



Complete Aruba wired & wireless solution delivers on experience expectations, enables academic innovation and makes campus more secure

Customer Profile

Fresno Pacific University is a Hispanic Serving Institutions (HSI) with one of the most diverse student populations in the Council for Christian Colleges & Universities. It has graduation rates among the highest in its region and is ranked as a top-tier institution within its category. FPU develops students for leadership and service through excellence in higher education, with first-generation college or university students accounting for nearly half of its student body.

Vertical: Higher Education

Location: Fresno, California, United States

Customer size: 4,100 students and 8,000 professional development attendees

Use Case

Support competitive position as a center of academic excellence by supplying exceptional student experiences while improving security, administration and operations via wired and wireless infrastructure modernization.

REQUIREMENTS

Streamline the deployment and management of Aruba Instant access points, and enable the IT team to

SOLUTION

Aruba Indoor and Outdoor APs
Aruba CX 8400 Switch Series

OUTCOMES

Reduced deployment and update cycles from hours or days to minutes by automating IT tasks

monitor Wi-Fi performance and generate real-time reports	Aruba 3810 Switch Series	Delivered exceptional academic and off-hours student experiences, including live-streaming events and streaming 4K content
Resilient, flexible and scalable wired infrastructure	Aruba 2930M Switch Series	
Comprehensive, always on Wi-Fi solution with centralized management	Aruba Mobility Master Virtual Appliance	Enables developing smart, granular access rules to enhance security
Robust wired and wireless security features to address cyber and physical safety	Aruba ClearPass for network access control	Facilitates adoption of new curriculum models
	Aruba AirWave for network management	Assures compliance with NCAA real-time data and video feeds
	Aruba Foundation Care for support services (PDF)	Minimized network-related help desk calls and eliminated social media complaints

Despite its leadership as a regional center of academic excellence, Fresno Pacific University struggled to meet the wired and wireless connectivity expectations of its various users.

“Over time, our networking infrastructure had grown increasingly obsolete,” recalls Webster Alfonso, Director of Network Services for the Fresno, California-based Division II institution. “For our institution to continue delivering on its mission, we needed to re-architect and update our environment from core to edge.”

“Over time, our networking infrastructure had grown increasingly obsolete,” recalls Webster Alfonso, Director of Network Services for the Fresno, California-based Division II institution. “For our institution to continue delivering on its mission, we needed to re-architect and update our environment from core to edge.”



Visionary Aruba Wired Solution

Like many in higher education, FPU desired a scalable, future-ready solution that also addressed evolving virtual and physical security demands. Effectively supporting its four distant satellite campuses was also key.

“We serve a combined traditional and non-traditional student body that averages 4,100, along with approximately 8000 professional via professional development courses,” Alfonso says. “As our classes run from early morning until 10 p.m., including at locations ranging up to 100 miles from our main campus, we needed a reliable solution that provided efficient, centralized management.” Starting with core networking, FPU evaluated various vendors before narrowing the field to Juniper and Aruba, a Hewlett Packard Enterprise company. Ultimately, Aruba proved superior.

“Aruba offered the best innovation pipeline for the long haul,” explains Ryan Brunkhorst, Network Engineer. “The deciding factors were Aruba’s visionary approach to changing the core networking paradigm and the flexibility its solution provided for upgrading connectivity as high as 100GbE in the future.”

Rock-Solid Foundation: 8400 Core Switch & AOS-CX

To begin, FPU deployed the Aruba CX 8400 core switch, with its microservices-based AOS-CX operating system.

“The 8400’s interface was graceful and familiar from the start,” Brunkhorst says. “I had it up and running in a matter of minutes.” The 8400’s design and open standards operating system are also a plus. “With active chassis components field-replaceable and hot-swappable, we anticipated outstanding availability and reliability,” says Brunkhorst. “The open standards approach ensures we can adopt the most suitable companion technologies for our needs.”

Additionally, FPU implemented Aruba’s 3810 and 2930 access switches across its landscape. “This enables us to leverage various 8400 capabilities for automating tasks,” says Brunkhorst. “We’re also considering ways to utilize the built-in RESTful API’s and the Python interpreter.”

Adding Aruba Wi-Fi Completes Future-Ready Network

After deploying its new wired network, FPU pursued a similar evaluation of wireless for replacing its legacy Aerohive and Ubiquiti systems.

“Having a rock-solid core enabled us to focus on completing our Wi-Fi refresh,” Alfonso says.



“Having a rock-solid core enabled us to focus on completing our Wi-Fi refresh,” Alfonso says.

Aruba ClearPass and Dynamic Segmentation enhances cybersecurity

Upon exploring the options, FPU again gravitated to Aruba. “We were most excited about the security capabilities Aruba’s Wi-Fi provides,” says Brunkhorst.

This includes centralized, role-based access control with ClearPass, which the institution integrated with its Microsoft Azure Active Directory and Office 365 deployments to provide a single sign-on experience for student IoT devices.

“In addition, Dynamic Segmentation significantly streamlines network administration by enabling us to segregate switch traffic automatically in real time,” Brunkhorst adds.

Adopting full stack provides scalability and flexibility

FPU’s wireless set up also includes indoor and outdoor access points (APs), deployed using a multi-controller architecture for high availability, along with redundant virtual Mobility Masters, for streamlined Wi-Fi management and non-disruptive live updates.

