Enabling a Pragmatic Journey to the Cloud for the Financial Services Sector

Juniper solutions help FSI organizations get the most from their cloud with intelligence, adaptability, and seamless scalability.

Challenge

Financial services organizations cannot expect to make a smooth journey to the cloud unless they fully understand how the potential challenges of network security, availability, and reliability can affect the desired business objectives of reducing costs, increasing agility, and enhancing revenue.

Solution

Juniper Networks offers cloud solutions that are simple, open, and smart. Designed to help financial services organizations of all sizes build clouds that are uniquely adaptable, intelligent, and scalable, Juniper solutions enable a seamless transition to the cloud.

Benefits

Juniper's cloud infrastructure drives business agility, improves the user experience, and lowers the costs required to support business objectives. Because Juniper cloud solutions leverage an open architecture, FSI organizations can maintain flexibility and freedom of choice.

Although the network may not be the first thing you think of when planning your move to the cloud, the right network foundation is essential. A cloud is only as good as the network it runs on. If users can't access the resources they need because the network is slow to react to changes, or worse, is down, the benefits of the cloud quickly dissipate. Juniper solutions make the financial services organization's transition to the cloud both smooth and successful.

The Challenge

We've entered a time of transformation. The status quo no longer works. We're seeing new business models, new ways to reach customers, and new ways for those customers to buy and consume products and services—all enabled and even driven by the cloud.

We're seeing a technological transformation, where innovation trends—such as mobility, big data, and especially cloud computing—are driving IT to reimagine infrastructure. Make no mistake—the cloud is here to stay. Most financial services firms have a cloud strategy, and may consider the use of private, public, or hybrid cloud environments. As a highly regulated industry with stringent data protection, data segregation, and service availability requirements, many financial services companies are moving to a private cloud. However, for certain applications or businesses, using public cloud infrastructure and services is also appropriate.

Financial services organizations turn to cloud technologies and services to drive down costs and increase business agility. IT may offer cloud services to different lines of business. Others look to profit directly from the evolution to the cloud by providing new customer offerings from the cloud. For most FSI organizations, the move to the cloud is a journey that happens over time. Regardless of how an organization is looking to use the cloud, some fundamental questions need to be answered:

- What types of applications and services can most benefit from being moved to the cloud and why?
- Who is in charge of procuring and managing cloud applications and technologies—IT or the lines of business?
- What type of technology should be used to build your cloud(s)?
- Should you leverage open-source software or rely on commercial solutions?
- How do you keep a handle on costs if you have a hybrid infrastructure that includes public and private clouds, as well as on-premise resources spread across multiple data centers?
- How can you leverage the cloud to increase revenues?

And a question that may not be immediately evident: what network infrastructure should you put in place to support your cloud initiatives?

Without the right network infrastructure in place, the journey to the cloud can be a daunting one. Networks that are proprietary, complex and static may not be able to handle the

increased demands of a cloud-enabled IT or business strategy. There may even be roadblocks on the journey to the cloud. Rigid proprietary networks, for example, can result in technology lock-ins that can force organizations to rip-and-replace the network for every industry transition. At the other end of the spectrum, individual point products that are only loosely integrated can add to the overall complexity of the cloud environment. The answer is an open ecosystem that gives you the flexibility to attain agility, reduce costs, and increase revenues as you leverage your cloud infrastructure.

The Juniper Networks Cloud Solution

Juniper is here to help FSI organizations progress through their cloud journey. Juniper has solutions to help build the cloud that best fits the financial services organization's unique business objectives. With a cloud solution that is uniquely adaptable, intelligent, and scalable, Juniper delivers the agilest infrastructure while maintaining customer choice, flexibility, and freedom.

Features and Benefits

Adaptability, seamless scalability, and intelligence distinguish Juniper solutions from those of other network providers.

Adaptability

Adaptability is what enables a Juniper network to evolve in a nondisruptive fashion as your needs—and technologies—evolve. When new technologies come along (SDN is a recent example), you don't want your network to be forced into a disruptive upgrade cycle. Juniper solutions are built with a forward-looking and open architecture, so the network can adapt as you journey to the cloud. Below are some specific examples of how Juniper solutions provide adaptability:

- **Investment protection**—Juniper delivers a seamless and consistent product upgrade life cycle based on a single OS and a nondisruptive, evolutionary approach.
- **End-to-end cloud networking solution**—Our complementary portfolio of networking, security, and software works together seamlessly to create a single, coherent network from the customer premise to the cloud.
- **Simple and nondisruptive SDN migration**—Juniper Networks® Contrail virtual networking solution provides a simple and open approach to SDN that leverages existing routing protocols; and Juniper routing and switching platforms have an open architecture that facilitates integration with third-party SDN controllers and overlay technologies.

