



Grappling with Goliath: Assessing the Quad's Efficacy on 5G and Open Network Architectures

Event Summary

Thursday, October 27, 2022

- The Centre for Social and Economic Progress (CSEP) hosted the eleventh edition of its Foreign Policy and Security Tiffin Talk series with **Dr. Karthik Nachiappan**, Research Fellow, Institute for South Asian Studies, National University of Singapore on his research on **Assessing the Quad's Efficacy on 5G and Open Network Architectures**.
- The lead discussants were **Ms. Rama Vedashree**, Advisory Board Member, IIT Bombay Trust Lab, former Chief Executive Officer, Data Security Council of India (DSCI), and former Vice-President, National Association of Software and Service Companies (NASSCOM), **Dr. Gulshan Rai**, former National Cyber Security Coordinator, Government of India, and former Director General, CERT-In (Indian Computer Emergency Response Team), Ministry of Communications and Information Technology, **Dr. Sanjay Bahl**, Director General, CERT-In (Indian Computer Emergency Response Team), Ministry of Communications and Information Technology and **Mr. Anirudh Burman**, Associate Research Director and Fellow, Carnegie India.
- The discussion was moderated by **Dr. Constantino Xavier**, Fellow, Foreign Policy and Security, CSEP. The participation included representatives from the Ministry of External Affairs, scholars from leading think tanks and universities from India and abroad.
- The Tiffin Talk Series features scholars presenting their recent, evidence-based research to peers and practitioners. This series of closed-door seminars seeks to facilitate dialogue between researchers and policymakers on India's foreign and security affairs.

Disrupting a monopoly

Since the March 2021 leader's meeting, the Quad has increasingly focussed on developing critical and emerging technologies in the Indo-Pacific. In this context, Nachiappan presented his draft working paper co-authored with Nishant Rajeev that assesses the Quad's efficacy in developing and deploying Open Radio Access Networks (O-RAN). The Quad's focus and activities have to be understood relative to Chinese and Huawei's technological dominance in this area. Huawei's position within 5G architectures is shaped by several factors such as large research and development (R&D) budgets, control over 5G patents, competitive market prices, and the ability to tie financing with infrastructural support.

To maintain a liberal and democratic ecosystem for domestic telecom infrastructures, the Quad has been exploring the development of O-RAN and virtualised network architectures (V-RAN) as potential alternatives. In his paper, Nachiappan and Rajeev suggest that O-RAN could be viable for the Quad in line with its guiding principles of "transparency and trust" because of its "more decentralised network architecture" and the inclusion of "multiple vendors" at different stages. As another avenue for decentralising the network system, Nachiappan drew on the possibility of "sub-Quad" and "supra-Quad" where the four countries tackle issues by working bilaterally or trilaterally and collaborate with partners outside the Quad when appropriate.

The Quad's 5G agenda

In terms of the Quad's role here, Nachiappan suggested that the US, Japan, and Australia could provide the financial muscle required for the project, citing the recent CHIPS and Science Act (2022) passed in the US Congress, which pledges \$1.5 billion towards the development of technologies that use O-RAN. These countries can also work together bilaterally, as is the case with the US-Japan Competitive and Resilience Partnerships (CoRE) which announced \$4.5 billion towards 5G development. Apart from financial support, they can provide R&D along with training the workforce in South and Southeast Asia for the deployment of these O-RAN networks. Highlighting the "leadership and dynamism of Japanese tech companies" such as Rakuten, with one of the largest O-RAN networks, Nachiappan suggested Japan could leverage its experiences and oversee O-RAN deployment in the Indo-Pacific. Australia, he suggested, could layout the standards for cybersecurity and take on the role of "creating, sharing and disseminating knowledge" related to the O-RAN architecture. Given its large market size and share, Nachiappan drew on India's ability to host the 5G and O-RAN rollouts which would contribute to "further mainstreaming O-RAN over time in the Indo-Pacific".

Challenges to Open Network Architectures

A participant noted that the global focus in this sector should be that of "avoiding tech lobbying and promoting tech resistance". The participant also flagged the depth of R&D required for the development of such a network. Nachiappan stated that while many developed countries were weary of Huawei, countries in Southeast Asia held positive perceptions about the company and trusted it to develop their 5G network infrastructure. A participant noted that the aim of the Quad should not be to completely disengage from Huawei as "the negotiating power of the service technology providers would go down" and displacing existing vendors would be difficult. Also warning that while funding

might be flowing in, the capabilities of every country to develop a 5G ecosystem in the near-term might be different. Critically assessing Nachiappan's thesis of role allocation to the Quad countries, few participants urged for a reassessment of India's role in the process. Participants strongly affirmed India's capability and desire to be "more than a testing ground" for O-RAN and V-RAN architectures. A participant flagged the case of Sri Lanka and the role Chinese 5G investments played in the country's present situation. The participant highlighted the increased cybersecurity risks that come with not only 5G but also O-RAN and V-RAN as the number of stakeholders involved increase. Discussing the cybersecurity concerns, participants highlighted India's "equitable role" by stating that "security is a partnership approach". Promoting software and telecom clusters in India was suggested as an avenue for equitable co-creation, innovation, and deployment of 5G and O-RAN. Participants stated examples of Tata Consultancy Services (TCS) and Wipro which have massive telecom customers globally as well as the capability to develop an end-to-end O-RAN framework. Flagging the cost and security efficacy of O-RAN, a participant questioned why Quad countries would invest in it, instead of investing in proprietary systems, especially when having multiple vendors would increase friction and transaction costs.

Geopolitics versus Technology

Concluding the discussion, Nachiappan located his paper in the ambit of literature on the Quad and its evolution as its agenda expands. As the character of the Quad has changed, so have the issues it chooses to discuss and address. Why have certain issues become a priority while others have lost steam? Will O-RAN aid technology diversification in the Indo-Pacific with Nokia withholding its commitments to the O-RAN alliance? Can it act as a viable alternative to Chinese manufacturers who offer competitive market prices and continue to be a part of the O-RAN alliance? Will the Quad's agenda of being a regional public goods provider be influenced by the securitisation of issues in the Indo-Pacific?

All content reflects the individual views of the participants. The Centre for Social and Economic Progress (CSEP) does not hold an institutional view on any subject.

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