Thoughts, views, and opinions on a being a Human in IT Infrastructure.

View this email in your browser

BUMPER BONUS EDITION: Boring Technology, The End of Enterprise IT And Why, Wanker Knobs, Why HTTP/2, Links, iPad Pro, Product News, and much more. Get a beverage & start reading.

ETHEREALMIND
Human Infrastructure Magazine
A Packet Pushers Newsletter on Life in Networking

Table of Contents
(aka The Project Plan)

BUMPER EDITION

This Issue is EXTRA LARGE. If you don't see the three videos at the end then view this email in your browser.

Issue Number 18

11/12/2015

The "HP Splits, Dell/EMC merges, Cisco/Ericsson partners and I don't know what the hell is going on" Edition

Thought For The Week:
A good project is one that you walk away from.

Boring Technology Is What Sells

I have been regularly asked to talk more about *real technology*: that is, the technology that is in your data center, campus, or WAN today.

Except that I am only interested in *tomorrow's technology*.

Today's technology took about five to eight years to arrive. For example, I started writing about [TRILL in March 2009](#) and into [2010](#). Today, customers are just starting to purchase FabricPath or VCS.

In 2011, I was learning and talking about VEPA/EVB/802.1Qbg before it became Cisco's proprietary Fabric Extensions (FEX), Brocade HyperEdge, and the almost unknown standard IEEE 802.1BR.

You can learn about and get trained on today's technology from lots of places. Commercial training services use vendor-defined requirements, e.g. Cisco certifications. The big vendor conferences provide lots of opportunities to learn about and play with existing products. Resellers are well-trained on today's technology.

And the Internet has vast amounts of resources on vendor websites, blogs, podcasts, and even Youtube.

Training is about profitable and widely used technology that you use today. I leave that to companies with lots of resources.

Boring technology is what sells. I'd rather talk about what's coming next.

Boring Technology Is What Sells

NEW TECHNOLOGY IS WHERE ALL THE COOL THINGS ARE HAPPENING. WE GET ALL EXCITED AND TALK ABOUT THE WHIZZ BANG STUFF …..

IN 2009, I WAS TALKING ABOUT TRILL STANDARDS. IN 2015, PEOPLE ARE BUYING CISCO FABRICPATH OR BROCADE VCS FOR **THE FIRST TIME**
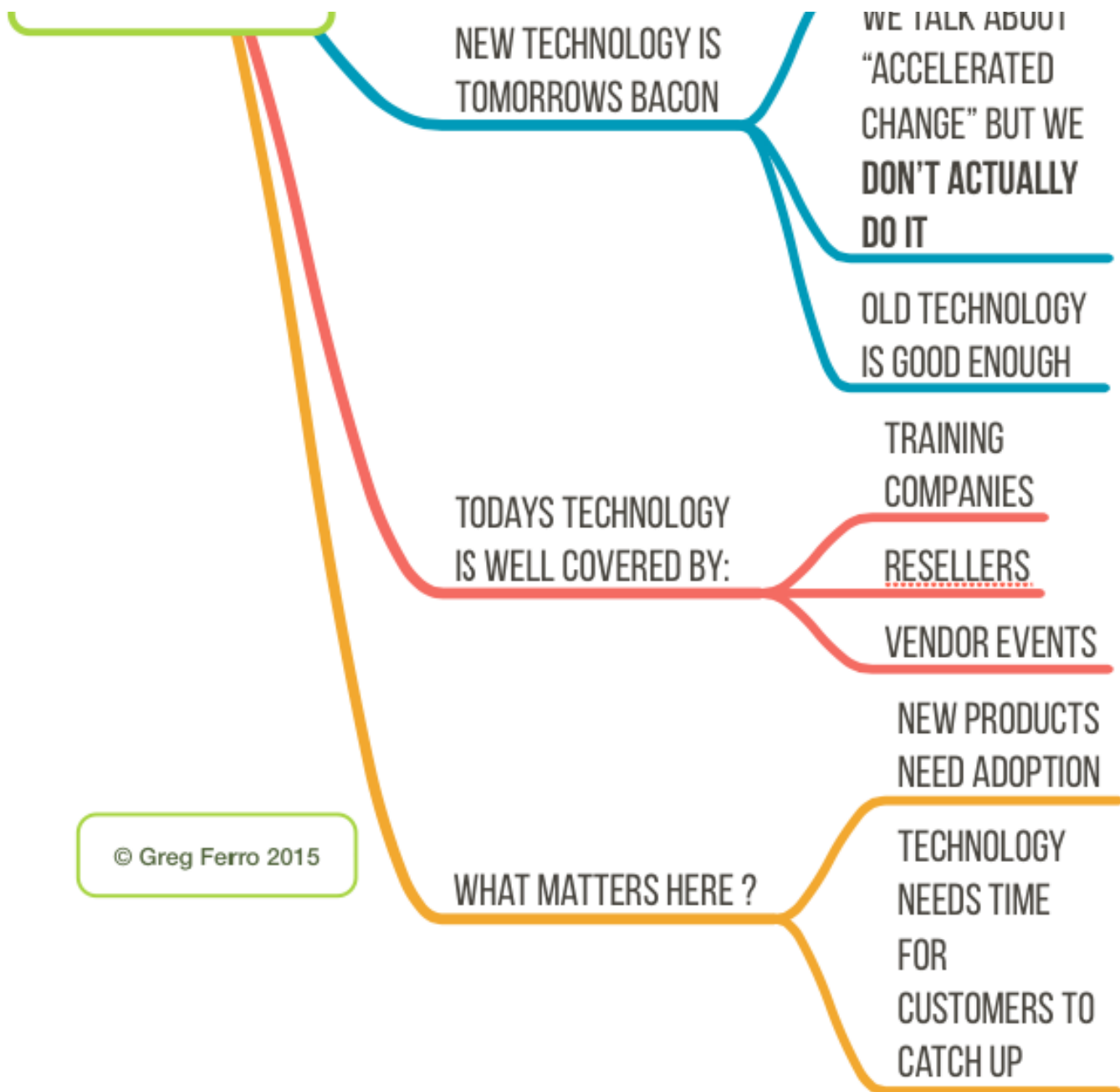
BUT ITS THE OLD TECHNOLOGY THAT MAKES THE BACON

