needed to derive smart value from their Smart Cities data.*

In early March, ATIS announced release of the [ATIS 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.

For cities to achieve a return on their Smart Cities technology investments, and for the data they collect to deliver value to citizens, data must be shared securely among governments and trusted agencies as well as with the commercial sector and application developers. Yet, this sharing capability is not currently an integral part of most cities' data platforms. Platforms being designed today will need to meet future demands of real-time applications, data ownership issues, privacy and secure data exchange. ATIS' Data Sharing Framework sets forth a much-needed evolutionary path to help cities move beyond managing data to working within a comprehensive data sharing model. A smart sharing strategy is essential to the development of data exchanges and marketplaces, to promote public- and private-



sector application development, and ultimately to create opportunities for data monetization for cities. [Learn more](#) about the *ATIS Smart Cities Data Sharing Framework*.

### NETWORK-ENABLED ARTIFICIAL INTELLIGENCE

*Advances in artificial intelligence are creating a burgeoning range of new network applications, and a new ATIS initiative will help service providers leverage these technologies to create a more efficient network.*

Throughout the ICT industry, there is much excitement on how machine learning and cognitive processing are advancing network transformation. 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 is making it possible to use data gathered from the network to help systems automatically react to changing traffic patterns, faults and other capacity and performance-affecting events in real time. This means higher network performance with less effort on the part of the service provider. Self-healing systems, for instance, save providers on the effort of having to perform time-consuming manual network engineering, and service providers are just learning how to apply these capabilities. In addition to the benefits of machine learning, ATIS' work will advance industry knowledge on the most powerful ways AI can be applied, for instance, to improve customer care, security and network performance.

ATIS' work is critical as AI applications differ substantially from traditional network applications with respect to how these applications are managed. Traditional network operations processes and systems are specifically designed to manage traditional services that apply well-defined rules (requirements) on structured data to produce a deterministic result with efficiency and high-capacity/performance. The existing network infrastructure is generally purpose-built software



providing a specified function with well-defined features. Feature integration and testing tools and methods are well-understood. However, AI applications will leverage “intelligent”/cognitive reasoning capabilities applied to unstructured information where problems may be ill-defined, and solutions probabilistic.

Unlike traditional network functions, AI technologies will utilize both supervised and non-supervised machine learning to acquire new features, functions and capabilities (rather than relying on software and hardware updates). As such, new processes and tools will be required to deploy, train and manage these new AI systems. This ATIS initiative will make a valuable contribution toward furthering industry understanding of factors such as these, with the goal of advancing the benefits of a new world of AI-enabled networks.

## **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.*

In November, ATIS launched a new initiative on Context-Aware Identity Management to help 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. Context-aware information refers to dynamic situational data such as location, proximity, environment, access network type, user profile and more. Identity management (IdM) refers to how service providers identify, authenticate and provide users and devices access to a range of services they are authorized to use. ATIS brings the two together to shed light on how the increasing wealth of context-aware information made available to networks can position service providers and enterprises to develop increasingly sophisticated IdM capabilities.

Today, there are a myriad of approaches to

apply Identity Management (IdM) across the ICT sector and the many vertical industries that are expected to intersect with ICT in the future. In its simplest form, identity management authorizes an individual to gain access to a prescribed set of resources that are deemed allowable based on a granted set of privileges. While IdM continues to evolve in the marketplace, most recently focusing on biometrics, it is expected that the availability of contextual information in the future will provide a more robust means to identify, authenticate, and authorize users in a content rich environment. Of particular significance is the growing need for contextual information to support authorization, as the granting of specific privileges and roles will become more dynamic, buoyed by real-time contextual data.

Bringing context to current identity management methods delivers an incredible form of intelligence to current network capabilities. Looking ahead we see huge increases in new sources of contextual information, which makes ATIS' work in this area timely. While much research on context-aware services exists, ATIS is taking it to the next level. Our goal is to not only spur innovation in identity management, but also to learn how context-based identity can be enhanced by factors including analytics and artificial intelligence.

