



# DRIVE BUSINESS INNOVATION IN FINANCIAL SERVICES WITH A SERVICE-AWARE NETWORK

Agile networks enable financial service providers to capture the next wave of growth

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# EXECUTIVE SUMMARY

In an age of rapid technological and business change, financial services firms are embracing possibilities for faster and more informed decision-making, exceptional client service, and new business opportunities. Banks are modernizing how they deliver services and engaging customers with highly personalized offerings. Insurance firms are using mobile apps to engage tech-savvy customers and risk analytics to reveal profitable insights. Investment banks are deriving faster, smarter, and better decisions from real-time market, social media, and sentiment analysis. And even in the face of unprecedented data volumes and a challenging regulatory environment, fully digital business processes are helping service providers maximize efficiency, shaving off milliseconds required for analysis.

Taken together, these imperatives are creating a demand for more agile networks – while challenging underlying assumptions of how networks are built and delivered.

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## Introduction: A Call for a More Agile Network

In this always-on world, customers and business managers expect everything instantly. IT systems that can adapt at the speed of the market – and turn on new services or applications with the click of a button – are critical. But for many financial firms, lagging IT infrastructures make it hard to keep up. Proprietary and obsolete hardware limits innovation and drives up operational costs, and network configuration can take days or even weeks. Whether businesses are deploying new services, capitalizing on new opportunities, or just meeting performance demands, complicated manual IT upgrades won't cut it.

To serve these needs, financial services firms need an agile, service-aware IT infrastructure powering their data centers and cloud services – one that allows the business to embrace new mobile apps, big data analytics, data-driven decision making, and cloud services. In such a network, automation and orchestration tools streamline operations, big-data style analytics automatically adjust network service levels, and the business can rapidly innovate and create customer-facing services – all while mitigating risk and reducing operational costs.

## Build a Scalable, Service-Aware Network

Business agility starts with a network that is service-aware, moving workloads fluidly within and across data centers and the cloud as demand for data and applications shifts. IT can use private, public, or hybrid clouds as needed, without compromise. Network changes are automated rather than manual. Think of it as flexibility on demand.

A service-aware network needs a simple, open, and smart architecture. With fewer devices and fewer layers, it can react quickly, securely, and accurately. An open network gives IT the flexibility to add applications and services as the business evolves, with far less dependence on vendors. It's also less expensive than a proprietary network to buy and operate.

Financial services companies need to accommodate both legacy systems and newer agile applications, which means building an infrastructure that can spread across internal and public or private cloud infrastructures. These internal and cloud infrastructures should co-exist in a hybrid fabric that offers a single point of management and operation for both environments while maintaining the multi-tenancy separation required.

This single point of management and operation must be capable of true orchestration among physical, virtualized, containerized, and public or private cloud networks. It must also offer consistent security and enforcement across this highly segmented infrastructure, since apps can now move freely among these various types of networks.

To deploy new applications and services simply and cheaply, IT must also be able to choose the best network topology for each data center, evolving it as needed – for example, an IP Clos or spine-and-leaf architecture for high performance in large and midsize data centers, or a single control plane for smaller ones. For maximum investment protection, data center switches should support multiple fabric architectures and deployment scenarios.

Today, network speeds of 100 Gbps, 400 Gbps, and beyond are table stakes. For real-time applications, new switches integrate powerful compute resources and customizable logic directly into their infrastructure. Such compute-integrated networking can deliver a competitive edge when scaling real-time, mission-critical applications such as market data feeds, social media feeds, order execution routing, big data analytics, or transaction timestamps.

## Streamline Operations with DevOps, Automation, and Orchestration

Many businesses are also turning to DevOps, network automation, and service orchestration to streamline operations and deliver IT services dynamically and cost effectively.

DevOps allows companies to move more quickly and with minimal risk, while reliably delivering services to millions or even billions of users. Once the domain of Internet businesses, but now embraced in financial services, DevOps breaks down traditional barriers between software development and IT operations, creating a collaborative partnership that can implement ongoing real-time improvements rather than standalone projects. More agile operating practices and tighter software release cycles let IT deploy new code more frequently and with less risk, and fix problems more quickly without disrupting the business. That in turn allows firms to launch new digital products faster, and respond more quickly to market opportunities.

