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Upgrade Now Or Wait? The Business Case For Wi-Fi 6

By Ethan Banks

Wi-Fi 6, also known as IEEE 802.11ax and “High Efficiency” wireless, is focused on improving throughput for wireless networks with a high client density. For organizations that care about wireless user experience, Wi-Fi 6 should be keenly interesting.

One key consideration for organizations considering Wi-Fi 6 is the simultaneous rise of 5G. Will Wi-Fi 6 and 5G prove to be competitive or complementary? The answer is not immediately obvious, and might actually be both at the same time.

Wi-Fi 6 Business Drivers

As Wi-Fi 6 does not create a huge leap in maximum speeds, what are the business drivers likely to be for Wi-Fi 6?

The first is client throughput, especially in environments densely packed with wireless clients. OFDMA, the most compelling new technology in the Wi-Fi 6 specification in my opinion, means that more wireless clients will be able to get on and off the air more quickly.

As business and home wireless device density increases over time, OFDMA will matter more and more. Retail spaces, stadiums, and factories come immediately to my mind as the biggest beneficiaries, although higher ed and office parks should also benefit.

The second driver is IoT. This is the corollary to the "client throughput" point above, as wireless IoT devices will add more data to the airwaves. Also interesting to IoT deployments is Wi-Fi 6's Target Wait Time (TWT). TWT lets wireless devices sleep longer between radio power cycles, and should improve IoT device battery life.

For more on the technology side, check out The Technology Case For Wi-Fi 6.

Should You Deploy Wi-Fi 6 Now?

If you are in a wireless refresh cycle, Wi-Fi 6 should be on your mind. But should you deploy Wi-Fi 6 now?

Reasons To Deploy Now

First, enterprise Wi-Fi 6 products have been announced, and more announcements are coming. Radio chipsets are out there. A significant amount of engineering and integration work has been done by the industry. Major vendors have partnerned. Much validation testing has been completed by the likes of Cisco, Intel, and Samsung. While still on the leading edge, there's not too much risk in adopting Wi-Fi 6.

Second, by adopting Wi-Fi 6 today, you are setting yourself up for the future. As more Wi-Fi 6 clients come on board, network efficiency will improve. "Future-proofing" is perhaps too strong a word--this is technology, after all--but communicates the general idea.

Third, Wi-Fi 6 is backwards compatible with aging clients. Therefore, you can swap your existing wireless access points with Wi-Fi 6 APs, and not have to worry about orphaning old radios. Those old clients won't help your wireless network become more efficient, but at least they'll still work.

Reasons To Hold Off

First, there aren't that many Wi-Fi 6 clients out there yet. That means there won't be much out there speaking OFDMA. In my opinion, OFDMA is the big win, especially for dense environments.

I don't think it will take too long for Wi-Fi 6 clients to come to market, however. Samsung has made some announcements, as has Intel. But really, Apple is the tipping point. When Apple announces a phone with Wi-Fi 6, it might be time to take Wi-Fi 6 more seriously.

Second, even when Wi-Fi 6 clients do come to market, serious market penetration will take years. Case in point--I'm still rockin' an iPhone 6S+, and I have no plans to replace it. And do you think those IoT devices that were installed last year are going to be replaced just to get a Wi-Fi 6 upgrade? Nope.

Third, 5G is coming to market. 5G coverage footprints will grow starting in late 2019 and 2020. What will the impact of 5G be on wireless deployments? I don't have a prediction yet, other than to say there will be some impact.

I can imagine a world where working off of a 5G-capable tower is plenty good enough, obviating the need to connect to the local Wi-Fi. If that's true, securing the endpoint becomes a very different problem for enterprises--and not in a bad way.

Why onboard an endpoint to the local wireless if what that endpoint needs is in the public cloud anyway? Keep that 5G client at arm's length. Reduce the risk of that device being a potential container for data exfiltration or bastion host for malware.

Wi-Fi 6 talking heads with products to sell are going to position 5G as a complementary technology, but I think 5G will often be a competing technology. However, this will be time and geography specific. 5G will take years to roll out. In addition, 5G has the same client problem that Wi-Fi 6 does--there aren't any to speak of.

Finally, the Wi-Fi 6 standard will not be ratified until late 2019, or (speculatively) early 2020. While the standard is more or less fully-formed, hardware is being manufactured, and interoperability testing is on-going, the fact remains that the official specification is not yet settled.

