UPDATE

WINTER 2015

IN THIS ISSUE

PRESIDENT'S MESSAGE

ATIS is creating innovative solutions to seize some of our industry's greatest opportunities and address its most pressing challenges. I'm excited to bring you this issue of *ATIS Update* to provide highlights of this work.

Recent initiatives are positioned to advance our members' priorities in light of the convergence of forces driving change in our industry. Read on to learn of ATIS' broad-ranging work to advance the new IP network as well as our NFV initiatives, which are giving momentum to service evolution in light of the transition from hardware-centric solutions to software. While the *Update* does not address every important initiative currently taking place in ATIS, consider it a snapshot of our priorities as we align with our membership's direction entering 2015.

President & CEO
Susan M. Miller

FEATURED PROGRAM: THE ATIS NFV INITIATIVE

Network Functions Virtualization (NFV) Forum. *Inter-provider solutions for today's rapidly evolving virtualized infrastructure.* Interoperable NFV-based services hold the potential for enabling great gains in service velocity. The idea is to accelerate product rollout, integration, and intelligent growth of services. ATIS' NFV Forum is looking at some of the key factors that will help NFV fill its potential.

The Forum is specifically developing the use cases that identify emerging business opportunities to use inter-provider NFV frameworks to automate and extend business constructs such as virtual network operator and service roaming. Beyond being a traditional network-to-network interface, this construct allows service provider, enterprise and web-scale companies to integrate network functions directly into their development process as easy-to-use software libraries.

Because of the relevance of enterprise requirements, the scope of the Forum's work has been expanded to include enterprise-focused use cases. Among other things, this work will address the enterprise need for some level of customization, will engage enterprises (or representatives) for collaboration and input and also will integrate the perspective and expertise of the ATIS CIO Council. ATIS also recognizes the need to work with other industry groups to advance NFV solutions. In November, NFV Forum leadership met with ETSI to discuss how the two organizations can work together more effectively on NFV. Given ATIS' focus on service exposure and the ETSI NFV ISG's deliveries on NFV infrastructure (NFVI), the opportunity exists to develop a top-to-bottom integration where API requests translate seamlessly to NFV infrastructure implementation.

SOLUTIONS FOR THE NEW IP

When it comes to the solutions that are advancing the new IP network, ATIS' initiatives make it a leader in this space. This topic receives coordinated attention in both our Technology and Operations (TOPS) Council as well as our Committees and Forums. Not only is our work addressing current industry imperatives, but it is positioning ATIS to deliver the solutions our members will need in the IP world into the future. Selected highlights of this work are below, organized by Architecture and Services, Information Infrastructure and Operational Excellence:

ARCHITECTURE AND SERVICES

ATIS and SIP Forum IP-NNI Task Force. *Creating a standardized IP-based network-to-network interconnection between service providers.* In 2014, the ATIS and SIP Forum IP-NNI Task Force began developing a detailed, protocol-level IP-NNI specification for one service – voice. Draft versions of two major reports to advance this specification were developed: (1) *IP Interconnection Profile*, which describes a reference architecture and specifications for both the protocol and media as it appears "on-the-wire" at interconnect points; and (2) *IP Interconnection Routing Report*, which documents mechanisms for identifying the preferred IP interconnection point for a given phone number. Input from the broader industry has been solicited, received and incorporated into these documents. Final drafts are advancing to letter ballot in 1Q2015 to confirm industry consensus. ATIS and the SIP Forum are currently discussing Phase 2 of the IP-NNI Task Force.

On January 13, representatives from ATIS and the SIP Forum met with FCC Commissioners Pai, O'Rielly, and Rosenworcel to update the agency on the Task Force's important work, and to outline possible future related work, which will likely focus on routing, caller ID authentication, video interconnection and/or enhanced services. Caller ID issues seemed to be of particular interest to the Commissioners. Learn more about ATIS' work in this area in the Testbeds section of this newsletter. The Commissioners expressed appreciation for the work of the ATIS and SIP Forum IP-NNI Task Force — and the industry's willingness to voluntarily collaborate to find solutions for the complex issues of the new IP.

ORCA. *Helping developers more easily tap into network innovations.* The first demonstration application using the Open Real-Time Communications APIs (ORCA) is complete, and has been presented to the ATIS Board of Directors. The demo objective is to show service provider compatibility with ORCA APIs, and encourage application developers to adopt ORCA, a tool to enable real-time communications with "write once, run anywhere" functionality. This ATIS-developed Open Source API provides a much-needed industry solution that enables portability of WebRTC applications across service provider infrastructure for call signaling — which is not specified by WebRTC. The intent is not only to simplify app development, but also to enhance the value of service provider infrastructure. ATIS presents on ORCA at the 2015 Mobile World Congress (MWC), March 2-5, in Barcelona, Spain and also on March 4, at the WebRTC Barcelona event. For more information on ORCA contact Jim McEachern or visit http://www.orcajs.org/.