IN 2013, CISCO ANNOUNCED THE NEXUS 9000. PEOPLE ARE STILL BUYING CAT4500E, CAT6800IA OR NX7700. WHY ?

MARKETING NEEDS TIME TO REACH CUSTOMERS

ITS THE BORING TECHNOLOGY THAT SELLS

WE TALK ABOUT

NEW TECHNOLOGY IS TOMORROWS BACON

WE TALK ABOUT "ACCELERATED CHANGE" BUT WE **DON'T ACTUALLY DO IT**

OLD TECHNOLOGY IS GOOD ENOUGH

TODAYS TECHNOLOGY IS WELL COVERED BY:

TRAINING COMPANIES

RESELLERS

VENDOR EVENTS

NEW PRODUCTS NEED ADOPTION

© Greg Ferro 2015

WHAT MATTERS HERE ?

TECHNOLOGY NEEDS TIME FOR CUSTOMERS TO CATCH UP

Nerd Knobs? No, It's Wanker Knobs

For a few years now I have used the term "nerd knobs" to describe a certain class of features implemented in networking products. This may have created the (mistaken) impression that nerd knobs are part of the IT hero culture. From

now on I'm calling them **"Wanker Knobs."**

In most cases, wanker knobs are for experienced and knowledgeable engineers and architects to "solve" problems when an application, carrier circuit, or external network connection doesn't quite fit into the way a network is supposed to work. Instead of pushing back to the business, we waste vast resources implementing risky solutions that solve the problem just this once ....

Just this once. Right.

For example:
  • If your OSPF database is using too much memory, use a Totally Not So Stubby Area
  • If your BGP outbound routing isn't failing over correctly, implement a backdoor route
  • When filtering by Access List isn't enough, use a header inspection process such as NBAR to increase ACL functionality
  • Use PBR or PFR to dynamically override the standard packet forwarding function

These 'features' are used to address niche problems or unusual use cases, avoid risky change, or to make use of expensive assets that aren't ready for replacement.

Every one of these features creates substantial technical debt because they deviate from standards, are proprietary, or override normal operation, which causes operational problems.

Technical Debt And Being A Wanker

Technical debt happens in many ways, but the most common is when your only tool is a networking hammer and every problem is a nail to be solved in the network.

In fact, every wanker knob is a career-limiting move. When you implement a nasty hack, apply cruft, and kluge something, it becomes less reliable, less operable, and ever harder to change.

