Another week of being a Human in IT Infrastructure. Are you still alive to talk about it?

View this email in your browser

IN THIS WEEK'S ISSUE: The Future of Collaboration, Online Learning, Proof Before Production, and a Holiday Reading List. Make sure you enable the images; the magazine looks a whole lot better that way!

PACKETPUSHERS Human Infrastructure Magazine

A Newsletter About a Life in Networking

Table of Contents
(aka The Project Plan)

Issue Number 21

12/23/2015

The "Christmas Change Freeze" Edition, when we all pretend we are doing something but really we are just getting a free ITIL-sponsored break.

Thought For The Week:

As we approach the end of quarter, remember that rug burn on the sales rep's knees from begging are not HR actionable.

1. The Future Of Collaboration Is Asynchronous

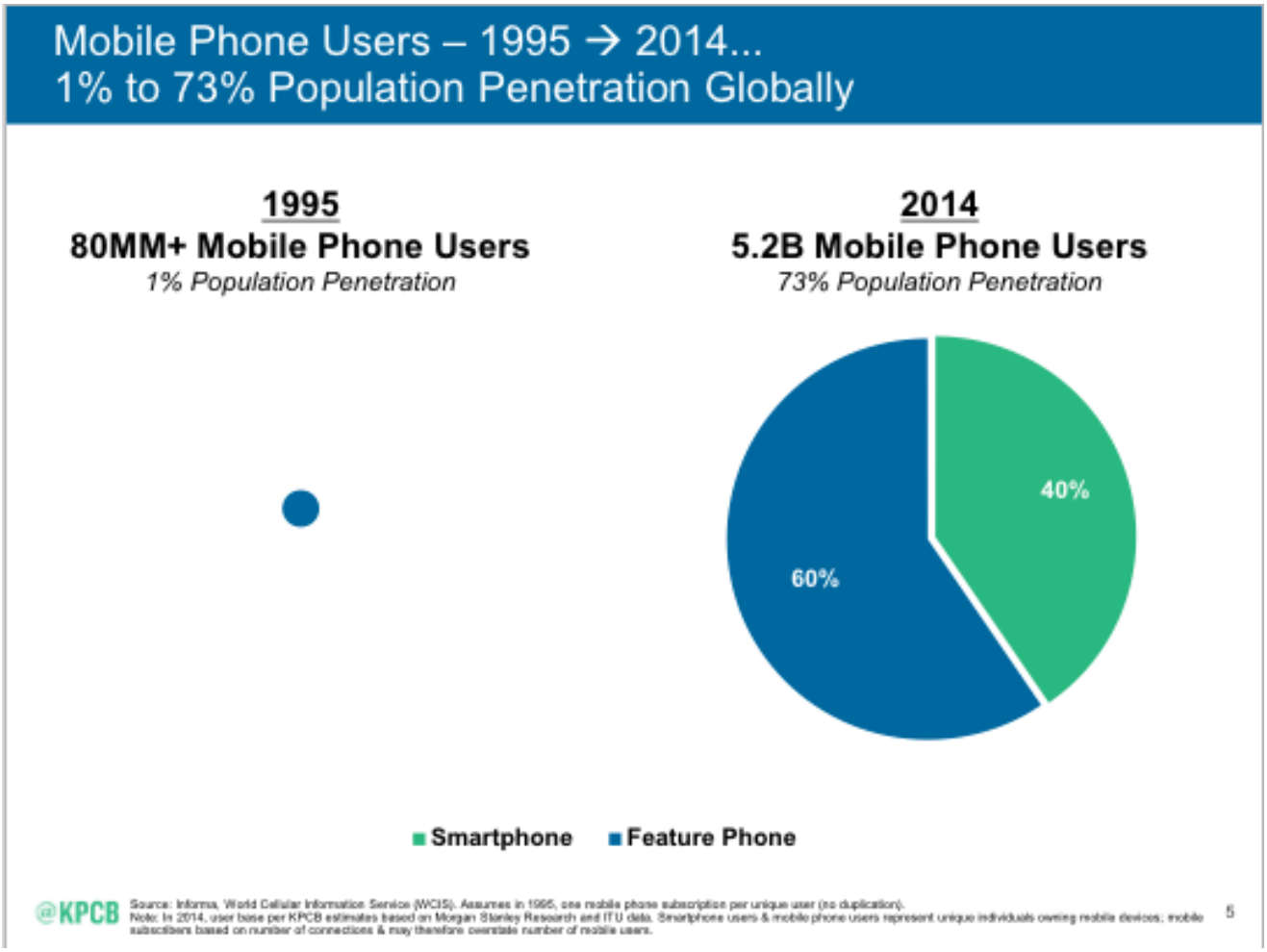
by Greg Ferro

Collaboration is a tough topic but I'm certain that future of collaboration isn't video, voice, or any other person-to-person technology that requires synchronized participation, because the cost of full participation isn't worth the return.

IP Telephony Is Dead

When a technology market stops growing, it's dead. In stagnet market segments, vendors will only invest just enough to maintain the technology, or to reduce the cost of production or maintenance. That's why SIP standards have slowed drastically; because vendor spending on standards development and participation is removed.

