

Before the  
**NATIONAL TELECOMMUNICATIONS AND INFORMATION ADMINISTRATION**  
Washington, DC 20230

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| In the Matter of                              | ) |                        |
|   | ) |                        |
| Input on Proposals and Positions for the 2020 | ) | Docket No. 200521-0144 |
| World Telecommunication Standardization       | ) | RIN 0660-XC045         |
| Assembly                                      | ) |                        |

**COMMENTS OF  
THE COMPUTING TECHNOLOGY INDUSTRY ASSOCIATION  
(CompTIA)**

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## TABLE OF CONTENTS

|  |   |
|--|---|
| INTRODUCTION AND SUMMARY .....   | 1 |
| I. THE UNITED STATES SHOULD OPPOSE EFFORTS TO INVOLVE ITU-T WITH<br>FUNDAMENTAL CHANGES TO THE ARCHITECTURE OF THE INTERNET..... | 2 |
| A. Background on the “New IP” Proposal and FG-NET-2030 .....   | 2 |
| B. The New IP Proposals are Highly Problematic.....  | 4 |
| II. THE ITU-T IS NOT AN APPROPRIATE FORUM FOR ADDRESSING 5G SUPPLY<br>CHAIN SECURITY ISSUES.....                                 | 6 |
| III. THE ITU-T SHOULD FOCUS ON CORE TELECOMMUNICATIONS<br>STANDARDS DEVELOPMENT.....   | 7 |
| CONCLUSION.....  | 8 |

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THE COMPUTING TECHNOLOGY INDUSTRY ASSOCIATION  
(CompTIA)**

The Computing Technology Industry Association (“CompTIA”),<sup>1</sup> the leading association for the global information technology (IT) industry, respectfully submits these comments to the National Telecommunications and Information Administration (“NTIA”) in response to the above-captioned Request for Comments (“RFC”).<sup>2</sup>

**INTRODUCTION AND SUMMARY**

CompTIA appreciates NTIA’s work in preparation for the 2020 World Telecommunication Standardization Assembly (“W TSA-2020”), and we broadly agree with NTIA’s plans and proposals as described in the RFC. These comments focus on three specific issues. *First*, the United States should oppose any proposal that would involve the ITU-T with changes to the fundamental technical protocols upon which the Internet is currently based. An ITU-T focus group has been considering changes that CompTIA believes are unnecessary, would

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<sup>1</sup> CompTIA supports policies that enable the information technology industry to thrive in the global marketplace. We work to promote investment and innovation, market access, robust cybersecurity solutions, commonsense privacy policies, streamlined procurement, and a skilled IT workforce. Visit [www.comptia.org/advocacy](http://www.comptia.org/advocacy) to learn more.

<sup>2</sup> NTIA, *Input on Proposals and Positions for the 2020 World Telecommunication Standardization Assembly*, RIN 0660-XC045, 85 Fed. Reg. 27390 (May 8, 2020), <https://www.ntia.doc.gov/files/ntia/publications/fr-request-comments-wtsa-2020.pdf>.

harm innovation, and would potentially enable nations to more easily restrict the ability of their citizens to freely access the Internet. The changes are outside of the ITU-T remit, and the evolution of the IP protocol should continue in open, industry-led standards development organizations (“SDOs”) such as the Internet Engineering Task Force (“IETF”).

*Second*, the United States should not seek to involve ITU-T in efforts related to 5G supply chain security, since it would require involving ITU-T in issues with geopolitical implications and because such issues are better addressed through other national and multinational mechanisms. *Third*, the United States should seek agreement that ITU-T should focus on core telecommunications standardization and should not initiate work in areas outside that remit.

## **DISCUSSION**

### **I. THE UNITED STATES SHOULD OPPOSE EFFORTS TO INVOLVE ITU-T WITH FUNDAMENTAL CHANGES TO THE ARCHITECTURE OF THE INTERNET.**

#### **A. Background on the “New IP” Proposal and FG-NET-2030**

In September 2019, four entities – Huawei, China Mobile, China Unicom, and China’s Ministry of Industry and Information Technology (MIIT) – made a proposal and presentation to the ITU-T Telecommunications Standardization Advisory Group (“TSAG”) entitled “New IP, Shaping Future Network.”<sup>3</sup> As summarized in the proposal:

As the WTSA-20 is approaching, it is the right time for ITU-T to consider designing a new information and communications network with new protocol system that satisfies and serves for the future. \*\*\* As the international technology and standard organization, ITU-T is suggested to take a long-term view and shoulder the responsibility of a *top-down design for the future network*. Instead of one or two groups, the long-term work requires to have overall planning especially in the high-level planning. Therefore, the

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<sup>3</sup> ITU-T TSAG contribution T17-TSAG-C83, <https://www.itu.int/md/T17-TSAG-C-0083/en> (Sep. 10, 2019) (emphasis added) (ITU TIES login access required).

significant work in ITU-T would guide the global research and industrial development in future decades.<sup>4</sup>

The New IP proposals make a number of arguments for developing a new suite of networking protocols following a top-down design, all based around perceived shortcomings of the existing TCP/IP protocol: support for more heterogenous networks, *e.g.*, satellite combined with terrestrial, better performance, security intrinsic to the protocols, and so forth.

