WAN Solution Meets Key Challenges of the Financial Services Industry

Comprehensive enterprise WAN solution for financial services enables OpEx reduction, cloud adoption, and service expansion

Challenge

- Exponential increase in bandwidth consumption presents cost, security, scalability, and management challenges.
- Transport networks with different requirements increase complexity and create management challenges.
- Cloud services adoption places increased focus on WAN scale and performance.

Solution

A complete enterprise WAN solution for FSI that addresses the many different emerging use cases for the WAN, and uses a single network OS that provides rich network services and a documented, recommended, tested design and configuration.

Benefits

- Reduce costs by using OTT overlay transport, while improving agility and scalability
- Reduce complexity by using different tiers of a single WAN device to enable simpler configuration and operation
- Introduce services more easily with support for L4-L7 inline services, as well as service chaining virtual network functions at the branch

A fast, reliable wide area network (WAN) that connects all of a financial services firm's locations is not a luxury—speedy and responsive access to applications and information is critical to business success. The quality of the WAN directly impacts the users' application experience—and ultimately the customer experience. And with the rise of cloud apps and mobile devices, the WAN has never been more important. But as the WAN has become more critical to financial services organizations, the operational and financial challenges also have grown. This burden needs to be addressed in a way that not only enhances performance and reliability, but also security, privacy, and compliance.

As the WAN becomes more robust to support current and next-generation applications, it also becomes more complex and expensive. Those in the financial services industry (FSI) face multiple challenges with their WANs, including cost, ease of deployment, flexibility, and scalability. How do financial services organizations easily deploy a WAN while ensuring that the components are future-proof and can scale to meet future demands? How do they enable cloud services such as access to hosted applications? The WAN architecture for FSI organizations must effectively address these growing challenges.

The Challenge

Financial services companies increasingly rely on cloud service providers to give employees and customers immediate access to applications and services. But adding the necessary bandwidth and capabilities increases the TCO of the FSI WAN, and this can have an effect on the bottom line. In addition, the regulatory and compliance requirements placed upon the financial services industry require the WAN to enable a secure environment for all communications both within the organization and to third-party entities such as cloud service providers.

The FSI WAN should be easy to manage, but in reality, network management has become increasingly problematic as complexity has grown. A WAN should be services-ready, so that services can be added as needed without requiring changes to the network. It also must support technologies that enable growth and the addition of value-added services to the network.

Ease of deployment and management. The FSI WAN must be easily deployed and stay flexible and scalable as business needs grow—and this ease should extend to the manageability of the network once implemented. The FSI WAN is comprised of geographically dispersed sites of various sizes and purposes. This dispersion and differentiation can be effectively addressed by introducing a common network that excels at carrying both unicast and multicast traffic of varying importance, with the ability to identify and prioritize traffic between sites, partners, and third-party organizations, all while enabling time-stamping and analytics to address the ever-changing regulatory landscape. The technology behind the WAN should have a common foundation. It's easier to migrate from an existing network platform to a more robust platform if they both share the same operating system. In addition, having a single operating system makes it easier to introduce new services and configurations to the network, as the same configuration is likely to migrate wherever it is needed.

Easily adopted cloud services. The imperatives to reduce cost and provide a high-quality user experience often collide, and typically, the business needs come second over controlling expenses. Financial services organizations can address this conflict by adopting both public and private cloud services. An effective FSI WAN enables not only intercompany communication, but also robust and high-quality connections to the data center, whether that is a direct connection to an internal FSI data center or to a third-party cloud data center. Ensuring the successful adoption of cloud services is critical to controlling cost while enhancing the user experience with the applications in the data center.

A services-ready network. The network should be flexible, scalable, resilient, and secure—as these characteristics are all requirements of any services-ready network. The architecture should be modular, allowing the addition of new services, such as VPN, Network Address Translation (NAT), and stateful firewall services. In addition, the FSI WAN should support implementation of value-added services, such as WAN acceleration and content caching services, all in a model that supports overlay protocols for the abstraction of these services from the underlying physical connectivity. The drive towards overlay networking and software-defined WAN (SD-WAN) in a financial services network will allow organizations to grow and adopt their WANs to meet evolving demands in a model that allows for operational cost reductions. For more information about service chaining these value-added services, please see the "Simplifying Branch Connectivity with Cloud CPE in Financial Services" solution brief.

