MetaFabric Architecture Empowers Business Evolution

Foundation for an Optimized Mix of Public, Private, and Hybrid Clouds

Challenge

Legacy networking and security solutions are hampered by closed, proprietary architectures that restrict data center optimization for heterogeneous cloud environments. Unable to deliver the availability and scalability needed to compete against more agile peers, these solutions create vendor lock-in and strain IT budgets.

Solution

The MetaFabric architecture delivers an agile and efficient network design for data centers, including private and hybrid clouds. This simple, open, and smart solution avoids vendor lock-in, clearing the way for innovations that create business value.

Benefits

- **Simple**: The MetaFabric architecture reduces operating expenses by making the network easier to deploy, manage, and scale.
- **Open**: The MetaFabric architecture gives organizations the freedom to choose the optimal blend of technologies for its specific business imperatives.
- **Smart**: Network visualization, correlation, analytics, and automation provide business insight that drives more informed decisions.

In today's fast-moving business environment, successful companies are the ones that use ubiquitous connectivity to enable collaboration among employees, customers, partners, and vendors—at light speed. They untether their employees by providing secure remote access to business-critical applications and information that is always on, from anywhere, using any device. These forward-looking companies skillfully manage a mix of data center, private cloud, and public cloud resources, staying one step ahead of competitors while preparing for even more challenging marketplaces in the future.

Falling behind isn't an option. Your business needs an agile, scalable, and reliable architecture that allows you to maintain your competitive edge. Unfortunately, chances are your legacy network simply wasn't designed for the challenges of the modern data center. To compete effectively in such a rapidly evolving market, your network needs to work as a key strategic enabler, powering your physical and virtual data center and cloud assets and keeping your business fast and lean. Choosing the right network architecture is one of the most important business decisions your company will ever make—and the time to make that decision is now.

The Challenge

To fully realize the potential of your network investments, you need the freedom to choose—an option that may be lacking in your legacy network. Many vendors have a lock-in mentality that translates into a steady stream of forced capital investments, disruptive upgrades, and fragmented security, not to mention a lack of control over your own destiny. Throwing hardware at problems is no solution; the modern network must be agile enough to adapt to changing circumstances without requiring forklift upgrades or additions.

A key imperative for the modern enterprise is delivering high levels of availability and performance for business-critical applications—an increasingly difficult challenge when those applications are hosted on traditional IT infrastructures. Cost is also an issue; although data center budgets have seen significant annual increases in recent years, IT groups still struggle to keep pace with demands for additional capacity and increasing levels of service. Containing CapEx and OpEx is always top of mind for IT executives and their bosses.

The network is also ground zero for threat attacks, so it is imperative to ensure that your network security is really doing its job. Legacy security schemes rely on a diverse mix of firewalls and other devices, all operating with little knowledge of each other or the types of attacks occurring elsewhere in the network. Consequently, sophisticated attackers have little trouble accessing your critical customer information and intellectual property. Defending against today's ultra-virulent, persistent threats requires a network with centralized intelligence that allows security tools to communicate with each other and collaborate to identify and stop threats before they cause significant damage.