The Chinese proposal was an outgrowth of the ITU-T Focus Group on Technologies for Network 2030 (FG NET-2030), which was established in July 2018 with the goal of studying what kinds of network architecture will be needed to support future-generation communications such as “holographic type communications, extremely fast response in critical situations and high-precision communications demands of emerging market verticals.”<sup>5</sup> This focus group, which is referenced in the New IP proposal described above, released its first “Network 2030” blueprint in May 2019, which included the following:

We anticipate islands of Internet to become more self-serving to their customer needs and operating autonomously. In contrast the users would need the capability to switch from one island to the other or to be part of several of those islands on as needed basis. The most difficult part is resolving the regulatory patterns; [t]he simplest one we know of today is based on geographies and national boundaries that an internet could span, but the new harder regulatory patterns are where the regulations among two or more Internets will need to track when their users move between these networks. The challenge is in **finding innovative ways to solve accounting, diverse capability, and reachability problems, providing classes of citizenship and safe harbor to users and their assets.** Emergence of such *federated networks* will be imminent and Network 2030 undertakes this challenge to identify requirements in network technologies to understand this behaviour and provide dynamic regulatory-binding mechanisms.<sup>6</sup>

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<sup>4</sup> *Id.* at 3.

<sup>5</sup> ITU-T, *Focus Group on Technologies for Network 2030*, <https://www.itu.int/en/ITU-T/focusgroups/net2030/Pages/default.aspx>. The group is chaired by Richard Li of Huawei.

<sup>6</sup> FG-NET-2030, *Network 2030: A Blueprint of Technology, Applications, and Market Drivers Towards the Year 2030 and Beyond*, at 16 (May 2019) (emphasis in original), [https://www.itu.int/en/ITU-T/focusgroups/net2030/Documents/White\\_Paper.pdf](https://www.itu.int/en/ITU-T/focusgroups/net2030/Documents/White_Paper.pdf) (“Network 2030 Vision”).

However, the May 2019 report did not propose to replace TCP/IP with “New IP.”

## **B. The New IP Proposals are Highly Problematic.**

The New IP proposals are highly problematic for a number of reasons. *First*, any plan to replace TCP/IP protocols should be predicated on a consensus view that existing protocols will not support future requirements. Yet TCP/IP has proven itself to be a highly flexible tool that has supported several significant evolutions in networking. Indeed, at a technical level, many of the specific challenges identified in the New IP proposals have been solved and their solutions have already seen wide deployment on the Internet. Others are currently being addressed in organizations such as the IETF, IEEE, or 3GPP. For example, the New IP proposal purports to address the problems below, even as many of them do not need solving:

- *Universal encapsulation.* Today’s dominant and emergent encapsulations – Geneve, GRE, L2TPv3, VXLAN – are already extensible and deployed across thousands of networks worldwide.<sup>7</sup> It is unclear what applications or services requirements would not be met by an existing or future encapsulation or set of bit-carrying services.
- *Traffic steering and metadata carrying.* Segment Routing provides many of these functions and, while still being finalized, is deployed across many carriers, including several of Asia’s largest.<sup>8</sup>
- *Multipath.* The proposals express concerns around session/identity preservation across multiple network providers. However, multipath TCP has been widely deployed on iOS/macOS, Linux, FreeBSD, and other platforms for years. QUIC supports multipath failover natively, and new efforts such as Hybrid ICN and MP-QUIC are also addressing this.<sup>9</sup>
- *Determinism.* The IEEE 802.1 Time-Sensitive Networking standards, designed to guarantee packet transport with bounded latency, low packet delay variation, and low

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<sup>7</sup> See, e.g., Cisco, *Encapsulation Techniques: Generic Network Virtualization Encapsulation, VXLAN Generic Protocol Extension, and Network Service Header*, <https://www.cisco.com/c/en/us/solutions/collateral/data-center-virtualization/application-centric-infrastructure/white-paper-c11-733127.pdf>

<sup>8</sup> <https://www.segment-routing.net/news/>.

<sup>9</sup> See, e.g., Multipath QUIC, <https://multipath-quic.org>.

packet loss on local and metro area networks, are being deployed across the audio, video, and entertainment production industries, with other industries expected to follow soon. Ongoing work in the IETF to standardize deterministic networking for layer 2 bridged and layer 3 networks will see these deployments expanding further.<sup>10</sup>

- Similarly, 3GPP is progressing URLLC (Ultra Reliable Low-Latency Communication) and the 5G Alliance for Connected Industries and Automation (5G-ACIA) is defining URLLC specifically for industrial automation and control systems that need a wireless type of time-sensitive networking.<sup>11</sup>

While the items above are illustrative, there is no example cited in the Network 2030 paper that cannot be addressed using the current approach to IP networking.<sup>12</sup> Moreover, with respect to the issue of determinism and latency, it remains to be seen whether there is any feasible use case that demands the scope of control that the proposal is trying to achieve.

