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A Newsletter on a Life in Networking

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The "Three Years is an IT Lifetime" Edition

Thought For The Week:
"Go to the edge of the cliff and jump off. Build your wings on the way down." Ray Bradbury - Brown Daily Herald, 1995

Status: Reset

13 issues. 26 weeks. Six Months. "Half a Year" since the first issue on 14th January.

I've been thinking how I can improve or change to make this magazine better. My original concept was to produce magazine style newsletter with good writing, lots of images and interesting layout to create something a bit different. More of a magazine than a newsletter.

I've decided this isn't working. *Now* I realise that it takes skills I don't have to create a "look" and consumes a lot of time that would be better spent on writing & research.

Ray Bradbury once said, "Go to the edge of the cliff and jump off. Build your wings on the way down." Inspired by this I changed the format to what you see. This edition has a new simpler, plainer format that uses colour bars for highlighting segments and has a linear top-to-bottom flow.

Enough navel gazing back to the content.

Slow Growth of Whitebox & Whitebrand

Whitebox solutions and deployments continue to grow. Startups like BigSwitch and Pluribus Networks, are shipping software products that run on whitebox hardware. HP, Dell and Juniper have announced new product categories with rebadged whitebox hardware running Cumulus Linux, SwitchLite & Junos. And more recently, Arista & Cisco haven't ruled out shipping their software saying that customers aren't asking for whitebox switches.

New merchant silicon is arriving in the market. Broadcom has publicly announced it next generation of Tomahawk chips. Cavium has acquired Xpliant and Intel Fulcrum is scheduled to release new products soon. Low cost silicon providers like Centec are investing marketing and startups like Barefoot Networks are in the pipeline.

The last OpenCompute Summit saw several "punctuated equilibrium " leaps forward on networking products. Facebook is a high profile consumer and developer of whitebox for its own data centers and contributed specifications for simple switch chassis (6-Pack) and applications (FBOSS). BigSwitch led the Open Network Linux release while Microsoft, Dell & Mellanox collaborated to release the Switch Abstraction Interface to remove the dependency on Broadcom StrataNGX silicon. Broadcom, notoriously closed and secretive, has openly released an API for its silicon to follow similar initiatives from Cavium and Intel.

Can You Dismiss Whitebox ?

In the Q2 2015 Results call Cisco CEO John Chambers said “We are seeing no unusual competition in the market, no unusual competition with white label or white box, nor will we in the future.” Jayshree Ullal, Arista CEO said "The heart of a white box is software, anybody can build a box, but not everyone can build software."

Now, Cisco and Arista are number one and two in the data centre switching market and "ground zero" for the whitebox/whitebrand tussle. Both CEO's have used language that doesn't quite dismiss whitebox but leaves it open for the future.

This week, Mike Fratto, analyst with Current Analysis also dismissed whitebox in a blog post highlighting that enterprise customers are ill-equipped to handle whitebox and responsibilities that are needed.

Some Views

Here are the view that I have today.

1. **Whitebox will be a major market segment that is larger than any of Cisco competitors**. I take the view that Chambers regards whitebox as a bigger competitor than Brocade, Juniper, HP or Dell. Whitebox could be a little as 10% of the market to be a major competitor. There are IDC market surveys that suggest that whitebox is already 20% of switch market measured by units/ports.
2. **Whitebox adoption overall will be slow and gradual.** Networks are slow to change. WAN, LAN and Campus have decades long investment cycles based on the high prices paid for current products. Few companies **need** to upgrade. Second, many data centres don’t need 10GbE, nor does the campus. What drives the wider market to buy new switches ?
3. **Features and Functions -** Products and features are immature today and many companies will not feel that they can work around them. While you could_ change your L2 VLAN strategy most people won’t.

4. **Customers who buy whitebox won't talk about it** Because its a competitive advantage and part of the an overall solution. And because the network is largely invisible compared to your your Oracle/SAP solution.
5. **Few people understand the inner workings of a network device yet many people are well-versed on internal server architecture.** You don't need to understand the internal architecture of a whitebox network device, but it certainly helps in terms of ownership and buying. At the same time, it is not part of the networking culture to understand the internals of devices. With monolithic and closed solutions from vendors, this was not a necessary skill but may become so in the future.

What To Do ?

It not yet clear when whitebox will become mainstream. It is possible that Cisco and the other vendors can out-compete the low cost whitebox with whitebrand solutions. For example, Cisco Nexus 9000 is a highly successful product based on Broadcom merchant silicon using Cisco NX-OS software based on Linux. Its about 30% of a whitebox solution already and the price is much lower than any previous Cisco Ethernet switches.

For now, Whitebox & Whitebrand will be a slow, gradual change in the market. Vendors will fit to keep their higher prices and profits, as they should. Customers will need to keep evaluating what solution works best for them.

ADMIN: Freshness

Load some images, click some links

If you don't load images or click on a link every few months then I will get a report that you are inactive and will delete you from the list. So this list has 50 less subscribers (still more than 1600 subscribers though).

I would rather have a small & engaged readership than a big number of email addresses. You can always https://packetpushers.us2.list-manage.com/unsubscribe?

u=5e5640dc2e2a939f35bf54df2&id=81acd4aa14&e=[UNIQID]&c=6596c90b47 at any time. It always in the footer. I will be upset but don't want to be sending you email if aren't going to read it.

Sponsor: Not This Week

No sponsor this week. I feel like you need a rest. Don't hesitate to contact me if you want to sponsor. I will promote my Network Break podcast which is 30 minutes of news, view and opinions on networking every week. People say its pretty good.

And the Priority Queue is the nerdiest and deepest shows that just don't fit into the Weekly Feed.

