IN THIS WEEK'S ISSUE: Why Vendors Are Tired Of Selling To Networkers; The Perils of Programmability. Please remember to enable the images; the magazine looks a lot better that way!

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(aka The Project Plan)

Issue Number 35

07/07/2016

The "Changes are coming whether you're ready or not" issue.

Thought For The Week:

The future is already here--it's just not evenly distributed - William Gibson

1. Why Network Vendors Are Tired Of Selling To Network Engineers

by Ethan Banks

I had an interesting chat with my friends at Plexxi a few months ago. They told me they've stopped selling to network engineers. I was startled because Plexxi makes a networking product. So why did they give up on network engineers as a target market? Because many folks in the network silo don't grasp the value of modern networking.

For a long time, networking has been about switch ports, IP addresses, VLANs, MPLS tags, tunneling, OSPF, SNMP monitoring, and so on. We built our networks lovingly by hand. We look back at the calendar at those crucial change windows that chart our network's evolution.

"Remember when we added that PBR paragraph to force the traffic from the financial system through the IPS? Yeah, that was a tough week. We almost didn't get paid! Ha ha ha..." Then we sigh and return to our current project list, and try to figure out just how we're going to shove the next big network change into production without pissing anyone off when we do it. Because miracles.

Then someone like Plexxi comes along. They talk about policy-driven networking that automatically adjusts the production configuration to meet application needs. They talk about network controllers running centralized application software. They describe the network as a holistic, unified thing -- not a bunch of boxes cabled together, each with its own special requirements.

And then they talk about how the network is integrated into the larger data center ecosystem of storage and servers, right along side the hybrid cloud. You know, those VPN tunnels you nailed up to AWS against your better judgement so the dev team would shut up already.

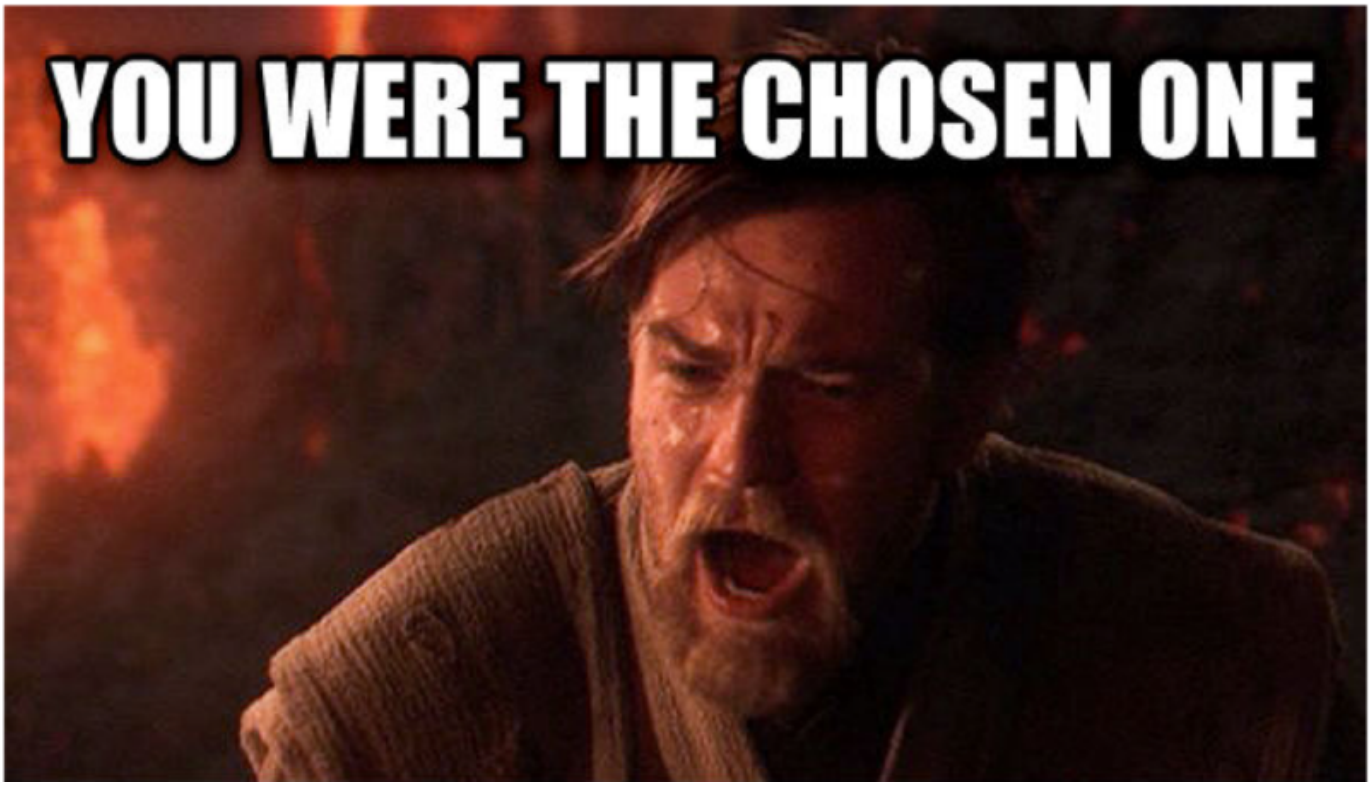
You want none of it. Plexxi, Big Switch, Cisco ACI, VMware NSX, a hundred others -- they can all suck it. Networking is hard work, filled with detailed configuration stanzas, fragile QoS policies, and delicate protocol timers. The best way to improve networking is with bigger pipes, because that's just the way it is. It's the way it's always been. And networking shall continue to be this way.