Smartphones replaced desk phones and will never be integrated with centralized switches because the market for PBX features is limited to a negligible number of people employed by corporations. And by 'negligible' I mean in comparison to the number of people who own mobile phones:



Source: Meeker KPCB 2015

The long-term future of PBX systems are SaaS using Internet bandwidth. We put up with the hassle of QoS & Voice SLA because the cost of private WAN bandwidth is vastly overpriced.

> ***Voice Quality:*** *There is false perception that voice quality is a critical issue. If voice quality really mattered to consumers, no one would ever use a mobile phone. This article is about improving voice using VoLTE and HD Voice (IEEE Why Mobile Voice Quality Still Stinks—and How to Fix It), but a year later, no one is using VoLTE because not enough people care about voice quality.*
>
> ***Privacy & Security:*** *If this really mattered, all employees would be banned from owning a mobile device as part of their employment contract. We could wish for better but the reality is that productivity outweighs the risk.*

One On One Communication

It seems to me that "older" workers (say 40-65) get excited about video conferencing. Maybe it's because they grew up watching TV as children or because they are locked into conventional methods of one-on-one communication. They believe there's value in face-to-face, person-to-person discussions. Or they see meetings as the only way to get things done.

But this doesn't scale. Phone calls, reviews, and meetings are disruptive to productive work and prevent project completion.

Meetings lock every person into a fixed point in time to stop real work and spend time communicating. But most people aren't communicating, sharing or delivering -- they are listening to shared information. For most use cases, a meeting is the least productive way to share information, disseminate knowledge, and gather feedback.

The research suggests that a single person can only manage a maximum of ten direct reports, preferably six, where "direct" means regular face-to-face meetings. The problem is that IT teams are much larger than this and, in spite of reductions in head count, the manager/engineer ratio is decreasing.

Don't forget a manager often believes in wasting face time with vendors, resellers, and external partners. And finally, a manager needs to communicate upwards and sideways in the management food chain too.

It's not productive to do face-to-face communication compared to other options.

Email Almost Works

What is it that makes email such a compelling tool for communications? It enables asynchronous communications between teams, not people.

Factors of Value:

1. One-to-many communication
2. Silent participation/consumption of content
3. Sharing multiple content types
4. Allows discussion about a topic (email subject)
5. Allows team members to read & respond according to their work schedule

The key is that email allows most people to respond when they can. A meeting requires most of your attention even when delivering no value. Email can be attended to when time permits or according to your personal work style. It almost works.

You cannot deny that email is a powerful tool. An email inbox:

- Contains group text messages for many people or "teams"
- Can contain content such as documents, presentations, images or video.
- Your email client can track 'conversations' (based on the email subject)
- You can delete and archive

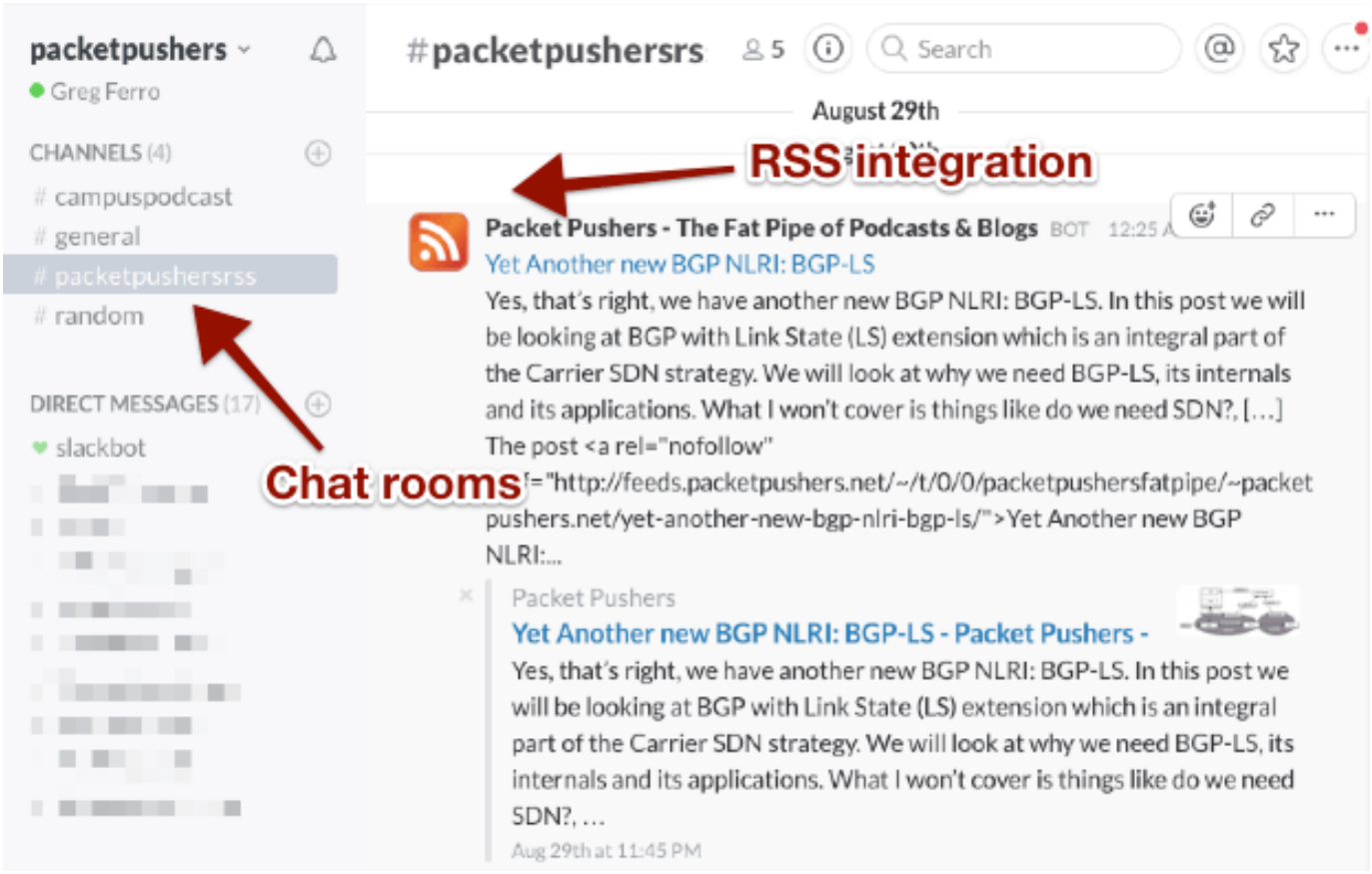
But there are things that email does poorly:

