

Top Trends Shaping Networks in 2021



By:

The past year has been demanding for network operators, requiring them to deliver seamless connectivity to subscribers as traffic patterns shifted and hit peak levels virtually overnight. Employees, students and consumers alike have experienced a tremendous change in how they live, work and play, making the role that service providers play in our daily lives more critical than ever before.

With increased pressure to deliver not just connectivity but also a seamless- and quality-service experience to their customers, operators have increased their investment focus in automation, edge computing, increased bandwidth, security and more. These investments will not only strengthen how service providers build, design, and operate their networks, but they will also simplify operations and deliver a superior end-user experience as networks get bigger, more dynamic, and increasingly complex.

Delivering a seamless and assured service experience for businesses and consumers of the future will be essential for service providers in 2021 and beyond. Here are the top trends we will see take shape this year with current—and future—networks.

Preparing for the unknown

The COVID-19 pandemic shifted our world from physical to virtual almost immediately, placing enormous responsibility on service providers to deliver seamless real-time and near real-time experiences at peak traffic levels. Traffic patterns are shifting from mobility toward Wi-Fi and broadband networks, as work shifts to the home and the lines between consumers and enterprise users continue to blur. These shifts are causing long-term changes in how service providers architect and manage their networks for the “enterprise-at-home.”

This year, we will see more focus on ensuring networks are ready for the “unknowns,” with service providers accelerating investments in open, agile network architectures built on cloud principles, elastic on-demand capacities and automation and security for an assured service experience. With a heightened focus on service experience, we can expect automation, service assurance, AI, ML, and orchestration technologies to take on an even more significant role in service provider network

operations, guaranteeing service quality and simplifying operations as networks get bigger, more dynamic and more complex.

The value of the edge

Networks have never been more critical than they are right now. Business, education, telemedicine, and social connection all have moved from engaging in-person to engaging virtually, and multi-participant video calls have become a fundamental part of our daily lives. Massive consumption of streaming media and an all-time high in online gaming has driven CDN growth. Service providers have responded quickly to manage the surge in traffic while avoiding lagging, downgraded quality, and slower speeds.

This year, we'll see service providers double down on investments in edge cloud, moving applications and data closer to users and connected devices to enhance the user and application experience, support new emerging low-latency applications, and make more efficient use of network transit capacity.

The responsibility for network security

While security has often taken a back seat to making way for faster network speeds, the pandemic has proven that bad actors will take advantage of a crisis for their own gain. This year, we'll see service providers take a holistic, end-to-end security approach that combines network, application and end-user security to deliver a secure and assured service experience. This is especially important as we're experiencing another wave of lockdowns and working from home becomes the new normal, presenting an enticing attack surface to attackers. We'll also see more companies investing more in enterprise-at-home solutions with security at the forefront, ensuring that all endpoints in the networks are secure, wherever they are.

5G monetization opportunities

Despite the pandemic shifting operational priorities, causing some new network roll-outs to slow down, service providers have still been heavily investing in and deploying 5G networks. With over 140 commercial networks launched across the globe, and many more expected in 2021, 5G is now real, bringing new monetization opportunities for operators. With massive speeds, huge connection densities and ultra-low-latency experiences, we expect to see progress in new consumer applications (such as gaming, augmented reality, virtual reality and mixed reality), 5G for industry verticals, consumer broadband with content bundling, enterprise broadband and cloud-managed services and fixed wireless access services in 2021.

400G deployments ramp up

As commercial solutions become more viable to support the relentless growth in bandwidth demand, we will continue to see momentum build for 400G in 2021 and in the years to come. While large cloud providers are driving the first wave in the data center and the wide-area network, expect to see 400G ramp up in service provider networks in 2021, as well as across data center interconnect, core, peering, and CDN gateway use cases, among others. We will see large-scale rollouts of 400G in the WAN, especially in the second half of the year, driven by the availability of lower-cost optics, lower

operating expense potential with fewer ports to manage, and pay-as-you-go pricing models that will allow operators to smoothly navigate the upgrades. Looking beyond this year, we will see 400G appear in metro aggregation nodes as 5G buildouts drive even more traffic and network densification.

Open RAN is here to stay

Operators are leaning further into vendor choice and flexibility to better capitalize on mix-and-match solutions that help reduce operating costs—all as part of a bigger effort to manage the surge in network traffic while still staying profitable. The service provider industry's drive towards open architectures will continue to gain momentum in all areas. Open RAN is no exception.

We will see accelerated momentum in Open RAN globally with RFPs, trials and early deployments as many operators commit to democratize their radio access domain mainly for driving vendor diversity and best-of-breed innovation. While commercial widescale deployments of Open RAN are a few years out, we will see a strengthened Open RAN ecosystem, greater technology maturity and new kinds of partnerships that will fundamentally change how radio networks will be deployed, managed, and leveraged for value creation in the future.

Future networks: Preparing for the next wave

While traffic patterns may never completely return to pre-COVID levels once we emerge from the current situation, we will see longer-term changes in relation to how service providers build, design and manage their networks. This past year made it more evident that connectivity will always be in demand, so service providers will continue to invest in open, agile network architectures allowing them to respond, innovate and scale smartly. The pandemic served as an opportunity to unlock innovations in network operations, driving ongoing investments in automation tools to operate networks reliably, efficiently and at scale. And with heightened user expectations, the pandemic brought into focus the need for service providers to secure and assure services effectively for their customers to deliver the needed experience no matter what the future brings.