Juniper Solutions for Turnkey, Managed Cloud Services

Three use cases for hosting and colocation service providers looking to deliver massively scalable, highly differentiated cloud services.

Challenge

Adoption of the cloud model is accelerating. This presents enormous opportunities for hosting and colocation service providers if they can quickly build out with the right infrastructure to support a wide range of cloud services and differentiated offerings.

Solution

- Juniper solution for managed virtual hosting services
- Juniper solution for public cloud hosting services
- Juniper solution for private/ hybrid cloud services

Benefits

- Create and deliver highly differentiated cloud-based managed service offerings quickly and profitably
- Support a wide range of cloud services and differentiated offerings
- Increase agility and scalability while slashing the total cost of service delivery
- Give end users the ability to scale compute, storage, and network services on demand

Adoption of the cloud model is accelerating. Enterprises are recognizing that the cloud presents compelling new options for increasing agility and scalability while slashing the total cost of service delivery, and they're looking for new ways to harness the cloud for further efficiency gains.

That presents enormous opportunities for hosting and colocation service providers—if they can quickly build out with the right infrastructure to support a wide range of cloud services and differentiate their offerings.

Juniper is uniquely capable of helping hosting and colocation service providers exploit the opportunities of the cloud. Juniper offers the leading-edge technologies and deep expertise that service providers need to create and deliver highly differentiated cloud-based managed service offerings—quickly and profitably. Juniper's "simple, open, smart" approach can help service providers accelerate their move to the cloud model, and give their end users the ability to scale compute, storage, and network services on demand.

Below are three examples, or use cases, along with reference architectures that showcase the potential of Juniper solutions for hosting and colocation service providers.

Customer Example: HOSTING

HOSTING builds and operates high-performance clouds for business-critical applications for more than 4,000 customers. The company needed the infrastructure to deliver "fantastic uptime and reliability to our customers," in the words of Darrell Hyde, VP Architecture at HOSTING.

Based on its positive experience with Juniper firewalls, the company selected Juniper solutions for a wide range of routing, switching, and security requirements. As a result, HOSTING is now able to:

- Meet exploding demand for highly reliable and secure cloud services
- Improve data center network availability and performance to support unprecedented service-level agreements (SLAs)
- Enable secure access to customer self-service portal

"Our CAS SLA guarantees uptime levels and payouts that are unprecedented in the industry. We're able to offer that SLA because of the foundation that Juniper gives us."

–Darrell Hyde,
CTO, HOSTING

Managed Virtual Hosting

The Challenge

For end users, managed virtual hosting services provide the power and capacity of dedicated compute, storage, and networking resources—without the high price of purchasing, installing, configuring, managing, and monitoring those resources internally.

Managed virtual hosting is a way to offer common cloud-based services such, as web hosting, from common infrastructure and applications. Service providers can build it once and offer slices of capacity to many customers, as well as offer additional services such as Internet transit services.

But to be successful, hosting and colocation service providers need to be able to quickly build out with the right infrastructure to support a wide range of cloud services and differentiated offerings.

The Juniper Networks Managed Virtual Hosting Solution

Juniper helps service providers take full advantage of the opportunities of managed virtual hosting services with leading-edge, future-ready infrastructure.

The cornerstones of Juniper's managed virtual hosting solution offerings include:

- **MX Series:** Juniper Networks® MX Series 5G Universal Routing Platforms scale in bandwidth, subscribers, and services, and provide industry-leading system capacity, density, and performance.
- **QFX Series:** Juniper Networks QFX Series switches are high-performance, low-latency switches designed for top-of-rack or end-of-row installations, and they can also be deployed as 10GbE or 40GbE devices in Virtual Chassis, Virtual Chassis Fabric, and QFabric® System architectures.
- **SRX Series:** Juniper Networks SRX Series Services Gateways are high-performance, next-generation firewall (NGFW) appliances that can secure any size service provider data center to provide protection against advanced threats. They are a superior solution for providing effective network segmentation, securing flows, delivering IPsec VPN encryption services, and offering intrusion prevention system (IPS) protection, Network Address Translation (NAT), and application-specific malware detection.
- **Contrail:** Juniper Networks Contrail is an open, agile SDN solution that automates and orchestrates the creation of highly scalable virtual networks, making it easier for service providers to harness the cloud for managed virtual hosting and new Software as a Service (SaaS) offerings. Contrail also integrates with open source software and orchestration platforms such as OpenStack and CloudStack.
- **Virtual route reflector (VRR):** Juniper's VRR feature allows services to increase scalability, reduce router maintenance, and save space in the data center.