- Real-time chat - one on one, one to many. Email is too slow for normal back and forth
- Opt out - you don't want to be deluged by irrelevant or off-topic information
- Searchable - you can only search what is available in your email box or on the server
- Canonical - there is not single master version of the email history
- Slow - email clients are bulky and slow

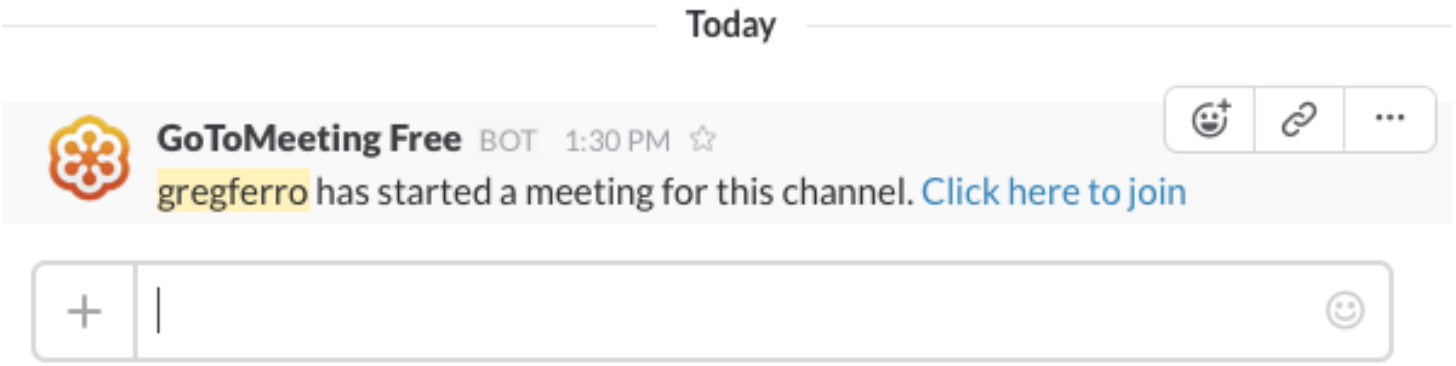
Chat Communications

Many engineers and programmers have been using IRC for efficient and effective communication. IRC is quite good, and it worked when everything was text. But today we need more complex chat tools.

Slack is the one that I use today. It supports images and videos, and there are integration bots that directly import data from other services. This screen grab shows the Packet Pushers RSS feed showing up directly in a chat room.



Slack becomes more than simply a "chat room" when you start integrating external services. For example, I can type "/gotomeeting" and instantly start a free conference call with voice, video, and screen sharing. Participants can click a link to join, or I can send to anyone.



There are hundreds of these types of integration for Slack.Check out the directory for more.

The point is that asynchronous chat tools can be more than basic text typed in by a human. And while it's possible to integrate IRC in the same way, it doesn't have the ease of use and availability of Slack. Yes, I have looked at Hipchat, Cisco's Spark,

and many others, but Slack really stands out as a business tool for big companies.

It Really Works

We have a Packet Pushers Slack that anyone can join and start talking with each other. I haven't got an automated interface configured yet, so you can email humaninfrastructure@packetpushers.net if you want to join us.

And we run our business on it. Sure, I still use email, Skype, mobile phones, and GoToMeeting for screen sharing, but mostly we use messages in Slack to chat. Sometimes it will take hours for Ethan to answer a question - which is fine because I am in different time zone.

Think About Communication Tools

I would like to see more people pay serious attention to how they communicate and how technology could improve communication. I firmly believe that video and voice don't scale. It costs a lot in people-time to hold meetings and conference calls. They should be avoided wherever possible.

> *Heard this joke? "Need management approval to spend $500 on cables. Call a meeting with 20 people that cost $100/hour and no one cares."*

You never know, your worklife just might be more interesting if you could get some things done.