That's not being a nerd. That's being a wanker.

That's why it's wanker knobs from now on.

Why The Enterprise Doesn't Matter And Mobile Is The Schizz

Enterprise IT isn't the focus for investors these days, and that's why your vendor is buying/merging/closing/shutting down. In addition, your incumbent IT supplier isn't growing like it used to - partly because of cloud, partly because we are increasing the use of existing assets, and partly because of commoditization of production.

That means some percentage of investors are selling their shares and moving

elsewhere. Countervailing factors are:

1) Companies are buying back shares, e.g. Cisco is spending around $4 billion; EMC has spent $6.5 billion.
2) Investors are leaving primary sectors like mining, oil, and farming as prices drop. Some money is moving into technology and supporting the market.

Confused? Sure I am. Vendors aren't sure either and that's why we see merging (Dell/EMC), splitting (HPE), divesting/shrinking (IBM), and partnering (Cisco/Ericsson) across the traditional landscape.

Mobile Is The Schizz

Facebook now has 1 billion daily active users. **894 million of them are on mobile**. Facebook's total revenue for the most recent quarter was $4.5 billion. Mobile ad revenue is now 78% of total ad revenue - $3.35 billion in the quarter.

With a billion users, $4.5 billion revenue and $1.45 billion net revenue, Facebook is running on similar profit margins to average enterprise IT companies--but with only $791 million of capital expenditure. Where Cisco/HP/Dell have a capital spend of billions per quarter, Facebook is spending only hundreds of millions.

What Do You Do?

Probably the best advice I have right now is to sit tight and delay big decisions for as long as possible. If you must spend, then go cheap. Avoid the big platforms that have substantial lock-in because those companies might not stay the same in the months ahead, so those platforms might be abandoned.

Internet-based WAN infrastructure. It's packaged with centralized administration, real-time visibility, and policy control for precise and measurable application performance. A Viptela SD-WAN lets you build flexible, multi-segmented topologies. Your branch sites can have guest WiFi, video collaboration, PCI, and so on, with each application on different segments, and possibly with a different topology for each. Viptela is already deployed at thousands of sites across more than fifteen Fortune 500 companies in retail, healthcare, and more. Get more details at Viptela.com.

The Case For HTTP/2 by Andy Davies

This video is an excellent summary of what is broken with HTTP and TCP and clearly explains why you want to use HTTP/2 instead.

Andy is a Web performance expert and a personal friend. He does an outstanding job of explaining clearly and simply why you want HTTP/2. (I recommend watching at 1.5x speed since his delivery is pitched for a live audience.)

HTTP/1.1 was standardized in the 1990's and the Web has dramatically changed since then. In this talk Andy explores what's different about HTTP/2, why we needed to update HTTP, and what impact it has for us as Web developers and consumers.

Sponsor: Interop

Join the Packet Pushers at Interop Las Vegas for the Future of Networking Summit, May 2- 3. It's a deep dive into the technologies and trends that will affect the next five to ten years of networking. Use the code PPUSHERS in the "Marketing Code" field when you register and get 25% off 5-Day, 3-Day, and 2-Day conference passes.

Internets Of Interest

A collection of pre-loved links that might interest you. "Pre-loved" because I liked them enough to put into this newsletter. It's not *true* love.

An Introduction To Testing Infrastructure by Gareth Rushgrove

Lots of useful information in here on how to test infrastructure using software. This should get you thinking about how some people are writing software to test their existing network infrastructure instead of using humans to do dumb ping tests.

LINK

Comparison Of SSH Implementation

I have been getting more aware of the variation in SSH Clients/Servers recently, specifically relating to encryption used (have you ever thought about that?). This site cross-references all the ciphers that each SSH client uses.

LINK

BroadView Instrumentation Software

Broadcom has announced the software that allows for detailed monitoring of Strata XGS & Tomahawk switch silicon inside your favorite network operating system. This is especially important for open source operating systems.

LINK

Linux Containers Will Disrupt Virtualization Incumbents

From The Next Platform.com: *The next wave of virtualization on servers is not going to look like the last one. That is the thinking of Mark Shuttleworth, founder of the Ubuntu Linux project more than a decade ago and head of strategy and*

user experience at Canonical, the company that provides support services for Ubuntu.