A Context-Aware IdM Report is expected in early 3Q18. [Learn more.](#)

## **CONNECTED VEHICLE CYBERSECURITY**

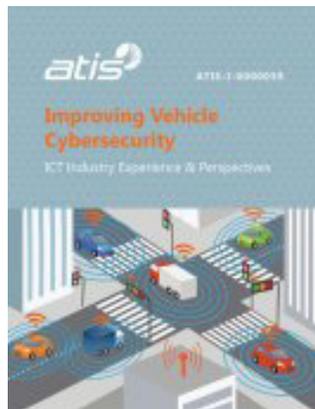
*Reducing the threat of cybersecurity breaches in a new world of vehicles connected through the telecommunications network.*

In 2016, ATIS launched a strategic alliance with the Automotive Information Sharing and Analysis Center (Auto-ISAC) as part of an initiative to bring the ICT industry and the auto industry together to advance connected vehicle cybersecurity. ATIS understood that when it comes to cybersecurity, critical industry-to-industry coordination should not be addressed as an afterthought. ATIS recognized it could offer automobile original

equipment manufacturers (OEMs) the benefit of our industry's extensive experience with cybersecurity best practices and security services. These could be provided by the "network as a platform" to the "connected car as a platform."

ATIS set to work assessing the communications paths to the connected car, developing a cybersecurity threat model, and identifying potential solutions, including network services, that could be offered by the ICT industry. An important objective of this work was to support an industry-to-industry dialogue that could define a set of cybersecurity requirements that would apply to all ICT interfaces to the vehicle ecosystem. In 2017, a report was developed from this analysis, [Improving Vehicle Cybersecurity: ICT Industry Experience and Perspectives](#). Groundbreaking in nature, it received a great deal of media coverage — not only in the ICT press, but also in auto industry publications — and was hailed as a blueprint for effective collaboration between the ICT Industry and connected vehicle manufacturers.

The report's release and the positive feedback received from Auto OEMs place ATIS in a strategic position to advance its Connected Car Initiative. We are currently in discussions with automotive OEMs to initiate phase 2 of our activity, to develop a coordinated ICT/Auto OEM industry position on cybersecurity. The next step will be direct discussions between OEMs and ATIS' ICT members to refine the scope and align objectives from an industry perspective, initiating a formal joint initiative.



## UNMANNED AERIAL VEHICLES

*Exploring the synergy between UAVs and mobile cellular services.*

When ATIS' initiative on unmanned aerial vehicles (UAVs) launched in 2017, its initial focus was on low-altitude, light-weight UAVs. Group participants provided summaries of their respective companies' use of drones for internal and external business needs to help identify the enablers and solutions for cellular-as-a-drone communications technology. The field testing summaries provided important data characterizing the ability of existing cellular networks to offer communications services to UAVs. The group started developing a baseline report identifying areas where cellular services can provide important functionality to support UAV command and control.

When published, the report focused on the value delivered by cellular services to a range of UAV applications. In addition to providing communication services, the cellular network can provide other valuable services such as identification and corroboration of GPS location information, an area of high interest in meeting regulatory needs. This report has also been shared with external bodies. A particular focus for external collaboration is the Society of Automotive Engineer's AIR6388, Remote Identification and Interrogation of Unmanned Aerial Systems group, which is providing technical solutions to areas of regulatory concern for UAVs.

ATIS' UAV initiative is now continuing its work to ensure regulatory requirements for UAVs in the North American region are considered during the work to standardize enhancements for support of UAVs in cellular networks. The initiative is also considering new technical areas that will be studied in a second phase of work, such as the provision of communication services from UAVs. This topic considers both high-altitude UAVs as well as low-altitude applications. [Learn more](#) about the UAV initiative.