2. Making The Most Of MOOCs

by Michael Kashin

Massive Online Open Courses (MOOCs) are a relatively new phenomenon. They first appeared in 2012 and quickly drew a lot of attention and controversy. Some observers said they might disrupt higher education and make knowledge more affordable for large numbers of people.

Others said they were just a fad and might do more harm than good if treated as a

full replacement of a university education.

Neither of those extremes have yet come to pass, but MOOCs are still with us. And whether you want to improve your professional skills or pursue a personal interest, MOOCs are worth your attention.

Imagine you want to learn a programming language. You can buy a book and read it, or go to codecademy.com and work through a series of exercises.

Or, if you don't want to read and if your attention span is like mine, you can sit through a series of 1-2 minutes videos followed by test or an in-browser exercise. That's the essence of MOOCs: a series of videos accompanied by tests.

That doesn't sound like much until you consider who makes these courses. Many MOOCs are developed by professors from Stanford, Princeton, MIT, Berkley, and other top universities. Content and presentation in most cases is the same as in a real university course, and often free.

You can learn about machine learning from Andrew Ng and Sebastian Thrun, programming from Peter Norvig, and software engineering from David Patterson.

I never thought lecture presentation mattered until I saw Bob Sedgewick explain algorithms and data structures in a MOOC. He remains in the top three teachers I've ever had in my life, even though I never physically attended his class.

So that's what MOOCs really are: accessible, top-grade knowledge in a simple, digestible format. And it's not only for those who want to learn programming. You can learn more about networking and SDN, Big Data, Astronomy, Cryptography, and Psychology, among other subjects.

If you'd like to explore MOOC offerings, check out aggregator sites such as class-central.com and mooc-list.com.

After years of status quo, the WAN technology market is bubbling with innovation. It's just in the nick of time, too. No one really loves their WAN. Costs continue to rise, and users consume all the bandwidth you can afford to buy—and then still complain that the network is slow or their apps simply don't work right.

It doesn't have to be this way. Talari predicts three ways your WAN will change for the better in 2016:

1) You will have a more flexible, reliable and self-healing WAN. The industry analyst predictions vary, but no matter how you slice it, they all seem to agree that SD-WAN is the next big networking evolution. Organizations will migrate to SD-WAN to radically improve the user experience and gain new levels of flexibility when connecting branch office locations, data centers, and cloud services.

With an SD-WAN, you can choose any WAN transport that works for your business. That means you can keep your trusty MPLS circuits if you like, but as bandwidth needs grow, augment that connectivity with more affordable choices. It can be broadband Internet, metro Ethernet, 4G/LTE or any other choice—and because the WAN is virtualized, traffic will simply flow over the fastest available links.

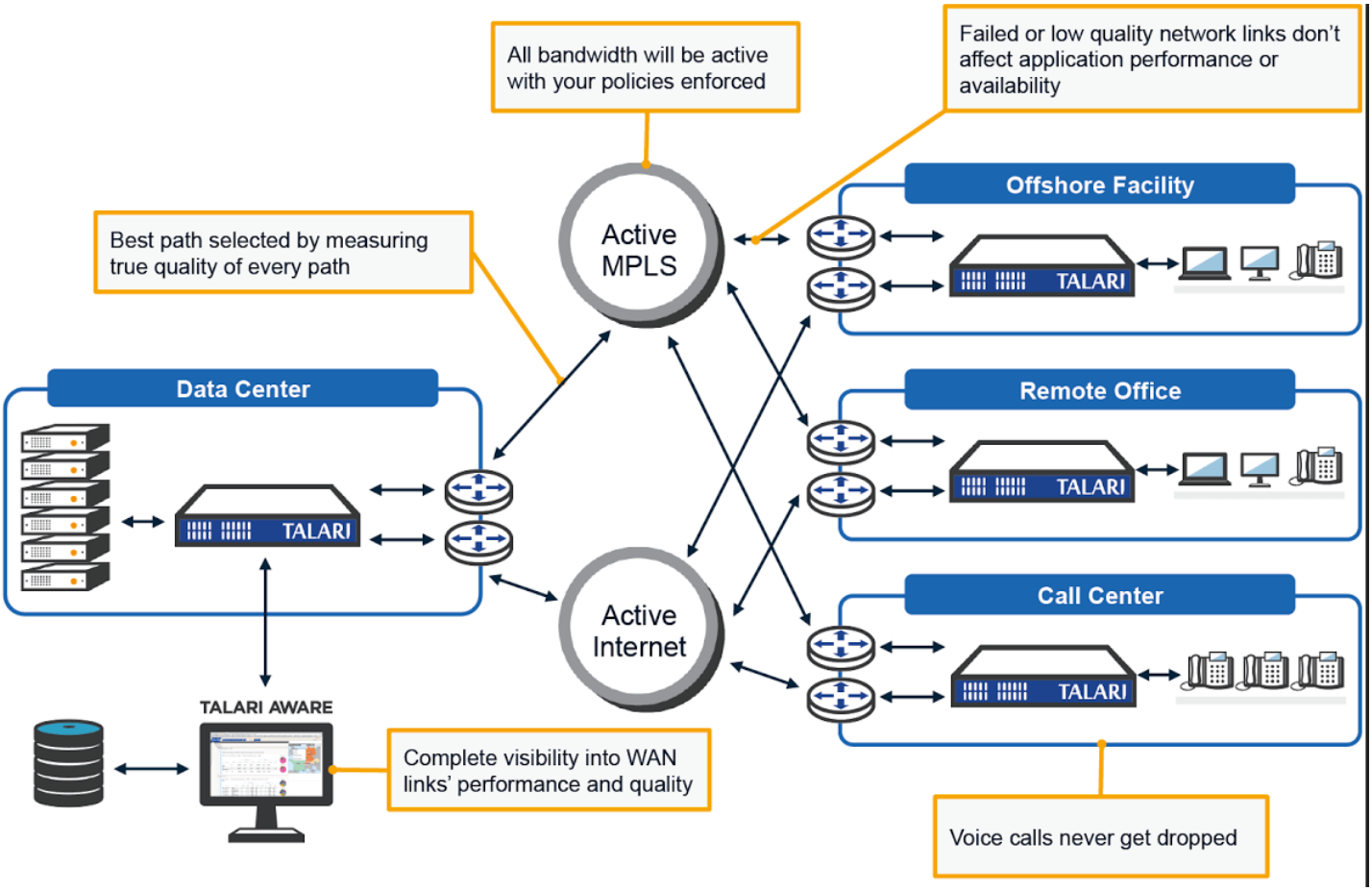
Unlike traditional WANs, an SD-WAN can make packet forwarding decisions based on the quality of the links and the application requirements. By measuring latency, packet loss and jitter on each and every path, an SD-WAN can proactively redirect traffic in milliseconds so network outages and congestion don't give business-critical applications any pause.

