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Submitted via email to: secure5G@ntia.gov

National Telecommunications and Information Administration
U.S. Department of Commerce
1401 Constitution Avenue NW
Washington, DC 20230

RE: The National Strategy to Secure 5G Implementation Plan

The Partnership for Interoperable Networks (“the Partnership”) submits the following comments in response to the Invitation for Public Comments issued by the National Telecommunications and Information Administration (NTIA) on May 21, 2020 regarding the development of an Implementation Plan for the National Strategy to Secure 5G (“the Plan”).

The Partnership was established to expand public-private collaboration around the transition to 5G, including leveraging the potential of interoperability and virtualization. Accordingly, the Partnership is working with governments around the world to identify ways to facilitate the deployment of networks that are more diversified in their vendor base, efficient in their use of resources, and verifiably secure.

The U.S. will play an important role, given the size of its domestic telecommunications market, and the technical capabilities and innovation emerging from its domestic industry. A modular network construction will facilitate the emergence of a larger pool of trusted vendors, make network security more verifiable, increase the efficiency of networks, and establish a new market for products and services in which U.S. companies will be well-positioned to compete.

The Partnership appreciates the opportunity to comment on the Plan and looks forward to working with the U.S. Government to encourage the secure development and deployment of interoperable infrastructure for fifth-generation networks both in the United States and abroad.

Advancing Network Security

The U.S. Government has repeatedly voiced concerns regarding the presence of equipment from untrusted vendors in 5G networks. These concerns were echoed in the 2019 Prague Proposals, signed by 32 countries from the Americas, Asia Pacific and Europe, which stated that vendor risk assessments “should take into account rule of law, security environment, vendor malfeasance.”

Despite agreement, however, many countries see an immediate ban on certain vendors as unfeasible or undesirable because of competing political and economic considerations. The “rip and replace” model, wherein telecommunications equipment at each cell site is replaced before the end of its lifecycle, is very costly in the short term. Not every country’s geopolitical relationships mirror those of the United States. Most importantly, a focus on banning individual vendors does not solve the underlying dynamic that has driven market concentration and left us with an all too limited pool of trusted vendors.

Highly trusted vendors offer proven technology for broadly deployable 5G. The telecommunications equipment industry is also enjoying a wave of innovation from companies that offer technology based on open, interoperable and virtualized network architecture.

Among its many benefits, an open, interoperable and virtualized network architecture:

- Provides operators visibility into their networks
- Enables the testability of equipment to international standards
- Facilitates timely, remote patching of vulnerabilities
- Expands vendor diversity in network infrastructure
- Utilizes cloud security capabilities, including the ability to divert computing resources to remediate attacks

Creating a More Vibrant and Competitive Ecosystem

Network operators’ adoption of a modular architecture, in which individual vendors specialize in producing specific hardware or software components designed for interoperability with components from other vendors, can shift the market dynamics of

the network infrastructure market. By reducing financial barriers to entry and building to specifications for open interfaces, an expanded universe of companies can compete on cost and quality of service.

Greater competition among vendors and a broader base from which innovation can emerge can translate into a better value proposition for operators and their customers by enabling new capabilities to emerge. From an operator perspective, having competitive vendors from a range of countries at each layer of the network enables operators to weigh political and security risks as a differentiating factor among vendors. This is critical for the implementation of international best practices such as the Prague Proposals.

The shift to a software-centric architecture, meanwhile, can reduce operators' capital expenditure and operational expenditure by, among other things, enabling the use of commercial off-the-shelf hardware, remote patching and remediation of vulnerabilities, and greater utilization of existing cloud computing capabilities.

Given existing capabilities in cloud computing and software, U.S. companies should be well placed to compete in this architecture. Key allies such as Japan, Korea, the United Kingdom, the European Union, and India should also be equipped to compete. The integration of these firms into global supply chains will bring benefits in the form of increased tax revenues and job creation.