Seamless Scalability

Since the dawn of the Internet, traffic has grown at a rapid pace. It's a trend with no end in sight, and one that is only accelerated by cloud computing. The network you build your cloud on needs to be able to scale in a seamless fashion, so that when the time comes to scale up or out, it doesn't involve a forklift upgrade. Juniper delivers the seamless scale needed for the journey to the cloud with:

- **Scalable switching fabric**—Juniper offers a few different switching fabric technologies to meet many different requirements for scale, performance, and reliability. Those fabric options include Junos Fusion Datacenter, Virtual Chassis Fabric, and IP Fabrics. Most importantly, it is the same building blocks, regardless of the fabric chosen.
- **Scale-out SDN**—Contrail delivers a unique scale-out architecture that enables unparalleled scale for network virtualization.
- **Highly scalable routing**—Juniper routing platforms, such as the Juniper Networks MX2020 3D Universal Edge Router and PTX Series Packet Transport Routers, deliver industry-leading scale.

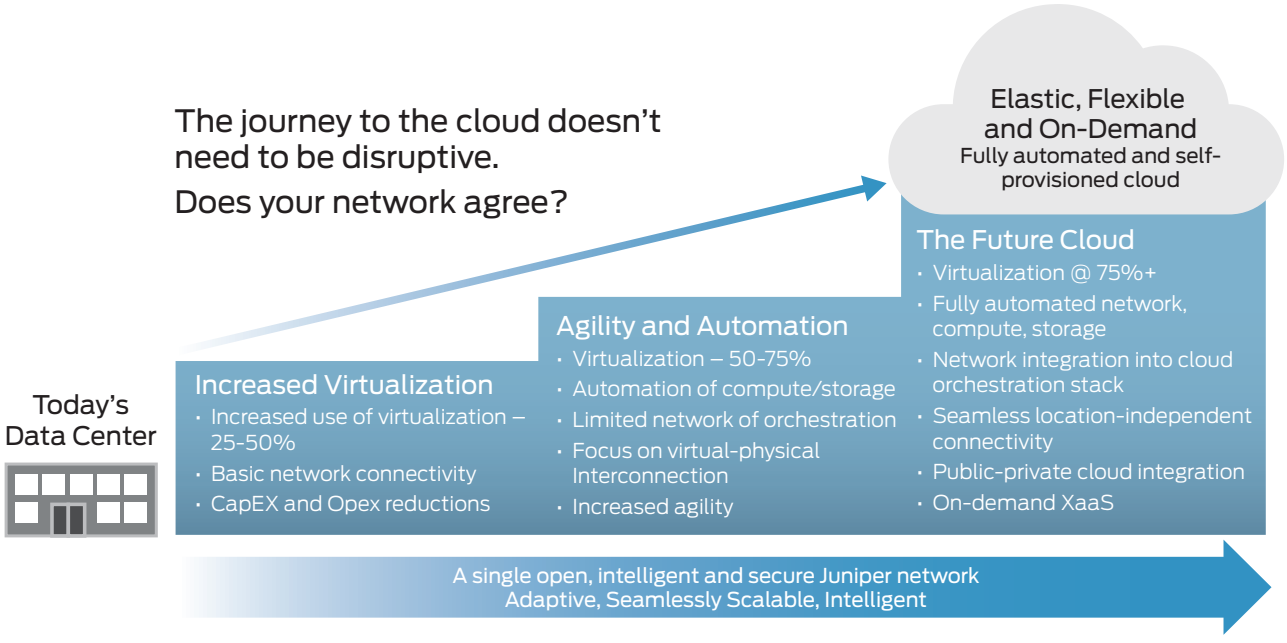

Figure 1: The hybrid cloud journey for the financial services sector

Intelligence

Networks by nature carry a lot of valuable information: information on traffic flows, application behavior, peak usage rates and times, and many other things. An intelligent network can capture these insights so that the network and the cloud overall can operate much more efficiently. While intelligent networks are important everywhere, nowhere are they more important than within a cloud. Knowing when VMs are moving, or scaling up or down, or when new users are accessing the cloud, will all help your cloud deliver better performance to your customers and your employees.

A few examples of the intelligence baked into Juniper solutions are listed below:

- **Network programmability and agility**—Juniper Networks NorthStar Controller brings cloud-like flexibility and elasticity to network flows, enabling dynamic reprovisioning of network elements to connect customers and clouds.
- **Network insights and analytics**—Intelligence built into the Contrail and NorthStar SDN products enable users to glean insights from both physical and virtual networks to optimize performance.
- **Dynamic service chaining**—Contrail can dynamically spin up and chain together Juniper and third-party virtualized network services in an intelligent service chain.

