

Accelerating Network Innovation

A Sum Greater than its Parts

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The pace of innovation has never been this fast, yet it will never be this slow again. To wit: Telephone took 75 years to reach 50 million users, Internet took 4 years to reach the same number and Pokemon Go reached 50 million users in just 19 days. Welcome to the Digital world. Networks are the heart of accelerating this pace of innovation, yet network innovation itself has stifled to a snail pace of a generation (2G, 3G...) per decade.

This slow innovation rate for networks can be broadly attributed to two key reasons:

- First, networks are CapEx and OpEx intensive. CSPs (Communication Service Providers) spend billions of dollars to rollout their network and in turn need time to generate desired RoI.
- Second, the large incumbent OEMs have failed to deliver cost effective product innovation.
- Vendor lock-in has resulted in CSP's innovating their networks only at the speed of their vendor's roadmap.

It's time to change this.

The solution for the first problem lies in realizing the new network architecture. Architecture that decouples the underlying hardware infrastructure from the software network functions that run on it. This paves the way for accelerating network innovation at the speed-of-software. Software Defined Networking (SDN), Network Functions Virtualization (NFV), Network Function Dis-aggregation and Open Source innovation are forces shaping the new network architecture. In this new architecture, the underlying infrastructure is shared. Network Functions are realized as software VMs or containers. This eliminates the need for CSPs to rollout new equipment for new network capabilities, thereby lowering the required investment and solving their RoI challenge.

The solution to the second problem lies in creating a new, vibrant ecosystem of innovators and disruptors - instead of the existing limited set of incumbent vendors. No one company, no matter how large, has a lock-in on innovation. To drive innovation, CSPs must hypercharge competition. Further CSPs should strategically engage with this new ecosystem to co-create solutions. Historically, CSPs have struggled to diversify their supply chain because of the CapEx intensive nature of their networks. New network architecture now paves the way for CSPs to benefit from this new ecosystem. This does create integration challenges, and thus, CSPs need to strategically engage with Systems Integrators.

Today's market reality is that the large incumbent OEMs have been slow to adopt new network architecture and have been a drag on the market. Meanwhile, network disruptors are charging ahead and driving the new network architecture in close collaboration with CSPs. Accelerating network innovation will require both, new network architecture and new ecosystem.

To accelerate network innovation, Tech Mahindra has been at the forefront of developing the new network ecosystem of innovators and disruptors. The new ecosystem is being developed in close collaboration with the CSPs. Innovative partners are at the heart of our Network Services strategy. Our partnership with Altiostar and Mojo Networks is strategically aligned to accelerate network innovation. We are also collaborating with new-age industry bodies like TIP and are leading industry open source initiatives like ONAP and Open vRAN. In collaboration with AT&T and Linux Foundation we co-created Acumos, an open source AI marketplace platform, geared to accelerate AI adoption for CSPs. Tech Mahindra is also investing in reskilling their workforce on the new-age network technologies like SDN and NFV.

Tech Mahindra's VNF-Xchange addresses the integration challenge. It is a collaborative platform where partners come together with Tech Mahindra to create fully integrated and certified solutions. To date, 30+ disruptors have been already on-boarded to the VNF-Xchange and have collaboratively created fully integrated, virtualized solutions for access, core and enterprise networks.

Altiostar is disrupting the RAN market. Altiostar is the vRAN (Virtual RAN) pioneer and has implemented the software modules of eNodeB as VNF called vBBU that run on COTS hardware. Altiostar's vRAN fronthaul solution enables RRH and vBBU to be connected over any commercially available transport, e.g. metro Ethernet or GPON. The solution paves the way for CSPs to realize the economies-of-Cloud for their RAN network and to rapidly innovate their RAN with Application Intelligence. It paves the way for 5G with only software upgrade; no fork lift required.

Mojo Networks is disrupting the WiFi market. Mojo is revolutionizing WiFi through the power of dis-aggregation, cloud and AI technologies. Mojo's Cognitive WiFi harnesses the power of cloud, big data analytics, automation and self-awareness. Mojo designed and built the world's first cloud

managed WiFi solution specifically for large scale WiFi networks. Mojo's cloud architecture replaces antiquated controllers and simplifies infrastructure migration to Cloud.

Tech Mahindra's collaborative partnerships with Altiostar and Mojo Networks are prime examples of the new network ecosystem that is aligned to create new age solutions to accelerate network innovation. These solutions harness the power of SDN, NFV, Cloud, AI and Big Data technologies. These disruptive solutions, paired with Tech Mahindra's industry leadership, enable CSPs to transform their RAN and WiFi networks to be agile, elastic, programmable and API-driven. Above all, these solutions deliver innovation at a significantly lower cost than today's monolithic networks.

The new network ecosystem will not be a handful of large incumbents but rather a wide range of innovators and disruptors closely collaborating with CSPs to meet the demands of the Network of the Future. The sum will be much greater than the parts. We are truly excited about the emergence of this new eco-systems of partners who are aligned to accelerate network innovation. These are exciting times for all of us with so much to transform, so much to collaborate and so much to innovate!

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We are part of the USD 19 billion Mahindra Group that employs more than 200,000 people in over 100 countries. The Group operates in the key industries that drive economic growth, enjoying a leadership position in tractors, utility vehicles, after-market, information technology and vacation ownership.

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