2) The rise of big-data style network analytics will give you end-to-end visibility across the WAN, putting you in the driver's seat. With network analytics, detailed network performance metrics can be collected, correlated and analyzed across the WAN. That gives IT greater visibility into network quality and how applications and workloads behave across the enterprise. That visibility is welcome, whether you are diagnosing a problem, planning ahead for the rollout of a new application or service, or making sure you are getting your money's worth from your carriers' service level agreements.

3) You'll spend less time worrying about the WAN, so you can focus more on strategic projects to drive the business forward. Early adopters of SD-WAN have seen from 40 percent to 90 percent lower costs. They spend less

time troubleshooting problems and babysitting the WAN, which frees up more time for strategic projects.

2016 is a great time to revisit your WAN strategy. No rip and replace required with a Talari SD-WAN. To learn more, download this whitepaper or listen to this Packet Pushers podcast that includes 4 enterprise IT executives discussing their real-world experiences with SD-WAN. If you are ready to discuss the specifics of an SD-WAN for your enterprise, request a demo here.



TALARI™

A better way to **WAN**

3. Proof Before Production

by Ethan Banks

Your experience with technology no doubt shapes your outlook when evaluating a new product. The less experienced among you might be captivated by the shiny gloss of a new product, buffed to a high polish by a vendor marketing team. You're hopeful -- willing to believe.

The more experienced among you presume any observable polish was as likely applied to a turd as to a treasure. You're skeptical -- willing to doubt.

I direct this missive to the hopeful.

I am among those who assume turd polish when I evaluate new products. Why? Vendors aren't good at getting technology right the first time.

While vendors have both talented engineering teams and capable product managers, they often lack experience with real-world infrastructure engineering. There is a disconnect between what their product does on the whiteboard and how it will actually be used in the real world. Therefore, technology consumers must make a serious effort to prove new tech before putting into production.

A personal example goes back to the very early days of Cisco Catalyst VSS. My team evaluated VSS as a possible network core technology. In the lab, VSS was a disaster, with unpredictable results on cold boot and cascading supervisor engine failures once the system managed to fully boot.

As I said, it was early days for the VSS code train; VSS code has come a long way since then and runs successfully in many production environments. But at that time, VSS was not a valid answer for our network, as discovered in our lab testing.

In 20 years of IT, I've seen this pattern repeated many times. Thus, I am a new technology skeptic -- increasingly so as time goes on. Please consider the following.

1. **Some ideas don't make it.** Vendors are in the business of selling you new stuff, and will always and forever come up with some shiny new thing you just have to have. The majority of these new products won't last, leaving you holding the bag. Therefore, don't jump on bandwagons. Avoid trends. Think about the long game.

2. **Vet what will work for you.** Your network is not like anyone else's, unfortunately. If we did a better job as an industry of training network designers instead of network operators, then perhaps we'd all architect and engineer networks in similar ways. But alas, we do not. Therefore, you can't assume the new shiny object that works so well on another network will work especially well on yours. You must test with the real-world conditions that reflect your unique organizational requirements to prove that product is well-suited. Remember, vendors don't test their new products with *your* network.

3. **Think about scale.** When testing, remember that testing small is merely a proof of concept. Experience will teach you that configurations that work well when small don't always work under a full load or when scaled out. Applications tend to *partially* fail in unforeseen ways when pushed past their limits. You want to find those failures in a lab -- not in production.

Perhaps I'm in my Captain Obvious costume today. However, Packet Pushers continues to receive mail from listeners who want to know which new this, that, or the other technology they should pursue.