Benefits also include strong security for the U.S. public and their personal information. Increased diversity in the telecommunications supply chain, meanwhile, will lead to a greater value proposition for operators, by expanding the options available to them and enabling networks to be more tailored to particular use cases.

How the U.S. Government can Facilitate Deployments

The virtualization of network cores is already a reality for many network operators today. Interoperable, virtualized Radio Access Networks ("RAN") are the next important step. Standards developed by the Third Generation Partnership Project (3GPP) and the O-RAN Alliance have made interoperable, virtualized RANs possible from a technical perspective.

Concerted efforts by governments can assist. There are several financial, regulatory, and policy levers that the U.S. Government should implement to facilitate virtualized, interoperable networks. The following is a non-exhaustive list:

Procurement

- For government-owned networks, procure network equipment that adheres to international standards for interoperability, where appropriate.

Tax Incentives

- Provide tax incentives for research and development related to interoperable network technologies.
- Provide tax incentives for the procurement of interoperable infrastructure in public mobile networks. Approaches might include:
 - Tax relief for operators against the cost of procuring network infrastructure; and
 - A sales tax exemption on the purchase of equipment and technologies that adhere to relevant international standards.
- Provide tax incentives against the cost of procuring interoperable network infrastructure for use in enterprise networks. Applicable use cases may include smart manufacturing and precision agriculture.

Direct Funding

- Fund domestic or international pilot projects that utilize interoperable network infrastructure.
- Identify full-scale deployments that could be made commercially viable through partial government financing.
- Facilitate the use of interoperable network infrastructure in the provision of communications infrastructure through existing aid mechanisms, where applicable.

Development Financing

- Making the accelerated deployment of next generation networks a strategic priority for U.S. development finance institutions, such as USTDA.
- Ensuring the availability of development finance funds for the procurement of telecoms equipment that meets minimum interoperability guidelines, where applicable.

Regulation

- Identify existing regulation that impedes the operator procurement or deployment of interoperable or virtualized network equipment.
- Conduct a cost-benefit analysis of these regulations, including the benefits outlined in this paper, and where necessary update or remove them.

Engagement

- Clearly communicate to operators, vendors and the public the U.S. Government's support through a whole-of-government approach.
- Encourage the private sector to engage in the continued development of international standards for network interoperability.
- Liaise with international partners to ensure a coordinated approach to adoption.
- Share information around the challenges (and strategies for addressing) economic, political and technical challenges associated with this transition.

Many of these recommendations are already being operationalized in the U.S. and abroad. Legislation such as the Utilizing Strategic Allies Telecommunications Act (H.R. 6624) proposes grants to support Open RAN networks. Additionally, the U.S. Development Finance Corporation has identified the development and deployment of Open RAN technologies as a priority area for allocation of its \$60 billion investment cap.

The Government of Japan is moving forward with legislation which will provide both vendors and operators with tax incentives for the development and procurement of interoperable infrastructure. The Government of the United Kingdom, meanwhile, has rolled out a \$40 million grant program for the development of, among other things, "innovative virtualized and open RAN architectures".

As exemplified by the White House's National Strategy and the 2020 Secure 5G and Beyond Act, the United States has already made 5G a key technology priority in domestic policy. It should go further in supporting efforts to facilitate 5G deployments around the world, leveraging the benefits of interoperability and virtualization, where feasible.

We believe that by utilizing the levers outlined above, the U.S. Government can facilitate the creation of a robust marketplace for trusted vendors in the supply chain, which also offers numerous benefits to American industry and the public writ-large.

The Partnership appreciates NTIA's careful consideration of these essential issues and the open process used to solicit and ideas for the 5G Implementation Plan. We commend the U.S. Government's willingness to engage constructively with stakeholders on this important policy issue. As the conversation around fifth generation technology and interoperability continues to evolve, we welcome further opportunities to serve as a resource on both technical and policy questions to ensure that 5G networks are safely constructed and used.

Respectfully Submitted,

Partnership for Interoperable Networks