

SUCCESS STORY

CREATING A COLLEGE-APPROPRIATE TECHNOLOGY NETWORK for Enhanced Learning at James Sprunt Community College



What Data Networks Did for James Sprunt Community College (JSCC)

- Assessed aging network architecture and created recommended designs for modernization
- Specified new Juniper Networks LAN network and campus-wide wireless LAN hardware and configurations
- Configured and tested a “master” instance of all network hardware at our Staging and Configuration Center (SCC), then replicated to all devices using a JUNOS Space Virtual Appliance
- Minimized campus impact by carefully scheduling required outages after hours
- Provided knowledge transfer and configuration documentation to JSCC IT staff

Abstract

Data Networks performed LAN & WLAN upgrades to dramatically increase network speeds and deliver an appropriately-sized network architecture.

The challenge

James Sprunt Community College is a service-oriented educational institution located approximately 80 miles south of Raleigh, North Carolina. The college was experiencing serious performance and logistical issues with some data-closeted network equipment. The existing network switches and connections had been in place for quite some time and no longer could provide the required speed and scalability. Complicating matters, some of the switch racks at JSCC are permanently wall-mounted, presenting a unique physical installation challenge when replacing old switches with new.

The solution

Data Networks engineers analyzed the network infrastructure and connections at each facility to better understand the current constraints and the work required to complete the project. They then presented their specific upgrade recommendations to JSCC IT staff. A new local area network (LAN) solution would include:

- 10GE (Gigabit Ethernet (GE)) backbone across campus
- Juniper Networks EX4550 core and EX4200 Virtual Chassis switches
- Full Power-over-Ethernet Plus with 10/100/1,000 Mbps Ethernet connections

A new WLAN solution across would include:

- 802.11 a/b/g/n WiFi
- WLA-532 Wireless Access Points
- New configured wireless network equipment

Of importance to this particular project was Data Networks' Elite partnership and advanced certifications with Juniper Networks, including Ingenious Champion-level engineers. Data Networks demonstrated how these solutions would not only dramatically and immediately increase user productivity at the college, but also would scale in the future when needed.

Data Networks collaborated with JSCC to document the current network and produce a detailed design document which included:

- IP addressing, VLANs, routing and any security configurations
- Juniper switch hardware and software configurations
- Network and Internet connections for new switches
- JunosV Wireless LAN Controller hardware and software configuration
- Wireless access points (WAPs) placements
- WLAN configuration
- Detailed implementation plan

"Our detailed design documents are always very crucial parts of our client projects. It is a way for us all to achieve clear consensus before the project, and is also a point of reference and a means to communicate required changes during the project " said Dwayne MacKenzie, Data Networks' Principal Architect.

Simplicity through Centralization - JUNOS Space

For the JSCC project, Data Networks planned the implementation so a single instance of each vital network hardware component could be created, configured and tested at the Data Networks Staging and Configuration Center (SCC). Then, still at the SCC and using a JUNOS Space Virtual Appliance, engineers copied the "master" component settings to replicas prior to delivering and installing them at the various sites. "Our practice of using a single installation appliance to configure our technology to client specifications pre-delivery at our own SCC helps guarantee correctness and consistency of the final configurations when we deliver onsite," says MacKenzie.

Since the project required LAN equipment replacement, outages had to be properly managed. First, the new Juniper LAN equipment was installed, replacing all current equipment. Next, during designated outage periods, Data Networks engineers moved existing network connections to the new Juniper Ethernet switches until all were cut over.

Once completed, engineers built JSCC's new wireless network, installed the pre-configured Juniper switches and integrated all new hardware together with the existing cabling, all without outages of any kind.

Installation was followed by end-to-end testing and quality control. Data Networks leads a checklist-based onsite testing effort to ensure the

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entire network functions according to customer specifications. A final knowledge transfer for JSCC IT staff reviewed the configurations and installations performed at each site, and confirmed they met or exceeded promised project scope and requirements.

"Working with Data Networks has been really great, and their recommended solution was right on point. Now we have the network performance and headroom we need to support important student programs well into the future." said Gail Henry, Associate Vice President of MIS for James Sprunt Community College.