## 5G

*Harnessing the power of new 5G core capabilities.*



New 5G Core capabilities related to Network Slicing, QoS, Policy and Authentication all provide opportunities for new, value added Enterprises services. The ATIS 5G Ad Hoc group's recent work is investigating ways in which 5G Core network enhancements can be leveraged to enable new Enterprise services. Results from this work are expected in the second quarter of this year. Read ATIS' recent blog post, "[Innovations in 5G Core.](#)"

### **MITIGATING UNWANTED ROBOCALLING AND CALLER ID SCAMS**

*Providing critical input to advance industry and FCC objectives.*

In December 2017, the FCC established a working group to address the "root of trust" aspects of mitigating unwanted robocalling and caller ID scams. ATIS has been asked to serve as leadership of the group, which specifically addresses the mechanism for establishing the Caller Authentication and Trust Anchor (CATA).

The CATA Working Group (WG) finds its origins in an FCC Notice of Inquiry (NOI) on deploying a call authentication system based on the SHAKEN and STIR standards. Such a system would ensure that calls can be cryptographically verified and properly attributed to their callers. (ATIS, jointly with the SIP Forum, developed the "Signature-based Handling of Asserted information using toKENs" (SHAKEN) protocol as an implementation framework leveraging the IETF's STIR protocol to help service providers better combat robocalls and call spoofing on IP-based networks.) The purpose of the "Call Authentication Trust Anchor" is to ensure the integrity of the ecosystem defined by SHAKEN.

CATA WG's scope also addresses the criteria for selecting the governance authority (GA) for issuing cryptographic certificates, and defining the governance rules and procedures executed on behalf of the GA. The FCC has requested that the North American Numbering Council (NANC) recommend the criteria by which any potential GA (including ATIS, the Commission, or a working group of the NANC) should be selected, timelines and milestones for adoption, and the means for meeting them to advance the use of SHAKEN/STIR. ATIS has expressed it is willing to act as this authority.

ATIS presented to the CATA WG on this topic on February 15 to: 1) provide an update on industry efforts to create the ecosystem necessary to facilitate the implementation of SHAKEN; 2) put the selection of the GA in the context of the overall SHAKEN ecosystem; and 3) outline possible criteria for selection of governance authority and possible governance model implementations. The NANC will make its CATA recommendations to the FCC on May 7.

ATIS continues to support the development of SHAKEN through the ATIS/Neustar SHAKEN testbed. As widescale deployment of SHAKEN approaches, industry interest continues to grow. Four companies have completed SHAKEN interoperability testing, five are in the process of testing, and more than 20 companies have signed up for future testing.

## **TECHNOLOGY AND OPERATIONS COUNCIL INITIATIVES**

### **IOT CATEGORIZATION**

*A critical industry initiative examining the IoT from a network-centric perspective.*

Burgeoning 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 wide range of new uses,



and these create new network infrastructure requirements. Several recent industry initiatives have examined the main features of IoT verticals to better understand the requirements posed by each. This work is instrumental in identifying design features relevant to the standardization of 5G.

In late 2017, ATIS started an initiative that is much broader in scope than simply examining verticals. Existing IoT initiatives take an application-centric approach, often from the perspective of a single application or industry vertical. This is a useful strategy to provide focus in an emerging market, but it doesn't help service providers trying to build networks that support a full range of IoT devices and services.

ATIS is examining IoT from a network-centric perspective to determine an effective way to categorize IoT into a small number of meaningful categories. These categories could be based on device types, applications, services, or a combination of these. Business, technology and regulatory implications will then be assessed for each. The intent is to use the categories as the basis to identify specific network capabilities, enhancements and requirements (e.g., network slices) needed to support a robust IoT network platform. [Learn more](#) about the IoT Categorization initiative.

