Open Source Platforms and MetaFabric Enhancements: Key Landmarks on Juniper's Cloud Journey

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IDC OPINION

Juniper Networks, like other established networking vendors, realizes that we have reached a watershed moment in the datacenter as the advance of cloud computing and a growing wave of new application workloads provide an impetus for architectural, operational, and even cultural change in the realm of networking. Juniper, gradually at first, but with intensifying commitment and enthusiasm, has chosen to embrace change rather than resist it, building on its MetaFabric architecture with a number of enhancements that were contextualized within the "cloud journey" on which an increasing number of enterprises are embarking. In addition:

- Juniper (and customers showcased at recent Juniper events) increasingly emphasizes its support for and involvement with open source projects and technologies such as OpenStack and OpenContrail, which signify choice, flexibility, and freedom from vendor lock-in to customers.

- Juniper will increasingly target public and private cloud opportunities that feature OpenStack orchestration, where MetaFabric (including a Contrail/OpenContrail overlay and a Juniper fabric underlay) can be positioned with value-added support from Juniper analytics and security offerings.

- Where necessary, such as in VMware accounts that adopt NSX as a network virtualization overlay, Juniper will take a pragmatic approach, providing a MetaFabric underlay and perhaps security and analytics capabilities.

IN THIS INSIGHT

This IDC Insight examines Juniper's datacenter networking strategy within the context of cloud computing and open source communities, projects, and technologies, taking into consideration a recent Juniper analyst open house.

SITUATION OVERVIEW

Juniper recently held a cloud- and datacenter-related analyst open house at its corporate headquarters, and the thematic messages the company's executives imparted both validated a broader trend IDC had previously identified in the datacenter networking market and reinforced Juniper's claim for sustainable competitive differentiation.

First, let's consider the validation of the broader trend represented by the increasing focus of traditional networking vendors on application workloads and on overall IT context rather than on the technical minutiae, which has been the exclusive preserve of the networking team in formerly balkanized IT departments.

Cloud and Datacenter Networking

There are logical reasons for this big-picture reorientation. As IDC found in a recent software-defined networking (SDN) survey, networking is no longer just the preserve of networking teams. With the continuing growth of server virtualization, the onset of public/private cloud, increasing mobility, the rise of big data analytics, and the market prospects for the Internet of Things (IoT), new IT architectures and operational models are gaining favor. These approaches, especially in the context of cloud computing, are more holistic and collaborative than traditional models where applications frequently were adapted to technology platforms rather than having infrastructure answer to the service-oriented applications.

IDC has noted that, in networking, organizations that aggressively pursue virtualization and adopt cloud computing quickly come up against the limitations of traditional network architectures and their attendant operational models. It bears mentioning, yet again, that SDN, quite apart from being an acronym that has achieved a strong industry buzz factor, carries a number of notable implications. One implication, which should be obvious, is that SDN involves a form of networking that is not only realized in and through software but also defined by software. The second implication is that, as this scenario plays out, networking must become not just about connectivity and a cornucopia of underlying Layer 2–3-enabling protocols but about providing an open, agile, flexible, and programmable carriageway for a range of business-critical application workloads. That many of these workloads are virtualized, running on hypervisors with virtual switches, means that networking is neither just encompassed by the physical network nor owned and controlled by traditional networking teams. This is where networking dovetails with other jurisdictions of the IT department and where it meets the cloud-driven transition toward DevOps operational models.

All of this brings us to another important implication of SDN: It was not born in a vacuum, nor was it an architectural approach, at least at its inception, foisted by vendors on an unsuspecting user community. To the contrary, SDN originated from a segment of the user community — namely, hyperscale giants and large cloud service providers — precisely because it provided architectural answers to problems these companies were encountering with traditional networking in a cloud context. With private and hybrid cloud being increasingly embraced by a growing number of enterprises, it's fair to suggest that the broader market will contend with similar challenges and will seek similar, if not identical, solutions.

Juniper's Cloud Strategy

This brings us to traditional networking vendors, a group to which Juniper historically belongs. Traditional networking vendors can respond to the advent of cloud and associated network architecture changes in a number of ways, but broadly, the choice involves fighting a rearguard reactionary battle against change, which might prop up margins for a while but ultimately will be doomed to failure, or wholeheartedly embracing change, taking a long-term view, and going through

an adaptation process that might be difficult initially but has a greater likelihood of paying dividends in the long haul.

Juniper wants the world to know that it has chosen the enlightened path for its cloud journey. That message came through in the leadoff presentation by Jonathan Davidson, SVP and GM of Juniper's Security, Switching and Solutions Business Unit, and it was sustained in subsequent discussions and presentations involving other Juniper executives. The overriding thematic spotlight focused on an "evolutionary, nondisruptive path to private clouds" in a context where Juniper sought to offer "more than a network – an opportunity to cocreate innovation." Yes, this was high-level positioning, but it seems necessary in light of what is happening in the marketplace and in the industry as a whole. Context matters, and the network no longer is a power unto itself. This messaging fits into a bigger picture of IT infrastructure in the datacenter, providing essential support for private and hybrid clouds. Nevertheless, the networking details remain important, and customers – not just traditional networking teams within enterprise IT departments – need and want to understand how the network supports their business applications. Juniper understands that it must elevate its message accordingly.

