

EX SERIES ETHERNET SWITCHES: STOP WAITING AND START SWITCHING

Top Five Reasons to Use the EX Series and Trigger Events to Migrate to the EX Series

Challenge

The network has become a key enabler for enterprises to achieve their business goals. They need a network that can scale without complexity and deliver the application performance needed to maximize the end user experience. They are also looking to do this with a lower total cost of ownership.

Solution

Juniper Networks EX Series Ethernet Switches, part of an overall Juniper portfolio, which includes routing and security, delivers the scalability and performance needed to deliver an open standards based high performance network infrastructure, with lower TCO and ease of management for ongoing operations.

Benefits

Switching to an EX Series switch for branch, campus or data center deployment provides an infrastructure which is higher performing, can scale without complexity, and provides the following benefits:

- Less expensive to deploy
- Easier to manage
- Open and flexible

Juniper Networks® EX Series Ethernet Switches transform network economics and enrich the end user experience with a switching portfolio that enables networks to be:

1. Simpler
2. Faster
3. Less expensive to deploy
4. Easier to manage
5. Open and flexible

The network has increasingly become more instrumental in enabling enterprise organizations to achieve key business goals such as increased customer satisfaction, increased market share, higher operating margins, and higher profitability. In this paper, you learn how switching to the EX Series can be a key enabler for enterprise organizations to achieve these key business goals and the trigger events that provide a specific opportunity to make the switch to Juniper.

The Challenge

IT continues to become more tightly integrated with the business across all industries and markets. Technology is the means by which organizations can provide better access to information in near or real time and to satisfy customer needs while simultaneously driving new efficiencies. However, there are scalability and security challenges facing Enterprise network infrastructures today. These challenges are due to such factors as: increased collaboration with business partners, increased workforce mobility; and the sheer proliferation of users with smart mobile devices requiring access to information and services. Now combine these growth factors with the trend towards DC consolidations. This requires a network infrastructure that is more elastic, more efficient and can easily scale.

Enterprises seeking to gain a competitive edge are looking at the network infrastructure line item in their budget and see a need for improvement. They are also looking for a multiple vendor strategy that encourages true competition and delivers solutions that more closely match the network to their business requirements. Juniper Networks is focused on enabling enterprises to build a campus or data center network infrastructure that has the performance, openness, and flexibility to meet both current and future business needs.

The Juniper Networks EX Series Solution

During the 1990s, Ethernet switches became the basic building block of enterprise campus network design. Networks were typically built in a 3-tier hierarchical tree structure to compensate for switch performance limitations. Each tier performed a different function to distribute the workload. This design was also extended to the Data Center. Ethernet switch capacity has grown dramatically since then. Juniper Networks EX Series Ethernet Switches deliver line-rate performance, even with complex services enabled. This allows new design approaches, thus reducing cost and complexity in branch, campus and data center LANs. Much has been written about this by industry analysts and the trade press. With a simpler yet high-performance networking environment, which can grow without added complexity, companies can achieve their business goals and initiatives with a positive return on their investment.

Features and Benefits

Juniper Networks EX Series Ethernet Switches transform network economics and enrich the end user experience with a switching portfolio that enables networks that are:

- 1. Simpler:** The EX Series switches improve performance while reducing the complexity of your network. In the data center, Virtual Chassis technology enables you to get from server A to server B without the unnecessary processing inherent in network architectures designed for client/server applications. In a campus network, a single Virtual Chassis configuration delivers up to 480 ports in a single logical device, even if the switches are deployed across multiple wiring closets. Virtual Chassis technology can combine up to 10 switches into a single logical switch, reducing the number of managed devices by as much as a factor of 10.
- 2. Faster:** Virtual Chassis technology in the EX Series switches improves application performance, reduces latency in the data center, and increases reliability. The reduction in latency can range from a factor of 2X up to 10X depending on specific traffic flows. Virtual Chassis technology enables interconnection of access switches for up to 10 racks of servers, resulting in better

performance for live virtual server migration and enhanced disaster recovery. Juniper's 10GbE switches are also built to be 40GbE and 100GbE ready to accommodate future higher bandwidth application requirements.