If this is your attitude, that thing on the horizon is the boat that sailed past you. And it's exactly the reason the Plexxis of the world are tired of talking to you.

Instead, they're talking to the cloudbuilders in the cubicles across from you. The team that's rebuilding the data center to be fully automated in a DevOps or perhaps GIFEE model.

This is the team that needs the network to be, as my friend Josh O'Brien once put it, like water: a resource that's just there, ready to be used without a whole lot of drama. A resource that's able to be configured and consumed at a moment's notice without human intervention -- and changed just as easily. The cloudbuilders get this; this is the way the rest of the data center is being consumed.

These shifts in thinking aren't just for service providers and large enterprises. They're coming all the way down the line. Consider hyperconvergence. Now that folks like Nutanix have the compute and storage stacks pretty well sorted out, how long do you think it will be before they automate the network as well? Hint - their sights are already set.



The push-button data center is upon us. If you remain in your ivory silo piled high with calligraphy scrolls containing configs composed with golden quills, you will become less relevant over time. Plexxi and their ilk have already given you up for dead.

Don’t be left for dead. Look ahead, and figure out how to make the network part of the automatable whole that is the modern data center.

Sponsor: CloudGenix

Sign up for an SD-WAN mixer at Cisco Live with Packet Pushers’ Ethan Banks, and take the iWANT CloudGenix Challenge

In Vegas for Cisco Live? Join Packet Pushers' Ethan Banks for an SD-WAN mixer to discuss real world SD-WAN deployments and best practices.

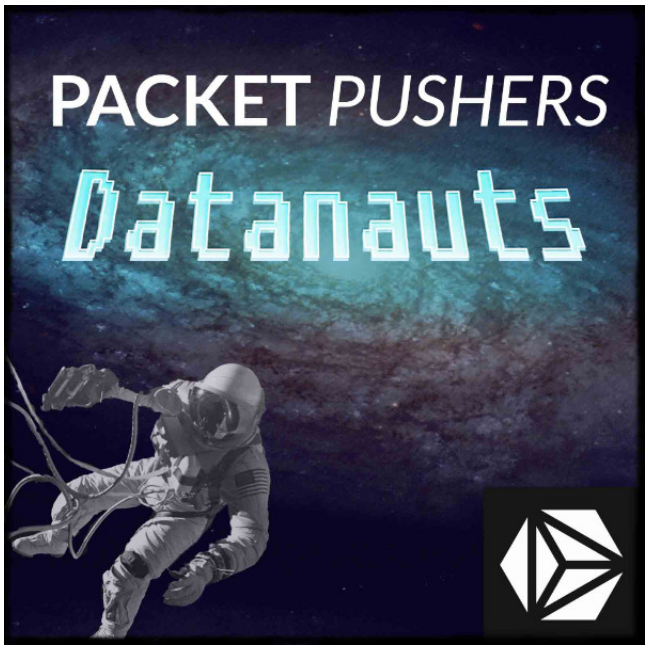
You can also participate in the "iWANT CloudGenix Challenge" - a simple, multi-round match between deploying and operating CloudGenix and Cisco IWAN. Each round consists of real-world WAN management tasks. See which product is the most powerful SD-WAN solution. You be the judge. No vendor BS.

Everyone who attends will receive a cool t-shirt AND be entered to win a Drone with 4K Camera & Wi-FI HD Live View!

Reserve your spot by registering here.

Date, Time and Location
Tuesday, July 12, 6:00-8:00 PM
Aureole Restaurant – Swan Court
Mandalay Bay

Open bar and refreshments on us!
Don't miss the chance to meet with Packet Pushers' Ethan Banks!



