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How Many Network Orchestrators Do We Need?

By Greg Ferro

We have a lot of network orchestration tools out there. Cisco has NSO, ACI, Viptela, SD-Access, and many others.

VMware has Cloud Foundation, NSX, and VeloCloud. Other commercial options include Juniper Contrail, Apstra AOS, Gluware, and AppviewX.

And in open source, we have Open Daylight and ONOS among many others.
Just five years ago, Cisco's CLI was king and there was only one way to configure the network. Anyone could spend a few weeks learning some basics, read a bit of documentation on the specific Cisco model you were using, and start earning a substantial salary.

A Possible Explanation

Each market for Enterprise IT products has most often been dominated by a single supplier. For example Cisco in networking, Oracle in databases, Microsoft in desktops and servers, HPE in servers, and so forth.

We don't see this dominance today. HPE is still larger than Dell in server sales, but effectively it's a market of equals. Cisco data center dominance has been shaken by Arista's strong growth. Microsoft grapples with robust Linux competition. Oracle is losing to the cloud.

The emergence of public cloud helped disrupt the status quo. Many companies have slowed their infrastructure spending while they consider how to incorporate 'cloud' ideas. It seems likely that both off- and on-premises computing will be around for some time, but infrastructure operations will be very different. The concept of 'software defined' has become normalized, and the major impact is in the automation and orchestration of operations.

Will there be one dominant vendor of 'software defined'? Will one orchestrator triumph?

The Change

As I see it, a vendor needs three things to dominate an IT market:
1. Low rate of change so that customers don't move on. They can stick with what they know.
2. The market need must be narrowly focused such that a single solution can cover all needs.
3. The product must be broad enough in function and features to satisfy most customers but limited enough for a vendor to create and sustain.

Looking back at Enterprise IT, this proposition was true. IT managers would buy the same equipment form the same suppliers and deploy the same applications. This was called various things: 'best practice', 'trusted supplier', and 'skills focus'.

Most assets lasted from five to ten years, with limited improvements or changes over time. Products might get faster, bigger, and a bit better but not really much different.

Public cloud overturns that pattern. Providers have rapidly moved to offer services in addition to infrastructure: identity management, bulk storage, analytics, DNS, telephony, thin clients, load balancing, databases, logging, AI systems and, of course, serverless are just a few.

This approach has been so successful that enterprises invest billions every quarter in cloud.

Diversity Of Solutions?

For the near future, I think that there will be diverse suppliers for a wide range of needs. The market keeps changing as startups bring new ideas to market.

For example, look at formal verification from Veriflow and Forward Networks, intent-based networking from Apstra, and orchestration engines like Gluware.

Of course, these platforms can grow to encompass more features and functions. For example, VMware's Cloud Foundation is attempting to be an 'everything cloud platform'. Today, VCF is far too unwieldy and complex for widespread usage.

I'm wondering what other people think. Will a dominant vendor emerge for network orchestration, or will diversity reign?
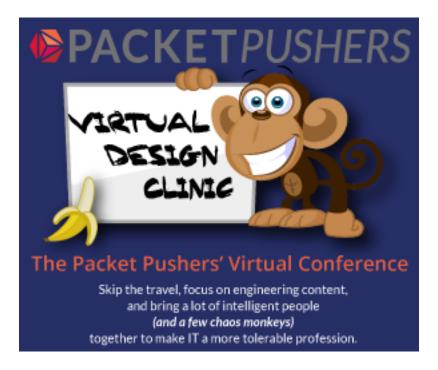
Sponsor: Virtual Design Clinic 3 - Holiday Change Freeze Edition

Join the Packet Pushers and a holiday assortment of guests for our third Virtual Design Clinic on December 19th.

This free, live, online event includes presentations on continuous integration/continuous testing for networks, network design for NVMe over Ethernet fabrics, and Ask Me Anything panels with network and design experts. You'll also hear from our sponsor, Apcela.

If you can't join us live, we'll post all the videos and presentations on Ignition, our membership site. You can also check out VDCs 1 and 2 there right now.

Register here and we'll see you December 19th.

Big Tech's Big Reckoning

By Drew Conry-Murray

Consumers and the media are waking up to the realization that tech companies can be as ruthless and deceptive as more familiar capitalist villains like Big Oil, Wall Street, and Big Pharma.

Facebook, for example, is grappling with the consequences, some murderous, of its platform being used to spread propaganda and misinformation. The company has also come under justified criticism for lax controls that exposed the data of millions of users to third parties such as Cambridge Analytica, and for a recent security breach.
As the crises mounted, Facebook made all the right noises to the public about purging state-sponsored propaganda and improving its policies and security controls. But in private, it went on the attack.

A recent NY Times story documents how Facebook leaders, including CFO Sheryl Sandberg, have "...overseen an aggressive lobbying campaign to combat Facebook's critics, shift public anger toward rival companies and ward off damaging regulation."
That campaign including hiring an opposition research firm to smear protest groups.

Google's image has also taken hits. For instance, the company has been condemned for developing censor-friendly search products for China.

At the same time, internal disputes over everything from military contracts to the company's bungling of sexual harassment claims have spilled into public view as employees try to hold the company to its self-proclaimed values of not being evil.

Even Amazon has come in for a kicking recently. I say "even" because whether by accident, corporate culture, or its location outside image-conscious Silicon Valley, Amazon never postured as a moral pillar or friendly giant; it just went about its business clawing up marketshare.

But the media has suddenly realized all the free publicity it showered on Amazon's bogus "search" for a new headquarters was leverage for Amazon to extort obscene and anti-competitive tax breaks and other concessions, while also hoovering up reams of data from hundreds of municipalities Amazon can use for competitive advantage in other ways.

