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What Do Network Engineers Want?

By Drew Conry-Murray

Earlier this year, Ethan Banks and I were invited to speak to a tech vendor's sales and product leaders on the topic of what network engineers want.

I spent some time thinking about it, and came up with five general “wants.”

I’m not a network engineer myself, but I’ve been reporting on, writing about, and analyzing the tech industry for two decades. I talk to network engineers and IT professionals on Slack, podcasts, social media, and at live events.

These “wants” come up over and over. I’m sure this isn’t a complete list, so let me know what else your technical hearts desire.

1. Engineers Want Good Software

Good software seems like it should be a given, but it’s probably the biggest complaint I hear.

By good software I mean code that is stable, reliable, and well-documented.

Yes, bugs are inevitable. Patches are a fact of life.

Engineers get that. But I believe vendors will win customers if they deliver software that generally works out of the box, functions as advertised, and doesn’t require hours of keyboard pecking and Google searches to get it running.

Patches should be timely, tested against known operating conditions, and stable. Do the work on behalf of your customers to minimize the operational impact of patches.

2. Engineers Want Good Information

When engineers evaluate products for purchase, they need good information. That means enough technical detail to help them match a product and its capabilities to their requirements.

They need to clearly understand a product's core features and functions, including what's available in existing code and hardware, and what's aspirational.

They need to understand a product's capabilities and—this is important—its limits. If a product can't do something, they need to know.

If a product does something in a way that's non-standard or proprietary, they need to know.

They don't need marketing language that's larded with superlatives. They don't need buzzwords that have become so stretched that they're meaningless.

If you want to make engineers your friends, give them easy access to useful content. Don't keep data sheets and product documentation behind reg walls. Don't write whitepapers and corporate blogs that are thinly disguised marketing tools or sales fliers.

Don't make cutesy videos that talk about digital transformation and the pressing need for operational velocity, but leave out key facts such as: Is your product software? Hardware? Where in the network is it deployed? What, besides enabling digital transformation, does the product actually *do*?

3. Engineers Want Reasonable Licensing

Allowing a customer to license your product shouldn't require calculations that rival the complexity of artillery firing tables.

A tweet from [Phil Gervasi](#) sums up how painful licensing has become:

Would you rather:

Deal with platform licensing from your favorite vendor?

or...

Be repeatedly punched in the face by a champion MMA fighter?

9:15 AM - 22 Jan 2019

5 Retweets 9 Likes



PHIL GERVASI, AKA NETWORK PHIL

When people respond by asking how many punches and to what parts of the body, vendors should recognize that customers aren't just dissatisfied with licensing schemes, they're angry.

4. Engineers Want Good Value

Value doesn't necessarily mean cheap. As Greg Ferro says, IT products are often "reassuringly expensive." And if you've got a good product, it's fine to charge real money for it.

Value means that your product addresses actual customer problems, or enables a measurable improvement to business operations, or materially addresses a critical risk.

Value means that your product works reliably. And when it doesn't work, value means that your customers get good support the first time they make a phone call.

5. Engineers Want Good Visibility

“The network's down.”

That sentence is the equivalent of a user dumping a haystack onto an engineer's or admin's desk and saying “I dropped my needle in there. Can you find it?”

What the user really means is “A thing that used to work isn't working now. Please fix it.” But the scope of the problem is essentially boundless.

Oftentimes it's not even the network. Maybe an application hung, or a process is slow. Maybe it's a browser bug. Maybe the user ran afoul of a security policy.

That's why visibility is essential. The faster you can surface up useful, contextual information to an engineer, the faster an engineer can identify and fix the problem.

Focus On Essentials

There's a lot of intangible wants that I haven't mentioned, like being able to leave the office at a reasonable hour, sleeping through the night, and enjoying the professional satisfaction of building and operating systems that help the organization and its employees succeed.

I think if vendors focused on the the essential requirements listed above, these other elements would fall into place.

Virtual Design Clinic: No Pants Required!

The Packet Pushers [Virtual Design Clinic](#) is Thursday, March 14th!

This free, live event includes technical presentations, Ask Me Anything sessions with industry experts, and a sponsored presentation. And because it's online, you can attend wearing pants, not wearing pants, or wearing someone else's--we don't judge

Agenda:

Ask Me Anything Sessions: Guest panelists Ryan Booth, Jed Casey, Daniel Dibswe, Terry Slattery, Ethan Banks, and Greg Ferro

Presentation: An Introduction To The P4 Programming Language - Aaron Glenn

Presentation: Your IPv6 Address Planning Survival Guide: Starting an Address Plan the Right Way - Tom Coffeen

Sponsor Presentation: Kentik

It's free to register and attend. [Sign up here.](#)

If you can't make the 14th, we'll post the full event on our membership site, Ignition, which is also free to join. You can check out previous VDCs at [Ignition](#) at your leisure.