The Datanauts podcast blasts off into the data center vortex of compute, storage, networking and automation to explore the newest technologies.

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

2. Network Programmability & Horrible Freedom

by Drew Conry-Murray

The once tightly integrated network stack is rapidly becoming unraveled. SDN separated the control plane from the data plane, and network disaggregation decoupled the switch OS from the underlying hardware.

Now there are startups looking to further disintegrate network hardware and software.

SnapRoute, which was founded by a former network architect at Apple, has

rolled out an open-source L2/L3 stack written in Go. Every protocol in SnapRoute's stack is its own daemon, so you can pick and choose which elements you want, as if from a networking buffet.

"If you just want BGP and spanning tree and that's it, that's all the code you have to run," said founder Jason Forrester in an interview.

In addition, every element in the stack has an API to allow for programmable control and customization, with hooks for configuration and orchestration tools such as Ansible, Chef, and Puppet. The company touts the fact that developers —yes, developers—can provision and reconfigure network elements on the fly.

Meanwhile, the startup Barefoot Networks is taking on Broadcom, the leading ASIC maker for the network hardware industry.

Barefoot is building a programmable ASIC for Ethernet switches; that is, an ASIC that can interface with an abstraction layer (in this case, the P4 language) so that network operators can configure how the silicon processes packets.

By contrast, Broadcom's off-the-shelf Trident and Tomahawk chips are fixed in their functions. Broadcom has a restricted SDK that it makes available to hardware and software companies who can make tweaks to integrate an OS or optimize performance, but for all intents and purposes, a Broadcom ASIC is a closed system—especially to network operators.

Barefoot's goal is to crack open the ASIC and see what kinds of possibilities come spilling out.

Horrible, Horrible Freedom

The goal of all these efforts is make the network more programmable, flexible, and customizable. In general, that's probably a good thing.

As you've no doubt heard a million times already, brittle, hand-curated networks simply can't keep pace with highly automated compute, ephemeral containers, and new software development models that prioritize rapid release cycles and on-the-fly tweaks and feature updates.

However, there's an attitude, (perhaps not explicitly expressed, but certainly implied), that programmability will solve all of networking's problems.

In fact, programmability is akin freedom. When you're free, the burden of choice falls to you—as do the consequences of your choices. The freedom to tweak, configure, and customize is also the freedom to screw up royally.

It's no coincidence that SnapRoute says its target customer is a shop that "runs with scissors." In other words, they're chasing folks who are willing to risk falling and cutting themselves (or others) if it means they don't have to slow down.

That's fine for certain environments, and the unlocking of hidebound network architectures is sure to yield benefits. But not everyone wants to run with scissors.

While I'm excited by the chaos of possibilities enabled by disaggregation, open source software, and programmable hardware, I also think we need the concurrent development of easily consumable configuration, management, and

orchestration tools--and perhaps a few safety systems--that are designed for this unraveled network environment.

Such development will make it easier for more organizations to explore the possibilities of their new-found freedom.

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.

By Greg Ferro

Infrastructure Software is Dead

This is written by the CEO of Mirantis, an OpenStack vendor, but there are some excellent thoughts in here.

From Boris Renski: *"Now I'd love to tell you that it's all because Mirantis OpenStack software is so much better than everybody else's OpenStack software, but I'd be lying. Everybody's OpenStack software is equally bad. It's also as bad as all the other infrastructure software out there – software-defined networking, software-defined storage, cloud management platforms, platforms-as-service, container orchestrators, you name it. It's all full of bugs, hard to upgrade and a nightmare to operate. It's all bad.*"

And check out the comments too; there are interesting counterpoints, plus responses by the author.

LINK

Route Leak Causes Amazon and AWS Outage

Although this ThousandEyes blog is from mid-2015, it's a good example of how you can “monitor” the Internet and discover if your “Internet-as-WAN” is having performance problems.

From ThousandEyes: *"There was quite a bit of chaos on the Internet today, including major fiber cuts in California. To add to this confusion, between 5:24pm and around 6:10pm Pacific on June 30th, social media and outage reports indicated some issues with Amazon, AWS and a variety of services that run on AWS. In our office, we realized HipChat (our internal messaging system) and Okta (our SSO provider) were not working. And neither was our corporate website, which is hosted on AWS EC2 and fronted by AWS CloudFront.*"

You will be using internet-as-WAN in the next five to ten years, so it's worthwhile knowing that you can get visibility.

LINK

LoRa: Low Power, Long Range For IoT

Low Power Long Range (LoRa) is designed to connect battery-powered IOT devices to mobile networks. KPN, a telco in the Netherlands, has rolled it out to their network, and claims 1.5MM devices contracted.