“Implementing the full Aruba stack gives us a truly scalable, future-ready infrastructure,” Alfonso says.

Academic, Athletic & Entertainment Benefits Off the Charts

Whether in the classroom, on the court or after hours, FPU is now exceeding user expectations.

“With seamless mobility indoors and out, our users are very pleased,” says Alfonso.

Next-generation curriculum models & 4K streaming

Academically, the network is facilitating the capability to explore new curriculum models, including using online tools such as Moodle for LMS, Zoom for web collaboration and Kahoot for interactive feedback.

Streaming 4K video is also popular. "Whether it's in classrooms, while studying or for entertainment, we're seeing a big spike in 4K streaming," Brunkhorst says. "We have one residence using a terabyte and a half of throughput weekly."

Keeping the network secure

In residence halls, FPU's students enjoy high-performance Wi-Fi and IT appreciates retaining granular access control.

"Although onboarding is self-service, ClearPass provides rich contextual information about each device, such as type, vendor, hardware version and behavioral attributes," explains Brunkhorst.

"Additionally, integrating ClearPass with Azure AD permitted us to create various smart granular rules," he continues. "For instance, we grant internal network access to a security camera, but disallow cameras on our student network."

Live feeds ensure NCAA compliance

At FPU's athletic and special events complex, reliable connectivity is helping ensure the institution meets compliance requirements and delivers benefits to the community at large.

"For example, the NCAA requires real-time statistical feeds during events," Brunkhorst says. "Eventually, we expect the NCAA will require live streaming."

"Plus, we'll be able to offer live streaming to our community, regardless of event type. Commencement ceremonies are high on the list," he adds.

Boosting Campus Operations, Safety and Revenues

With expanded network capacity and performance comes other critical business and operational rewards.

"For example, our new network already supports some types of IoT devices, with more HVAC and other operational sensors on the horizon," Brunkhorst says. "Also, our Skype for Business and Zoom communications are significantly improved as we work working toward fully embracing UC and eliminating handsets altogether."

Advancing physical safety with IoT and location awareness

FPU's new infrastructure addresses various physical security concerns, starting with supporting improved IoT camera monitoring at the institution's Security Operations Center.

"We can now aggregate video from about 100 cameras," Alfonso says. "This enables us to effectively monitor our entire campus, as well as some of the regional campuses."

"Additionally, we're evaluating door access, and access control generally, across our entire campus," he continues. "We want to federate those systems with our IT security solutions, including ClearPass and Dynamic Segmentation."

Moving forward, FPU will explore ways to leverage location awareness built into Aruba's APs for enhancing its existing outdoor emergency poles, such as adding geospatial and interactivity capabilities.

Revenue opportunities on deck

From a partnership and revenue perspective, FPU can now work with area community colleges and other interested parties to rent space at regional campuses.

"Because our satellite locations conduct classes at night, we can more effectively rent out space during daytimes and on weekends," Alfonso says.

"Before, we couldn't offer seamless and reliable Wi-Fi," he adds. "Now we can do so while also keeping access secure."

IT Effectiveness Improved, More on the Horizon

Unsurprisingly, IT is also realizing its share of benefits. "Aruba's multiple automation features free up significant time for our staff to complete higher-value projects," Alfonso says.

New switches slash maintenance time

The gains were apparent from the start. "Just upgrading to the 8400 resulted in our help desk cutting machine imaging from as much as 15 minutes to about five," says Alfonso.

According to Brunkhorst, intelligent switches and automated access control cut manually applying a single change across its wired network from several hours to minutes, or less. "We make a single adjustment in ClearPass and the new configuration flows throughout our landscape," he says.

In addition, the integration of Azure AD and ClearPass eliminated much of the help desk overhead that FPU encountered previously.

Up next: Proactive management

In future, FPU plans to take advantage of multiple Aruba capabilities, such as using the Network Analytics Engine within AOS-CX for fine-tuning in order to become proactive infrastructure managers and move toward a zero-trust environment.

The institution is also evaluating how ClearPass can unify its wired and wireless access control, to make experiences even more seamless, and AirWave's capabilities for visualizing Wi-Fi issues before they impact users.

Other potential deployments include Aruba's User Experience Insight. "We're evaluating the solution for gaining a user-centric look at connectivity and performance," Brunkhorst says. "Client-side reports are always the hardest to troubleshoot as Wi-Fi issues are extremely ephemeral. Our assessments thus far are proving positive for helping give us additional insight into what a problem might be."

Aruba Partnership Helps Enable IT's Promise

Overall, partnering with Aruba lives up to the vendor's philosophy of "Customer First, Customer Last," Alfonso says. "Similar to any other major deployment, we've hit a few bumps, but our local representatives always ensure we immediately reach the right level of engineering support."

"Many other vendors don't even understand our problem in the first place, much less expedite a resolution," he continues.

It all adds up to assuring FPU can deliver on IT's promise.

"With our end-to-end Aruba wired, wireless and cybersecurity infrastructure, experiences are so exceptional we receive very few network-related help desk calls," Alfonso says. "And no one is complaining on social media anymore."

"With our end-to-end Aruba wired, wireless and cybersecurity infrastructure, experiences are so seamless we receive very few network-related help desk calls and no one is complaining on social media anymore."

WEBSTER ALFONSO, DIRECTOR OF NETWORK SERVICES, FRESNO PACIFIC UNIVERSITY

© Copyright 2020 Hewlett Packard Enterprise Development LP