Tech Blogs: How To

Tips from a Network Detective - Networking with FISH

<https://www.networkingwithfish.com/tips-from-a-net...>

An excellent primer on how to troubleshoot effectively. You should bookmark this one if your troubleshooting process consists of trying random things. While other people try random things. While your boss freaks out. While you cry.
- Ethan

A quick look at QUIC - Potaroo.net

<https://www.potaroo.net/ispcol/2019-03/quic.html>

Geoff Huston's title is a little tongue-in-cheek, as there's nothing "quick" about this article--unless you compare it to reading a book. If you're trying to get your head around

QUIC, this is yet another great addition to the growing body of work. I also recommend [HTTP/3 Explained](#). - Ethan

Using Python with the VeloCloud Orchestrator - Neckercube

<https://neckercube.com/index.php/2019/02/28/using-...>

Jed Casey writes “[VeloCloud](#) has an API available to perform different actions including pushing configurations and reading back status information. Unfortunately, a lot of the API access functions are limited to end customers. However, any information you can obtain through the usual VeloCloud Orchestrator web interface, you can retrieve programmatically. I will explain how to do this using Python 3.” - Drew

An Update On My VCDX Attempt - Upright Vinyl.co.uk

<https://blog.uprightvinyl.co.uk/2019/03/05/an-upda...>

You could probably devote an entire subcategory of tech blogs to posts tracking certification attempts. Here’s

another entry. This one focuses on the VCDX, but it has hints, lessons, and experiences that will be of interest to others on the certification path, regardless of the cert you're chasing. - Drew

gRPC Telemetry - Junos and Me

<http://junosandme.over-blog.com/2019/02/grpc-telem...>

If you'd like to learn more about gRPC and telemetry, David Roy has a link to a presentation he gave. David is a network engineer for Orange, the French telecoms company. And don't worry, the slides are in English. - Drew

Tech Blogs: Opinion

Anyone Using Intel Omni-Path? - ipSpace.net

<https://blog.ipspace.net/2019/03/anyone-using-intel-omni-path.html>

Ivan Pepelnjak double-checks to see who's using Intel's Omni-Path, and if so, what for. Maybe that's you? If so, let Ivan know. - Ethan

Hybrid isn't a Place - It's an Operating Model - CTO Advisor

<https://www.thectoadvisor.com/blog/2019/3/7/hybrid...>

Keith Townsend explores the distinctions between different kinds of IT operational models in regard to the cloud. His general point: if you're lifting and shifting applications into a public cloud using something like VMware on AWS, just because the workloads are running on premises doesn't make your operational model any different than running the same workloads on premises. It's an interesting perspective. - Drew

Is it Balance, or Workism? - Rule 11 Reader

<https://rule11.tech/is-it-balance-or-workism/>

Russ White ponders why many people work more hours while getting less done. “Perhaps—just maybe—the problem goes back to a spiritual ailment. Maybe we are trying to build the meaning of our lives around work. Maybe we need to realize just how much workism has infected our lives—our attachment to work as the primary means through which we gain meaning in life.” Workism is an issue tied to productivity that I haven’t considered yet, but it’s been lurking in the back of my mind. We often try to impress each other with how many hours we work, but sitting endlessly at a desk is not a measure of achievement. Russ is on to something here. - Ethan

SnapRoute - Is there something new happening in networking? - HowFunky

<https://www.howfunky.com/2019/03/snaproute-is-there-something-new.html>

Ed Horley discusses a new network OS from SnapRoute. And it's not just a slick new NOS. Ed writes "I think what SnapRoute is doing is the start of a fundamental shift in thinking about how network equipment, specifically data center switching and routing, should be deployed,

managed and, more importantly, how they are classified. I believe they are the start of the transition where a managed resource in a data center is not something special but simply a compute object with different characteristics that can be assembled in a way that serves the purpose of the workloads that need to run in that data center." In other words, it's not a NOS; it's a movement! - Drew

