There are a few questions you should ask of your data center infrastructure:

- Does it deliver the right performance?
- Is it secure and reliable to ensure the uptime you need?
- Is it easy to scale as your needs grow?
- Is it easy to manage when you need to make changes?

While many organizations have similar IT problems, they must confront those challenges with fewer resources. However, that doesn’t mean they can’t make smart investments to modernize their data centers with simple, open and smart architectures.

It can be tough being an IT manager, responsible for building data center infrastructure. Organizations are rapidly changing, fast growing, and voracious consumers of IT services. Most likely, IT leaders all want the same things: Resilient infrastructure. High scalability. World-class performance. Rock-solid security. Pervasive mobility. Highly available applications. This job is made even more difficult by the realities of minimal IT staff, tight budgets, and aging, legacy data center architectures. Data centers, in particular, are frequently a bottleneck because they often don’t meet the needs of fast growing companies. Many vendor options require companies to start with a limited view that only deals with one aspect of the network (such as switching), or with expensive rip-and-replace strategies. This can lock out companies that need to roll out technology incrementally as requirements and projects evolve.

Fortunately, there’s a new option for IT leaders that allows them to modernize their data centers with a simple, open, and smart design—an architecture that offers enterprise-class performance and features, but with a friendly financial, physical, and resource profile. The Juniper Networks’ MetaFabric™ architecture provides IT organizations with a blueprint for modern data center design that incorporates all elements of the network—switching, routing, security, management, and virtualization. This architecture delivers the performance, security, scale, and manageability that lets organizations make huge leaps in data center efficiency.
Here are five benefits that the MetaFabric architecture delivers to the modern data center:

1. **Improved data center manageability.** Organizations need end-to-end visibility into their data center infrastructure operations, supported by a highly automated architecture that optimizes network performance and makes the most of existing assets and resources. This should be coupled with the ability to easily integrate physical and virtual infrastructure for improved visibility, management, and troubleshooting. The ability to rapidly scale applications without changes to the network translates into much faster time to value.

2. **Doing more with less.** Automation is a must-have for organizations. Not only does it save time, it also improves network reliability by reducing downtime caused by manual configuration errors. A highly automated approach makes data center expansion much easier to handle without requiring a team of certified specialists to manually provision each individual device. The more that these tasks can be automated, the more time your team will have to focus on more strategic, high-value projects.

3. **Limit the drain on IT budgets.** A comprehensive, intelligent data center infrastructure reduces costs and simplifies application deployment by supporting open, vendor-neutral solutions. Selecting the infrastructure that is built to be open and flexible ensures that you get the features and capabilities you need to support new applications—all without having to go through costly refresh cycles.

4. **Deliver state-of-the-art performance.** Data centers—both today and in the future—need to rapidly, reliably scale performance, either on a sustained basis or when unexpected spikes in network usage place a burden on bandwidth and availability. The technology should be able to scale and maintain performance with the same reliability—there should be no compromise in performance.
Avoiding vendor lock-in. This is a huge plus for organizations that can neither afford nor withstand the operational impact of a “rip-and-replace” approach to vendor-specific data center architectures. Openness should extend across devices and interfaces, and support the interaction of an open ecosystem, including open communities. Resource-constrained IT organizations no longer have to limit themselves to single-vendor technologies. This significantly speeds time to value, which helps financial and operational executives justify upgrading and modernizing their data centers to keep pace with changes and growing demands on performance.

How Juniper Networks MetaFabric Architecture Delivers the Benefits of a Modern Data Center

Juniper’s MetaFabric architecture lets you start at any point in the network—switching, routing, security, management, or network virtualization—and evolve and scale as business needs grow.

At the core of any data center network is the switching architecture. It’s what connects your servers and storage elements, and ultimately your applications. In any data center, a high-performance, secure, reliable, scalable, and manageable switching architecture is critically important for the business.

Juniper offers two unique switching architectures to help you get started and achieve these benefits quickly and simply, at any scale:

- **Virtual Chassis** technology offers organizations the flexibility to combine both 1- and 10-gigabit Ethernet (GbE) switches into a single entity with one IP address. While this benefits organizations of all sizes, it’s particularly relevant to less resourced enterprises keen on protecting their infrastructure investments as their needs grow. Virtual Chassis technology allows organizations to interconnect up to 10 switches and manage them all as a single, logical device, relieving smaller IT organizations of numerous management headaches.

- **Virtual Chassis Fabric** technology offers organizations even more scalability in network design. It supports up to 20 switches that can be 1, 10, or 40GbE devices. Virtual Chassis Fabric technology allows IT organizations to manage those disparate switches as a single logical device using a “mesh” fabric architecture to support any-to-any connectivity that improves performance and simplifies management.

With Virtual Chassis or Virtual Chassis Fabric technology as the foundation of the network architecture, it’s easy to incorporate routing, security, management software, and network virtualization to modernize the data center for today’s business-critical applications.

Conclusion

Juniper Networks MetaFabric architecture brings together switching, routing, security, management, and network virtualization in a simple, open, and smart design. This blueprint for the modern data center design offers a wide variety of benefits and advantages, from improved network performance and simplified end-to-end management to impressive scalability and high availability that is designed for new business-critical applications.

The MetaFabric architecture can be a great solution because it protects infrastructure investments over the long term; it relieves overburdened IT staffs from complex and time-consuming network management chores; and it reduces both capital and operating expenses.

All organizations have a need to build resilient, highly available, secure, and affordable data center networks that help them deploy new business-critical applications. MetaFabric architecture helps businesses deal with the demands that new applications bring, delivering a comprehensive data center foundation that supports sustainable and affordable growth, both today and in the future.

For more information on the MetaFabric architecture, go to www.juniper.net/metafabric