While future changes are likely to be nits and nuances, there is some risk that hardware manufactured today could be negatively impacted by a standards tweak tomorrow. I believe this to be a low risk, but folks that like to play it safe will want to consider this point.

Would I Deploy Wi-Fi 6 Right Now?

My strategy for Wi-Fi 6 would be business dependent. For organizations with a density problem, Wi-Fi 6 would be on my shopping list today. I would bring in Wi-Fi 6 APs to test my specific application and client mix. I would attempt to make Wi-Fi 6 make sense for my environment. I believe that Wi-Fi 6 will solve problems for certain companies. I'm just as convinced that it won't change the user experience much for others.

If I was running an aging 802.11n wireless infrastructure, I'd be planning a refresh no matter what. Would I go with the now proven Wi-Fi 5 (802.11ac) access points, or move into the Wi-Fi 6 world? I would definitely lean towards Wi-Fi 6, but I'd wait and watch over the next several months. If 802.11n was still working for me, I'd be doing

my own market analysis on Wi-Fi 6 as products come to market and the standard finishes baking in the IEEE's oven.

If I was running a Wi-Fi 5 infrastructure, I'd be getting up to speed on Wi-Fi 6. It's worth being literate on what it brings to the table.

However, my instinct tells me that without the client density problem, I doubt I could make a clear case to the business to replace a properly functioning, well-designed Wi-Fi 5 installation.

Is Wi-Fi 6 better than Wi-Fi 5? Yes. Will Wi-Fi 6 be better for my environment? That's a different question and one that's tricky to answer. In the absence of a clear business advantage, I'd be plan to get more mileage from Wi-Fi 5.

Tech Blogs: How To

Lessons Learned in Cloud Networking – AWS vs Azure - Daniel's Networking Blog

https://lostintransit.se/2019/04/01/lessons-learned-in-cloud-networking-aws-vs-azure/?doing_wp_cron=1554170023.4305860996246337890625

Daniel Dib has written an excellent blog that introduces basic networking capabilities in AWS and Azure, including system routes, virtual routers, Internet gateways, and VPNs. The blog has useful tips for folks just getting into cloud networking, particularly for dealing with some of Azure's networking quirks. - Drew

Security by Happenstance - Brave New Geek

https://bravenewgeek.com/security-by-happenstance/

Tyler Treat addresses credential management in the cloud age, pointing out that 90 day rotation because we've always done it that way is, on the whole, stupid. Tyler offers a modern take on credential management & rotation, explaining how these should be managed in a CI/CD pipeline. - Ethan

Unfortunately, Seeing Isn't Always Believing With Meraki Network Topology View - Lee Badman

https://wirednot.wordpress.com/2019/03/31/unfortunately-seeing-isnt-always-believing-with-meraki-network-topology-view/

You might not care about Meraki networking, but there's an important lesson undergirding the specifics of Lee's worthy rant. Enterprise IT software is often inexcusably awful. You can't assume anything about the quality of the product you're getting from a vendor. Even something as seemingly safe as topology maps updating

to reflect, you know, ACTUAL TOPOLOGY can't be presumed to work right. Keep your eyes open out there. - Ethan

How To Become A DevOps Engineer In Six Months Or Less (Series) - Igor Kantor on Medium

Part 1 - Part 2 - Part 3 - Part 4 - Part 5

This series discusses the principles of devops and related concepts, platforms, and tools a budding devops engineer should be familiar with. A practical guide that lays out a roadmap for those interested in the new hotness that is devops. - Ethan

Running Kubernetes locally on Linux with Minikube - now with Kubernetes 1.14 support - Kubernetes Blog

https://kubernetes.io/blog/2019/03/28/running-kubernetes-locally-on-linux-with-minikube-now-with-kubernetes-1.14-support/

Want to experiment with Kubernetes on your local machine? Minikube is one option. "In this guide, we'll focus on running Minikube with the KVM driver on Ubuntu 18.04." - Ethan

Extending home lab infrastructure - Anton Karneliuk

http://karneliuk.com/2019/03/extending-home-lab-infrastructure/

Anton offers a serious guide to folks who want to build a lab for networking. He goes into "how to build great lab infrastructure for your tests or product development on affordable costs. If you expect to have step-by-step guide, you will get it." Complete with an ASCII lab topology and Linux & Docker installation tips. - Ethan

