EPISODE #169

Future-Proofing Your Home Network for the AI Era

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EPISODE SYNOPSIS

In this episode, Herman and Corn dive deep into the world of residential networking in 2026 to help their housemate Daniel navigate the complexities of a 2.5 gigabit upgrade. They tackle common misconceptions surrounding high-end hardware, explaining why Category 8 cables are often a trap for homeowners and why Category 6A remains the gold standard for future-proofing. The duo explores the importance of building a 10 gigabit "main artery" using SFP+ ports and discusses the transformative power of Wi-Fi 7's Multi-Link Operation. Whether you are downloading massive local AI models or just trying to eliminate bottlenecks in your local cloud, this episode provides a technical yet accessible roadmap for building a robust, high-speed home infrastructure that will last well into the next decade.

DANIEL'S PROMPT

Daniel

I'm looking to upgrade my home network to support faster internet speeds, like 2.5 Gbps, which is particularly useful for downloading large AI models. I want to avoid frequent, incremental upgrades as standards like Wi-Fi 7 emerge. What would you recommend as a good baseline for Ethernet cables and switches looking towards 2026? Should we be moving to Cat 8 and even faster switch standards now to ensure our home networks are future-proof?

TRANSCRIPT

Corn

Happy New Year, Herman. I cannot believe it is already January fifth, two thousand twenty-six. It feels like just yesterday we were worrying about the Y two K twenty-five bug that never actually happened.

Herman

Happy New Year, Corn. I am Herman Poppleberry, and honestly, I am still a little disappointed that the digital apocalypse was so quiet. But you know what is not quiet? Our housemate Daniel. He has been pacing around the living room all morning talking about fiber optics and throughput. He finally sent us a voice prompt about it because he wants to overhaul the entire house network.

Corn

Yeah, I heard him talking to the internet service provider yesterday. It sounds like they offered him a two point five gigabit per second symmetrical line, and now he is spiraling into a deep dive of hardware specs. He is worried about future-proofing. He does not want to be back in this position in two thousand twenty-eight or two thousand thirty.

Herman

It is a classic trap, is it not? The incremental upgrade cycle. You buy the one gigabit switch, then eighteen months later you want two point five. Then five gigabit becomes affordable, and suddenly you are staring at ten gigabit gear wondering where your life savings went. But Daniel specifically mentioned downloading large artificial intelligence models. That is a very real use case in two thousand twenty-six. These local models are getting massive.

Corn

They really are. If you are running a local four hundred billion parameter model and a new weights file drops, you are looking at hundreds of gigabytes. On a standard one gigabit connection, you are waiting around for twenty or thirty minutes. On a two point five or five gigabit line, that becomes a coffee break. So, let us help him out. Let us talk about the physical layer first. The cables. Daniel asked if we should all be moving to Category eight Ethernet cables right now. Herman, you have been reading the latest IEEE standards. Is Category eight the move for a home in two thousand twenty-six?

Herman

Oh, I have been waiting for someone to ask me this. The short answer is no. The long answer is absolutely not, and you might actually make your network worse by trying to be too fancy. Here is the thing most people do not realize about Category eight. It was designed specifically for data centers. We are talking about short runs of maybe thirty meters or less to connect servers within a rack or between adjacent racks. It is rated for forty gigabits per second, which sounds amazing on paper, but it is incredibly stiff, difficult to work with, and requires very specific grounding.

Corn

Wait, why would it make the network worse? That seems counterintuitive. If it is rated for higher speeds, should it not just be better across the board?

Herman

You would think so, right? But Category eight cables are almost always shielded. They use something called S F T P, which stands for screened foiled twisted pair. If you use a shielded cable but you do not have shielded jacks and a properly grounded patch panel and switch, that shield can actually act as an antenna. It picks up electromagnetic interference from the environment and has nowhere to dump it. In a home environment with power cables, microwave ovens, and smart home hubs everywhere, you can actually end up with more packet errors than you would with a high quality unshielded cable.

Corn

That is fascinating. So it is like putting a lightning rod on your house but forgetting to connect the wire to the ground. You are just inviting trouble. So if Category eight is overkill and potentially problematic, where is the sweet spot? Daniel mentioned Category six. Is that enough for two point five gigabits?