DevOps is a Silo - NetworkingNerd

<http://networkingnerd.net/2019/02/28/devops-is-a-silo/>

Tom Hollingsworth contends, "DevOps isn't a silo buster. It's just a different kind of tribal silo. The DevOps folks all have similar mentalities and view infrastructure in the same way. ... If you treat DevOps like a siloed tribe you'll find their behavior is much easier to predict and work with." Yet another post grappling (indirectly) with the emerging opinion that infrastructure doesn't matter and no one needs to care about it. But it does. And we do. - Ethan

Why not OSPF for the Internet Core? - Rule 11 Reader

<https://rule11.tech/why-not-ospf-for-the-internet-core/>

Those familiar with the OSPF and BGP protocols likely have a knee-jerk reaction to the title question--something about “scale.” True, of course. But as usual, Russ goes deeper. A short read that includes, of all things, a napkin diagram. A recommended thought exercise. - Ethan

Network Automation Interviews: Federico Olivieri - toolr.io

<https://toolr.io/2019/02/28/network-automation-interviews-federico-olivieri/>

Nicola Arnoldi interviews Federico Olivieri about his network automation journey. That journey includes the love, hate, and imposter syndrome that many of us cope with as we grow beyond the CLI. But my favorite quote is Federico on naysayers. “Do not listen to those that do not support innovation: those will always stay in their comfort zone. They don’t share the same passion for technologies as we do. Trust your feeling and follow it.” - Ethan

The Lulz

I work in IT, which is the reason
our house has:

- mechanical locks
- mechanical windows
- routers using OpenWRT
- no smart home crap
- no Alexa/Google Assistant/...
- no internet connected
thermostats

Tech Enthusiasts: Everything in my house is wired to the Internet of Things! I control it all from my smartphone! My smart-house is bluetooth enabled and I can give it voice commands via alexa! I love the future!

Programmers / Engineers: The most recent piece of technology I own is a printer from 2004 and I keep a loaded gun ready to shoot it if it ever makes an unexpected noise.

- via Matt Oswalt [@mierdin](#) on Twitter

IT News

Comcast set mobile pins to “0000,” helping attackers steal phone numbers - Ars Technica

<https://arstechnica.com/information-technology/2019/03/a-comcast-security-flub-helped-attackers-steal-mobile-phone-numbers/>

Super ugly story about Comcast doing something dumb. But for me, the bigger takeaway is to invest in 2FA. 2FA is time-consuming to set up and somewhat inconvenient, but it can limit damage to your personal world when, for instance, a boneheaded company sets your PIN to “0000” with no way for you to change it, resulting in your digital life being compromised. Hey, someone in Asia got hold of my iCloud account over this past year despite a strong password and no lame PIN--it happens. 2FA saved my butt. - Ethan

Hundreds of Vulnerable Docker Hosts Exploited by Cryptocurrency Miners - Imperva

<https://www.imperva.com/blog/hundreds-of-vulnerable-docker-hosts-exploited-by-cryptocurrency-miners/>

By default, only localhost can hit Docker's API. But let's say you open up the ACL to grant remote access to the API. If you do the ACL wrong, vulnerability [CVE-2019-5736](#) could bite you on the tush pretty hard--root access from the Docker container. Ouch. Have a read for the rest of the painful details and Imperva's recommendations. - Ethan

Triton is the world's most murderous malware, and it's spreading - MIT Technology Review

<https://www.technologyreview.com/s/613054/cybersecurity-critical-infrastructure-triton-malware/>

Triton is a nasty bit of malware with an industrial bent. This is an interesting story of exploits already achieved and the likelihood of increased damage when wielded as a

weapon in ongoing cyberwarfare. The concern is that Triton is likely sitting on other networks right now, waiting to be activated. - Ethan

Forty percent of 'AI startups' in Europe don't actually use AI, claims report - The Verge

<https://www.theverge.com/2019/3/5/18251326/ai-startups-europe-fake-40-percent-mmc-report>

We didn't need AI to predict this. - Drew

So. To the question we really wanted answering: How real is 5G? - The Register

https://www.theregister.co.uk/2019/02/27/5g_how_re...

With all of the 5G hype that came vomiting out of MWC like the telecom industry drank too many wine coolers, this piece from The Register arrives with a couple of Alka-Seltzer and aspirin, and a clear picture of where things actually stand. - Drew

New Products & Industry Takes

AppNeta Launches BGP Monitoring for Advanced Multi-path Route Visualization - AppNeta

<https://www.appneta.com/press-room/appneta-launche...>

AppNeta has added a new feature to its performance monitoring platform. As the press release notes, “BGP information is automatically collected and applied to the route visualization data already being collected by AppNeta Performance Manager. When users log into the platform and select specific paths from the Delivery Network Path page they can see the routes their apps are taking with BGP context from source to destination.” -

Drew

Let's talk about Network Automation. It's misunderstood.

