



Top 7 Talking Points for 5G vs Wi-Fi for CIOs

The goal of this document is simple: to arm chief information officers (CIOs) and other network professionals with quick and easy talking points to think and speak intelligently about enterprise Wi-Fi and 5G.

Talking Point #1: Wi-Fi and 5G are Simultaneously Complementary, Competitive, and Convergent.

Private cellular is suitable for wide areas, outdoor spaces, industrial devices, and mobility. Whereas, Wi-Fi is often best suited for indoor and small outdoor areas, especially for high density, bulk data, and ubiquitous device support. There exists a grey area in between where both technologies will fit.

When using the word “convergence” in this context, we do not mean the two will become one. Instead, we believe the experience of managing and operating both wireless technologies will become more similar and unified over time. Figure 1 depicts several false narratives and how we should capture and reframe the pseudo-truths in both.

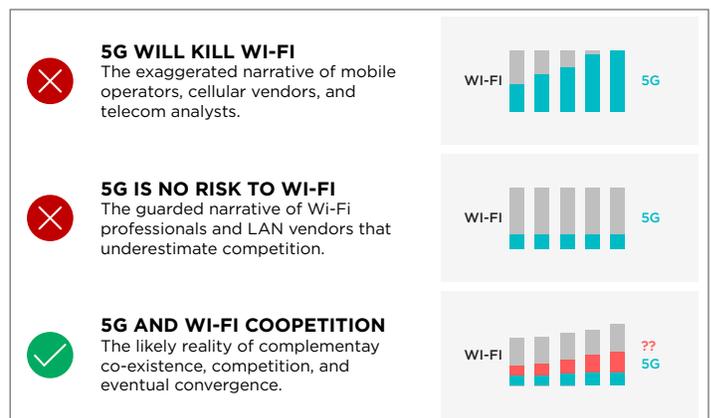


Figure 1: False narratives

Talking Point #2: Enterprise Ethernet, and Wi-Fi Will Remain Ubiquitous, While 5G Fills Gaps

Private 5G will be a “hotspot” solution for specific areas, applications, and use cases for at least the next five years. Wi-Fi is too ubiquitous and too cheap to replace.

There are specific verticals where private cellular really shines, like energy and utilities, transportation, agriculture, and mining, but Wi-Fi is still needed everywhere else. So for most environments, the question is not “which technology should I choose,” but instead “do I need to add 5G to supplement my existing Ethernet and Wi-Fi networking infrastructure.”

Talking Point #3: Wi-Fi Keeps Winning Because of Cost

Don't focus on radios and management and cloud license costs. Some vendor packaging will come around and drive down the cost of 5G infrastructure to make it comparable enough to Wi-Fi. Focus instead on devices.

Consumerization drives devices from consumers into enterprises. Since the client device cellular chips and radio components are far more expensive than Wi-Fi, consumer device makers are more likely to choose BLE and Wi-Fi over 5G to improve pricing, market acceptance, and margins. 5G costs will decrease over time, but not enough. And by then, we're talking about 6G, and Wi-Fi is still ubiquitous.

Talking Point #4: We Need Many Spectrum Options... One Size Does Not Fit All

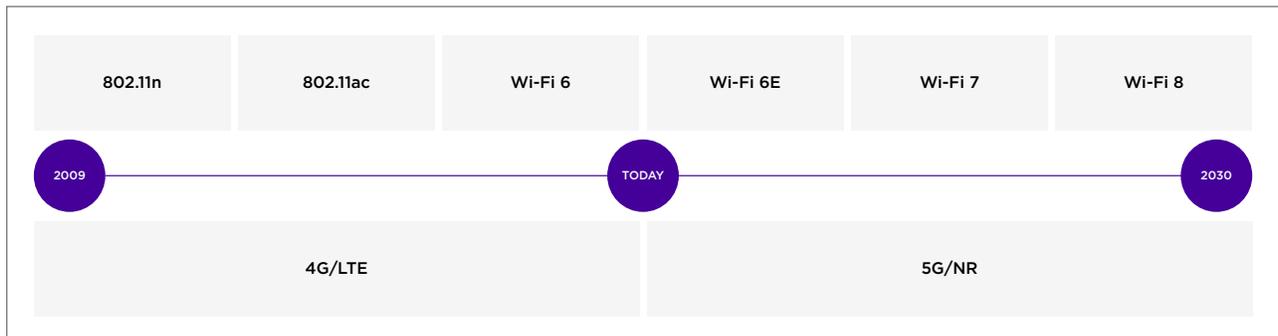
Unlicensed spectrum is a bit like open-source software. They're both low cost and accessible, which drives adoption. Eventually unlicensed wireless, like open-source software, is embedded in everything. Once it becomes universal, it is very difficult to displace, and thus, score one for unlicensed Wi-Fi.