Folks, there is no right answer. Start with a business problem to solve, identify a technology (new or old) that addresses that business need, and prove it works to the grumpiest cynic on your IT team. Then, and only then, put it into production.

4. A Holiday Reading List

by Drew Conry-Murray

I'm lucky to get some time off between Christmas and the new year, and I plan to spend as much of it as possible with books; specifically physical books. I'm in front of screens enough as it is, so I prefer ink and pulp as a kind of corrective to the glare of a monitor.

This is a brief list of the books I plan to enjoy during the break.

Fiction

Seveneves by Neal Stephenson

The moon breaks into seven pieces, and all life on earth is threatened with extinction. The world undertakes a massive effort to get as many people into space as possible to ensure the human race survives.

I'm about 100 pages in, and so far it's a compelling story. Similar to "The Martian," the characters in "Seveneves" have to solve a lot of difficult problems in real time with limited resources, and Stephenson doesn't skimp on the technical details.

Sometimes you get the sense he wants you to know just ***how much research*** he put into the book, but he keeps the story moving fast enough that you can forgive him for showing off.

I was disappointed by his last two books ("Anthema" and "Reamde"), so I figured I'd skip this one, but a friend assured me it was good, and so far I'm pleased to be reading it.

And as is usual with Stephenson, this book is physically weighty enough you could use it in a kettle bell workout whether or not you like the story.

Slade House by David Mitchell

David Mitchell is perhaps the best fiction writer working today. The author of "Cloud Atlas," "The Thousand Autumns of Jacob de Zoet," and "The Bone Clocks" (among others), Mitchell skillfully mixes fantasy, sci-fi, historical fiction, and literary fiction into delectable concoctions of delight.

All of Mitchell's books are linked (some loosely, some tightly) to an overarching narrative that involves the transmigration of souls and the perpetual human struggle for justice. He works these themes with a visceral clarity that prevents them from becoming mawkish, hippie-dippie, or preachy.

In "Slade House," Mitchell takes on the traditional ghost story. I haven't read it yet so I don't know if he can pull it off, but given his skills as a storyteller and his uncanny gifts as a wordsmith, my confidence is high.

Non-Fiction

Rise Of The Robots: Technology and the Threat of a Jobless Future by Martin Ford

Robots and automation are having, and will continue to have, a profound impact on technology, culture, employment, and the economy.

Ford's thesis is that as advances in hardware and computation continue, automated systems will imperial jobs for blue collar and white collar workers alike: from truck drivers to office workers to health care professionals to programmers.

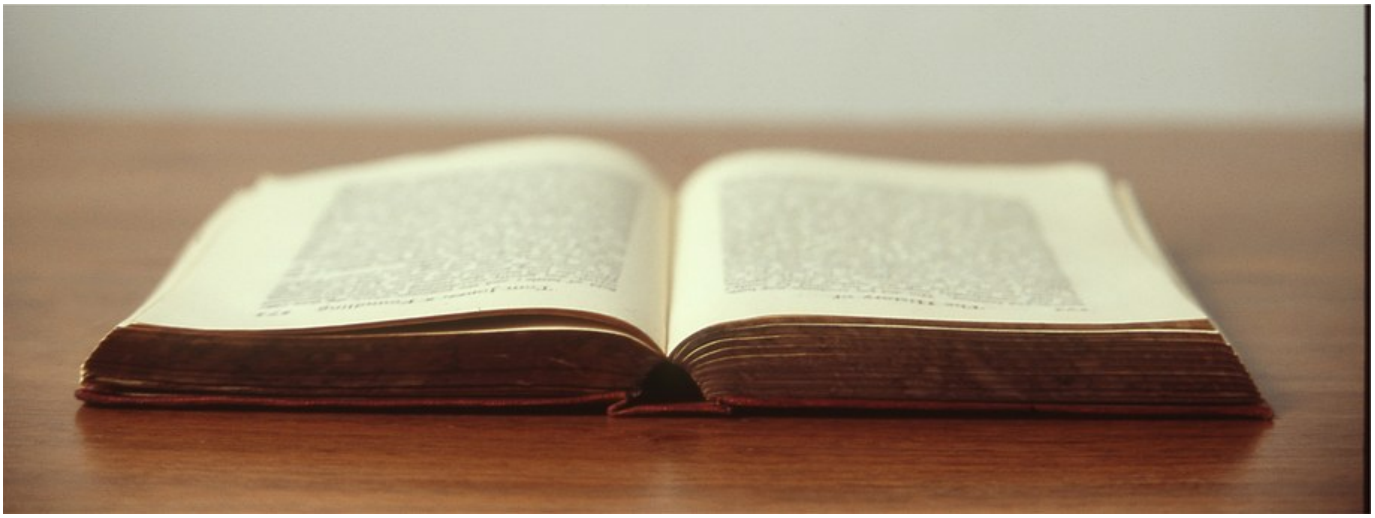
It's a dystopian and alarming premise, and I'm curious to see what evidence he's marshalled, and what kind of future he envisions.

The Work Of The Dead by Thomas W. Laqueur

This is a cultural history of burial practices and attitudes toward death in Europe and North America by a history professor at the University of California, Berkeley.

I realize it's a morbid choice for a holiday list, but I heard an interview with the author on Fresh Air and the book sounded fascinating, so why not?