Sites to See: Internets Of Interest

I have been providing list of links for more than five years. Sites with research, observations, information and some that are just plain weird or fun.

A Second Look at APNIC and IPv4 Address Exhaustion

Geoff Huston is always worth reading.

"It has been said often enough that it's easy to make predictions; the tough part is getting them right! And in trying to predict the manner that APNIC will exhaust its remaining supply of IPv4 addresses I'm pretty sure that I did not get it right in the most recent article on this topic. So I'll try and correct that in a more detailed look at the situation."

Link

Dot files for Linux CLI

Wonderful collection of dot files for Linux shell. Learned a whole lot of new stuff.

Link

Sikker: A Distributed System Architecture for Secure High Performance Computing

Graduate research paper from Stanford that provoked me into new ways of thinking about the data centre and network flows.

In this paper we have introduced a new distributed system architecture, called Sikker, with an explicit security and iso- lation model designed for large-scale distributed applications that run in data centers, supercomputers, and cloud comput- ing facilities. Sikker is designed to be a high performance and scalable solution to enforce the permissions of the com- plex interactions of modern distributed applications. Sikker's service-oriented application model is an intuitive and effective alternative to network-derived ACL systems as it was derived directly from the interactions of current applications

Link

The Rise of Phone Reading

This Wall Street Journal article suggests that a large number of people are reading ebooks on their smartphones. A key factor seems to be larger screens and convenience.

Link

IETF RFC7607 - Codification of AS 0 Processing

A BGP speaker MUST NOT originate or propagate a route with an AS number of zero in the AS_PATH, AS4_PATH, AGGREGATOR, or AS4_AGGREGATOR attributes. An UPDATE message that contains the AS number of zero in the AS_PATH or AGGREGATOR attribute MUST be considered as malformed and be handled by the procedures specified in [RFC7606]. An UPDATE message that contains the AS number of zero in the AS4_PATH or AS4_AGGREGATOR attribute MUST be considered as malformed and be handled by the procedures specified in [RFC6793]. If a BGP speaker receives zero as the peer AS in an OPEN message, it MUST abort the connection and send a NOTIFICATION with Error Code "OPEN Message Error" and subcode "Bad Peer AS" (see Section 6 of [RFC4271]). A router MUST NOT initiate a connection claiming to be AS 0.

Still getting the basics of BGP protocol correctly and accurately defined in 2015. Yay for the IETF.

Link

RFC 7608 - IPv6 Prefix Length Recommendation for Forwarding

And the IETF continues to address basic IPv6 definitions in its RFCs with this Best Current Practice:

Forwarding decisions rely on the longest-match-first algorithm, which stipulates that, given a choice between two prefixes in the Forwarding Information Base (FIB) of different length that match the destination address in each bit up to their respective lengths, the longer prefix is used. This document's recommendation (Section 2) is that IPv6 forwarding must follow the longest-match-first rule, regardless of prefix length, unless some overriding policy is configured.

Why ? Because other RFCs

This recommendation does not conflict with the 64-bit boundary for some schemes that based on IPv6 stateless address auto configuration (SLAAC) [RFC4862], such as [RFC2464]. Indeed, [RFC7421] clarifies this is only a parameter in the SLAAC process, and other longer prefix lengths are in operational use (e.g., either manually configured or based upon DHCPv6 [RFC3315]).

Cisco Mid-year Security report

In my view, this report isn't very good when compared to those from true security companies. But its almost-free (after you give your them your personal details) and its network-centric because its Cisco Security. Its useful for network engineers but its not as comprehensive because it lacks information about applications.

Worth it for the money.

Note: the signup for these reports is not encrypted and you are sharing reconnaissance information - use a non-specific email account.

1. Flash exploits are back
2. MS Office Macro exploits are back

Direct Link

Q&A

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

Question:

My question: This is going to be funny. Did you have time for social life (like dating, partying) during your mid 20s before you got married? I'm asking this because I feel that there's just too much out there to learn. Is it going to be one or the other? Do I have to sacrifice one to excel in the other?

Answer:

My personal situation is a bit different (because I made it that way). I quit the industry in 1989 and went backpacking through Europe and Africa for three years and had many life enhancing experiences (drinking, womanising, cultural benefits, low-level labouring jobs that remind me why I am in technology).

So when I returned to a corporate life in 1992 I was restarting my career since Novell Netware was over and Windows NT 3.1 was the new hotness. In 1996 I turned to the light of networking. I studied solidly for about 5 years while getting many certifications for many vendors and ultimately my CCIE badge. I haven't done any certifications since and have no plans to do so.

Sometime in 2005 I realised that **everything in technology is more or less similar**. There are fundamental ideas that keep repeating over and over. For example, IPv6 is very similar to an IPX that was supposed to solve IPX problems. The IP protocol never changes. HTTP/FTP have many similarities.

And things take time. The SIP protocol has been gradually devolving into its current state over 10year period. IPv6 has taken 20 years to get to 6% adoption. Linux took 10 years to get into widespread use. OSPF has been in around for 25 years. BGP is a flesh eating zombie that get bigger and complicated every year.

After a while, you learn most of the fundamentals that you need to know and things settle down. You start to see patterns, repitition and old ideas coming back in another forms. See Rule 11 - RFC 1925 - The Twelve Networking Truths (RFC1925)

When you get down to it, I am a special kind of stupid. I'm too stupid to give up and eventually I'm the only person in the race.

Recent Articles

The last five articles published on EtherealMind and Packet Pushers blogs

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

The End Bit

Human Infrastructure is bi-weekly newsletter with view, perspectives & opinions. It is edited and published by Greg Ferro from EtherealMind.com and PacketPushers.net.