Herman

Category six is actually rated for ten gigabits per second up to about fifty-five meters. So for a two point five gigabit line, Category six is more than enough for almost any house in Jerusalem. However, if we are talking about future-proofing toward the end of this decade, I would point Daniel toward Category six A.

Corn

Why the A? What does that extra letter get us?

Herman

The A stands for augmented. Category six A is rated for ten gigabits per second all the way up to one hundred meters. More importantly, it is designed to reduce crosstalk between cables. If Daniel is pulling multiple lines through the same conduit in the wall, Category six A is going to give him a much cleaner signal. It operates at five hundred megahertz, which is double the frequency of standard Category six. It is a bit thicker and harder to bend around corners, but it is the true gold standard for ten gigabit copper networking. If you install Category six A today, you are set for at least the next decade of residential speed increases.

Corn

Okay, so Category six A for the walls. But what about the switches? This is where I see Daniel getting frustrated. Most of the consumer gear we see is still stuck in the one gigabit era, or it has one single two point five gigabit port and the rest are slow. If he wants a two point five gigabit baseline across the whole house, what does that look like in early two thousand twenty-six?

Herman

The market has finally shifted in the last year. We are seeing a lot of unmanaged five-port and eight-port switches that are fully two point five gigabit across every port for under one hundred dollars. But if Daniel really wants to future-proof, he should look for a switch that has at least two S F P plus ports.

Corn

S F P plus. Remind me why that matters for a home user?

Herman

It is about flexibility. S F P plus ports are those little rectangular slots where you can plug in different modules. You can plug in a copper module for an Ethernet cable, or you can plug in a fiber optic module. This allows you to create a ten gigabit backbone between your main rooms. Imagine Daniel has his main router in the living room and his workstation in the office. If he connects those two rooms with a ten gigabit fiber link using S F P plus, he has essentially eliminated the internal bottleneck of the house. Everything else can be two point five gigabit, but that main artery is wide open.

Corn

I like that analogy. The main artery. It reminds me of what we discussed back in episode two hundred seventy-three when we were looking at those lightweight Linux router alternatives. If you have the software to handle the routing but your physical ports are the bottleneck, you are just wasting CPU cycles.

Herman

Exactly. And speaking of bottlenecks, let us talk about the AI models Daniel mentioned. He is right that this is one of the few things that actually justifies these speeds. Most people think they need fast internet for Netflix, but a four K stream only takes about twenty-five megabits per second. You could run a hundred four K streams on a two point five gigabit line and still have room to spare. But downloading a new version of a local LLM? That is a raw data dump. If he is pulling down a hundred gigabytes, every second counts.

Corn

And it is not just the download. It is the distribution. If he has a dedicated server in the basement running the models and he wants to access them from his laptop in the kitchen, that internal network speed becomes the limiting factor for how fast the model responds, especially if he is using RAG, or retrieval augmented generation, where the system has to scan through large local databases of documents.

Herman

That is a great point, Corn. We often forget that the network is not just for the internet; it is for the local cloud we are all building in our homes. Daniel has his Zigbee sensors, his smart lights, and his local AI. It is becoming a very busy environment. Remember episode two hundred sixty-three where we talked about those DIY smart home status lights? Even those little devices add up.

Corn

They really do. It is like a thousand tiny voices all talking at once. Let us take a quick break to hear from someone who definitely has a lot of voices in his head. Larry: Are you worried that your neighbor is stealing your Wi-Fi through your walls? Are you tired of your Ethernet cables feeling limp and uninspired? Introducing Larry's Turbo-Liquid Ethernet Grease! Just a dab of this patented, neon-green synthetic sludge on your RJ-forty-five connectors will lubricate your data packets, allowing them to slide through the copper wires with up to forty percent less friction! It is made from recycled lava lamps and secret government electrolytes. Warning: May cause skin irritation, blue sparks, and an inexplicable desire to learn Fortran. Larry's Turbo-Liquid Ethernet Grease: Because your data deserves a smooth ride! BUY NOW!

Corn

...Thanks, Larry. I am fairly certain that putting grease in your Ethernet ports is a great way to ensure you have zero gigabits per second.

Herman

I am almost positive that would void every warranty Daniel has. Please, Daniel, if you are listening, do not buy the grease.

Corn

So, back to reality. We have talked about Category six A cables and switches with S F P plus backbones. But Daniel also mentioned Wi-Fi seven. This is the big buzzword of two thousand twenty-six. Is it worth the premium right now, or is it still just marketing fluff?

