The Facts Behind The Myth

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I hate getting into lengthy discussions regarding open networking (or bare-metal) pricing as there are benefits other than price. However, with so many people trying to understand the industry transition, I feel compelled to jump in when I see confusing information.

Forrester analyst Andre Kindness recently published a report called The Myth of White-Box Network Switches (https://www.forrester.com/The+Myth+Of+WhiteBox+Network+Switches/fulltext/-/E-RES118267) which is causing a pretty interesting debate (https://twitter.com/AndreKindness/status/577606614066208768). The discourse forms, as Andre puts it, "*I think there is misunderstanding/reading my research. I'm not saying one solution is cheaper. It highlights the cost.*" However, the title of the report necessarily creates bias. Luckily, we had a chance to speak with Andre to better understand his perspective and intentions as well as relay our observations.

For the hardcore, we've gone through some of the market basics in prior blog posts: most notably Democratizing Capacity (https://cumulusnetworks.com/blog/democratizing-capacity-or-how-to-interpret-cisco-math/) and Death of the Multiplier Effect

(https://cumulusnetworks.com/blog/the-modern-networking-supply-chain-and-the-death-of-the-multiplier-effect-2/). Some of the absolute numbers in those analyses have changed; however, these hold true and directly relate to both the points that Andre was trying to make as well as the gaps in his analysis.

Bill of Materials Cost

The report makes two observations that we completely agree with. One is that most of the network switches sold today are based on industry standard components, and the other is that for the most part, people building these network switches have roughly the same Bill Of Material (BOM) cost.

The report specifically calls out "*1) Accton AS5712-54X; 2) Arista 7250X and 7500E series; 3) Cisco Nexus 3100; 4) Dell S6000; 5) Extreme Summit X770, 6) HP Flex Fabric 5930 series; 7) Juniper QFX3500 and 5100 series; 8) Penguin Computing 4800 series; and 9) Quanta Computer's T3048*" as being of similar speeds-and-feeds heritage based on Broadcom's Trident II chipset. Great fact finding by Andre and we agree that, within a reasonable margin of error, the BOM costs are close.

Customer Price

Now comes the hard part, how does that BOM cost relate to customer price? On the platform side, the report searches out one-with-a-credit-card pricing for both hardware equivalent bare-metal options and the Cisco Nexus 3172PQ.

The result is $14,198 for Cisco Nexus 3172PQ (http://www.cdw.com/shop/products/Cisco-Nexus-3172PQ-switch-72-ports-managed-rack-mountable/3193582.aspx) based on "*the average price from PC mall, CDW, and state (CA/Penn) contract.*" That number matches up with our research as well.

The report posits a price of $6,739 for an Accton AS5712-54X. Taking a look at web pricing for bare-metal options, we find that bm-switch (https://bm-switch.com/index.php/) offers options from both EdgeCore and Quanta. With the AS5712-54X lists at $6,570 (https://bm-switch.com/index.php/bare-metal-

switches/10g-bare-metal-switches/edge-core-5712-54x-bm-switch.html), and the T3048-LY8 lists at $5,300 (https://bm-switch.com/index.php/bare-metal-switches/10g-bare-metal-switches/quanta-t3048-ly8-10-40g-bm-switch-preloaded-with-onie.html), when we apply the same averaging principle, we get to $5,935 (ain't choice grand)?

What Comes With the Box?

Now, let's figure out the difference between the platform that you bought and what you need.

The bare-metal switch price includes:

- the hardware
- a 3-year warranty.

Customers need to purchase operating software and support. For customers choosing Cumulus Linux, the 10G SKU is $999/year (http://go.cumulusnetworks.com/product/pricing) which includes license, 24×7 technical support, and software updates/upgrades.

With the Cisco platform, customers receive:

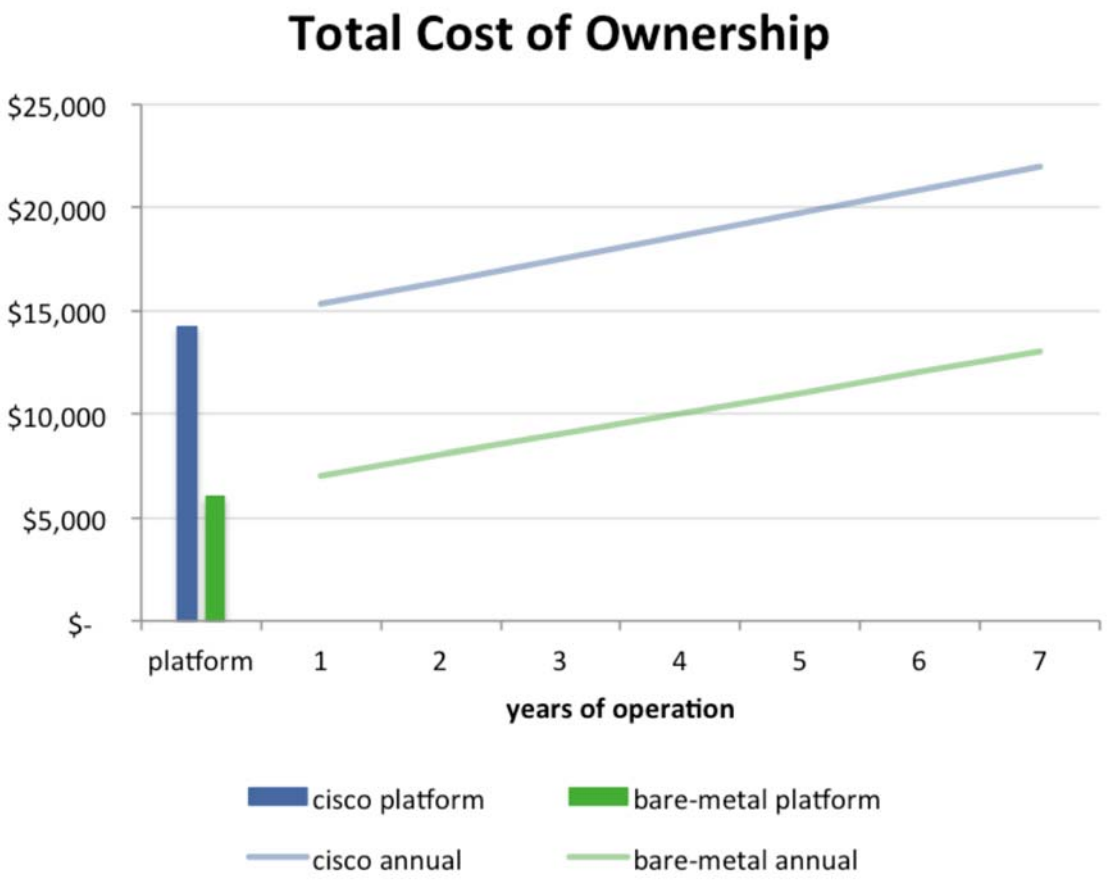
- the hardware
- a node-locked perpetual license for the software shipped with the platform
- a 1 year limited warranty on the hardware.

The report highlights Cisco's hardware, software and network design support. However, none of that is part of the platform price. Cisco offers technical support and software updates/upgrade via their SmartNet (http://www.cisco.com/en/US/services/ps2827/ps2978/services_at_a_glance_smartnet.pdf) program. For the Nexus 3172PQ, the lowest priced SmartNet SKU is CONS-SNT-3172P at $1,109.99/year (http://www.cdw.com/shop/products/Cisco-SMARTnet-extended-service-agreement/3193588.aspx). **This missing cost is the biggest gap we found in the report.**

Increasingly, customers are using feature sets that requires the Cisco enterprise license which would add an additional cost (http://www.cdw.com/shop/products/Cisco-NX-OS-Layer-3-Enterprise-Services-license/2828405.aspx); that we'll ignore in this analysis.

Summing it all Up

The report sums up the total pricing and tries to drive at Total Cost of Ownership where a bare-metal/Cumulus Linux and Cisco N3172PQ offerings converge; however, when you account for the Cisco support pricing, convergence never happens.



(https://cumulusnetworks.com/blog/wp-content/uploads/JR-blog-Cost-of-Ownership.png)

We're seeing a trend of Cumulus Linux customers buying multi-year licenses (http://go.cumulusnetworks.com/product/pricing) which even further reduce the costs. With that said, seven years is multiple lifetimes with today's data center technologies.

In the End

We want to thank Andre for opening up the debate; his observations regarding both the prevalence of industry standard networking systems and their Bill Of Material cost structure were one of the motivators for us to start Cumulus Networks in the first place.

We are bummed that he missed out on the support component of a Cisco customer's operating cost; however, the impact is easy to verify and simple to show.

We'd like to leave you knowing that open (or bare-metal) networking exposes the underlying elements of these previously opaque systems; turning "black-art" into "simple science." As a shout out to Andre Kindness, it would be cool if he applied the same analysis to cables and optics; take a look at how vendor (http://www.cdw.com/shop/products/Cisco-SFP-transceiver-module-10-Gbps/1651560.aspx) versus bare-metal (https://bm-switch.com/index.php/accessories/optics.html) options affect total system cost.

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