## NFV

*Helping service providers ensure visibility into real-time metrics key to get maximum return from their virtualized network deployments.*

NFV and SDN are delivering service providers an opportunity for great gains in terms of time-to-market flexibility and agility when it comes to service delivery. A report published in January culminates a recent ATIS initiative to show how service providers can more readily achieve these gains by ensuring visibility into real-time metrics key to managing their virtualized network deployments. *NFV Infrastructure Metrics for Virtualized Network Deployments* provides

insight into how examining the right metrics/ key performance indicators (KPIs) can help communications service providers more effectively put advanced network virtualization technologies into action in the network. The acceleration in NFV and SDN innovation is helping service providers more efficiently deploy a range of network functions and applications across cloud, mobility, enterprise, as well as core and edge network services. Addressing compute, network and storage metrics, *NFV Infrastructure Metrics for Virtualized Network Deployments* is an ideal reference for service providers who want to deploy and efficiently manage virtualized solutions. Access [NFV Infrastructure Metrics for Virtualized Network Deployments](#) in the ATIS White Paper Center.

## OS-IOT

*Security enhancements to this software library, which is helping IoT app developers more easily connect their products to the open, interoperable oneM2M ecosystem.*

Building on the findings of the TOPS Council oneM2M Open Source Community Landscape Team (OOSC-LT), the OS-IoT initiative is developing an open-source, lightweight, client library to enhance the adoption of oneM2M across the industry. oneM2M develops technical specifications which address the need for a common M2M Service Layer that can be readily embedded within various hardware and software and relied upon to connect the myriad of devices in the field with M2M application servers worldwide.

The initial version of the OS-IoT library and test application has been publicly distributed and a web site providing access and documentation created. The library provides a simple API that enables IoT applications to interact with the oneM2M infrastructure using a resource-based model. By using it, developers gain considerable leverage in implementing oneM2M compatible IoT devices leading to a reduction in development



costs and faster time to market. The library has been successfully integrated with four oneM2M servers (OM2M, IoTDM, the Interdigital [Chordant Platform™](#) and IoT Ocean Mobius) to maximize interoperability of applications.

The OS-IoT group is now addressing enhancements to the library with a particular focus on adding security support, in addition to promoting the library to the industry. It also has initiated collaboration with the Open Connectivity Foundation (OCF) with the aim of demonstrating an open source implementation of seamless interworking between oneM2M and OCF models for IoT devices. View the demo and learn more about OS-IoT at <https://www.os-iot.org>.

## SOLUTIONS AND STANDARDS

### ATIS ENHANCES THE WIRELESS EMERGENCY ALERT SYSTEM

*Ensuring that only those affected by a natural disaster receive WEA messages.*

A recent FCC Report and Order (R&O) has been issued that takes measures to enhance Wireless Emergency Alerts (WEAs) to improve the accuracy with which emergency managers can geographically target the delivery of WEA Alert Messages to areas within their jurisdiction. ATIS standards and solutions are key to making this happen.

ATIS has started work to examine the existing WEA and enhanced WEA (eWEA) standards. This examination will consider solutions and evaluate these device-based geo-fencing enhancements to WEA as addressed by the FCC. Among other factors, this work is intended to address:

- Methods for delivering the alert-originator-provided polygon to the mobile device along with the WEA message, including potential compression of the polygon coordinates.
- Changes to cell broadcast and defining mobile device behavior such that a mobile device does

not automatically display the received WEA message, but uses the polygon to determine its location relative to the polygon prior to rendering the WEA alert.

In addition to the efforts in response to the recent R&O, additional work is taking place to further enhance WEA capabilities. ATIS has a host of new standards and solutions recently published:

