

## BUILDING A FLEXIBLE AND RELIABLE MULTI-VENDOR ENVIRONMENT

### Challenges

When a large technical college approached Vandis with a need to upgrade their entire network to ensure proper usage of their Virtual Learning Environment, it meant that a complete overhaul would be necessary. The school was using special government funds to help aid in the project and only had a small window of time for implementation before the new school year started. The project needed to be completely as quickly and smoothly as possible. Vandis' long standing relationship with the organization and proven track record with similar implementations, it was an easy decision for the school to choose Vandis for a project of this magnitude.

### Selection Criteria

The school wanted their students to have a flawless experience when using the Virtual Learning Environment both inside and outside the classroom. Due to that request, a strong and reliable network was needed. To do this, Vandis stressed the positive qualities of a multi-vendor environment and had to find several technologies that would work well to form one singular solution. According to Gartner, "introducing a second networking vendor into an enterprise infrastructure will reduce total cost of ownership for most organizations by at least 15-25% over five years. And most organizations that introduced a second vendor reported a lasting decrease in network complexity." In addition, Gartner found that organizations did not require any additional staff to manage a dual-vendor network.

After several meetings, Vandis engineers designed a plan that would allow the organization to successfully implement a multi-vendor environment that would be flexible, reliable and offer room for further upgrades as necessary.

### Solution

Since the organization was battling against failing devices, they had to make a decision quickly. After a few meetings, it was clear that Nimble Storage was the proper fit due to Since the school decided that a multi-vendor environment would be ideal, the project was split into two major parts. Vandis and the organization determined that Aruba Networks would be the best fit for the WAN and access level portion of the project. The school purchased over 300 switches, over 1,000 .11AC/N Access Points, two Aruba 7420 Controllers, as well as Aruba ClearPass to handle their policy management, device

onboarding, diagnostics, and visitor network. Aruba Airwave was also put in place to help manage the network through a single pane of glass. Since enterprise applications continue to grow and more content is being streamed over the wireless medium it is also important to plan for increased capacity at the access, distribution and core layers of the infrastructure. 802.11n APs can require up to 525 Mbps bandwidth. When multiple N or AC APs are connected to the access layer, the edge switch must be capable of aggregating multiple APs upstream through multiple 1GbE ports or 10GbE ports. 10GbE was implemented at the edge to help ensure oversubscription does not become an issue.

While providing students with a seamless network access user experience was handled through Aruba, the back end hardware at the core and distribution layer was handled by Juniper Networks. The organization purchased pairs of EX4450's to be placed at each of the eight dorm rooms, campus buildings, and disaster recovery site. EX9200 switches were used at the core layer while QX5100's were used in the data center. JUNOS Space was implemented to manage and monitor all of the Juniper technology. In addition, Palo Alto Networks firewalls were placed at the perimeter to ensure complete security of the network. All of this was backed up by a Vandis designed disaster recovery site that made sure that all of the school's critical applications were readily available in case of any failures.

The hardest part of the implementation was the time crunch, as there was a delay with the purchasing department, the project took longer than initially anticipated. Vandis engineers had to slowly integrate the new technology into the network while some legacy gear was still active. This meant that old hardware and new hardware had to be patched together seamlessly without the students noticing any performance issues. The project was finished during school breaks and weekends so that there was zero downtime for faculty and students.

## Results

As this project affected the entire network, any issues would not allow the school to function properly. Vandis understood the magnitude of the project and made sure that all transitions were made quickly and smoothly. Vandis was able to replace old problem riddled technology with a multi-vendor solution that would be quicker, more reliable, and offer great customizability for any future upgrades.