IN THIS WEEK'S ISSUE: We Need Your Feedback; Finding Old Patterns In New Tech; Get Sold Or Sell Yourself Out? Please remember to enable the images; the magazine looks a lot better that way!

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(aka The Project Plan)

Issue Number 34

06/24/2016

The "Everything in Moderation. Except Beer" issue.

Thought For The Week:

I have lots of nice things to say. Just not when other people can hear me.

0. Some Human Infrastructure Changes

by Greg Ferro

We've published 34 issues of Human Infrastructure since Jan 2015. We've moved past the "proof of concept" phase into the "it works, keep it running" phase, and we've gotten feedback that might suggest the newsletter has too much content.

We are considering making the newsletter shorter because people aren't loading the images or reading to the end. Should we?

A Sanity Check, If You Please

What do you think of the length ? (Too Short to Too Long)

lowest 1 2 3 4 5 6 7 8 9 10 **highest**
Sorry, voting is closed.

Most email clients don't show you all of the content without an additional click or two. Do you load the images and the extra content?

A. Nah
B. Just the first bit I can see
C. Sometimes
D. Mostly
E. Always
F. Haven't seen that

1. To Learn New Technologies, Look For Old Patterns

by Ethan Banks

Whenever I need to understand a new technology quickly, I first seek to understand the problem it's trying to solve. Regardless of the novelty of a technology, there's only a finite set of ways to do something, so the problem itself provides useful context.

Russ White, my inspiration for this post, points out frequently that RFC 1925 rule 11 is always in effect: "Every old idea will be proposed again with a different name and a different presentation, regardless of whether it works."

For instance, let's compare a couple of routing protocols (both of which happen to work). OSPF is likely familiar to most of you. IS-IS not as well known, at least not among enterprise networkers. Is IS-IS intimidating? It shouldn't be, assuming you're already competent with OSPF.

These routing protocols both solve the same problem, that of calculating a path across a network in order to forward traffic. How do both protocols tackle this problem?

- They calculate a loop-free path among the routers in the domain.
- They form neighbor relationships, typically through an automated discovery process.
- They support hierarchical boundaries that allow for such things as route summarization.
- They do several other things beyond our scope here.

If you understand how OSPF forms a loop-free topology, you already know how IS-IS performs the same task because both employ the Dijkstra algorithm.

When you're familiar with the problems OSPF can run into when forming neighbor adjacencies, you won't be surprised to see many of the same concerns around MTU or link-type mismatches in IS-IS. Nor will it throw you that IS-IS happens to use CLNP instead of IP to form those neighbor adjacencies. That detail doesn't change the fact that these neighbors must communicate in some way.

A healthy familiarity with OSPF areas and their uses will lead to a quick understanding of IS-IS levels and their purposes. That's because the parallels

between OSPF areas and IS-IS levels are many, even if the nuances are different.

Now consider tunneling technologies. Tunnels tackle the problem of information abstraction; that is, some data component must be hidden to transport it across the network. The most common solution is encapsulation—wrapping a packet or frame within another.

Whether that encapsulation is VXLAN, GRE, IPSEC, or IP-in-IP, they all work similarly. The technology details vary depending on the specific problem being solved, but if you understand the fundamentals -- encapsulation -- new tunneling technologies are conceptually similar to old ones.

New technologies are rarely that new. Even seemingly radical technologies can often be understood with an analogy.

For example, Big Switch Networks manages many switches as “one big switch” using a central controller. You can quickly grasp this new idea by thinking of Big Switch’s network architecture as a chassis switch with line cards and a supervisor engine, which is and old and familiar concept.

New technology is much easier to absorb once you see the patterns. When you see a problem and solution once, you’ll very likely see it again. Look for those patterns, and you’ll have an easier time getting a handle on the next new technology that comes your way.

2. From Being Sold To Selling Out

by Drew Conry-Murray

Back in March 2015, I proposed the creation of an online marketplace that would let consumers sell their data to marketers and advertisers.

As it stands today, everything that we do on our phones, inside Web browsers, and in “free” services provided by the likes of Google and Facebook, gets hoovered up and sold. We the users generate information for a data brokerage industry that reaps billions and billions of dollars, but like a bunch of chumps we don’t see any of that green.

Well chumps, now’s our chance to get a piece of the action.

A startup called DataWallet is launching an app that will pay you whenever it sells your information. DataWallet collects information about its users from their accounts on Facebook, Instagram, Twitter, and Pinterest, anonymizes and encrypts it, and packages it up into “analyses” that it resells to brokers, marketers and advertisers.

