

Alion Comments for the National Strategy to Secure 5G Implementation Plan:

The Alion Comments Are in Response to the Line of Effort One, Questions 1, 2 and 4

The National Telecommunications and Information Administration (NTIA) requested comments from interested parties with regard to development of a comprehensive long-term national strategy to secure 5G implementation plan. NTIA sought broad input from interested stakeholders, including private industry, academia, civil society, and other experts. The NTIA request for comments (RFC) included an invitation to comment on any or all of the range of national 5G implementation strategies addressed in seven specific questions presented in the second part of the notice. Alion decided to provide responses to RFC Line of effort 1, questions 1, 2 and 4, as presented below.

Alion Science and Technology is taking the initiative to comment on the NTIA's request for 5G Domestic Rollout strategies and development of the 5G ecosystem. Alion consults on spectrum management and wireless technology in support of both the Government and the industry in wireless communications Research and Development (R&D), Modeling and Simulation (M&S), spectrum engineering, finding spectrum management solutions, and security solutions such as the Zero Trust Architecture (ZTA) for 5G networks. Alion is at the forefront of wireless technologies (4G, 5G and beyond) for R&D, testing, experimentation, and implementation for both Government and industry. As such, Alion has been a key contributor on spectrum sharing strategies and solutions. In our comments, we emphasize that because spectrum sharing is critical to 5G implementation, the United States (U.S.) Government needs to support spectrum sharing policies, regulatory mechanisms including spectrum data tools, and technologies to facilitate 5G.

Docket No. 200521-0144

To: spectrum-strategy-comments@ntia.doc.gov

NTIA RFC Line of Effort One:

Facilitate Domestic 5G Rollout:

(1) How can the United States (U.S.) Government best facilitate the domestic rollout of 5G technologies and the development of a robust domestic 5G commercial ecosystem (e.g., equipment manufacturers, chip manufacturers, software developers, cloud providers, system integrators, network providers)?

ALION COMMENT:

Alion believes that because spectrum is the underlying resource for the domestic rollout and implementation of 5G technologies and beyond, the U.S. Government should take the following steps to increase the availability of spectrum 1. Spectrum sharing, 2. R&D, 3. Collaboration in testing:

1. Spectrum Sharing:

- Promote spectrum sharing by allowing shared use between Federal and non-Federal operations. For example, Department of Defense (DoD) could implement 5G technologies for use on DoD facilities or in the battlefield that would switch to wireless providers outside those areas. This would allow commercial industry to benefit from 5G research performed by the national and DoD Labs, as well as allow the Government to benefit from reduced costs by purchasing COTS equipment.
- Create a national level framework of spectrum sharing systems that can provide automated/smart solutions for accurate and efficient spectrum availability. This framework would connect spectrum sharing systems deployed in specific frequency bands to further enable dynamic spectrum usage by both federal and non-federal users.
- Create fora for collaboration and cooperation between incumbents who are occupying spectrum and the wireless industry that is seeking access to spectrum. Because the Federal Government is a major occupier of spectrum, one forum should bring together the wireless industry and the Federal agencies to consider the spectrum pipeline. Other fora could focus on cooperation and collaboration between the wireless industry and other incumbent radio services. The objective of the groups should be to develop recommendations for paths forward in accessing spectrum including identifying new approaches to spectrum sharing and time-based coordination.

2. R&D:

- U.S. Government should leverage the ongoing commercial R&D and innovation in 5G and beyond technologies.
- Prioritizing the R&D efforts by the U.S. Government can lead to unique and differentiated advantages of 5G technologies and beyond with enhanced features such as: Ubiquitous connectivity, Broadband, Internet of Things (IoT), Ultra Low Latency (UrLLC) and the Massive Machine Type Communications (mMTC). 5G technology R&D efforts will benefit DoD use cases with automation and improved efficiencies, rapid deployments, affording the anytime anywhere capabilities, and virtual and augmented reality for DoD operations.
- Additionally, Alion believes that the R&D efforts should also prioritize ZTA to secure the 5G networks including private and standalone network use cases. DoD should invest in R&D to come up with 5G plug and play solutions that offer rapid deployment of technology in the DoD use cases.

3. Collaboration on testing

- U.S. Government should also collaborate with the National Advanced Spectrum and Communications Test Network (NASCTN), which is a multi-agency (NTIA, NIST, DARPA, NSF,

NOAA and NASA) chartered partnership. It organizes a national network of Federal, academic, and commercial test facilities. It provides the robust test environment and validates the test and measurement data the testing, modeling and analysis necessary to develop and deploy spectrum sharing technologies, and works with the spectrum policy requirements and regulations. These test facilities promote and facilitate the experimentation and integration of commercial and DoD use cases, e.g. commercial launching space at their facilities like the Institute for Telecommunication Sciences (ITS) in Boulder, CO.

NTIA RFC Line of Effort One:

Facilitate Domestic 5G Rollout:

(2) How can the U.S. Government best foster and promote the research, development, testing, and evaluation of new technologies and architectures?

ALION COMMENT:

Alion believes that the U.S. Government could best foster and promote research, development, testing and evaluation of new technologies and architecture by continuing to fund DARPA, NIST, NASCTN and other Federal entities' development of spectrum sharing technologies (particularly technologies that are interference resistant to support both commercial interests and the DoD operational interests).

- The U.S. Government should work with industry to develop sharing-oriented spectrum management tools for seamless and efficient operations without compromising the latency or security.
- Collaborations with these entities in the R&D, testing and validation of 5G technology will boost the innovative shared spectrum solutions for both the Government and the industry. 5G technology testing and evaluation can promote spectrum sharing with the plug and play and mix and match solutions to create and articulate use cases, increasing productivity.
- Alion believes that a smart/automated, data-driven spectrum sharing system with a national level framework should be created. It will add to efficiency and accuracy of spectrum sharing.

NTIA RFC Line of Effort One:

Facilitate Domestic 5G Rollout:

(4) What areas of research and development should the U.S. Government prioritize to achieve and maintain U.S. leadership in 5G? How can the U.S. Government create an environment that encourages private sector investment in 5G technologies and beyond? If possible, identify specific goals that the U.S. Government should pursue as part of its research, development, and testing strategy.

ALION COMMENT:

To achieve and maintain U.S. leadership in 5G, the U.S. Government should prioritize the development of ultra-reliable, low latency technologies utilizing the 5G waveform. This best aligns with DoD

requirements for data links used today and would push commercial capabilities to ensure U.S. supremacy in 5G.