Features and Benefits

Juniper's robust routing capabilities, deep expertise and experience with MPLS, SDN, and Network Functions Virtualization (NFV), comprehensive security technologies, and scalable L2 and L3 fabrics empower service providers to:

- Reduce overhead costs, such as the cost of connecting end users to the service provider network
- Automate provisioning and service delivery
- Provide protection of the end user's content against a wide range of advanced security threats such as distributed denial of service (DDoS) attacks
- Adapt quickly to ever-changing customer requirements

Public Cloud Hosting

The Challenge

Many customers need on-demand, scalable access to compute cycles, storage capacity, or network services, and they want to pay for these cloud-based resources on a metered, "pay as you go" basis.

These customers are also looking to leverage the operational expertise of hosting and colocation service providers. Why recruit, hire, train, and retain highly skilled professionals on staff when you could simply outsource both the infrastructure and the expertise, and reduce CapEx and OpEx?

However, today's cloud-savvy customers understand that not

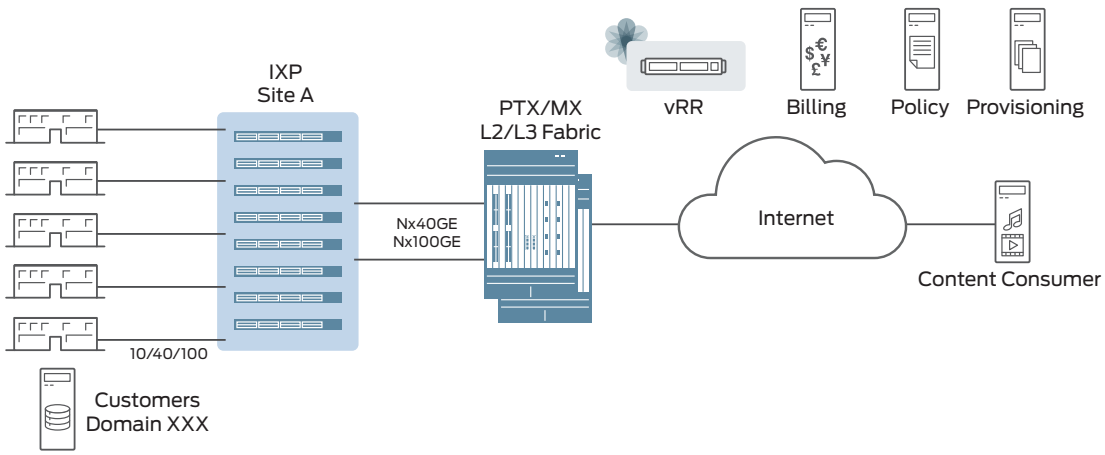

Figure 1: Reference architecture for Juniper managed virtual hosting solution

all public cloud offerings are the same. They're looking for a value-added differentiated network, utility-based offerings such as Network Time Protocol (NTP) for synchronization of Internet servers, Domain Name System (DNS) translation for automation URL conversion, Direct Internet Access (DIA) service, Internet Exchange/Cloud Exchange (IXP/CXP) services, as well as backup and advanced security services—all at an extremely competitive price from a single, trusted service provider.

For service providers, the challenge is how to simplify deployments and drive consistency so that operational uptime is higher and OpEx is lower. Service providers are also looking to leverage network virtualization to create a single physical network while maintaining customer separation and dealing with the fluid environment that virtual hosts can cause.

Give them the bandwidth they require!

It's no secret that Internet traffic is on an upward spiral. But two recent changes may surprise you. First, the growth in traffic is now steady, and that means it's important to plan for continuous growth, not just spikes in demand. Second, service provider customers have less and less tolerance for poor performance. Consider these facts:

Consider these facts:

- Amazon says it has a 1% increase in revenue for every 100 ms improvement in page load time.
- Yahoo says it increased traffic by 9% for every 400 ms of improvement.
- Google reports that "slowing down the search results page by 100-400 ms has a measurable impact on the number of searches per user of -0.2 to -0.6%."