Tech Blogs: Opinion

The future of undersea Internet cables: Are big tech companies forming a cartel? - APNIC Blog

https://blog.apnic.net/2019/04/03/the-future-of-undersea-internet-cables-are-big-tech-companies-forming-a-cartel/

Fascinating thought exercise that analyzes the economies of undersea fiber optic cabling and their relation to the big content providers like Amazon and Facebook. There's a dystopian angle to this article that no longer seems far-fetched to me as we increasingly learn about how our data and metadata is consumed and sold by the Internet monopolies. I mean...it's probably far-fetched. I hope it is. - Ethan

Continuous response: The essential process we're ignoring in DevOps - OpenSource.com

https://opensource.com/article/19/3/continuous-response-devops

Randy Bias, never short on opinion, describes continuous response (CR). Will CR die as soon as marketing people get bored with it, or is it really a thing? Randy insists it's a thing. "DevOps without CR is the same as saying there is no OODA Loop around the DevOps process itself. It's like saying that operators' and developers' jobs end with the code being deployed. We all know this isn't true. Customer experience is the ultimate measurement of our success." - Ethan

Defining a Distinguished Engineer - Ramblings from Jessie

https://blog.jessfraz.com/post/defining-a-distinguished-engineer/

This post has been making the social media rounds and provoking much discussion. The context is leadership. What should characterize an effective leader in a technical role? Jessie Frazelle opines, inspired by the view that technical leaders tend to be awful. - Ethan

Announcing #WIFIQ 2.0 - Lee Badman

https://wirednot.wordpress.com/2019/03/28/announcing-wifiq-2-0/

#WIFIQ was Lee's regular Twitter discussion of all things wireless. He ceased #WIFIQ operations a while back, but says, "I'm tickled to announce that the Wireless LAN Association (WLA) has expressed the desire to bring back the good thing that is #WIFIQ." - Ethan

Containers vs. Unikernels: An Apples-to-Oranges Comparison - Container Journal

https://containerjournal.com/2019/03/28/containers-vs-unikernels-an-apples-to-oranges-comparison/

If you think unikernels and containers are more or less the same thing, Ian Eyberg submits that you are wrong. His article explains why. If you want to know more about unikernels, we've covered them on Datanauts and elsewhere. - Ethan

Making Sense Podcast #152 - The Trouble with Facebook - SamHarris.org

https://samharris.org/podcasts/152-trouble-facebook/

Sam Harris interviews long-time Silicon Valley investor and insider Roger McNamee. Among many troubling moral questions facing technology, Roger asks WHY it is legal for Facebook, Google, Amazon, and Microsoft to mine our metadata, package it, and sell it to the highest bidder. The stakes are growing, as the issue of raiding personal privacy for profit has moved beyond advertising and towards dystopia. Roger's insights are deep, and the conversation shocking--even if you think you already know what's going on. A provocative listen from beginning to end, confirming your worst fears and likely installing fresh ones. - Ethan

Where Have All the SDN Controllers Gone - SDxCentral

https://www.sdxcentral.com/articles/analysis/where-have-all-the-sdn-controllers-gone/2019/03/

Roy Chua authors an excellent retrospective of the SDN controller market. You know...the one we all were hoping would materialize, but never quite did. My short, cynical summary is that the networking industry couldn't get together to build the software defined ecosystem that would create value where it matters--apps. We're stuck with disparate APIs, differentiation so-called, and unstable & insecure code trapped inside vendor silos. That's not how Roy put it. He was more circumspect, reflecting on the lack of a business model driving the SDN controller market. I say the business model was there. We just didn't create it. A lost opportunity we'll never get again as public cloud adoption marches on. - Ethan

New Ignition Whitepaper: 5G And Enterprise IT

Check out a new whitepaper from Greg Ferro that provides a detailed overview of 5G and its relevance to the enterprise. Ignition members in the premium tier can download the whitepaper as part of their subscription.

Head on over to Ignition.packetpushers.net, log in, and you'll find it in the Downloads section.

5G technology will drive the next generation of mobile networking. Telcos, service providers, and equipment vendors are gearing up for a massive rollout of new technologies and products to bring 5G services to market. This whitepaper considers 5G's impact on enterprise networking and on service providers.