Taking human interaction out of the workflow, automation makes it possible to dynamically align data center resources with business and application needs, eliminating manual errors and outages and increasing task repeatability. Freed from mundane network tasks, IT can focus on projects that deliver business value. But to work well, automation requires a shift in the traditional IT mindset of “rack-and-stack” and command-line control. When setting up or reconfiguring network devices, zero-touch provisioning (ZTP) becomes the norm. Most companies start by automating common support tasks and configurations, then look for ways to optimize and standardize IT processes—for example, with open-source scripting and automation tools.

Once firms see success with automation, they often progress to intent-driven service orchestration. Intent-driven networking is a declarative network operation paradigm where the desired state of the network is described and then the orchestration system leverages automation to execute the required workflows to create the intended result. All of this allows firms to bring new revenue-generating services to market more quickly, via automated service fulfillment, service assurance, and capacity management. The result is a better user experience, which in turn boosts customer satisfaction, employee productivity, and customer advantage.

## Use Network Analytics to Improve Visibility

Big-data-style network analytics are essential for virtualized data centers. IT must have insight into the network’s performance to ensure service quality, monitor services, troubleshoot, plan for capacity changes, and bill and charge back to customers and business units.

But as applications and workloads move dynamically across servers in a data center, or across data centers, the underlying network topology is reconfigured on the fly, reducing visibility. In an overlay network, physical switches, routers, and other devices no longer serve as anchor points from which to collect network metrics and observe traffic flows. IT, too, can no longer co-relate underlay and overlay networks.

To address this issue, Juniper Networks is changing IT network visibility. For a network to serve the business, performance metrics must follow workloads, keeping pace with any changes in the environment. The overlay network must be correlated with all events and performance data in the underlay, compute, application, and storage infrastructures. Juniper aggregates and analyzes network data to create a complete, real-time network picture – using analytics to monitor operational status, performance, and troubleshooting, while gaining insight into customer behaviors and optimizing workflow.

Coordinated, end-to-end data collection, analysis, correlation, and visualization lets IT understand how workloads and applications behave across physical and virtual infrastructures, then identify performance hotspots and monitor microburst and latency details to maximize network reliability for mission-critical applications. The result is a real-time operational view that can be used to optimize the business—enabling it to react more quickly, and even move toward a self-driving network.

## Manage Security and Risk

Service agility is an imperative, but so is risk mitigation. The financial services sector is under unprecedented attack from cybercriminals; a data breach can have implications that extend beyond a single company to the entire financial marketplace. At the same time, increased regulatory requirements create implementation and compliance challenges.

To survive in this environment, financial firms must ensure security even as workloads and users move. They need multilayered, advanced security protection for their physical and virtual environments. They must protect their sensitive data, brands, and bottom lines, building a culture that balances risk with growth. Many are shifting toward predictive capabilities, as well as bolstering defense of business-critical infrastructures. When IT has greater insight and control over a network, attacks can be stopped before they do lasting damage.

## A Strong Partner in Your Digital Transformation

Juniper Networks works with leading companies around the world to increase the service agility of their networks. With simple, open, and smart networks, financial services firms can leverage Juniper's expertise, experience, and partner ecosystem to build agile, service-aware networks – helping to bring innovative new services to market more quickly, at lower cost.

Juniper is a leader in automated, scalable, and secure networks that deliver high-performance, highly reliable routing, switching, and security. With solutions deployed in many of the world's most complex banking, capital markets, and insurance providers, Juniper works with a broad ecosystem of solutions, services, delivery, and consulting partners who provide businesses with a complete offering that supports innovation.

## Conclusion

A service-aware network gives financial services firms an agile and automated infrastructure that helps them identify new market opportunities, attract and retain customers with differentiated services, and respond to a broad array of competitive and industry challenges. New technologies and processes, such as service-aware networks and DevOps, can help firms improve performance, lower costs, reduce risk, and speed time to market, so they remain flexible and agile into the future.

## About Juniper Networks

Juniper Networks brings simplicity to networking with products, solutions, and services that connect the world. Through engineering innovation, we remove the constraints and complexities of networking in the cloud era to solve the toughest challenges our customers and partners face daily. At Juniper Networks, we believe that the network is a resource for sharing knowledge and human advancement that changes the world. We are committed to imagining groundbreaking ways to deliver automated, scalable, and secure networks to move at the speed of business.

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