Interactive Data Scales to Deliver Market Data at Extremely Low Latency with Massively Scalable Network

Summary

Company:
Interactive Data

Industry:
Financial Services

Business Challenges:
Scale global network to meet steady growth for market data and exacting demands of latency-sensitive trading

Technology Solution:
MetaFabric architecture, including:

- EX4550 and EX4200 Ethernet Switches
- QFX3600 Switch
- MX480, MX80, and MX5 3D Universal Edge Routers
- SRX3400 Services Gateway
- Professional Services
- Resident Engineering Services

Business Results:

- Delivered 50 GB market feeds daily with extremely low latency
- Prepared scalable platform for multicast traffic doubling year over year
- Simplified and automated to accelerate rapid deployment of applications with a smart, open network
- Built 40 Gbps MPLS network among global data centers

Interactive Data

Interactive Data is a trusted leader in financial information, delivering a comprehensive set of products and services designed to meet the needs of the front, middle, and back offices at some of the largest and most well-known institutions around the world. These clients trust Interactive Data to help support their investment activities and operational workflow through a broad range of offerings.

Small shops and large institutions around the world depend on Interactive Data's 7ticks to trade better and faster. 7ticks provides an ultra-low latency trading infrastructure as well as direct market access, with connectivity to 25 global futures and options, equities, foreign exchanges, and trading venues. 7ticks also offers collocation, managed services, and consulting.

Business Challenge

The ongoing success of 7ticks depends on having an IT infrastructure that adapts and scales to unforgiving reliability, performance, and transparency requirements. To support the torrid growth of data, 7ticks needed to expand the IP/MPLS network connecting its data centers to 40 Gbps—and have an immediate path to 100 Gbps and beyond. Within its data centers, 7ticks needed network and security solutions that would keep pace—and would simplify service management and support automation.

"Our biggest challenge is performance at scale," says Scott Caudell, founder of the 7ticks business and vice president of IT infrastructure at Interactive Data. "IT is our business. The 7ticks infrastructure helps customers get a lower time to market and faster execution speeds at a cost that's sustainable for their businesses."

7ticks provides access to 450 global data sources via its consolidated feed at each hosting center—and the company is seeing those data feeds double in size every year. Today, 7ticks delivers 50 GB of multicast traffic every day.

"We deal with massive amounts of multicast data, and Juniper was really good at replicating it in a predictable way and at a scale we needed. Doubling every year is a massive thing to deal with on a global scale, and Juniper was credible that they could do that for us."

Scott Caudell, Founder of 7ticks and Vice President of IT infrastructure, Interactive Data

"We're going to do 40 Gig this year, 80 Gig the year after, and 160 Gig the year after that," says Caudell. "The feeds are a massive dataset that's almost entirely multicast. It's literally billions of packets and we can't lose any of them. We have to deliver all of them in sequence on time, every day, day after day, and millisecond by millisecond."

Technology Solution

7ticks uses Juniper Networks® MX480 3D Universal Edge Routers to connect more than 50 data centers in 40 countries with a carrier-class MPLS network operating at 40 Gbps. With Juniper, 7ticks can deliver market feeds via the lowest latency and most cost-efficient path, anywhere in the world. And it can scale to meet the unrelenting growth of data.

SDN-ready MX Series routers provide industry-leading system capacity, density, and performance to deliver the capital efficiency, service innovation, and agility needed for next-generation networks. And 7ticks' investment in the MX Series routers is protected as its bandwidth needs grow. It can easily swap 100 Gbps line cards into MX Series routers to scale to new heights.

Interactive Data needed to bring a critical new trading application in-house. To support the application, 7ticks deployed a Juniper Networks MetaFabric™ architecture, composed of MX80 and MX5 3D Universal Edge Routers, QFX3600 Switch, EX4550 and EX4200 Ethernet Switches, and SRX3400 Services Gateway. With the MetaFabric architecture, which connects the application across eight data centers, 7ticks' data center switches are optimized to support any switching fabric architecture for any application.

Having a single Juniper Networks Junos® operating system across all Juniper routing and switching platforms was also a major draw. "We grew up with a number of different network vendors, but the single code base of Junos OS was really appealing," says Caudell. "We wanted something that was easy to understand from device to device, so we really liked Juniper from that perspective."

Working closely with 7ticks, Juniper Professional Services created high- and low-level designs that integrated all switching and routing gear. The designs allowed the new application to be moved to 7ticks' data centers, all within a very aggressive timeframe. Upon completion of testing, the Juniper Resident Engineering team oversaw deployment.

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Scott Caudell, Founder of 7ticks and Vice President of IT infrastructure, Interactive Data

Business Results

With a High-IQ Network from Juniper, 7ticks can scale to meet the massive explosion of data and accelerate the deployment and delivery of other critical applications. "Juniper solutions are easy to deploy, allow us to maximize flexibility, and enable us to improve performance and save time," Caudell says.

Having a simple, open, and smart data center infrastructure allows 7ticks to forge ahead with network automation and orchestration tools, which will deliver greater operational efficiencies and reduce errors. "Human error is the cause of 51 percent of outages," says Caudell. "Automation is critical. You can only scale for so long with one network engineer making one change."

With Junos OS, the network is easier to manage, troubleshoot, and automate. "Our engineers are working on automation and analysis and need to pull data from the OS to run the business," says Caudell. "With Junos OS, it is easy for us to do that. In addition, Junos operating system is a solid platform for configuration versioning, stability, and rollback, which we need to manage the infrastructure at the right level."

One of the biggest decision factors was multicast replication. "We deal with massive amounts of multicast data, and Juniper was really good at replicating it in a predictable way and at a scale we needed," says Caudell. "Doubling every year is a massive thing to deal with on a global scale, and Juniper was credible that they could do that for us."

A critical step in automating service management was to create a self-documenting network. "Understanding how data gets to the locations and via which paths, devices, interfaces, and lines is absolutely critical," Caudell says. "If we lose a link or piece of infrastructure, we want to be able to inform our clients very quickly, so they can manage their business and their risk accordingly."

7ticks is also automating network configuration. "If we need to pull infrastructure quickly, minimal engineering talent should be required. The process should be easy to do again and again," says Caudell. The Zero Touch Provisioning on EX Series and QFX Series platforms allows staff to provision new switches automatically and without manual intervention.

Next Steps

As 7ticks continues its automation journey, it wants to virtualize the network infrastructure without compromising performance. The goal is to plug in a new server and have it up and running in less than five minutes, with the appropriate network performance profile. Junos OS scripting, SDN-ready MX Series routers, and programmable EX Series switches will simplify meeting this goal.

As network automation helps break down the server, storage, and networking silos in 7ticks' data centers, Caudell has seen another positive change. "We're doing a big infrastructure build in four countries for a customer. The server guys who are automating the deployment are becoming junior network guys. The people who excel don't care about it being a server or network task; they care about the applications. Our staff is broadening their horizons because they're not just a server guy or an infrastructure guy."

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For More Information

To find out more about Juniper Networks products and solutions, please visit www.juniper.net.

About Juniper Networks

Juniper Networks is in the business of network innovation. From devices to data centers, from consumers to cloud providers, Juniper Networks delivers the software, silicon and systems that transform the experience and economics of networking. The company serves customers and partners worldwide. Additional information can be found at www.juniper.net.

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