The Juniper Networks FSI WAN Solution

Juniper's financial services WAN solution addresses all of these key challenges, including the Internet edge, WAN aggregation, and data center connectivity for both large and small financial services organizations (see Figure 2). This solution can be viewed as an aggregation services point of presence (POP) at the FSI enterprise edge. The solution is built on Juniper Networks® MX Series 3D Universal Edge Routers as the WAN edge and Juniper Networks PTX Series Packet Transport Routers for the core. This enables easier deployment, as MX Series and PTX Series routers run on a single version of Juniper Networks Junos® operating system. Junos OS provides a common set of commands as well as robust, proven automation capabilities for configuration, operations, and event management.

The MX Series enables flexibility and scalability with its capabilities and performance as a carrier-grade platform. The solution also enables carrier-grade resiliency and security, providing carrier-level protocol convergence, redundancy, and security in a single financial services WAN platform. This ensures that FSI firms have high availability, protection from outages, and fast recovery in the event of a network incident.

The PTX Series Packet Transport Routers bring physical and virtual innovations to a financial services organization's core network. The PTX Series router directly addresses concerns about operational expenditures while scaling organically to keep pace with growing traffic demands. In order for PTX Series routers to lower operational expenses, physical innovations at

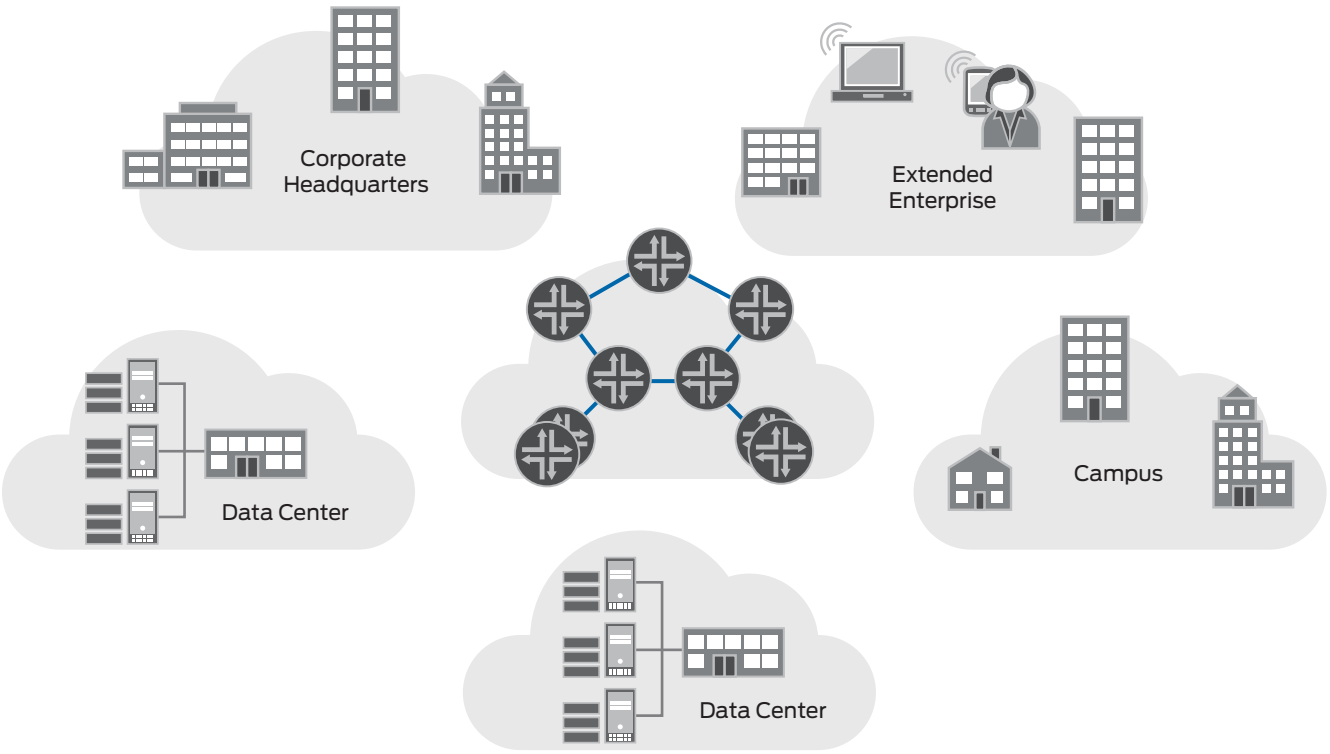

Figure 1: A typical financial services WAN

the core silicon are needed. PTX Series routers are powered by Juniper Networks ExpressPlus™ custom silicon, building upon the Juniper Networks Junos® Express silicon concepts of low consistent latency and wire-rate packet performance for both IP traffic and MPLS transport without sacrificing the optimized system power profile. All