The Public Safety-Related Applications Task Force (PSRA-TF). *Emergency services communications solutions for an All-IP world.* A major implication of the new IP is its impact on public safety infrastructure. An important initiative taking place only at ATIS is helping the professionals involved in transitioning critical infrastructure make better decisions. Specifically, the PSRA-TF is developing an industry-wide request for information (RFI) to collect input from manufacturers on the existing solutions to help public safety applications migrate to All-IP. The findings will provide the groundwork for an information clearinghouse to educate the public safety community on options they can use in transition efforts. State and local public safety-related agencies are expressing a great deal of interest in this initiative as, for example, it will provide transition insight regarding alarm circuits to local fire and police departments. This work also addresses the IP transition of circuits to FAA towers and alarms, circuits that monitor railroad crossings, circuits for sensors at gas and power company locations, meter and alarming circuits related to power grid, as well as circuits supporting underground communications.

Convergence for Lawful Intercept. *Advancing important law enforcement capabilities in the new IP.* As one of its 2015 priorities, ATIS' TOPS Council launched an initiative to assess how ATIS' lawful intercept (LI) committee should change given migration of wireline and wireless to a common protocol, e.g. SIP. To address the issue, the TOPS Council initiative is evaluating the potential integration of wireline and wireless LI due to industry convergence and transition to All-IP. This work is open to and encompasses the participation of all ATIS LI stakeholders, including FBI representatives, suppliers and service providers.

INFORMATION INFRASTRUCTURE

Numbering

Updates to three critical numbering resources.
ATIS' Industry Numbering Committee (INC), a team of experts providing the industry with solutions to its most critical numbering challenges, released updates to three key resources in January.

- P-ANI Administration Guidelines
- Central Office Code (NXX) Assignment Guidelines (COCAG)
- Thousands-Block Number (NXX-X) Pooling Administration Guidelines

Of note in these changes is the revision to the Thousands-Block Number Pooling Administration (NPA) Guidelines. The changes made will help ensure the supply of numbers is maintained in an exhausting area code. Further, it will ensure that thousands-blocks from a new NPA not yet effective do not hamper the ability to replenish the pool with usable blocks. ATIS' INC has expedited the completion of this Issue to provide a needed solution for current and upcoming area code-relief projects.

ATIS experts speak on a critical aspect of industry ramp up for All-IP. In December, INC Co-Chairs Dyan Adams of

Verizon and Shaunna Forshee of Sprint participated with John Manning, Director, North American Numbering Plan Administration (NANPA), Neustar, Inc. in an ATIS webinar, "Spotlight on the All-IP Transition: The Numbering Impacts." They discussed how ATIS is advancing solutions to help our numbering system innovatively adapt to the future — now. They told of the INC work that is covering dynamic new territory such as nationwide 10-digit dialing, a numbering testbed, large-scale rate center consolidation, and more. The webinar also informed on the critical dialogue taking place with the FCC on the evolution of numbering in the All-IP transition. Now available for on-demand viewing/audio.

Because of the webinar, INC's work received coverage in the December 12 issue of major industry publication *Communications Daily* in the article *Tech Industry Gears Up for Impact of All-IP Transition on Numbering*.

ASOG Update. *Improved Inter-provider Ethernet Ordering.* The ATIS Ordering and Billing Forum's (OBF) Access Service Ordering Guidelines (ASOG) Version 50 has been enhanced to support the implementation of the Access Service Request (ASR) ordering process to support MEF-defined services. The implementation of this feature is scheduled for March 2015. Additionally, Version 51, scheduled for implementation in September 2015 includes an update to close the gaps between ASOG and MEF Operator Virtual Connection as well as the External Network-to-Network Interface Service Attributes. The next phase of the joint work includes developing uses cases for an international ordering framework (business requirements/processes/workflows, information models and implementation/interface specifications) that can be used internationally. This resource is targeted for completion later in 2015.

OPERATIONAL EXCELLENCE

Testbeds. *Evaluating the methods required to rapidly validate innovation.* Through the many ATIS All-IP activities in 2014, members recognized a consistent need for validation capabilities. These include numbering evolution, IP-NNI routing, and authenticated caller ID. Instead of developing silo solutions for each technology, the ATIS' TOPS Council activity on testbeds is evaluating a

consolidated testbed that would serve multiple needs and better provide for end-to-end verification. ATIS members are involved in innovative initiatives to develop and test solutions to our industry's leading challenges, and ATIS is helping them collaborate to validate key concepts and determine which solutions are best. Testbeds are needed, for example, to validate solutions for the migration of certain functions to All-IP, and the Testbeds initiative will allow the industry to collectively accelerate the adoption of innovative solutions.

