Lending Cooperative's Intelligent Network Helps Ensure Uptime, Enhances Performance

Cisco IOS Performance Routing optimizes value of backup circuits while helping ensure uptime for network operations.

EXECUTIVE SUMMARY

Customer Name: Farm Credit Services of Mid-America

Industry: Financial Services

Location: Louisville, Kentucky, and 92 branch offices

Number of Employees: More than 1000

BUSINESS CHALLENGE

- Disaster avoidance in event of primary connection failure

NETWORK SOLUTION

- Intelligent routing over redundant circuits by Cisco Performance Routing (PfR)

BUSINESS RESULTS

- Helped ensure uptime in event of outages and brownouts on primary circuits
- Increased return on investment on secondary/backup circuits

Business Challenge

"Uptime"

That's the succinct reply you'll receive from Pete Gustafson, network engineer for Farm Credit Mid-America, when you ask him, "What was your objective in deploying Cisco Performance Routing (PfR) on your network?" In fact, however, Gustafson and his organization were looking for, and got, a broader set of benefits by partnering with Cisco as an early adopter of PfR.

Farm Credit Mid-America is an US$19-billion lending cooperative, serving some 96,000 farmers, agriculture-related businesses, and rural communities in Indiana, Ohio, Kentucky, and Tennessee. It is one of several Farm Credit cooperatives in a Congressionally-mandated but independent national system known informally as "the lenders to rural America." With more than 1000 current employees, Farm Credit Mid-America is in the process of expanding its headcount to 1500 in anticipation of the imminent retirement of many long-time staffers. The idea is to have veteran employees help develop the newer hires, who will eventually replace them. Clearly, this is an organization that thinks ahead.

It was such thinking about helping ensure uptime at its branch offices that led Farm Credit, by a series of steps, to PfR. The company's network encompasses over 90 offices, all connected via Cisco® 2821 Integrated Services Routers (ISRs) to a headend and data center at its Louisville, Kentucky, headquarters. For historical reasons, Farm Credit's disaster recovery capabilities are housed in the data center of its bank, AgriBank of St. Paul, Minnesota, along with all its confidential customer information. At the branch level, employees use various off-the-shelf applications such as Microsoft Office, of course, but for loan origination and tracking, they rely on a custom-built application called SingleView.

"Ten years ago, our network was decentralized, so SingleView and customer data were accessible on every branch server," says Gustafson. "If a branch's network connection went down, even for days at a time, the staff there could carry on."

But now that Farm Credit's WAN is centralized, the branches access critical data through their connections to the Louisville headend. The company also relies on its network for all voice communications as well. "That means an outage can completely shut down business at a branch," says Gustafson. And outages **do** happen.

"We've had offices out for a week at a time when construction crews severed a line with a backhoe."

Network Solution

Some years ago, Farm Credit migrated much of its network to Multiprotocol Label Switching (MPLS) over T1 lines. “It was supposed to be more reliable,” says Gustafson. “But in the first six months, the MPLS connections from Louisville to the branches went down twice, and once the connection went down between Louisville and AgriBank in St. Paul. No one in the branches could make any loans, and if we’re not making loans, we’re not making money.”

The solution was to install redundant circuits, and that’s what Farm Credit did. The company added Internet-based Dynamic Multipoint Virtual Private Network (DMVPN) links between Louisville and St. Paul and between Louisville and the branches, and configured the network to roll over traffic from MPLS to DMVPN in the case of a service interruption on the former.

> “I want my critical data and voice traffic moving over MPLS, because I have a service-level agreement with my MPLS provider and I can hold him accountable if there’s an outage or slowdown. PfR does that for me, while sending lower-priority traffic like web surfing to DMVPN.”
> **— Pete Gustafson, Network Engineer, Farm Credit Mid-America**

“Problem solved,” says Gustafson. “Now, if a backhoe takes out the MPLS line to a branch, traffic is rerouted to the backup circuit. Employees at the branch aren’t even aware of the change. Even voice communications continue, with only the slightest pause but no lost connections.”

Once, when MPLS went down at AgriBank in St. Paul, another Farm Credit organization in Wisconsin, which also relies on St. Paul for its loan origination and customer data, lost a full day of access. But Gustafson’s organization stayed up and running.

Still, another issue arose.

“Within a few months of our buying DMVPN circuits for backup,” says Gustafson, our CIO came to me and said, ‘We shouldn’t be paying for extra circuits that sit idle most of the time. How can we get a better return on our investment?’

“Frankly, I didn’t have an answer to that question,” says Gustafson. “So I called my Cisco representative, who told me about PfR.”

PRODUCT LIST

- Cisco IOS Performance Routing (PfR)
- Cisco 2821 Integrated Services Routers (ISRs)
- Cisco 1006 Aggregation Services Router (ASR)

Cisco PfR provides network-integrated path selection based on application performance requirements and network performance metrics, to improve application performance and availability. PfR can select the best path for each application based on advanced criteria such as reachability, delay, loss, and jitter. It can also improve application availability by dynamically detecting and routing traffic around network problems such as brownouts, which traditional IP routing may not detect. In addition, the intelligent load-balancing capability of PfR can optimize path selection based on link use or circuit pricing. In short, it allows an organization such as Farm Credit of Mid-America to take full advantage of both its MLPS and its DMVPN circuits to speed and smooth voice and data traffic and provide a better user experience for employees.

PfR was still in development as a new feature of Cisco IOS®, but Gustafson worked with Cisco engineers to configure it for his purposes, and by the end of 2011, he and his colleagues had deployed their PfR solution at about a third of Farm Credit's branches. Along the way, they also replaced the Cisco 3845 router in their Louisville data center with a Cisco 1006 Aggregation Services Router to facilitate additional network scaling.

Business Results

Cisco PfR has delivered beyond Farm Credit's number-one priority, uptime.

"I want my critical data and voice traffic moving over MPLS, because I have a service-level agreement with my MPLS provider, and I can hold him accountable if there's an outage or slowdown," says Gustafson. "PfR does that for me, while sending lower-priority traffic like web surfing to DMVPN."

"While ensuring uptime for our essential network operations, PfR saves us money and gives us better value for the money we're spending on redundant circuits: just what our CIO asked for."

For More Information

To find out more about Cisco Performance Routing, go to: http://www.cisco.com/go/pfr.

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