of these concepts are incorporated into the design along with full IP functionality, preserving the spirit of the original Junos Express chipset. The ExpressPlus silicon is the first purpose-built telecommunication silicon to engineer a 3D memory architecture into the base design for more than 1.6 billion filter operations per second, dynamic table memory allocation for mammoth IP routing scale, and enormous power efficiency gains.

Finally, the FSI WAN solution is services-ready, offering services like VPN, NAT, and stateful firewall services at both the Branch and the Headend. Through Juniper Networks Junos SDK and virtualized security services such as Junos vSRX virtual firewall, value-added services can be introduced within the FSI WAN, further enhancing the utility and functionality of the WAN router.

Features and Benefits

- Scalability and performance of carrier-grade WAN devices bring down costs.
- Complexity is reduced due to a homogenized approach that uses different tiers of a single WAN device to simplify configuration and operation.
- Introduction of services to the FSI WAN is enabled by support for L4-L7 inline services.
- Regulatory monitoring and measurement capture are supported through Precision Time Protocol (PTP) time-stamping and robust analytics.

Summary—A Simpler, More Cost-Effective Financial Services WAN

The Juniper Networks financial services enterprise WAN solution solves the challenges of deployment ease, flexibility, and cloud data center readiness. It is architected to enable future service adoption by providing rich capabilities on the box. And the solution has been verified by Juniper solution testing, a detailed framework that tests the solution from both a network and application perspective.

Testing and measuring applications at scale verify the integration of the network, compute, storage, and virtualization components. Juniper solution testing provides FSIs with the peace of mind and confidence that the solution behaves as described in a real-world production environment.