The Network Reliability Steering Committee (NRSC). *The industry's forum for best practices.* As a trusted expert, the NRSC addresses network reliability improvement opportunities in an open, non-competitive environment. Recent work addresses:

- *VoIP metrics to emulate PSTN reliability in the new IP network.* The NRSC IP Reliability Task Force (TF) is defining the IP network availability and/or outage reporting metrics that can be consistently reported across the industry. One goal is to determine when a network event creates a voice outage; when an outage is detected, can the impact be quantified; and to what level of granularity can customer impact be depicted. Recently, the TF examined approximately 70 SIP error codes provided by the TOPS Council's Leveraging Network Intelligence Focus Group. They seek to identify network event points (alarms), how to quantify data at those points, and then find the location of those points (i.e., city or state level).

- *Reducing the customer impact of planned maintenance.* December marked the release of *ATIS Network Reliability Steering Committee (NRSC) Bulletin No. 2014-001, Planned Maintenance-Related Outages*, to assist the industry in minimizing outages related to planned maintenance activity. Findings were based on the NRSC's examination of outage reports for which a "Planned Maintenance" cause code was used as the root cause, direct cause or contributing factor. Through its analysis, system upgrades were discovered, largely in wireless networks due to 4G LTE deployments and in DS3 transport networks,

to be the primary contributor to the outages. No significant trend in terms of particular equipment or procedure was identified as the outage cause. In response to these findings, ATIS recommends that communications stakeholders should review established best practices in key areas related to planned maintenance. These practices are detailed in the report.

- *Attend ATIS' NRSC 1Q2015 Public Meeting.* ATIS NRSC invites all communications stakeholders interested in the reliability and continuity of the nation's telecommunication infrastructures to attend its Quarterly Public Meeting on February 23, 2015, 11:00 a.m. – 1:00 p.m. ET. At the meeting, the FCC will present a detailed overview of the statistical trends it has observed from data submitted by communications providers in the Network Outage Reporting System (NORS) and provide an update on regulatory activities. The speaker will be John Healy, Associate Chief of the FCC Public Safety and Homeland Security Bureau Cybersecurity and Communications Reliability Division. Click here to register (virtual participation available).

- *Future NRSC Meetings*: Plan now to participate in the NRSC's updates on our nation's networks by attending its 2015 public meetings:

    May 6, 2015, 9:00 a.m. – 12:00 p.m. ET

    September 2, 2015, 9:00 a.m. – 12:00 p.m. ET

    December 9, 2015, 9:00 a.m. – 12:00 p.m. ET

- *Improving Call Completion.* Leveraging existing ATIS knowledge to avoid unnecessary regulation. ATIS has been working with the Minnesota Department of Commerce, which is looking at call completion issues within the state, and has provided it with its Inter-carrier Troubleshooting Quick Reference Tool. This resource helps service providers troubleshoot call completion issues. The intent is to prevent duplicative regulations and/ or resource allocation by encouraging the state to benefit from the work ATIS' Next Generation Interconnection Interoperability Forum has done on this topic. This includes development of a comprehensive *Intercarrier Call Completion/Call*

Termination Handbook (ATIS-0300106), upon which the The Quick Reference Tool is based. Learn more at http://www.atis.org/ngiif/ruralcallcompletion.asp.

Emergency Services

Wireless Emergency Alert Enhancements. *Two new feasibility studies slated for 2015.* ATIS is embarking on two new feasibility studies to advance the solutions needed to enhance wireless emergency alerts (WEAs). This work will address needs set forth in the 2014 FCC Communications Security, Reliability and Interoperability Council Working Group 2 (CSRIC WG-2) report. The report recommends that ATIS, a member and major contributor to WG-2, perform a study to identify the feasibility and standardization/implementation considerations that will improve WEAs. Among other things, these improvements will enable a device to display a simple map which shows the threat area and recipient's location in relation to the alert area for imminent threat alerts, and display a photo such as that of a suspect, missing child, or abductor for Amber Alerts.

In addition, the CSRIC WG-2 recommends that ATIS study cell broadcast geotargeting for WEA alerts. This feasibility initiative will investigate technology enhancements, including mobile-assisted geotargeting, for enhancing the delivery of alert messages to a given geocode, circle, or polygon.

Started in January, these fast-tracked studies will be complete by year-end. The work builds on ATIS' long-standing expertise in developing a range of standards and solutions that have helped put the WEA system into place.