That’s my holiday reading list. What’s on yours?



Sponsor: ThousandEyes

Get A Clear Understanding of Chaotic Networks

Managing networks isn’t new. You’ve been trying to keep complex networks under control for a long time. The fact is, networks are far more mission critical, far more hidden and far more vulnerable than ever before. They’re also far more complicated. ThousandEyes arms network engineers, operations teams, support/service desk staff and developers with an accurate, up-to-the-moment understanding of what’s happening in the network – both inside and outside the

organization.

How do we do it? Smart agents deployed across the Internet and those you deploy within your organization deliver unique data about your network—and with it comes complete understanding of network topology, dependencies and behavior.

Now you can quickly and precisely pinpoint the root cause of problems, from DDoS attacks and DNS hijacks to intermittent ISP hiccups. In addition to highlighting troublesome links and interfaces, get a precise understanding of MPLS links, Path MTU failures and DSCP re-markings.

With ThousandEyes, you'll be able to find all sorts of network snafus:

- Device faults and congestion (see Tata's undersea cable cut)
- Routing and ISP failures (such as this route leak that took down AWS)
- Service provider screw ups (like this month's UltraDNS outage)

And do it all with speed and accuracy. Once you discover the issue, you're armed to share your data and insights with vendors and customers to resolve problems faster. With everybody on the same page, there's less finger pointing and more fist bumping.

With ThousandEyes, you'll respond to issues before they impact customers, services and revenue—and ensure your business runs smoothly. Improve performance and availability of your business-critical applications and network infrastructure. See how ThousandEyes can make your life easier. Monitor from three offices or data centers for free with ThousandEyes Lite.

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.

What is OneOps?

OneOps is an OpenSource project led by Walmart corporation for continuous deployment in the data centre.

From **Walmart:**

OneOps enables continuous lifecycle management of complex, business-critical application workloads on any cloud-based infrastructure.

LINK

IEFT RFC 7719 - Informational - DNS Terminology

Sometimes you need to document the little things:

From the **RFC:**

The DNS is defined in literally dozens of different RFCs. The terminology used by implementers and developers of DNS protocols, and by operators of DNS systems, has sometimes changed in the decades since the DNS was first defined. This document gives current definitions for many of the terms used in the DNS in a single document.

Note that this is an INFORMATIONAL RFC which means it's a wiki entry not an actual standard.

LINK

SysAdvent

This link has lots of great articles about Linux system administration, which is the future of Network Engineering.

From **SysAdvent:**

WHAT IS SYSADVENT?

One article for each day of December, ending on the 25th article.

With the goals of of sharing, openness, and mentoring, we aim to provide great

articles about systems administration topics written by fellow sysadmins.

LINK

Sorry Startup Employee #100, Your Equity Probably Won't Make You Rich

From **Hunter Walk:**

Startup Equity Is Unlikely to Make You Fabulously Wealthy After Four Years Unless One or More of the Following Apply…

- *You were a founder*
- *Your company ends up being worth more than $10b*
- *Your company raises very little capital and sells for $500m+*
- *You join at an executive level pre-IPO for a company that already has huge potential*

This is why I'm not working for a startup. I covered my reasons here, but basically share options are a gamble that has bad odds - Worklife – Should you take Share Options in your Salary Package ?

LINK

The best Twitter bots of 2015

If you're bored with your followers' stale tweets about airports, bacon, and celebrities, let a little weirdness into your feed with these clever Twitter bots.

From **Quartz**:

"*...bot makers, particularly the #botALLY community, are responsible for some of the most creative work on Twitter right now."*

LINK

PACKET PUSHERS

Priority Queue

Where Too Much Networking Would **NEVER** Be Enough

[This channel](#) has our nerdiest shows on data networking technologies and products.

The Network Break

PACKETPUSHERS
Where Too Much Networking Would **NEVER** Be Enough

[Network Break is a weekly podcast](#) that delivers news & analysis on the networking industry in a fun, fast-paced style.

Sponsor: Sonus Networks

Research Papers

Research and deep technology papers that provide deep insight or expertise.

Cisco - The Digital Manufacturer - Resolving the Service Dilemma

Cisco is attempting to grow into manufacturing markets and this whitepaper discusses the need to measure everything in factories, buildings and plant. It outlines that new revenue for services is possible if you enable sensors, monitors and software and sell them as services to the customer.

Cisco calls this "digital transformation" and quotes lots of analysts and provides numbers. Its well worth reading if you keep your marketing goggles firmly in place.

As a result, more and more companies are being challenged to move from once-successful product-centric strategies to approaches that are more service-oriented.1 When successful, the results include significant, new revenue streams; increased customer engagement and delight (not just satisfaction); greater efficiency and cost savings; and value-added offerings. Companies that successfully leverage services are using them to drive disruptive new business models that, in effect, enable them to charge for business outcomes—for performance rather than physical assets.

LINK - (Direct Link to PDF download)

ITU - Measuring the Information Society Report

2015

Report contains lots of statistics and data about technology in developing countries.

This annual report presents a global overview of the latest developments in information and communication technologies (ICTs), based on internationally comparable data and agreed methodologies. It aims to sti mulate the ICT policy debate in ITU Member States by providing an objective assessment of countries' performance in the field of ICT and by highlighting areas that need further improvement.

