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May 31, 2019

Via E-mail (ai_standards@nist.gov)
AI-Standards
National Institute of Standards and Technology
100 Bureau Drive, Stop 200
Gaithersburg, MD 20899

Re: RFI: Developing a Federal AI Standards Engagement Plan

Dear Sir/Madam:

The Alliance for Telecommunications Industry Solutions (ATIS) is pleased to provide this input in response to the *Request for Input* (*RFI*) from the National Institute of Standards and Technology (NIST). In the *RFI*, NIST requests information on the current state, plans, challenges, and opportunities regarding the development and availability of artificial intelligence (AI) technical standards and related tools, as well as priority areas for federal involvement in AI standards-related activities. ATIS is pleased to provide an update on its examination of AI and impacts on the information and communications technology (ICT) industry.

ATIS is a leading technology and solutions development organization that brings together the top global ICT companies to advance the industry's business priorities. ATIS' member companies are currently working to address 5G, cybersecurity, robocall mitigation, IoT, artificial intelligence-enabled networks, the all-IP transition, network functions virtualization, smart cities, emergency services, network evolution, quality of service, billing support, operations, and much more. ATIS is accredited by the American National Standards Institute (ANSI). ATIS is the North American Organizational Partner for the 3rd Generation Partnership Project (3GPP), a founding Partner of the oneM2M global initiative, a member of the International Telecommunication Union (ITU), and a member of the Inter-American Telecommunication Commission (CITEL).[1]

In September 2018, ATIS published a report entitled *Evolution to an Artificial Intelligence-Enable Network*.[2] This report examines how AI and machine learning technologies can be leveraged to address the pressing challenges facing the ICT industry today. The report explains that AI and Machine Learning (ML) enable new ways to understand and use data. This data can be categorized along four basic dimensions: traffic-based attributes, network/subscriber state, topology/location and time/history.

[1] For more information, visit www.atis.org.
[2] This report is available from ATIS White Paper repository at https://access.atis.org/apps/group_public/download.php/42466/Evolution%20to%20an%20Artificial%20Intelligence-Enabled%20Network.

The report also documents numerous network-related AI use cases that often require robust network data exposure capabilities and network application programming interfaces (APIs):

- Network anomaly detection.
- Network security.
- RAN Optimization.
- Dynamic traffic and capacity management.
- Network resiliency and self-healing.
- AI and orchestrated management.
- AI-based subscriber insights.
- AI-assisted customer support and sales.
- AI-based content processing and management.[3]

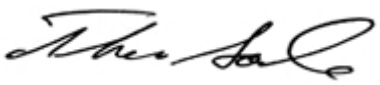
These use cases expose the likelihood of multiple AI closed-loop systems interacting with each other. Loops created with AI may operate at different time scales and need to be well designed from a broad network perspective to prevent network instability associated with interacting feedback loops.

The report explains that the application of AI to network systems may require fundamentally new processes at each stage of the application lifecycle. The report also recommends that, for network applications where high levels of reliability and service availability are required, care must be taken to mitigate and manage autonomous actions driven by AI systems.

The report also addresses edge computation, which enables both low-latency, high-value responses by using AI-driven applications to use local data without the need for real-time communications to data centers and cloud-based AI servers. The report finds that an AI-enabled edge can dramatically reduce network bandwidth, decrease user response times and potentially increase application reliability. Edge computation can also be used to enable distributed online learning, which has the potential of solving many of today's privacy concerns because private data need not be sent to the centralized processing functions for ML purposes.

If you have any questions, please do not hesitate to contact the undersigned.

Sincerely,



Tom Goode
ATIS General Counsel

[3] The Third Generation Partnership Project (3GPP) has initiated standards work on new data collection architectures and use cases.