The Next Platform.com interviewed Mark Shuttleworth of Ubuntu. He has a substantial interest in displacing VMware in the virtualization market, and there is a lot good information in this article. Here is an interesting tidbit:

Interestingly, Canonical is eating its own dog food, as the saying goes, and is deploying its Ubuntu OpenStack in LXC containers now. This enables administrators to upgrade OpenStack piecemeal or move chunks of it off bits of hardware to performance maintenance on the iron. In a typical small OpenStack cloud, says Shuttleworth, you end up with eight management nodes that run various pieces of the control plane, and you tend to run them in triplicates so that if you lose one, you still have high availability through the other two. That yields 32 different physical servers. By packaging these into LXC containers and managing them through the LXD hypervisor, several of these control plane bits can be packed into the same physical machines and the overall physical server footprint for the OpenStack control plane can be shrunk without sacrificing performance or availability.

LINK

Rule 11 Is Your Friend

Russ White points out that rate of change in networking can be scary but actually most of the "new hotness" is very similar to old technology that we used from decades ago.

Rule 11 of RFC1925 applies.

LINK

Two Reasons I'm Psyched For Self-Driving Cars

I tend to take a dystopian view of technology development. Regardless of whatever hippie, libertarian, or child-like spirit in which a technology was originally created, it typically gets co-opted for marketing, surveillance, and/or weaponization.

That's why I'm surprised at my excitement for self-driving cars. In particular, I see great potential for keeping older drivers mobile, and for delivering me takeout.

I heard a story on NPR recently about how to deal with the challenges of having parents or relatives that are getting too old to drive. There are embarrassing conversations, safety issues, and a serious loss of mobility for people who still need transportation.

The story never mentioned driverless cars, but it occurred to me that this technology could be an ideal solution. Self-driving cars can help keep older people mobile and independent while ameliorating some of the safety issues (assuming we get robust automation systems in place).

I'll bet driverless tech will have advanced to general deployment by the time my own parents reach the age where driving is an issue.

And I'm supremely confident that by the time my own infirmities overwhelm me, the steering wheel will have become a vestigial appendage of a bygone age, like the glove compartment.

Takeout & Delivery

Self-driving cars are also going to be a boon for people who like takeout. There's a great Indian restaurant about 15 minutes from my house that doesn't deliver, so if I want takeout I have to get it myself.

It would be much more convenient if I could dispatch my self-driving car to the restaurant to pick it up for me.

There are a lot of efforts under way to automate food delivery, including drones, and a startup called Starship Technologies that plans to build cooler-sized [self-driving robots](#) that travel at 4mph down sidewalks.

But self-driving cars are a more scalable solution to the delivery problem. It just makes more sense for the customer to come to the restaurant than for the restaurant to keep sufficient drones or wheeled robots on hand to meet demand.

Even if restaurants hired a robot delivery service, the costs would be significant enough to get passed on to me. And I don't want to wait for a delivery service that had a max speed of 4 m.p.h.! A driverless car strictly obeying speed limits can go five to six times faster down most residential streets.

Meanwhile, all I have to do is dial up the order, dispatch the car, and then enjoy a spicy serving of malai kofta delivered hot right to my door.

I know the driverless car will become a prime vehicle for marketing and surveillance (and perhaps even weaponization), but at least I'll get some good meals out of it.

Musings: iPad Pro

I think the iPad Pro will make a big impact on the enterprise

"The iPad is the clearest expression of our vision of the future of personal computing." - Tim Cook

It's easy to see the iPad Pro is primed for the enterprise market:

- Microsoft Office is available and Microsoft demonstrated it at the launch
- It's the most portable computer you can have

- It has all the inputs - finger, keyboard, stylus and voice
- Middle managers don't do spreadsheets or long documents - they do email, reviewing and reading

Apple doesn't attack markets head on; it develops products that are substantially unique but not **too different** to prevent adoption. They are high quality and visually pleasing.

[Fraser Speirs has written one of the smartest articles](#) I have read on the iPad Pro. Fraser runs the IT infrastructure for a primary school in Scotland using only iPads and a few computers.

The iPad Pro will immediately suit people who need its unique physical characteristics: large screen for sharing content with others side-by-side. Artists looking for a better pen experience will be attracted to it right away. Is the iPad Pro the iPad that schools will roll out 1:1 all over the world? Absolutely not. Would it make a great single machine for the average teacher? It could, if the surrounding network and cloud infrastructure is in place (which it rarely is, sadly).