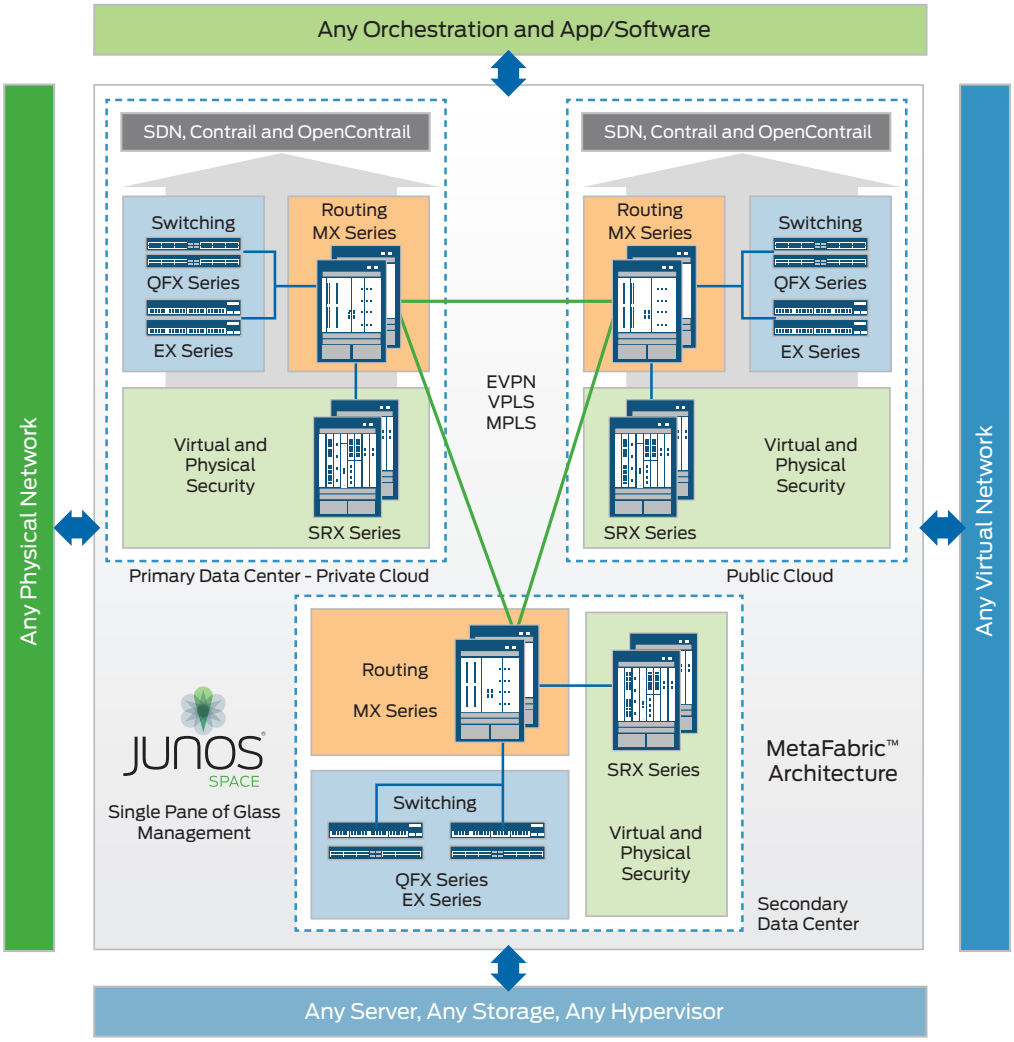


Figure 1. MetaFabric architecture in a typical data center deployment

In the past, provisioning data center capacity was hit or miss; you made your best effort and lived with the consequences, either paying dearly for unused capacity or scrambling to add resources on the fly. That approach doesn't work anymore; the marketplace moves too fast and today's tight budgets can't accommodate costly unplanned upgrades. You need a network that is always right-sized, ready to scale rapidly to accommodate business growth—without adding complexity.

The Juniper Networks MetaFabric Architecture Solution

Juniper Networks® MetaFabric™ architecture provides the foundation you need to build and manage an optimized mix of public, private, and hybrid clouds that utilize your existing data center resources in support of your organization's strategic objectives. This simple, open, and smart solution liberates you from vendor lock-in, clearing the way to adopt architectures and innovations that streamline operations, generate revenues, and enhance brand value.

Features and Benefits

The MetaFabric architecture delivers an agile and highly efficient network foundation for complex physical and virtual data centers as well as private and hybrid clouds. The key attributes of a MetaFabric architecture-based network are:

- **Simple**: The MetaFabric architecture incorporates a simplified, integrated approach to the physical infrastructure, the virtual infrastructure, and network and security operations, reducing OpEx and making the data center network easy to deploy, manage, and scale.
- **Open**: The open standard philosophy that underpins the MetaFabric architecture applies to all network devices and interfaces, as well as interactions with the open ecosystem and open communities. The MetaFabric architecture integrates with new and legacy applications in any heterogeneous data center environment, ending vendor lock-in and freeing you to choose the right protocol, orchestration platform, security technology, and SDN controller.

- **Smart**: The MetaFabric architecture uses end-to-end network visualization, correlation, analytics, and automation to provide business insight that drives more informed decisions—an essential capability for adapting to a changing business climate.

Solution Components

The MetaFabric architecture portfolio delivers tangible business value through a three-pronged strategy: simplify, automate, and secure.