- *Enhanced Wireless Emergency Alert (eWEA) Federal Alert Gateway to CMSP Gateway Interface Specification* (ATIS-0700037). This Standard defines the interface between the Federal Alert Gateway and the Commercial Mobile Service Provider (CMSP) Gateway for eWEA alerts.
- *Enhanced Wireless Emergency Alert (eWEA) via GSM/UMTS Cell Broadcast Service Specification* (ATIS-0700006.v002). This Standard describes the use of the GSM/UMTS Cell Broadcast Service for the broadcast of WEA messages and includes the mapping of WEA application level messages to the Cell Broadcast Service message structure.
- *Cell Broadcast Entity (CBE)-to-Cell Broadcast Center (CBC) Interface Specification, Revision 2* (ATIS-0700008.v002). This Standard defines the interface and message transfer protocol between a Cell Broadcast Entity (CBE) and a Cell Broadcast Center (CBC) to support text-based Cell Broadcast Services.
- *Enhanced Wireless Emergency Alert (eWEA) via EPS Public Warning System Specification* (ATIS-0700010.v002). This Standard describes the use of the Evolved Packet System (EPS) Public Warning System (PWS) for the broadcast of eWEA messages and includes the mapping of eWEA application level messages to the CBC message structure as used within the EPS.

## EMERGENCY PREPAREDNESS AND RESPONSE CHECKLIST FORTHCOMING

*An industry resource for building a more resilient network.*

At the end of March, ATIS will publish the NRSC Emergency Preparedness and Response Checklist. Developed by the Network Reliability Steering Committee (NRSC), the document is an update to the NRSC Hurricane Checklist, which makes general recommendations regarding possible steps telecommunications companies should consider to prepare for a hurricane. With the forthcoming release, the Checklist is being updated to cover a broader range of disaster response, in addition to hurricanes. The new list is being updated to reflect Best Practices for many of the existing line items. Where Best Practices did not exist, they have been created. The forthcoming checklist is broken into four categories:

- *Non-Event-Specific.* Higher level concerns or actions to be considered at the outset of the season. May be repeated immediately beforehand or as a part of final preparation.
- *Pre-Event.* Material and personnel considerations completed immediately prior to the hurricane.
- *During Event.* The time in which the event and/or disaster is occurring.
- *Post Event.* The time after the event and/or disaster has occurred and networks are being resumed to pre-event conditions.

These new categories are designed to allow the user to quickly move to the area of interest and review the checklist for event specific items.

## NATIONWIDE NUMBER PORTABILITY

*Advancing the numbering system to address the needs of a mobile population.*

ATIS has recently taken on a larger, critical role in advancing nationwide number portability

(NNP). In December, the FCC issued an NOI/NPRM seeking to remove barriers to an NNP system. Building directly on the prior work of the North American Numbering Council (NANC) and ATIS, the NOI/NPRM sought the best way to develop a number portability system that allows numbers to be ported from anywhere in the country to anywhere else in the country. ATIS then provided detailed input to that NOI/NPRM. Immediately afterwards, the NANC established an NNP working group, and ATIS is a key member.

In addition to serving on the NANC NNP Working Group, ATIS is currently undertaking a deeper technical analysis of potential NNP approaches to support this activity. In its response to the FCC NNP NPRM (WC Docket No. 17-244; WC Docket No. 13-97) ATIS notes that it supports the proposed rule changes to the N-1 query requirement, extending forbearance of the Commission's toll dialing parity requirements, and eliminating the mandate on interexchange dialing parity, noting that these changes would support implementation of NNP. However, it notes that these rule changes, while beneficial, are not sufficient in and of themselves to achieve NNP.

As acknowledged in the NPRM, ATIS agrees that the rule on dialing parity is outdated and may hinder the ability of service providers to offer unique competitive services. ATIS notes that its report on NNP outlined potential approaches for achieving NNP and described the benefits and limitations of each. This report noted that the "commercial agreement" solution is the only one that can be supported today.

In its February meeting, ATIS' Packet Technologies and Systems Committee initiated work on a new Issue, Deeper Dive on Nationwide Number Portability. A new baseline has been started and the work is being expedited. Weekly meetings are being held, with the goal of delivering recommendations in time to be incorporated into the NANC NNP Working Group report, which is due on June 7. In the interim, updates will be provided to the NANC NNP WG as requested.