Here's what's inside:

- 28 pages

- Color illustrations & tables
- Get a comprehensive overview of 5G technology
- Understand the potential enterprise impacts on wireless networks, IoT, and SD-WAN
- Learn key differences between 5G and previous standards
- Get insights on spectrum differences within 5G and how they affect use cases
- Explore the potential of low power 5G to extend IoT battery life

The Lulz

It's a casual tradition for IETF to publish joke RFCs on April 1st every year. Here are the 2019 RFCs.

RFC 8567 Customer Management DNS Resource Records - RFC Editor - https://www.rfc-editor.org/info/rfc8567

RFC 8565 Hypertext Jeopardy Protocol (HTJP/1.0) - RFC Editor - https://www.rfc-editor.org/info/rfc8565

IT News

Is this AI? We drew you a flowchart to work it out - MIT Technology Review

https://www.technologyreview.com/s/612404/is-this-ai-we-drew-you-a-flowchart-to-work-it-out/

Vendors are sprinkling “AI” and “machine learning” all over their marketing materials like a three-year-old with a jar of glitter. The fine folks at Technology Review have devised a flowchart to help you identify when something is using AI or ML. It’s light on detail, as flowcharts are, but still useful. - Drew

Google’s constant product shutdowns are damaging its brand - Ars Technica

https://arstechnica.com/gadgets/2019/04/googles-constant-product-shutdowns-are-damaging-its-brand/

According to this Ars Technica story, in 2019 Google has shut down a product, service or feature “on average, about every nine days.” The story argues that Google’s kill spree damages its reputation with customers, potential customers, and most importantly, developers. Why should third-party developers invest the time and money building onto a platform that might get unceremoniously chopped down in a year?

Part of the problem is that Google’s core business of brokering ads is so profitable, the company has no existential impetus to be good at anything else. When you can swim, a la Scrooge McDuck, in a vault full of gold coins, it’s hard to work up much anxiety about the fate of a poorly designed and executed social network.

Another issue is that its existing products have such gravitational force that they suck other projects into it. For example, most of the features in Google Inbox, which rethought the traditional mail client, were ported over to Gmail, making Inbox redundant.

As the article notes, many observers have already started the death watch for Stadia, Google’s ambitious new gaming platform. Place your bets. - Drew

New Products & Industry Takes

New Wi-Fi Tech and Standards Coming Soon - Ekahau Blog

https://www.ekahau.com/blog/2019/03/21/new-wi-fi-tech-and-standards-coming-soon/

Ekahau presents a short summary of significant improvements coming to the wireless world soon. They touch on WPA3, OWE, and Wi-Fi 6. We covered WPA3 and OWE with

Dan Harkins, one of the standards authors, in Priority Queue episode 149 and our 802.11ax/Wi-Fi 6 coverage is ongoing. - Ethan

Lyft Makes Cartography Open Source - GitHub

https://github.com/lyft/cartography/blob/master/README.md

Cartography is a tool to help with risk management. You know, security. “It is particularly good at exposing otherwise hidden dependency relationships between your service's assets so that you may validate assumptions about security risks.” - Ethan

Application Load Balancers now Support Advanced Request Routing - AWS Blog

https://aws.amazon.com/about-aws/whats-new/2019/03/application-load-balancers-now-support-advanced-request-routing/

AWS continues to pave over enterprise networking products, pointing the steamroller this time at F5 and others. “Application Load Balancers now support request routing based on standard or custom HTTP headers and methods, query parameters, and source IP addresses. … You can now evaluate multiple conditions in one rule and each condition can specify a match on multiple values. This enables you to set up complex rules to route client requests to your applications.” - Ethan

Extreme Networks Paves the Way for Enterprise Networks of the Future - Extreme Networks

https://finance.yahoo.com/news/extreme-networks-pa...

Extreme Networks is investing in automation and AI. The company has announced that it’s investing 95% of its research and development budget in software and artificial intelligence to boost the automation capabilities of the company’s product portfolio. - Drew

A Million Day One Books Delivered, a Million Readers Hit the Ground Running - Juniper Networks

https://www.juniper.net/dayonemillion

Juniper congratulates itself for distributing a million of the 75+ Day One titles to the IT engineering world. Day One books are meant to be brief technical resources that bring technologists up to speed on a new topic in a hurry. I’ve read several of them over the years, and I believe some of you reading this newsletter have written or contributed to

them. Day One ebooks are free with your JNet account or $0.99 from Amazon or iTunes. - Ethan

The End Bit

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