Postdate: The iPad Pro will be available around 11 November. I'm not buying one - the cost is way beyond what I can afford (£1069).

Also, this review from Daring Fireball highlights how mobile devices like iPads are getting close to the performance of desktops.

The iPad Pro is without question faster than the new one-port MacBook or the latest MacBook Airs. I've looked at several of my favorite benchmarks — Geekbench 3, Mozilla's Kraken, and Google's Octane 2 — and the iPad Pro is a race car. It's only a hair slower than my year-old 13-inch MacBook Pro in single-core measurements. Graphics-wise, testing with GFXBench, it blows my MacBook Pro away. A one-year-old maxed-out MacBook Pro, rivaled by an iPad in performance benchmarks. Just think about that. According to Geekbench's online results, the iPad Pro is faster in single-core testing than Microsoft's new Surface Pro 4 with a Core-i5 processor. The Core-i7 version of the Surface Pro 4 isn't shipping until December — that model will almost certainly test faster than the iPad Pro. But that's a $1599 machine with an Intel x86 CPU. The iPad Pro starts at $799 and runs an ARM CPU — Apple's A9X.

There is no more trade-off. You don't have to choose between the performance of x86 and the battery life of ARM.

[Daring Fireball: The iPad Pro](#)

This level of performance highlights why enterprise IT matters less than it used to (as I wrote about above). And why desktops/laptops are sharing the market with tablets and smartphones.

Future of Networking: Named Data Networking

Here at the Packet Pushers we spend most of our time thinking about the **future of networking.** We are less interested in today's technology because you can get plenty of information from other sources - vendors, training/certifications, text books, manuals, etc.

Right now we are spending time on **Named Data Networking (NDN).** NDN is intended to completely change the way endpoints communicate with other.

I recorded a podcast with David Ward, CTO at Cisco, and he talks extensively about Named Data Networking as the future of service provider networks.

This podcast is what led us to spend (waste?) time looking into the topic.

I wonder if anyone out there knows or has thoughts? Email me.

Product News

We don't often get new products worth talking about, so that makes it nice to have something to say.

Intel FM10000 Chip

Most people have heard of the Broadcom Tomahawk chipset for the 25/50/100Gb Ethernet switches. A few companies have products already that offer 36 ports of 100GbE.

Not many people know that Intel has a line of merchant silicon for switches.

The Intel FM10000 is the latest release and has up to 36 lanes of Ethernet that can be configured as 1GbE, 10GbE, 25GbE, 40GbE, or 100GbE ports.

Probably more important is "Advanced DPDK acceleration enhancements to improve server network performance while freeing up CPU utilization."

Oh yeah! I want to see this baby inside some switches with virtual appliances (routers/firewalls/load balancers) using the DPDK from inside containers.

LINK

A10 THUNDER CONVERGENT FIREWALL

Firewalls are very simple pieces of software. The hardest part is the balance sheet liability that security companies have to carry. The second hardest is hardening the appliance that runs the firewall functions. That's why load balancer companies have been adding firewall functions to their products.

A10 Thunder Convergent Firewall is one helluva grandiose name for a pretty basic feature. That said, the days of having a separate firewall AND a load balancer in front of your Web farm is just too expensive. And, lets admit it, pointless. A filtering firewall does nothing these days.

I would also point out the A10 is catching up with F5. There isn't much difference in the features really but F5 has a cloud monitoring service to perform real-time updates and security intelligence. As new vulnerabilities are found on the Internet, the F5 can be updated (if you are paying).

Worth noticing.

LINK

Q&A

People send me questions. I do my best to answer them.

Question:

So this may get a little deep. I am the product of a broken home, negligent but loving parents (if that makes sense), lack of roots (moved a lot), etc. My entire life I feel like I have made mostly good decisions to make sure I didn't end up homeless.

I joined the Air Force right out of high school, however I didn't pick a job that was applicable to the outside world. I went to college after that but I picked a major that I ended up having no interest in (finance).

Now as an almost 30-year-old, I find myself in the IT world. I somehow acquired my Net+, Sec+, CCENT, and CCNA; most of that information has been dumped from my brain though. I am stuck in a desktop admin role and I don't know how to claw my way out. I am doing my best to keep my nose in the books but motivation comes in waves for me. I'm looking for network admin / sys admin jobs but they all want technical expertise in areas that I am not familiar with at all (Unix, SQL, server administration, etc). I am mostly stuck replacing keyboards, monitors, and fixing pretty basic issues like password lockouts and the like.

