Why Most Wi-Fi 7 Designs Will Underperform



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(And It Won't Be the APs)

Wi-Fi 7 is impressive.

More spectrum.

Lower latency.

Better efficiency.

And yet, I'm already seeing designs that will underperform from day one.

Not because the access points are bad.

Not because the standard is flawed.

But because the same old design mistakes are being carried forward into a much more powerful generation of Wi-Fi.

The problem isn’t capability. It’s discipline.

Wi-Fi 7 gives us more headroom than we’ve ever had before, especially with 6 GHz in play.

But extra headroom doesn’t fix poor fundamentals. In fact, it often hides them until the network is live and users start complaining.

The uncomfortable truth is this:

Most underperforming Wi-Fi 7 networks will fail for exactly the same reasons Wi-Fi 5 and Wi-Fi 6 networks failed.

Bigger channels won’t save a bad channel plan

Yes, Wi-Fi 7 supports extremely wide channels.

No, that doesn’t mean you should use them everywhere.

In real environments, especially enterprise, warehouse, education, and hospitality, wider channels often reduce capacity rather than increase it. Fewer usable channels means more contention, more retries, and more unpredictable performance.

For many designs, 80 MHz is still the practical upper limit. In high-density environments, 40 MHz or even 20 MHz remains the correct choice. Throughput numbers on a slide don’t matter if airtime efficiency collapses under load.

Power levels are still doing more harm than good

This is one of the most common mistakes I see.

Access points shipped at full power.

Designs validated by “green heatmaps”.

Cells that look great on paper and fight each other relentlessly in reality.

Wi-Fi 7 radios are more sensitive and more capable, which makes uncontrolled transmit power even more dangerous. Oversized cells increase co-channel contention, break roaming behavior, and make latency unpredictable.

Lower power, smaller cells, and intentional overlap still win. They always have.

6 GHz is not a shortcut

The 6 GHz band is clean, wide, and incredibly useful. But it’s not a magic reset button.

If SSID strategy is sloppy, 6 GHz won’t fix it.

If roaming behavior is ignored, 6 GHz won’t fix it.

If legacy and IoT devices are bolted on as an afterthought, 6 GHz won’t fix it.

Good designs use 6 GHz deliberately. They decide which clients belong there, how discovery works, and how fallback is handled. Bad designs just turn it on and hope for the best.

Cabling and PoE are quietly becoming the bottleneck

Wi-Fi 7 access points are hungrier. More radios, more processing, more features.

That means:

- Multigig switch ports
- Correct PoE budgets
- Cabling that can actually deliver sustained power

I’ve already seen Wi-Fi 7 APs installed on infrastructure that forces them to operate in a reduced feature set. The network “works”, but never performs as designed. That’s not a wireless problem, that’s a planning problem.

Validation still matters (and is still skipped)

This one hasn’t changed in 20 years.

Designs drift during install.

APs get moved.

Heights change.

Orientations change.

Without post-deployment validation, nobody notices until users do. Wi-Fi 7 doesn’t change that. If anything, it makes validation more important because small mistakes have larger consequences at scale.

Wi-Fi 7 raises the bar. It doesn’t lower it.

Wi-Fi 7 is not forgiving technology. It rewards good engineering and exposes bad habits very quickly.

The networks that perform best won’t be the ones with the newest hardware. They’ll be the ones that still respect:

- Channel reuse
- Cell sizing
- Client behavior
- Power control
- Proper validation

In other words, the fundamentals.

Final thoughts

Wi-Fi 7 is a big step forward, but only for teams willing to design properly.

If your design philosophy hasn’t changed since Wi-Fi 5, the results won’t either.

The APs will be fine.

The standard will be fine.

It’s the design choices around them that will decide whether the network actually delivers.

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