LINK

OpenContrail Architecture Document

This website (also in ebook format) explains how Juniper OpenContrail architecture works. If you are considering an SDN platform, this documentation will challenge your thinking because it's different from VMware NSX and Cisco ACI.

LINK

Product News

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

Dell Networking C9000/C1000 Portfolio

Dell has an 8RU Ethernet chassis with 802.1BR fabric extender support (same as Cisco's FEX, Juniper Virtual Chassis and Brocade Hyperedge). It has been around for a while but almost no one seems to have heard about it.

Things that stand out :

- half-width and full-width modules

- 100GbaseKR backplane - simple and cost effective

From **Dell:**

The first product to feature the new architecture is the Dell Networking C9010 network director, a next generation, multi-rate capable modular switching platform designed as the core/aggregation for medium to large enterprise campus and mid-market data center networks. The C9010 provides customers with a new way to design and manage networks when used in conjunction with the C1048P rapid access node (port extender). The C9010 can also be deployed as a traditional switching platform without the C1048P, serving to aggregate legacy switching platforms in wiring closets and server racks. In this deployment model, C1048P rapid access nodes can be introduced at any time to benefit from the new architecture, while maintaining investment protection for legacy switches.

Juniper Treo silicon

In a confusing announcement, Juniper announced new line cards for its MX-series routers that are three times faster. The real story, I think, is a new version of Trio silicon inside the routers that picks up the pace and some new software features for streaming telemetry.

From **Juniper:**

“The Thrill of Speed” – Enhanced Junos® Trio silicon provides the powertrain to bring the MX Series routers to 1.6Tbps/slot. That’s a total forwarding capacity of 32Tbps in the flagship MX2020 and outperforms Cisco’s ASR9922 (at 24Tbps) forwarding capacity by 33%.

“Precise Handling” – Automation, programmability, and telemetry are taking agility to new levels. The new innovations of OpenConfig, Junos® Telemetry Interface, and Juniper Extension Toolkit provide advanced sensory and programmability for rapid adjustments to real-time network usage and applications. This automation allows operators to predict and react quickly to stay ‘tight in the curves’.

See, confusing.

LINK

Ciena Blue Planet and ON.Lab: The ONOS Awakens

Ciena has been pushing its own SDN controller and application for a couple of years now for DWDM networks. Now they have embraced the ONOS controller (a service provider-focused fork of OpenDaylight) and offer a commercial distribution. Times are changing for the service provider market (but SLOWLY).

From **Ciena:**

Thus, the introduction of Blue Planet ONOS, a commercial version of the Open Network Operating System (ONOS) open source SDN control plane software that is backed by Ciena’s world-class development, service, and support.

LINK

LINK with More Details

Cisco Open Source

Cisco has an alpha version of its website dedicated to its open source projects.

From **Cisco:**

"As part of our Open Source commitment, we contribute code upstream and share some of the most challenging internal problems we have solved"

LINK

Cisco's openVuln API

Cisco puts an API on its vulnerability and security alerts.

- Its not open, its an API on proprietary information.
- In not standards compliant - they could feed to Open Source security feeds but would rather make their own).

From **Cisco:**

"openVuln, an API for immediate and programatic access to critical security vulnerability information in a number of standard formats"

LINK

Q&A

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

Question:

What are your thoughts on certifications from Cisco/Juniper and so forth. Worth it? Do they still carry weight? Equivalent to a degree?

Answer:

1. Certifications seems to be the only practical way to teach people new things. I could wish for better, but business wants to measure results, vendors want to charge, and candidates need to learn.

2. Certifications are a viable measure of your capability. It's not a perfect system, it's hard, it can be unfair. But it is a measure of competence that makes it easier to evaluate you.

3. Certifications are useful to filter out losers who apply for jobs. I have been faced with literally hundreds of applications for an entry-level position and needed a short list of 20 or 30. I have four hours to do it. What do you think I used to start the process?

4. A degree can be useful. I did three out of four years of an electrical engineering degree from which I learned mountains of fundamental knowledge that have been of major benefit. I am often smarter because I have strong fundamental knowledge in the science that underlies electrical signal propagation and digital electronics

Remember that both certifications and degrees are starting points of your work life, not the end.

Blog post I wrote about this: Rant: Certification and Training Does Prepare You For The Real World - EtherealMind

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.

Yes, this Wookie-centric holiday spin-off was an ill-conceived, slapdash attempt to cash in

on the Star Wars craze. But still...Happy Life Day!

In the Annapurna region in Nepal a man has made an extraordinary vision come true.

He has brought Internet access to places that even today can only be reached after several days' travel on foot.

By now he has managed to connect over 60,000 people to the world wide web and raised the region's standards of health, education and prosperity.

His name is Mahabir Pun.

Did We Miss Something?

Got an link or an article to share? Email it to
humaninfrastructure@packetpushers.net

The End Bit

Sponsorship and Advertising - Send an email to humaninfrastructure@packetpushers.net *for more information. You could reach 5,013 people.*

Human Infrastructure is bi-weekly newsletter with view, perspectives, and opinions. It is edited and published by Greg Ferro 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.