MetaFabric Architecture for Infrastructure-as-a-Service Environments

Integrating VMware NSX with Juniper Networks Solutions for Service Providers

Challenge

Service providers who are considering entering the IaaS market are facing serious competition from hosting providers, requiring them to go above and beyond in order to offer truly competitive and meaningful service differentiation.

Solution

The Juniper Networks MetaFabric Architecture enables service providers to build a truly differentiated IaaS environment that's fully automated and integrated with the core MPLS backbone, enabling them to deliver SLA-based services directly to their customers.

Benefits

- Juniper solutions let service providers integrate IaaS data centers directly into their core MPLS WAN.
- MetaFabric Architecture delivers added value to enterprise and service provider networks.
- Detailed metrics let service providers offer guaranteed SLAs for IaaS.
- Unified ISSU allows the entire network to be upgraded without downtime.

Today's service providers are facing the twin challenges of increasing revenue and lowering operational costs. When it comes to generating revenue, service providers have two options: gain new customers or offer additional services. While participating in the Infrastructure-as-a-Service (IaaS) market enables service providers to offer these additional services, competition is fierce, forcing providers to be more creative and to offer meaningful differentiation to gain a competitive edge.

The Challenge

Service providers have two unique advantages over the competition—an existing customer base and an extensive global network. After all, offering additional services to existing customers requires considerably less effort than trying to acquire and retain new customers. But the service providers' real advantage is their global MPLS network, which is highly resilient and allows providers to offer strict, measurable, and enforceable service-level agreements (SLAs) for performance and uptime. The competition, meanwhile, relies on the Internet to deliver services, which offers no ability to impose or enforce SLAs.

By combining their existing customer base with a highly resilient MPLS network, service providers can offer IaaS solutions at a lower cost and provide better SLAs than the competition. Due to the sheer size of the network, customers already have a direct connection to service providers through existing circuits they're already paying for, whether through data centers, branch offices, retail stores, or campuses.

By using existing circuits, service providers can make IaaS resources directly accessible from every customer location. For example, if retail customers want to store sales information in their service provider's IaaS solution, compute resources are accessible from every point-of-sale location using existing circuits. Business application traffic can be prioritized to guarantee delivery, allowing retail stores to continue operating even during high-volume periods.

For customers needing burst computing within their data center to handle peak load periods, IaaS resources can be delivered instantly to the customer's network using existing WAN circuits. Customized quality of service (QoS) and management of IaaS resources can be controlled by customers through a self-service portal hosted by the service provider, allowing customers to secure additional compute resources and instant provisioning with a single mouse click.

The MetaFabric Architecture: Foundation for IaaS

The Juniper Networks® MetaFabric Architecture™ gives service providers a complete, end-to-end solution for efficiently delivering a complete IaaS solution. Each MetaFabric Architecture deployment is fully tested with compute, storage, network, and applications simulating a real production network. The solution is certified by Juniper Networks engineers, giving service provider customers peace of mind that the network has been fully evaluated, tested, and approved.

Each MetaFabric Architecture reference deployment certified by Juniper includes the following:

- A complete end-to-end architecture showing the flow of information and the role of each component
- A full design and implementation guide that details the steps taken to build the solution
- A comprehensive list of equipment used and software versions, including third-party hardware and software
- Full configurations of each device, along with show commands of critical integration points

The Juniper Advantage

Building an IaaS solution requires that all resources be controlled by software so that compute resources can be delivered to customers instantly through a self-service portal. VMware NSX provides a powerful network virtualization platform for programmatically delivering compute resources.

VMware NSX relies on building overlay tunnels between virtualized endpoints to provide instant connectivity. Providing connectivity between compute resources and delivering it to customers on an MPLS network requires VXLAN-to-MPLS translation. Likewise, connecting physical servers to the same overlay network used by the virtual infrastructure requires VXLAN-to-Ethernet translation.

Juniper is the only vendor that offers both VXLAN-to-Ethernet and VXLAN-to-MPLS translation services—both required to deploy a complete end-to-end IaaS solution on top of a service provider's MPLS network.

Service providers must also maintain maximum uptime for their customers—when maintenance is performed, it must be transparent to customers. Additionally, all servers—virtual and physical—must be multihomed into the network.

Juniper is the only vendor to offer unified in-service software upgrade (ISSU) in all devices in an IaaS solution, from the edge routers all the way down to the access switches. Service providers can perform firmware maintenance on any part of the network without impacting traffic flowing to customers. Juniper is also the only vendor to offer web-scale multihoming to compute resources—virtualized and physical servers can be multihomed into the network.

Summary—MetaFabric Allows Service Providers to Deliver As-a-Service Offerings

The Juniper Networks MetaFabric Architecture gives customers peace of mind by providing all of the information and resources necessary to build out an end-to-end IaaS solution. As the only vendor to offer end-to-end ISSU, VXLAN translation services, and web-scale multihoming, Juniper Networks—with the MetaFabric Architecture—accelerates time to value and increases value over time.

Next Steps

To learn more about the Juniper Networks MetaFabric Architecture, please visit http://www.juniper.net/us/en/solutions/enterprise/metafabric/.

About Juniper Networks

Juniper Networks is in the business of network innovation. From devices to data centers, from consumers to cloud providers, Juniper Networks delivers the software, silicon and systems that transform the experience and economics of networking. The company serves customers and partners worldwide. Additional information can be found at www.juniper.net.

Corporate and Sales Headquarters
Juniper Networks, Inc.
1133 Innovation Way
Sunnyvale, CA 94089 USA
Phone: 888.JUNIPER (888.586.4737)
or +1.408.745.2000
Fax: +1.408.745.2100
www.juniper.net

APAC and EMEA Headquarters
Juniper Networks International B.V.
Boeing Avenue 240
1119 PZ Schiphol-Rijk
Amsterdam, The Netherlands
Phone: +31.0.207.125.700
Fax: +31.0.207.125.701

3510518-001-EN Aug 2015