I know the common answer here is to build a lab and figure it out on your own. However, it is hard to find the motivation to spend my own money and time on this stuff outside of work. For instance I am trying to learn Powershell on my own by reading the Month of Lunches book and watching CBT nugget videos. When I watch the videos the stuff seems to makes sense. But once I get to work, I cannot find a reason to use Powershell, or when I do and I want to create a script my mind just goes blank. I know this stuff does not come easily to me, but I am hoping if I keep at it something will finally click.

Sorry for the long message, but what I am getting at is how do you suggest I move forward to learn some valuable skills in this field? My confidence in myself is shot, and I'm having trouble getting it back.

Answer:

One of the many great things about working in IT is that **few people care where you came from**. I know lots of people in IT and networking that have the same or worse history as you that are now "big deals." So don't be held back by your past. You can be anything in IT just by being good at it.

Don't expect miracles when learning. I constantly have to remind myself that it takes time to learn things and stop beating myself up when I don't get it the first time. You spent 12 years in school, so if it takes 12 year to learn how to read & write, it might takes three years to learn some technology skills.

Change jobs. If you think you are "stuck" in your job, that's a sign you need to go somewhere else. Moving jobs is (nearly always) the best way to get new skills and get the chance to move up the ladder.

Moving forward. The best advice I have for success in IT is persistence. Keep learning, keep reading, look for ways to apply your knowledge. Being too stupid to give up means that you will win because you are always in the race. That's what works for me.

Self Loving : [Thought for My Day: Learning is about Competing with Yourself - EtherealMind](#)

Reference: [AMA - Greg Ferro from Packet Pushers Podcast, 25 Year Enterprise IT Survivor. : networking](#)

Recent Articles

The last five articles published on EtherealMind and Packet Pushers

EtherealMind.com Latest

Logical Razors Can Take on Corporate Babble - [Link](#)
Canned Response to BGP Networking Questions – Reddit - [Link](#)
IETF RFC 8374 BGPsec Design Choices and Summary of Supporting Discussions - [Link](#)
Net Neutrality Hasn't Ended, We Don't Know When - [Link](#)
Next Market Transition ? Cheaper Buying, Less Selling - [Link](#)

PacketPushers.net - The Last Five

Network Break 182: BGP Hijacked For Cryptocurrency Heist; Juniper, Big Switch Unveil New Products - [Link](#)
Show 387: AWS Networking – A View From The Inside - [Link](#)
PQ 147: Connecting Security And GDPR Compliance (Sponsored) - [Link](#)
Datanauts 131: Masters And Mentorship - [Link](#)
Network Break 181: Russia Accused Of Infrastructure Attacks; US Targets ZTE - [Link](#)

Watch This!

Where we collect some videos that make us reflect, think about our inner lives, or just entertain us.

As a network architect, I am a huge believer in pessimism. Thinking about, looking for, and predicting the worst things means you can include those in the design. There is wisdom in cynicism and snark.

One thing about technology is that anything we create is transient. It will last a few years before being replaced. Occasionally I see people who make real things from raw materials and feel a jealous pang that my work will leave no trace.

This story starts slow but there is a surprise at about halfway when Ben talks about his past and what drives him. Then I am reminded how easy working in technology is compared to other careers.

In the whole world, there's only two kinds of jobs. There's the job that you take a shower for before you go to work. And there's a job that you take a shower for when you come home at night.

I loved watching this. I escaped from the real world for just a little while.

Ten minutes of pure SciFi entertainment. An animated short. Sit back, headphones on and enjoy the ride.

Can't get enough newsletters? Check out Link Propagation, our newest publication. We send you a free weekly digest with tech news, interesting blogs, and industry announcements, all curated by the Packet Pushers. It's an easy way to keep up and stay informed. Subscribe at packetpushers.net/link-propagation.

The End Bit

Human Infrastructure is bi-weekly newsletter with view, perspectives, and opinions. It is edited and published by Greg Ferro from EtherealMind.com and PacketPushers.net and Drew Conry-Murray from PacketPushers.net. If you'd like to contribute, email Drew at drew.conrymurray@packetpushers.net.

We don't give away your email address or personal details because that would suck.

unsubscribe from this list   update subscription preferences