Look Who Bought The Myth

For the last couple of decades, Silicon Valley has beguiled us with the myth that its companies and its products were different. Silicon Valley's goals were more pure than profit: they wanted to transform society and unleash human potential. They wanted to change the world.

It should be clear by now that this anodyne slogan is a hollow shell that conceals business practices as aggressive and sleazy as you'd expect from Gordon Gecko.

The Web giants are as extractive as the energy industry. They might deal in data rather than natural resources, but they can be as destructive as mountaintop mining, and as cavalier and careless as an unpatched oil leak.

What About Apple?

Apple has largely been immune to the backlash buffeting other tech stalwarts. That's due to Apple's business model; its fortunes come from product sales, not data exploitation.

In fact, Apple touts privacy as a competitive differentiator. In an April interview on MSNBC, CEO Tim Cook said "The truth is we could make a ton of money if we monetized our customer. If our customer was our product, we could make a ton of money. We've elected not to do that."

But the business model at the foundation of Apple's high-minded stance could change. Just this week, the company's share price slid as much as 5% after soft forecasts from Apple suppliers led to speculation that Apple might be producing fewer devices over the next few quarters.

Apple has habituated the market to outsize earnings and a predictable upward trajectory driven by device sales. If those sales begin to trend downward, the company will face significant pressure to make up those declines in other ways. As Cook acknowledged, monetizing customers is an option.

That doesn't mean it's going to happen, but I also wouldn't bet on morals or high-mindedness to drive business decisions.

What Next?

Big tech has gathered troves of our intimate details. They know what we read, what we write, what we buy, and what we search for when we think no one is looking.
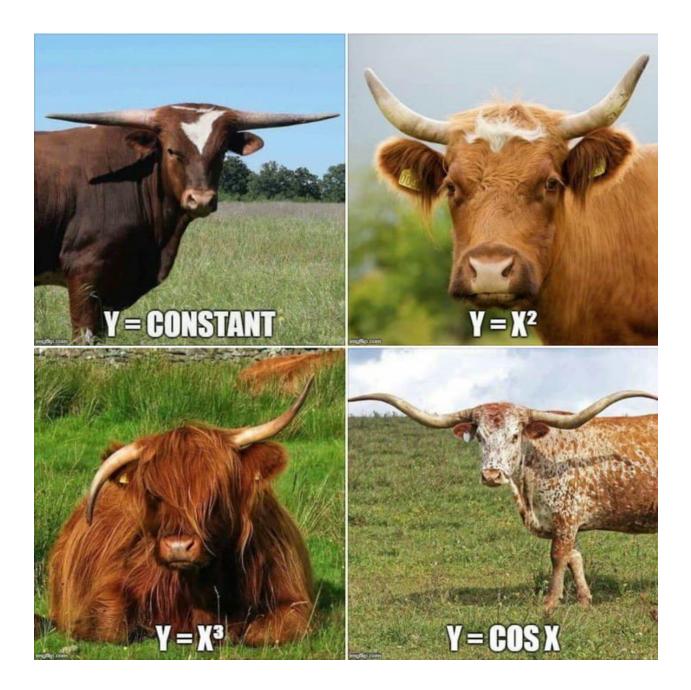
Consumers bear some of the blame for this state of affairs. We've accepted free services in exchange for data collection for a long time, and that bargain seems unlikely to change. That said, our societies and governments have begun to scrutinize this bargain more closely. We have the power to change our habits, to limit what we share and how often we engage with these platforms, and to demand more transparency about what gets collected and how.

On the regulatory front, Europe is well ahead of the United States with laws such as the right to be forgotten, and sweeping GDPR legislation. I don't know if similar laws will appear in the US, or even if such laws are the right approach.
But the first step is to look past the myths and acknowledge the truth: Silicon Valley is about maximizing profits and accruing power.

The next time you see a tech CEO talk about changing the world, ask yourself what it's being changed to, and for whose benefit.

Just For Laughs

Shared by Dereck Winkworth, aka @CloudToad

Packet Pushers News Bits

We generate a lot of content besides the long-form podcasts: short podcasts, blogs, news briefs, even video. These are a few recent items.

Virtual Design Clinic Videos Now Available

Ignition members can now access every video from Virtual Design Clinic 2, including three technical presentations and all the Ask Me Anything questions and answers. Presentations include

- Creating Virtual Networks With Terraform
- Using Puppet For Network Automation
- Understanding ASICs & Switch Internals

Go to ignition.packetpushers.net/videos and dive in.

Cisco Announces 400GbE Switches in Nexus 3400 And 9000 Families

Cisco Systems has announced its first-ever 400GbE switches. Expected to ship in the first half of 2019, these switches target hyperscale Web companies, cloud and service providers, and large enterprises.

Cisco is rolling out four models, two each in the Nexus 3400 and Nexus 9000 lines.

LINK

5 Things I Learned From Publishing Technical Books

Back in the summer of 2017, my book 'Mastering Python Networking' by Packt Publishing was released, fulfilling a life-long goal of mine to become a published author (if you are interested in the background, content, and thoughts behind the book, you can check out Packet Pusher Priority Queue 135).

I'll share five lessons I learned from the book experience. These are general, high-level lessons that hopefully can help you tackle your projects as well.

LINK

Video: STFC Data Centre Tour 2018 - 45PB of Distributed IP Storage, 5 Tier CLOS network at 100G/200G/400G

Get a tour of a data center that Greg helped design for a government research organization.
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