

# Medical Mutual Takes Road Less Traveled To Reach 10 GbE

By Paul Rubens

**M**edical Mutual is the oldest and largest health insurance company in Ohio. Headquartered in the historic Rose Building in downtown Cleveland, the company has more than 1.6 million customers and employs almost three thousand people.

The company's main data center is located in Beachwood, Ohio, and from here the company processes healthcare claims using its own proprietary applications. The company also runs Oracle and IBM databases, standard applications such as Microsoft Exchange, a VDI system serving Windows 7 desktops to staff around the state, and a Citrix system to support mobile device users. The data center is laid out with two rows of conventional servers as well as eleven high density HP Blade enclosures, with a total of 300 physical servers hosting 1200 virtual machines.

## The challenge - supporting data, vMotion and iSCSI storage traffic with a limited number of 10 Gigabit Ethernet ports

Until this year the servers had been linked with Cisco 1 Gigabit Ethernet (1 GbE) switches which also offered a limited number of 10 Gigabit Ethernet (10 GbE) uplink ports to the network core. But Len Gedeon, the company's IT network consultant, said that this switching infrastructure could no longer cope with the data center's needs.

"As we grew, we simply ran out of ports with 10 GbE, and virtualization pushes the 10 gig environment" he says. The decision was made to upgrade to 10 GbE and 40 GbE switches to provide plenty of bandwidth for conventional data traffic, vMotion traffic, and 10 GbE iSCSI connections to EMC NAS storage in the near future as well.

Gedeon considered five vendors for the new networking

infrastructure, and one of the key considerations was finding a solution which would leverage his staff's existing knowledge of Cisco commands. After weighing the pros and cons of each vendor Gedeon was able to reduce the list to just two: Cisco, and Santa Clara, CA-based Arista Networks. "I didn't know much about Arista but a consultant suggested that I take a look at them, and pointed out that there would be a very short learning curve," explained Gedeon.

## The solution: Arista switches offering many 10 GbE ports and a few 40GbE ports

The solution that Gedeon chose comprised a total of sixteen new Arista Networks switches: six 7048T 1GbE switches with 10GbE uplinks, four 7050T(copper) and four 7050S (fiber) 48-port 10 GbE switches with 40 GbE uplinks, and two top of rack 7050Q 40 GbE switches connecting to the network core and acting as default gateways.

## Implementation problems

The equipment and fiber arrived at Beachwood on September 28, and Gedeon says he had just three days - the Labor Day weekend - to get it all installed, configured, up and running, in time for a management imposed October 1 deadline. The cabling took about four hours to install, but getting the switches properly configured proved more problematic. "I tried to get everything configured ahead of time on a flash drive, and then boot them up right away. But I couldn't test this, and ran in to problems."

This stemmed from the fact that the 7048T 1 GbE switches running Rapid PVST spanning tree supported a maximum of 63 VLANs, while Gedeon's configuration called for over 100. Despite being the Labor Day holiday Gedeon says he received excellent support from Arista's team, who were

able to get to the root of the issue. "Once the problem was identified and I cut down the number of VLANs to 54 it came up."

Following the physical network installation Gedeon tested the VMware and Citrix environments. Gedeon says that since then Medical Mutual's network has been running smoothly, supporting the growing traffic from the physical and virtual machines, as well as desktops (via the VDI system) and mobile devices through the Citrix-based system.

## Benefits

One major benefit of the upgrade is that Medical Mutual's network is now ready to cope with the company's expanding data center, and the increase in traffic that entails. "I have sixteen pairs of 40 GbE ports on my top-of-rack 7050Q switches and I am only using four pairs now, so we now have plenty of room for growth," says Gedeon.

And he believes 10 GbE (with 40 GbE uplinks) offers big operational benefits. "I think it's important to have sufficient or excess bandwidth - it's certainly not a waste of money. 10 GbE vMotion has to be transparent, and it shouldn't take up the whole pipe."

Another benefit that Gedeon appreciates is the ability to upgrade the Arista switches' software without causing anything but minimal disruption to operations. Each pair of Arista switches is independent, but thanks to multi-chassis link aggregation, each switch in a pair can be taken down in turn, upgraded, and brought back up without the connected servers seeing the disruption. And since the Arista EOS operating system is based on Linux, it is possible to bring down one module such as OSPF and upgrade it without bringing down the rest of the switch, he said.

An unexpected benefit of the upgrade to Arista's switches has been the faster switching performance that they offer at 1 GbE. The company's IBM P-Series mainframes run batch processes to deal with claims every Sunday night. When the first mainframe was disconnected from a Cisco 1 GbE switch and connected to an Arista 7048T 1 GbE switch, the average response time dropped from around 500ms to 200ms. "All the research suggested that Arista were speed demons,

but I didn't expect anything like that," says Gedeon. "Now we are going to connect our backup servers onto the Arista gear to see if that works faster too."

## Advice for IT professionals

For anyone considering upgrading to 10 GbE, Gedeon's key advice is to make sure that you have sufficient or excess bandwidth and are not forced to resort to using QoS, as would have been necessary with the Nexus 5000. "I rejected this as I don't want to have to do bandwidth limitation in my server farm - you should not have to do QoS on your network at all. This is your server to server traffic and bandwidth is not that expensive. 10 GbE is not that much, and in fact 40 GbE is not that much more," he said.

He also believes that networking technology is changing so fast that companies should expect to upgrade again in as little as three years. "Our last Ethernet switches were seven years old and still running, but this next lot won't last as long because technology is moving much faster now. Switches are more of a consumable, and the emphasis must be on making your infrastructure better".

Finally, he suggests that it may well be worth looking beyond the big-name vendors for a 10 GbE solution. "Arista was not really a gamble: the price and performance was right. It was hard to push away from Cisco, but in the end it worked," Gedeon concluded.

## Key takeaways

- Understand the learning curve involved before switching to any given vendor - your existing skill sets will be more useful with some than with others
- Ensure any new hardware can communicate with your existing switching infrastructure
- Good vendor support is key to a relatively trouble-free implementation
- Check whether your current network monitoring and troubleshooting tools will work with new switches
- Ensure future switch software upgrades can be performed without unacceptable network disruption