The company’s FAQ says DataWallet users will make anywhere from $1 to $50 every time it sells a data package that includes your information. How much you make depends on how much information you share, how often it’s sold, and how valuable it is to DataWallet’s customers.

DataWallet also says it plans to expand its collection sources to include Amazon, Spotify, Uber, and other data-generating services.

Part of me is appalled by the naked self-exploitation proposed by this site. Frankly, it feels a little degrading, and perhaps even immoral. Then again, I know I’m already being exploited by others. Would it be so wrong to get something out of it?

Ideally what I'd like to see are more rules and mechanisms that make it easier for me to opt in or out of tracking systems, be they sneaky cookies in a browser or behavior- and location-snooping apps on my smartphone.

In the meantime, DataWallet's app provides a kind of benefit to consumers (even if it is lightly coated in sleaze) because it puts a price on digital activities. With that price in hand, we consumers have a little bit more information to help us make rational decisions about whether to be sold or to sell ourselves.

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

100G Transceivers Below $3/Gig by 2017?

Answer: Yes. Certainly.

From Fibre Reality: "*When giant data center owners started promoting $1 per gigabit transport a while back, the idea seemed ludicrous. Well, at least for optical transceivers, pricing has reached a point in which that goal is actually in the ballpark. The willingness of vendors at the low end to continually drive down prices, such as a 10G SFP selling for no more than $50 at 10 kilometers (as low as $10, so a dollar per gig, to $20 for a multimode version at very short distances), has enabled room at the higher end to significantly reduce expenditures on 100G transceivers to perhaps under $3 per gigabit before the end of this year*."

The cost of SFP modules is a customer cancer. There is no reason for the high prices we pay for vendor versions.

LINK

Secure Production Identity Framework For Everyone (SPIFFE)

From SPIFFE.io: "*SPIFFE proposes a new set of protocols and conventions to securely communicate and identify service to service communication in modern production environments.*

Modern production environments are quickly moving to a world that is much more dynamic than existing IT systems. Specifically, workloads are being dynamically placed and scaled (often via container orchestration). At the same time, parts of applications are being broken out as micro-services and being reused widely across larger organizations. Security systems and processes need to adapt to this more fluid environment."

This is a deep, complex article to read about security in micro-services and is also applicable to virtualization systems.

I don't agree that X509 is the answer because it's a miserably complex technology that hasn't worked in 20 years, so why would it work this time?)

I imagine this could lead to widely distributed CA operations for overlay networking, which is lacking from the BGP EVPN process today.

LINK

The Future of Interdomain Interconnection and Traffic Control

In my view, the technology used by Internet Exchange Points is old.

From Nick Feamster: *"Imagine if instead networks that interconnected could*

make decisions on how traffic is exchanged based on the application type; we could have more complicated business relationships, such as "application-specific peering". Or, suppose that networks could change their selection of routes to neighboring networks dynamically, based on (say) whether a certain link was experiencing high traffic volumes, a denial-of-service attack, or a traffic ratio imbalance. Or, suppose that the network switches could dynamically enforce more complex interconnection agreements that could meter and shape specific application flows (e.g., streaming video), without affecting how other traffic flows are prioritized or routed."

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.

By Greg Ferro

VMware Buys Arkin

Arkin is tightly integrated with VMware vRealize and was getting good traction. vRealize hasn’t been popular with customers and Arkin solved some of the usability problems. VMware needs to work more on its competitive strategy with OpenStack to ensure its future. Most people see this as a good move in the right direction

LINK

Cisco Tetration

Chuck Robbins did an Apple-style, CEO-on-stage performance to announce the release of this product. Unusual. The pitch is that Tetration can capture every packet in your data center, store that data, and analyze it deeply. You need custom NX9K hardware switches and software agents on your servers. All of those agents capture packets and forward them to the Tetration system.

You'll also need 39RU of UCS servers, 23KW of power and deep pockets, because its starting price is ~$3MM.

Most customers are more likely to use an xFlow capture system, which costs a fraction of that price, and accept the tradeoff that you only have flow data instead of the full packet capture.

In short, it's not for everyone.

LINK (Cisco Tetration Whitepapers)
LINK (sFlow Blog Post)

Apache Metron

If you would like to build your own “Tetration” take a look at the Metron project, which is very similar but has a stronger security focus. It's possible that Tetration is a commercialization of the Cisco OpenSOC project (which later forked into Metron when key people left Cisco).

Some really interesting security ideas in there.

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 robot can climb stairs, load a dishwasher, and get back on its feet if it slips on a banana peel. The technology is impressive, but it's still funny when it falls down.

Link Propagation Newsletter

Our weekly newsletter delivering essential headlines, announcements, and useful news to your inbox

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.

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.