The message requires ongoing iteration and reinforcement, so we heard about Juniper's growing stable of MetaFabric customers, which now numbers more than 5,000 and includes brands such as UBS, Nike, Tribune Broadcasting, Cloud Dynamics, and Shutterstock. The latter is emblematic of a type of customer, engaged by Juniper and other major networking players, that increasingly emphasizes an open source approach to networking technologies and a DevOps approach to managing datacenter infrastructure. These customers, frequently Linux shops, have adopted a mix of open source automation tools such as Puppet and Chef and often are working with OpenStack for private cloud orchestration.

Indeed, Juniper's contributions to and establishment of OpenContrail, as well as the company's involvement with the OpenStack community, were cited as important considerations by a panel of customers that Juniper introduced during the open house. These customers, which spoke candidly about their cloud journeys and how Juniper's MetaFabric helped them address the challenges they faced, attested to Juniper's commitment to openness and choice, including the ease with which Juniper's MetaFabric and Contrail plug into and support OpenStack, and to the performance attributes of the Contrail overlay. The members of the customer panel also strongly emphasized that they place growing importance on vendors' direct involvement and participation in open source communities, keeping a close eye on the degree to which vendors make meaningful contributions and "give back" to the community. While these customers gave Juniper approbatory marks for its open source efforts, it's clear they'll judge other vendors by the same standards and will seek to ensure that all vendors with which they do business remain on an open path.

While Juniper's adoption of an open platforms strategy is clear, the vendor also realizes that its enterprise customers are a diverse bunch and will likely choose different paths in building agile, flexible cloud infrastructure. With that in mind, Juniper has announced MetaFabric support for VMware's NSX network virtualization offering. In addition, support for OpenFlow-based SDN controllers is now on Juniper's road map.

Cloud Analytics Engine

With enterprise IT's focus increasingly turning to visibility and analytics, Juniper has announced a Cloud Analytics Engine (CAE), a platform that collates and presents networks and applications to help improve network operations. Getting visibility into the application layer, and correlating that with network performance and operations data, is what Juniper intended to provide, and the CAE platform is the first step in getting there. Providing access to physical and virtual resources across a single platform, the CAE will aid with troubleshooting, performance management, and capacity planning. Moreover, it should help in positioning Juniper as more than just a networking vendor in the eyes of its customers. Toward that end, Juniper's API integration into SDN and network virtualization platforms will certainly augment the company's road map.

Other additions to MetaFabric include enhancements to the Virtual Chassis Fabric, such as support for elephant-mice traffic flows and greater fabric scalability, and the Juniper Networks Spotlight Secure threat intelligence platform, which includes threat protection, integration with Juniper's Junos Space Security Director, and SRX firewall enhancements that allow the platform to enforce policies based on aggregated threat intelligence. Last but not least, validated MetaFabric reference architectures and implementation guides for VMware NSX and Contrail, complete with transformation and risk mitigation assessments, are key enhancements within Juniper's offering.

FUTURE OUTLOOK

Juniper introduced MetaFabric late last year, and it is eager to show that significant market momentum has been achieved since then. Juniper makes its case qualitatively, through discussions involving its customers, and quantitatively, through reference to more than 5,000 customers.

The commitment to open networking, based on open source and standards for interoperability, seems sincere, and it aligns Juniper's outlook with a growing proportion of datacenter networking customers attempting to achieve the infrastructure agility required to support private and hybrid cloud. Juniper takes pains to emphasize that OpenContrail should not be perceived as a token gesture to open source piety but as a genuine commitment to the principles of the open source community. Indeed, OpenContrail is an Apache 2.0-licensed project that now has several users – including Cloud Dynamics, Ubuntu, and Mirantis – and a number of contributors – including Piston Cloud Computing and Nokia.

Juniper is hoping that robust community adoption and participation will continue to flourish. Even though a plug-in ensures interoperability between OpenContrail and OpenDaylight, Juniper obviously wants OpenContrail (and Contrail) to continue to develop as a key network virtualization plank in its OpenStack strategy. Juniper, like others, would like to grow into a "Red Hat of OpenStack" – Red Hat itself seems to want to achieve that designation – and its open source efforts with Contrail both integrate with OpenStack and serve to differentiate Juniper as an OpenStack networking vendor.

Juniper will be working assiduously to identify major OpenStack cloud opportunities where it can position its entire MetaFabric portfolio – switches, routers, security products, analytics, and SDN orchestration and automation solutions, such as the Contrail overlay for network virtualization. Juniper will be counting heavily on OpenStack to succeed, as will a number of other networking vendors, but it

has a contingency plan, of sorts, in its validated reference architecture and implementation guide for VMware's NSX.

In Juniper's ideal world, customers would plump for OpenStack cloud orchestration, MetaFabric (including a Contrail/OpenContrail overlay and a Juniper fabric underlay), and perhaps Juniper analytics and security offerings. That said, Juniper is ready to compromise, where necessary, providing the fabric underlay and potentially some other pieces of value in VMware shops that might more naturally gravitate toward NSX.

Regardless, IDC expects that Juniper will continue to strongly emphasize its open source credentials, particularly within the context of OpenStack projects and OpenContrail. At the same time, IDC also anticipates more from Juniper in the areas of adjacent SDN applications and analytics, as well as on the security front, where Juniper already is a notable player and on which more than a few players in the cloud-conscious SDN space are focusing their efforts.

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