Solution Components

Juniper Networks' vision for the journey to the cloud minimizes business and technological transformation risks as it streamlines the journey, no matter where on that journey you happen to be. As a proven and trusted advisor, Juniper travels with you—at your pace—and aligns solutions to your business vision and desired outcomes.

Figure 1 depicts how a typical financial services organization might evolve to make its data centers more cloud-like, with capabilities added at a pace dictated by specific business objectives. Some companies may choose to follow a stepwise pattern as outlined below. While others may be ready to make the jump (or have already done so) directly to a cloud infrastructure. Regardless of the pace taken, the end state is the same—an entirely dynamic, elastic, and on-demand cloud enabled by automation.

At each phase of the journey, the network delivers increased capabilities (such as automation), but the underlying network itself doesn't need to change. Instead, with a Juniper cloud infrastructure solution, the network evolves alongside your business. No rip-and-replace is required.

Stage 1: Increased Virtualization—One of the first steps an organization might take on its journey to the cloud is to increase the level of server virtualization in its data center. Many organizations have already virtualized some or all of their servers and are quite familiar with the savings associated with virtualization technologies. Due to the agility and flexibility, virtualization is also a key enabler for cloud adoption.

As you begin to increase the levels of virtualization used in your data center, the network has to deliver certain characteristics. Being able to connect virtual machines (VMs) securely to each other and back to the physical world is an essential functionality, and requires a degree of integration with the hypervisor platform and the management or orchestration tools. Because the number of virtualized resources is relatively small at this early stage, it's not so critical that the network is automated.

As the level of virtualization increases, however, so too does the need for automation. Virtualization and automation go hand-in-hand: one of the benefits of virtualized resources is that applications can be scaled up, down, or out based on demand. It only makes sense to do this in an automated fashion, which leads us to the next phase in the journey to the cloud.

Stage 2: Agility and Automation—At this juncture, FSI organizations are driven by the need to reduce operational expenses (OpEx) and begin building private clouds. They often maintain a hybrid IT infrastructure that mixes public clouds, private clouds and an on-premise infrastructure that requires rigorous management. Juniper helps enterprises by building a simplified infrastructure that's easy to use, manage and troubleshoot.

Using an open framework, Juniper's networking infrastructure seamlessly integrates into orchestration and automation toolsets to work in even the most varied multivendor environments. Here, the focus from a network perspective is on increased agility and integration with IT orchestration platforms. This increased agility and automation helps the network respond when VMs are moved or scaled. If your network infrastructure doesn't support the open APIs required to integrate with the orchestration platforms of your choosing, you may be faced with an upgrade cycle here.

Stage 3: The Future Cloud—The desired end state of the journey to the cloud is, of course, a fully elastic, flexible, and on-demand cloud. These three characteristics—elasticity, flexibility, and on-demand access—are what truly separate a cloud from a traditional data center. Delivering these capabilities, the cloud infrastructure must be fully automated. Compute, storage, and networking resources should be able to respond in near real time to changing demands. Administrators should be able to change policies, configurations, and programming through a simple point-and-click process.

In the final phase, all aspects of the data center infrastructure are fully automated—this means your network as well. For many financial services organizations, this means the adoption of an SDN solution like Juniper Networks Contrail. SDN allows FSI organizations to build fully orchestrated workflows for application delivery, including compute, storage, and network resources. It also permits deployment within a micro-segmentation security model, providing per-application-based security policies and segmentation. However, there are other ways to achieve full network automation as well. Here you have the added choice of which type of SDN solution you pick: a virtual network overlay solution; or a controller-based model that works with your existing physical network infrastructure.

Summary—Juniper Enables FSI to Control the Journey to the Cloud

With this journey to the cloud, FSI organizations have the opportunity to evolve faster than ever before. The cloud is being used to deliver mobile applications for banking and insurance services. It is enabling financial services organizations to expand product offerings by constructing FSI-specific clouds with the security to meet regulatory and compliance requirements and much more.

But speed doesn't need to come at the expense of continuity. The journey to the cloud doesn't need to be—and in fact, it shouldn't be—disruptive. It can be an evolutionary process, or it can be completed all at once as a leap of faith. It is important to remember that the transition to the cloud can and should be undertaken at your pace, driven by your business requirements. Regardless of the speed at which financial services organizations adopt cloud services or build out private clouds, it should require one thing of the network—that it does not get in the way. The network should enable the adoption of the cloud, not inhibit it. While this may seem obvious, not all networks are designed this way. Choosing the wrong network solution may mean a disruptive and costly upgrade cycle at each step of the cloud journey.

The message is clear: the network must move at the speed of business. Today that means the network must evolve seamlessly as the industry advances on its journey to the cloud.

Next Steps

To learn more about the FSI journey to the cloud, please visit www.juniper.net or contact your account manager.

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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