From the KPN press release: *"As from today the KPN LoRa network is available throughout the Netherlands. This makes the Netherlands the first country in the world to have a nationwide LoRa network for Internet of Things (IoT) applications. Over the past eight months a lot of hard work has gone into the rollout of the network, so it is now available outdoors throughout the Netherlands*."

This feels like the future might happen faster than you think.

LINK

Cisco Cloud Scale ASIC switches

This Cisco blog gives a solid viewpoint of why Cisco is continuing to develop its own silicon and what value they're adding for customers.

From the Cisco blog: *"With all the rapid shifts going on in the data center (cloud, higher density, faster speeds, containers, increased complexity, and more), Cisco recognized that current Merchant ASICs weren't going to deliver the capabilities needed for the next generation of data centers*."

I'm not sure that buffering and flow telemetry is relevant to most enterprises since average network utilization is quite low. But for customers who need that feature, it's a unique product. The 3.6Tbps capacity (48x25, 6x100) is quite a bit behind the current generation of Broadcom Tomahawk (64x100G) but I would expect Cisco to be somewhat slower to market because silicon isn't their core focus and takes more time to complete the extra features. Scalability is roughly the same as Tomahawk, Xpliant, and Tofino so I'm not sure Cisco's claims of advantage over merchant silicon hold up well.

LINK

Ethernet's Expansion Continues Unabated With New Standards

The IEEE finally finished the already widely used 25GbE standard in the 802.3by group.

LINK

Azure To Overtake Amazon?

The Web site GeekWire is reporting on a CIO survey from Morgan Stanley that Microsoft Azure will overtake Amazon as the IaaS provider of choice by the year 2019. We should note the survey only has 100 participants, which seems like too small of a sample size from which to draw major conclusions. That said, it does reinforce the narrative of Microsoft's transformation into a major

competitor in cloud computing.

From GeekWire: *"Roughly 31 percent of the CIOs will be using Azure for IaaS [by 2019], versus roughly 30 percent using AWS. Today, about 21 percent are using AWS and 12 percent are using Azure.*"

I haven't been able to find a link to the original survey results.

LINK

Should you encrypt or compress first?

This blog post from a company called Appcanary walks through an interesting attack against encrypted VoIP calls, which uses information about common compression techniques to reconstruct speech.

From Appcanary: *"Due to how linear prediction works, more information is needed to encode a drastic change in sound — like the pause between phonemes! This allows the authors to build a model that can break an **encrypted** audio signal into phonemes: that is, deciding which audio frames belong to which unit of speech.*"

LINK

[The Weekly Show channel] is our one-hour deep dive on networking technology.

[Priority Queue] tackles niche and nerdy tech topics and cutting-edge research projects.

Product News

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

Big Switch Boosts Big Cloud, Big Monitoring Fabrics

Big Switch Networks has upgraded its Big Cloud Fabric and Big Monitoring Fabric software. Big Cloud Fabric 3.6 adds a plug-in for Kubernetes and has support for new open switches from Dell and Edgecore Networks. It's also doubling the number of leaf switches it supports, from 32 to 64.

Big Monitoring Fabric enhancements include additional feature support for DPDK, and new integrations with Blue Coat and Riverbed SteelCentral.

LINK

Juniper Networks' Cloud-Enabled Branch

Juniper has announced a new product, the Cloud-Enabled Branch, to simplify branch connectivity and management. Built on the NFX250 hardware, it can mix and match connectivity types, including broadband, MPLS, and LTE, and let administrators set policies to direct specific traffic across specific links. It also bundles Juniper's vSRX virtual firewall and includes orchestration capabilities from Contrail.

LINK

Recent Articles

The last five articles published on EtherealMind and Packet Pushers

EtherealMind.com Latest

Logical Razors Can Take on Corporate Babble

Canned Response to BGP Networking Questions – Reddit

IETF RFC 8374 BGPsec Design Choices and Summary of Supporting Discussions

Net Neutrality Hasn’t Ended, We Don’t Know When

Next Market Transition ? Cheaper Buying, Less Selling

PacketPushers.net - The Last Five

Network Break 182: BGP Hijacked For Cryptocurrency Heist; Juniper, Big Switch Unveil New Products

Show 387: AWS Networking – A View From The Inside

PQ 147: Connecting Security And GDPR Compliance (Sponsored)

Datanauts 131: Masters And Mentorship

Network Break 181: Russia Accused Of Infrastructure Attacks; US Targets ZTE

Watch This!

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

This video re-imagines child birth as a superhero action movie.

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Quick Survey: Container Infiltration

Is your organization using containers to run production applications?

A. Yes
B. Not yet, but plans are afoot
C. Not that I know of...
D. No

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.*

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