

SDN challenges - “You can keep your networking gear. Period.”

You may recall a statement regarding some big U.S. legislation that led us to the forever quoted phrase: “You can keep your insurance. Period.” that has caused quite a ruckus in the insurance industry both for providers and customers because it was found to be untrue.

So just imagine that a similar situation that is about to come up in the enterprise networking environment. With Software Defined Networking (SDN) being the hottest buzzword and most aggressively marketed paradigm shift in recent months, we are about to hit a crossroads where adoption may leave many customers taking on unexpected costs despite being pitched a similar line that SDN will simply run as an overlay, but you can keep your existing networking hardware.

Let’s take a look three particular challenges which are present as companies take a look at SDN and figuring out the cost/benefit and how it relates to existing infrastructure.

Challenge 1 - No reduction of ports

This is one of the most common misconceptions around SDN. The idea that ports will be reduced is unfounded because the number of uplinks that will exist into host systems, virtualized or not, will continue to be the same. If anything, we will have more uplinks as scale-out commodity nodes are utilized in the data center to spread the workloads around more.

The reduction in ports will happen as a result of the migration to higher speed ports like 40GbE and up, but the consolidation level will be limited for physical endpoints. SDN is a great enabler for creating and leveraging overlay networks and making physical configuration less of a factor in the logical design of the application workloads.

In order to get the savings on per-port utilization, the move to 40GbE and higher ports will trigger the rollover of existing hardware and expansion to new physical networking platforms. In other words, you need to change your existing hardware. Hmm...that wasn’t in the original plan.

Another interesting shift in networking is the new physical topology which includes ToR (Top of Rack) switches which are connected to a centralized core infrastructure. The leaf-spine design is being more widely used and continues to prove itself as an ideal way for separation of workloads and effective physical isolation which has other benefits also.

Challenge 2 - Policy-based delivery requires policies

This is the business process part that can add a real challenge for some organizations. Putting a policy-based framework into place is only truly going to add value when you have business policies that can leverage it. Many CRM and Service Desk implementations fail because of the lack of adoption which stems from a lack of understanding of existing processes.

Many organizations are having difficulty adapting to cloud implementations because it is a very process-oriented technology. As more and more companies make the move to embrace cloud practices, the move towards SDN will be more natural. There is much more awareness now about where the efforts are needed to make SDN deployments successful.

Challenge 3 - Your physical gear doesn't support your SDN platform

Other than the previous limitations where we mentioned the port speed issues for higher consolidation levels, there is also the issue of firmware and software capability on existing ASIC hardware. As an example, you can use Cisco ACI as your SDN product of choice, but if you are running all Cisco Catalyst equipment I have some bad news for you. (*UPDATE 11/21*: Thanks to [@jonisick](#) for the tip that there are smaller physical investments to allow the use of ACI. It is not a full rip and replace, but more some additional hardware to augment the current deployment in most cases).

There will be a barrier to entry for many SDN products because there are requirements for baseline levels of hardware and firmware to support the enhancements that SDN brings. This will be less of an issue in a few years I am sure, but for right now the move to embrace an SDN architecture may be held back by the need to upgrade physical hardware to prepare.

Have No Fear! SDN will work...No seriously, it will

While these scenarios may be current, realistic barriers to the adoption of a SDN platform, we are also dealing with hardware and software lifecycles that are becoming shorter and more adaptive.

The hardware platforms you are running today are inevitably going to be upgraded, extended, or replaced within a reasonable time frame. During that time we will also see the shift the way that we manage and deploy the networking inside organizations. This fundamental shift in process will align with the wider acceptance of SDN platforms which are being regarded as only accessible to agile organizations sometimes.

What SDN brings to us is really the commoditization of the underlying physical hardware platforms. Not necessarily the reduction of quality or cost of the hardware, but the commoditization of its role in the networking architecture.

What is important for us all as technologists is that we are prepared for the arrival of these new products and methodologies. We have a responsibility to stay ahead of the curve as much as possible to get to the real benefit of SDN which is to enable agility for your business.