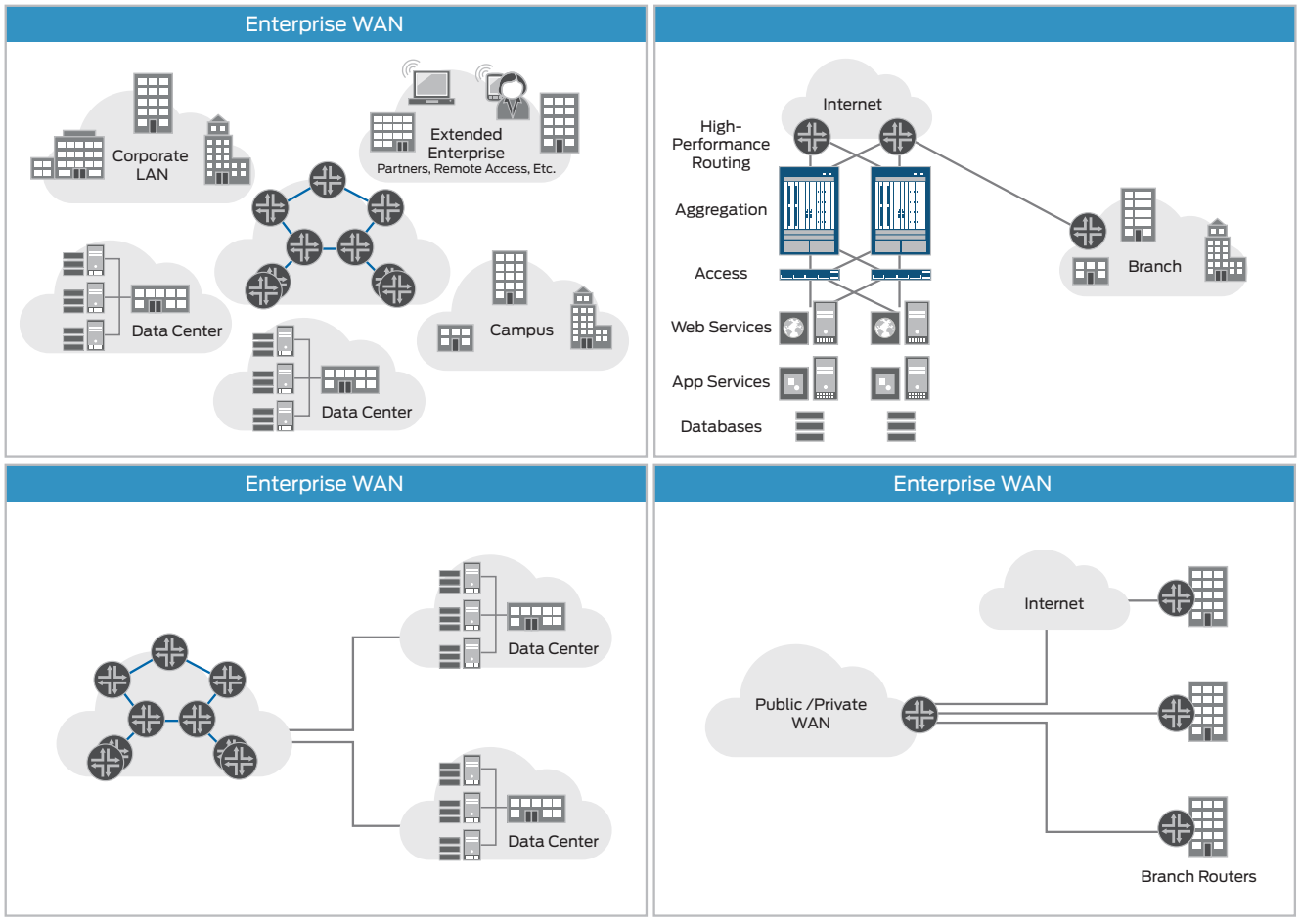

Figure 2: The financial services WAN ecosystem

To ensure that customers receive the benefits of its testing, Juniper has created the Enterprise WAN Design and Implementation Guide, which is a comprehensive document written for architects and engineers. This guide includes a high-level overview of the challenges and then drills into the details and options that make up the financial services enterprise WAN solution. It is the ultimate point of reference for designing and implementing a financial services WAN. This design and implementation guide covers the following areas:

- **Business requirements and segment overview**—Providing a foundation for understanding the challenges that must be addressed when considering a financial services enterprise WAN solution
- **Design recommendations and considerations**—Weighing the alternatives and providing clear guidance on the best way to design the financial services WAN
- **Solution implementation and configuration**—Illustrating how to implement and maintain the solution

Next Steps

For the Enterprise WAN Design and Implementation Guide, go to: www.juniper.net/techpubs/en_US/release-independent/solutions/information-products/pathway-pages/solutions/8010095-en.pdf.

For more information about the Juniper Networks financial services WAN solution and how it can benefit your organization, please go to www.juniper.net or contact your Juniper account representative.

About Juniper Networks

Juniper Networks challenges the status quo with products, solutions and services that transform the economics of networking. Our team co-innovates with customers and partners to deliver automated, scalable and secure networks with agility, performance and value. Additional information can be found at Juniper Networks or connect with Juniper on Twitter and Facebook.

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