

# ASOCS

## Wireless Bandwidth and Connectivity Need a Fresh Approach



BY ERAN BELLO



**When things are working poorly**, they often become the inspiration for innovation. Such is the case with in-building/campus wireless bandwidth and connectivity today. Consumers want always-on connectivity and unlimited wireless bandwidth. However, what they typically find is service that is spotty, painfully slow or substandard in a variety of ways – it is time for innovative ideas.

Today's consumers are nearly always connected to some device, and most of us are very device-centric. In fact, by 2021, Cisco predicts there will be 12 billion mobile-connected devices globally\*. The days of people being completely "off the grid" are nearly obsolete. For most of us, between work, home, and our outside interests, we either need or want to be connected all the time.

### It is a Bottom Line and Security Issue

Today's enterprise in-building/campus wireless connectivity solutions often fall short, which can hurt the bottom line. CIOs are faced with extremely high CapEx and OpEx and are left with spotty bandwidth, insufficient security, and a lack of data analytics that could help them improve the ROI on connectivity investments.

Still, more devices and more points of connectivity are the new normal. Computing giant Dell, recently announced it is investing \$1 billion to create its own Internet of Things (IoT) division. Their reasoning is that devices on the edge (phones, sensors, etc.) no longer have time to wait for a response from a centralized infrastructure. Such devices must be able to process information locally, and make decisions in real time, which solves the expense issue associated with microcell and small cell backhaul, and leaves the data far more secure. Dell's news also reinforces the general need for an improved infrastructure that can support this level of connectedness, including reliable connections with a path for the burgeoning IoT.

But often, such paths are neither as secure nor as efficient as they should be. For instance, data originating on a mobile device might leave an enterprise and go through the remote carrier network out to the cloud service provider where most apps are hosted. Then, once it is acted upon, it may return, via the same route, back to the device. Even sensitive corporate data often flows past the enterprise firewall on a network that enterprises have no control over. It simply does not make sense for data to leave the enterprise network when it is merely being transferred between two devices in the same building, or when it is IoT data.

## Needed: 5G Service Over 4G Networks

So what else can we, as an industry, do? For starters, we should be providing 5G service levels over 4G networks. Providing services that address high bandwidth and low latency is achievable with on-premise mobile edge clouds that eliminate bandwidth worries and keep data on-site.

Virtualizing the wireless base station is at the core of the on-premise mobile cloud, allowing the agility, visibility and IT system integration to address a variety of users, applications, and device needs.

Getting to that next level requires gaining far greater insights into our networks so we can better monitor our current levels of productivity and make decisions for moving forward. If we rely on carrier networks, we must understand how, and whether, those networks are meeting (or not meeting) the needs of our users.

What we find in pursuing this insight is that, often, carrier networks and Wi-Fi cannot keep up with demand. Think about fans at a sports venue hoping to live-stream video from Facebook, or exhibitors at a trade show attempting to upload sales forms to sign on a new customer. If connectivity performance is not sufficient, those users will be frustrated.

Moreover, beyond the limited bandwidth, there are also issues with mobility when people are on the move between access points. With a better solution, they could be receiving personalized service levels and secure authentication when compared with the cellular individual SIM. The same is true for visitors to healthcare facilities, hotels, conference centers, shopping malls, or corporate tenants of office buildings.

Most CIOs will admit that meeting user demands for greater connectivity is not easy since demand often fluctuates. At a shopping mall, the holiday season will include high demand for connectivity while summer will be less so. An outdoor concert venue may be very busy during the summer but not so much in the spring or fall. Sure, it is possible to upgrade networks to accommodate peak demand, but that does not happen overnight, nor does it translate into flexibility for scaling up or down based on actual, current demands.

If users hit a Wi-Fi wall because of heavy usage, they become frustrated, focusing their anger on the brand associated with the Wi-Fi network – most typically, the enterprise or venue. Worse, such situations create lost opportunities and revenue for the venue or building because they lose insight into what is happening on the network, and lose opportunities for direct marketing

## Bandwidth = Competitiveness

Buildings with yesterday's connectivity may find themselves unable to compete in competitive real estate markets. When prospective corporate tenants are researching options for their businesses, buildings that can offer more connectivity options are at an advantage. Services, such as on-premise mobile edge clouds with unlimited capacity and always-on connectivity, surely will receive higher consideration than those without those attributes. In fact, for real estate tenants, consumer loyalty is tied closely to cellular experiences, only topped by location, price and amenities such as parking.

Getting around those issues leaves many building and venue owners trying to compensate for poor connectivity by using Distributed Antenna System (DAS) networks to augment their Wi-Fi. While Wi-Fi certainly has its place, these networks often are less secure, and frequently face bandwidth limitations.

Cellular networks, in contrast, provide secure SIM-based networks, but they still do not solve all the bandwidth problems. That is largely because the business models for running DAS still leaves capacity in the hands of the carrier. Small cells are another solution, providing flexibility for deployment and maintenance. The downside is that small cells support a single carrier (operator) with limited numbers of subscribers, so a medium to large venue would need dozens or hundreds of cells.

The truth is that none of these solutions gets enterprise users to their goal of having affordable, consistent, reliable access and unlimited bandwidth.

## Innovation Addresses Connectivity, Capacity, Security

On-premise mobile edge clouds (when combined with DAS) are paving the way for tomorrow's "everything-connected" world

by addressing the mobile connectivity, capacity and security challenges associated with true digital transformation. When enterprises have ownership and control of their mobile networks, it changes how users wirelessly connect with, and leverage, the internet inside large buildings and venues, without limiting their ability to work with multiple service providers.

Current wireless connectivity solutions do not provide enterprises with sufficient capacity, aggregated data analytics, or a satisfying user experience. Rather, what enterprises need are solutions that guarantee high-bandwidth mobile data and provide a rich database of the “who, what, where and when” aspects of network activity. And when they have unlimited, secure mobile capacity and secure connectivity, along with the ability to collect and analyze their network activity, CIOs can improve productivity, increase revenue, and deliver new services and applications.

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### References

\*Source: Cisco® Visual Networking Index (VNI) Global Mobile Data Traffic Forecast, 2016-2021

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