- **Simplify**. Juniper Networks EX Series Ethernet Switches, QFX Series switches, and MX Series 3D Universal Edge Routers work in concert with other Juniper networking components to accelerate the deployment and delivery of applications within and across multiple sites and clouds, scaling easily from dozens to thousands of ports.
- **Automate**. Juniper Networks Junos® Space Network Director provides a smart, comprehensive, and automated network management solution that enables network administrators to visualize, analyze, and control their entire enterprise network—physical and virtual—through a single pane of glass. Juniper Networks Cloud Analytics Engine, a feature of Juniper Networks Junos operating system, uses network data analysis to improve the performance and availability of mission-critical applications. The MetaFabric architecture also supports SDN solutions such as VMware NSX and Juniper Networks Contrail Networking, creating overlay networks that seamlessly virtualize the infrastructure to accommodate virtualized, multitenant data centers and clouds.
- **Secure**. The intelligence behind the MetaFabric architecture's robust security is Juniper Networks Junos Space Security Director, which gives security professionals the power to centrally configure and manage application security, firewalls, intrusion prevention systems (IPS), VPNs, and security policies using a single, intuitive interface. In addition, Juniper Networks SRX Series Services Gateways secure the data center's physical infrastructure, while Juniper Networks vSRX software delivers the benefits of a high-performance firewall in a virtual form factor.

Use Case: Business-Critical Data Center

Enterprises need to grow their businesses and keep up with changing market requirements while ensuring the reliability and performance of today's business-critical applications.

The MetaFabric architecture, comprised of intelligent and scalable routers, switches, security solutions, SDN solutions, and management tools, gives enterprises the flexibility to adapt as needed to dynamic business and technical developments while keeping business-critical applications highly available to users.

Features

- Automation and orchestration simplify operations, saving time and reducing OpEx. Virtual network instances can be spun up in minutes rather than waiting for weeks or months.
- Seamless scaling is made possible by the MetaFabric architecture's support for a mixed environment of bare metal and virtualized applications with high performance and availability.
- Business continuity and disaster recovery are enhanced by the MetaFabric architecture's ability to interconnect applications and workloads across multiple physical data center locations and sites.
- Robust security is integral to the MetaFabric architecture product portfolio, in particular the SRX Series Services Gateways and Junos Space Security Director.
- Integrated management tools offer visibility into both physical and virtual environments, enabling greater reliability, agility, and CapEx and OpEx savings.

Benefits

- Keeps applications available for smooth and consistent business operations to maintain employee productivity
- Provides robust and secure access control and threat protection
- Delivers granular audit capabilities for compliance purposes
- Enables business growth within a defined CapEx/OpEx window

Use Case: Secure Private and Hybrid Clouds

Organizations building a private cloud to increase business agility and efficiency need a secure and adaptable network that can support the transition from current traditional data centers to a private and hybrid cloud model. In addition to underpinning the private cloud infrastructure, which is hosted on-premise, the network infrastructure must be able to provide seamless connectivity between private cloud and public cloud resources—to create a unified and coherent hybrid cloud experience.

Based on innovative routing, switching, security, and software technologies, together with orchestration and management solutions, the MetaFabric architecture enables a simple, open, and smart data center network that accelerates the deployment and delivery of applications within and across multiple sites and private and hybrid clouds.

Features

- Full automation allows the business to operate quickly and efficiently, reducing the risk of human error associated with manual operations.
- Self-provisioning streamlines resource allocation, reducing time to deployment from weeks or even months to just minutes.
- Consumption tracking enables a precise measurement of resource usage by business unit, which the IT organization can use to implement accurate chargeback systems to aid in cost control programs.
- Scalability allows infrastructure managers to right-size resources, scaling up when more capacity is needed and releasing resources when demand is lower.
- Data center interconnect capabilities seamlessly connect multiple private and public clouds.

Benefits

- Delivers competitive advantage by supporting responses to rapid changes in the business climate
- Achieves cost savings with a network that can scale to accommodate rapid growth in the business
- Improves agility by maintaining a simple and open networking environment
- Ensures security and continuity for both data and applications

Summary—Avoid Vendor Lock-In, Empower Business Evolution with a Simple, Open, and Smart Network

In today's technology-driven world, the ability to evolve your business quickly depends on your network. MetaFabric architecture, the foundation of Juniper's unique end-to-end data center networking solution, helps your business respond confidently to whatever happens in the marketplace. With an open, simple, and smart network in place, your organization can adapt quickly and seamlessly to changing requirements while eliminating the disruptions of forced upgrades and unnecessary purchases that come with vendor lock-in. Most importantly, the MetaFabric architecture helps your company stay at the forefront of innovation, keeping you one step ahead of the competition.

Next Steps

When you're ready to step into your organization's simple, open, and smart future, contact your Juniper representative or visit our website at www.juniper.net/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.

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