

CASE STUDY

Olivet Nazarene University deploys Aruba Wireless Solution for Centralized Security and Flexibility.

The IT department at Olivet Nazarene University (ONU) faced complicated challenges within their existing Wireless LAN (WLAN) system. The college had already installed some first generation access points (APs) and devices in a few of the buildings on campus, but soon realized that the system just wasn't going to scale very well as the service was rolled out to more and more users, including faculty, staff, students and guests. The main factors that drove the college to look for a new WLAN

In addition, security was becoming even more of a concern and the security features that the existing first generation WLAN devices offered were quickly becoming obsolete.

The University has over 70 separate buildings on campus including residence halls, academic centers, libraries and administration offices and has plans to add additional buildings in the near future. With that said, a system that could be centrally managed, allowed for

multiple security and authentication methods and could easily be expanded was what the university was looking for.



Another obstacle

solution centered around scalability, security and centralized management.

“Trying to manage individual (fat) AP's including firmware upgrades, channel assignments, and power levels, just to name a few, was going to be a daunting challenge that nobody on the ONU IT staff was looking forward to supporting” said Dennis Seymour, Director of Information Technology at ONU.

that ONU had to address was that as a private university, approximately 75% of the computer systems that will be using the WLAN are not directly owned or controlled by the university, so the new WLAN had to provide a secure, but easily adoptable system for all student and guest users and the wide variety of computer system these students bring on campus. Seymour went on to state, “It doesn't make much sense to spend a quarter of a million dollars or more on a system if no one wants to use it because it is too complicated to use and support.”

UNIVERSITY OVERVIEW

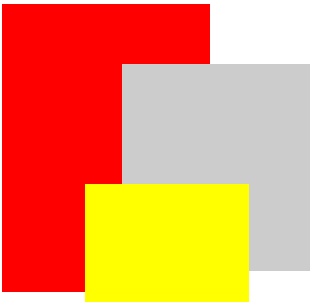
Founded in 1907, Olivet Nazarene University is a private, Christian, liberal arts university -- an institution of the Church of the Nazarene, theologically grounded in the Wesleyan tradition.

The college is located in the historic Village of Bourbonnais, Ill., a secure community just 50 minutes south of Chicago's Loop. The beautiful, park-like campus, including 30 major buildings is situated on 225 acres and is valued at \$160 million.

The University offers more than 100 fields of study organized around 23 academic departments for majors, minors or concentrations within majors. The School of Graduate and Adult studies offers 15 master's degree programs and nontraditional adult degree completion programs.

REQUIREMENTS

- Support for all current student wireless cards (a,b,g)
- WiFi compliant
- Support for PDA's, Mac, Linux, Windows (98, ME, 2000, XP, etc.)
- Secure environment
- No mass management of WEP keys on individual workstations
- Allow known and trusted users only
- Seamless roaming between APs
- Centralized management of devices
- Ability to deny given protocols (ie. ICMP, NetBIOS, etc.)
- Min 2Mbps/user @ 40ft from AP
- Power over Ethernet
- VoIP capable
- External and Internal antennas must be aesthetically pleasing or hidden from view.



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After evaluating several systems in house, ONU choose the WLAN Switching system from Aruba Wireless Networks. “The Aruba system has all the features we were looking for and at a price we could afford.” “We used Delta Network Services for the installation and integration of the Aruba system and feel their knowledge of the



product was key to our successful installation,” said Dennis Seymour.

The college already had an existing wired network core, which is made up primarily of layer 3 switches from Enterasys Networks, so the Aruba Wi-Fi switching platform was a great choice. The Aruba system can be configured as a layer 2 overlay to any existing Ethernet network, simplifying deployment by riding on top of the existing network infrastructure. This is a benefit for just about any IT department since there are no changes required within the existing wired network. It simply rides as an overlay to what you already have.

The heart of the Aruba system at ONU consists of (1) Aruba 800 switch configured in “Master” mode where all configuration and security parameters

are managed for the entire wireless network, and (4) Aruba 5000 switches configured in “Local” mode acting as policy enforcement points, providing the horsepower behind the system. There is a 5th Aruba 5000 switch that is configured as a “Local” backup for the other (4) Aruba 5000 switches. This level of redundancy is provided via standards based Virtual Router Redundancy Protocol (VRRP), further demonstrating Aruba’s support of standards based protocols.