## **ADVANCING INDUSTRY ELECTRICAL PROTECTION SOLUTIONS**

*Electrical protection for fast access to subscriber terminals (G.fast).*

In January, ATIS published a new standard that assists service providers, network designers and system integrators in choosing appropriate protection methods for G.fast communications circuits. G.fast is digital subscriber line (DSL) protocol standard, and the new standard describes protector characteristics that may impact G.fast systems for outside plant, intra- and inter-building applications, and the services provided over these links. The document describes protectors in their non-operating state and their effect on these services and also considers the effects of protector response to a surge event and how that operation may affect these services. This is a subtending document and is intended to be used with the Broadband umbrella document [Electrical Protection Considerations for Broadband Systems](#) (ATIS-0600012).

## **NEW VERSION OF ACCESS SERVICE ORDERING GUIDELINES**

*Enhancements refining this valued industry resource.*

On March 23, ATIS will release a new version of a critical industry resource, the Access Services Ordering Guidelines (ASOG). The ASOG describes the various ordering forms used for the purpose of requesting access service to be provided by Service Providers. The forthcoming ASOG Version 57 will include a new Provider Test Acceptance (PTA) Form. This Form was introduced due to a business need for an industry standard Provider to Customer Test Notification. Currently there is a Provider to Customer testing notifications process done via email templates. The PTA Form will provide an industry standard Unified Ordering Model ebonded solution that serves as a status function from the Provider to the Customer after Firm Order Confirmation and prior to completion notification.

## **NGIIF SERVICE PROVIDER CONTACT DIRECTORY FORTHCOMING**

*Improving service by giving providers critical contact information.*

ATIS is in the process of developing a new website for the Next Generation Interconnection Interoperability Forum Service Provider Contact Directory (SPCD). This website's purpose is to provide contact information to the communications industry for reporting or passing on trouble reports to interconnecting companies relating to access services. The site also provides contact information for Tracebacks and Subpoenas for Robocalling. The new site will allow users to update company contact information and view other industry contacts. It will replace the existing SPCD document. The expected launch date is set for 2Q2018.

## **PART 68 AMENDMENT IMPACTS ACTA**

*Ensuring HAC equipment is registered in the ACTA database.*

ATIS is a sponsor of the Administrative Council for Terminal Attachments (ACTA). A recent FCC R&O on Part 68 compliance for hearing-aid-compatible (HAC) devices was released in late October, which requires that HAC VoIP equipment be registered in the ACTA database. ACTA is at work to determine what changes are necessary to the current database to accommodate the registration of HAC VoIP equipment. A report is under development and is expected to be submitted to the FCC later in the year.

## FEATURED ATIS EVENTS



### GNSS STATIONARY TIMING RECEIVER RESILIENCE WORKSHOP

April 17, 2018  
Washington, DC

*User Needs, Wants and the State of the Market.*

In keeping with its preeminence in convening experts to deliver insight to the industry on timing topics, ATIS will hold the GNSS Stationary Timing Receiver Resilience Workshop to stimulate use of more resilient Global Navigation Satellite System (GNSS) receivers, including antennas, specifically focusing on stationary precision timing receivers.

The Workshop Working Group invites timing users from the electric grid, financial and telecommunications industry, as well as from timing receiver manufacturers to participate in this event. If you know of a representative from one of these areas, or would like to attend, please complete the registration application on the ATIS website listed above. Learn more and submit your ideas for workshop topics at [atis.org/trr](http://atis.org/trr). [Register today!](#)



### PLAN NOW TO ATTEND AMOC 2018

April 30-May 4, 2018  
Kansas City, MO

The Annual Meeting of the Committees is the ICT industry's solutions-development focal point, where ATIS Committee and Forum participants hold meetings, conduct joint work programs, and collaborate. Join us April 30 – May 4 in Kansas City, Missouri. Register soon to secure your room at the Kansas City Marriott Downtown where AMOC Committee meetings and networking events are being held. Learn more at [atis.org/amoc](http://atis.org/amoc). [Register today!](#)

