What's the Current Status of SDN?

Jim Metzler

Software Defined Networking (SDN) has been a hot topic for years. As is typically the case with a new technology or architecture, the initial set of articles on SDN did their best to identify the impact that SDN would have, but often these articles were wrong. For example, a lot of the initial discussion of SDN focused on how SDN separates the control plane from the forwarding plane and how that separation would result in switches and routers becoming commodities. While there has been some deployment of white box SDN switches, that deployment has been limited. In addition to predicting that SDN would cause switches and routers to become commodities, for the first few years the discussion of SDN focused almost exclusively on its use in the data center. As discussed below, that conversation is changing.

In order to identify where we are currently with SDN, The 2015 Guide to SDN and NFV[1] (The Guide) reported on the results of a survey that was recently taken by 246 IT professionals. The survey data clearly indicates that while we are inching our way closer to SDN being broadly adopted, the majority of companies are still in the analysis stage of SDN adoption. Some of the encouraging news coming out of The Guide about SDN adoption is that 18% of the survey respondents indicated that they expected that they would have SDN running somewhere in their production networks this year.

A lot of the initial discussion of SDN tended to tightly link SDN and the OpenFlow protocol. For example, a few years ago you seldom saw the announcement of a seminar or Webinar on the topic of SDN. What you saw were announcements of a seminar or Webinar on the topic of SDN and OpenFlow. While there is no longer a tight linkage between SDN and OpenFlow, OpenFlow remains important. According to The Guide, 18% of the survey respondents indicated that their implementation of SDN would definitely include OpenFlow and only 4% indicated that it definitely would not. That vast majority of survey respondents were either somewhat ambivalent or didn't want to venture a guess on the role of OpenFlow.

It is curious to see that factors that the survey respondents indicated are driving SDN adoption. Two of the top four factors driving the adoption of SDN apply anywhere in the network. Those factors are easing the administrative burden of configuration and provisioning and better utilizing network resources. One of the other top factors, supporting the dynamic movement, replication and allocation of virtual resources, applies primarily to the data center and the other top factor, performing traffic engineering with an end-to-end view of the network, applies primarily to the WAN.

It is also curious to see the factors that the survey respondents said weren't driving adoption. The factor that was next to the bottom in terms of importance was reducing CAPEX. Reducing CAPEX was part of the initial conversation about SDN turning switches and routers into commodities, but as mentioned, that is no longer a central component of the conversation about SDN. The factor that came in last was reduce complexity. Many of the IT organizations that I talk to believe that while SDN will reduce complexity in the long term, in the short term the path to broad adoption will introduce complexity.

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[1] http://www.webtorials.com/content/2015/01/the-2015-guide-to-sdn-nfv-4.html

According to the survey respondents, two of the top factors impeding the deployment of SDN are the immaturity of the current products and the immaturity of the enabling technologies. The good news about those impediments is that both SDN products and the enabling technologies are rapidly becoming more mature. The other two top inhibitors to SDN deployment will take some work on the part of both vendors and IT organizations. One of those inhibitors is the concerns that IT organization have about how they would integrate SDN into the rest of their infrastructure. The other inhibitor is the lack of a compelling business case.

One of the last questions given to the survey respondents asked them to indicate over the next two years where their organization was likely to implement SDN. It's not surprising that almost two thirds of the respondents indicated their data center. However, in keeping with how the conversation about SDN has changed, a quarter of the survey respondents indicated their WAN and another quarter indicted their campus networks. In addition, 8% of the survey respondents indicated that within 2 years their organization is likely to be using a SDN-based WAN service from a service provider.

This expansion of SDN from the data center out to the wide area is an area of vendor activity. There are a number of key initiatives underway to provide seamless data center and wide area network capabilities. For example, Nuage Networks with their Virtualized Network Services solution is taking an end-to-end SDN approach to enterprise networking.