*Second*, proposals to replace or amend the current Internet Protocol suite with non-interoperable protocols have the potential to be very disruptive to existing network operations, software development, and commerce. As discussed above, a better approach is to use existing tools to continue to move the Internet forward to address new use cases. Monolithic top-down

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<sup>10</sup> <https://datatracker.ietf.org/wg/detnet/about/>.

<sup>11</sup> 3GPP, *Study on physical layer enhancements for NR ultra-reliable and low latency case (URLLC)*, <https://portal.3gpp.org/desktopmodules/Specifications/SpecificationDetails.aspx?specificationId=3498>; Alan Weisberger, *3GPP Release 16 Updated: 5G Phase 2 (including URLLC) to be completed in June 2020; Mission Critical apps extended*, IEEE Communications Society Technology Blog (Oct. 6, 2019), <https://techblog.comsoc.org/2019/10/06/3gpp-release-16-update-5g-phase-2-including-urllc-to-be-completed-in-june-2020/>; 5G-ACIA, *White Paper: 5G for Connected Industries and Automation, Second Edition* (Feb. 2019), [https://www.5g-acia.org/fileadmin/5G-ACIA/Publikationen/Whitepaper\\_5G\\_for\\_Connected\\_Industries\\_and\\_Automation/WP\\_5G\\_for\\_Connected\\_Industries\\_and\\_Automation\\_Download\\_19.03.19.pdf](https://www.5g-acia.org/fileadmin/5G-ACIA/Publikationen/Whitepaper_5G_for_Connected_Industries_and_Automation/WP_5G_for_Connected_Industries_and_Automation_Download_19.03.19.pdf).

<sup>12</sup> The Internet Society recently published a discussion paper providing extensive analysis and criticism of the New IP proposal. Internet Society, *Discussion Paper: An analysis of the “New IP” proposal to the ITU-T*, Apr. 24, 2020, <https://www.internetsociety.org/resources/doc/2020/discussion-paper-an-analysis-of-the-new-ip-proposal-to-the-itu-t/>

architectures have consistently failed to produce the kind of widespread success that architectures based on composable building blocks, such as the Internet, have produced. Even if specific, difficult-to-address problems with TCP/IP could be identified from the New IP work to date, designing a whole new architecture where applications are tightly coupled to the network would be the wrong approach as this tight coupling would restrict rather than facilitate innovation.

*Third*, CompTIA is concerned that proposals to impose a top-down architecture on the Internet, using a protocol that more tightly couples applications to the physical layer, could eventually lead to greater ability on the part of repressive governments to further their own domestic or geopolitical objectives. The open architecture of the Internet has been transformative for civil society, and has benefited the United States in a variety of respects. The United States should oppose proposals that could potentially limit it. Other organizations such as the United States Council for International Business have raised similar concerns that CompTIA shares.<sup>13</sup>

## **II. THE ITU-T IS NOT AN APPROPRIATE FORUM FOR ADDRESSING 5G SUPPLY CHAIN SECURITY ISSUES.**

In the RFC, NTIA asks whether “ITU recommendations are necessary to ensure a resilient, secure and diverse 5G supply chain ... to ensure traceability, transparency, security, privacy, and trustworthiness of data, devices, and networks.”<sup>14</sup> In CompTIA’s view, the ITU-T is generally not an appropriate forum for addressing 5G supply chain security issues. Rather, 5G

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<sup>13</sup> See, e.g., United States Council for International Business, Letter to Adam Lusin, U.S. State Departments, Feb. 21, 2020, at 4, <https://www.state.gov/wp-content/uploads/2020/02/USCIB-508.pdf> (expressing concern about the New IP proposals and other efforts “to push proposals with non-democratic implications,” and urging the United States to “counter the creep of authoritarian multilateralism”).

<sup>14</sup> 85 Fed. Reg. at 27393.

supply chain security work is already happening around the world, and the United States is a leader in that work. Industry standards bodies, public-private partnerships, and multilateral efforts like the Prague Principles are just a few ways that such challenges are already being addressed. The supply chain security challenge is also geopolitical, economic, and administrative and therefore requires additional competencies, so ITU-T is not a suitable venue for such efforts.

### **III. THE ITU-T SHOULD FOCUS ON CORE TELECOMMUNICATIONS STANDARDS DEVELOPMENT.**

Many of the new areas of potential work cited in the RFC would fall well outside the ITU-T's remit and area of core competence. Aside from standardization in Internet protocols, issues such as artificial intelligence and healthcare are other examples of work that is being successfully addressed by other SDOs with active participation by industry experts from around the world. The United States should therefore advocate for the ITU-T to maintain a focus on core telecommunications standards. Specifically, the U.S. should seek a commitment at WTSA-2020 that the ITU-T will avoid duplicating the work of other organizations that are developing globally relevant standards.

**CONCLUSION**

CompTIA appreciates the opportunity to comment, and urges the United States to adopt positions for WTSA-2020 in accordance with the above.

Sincerely,

*/s/ Dileep Srihari* \_\_\_\_\_

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