Herman

Wi-Fi seven is actually a massive leap, but it is one of those things where you need the whole ecosystem to see the benefit. The headline feature is something called M L O, or Multi-Link Operation. In older versions of Wi-Fi, your phone would connect to either the two point four gigahertz band, the five gigahertz band, or the six gigahertz band. It could switch between them, but it only used one at a time. Wi-Fi seven allows a device to connect to multiple bands simultaneously.

Corn

So it is like having a multi-lane highway instead of a single-lane road?

Herman

Precisely. It can send data across all three bands at once. This drastically reduces latency and increases reliability. If there is interference on the five gigahertz band from a neighbor's router, the data just flows through the six gigahertz band without dropping the connection. For someone like Daniel, who is doing a lot of real-time interaction with AI or maybe some high-end cloud gaming, that latency reduction is actually more important than the raw speed.

Corn

But he mentioned he has a basic mesh system right now. If he wants to move to Wi-Fi seven, he is looking at a pretty significant investment. Those three-node mesh systems for Wi-Fi seven are still quite expensive in early two thousand twenty-six.

Herman

They are. And here is the "gotcha" that people forget. If you buy a Wi-Fi seven mesh system, but you connect the nodes to each other wirelessly, you are using up a huge chunk of that bandwidth just for the nodes to talk to each other. This is why we call it wireless backhaul. If Daniel really wants to future-proof, he needs to use the Category six A cables we talked about to connect the mesh nodes back to the main switch. That is called wired backhaul.

Corn

Right, so the wireless is just for the "last mile" to the phone or laptop, but the heavy lifting between rooms is done by the copper. That makes total sense. It is like having a high-speed train between cities but taking a taxi to your final destination.

Herman

Exactly. If he wires the house with Category six A, he could even stick with a high-end Wi-Fi six E system for another year or two and still get incredible performance because the backhaul is not congested. But if he has the budget, Wi-Fi seven is the first wireless standard that truly rivals a wired connection in terms of feel.

Corn

I want to go back to something Daniel mentioned about the ISP sales pitch. Here in Jerusalem, they are pushing these two point five gigabit lines hard. But I wonder about the second-order effects. If everyone on the block upgrades to two point five gigabits, does the ISP's actual infrastructure hold up? Or are we just paying for a bigger pipe that is empty at the source?

Herman

That is the million-dollar question, Corn. Most consumer fiber is based on something called G P O N or X G S P O N. It is a shared medium. That fiber line coming into the building is shared among multiple neighbors. In the past, with one gigabit lines, it was rare for everyone to be maxing out their connection at the same moment. But as we move into this era of massive AI downloads and eight K video streaming, the "oversubscription ratio" of the ISP starts to matter.

Corn

So we might see more congestion during peak hours, even if our local hardware is top-notch.

Herman

Possibly. But the good news is that X G S P O N, which is what most of the new two point five and five gigabit services use, has a total capacity of about ten gigabits per second down and ten gigabits up per "splitter." Usually, that is shared between thirty-two or sixty-four households. In a dense city like Jerusalem, you might feel it on a Friday night when everyone is home. But honestly, for Daniel's use case of downloading AI models, he is probably doing that during the day or late at night, when the network is wide open.

Corn

Let us talk about the hardware at the edge. Daniel's computer. Even if he has the two point five gigabit line and the Category six A cable and the fancy switch, if his motherboard only has a one gigabit Ethernet port, he is stuck.

Herman

That is a very common bottleneck. Most laptops from a few years ago are capped at one gigabit. However, in two thousand twenty-six, almost every mid-to-high-end motherboard comes with a two point five gigabit port standard. If he has an older machine, he can just buy a U S B-C to two point five gigabit Ethernet adapter for about thirty dollars. They are plug-and-play now. If he wants ten gigabits on a desktop, he can get a P C I-E card for around eighty dollars. It is very affordable compared to where it was when we did episode ninety-five.

Corn

I remember that episode. We were talking about the horror of having no firewall on a home network. If Daniel is opening up his network to these higher speeds and potentially more devices, we should probably remind him that his router's CPU needs to be beefy enough to actually inspect those packets at two point five gigabits.

