CODONIS TURNS TO JUNIPER NETWORKS QFABRIC TO DELIVER DATA-INTENSIVE HEALTHCARE FROM THE CLOUD

Summary

Organization: CODONiS

Industry: Healthcare

Challenge(s):

- Create a world-class life sciences and healthcare computing platform.
- Advance healthcare and life sciences research through computational breakthroughs.

Selection Criteria: Deliver high-performance, low-cost networking and compute services to life sciences.

Network Solution:

- QFX3500 Switch

Results:

- Support the data-intensive demands of healthcare and life sciences research.
- Deliver high-performance, highly available application, compute and storage services on demand.
- Deliver networks as a service to healthcare providers.

CODONiS delivers a world-class life sciences computing platform that is designed to help customers accelerate research, improve the efficiency of healthcare providers, and ease the transition to more effective, personalized medicine. The company was founded in 2010 by Jim Harding and Dave Sabey, who have long and storied histories in building physical infrastructure, computing hardware and software. CODONiS is part of the Sabey family of companies, which includes Sabey Data Center Properties, one of the largest privately owned data center developers and operators in the United States.

"Sabey is looking to the data center business as an innovator," says Jim Harding, president of CODONiS and chief technology officer of Sabey Data Centers. "We want to create communities of customers that work more efficiently. We learn a lot from our customers, and we incorporate those ideas and then build at scale."

Challenges

CODONiS delivers an advanced platform for data center services and applications that is tailored to the needs of life sciences leaders and healthcare providers. The platform is based on state-of-the-art computing, storage and network technology. The company has rich expertise in virtualizing healthcare applications, secure network infrastructure and accelerated computing.

"We believe that offering networks as a service allows us to deliver a higher value to the customer," says Harding. To support the high-compute capacity, server densities and availability that are demanded by life sciences and healthcare customers, the company's data center networks must be ultra-high speed and low latency.

Selection Criteria

"Everything is about efficiency, period," says Harding. "Nothing else matters." Harding points to human biology by way of example. "The biological networks running in our systems are extremely dense, always available and as fast as they need to be," he says.

Whether biological or technological, efficiency is a matter of increasing density. "In data centers, you're bringing in a lot of core computers into a building, and the best way to connect them so they are fast is through a network fabric technology. You have to create dense fabrics like the network fabric of the brain," says Harding.

Solution

CODONiS deployed Juniper Networks' groundbreaking data center solution, based on the Juniper Networks® QFX3500 Switch, in its state-of-the-art data centers. The company's data center in eastern Washington spans more than 1 million square feet, while its Seattle data center covers more than 650,000 square feet.

With Juniper's data center solution, CODONiS data center networks are optimized to support the needs of high-performance, low-latency applications, such as genome research. "Juniper Networks QFabric® family of products is deployed to put all of that fabric density into one layer that's distributed throughout the data center," says Harding.

The QFX3500 Switch allows CODONiS to simplify the data center network architecture, which creates performance and management benefits. "The fact that we flattened the network architecture has been a huge advantage," says Jim Glen, chief engineer at CODONiS. "We eliminated a bunch of hops in the network, which implicitly increases performance." Moving from a traditional three-tier data center network to a single tier also means that the operation is far simpler with less risk and there are fewer switches to purchase, manage and deploy—leading to savings on capital and operational expenses.

The QFX3500 Switches delivers a high-performance, ultra-low-latency, feature-rich Layer 2 and Layer 3 solution for the most demanding data center environments. QFX3500, a high-density 10GbE platform that also delivers a fabric-ready edge solution for the QFabric architecture, is designed to support large-scale virtualization that CODONiS' clients need. The QFX3500 Switch runs the same reliable and high-performance Juniper Networks Junos® operating system that is used by Juniper's routing, switching and security platforms.

Network operations have been smooth since deploying the network fabric. "Our experience with the QFabric family has been good because we still use Junos OS," says Glen. "It's a new concept around a single layer that makes the data center more efficient and higher performance, but at its foundation it's really the same tried-and-trusted Junos OS. The familiar command structure and ease of operation are still there, which makes adopting the technology straightforward."

That operational simplicity is quickly becoming an advantage in the fiercely competitive data center market. "We can provide networks as a service to more customers more quickly," says Harding.

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> - Jim Harding,
> President, CODONiS

Results

"We're delivering next-generation cloud services using Juniper's technology," says Harding. "We see a huge opportunity to deliver networking as a service to our healthcare customers. With Juniper, we can reduce the capital investment that's needed to deliver on-demand networking. That means we can help our healthcare customers reduce cost, which they desperately need."

The company's data centers are designed to deliver the highest levels of performance and availability for life-critical applications, such as electronic health records (EHR) and imaging, as well as compute-intensive genome research. CODONiS is working with innovative healthcare providers such as Providence Health & Services, a Seattle-based health system with 27 hospitals across five states.

CODONiS is also working closely with the Institute for Systems Biology (ISB) to research how life works using a Markov logic network. "That collaboration has allowed us to build technologies and applications that are going to enable life scientists, and eventually test labs in hospitals, to deliver algorithms that will allow you to look at your genetic information and other aspects of your biology and to discover truly meaningful solutions in healthcare," says Harding.

With data centers consuming approximately 4% of the world's power, both CODONiS and its parent company, Sabey, have a strong commitment to a low environmental impact. The QFX3500, with its low power consumption, helps the data center provider optimize its power usage effectiveness (PUE) ratio and reduce overall data center operating costs. The Juniper Networks switches have front-to-back airflow, which meets both hot and cold aisle isolation requirements.

Next Steps and Lessons Learned

"The QFabric family got me to realize that there has to be a better way to consolidate networks," says Harding. "There are all these guys who plug cables into switch ports in the data centers, and I thought, 'This has to change.' I got a vision about where networking needs to go, and how we can use virtualization and software-defined networking to achieve it. We are excited about working with Juniper to solve this problem."

For More Information

To find out more about Juniper Networks products and solutions, 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.**

Corporate and Sales Headquarters
Juniper Networks, Inc.
1194 North Mathilda Avenue
Sunnyvale, CA 94089 USA
Phone: 888.JUNIPER (888.586.4737)
or 408.745.2000
Fax: 408.745.2100
www.juniper.net

APAC Headquarters
Juniper Networks (Hong Kong)
26/F, Cityplaza One
1111 King's Road
Taikoo Shing, Hong Kong
Phone: 852.2332.3636
Fax: 852.2574.7803

EMEA Headquarters
Juniper Networks Ireland
Airside Business Park
Swords, County Dublin, Ireland
Phone: 35.31.8903.600
EMEA Sales: 00800.4586.4737
Fax: 35.31.8903.601

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3520421-001-EN Mar 2012 Printed on recycled paper