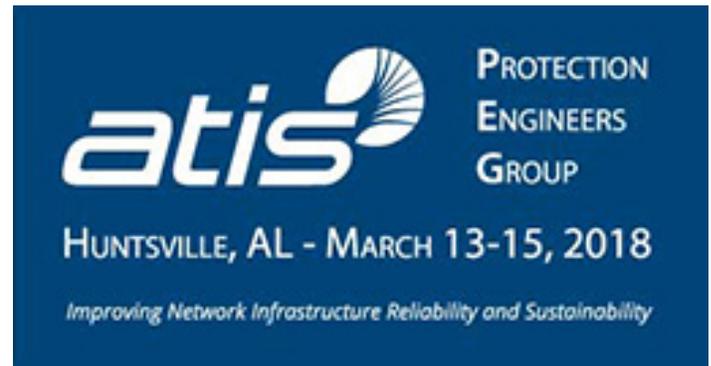


provide and receive in-depth insight into one of the finance industry's leading concerns: the need to ensure to clients and regulators that financial transactions are accurately timed – down to the microsecond. Speakers came from the Securities and Exchange Commission, the Department of Homeland Security, Resilient Navigation and Timing Foundation, the National Institute of Standards and Technology, private-sector timing and sync tech leaders and more. Watch the presentations at [atis.org/tam](http://atis.org/tam).

### **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. Agenda and registration information will be available shortly at [atis.org/wsts](http://atis.org/wsts).



### **PEG 2018: THE INDUSTRY'S "GO-TO" EVENT FOR PROTECTION ENGINEERING**

The ATIS Protection Engineers Group (PEG) Conference will be held March 13 – 15 2018, at ADTRAN Headquarters in Huntsville, Alabama. The 2018 PEG Conference was themed "Improving Network Infrastructure Reliability and Sustainability," and promoted discussion on how basic electrical protection principles are applied to today's network, and the challenges of providing media services in more decentralized networks. Learn more at [atis.org/peg](http://atis.org/peg).



### **ATIS DELIVERS TIMING AND SYNC INSIGHT AT THE NEW YORK STOCK EXCHANGE**

Building on the success of the first Time and Money Conference, ATIS held Time and Money (TAM) II, January 23, 2018, at the New York Stock Exchange. More than 78 experts gathered to

## INDUSTRY EVENTS



### BIG COMMUNICATIONS EVENT

May 14-16, 2018

Austin, TX

[Visit website](#)



### 5G NORTH AMERICA

May 14-16, 2018

Austin, TX

[Visit website](#)

#### Must See Session:

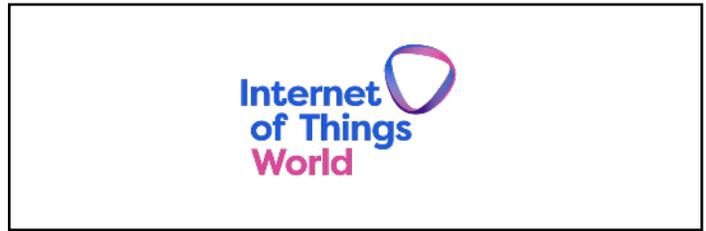
*Artificial Intelligence and the 5G Network*

Tuesday, May 15, 2018

2:30 - 2:50 pm

#### Speaker:

- Jim McEachern  
Principal Technologist, ATIS



### INTERNET OF THINGS WORLD

May 14 - 17, 2018

Santa Clara, California

[Visit website](#)



### INTERNET OF THINGS NORTH AMERICA

May 31 - June 1, 2018

Chicago, Illinois

[Visit website](#)



### ISE EXPO

August 14 - 16, 2018

Denver, Colorado

[Visit website](#)

#### Must See Session:

*Learn the Latest in Surge Protection Technologies, Standards and Applications*

#### Speaker:

- Jim Pelegris  
ATIS PEG Conference Chair