- 3. Less expensive to deploy:** With a simplified architecture, you can do more with less and not be forced to overprovision the network. The high-performance/low-latency architecture of the EX Series switches results in a network infrastructure that requires fewer components. Combining this with Virtual Chassis technology, which reduces the number of interswitch connections, capital expenses are reduced by up to 35%. And with fewer boxes, the average data center saves up to 44% on power. Additional savings can be realized with Juniper Networks Junos® operating system, which is a purpose-built, "pure IP" modular OS that scales across Juniper's switching, routing, and security platforms. Recent studies by Lake Partners and Forrester Research concluded that Junos OS lowered management costs by up to 41%. The new network delivers a radical reduction in expenditures.
- 4. Easier to manage:** Junos OS lets you configure and manage your EX Series switches as well as Juniper routing and security solutions with a consistent interface and implementation of features across all platforms. With fewer components, fewer logical switches to manage, and only one OS to learn, the EX Series switches also lower training and operational expenses. J-Care Technical Services offer award-winning service and support, including automated technical services for incident management and proactive analysis. Also available is the J-Net Community, which is active, knowledgeable, and full of great ideas to further simplify network operations.
- 5. Open and flexible:** As with all Juniper platforms, the EX Series switches are built upon open standards, providing choice and maximum flexibility in building the network. There are also configuration conversion tools available to ease migration. Partners such as Dell, IBM, and others deliver Junos OS-ready software and appliances, providing even more choice and flexibility.

Solution Components

The Juniper Networks EX Series Ethernet Switches and their deployment in the network is summarized in Table 1:

Table 1. Juniper Networks EX Series Ethernet Switch Portfolio

	EX2200	EX3200	EX4200	EX8200
Typical Network Deployment	Distributed enterprise branch, wiring closet, and SMB data center access	Distributed enterprise branch and wiring closet	Distributed Enterprise and data center access, small core and aggregation	Large data center and building/campus core, modular access

For detailed product specifications, please refer to the EX Series Data Sheets:

www.juniper.net/us/en/products-services/switching/ex-series/

Juniper Networks EX Series Ethernet Switches as a Business Enabler

The reasons for switching to the EX Series are even more apparent when you consider how the network has become instrumental in enabling enterprise organizations to achieve key business goals such as increased customer satisfaction, increased market share, higher operating margins, and higher profitability. Key IT business initiatives, which impact these business goals, are summarized in Table 2.

Table 2. Key IT Business Initiatives

DATA CENTER	EMPLOYEE PRODUCTIVITY	WORKFORCE MOBILITY
Consolidation	Unified Communications	Identity-Based Policies
Virtualization	Collaboration	Virtual Desktop Applications

In the data center, these IT business initiatives can be realized with Juniper Networks EX Series Ethernet Switches as a key enabler, leveraging the high-performance/low-latency characteristics of the Juniper platforms and the simpler operations and lower total cost of ownership (TCO) enabled by Junos OS. Employee productivity is enhanced by the EX Series switches' ability to provision a simpler, intelligent, high-performance network topology with robust quality of service (QoS) to differentiate and prioritize the various traffic types found in today's enterprise, as well as making sure traffic flows are secure.

Finally, increased access to today's corporate networks is primarily attributed to an increasingly mobile workforce and collaboration with various business partners. Today's networks must be able to scale to accommodate the increased surge in network access and also be more open without compromising security. The ability to provision identity-based and location-based policies easily is critical. Juniper Networks Unified Access Control capability, part of a holistic coordinated threat control solution integrated across Juniper's entire product portfolio, is a key enabler.

Companies can achieve their business goals and initiatives—with a positive return on investment—by enabling a high-performance, simpler network that can easily grow without added complexity. Building this new network is what Juniper is about. The combination of Juniper's switching, security, and routing solutions enables Juniper to deliver a complete end-to-end infrastructure for enterprise customers. Customers now have an alternative vendor that can deliver a high-performance/simpler/scalable network to them. It's time for organizations to reevaluate their legacy multitier architecture and simplify. Why wait?

EX Series Switch Trigger Events

In addition to the top five reasons to switch to the EX Series, there are several trigger events that provide a specific opportunity to make such a change:

1. **Network refresh:** The current switching infrastructure is approaching or has passed its end of life.
2. **New applications and services:** The legacy switch infrastructure cannot meet emerging scalability and performance requirements without adding complexity and cost.
3. **Dual vendors:** An enterprise is looking to add a second network vendor to achieve competitive leverage and avoid vendor lock-in.
4. **Security:** An enterprise is interested in enforcing dynamic access controls to ensure internal and external compliance.

Let's look at each of these trigger events individually.

Network Refresh: Legacy platforms do not typically support new features at high levels of performance, which can impact the successful deployment of new applications. In addition, the maintenance expense on these legacy platforms can be high. The cost-effective Juniper Networks EX Series Ethernet Switches, on the other hand, deliver the performance, high-port densities, and scalability normally associated with much higher-cost solutions.

For instance, Juniper Networks EX2200 Ethernet Switch—which features Layer 2 and basic Layer 3 switching capabilities, and satisfies the branch and low-density wiring closet connectivity requirements of today's high-performance businesses—delivers gigabit switching at 10/100BASE-T prices.