Simply put, performance matters, and Juniper delivers the performance that hosting and colocation service providers' customers require for their end users.

The Juniper Networks Public Cloud Hosting Solution

Juniper enables service providers to simplify the deployment of public cloud hosted services, automate provisioning, and deepen security defenses, creating new levels of cost efficiency while opening the door to new value-added service offerings.

Through foundational capabilities such as L2 segmentation, VLAN, L3/L2 VPN, virtual private LAN service (VPLS), comprehensive security, server and storage virtualization, and SDN orchestration of virtual machines to corresponding segmented L2 network spaces per customer requirements, Juniper enables service providers to create and deploy the differentiated services that will keep them profitable today and in the years ahead.

Features and Benefits

- Simplifies the deployment of public cloud hosted services
- Automates provisioning
- Strengthens network security
- Opens the door to new value-added services

Managed Private/Hybrid Cloud Services

The Challenge

Many IT leaders, particularly in large enterprises, want to take advantage of the cloud model but do not feel the public cloud offers the degree of security and protection they require. They may not want to share infrastructure with other service provider clients; they may have very stringent compliance requirements to meet; or they may have mission-critical apps and can't afford the risk of operational downtime in the event the cloud becomes inaccessible—even for a few minutes.

In most cases these customers have already built out large private cloud infrastructure on-premises. However, they are beginning to recognize that some of their applications and

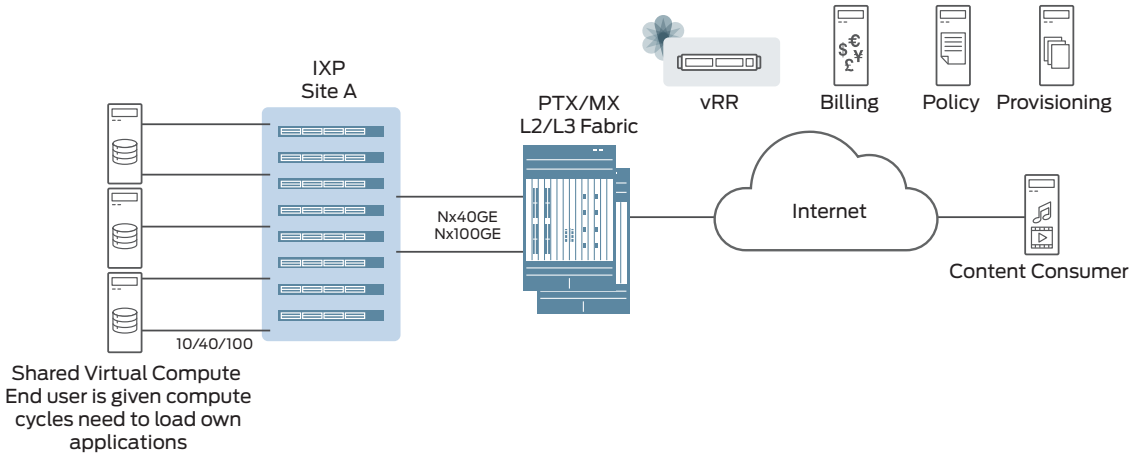

Figure 2: Reference architecture for Juniper-based public cloud hosting solutions.

workflows do not require the private cloud model, and that there is additional economic benefit in having a service provider manage the cloud infrastructure for them. Therefore, they are moving to a private/hybrid cloud model, managed by a trusted service provider partner.

The Juniper Networks Managed Private/Hybrid Cloud Services Solution

By offering these customers managed private/hybrid cloud services based on Juniper infrastructure, hosting and colocation service providers can help their clients adopt the public cloud model incrementally, as appropriate, one application or one service at a time. This enables the client to cost-optimize without compromising on the security, reliability, or performance of any service.

With Juniper, hosting and colocation service providers can connect the enterprise's data center with the private cloud, so they can offer seamless, scalable, on-demand access to compute, storage, and network resources. No matter where the resources actually reside, customers have full access to the benefit of those resources—anytime and from any location. No other vendor can offer this "all-in-one" capability with the level of quality and cost efficiency that Juniper infrastructure enables.

