



Life made easier for thousands of students and teachers

The University of North Georgia migrates seamlessly to a virtualized network, supporting 15,000 users and expanding technology offerings



Customer profile



Company	University of North Georgia
Industry	Education
Country	United States
Employees	1,700
Website	www.ung.edu

Challenge

The University of North Georgia needed to upgrade its core network to handle new users while protecting against a single point of failure.

Solution

The school virtualized its network using stackable Dell Networking S4810 10/40GbE and S55 1/10GbE switches and scalable storage arrays.

Benefits

- University quickly transitions to a virtualized core network
- Students and faculty can work faster than before
- School can easily support additional users
- Redundant network eliminates a single point of failure
- IT staff can move ahead with new technology initiatives

Solutions featured

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Jonathan Rockett, Senior Network Administrator, University of North Georgia

The University of North Georgia, based in Dahlonega, Georgia, is the state's seventh-largest public university. Formed in January 2013 through the consolidation of North Georgia College & State University and Gainesville State College, the University of North Georgia includes four campuses and offers more than 100 programs of study. Approximately 15,000 students currently attend the university.

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One year before the January merger, the school's three-person Networking team was tasked with upgrading a traditional chassis-based network design that included legacy HP networking hardware. This single-core network supported 180 IT services for 6,000 students, faculty and staff, including critical services such as internet access, file servers, a video security system and a large wireless infrastructure. "All the services we provide relied on this aging network, with a single core and one WAN connection for the entire school," says Mike Geraghty, infrastructure services manager at the University of North Georgia. "Having a single core with unproven reliability meant that at any time we could experience service interruptions for our users. We knew we needed to implement a secure, high-speed, highly available core that removed our single point of failure."

New network is based on Dell Networking technologies

To solve its reliability challenges, the university decided to migrate to a virtualized core network, with virtualized software to give the Networking team the flexibility to allocate network resources based on demand. Because the school needed to replace its legacy networking equipment to support this new infrastructure, it evaluated networking technologies from Cisco, Juniper and HP.

Late in the evaluation process, however, Dell entered consideration. Dell had just acquired networking solution provider Force10, and the University of North

Georgia decided to look at the new Dell Networking S4810 10/40 GbE switches. "The Dell solution was a game-changer for us once we saw what it could do," says Geraghty. "It provides 10-Gigabit networking capacity at the network core, which we knew would offer us the best performance. And nobody could beat Dell on the cost per 10-Gigabit port."

In late 2012, the university replaced its HP core switches with three S4810 switches in three separate buildings. Hardware stacking enables scalability by providing the ability for up to six switches to be interconnected so they are managed as one logical device. The school also implemented Dell Networking S55 1/10GbE switches, which are designed to optimize network efficiency and reliability by delivering low-latency L2 and L3 switching. The school then installed Dell Networking 8024 Ethernet

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[Dell Networking S4810 10/40GbE switches](#)

[Dell Networking S55 1/10 GbE switches](#)

[Dell Networking 8024 Ethernet switches](#)



switches, which provide 10-Gigabit wire-speed switching for the school's new virtualized environment.

The university also deployed several Dell EqualLogic PS6100 iSCSI storage arrays, which support the school's email infrastructure. The storage array now has a direct 10-Gigabit link, via fiber, to the virtualized core network. "We couldn't have connected to the core so easily without the Dell Networking switches," says Geraghty. "Now, we have WAN and LAN resiliency, and we went from a 1-Gigabit core to a 20-Gigabit core."

University quickly transitions to a virtualized core network

The University of North Georgia quickly and easily transitioned its network to a virtualized core over the course of several weeks because of the technology design and comprehensive support from Dell. "Dell took the complexity out of what could have been a complicated core network design," says Jonathan Rockett, senior network administrator at the University of North Georgia. "Our first attempt at installing the virtual Dell Networking stack was successful, and it was amazing how simple the setup was. Part of that was the Dell hardware itself, which has been thoroughly tested in labs. But another factor was Dell ProSupport. Not only did they quickly respond to our questions and concerns, but the account team also assisted us in setting up a test environment for the virtualized core. All of these things made the network transition seamless."

School can easily support additional users

For university network administrators, supporting additional users is easy with the virtualized network. "The robustness of the Dell Networking technology

removes any potential challenges that might result from us adding more users," says Rockett. "Previously, 95 percent of buildings on campus were connected via a 1-Gigabit link to a 1-Gigabit core. But now, 100 percent of campus buildings are connected with at least a 1-Gigabit connection to a 20-Gigabit core. As a result, we're more than able to handle the increase in traffic and applications."

The school will also be able to expand its network to meet additional growth. "We are actually set up to go to a 40-Gigabit core if we need to, because the Dell Networking solution is highly scalable and the hardware stacking makes it easy to expand the environment," says Rockett. "So whether we need to support more high-definition streaming video or add hundreds of voice-over-IP (VoIP) phones, we have a core network that can handle all that additional traffic."

Redundant network eliminates single point of failure

The school now has a highly available, fully redundant core network that has helped eliminate the single point of failure that existed before. "We really increased our resiliency with the Dell solution, and now we have multiple WAN connections, switches, servers and storage products spread between four campuses to ensure disaster recovery," says Geraghty. "In the old environment, if the core network went down, there was a domino effect and everything else went down as well. Now, with Dell Networking switches connecting everything to the core, that won't happen"

Students and faculty can work faster than before

All students, teachers and staff members now can access email, register for courses or download critical files much

faster than before. "With the help of the new Dell Networking and storage infrastructure, network performance has greatly increased," says Geraghty. "We're pushing multiple terabytes of data around the network every day, and users are reporting that they can do the things they need to do faster than they could on the old network. End-user productivity and satisfaction were two of our main goals with this virtualized core, and we've made that happen."

IT staff can move ahead with new technology initiatives

University IT staff members are now able to press forward with technology implementations, many of which had been postponed due to the previous network's lack of reliability and scalability. "Because the Dell-based virtualized network is more resilient and simpler to manage, we aren't spending as much time fixing problems. So instead of putting out operational fires, I can focus on other projects," says Rockett. "Now, we can go ahead with projects we couldn't run on the old core, such as an additional audio-visual environment, some internal advanced routing and new settings and features for our wireless infrastructure."

The new wireless features in particular are going to help IT more easily support the "bring your own device" trend, which is growing fast at the university. "We can support many devices on this network without putting a strain on the 180 services we already offer," says Geraghty. "This Dell-based virtualized network core helps us do so much more than we ever could."

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