<https://netyce.com/blog/lets-talk-about-network-automation-its-misunderstood/>

Thoughtful perspective that comes from many years of working in the network automation space is evident. Wim Gerrits discusses a panoply of automation solutions on the market today, categorizing what they are, what they aren't, and the best approach. Of course, netYCE, Wim's company, is one of the winners. Even if you disagree with Wim's conclusion, this is worthwhile read, because it gets at a couple of issues I think are important - automation solution flexibility and lifecycle management. - Ethan

A New Manufacturing Approach to Optical Transceivers - Juniper Forums

<https://forums.juniper.net/t5/Service-Provider-Transformation/A-New-Manufacturing-Approach-to-Optical-Transceivers/ba-p/459741>

Juniper talks through the advantages of silicon photonics in their Opto-ASIC transceiver packaging. "The unique difference to Juniper's approach is the integration of all photonic elements of an optical transceiver—most importantly the lasers and the detectors—within a single

silicon photonics die. This is achieved by integrating indium phosphide materials into a silicon process flow right on the silicon wafer—Juniper’s core intellectual property—to solve for a fundamental deficiency in existing silicon photonics technologies: the inability to amplify or generate light on chip.” The piece concludes with possible future uses of this tech in their Penta and Triton chips. - Ethan

LightStep Tracing Shakes Up Microservices and Serverless APM and Observability - GlobeNewswire

<https://globenewswire.com/news-release/2019/03/04/1745655/0/en/LightStep-Tracing-Shakes-Up-Microservices-and-Serverless-APM-and-Observability.html>

In the microservices world, distributed tracing is about correlating log events across workloads using commonly shared metadata. In other words, tag events with a tag everyone agrees on, then use that tag to trace an application transaction. There are distributed tracing open source tools, but LightStep thinks they suck because they lack context and leave the operator to figure out what’s

borked. So, LightStep built a tracing solution that helps you make sense of the data mountain. They talk more about it in [this blog post](#). - Ethan

FreeRouter as a test environment - The Forwarding Plane

<https://www.forwardingplane.net/2019/03/freertr-as-a-lab-environment/>

<http://freerouter.nop.hu/>

Nick Buraglio says about this virtual router, “I absolutely love alternative routing platforms and feature complete simulation environments, this really got me going. I tend to define ‘feature complete’ in a routing platform as something that can do both IS-IS and MPLS. Given that there aren’t many platforms that do both correctly or within a reasonable budget, and offer simulation options, I was pretty excited.” - Ethan

AWS Inter-Region Latency - cloudping.co

<https://www.cloudping.co/>

Site creator [Matt Adorjan](#) states, “Over time, as I've worked on global AWS deployments, I have often been faced with the question of which inter-region transactions will be faced with the most latency. I have been able to find a lot of static examples of previous testing completed, or anecdotal thoughts based on a region's location. I haven't been able to find any kind of dynamic, consistently updated, latency monitoring. The goal here is to provide a single source of truth for inter-region AWS region latency.”
I dig it. - Ethan

Traffic Engineering Segment Routed Networks with NorthStar Controller - Juniper Forums

<https://forums.juniper.net/t5/Industry-Solutions-and-Trends/Traffic-Engineering-Segment-Routed-Networks-with-NorthStar/ba-p/459613>

When [contrasting SR-MPLS and SRv6](#), I mentioned, “An edge router, or possibly a controller, creates the paths and encodes the label stack or SRH in the packet before it's sent into the core.” Juniper's Northstar controller is one of those devices I alluded to. In a bit of chest-thumping,

Juniper points out, “Ultimately, the primary purpose of an SR controller is to make real time traffic engineering decisions. Proven TE algorithms - deployed over last 20+ years – remain the crown jewels of NorthStar.” - Ethan

Nokia wins Indosat Ooredoo's IP/MPLS network upgrade in Indonesia - Nokia

<https://www.nokia.com/about-us/news/releases/2019/...>

A nice customer win for Nokia. From the press release: "Nokia has been chosen by Indosat Ooredoo (Indosat) to upgrade its IP/MPLS network to meet fast-growing subscriber demand for fixed and mobile broadband services. Nokia's FP4 network processor played a key role in the win, ensuring the scale, security and functionality needed for the 100GE network." -Drew

The End Bit

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drew.conrymurray@packetpushers.net.

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because that would suck.

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