In addition to the infrastructure elements described in previous use cases, Juniper offers the following:

- **Juniper Networks PTX Series Packet Transport Routers:** High-performance Converged Supercore® platforms for service provider networks. These routers are integrated, end-to-end transit router solutions optimized to economically accommodate the core networking requirements of today's connected economy, allowing service providers to create network architectures that are dense, cost optimized, highly available, and simplified.
- **CloudBlock services platform:** A Juniper framework for the design and implementation of cloud services based on Juniper infrastructure, including Contrail, switching, and routing equipment, and networking components.

Features and Benefits

- Enables hosting and colocation service providers to connect the enterprise's data center with the private cloud, so that they can offer seamless, scalable, on-demand access to compute, storage, and network resources
- Allows service providers to create network architectures that are dense, cost optimized, highly available, and simplified
- No matter where the resources actually reside, gives customers full access to the benefit of those resources—anytime and from any location.

Summary—Juniper Solutions for Turnkey, Managed Cloud Services

Hosting and colocation service providers are facing unprecedented challenges in this era of explosive traffic growth and escalating technical complexity. These three use cases—managed virtual hosting, public cloud hosting, and private/hybrid cloud—show how Juniper solutions for turnkey, managed cloud services empower service providers to deliver massively scalable, highly differentiated cloud services to their customers.

Juniper is uniquely capable of helping hosting and colocation service providers exploit the opportunities of the cloud. Juniper offers the leading-edge technologies and deep expertise that service providers need to create and deliver highly differentiated cloud-based managed service offerings—quickly and profitably. Juniper's "simple, open, smart" approach can help service providers accelerate their move to the cloud model, and also give their end users the ability to scale compute, storage, and network services on demand.

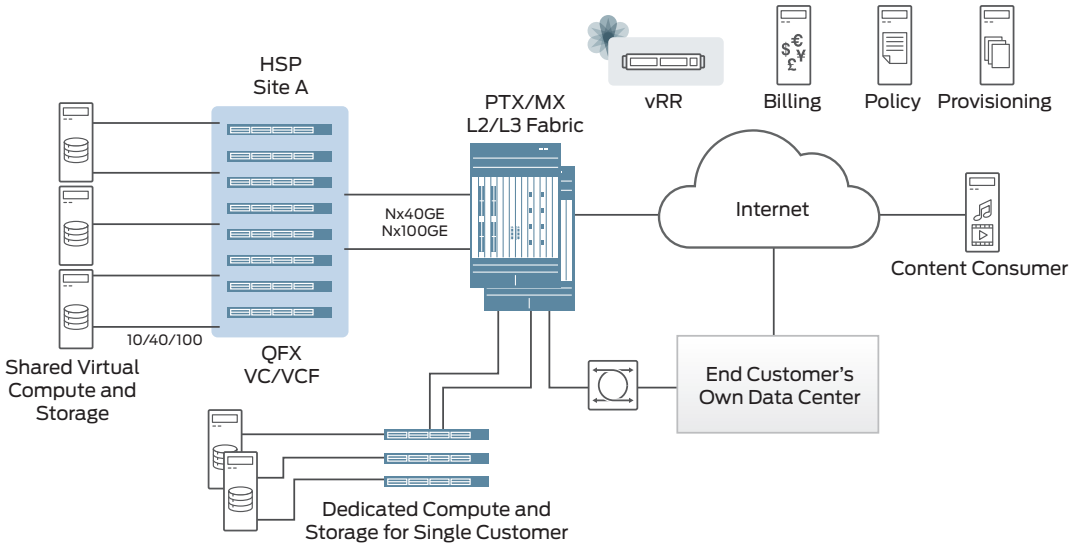

Figure 3: Reference architecture for Juniper-based managed private/hybrid cloud services solution

Next Steps

Juniper's commitment to delivering solutions and technologies that are "simple, open, and smart" can pay big dividends to forward-looking service providers, and we encourage you to closely evaluate Juniper's approach and offerings.

For additional details about Juniper solutions and capabilities for providers of cloud-based resources, please schedule an appointment with your local Juniper account representative or visit www.juniper.net.

About Juniper Networks

Juniper Networks brings simplicity to networking with products, solutions and services that connect the world. Through engineering innovation, we remove the constraints and complexities of networking in the cloud era to solve the toughest challenges our customers and partners face daily. At Juniper Networks, we believe that the network is a resource for sharing knowledge and human advancement that changes the world. We are committed to imagining groundbreaking ways to deliver automated, scalable and secure networks to move at the speed of business.

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