Conversely, cellular is reliable and predictable in large part because of the protections afforded by spectrum licenses. But, spectrum licenses are restricted to deep-pocketed mobile operators capable of wielding that spectrum power to offer reliable services to enterprises—score one for licensed cellular.

A legitimate wild card is private/local licensing approaches like Citizens Broadband Radio Service (CBRS). It may not be enough spectrum to solve all your wireless problems, but it is certainly enough to open new “hotspot” solutions to enterprises struggling with the range, determinism, or mobility shortcomings of Wi-Fi for specific devices and applications. Score one for locally-licensed cellular (where available).

Talking Point #5: Avoid Comparing Wi-Fi 6 with 5G

We have fallen into an apples-to-oranges comparison by pitting Wi-Fi 6 against 5G. People need to understand that 5G is a decade-long technology rollout with at least a 20-year lifecycle. Don't make the mistake of pitting the longer-term model of cellular and 5G against the shorter-term evolution and lifecycle of Wi-Fi 6, which will be updated in a couple of years by Wi-Fi 7, then Wi-Fi 8, and so on across the much longer 5G era. 5G is more vast and comprehensive in its end-to-end scope, but Wi-Fi is more agile and adaptive with more frequent evolution cycles.



Talking Point #6: Your Network Teams Will Need More Training

Many network professionals started with routing, switching, and Wi-Fi, and those skills are beneficial. But there are many aspects of cellular that require more training for enterprise network folks. The frequencies and regulations are different; visibility, troubleshooting, and analysis tools are different; the lexicon is different; policy and device authentication are different; and so many parts of the technology stack are different. And even for the cellular industry, the traditional stack used to deploy macro public networks are also changing since that model doesn't necessarily work well for private networks.

Keep in mind that this entire cellular technology stack is new for enterprises. The industry is also in flux, so everyone is on a learning curve at the same time. Nonetheless, there are far more trained Wi-Fi professionals than 5G networking professionals, so there is a serious skills gap that needs to be filled before 5G becomes a manageable and ubiquitous enterprise option.

Talking Point #7: There is Too Much Hype. Take a Chill Pill.

Finally, there is so much money at stake in cellular generational shifts that we are washed away in marketing. It's difficult to know what to actually believe. Here are some counter-hype sedatives:

- The killer use cases that demand private 5G (instead of LTE) are still largely undiscovered.
- 5G is comprised of many 3GPP releases that will come in phases over the next decade. Most private cellular radios (especially CBRS) use LTE still, not 5G; 5G radios won't be available until at least mid-2022, with 5G features trickling in over the following years. We are in the early days.
- Many 5G features are for mobile operators and macro networks, not private enterprises.
- Wi-Fi has weaknesses and we have firsthand deployment scars, but private 5G will not be a cure-all for enterprise wireless connectivity. Perhaps this idiom applies: better the devil you know than the devil you don't know.

The 5G picture painted by marketing is not the 5G of reality. Align your expectations accordingly.

Conclusion

So, there you have it. A handful of talking points that can steer your internal conversations and perspectives on wireless co-existence, competition, and convergence. Still need to arm yourself for these conversations? You can follow the 5G and Wi-Fi blogs from the Office of the CTO at Extreme Networks by scanning the QR code below.