Emergency Location Task Force Launched to Improve Wireless 9-1-1 Location Accuracy. *Advancing improvement of North American emergency location capabilities and services.* In January, ATIS announced that it established a new Emergency Location Task Force (ELOC) to provide the solutions needed to improve the location accuracy for wireless 9-1-1 calls. The ELOC was formed to support standards development goals established in a roadmap set forth by the Association of Public-Safety Communications Officials (APCO)

International, the National Emergency Number Association (NENA), and wireless carriers AT&T, Sprint, T-Mobile and Verizon Wireless. The ELOC will advance the improvement of North American emergency location capabilities and services, with an initial focus on the standards needed to support the commitments defined in the roadmap. In addition, the ELOC will collaborate and liaise with other organizations to seek broader implementation and adoption of solutions, including with the Third Generation Partnership Project (3GPP) to progress global solutions.

OTHER KEY ATIS INITIATIVES

Open Web Alliance. *Solutions creating a more equitable and workable web.* ATIS' Open Web Alliance (OWA) is developing requirements for an open service optimization proxy to meet the service needs of all stakeholders in the web ecosystem — while supporting the goals of encryption and privacy. OWA is conducting fundamental fact-finding and data analysis to enable much-needed solutions to problems caused by the increasing use of proprietary proxies (e.g., SPDY) and the move toward ubiquitous encryption. These have a negative impact on reasonable network management and the ability to enhance content delivery through caching. To address this, OWA is developing a clear problem statement and use cases to characterize the issues. Hard data is needed to quantify the extent to which such proxies can enhance the end-user experience, and OWA is currently collecting this. The findings from this research will help shape future work — and solutions to ultimately address the proprietary proxy issue.

Learn more about OWA at www.atis.org/owa.

Integration Platform as a Service (iPaas.) *Flexible tools for cloud and NFV integration.* Integrating the many functions that service providers deliver requires generic tools that speak a single language. Launched in January, a new TOPS Council initiative is evaluating services, devices, and access methods that incorporate application-level publish/subscribe for applicability to a general purpose iPaaS API. This work will identify service functions (e.g., user profile, access adapters, device filtering) required for implementation. It was initiated to address problems related to the decline of traditional information broadcast such as over-the-air (OTA) formats, and the fact that application-level publish and subscribe systems are implemented within closed communities of interest. The expected outcome is that the iPaas work will go into the ATIS Reference Model (see below), which illustrates key relationships across all technology and standards development activities.

Reference Model. *A business framework for service evolution.* The ATIS Reference Model provides an important function for the industry. It demonstrates the relationships of service designs and data elements; leverages existing architectures while evolving the model based on new ATIS technology programs; creates common definitions, lexicons and taxonomies; illustrates synergies; and improves the technology and standards development lifecycle. A "living effort" whose evolution is driven by technology changes and members' business needs, the Reference Model is being updated to include new technologies such as NFV and Cloud while still including important IMS functions. The update will incorporate emerging technologies, high-priority standards, and Open Source libraries (e.g., Open Proxy, ORCA, NFV). High-profile end-to-end use cases will be overlaid such as public safety, managed networks, and communications. OSS/BSS and big data analytics implications also will be considered.

oneM2M

ATIS is a Founding Partner of oneM2M, a global collaborative standards process to develop middleware standards that provide a platform for interoperable M2M and Internet of Things (IoT) applications. In December 2014, oneM2M demonstrated implementations of its draft specifications, and in January, approved its first release of its specifications. In 2015, the initiative is anticipating a wide range of activities including:

- Making a better platform for developers

by addressing conformance testing, further documenting the use of the standard APIs as well as additional protocol bindings (e.g., MQTT) and possibly supporting the development of Open Source reference implementations.

- Defining application-layer semantics on top of the generic capabilities for applications such as "connected homes" and health care.

- Studying interworking to the AllJoyn/AllSeen ecosystem

A member briefing on oneM2M was distributed to ATIS members. Stay updated on oneM2M activities at oneM2M.org.

ATIS Thought Leaders Provide Insight at WebRTC Barcelona Meet-Up and Mobile World Congress 2015

ATIS looks forward to seeing you at Mobile World Congress (MWC 2015) held March 2-5, in Barcelona, Spain, and at WebRTC Barcelona, held March 4.

Events & Webinars

MARK YOUR CALENDARS!

March 9-12, 2015

ATIS-NIST Workshop on Synchronization in Telecommunications Systems
San Jose, California

www.atis.org/WSTS

March 24-26, 2015

PEG 2015: Protection Engineers Group (PEG)
Huntsville, Alabama

www.atis.org/PEG

May 4-8, 2015
The ATIS Annual Meeting of the Committees
Atlanta, Georgia.

www.atis.org/AMOC

September 1-3, 2015
OSP Expo
Denver, Colorado

ATIS is an Association Partner for the OSP Expo and Conference