At the edge, ONU has deployed over 400 Aruba AP-52 dual purpose 802.11a + b/g “thin” APs. There are several benefits associated with using “thin” APs as opposed to traditional “fat” APs.

Thin APs don’t retain any configuration information in them once they are powered off and removed from the network. This in itself is a great security feature that prevents sensitive information about your network from being revealed if an AP were to be stolen. A second benefit is software upgrades and management. In a network where thin APs are deployed, all software upgrades and configuration information are controlled centrally on the Aruba Wi-Fi switches. This is a real benefit to the support staff when it comes time to roll out a new software version to support a new feature or function. “You simply upgrade the software on the Aruba Switches and the updates automatically get pushed out to every AP in the network”, said Chris Price, one of the project leads at ONU.

SOLUTION

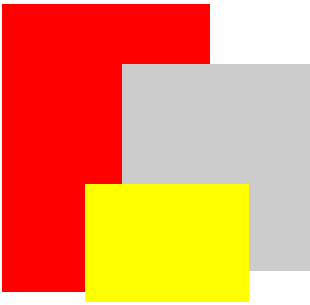
- Aruba 800 and 5000 Wi-Fi switching systems
- More than 400 Aruba AP-52 dual purpose 802.11a + b/g APs
- Aruba AirOS VPN, RF Management and Wireless IDS applications.

BENEFITS

- Campus wide Wi-Fi system including greens
- Centralized RF management
- Thin AP model providing security as well as lower cost of ownership
- Wi-Fi “Overlay” simplifying deployment.

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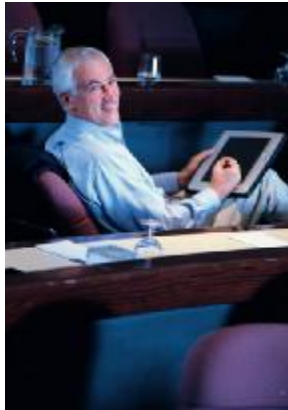
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On the client side, several authentication methods are utilized including 802.1x and the Aruba Captive Portal. Students and guests associate to the wireless network and then launch their web browser. They are redirected to a Captive Portal which forces the user to provide proper user credentials which are then authenticated by a backend RADIUS sever. Upon successful authentication, the user is then presented with the option of downloading the Aruba VPN dialer, which totally automates the process of setting up a VPN session on the client machine, while at the same time affords the user layer 3 IP-sec encryption. PC's assigned to staff members are configured to use 802.1x as the authentication method which also uses a backend RADIUS server to validate the user name and password. Once these users are successfully authenticated, a unique dynamically rotating WEP key is automatically assigned to that client's machine providing secure encryption.



The Aruba system software, AirOS, allows the support staff to dynamically create security rules based upon individual users or groups of users - granting them permission to systems, protocols or destinations appropriate for their given role in the wireless domain. The entire wireless system is managed from a single point in the network and includes advanced features such as auto Radio Frequency (RF) calibration (including channel

assignment and AP power level adjustments) and user mobility tracking. This feature is especially important for any organization moving towards Wireless VoIP phones where E911 locator service is critical.

"Delta Network Services certainly has been a big part of the successful WLAN deployment we have undergone here at ONU. Delta was able to provide a myriad of services to us including pre-staging of the Aruba equipment in their lab to ensure everything would operate as designed before it actually arrived on-site," said Dennis Seymour. "Delta was also very instrumental in making sure all of our goals and major deadlines were met."

"The ONU wireless network is one of the largest Wi-Fi installations Delta has been in front of. Given the size and complexity of this project, it was a huge success," said John Zawacki—System Engineer at Delta Network Services. "Customer satisfaction is what Delta Network Services is all about as a company. We differentiate ourselves from the competition by providing an unmatched level of personalized service to our customers."

"The ONU project certainly came with its challenges, as any project as large as this one does, but in the end, the project was a big success", said John Zawacki—System Engineer at Delta Network Services.

ABOUT

DELTA NETWORK SERVICES

Delta Network Services was formed in November 2001 to provide high-end network engineering and support services to medium and large scale enterprises. Our core competencies lie in the areas of L2/L3 switch routing, Gigabit and ATM infrastructures, converged IP networks and WLAN security and management. We provide our services, including product sales, to a diverse cross section of industries throughout Michigan and the Midwest. We are a certified Aruba Wireless Networks partner. Our offices are located in Southeastern Michigan.

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It's all about your Network!

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