2020 will be a year of critical decisions for wireless operators

We've heard about the promise of 5G for years – how it will be faster and more efficient – but it wasn't until 2019 that we saw the first, small signs of rollout around the world. While we wait for additional cities to come online and 5G devices to be introduced, we believe 2020 will be the kickoff to a more connected future.

Consumers will continue to hear about 5G and the benefits it will offer including gaming and augmented reality, which will lead the drive for low latency. But gaming, augmented reality and even video – which is predicted to be 82 percent of all IP traffic by 2020 – are not the killer apps that will drive the consumer need for new experiences and the need for 5G.

Operators will not wait for the killer app and will be busy in 2020 rolling out, densifying, and powering the network in a variety of bands while working on driving the standards and technology.

Choose a band

Operators around the world have designated mid-band (mostly 3.5GHz) as a primary band for 5G, however the U.S. operators do not have this option, and thus are using both current lower frequency bands and mmWave frequencies (above 24 GHz).

Operators need efficiency in terms of cost per bit per area, which dictates how, where, and what bands they are going to deploy. In other words, operators will decide if they use high band, then the cost per bit goes down, but the area decreases so they need to deploy more cells which drives up cost. When using mid-band or low band spectrum, which enables them to lower cost as they don't have to deploy as many cells to cover the same area, the cost per bit goes up as the bandwidth of the radios is significantly less. The key will be an optimization equation driving high frequency in more dense areas, and lower frequency in less dense areas.

Which bands are owned and deployed by an operator will dictate the areas of coverage, reach and speed. What we will end up with is 'coverage kings,' 'capacity kings,' and "fixed wireless". Coverage kings will use their spectrum and chosen technology to cover a large geographic area; for example Australia, where most of the population is on the coasts but the interior of the country still needs coverage. Capacity kings will focus on cities like New York, Paris and London, and other densely populated areas relying on technologies such as small cells, to deliver speed and low latency services to consumers, businesses and connected devices. Fixed wireless will focus on delivering the service with the reach to provide broadband connectivity to low population density users economically.

More spectrum will become available in various regions of the world through auctions or allocation with every passing year. In 2020 we will see the launch of shared spectrum and the potential to prove it can work. The Citizens Broadband Radio Service (CBRS) in the U.S. will enter full commercial deployment and utilize a spectrum access system to allocate spectrum. Other regions will watch and see if this experiment works, and make adjustments to implement in other parts of the world.

In addition to licensed and shared spectrum, 2020 is also the year that Wi-Fi 6 goes mainstream. There is a concerted push to increase available spectrum for Wi-Fi in the 6GHz band. There continues to be a drive to utilize all spectrum to meet consumers' needs, both licensed and unlicensed.

Although Statista predicts the global number of 5G connections to be 1.1B by 2025, Wi-Fi 6 is an option for businesses and densely populated areas to offer wireless coverage.

Standards and technology

Open standards continue to be a big topic of discussion and we see 2020 as the beginning of a three-year process that will prove if open standards will be beneficial for the wireless operator. The O-RAN Alliance is an organization that has "committed to evolving radio access networks around the world." Their vision is to virtualize various network elements, white box hardware and standardized interfaces throughout the network. Although the organization is young – founded in 2018 – it already has more than 120 member companies working toward openness and intelligence. We believe that 2020 will see agreement on key aspects of O-RAN speeding up 5G network deployments.

Many wireless operators have started 5G network deployments with small trials of massive MIMO (multiple-input and multiple-output) technology. As networks are brought online in 2020, the amount of data required, along with the cost of power, backhaul and site acquisition, will dictate if and when massive MIMO plays out in network deployments. If more capacity is needed, 2020 could see an increase in massive MIMO deployments however, as efficiency goes up with massive MIMO, complexity and cost also goes up.

TDD (time division duplex) has been the technology used for Wi-Fi, while FDD (Frequency division duplex) has been used for most of the cellular world. With the introduction of higher frequency licensed spectrum, TDD is now going mainstream with 5G. This will bring new challenges and benefits and a different type of complexity as it is integrated in with the traditional TDD bands. The addition of this TDD spectrum will enable wireless networks to compete with wired networks.

Rollin’ out the networks

We see 2020 as a major 5G coverage and capacity build year. Not only will 5G require touching the macro-sites, but will require densification of metro cells and beefing up in-buildings systems.

Although it is still early days, data and processing are starting to move from the network's core towards the edge to remove bottlenecks. We will see more of this happen as the network virtualizes.

As the metro layer of the network becomes more important, getting power to these locations will be critical from a cost and time perspective. CommScope has long talked about PBS – power, backhaul and site acquisition as the critical three for building a network and this is even truer for 5G.

5G has launched in places around the world, but it is only in its infancy. Network operators still have a lot of work to do to make this technology live up to its potential. We believe that 2020 will be the year that network operators put the pieces into place to deliver the 5G promise and expect the lines between wireless and wireline will continue to blur.

CommScope pushes the boundaries of communications technology with game-changing ideas and ground-breaking discoveries that spark profound human achievement. We collaborate with our customers and partners to design, create and build the world’s most advanced networks. It is our passion and commitment to identify the next opportunity and realize a better tomorrow. Discover more at commscope.com

COMMSCOPE®

commscope.com

Visit our website or contact your local CommScope representative for more information.

MC-114096-EN (01/20)