Herman

That is a crucial point. A lot of older "consumer" routers might have a two point five gigabit port, but their internal processor can only handle one gigabit of traffic if you turn on features like P P P o E or deep packet inspection or a V P N. If he tries to run a V P N at the router level on a two point five gigabit line, a cheap router will just melt. Well, not literally melt, but it will throttle him down to maybe three hundred megabits.

Corn

So he should look for something with a modern quad-core ARM processor or even a dedicated X eighty-six based router if he wants to be a real nerd about it.

Herman

Oh, you know he wants to be a real nerd about it. He is our housemate, after all. I would suggest he looks at some of the newer prosumer gear that has come out in the last year. There are some great options that use the Intel N one hundred processors. They are tiny, low-power, but they have four cores that can easily route ten gigabits of traffic without breaking a sweat.

Corn

Okay, so let us summarize the "Daniel Plan" for two thousand twenty-six. Step one: Category six A in the walls. Don't fall for the Category eight trap. Step two: A switch with at least two S F P plus ports for a ten gigabit backbone. Step three: Wired backhaul for his Wi-Fi nodes. Step four: Check the ports on his actual devices and upgrade with adapters where needed.

Herman

And step five: Don't listen to Larry.

Corn

Especially step five. But here is a thought experiment. Imagine it is two thousand thirty. We have moved past two point five gigabits. Most homes have ten gigabits. AI models are no longer downloaded; they are just streamed in real-time as a utility. What does the home network look like then? Do we even have cables anymore?

Herman

I think cables will always be with us for the high-performance stuff. Physics is a tough opponent. Latency and interference are always going to be easier to manage in a copper or fiber line than through the air. But I think by two thousand thirty, we might see "fiber to the room" becoming a thing in high-end homes. Instead of Ethernet, you have ruggedized fiber optic lines running to every desk.

Corn

That sounds expensive and fragile.

Herman

It used to be! But the connectors are getting much better. There is a standard called "hidden fiber" that is basically a thin, transparent thread you can glue along a baseboard. You can't even see it. It can carry one hundred gigabits without any trouble. That is the ultimate future-proofing. But for Daniel, today, in January two thousand twenty-six, that is probably a bridge too far.

Corn

Yeah, let us keep him grounded in reality for now. He still needs to finish setting up those smart blinds he bought last month.

Herman

Oh, the ones that close every time a car drives by? Yeah, he might want to prioritize the network upgrade over the "car-detecting blinds."

Corn

It is all part of the journey. I think the big takeaway for our listeners is that "future-proofing" isn't about buying the most expensive thing on the shelf today. It is about buying the thing that has the most headroom and the fewest proprietary traps. Category six A is that thing for cables. S F P plus is that thing for switches.

Herman

Well said, Corn. And it is also about understanding your own needs. If you aren't downloading massive datasets or doing high-end content creation, a one gigabit network is still perfectly fine. But for the power users, the "weird prompt" senders like Daniel, the world is moving fast.

Corn

It really is. I am looking forward to seeing how his setup evolves. Maybe we can do a follow-up in episode three hundred to see if he actually pulled the cables or if he just bought more of Larry's grease.

Herman

I will keep my fingers crossed for the cables.

Corn

Me too. Well, that about wraps it up for today's deep dive. Daniel, thanks for the prompt. It gave us a great excuse to talk about shielded twisted pairs, which is Herman's favorite topic after breakfast.

Herman

It is a very close second to shakshuka, I must admit.

Corn

And to everyone listening, if you are finding these deep dives helpful, or if you just enjoy hearing Herman get excited about cable frequencies, we would really appreciate it if you could leave us a review on Spotify or your favorite podcast app. It genuinely helps other curious people find the show.

Herman

It really does. We love seeing the community grow. You can find all our past episodes, including the ones we mentioned today, at myweirdprompts.com. There is a contact form there too if you want to send us your own weird prompts.

Corn

We are on Spotify as well, so make sure to follow us there for the latest updates. This has been My Weird Prompts, a collaboration between two brothers, a housemate with an internet obsession, and a very sketchy advertiser.

Herman

Until next time, keep asking the weird questions.

Corn

Thanks for listening. See you next week.

Herman

Goodbye everyone!

Corn

And remember, Category six A. Not Category eight.

Herman

Unless you live in a server rack.

Corn

Which Daniel might, if he keeps buying gear.

Herman

Fair point. Bye!