For those branch, remote office, and campus deployments requiring complete Layer 3 capabilities, 10GbE uplinks, as well as a field replaceable power supply and fan, the Juniper Networks EX3200 Ethernet Switch would be an alternative to the EX2200 line.

Juniper Networks EX4200 Ethernet Switch with Virtual Chassis technology combines the high availability (HA) and carrier-class reliability of modular systems with the economics and flexibility of stackable platforms—delivering a high-performance, scalable solution for data center, campus, and branch office environments.

Juniper Networks EX8200 line of Ethernet switches, available in 8-slot and 16-slot models, is ideal for aggregating access switches such as the EX2200 line, EX3200 line, and EX4200 line deployed in campus wiring closets and in data center top-of-rack or end-of-row applications. The EX8200 line is also designed to support GbE server access in data center end-of-row chassis deployments. In core applications, the EX8200 line delivers up to 1.9 billion packets per second (Bpps) of high-density, wire-speed 10GbE performance for the largest campus and data center networks. The EX8200 line delivers these capabilities in a platform requiring one-third less rack space and one-third less power than competitive offerings.

The EX Series switches enable an enterprise to migrate from its legacy three-tier architectures to a simpler, more scalable, high-performance network with the flexibility to grow and change as business requirements dictate.

And using a common operating system—Junos OS—and a single management platform across all switching, security, and routing platforms also results in greater operational efficiencies and lower TCO for the Juniper infrastructure. In addition, tools embedded into Junos OS, such as Junos automation, dramatically simplify migration and ongoing maintenance by enabling an organization to embed its wealth of knowledge and operational experience directly—enforcing best practices and change management to avert human factors. Through automation, Junos OS empowers network operators to scale by simplifying complex tasks, maximizing uptime, and optimizing operational efficiency. Juniper is also innovating network management with an open, extensible network orchestration platform, Juniper Networks Junos Space, which can further reduce cost and complexity while opening your network to new business opportunities.

New Applications and Services: The traditional drivers for deploying technologies such as telepresence, VoIP, and wireless access typically center on increasing productivity, reducing operating expenses, and leveraging the economies of scale provided by a converged voice/data network. Increased collaboration applications also result in greater bandwidth consumption and a larger number of devices accessing the network. Implicit in these deployments is the requirement for high performance, availability, security, and robust QoS. The EX Series switches deliver on all of these fronts and allow organizations to select best-in-class and open standards deployments. With a single operating system across platforms, configuration tools are consistent for all Junos OS-powered devices, ensuring easier implementation and troubleshooting—a major advantage over switch vendors running different versions of their operating systems on various devices. This not only saves time—it also minimizes the probability of operator error, which is the number one cause of network downtime.

Dual Vendors: Companies deploying a dual-vendor strategy can lower their TCO not only by leveraging each vendor's products but also with a network design that maps more closely to their actual business requirements. In nearly every aspect of IT, a dual-vendor

discipline is a standard business practice. Servers, operating systems, storage, and more are often sourced from at least two suppliers. This best practice is often designed to mitigate risk and ensure competitiveness. By deploying another vendor, the network design could face more scrutiny and result in a more efficient design that is better suited to an organization's unique business requirements.

Security: Changing business dynamics are resulting in changing network perimeters. It is no longer possible to provision security at the network edge. Instead, a more comprehensive solution is required. Juniper Networks UAC solution is one of the components of Juniper's coordinated threat control security solution integrating EX Series switches, remote access, firewalls, IDS, and routers for an enterprise-wide deployment. UAC can also be used to enforce regulatory compliance as well as provide auditing and logging functionality. Enterprises that are planning a switch, upgrade, or refresh find that the combination of UAC and EX Series provides a richer set of guest access controls while lowering the total cost of ownership for network access control.

Summary: Juniper Delivers High Performance Open Standards Networks with Lower TCO

Juniper's value proposition of delivering high-performance, open standards-based networks with lower TCO is exactly what enterprises are looking for today. Juniper Networks is truly transforming network economics and the end user experience with a broad product portfolio, including the innovative EX Series.

Stop waiting. Start switching to Juniper.

Next Steps

For more information on how to make the switch to the EX Series devices, contact your authorized Juniper Reseller or Representative at 1-877-417-3455 or AmerSales@juniper.net

About Juniper Networks

Juniper Networks, Inc. is the leader in high-performance networking. Juniper offers a high-performance network infrastructure that creates a responsive and trusted environment for accelerating the deployment of services and applications over a single network. This fuels high-performance businesses. Additional information can be found at www.juniper.net.

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