



CASE STUDY

U.S. Army Materiel Command (AMC)

The U.S. Army Materiel Command Puts it All Together with Aruba Wireless Networks

The U.S. Army Materiel Command (AMC) is the Army's provider of materiel readiness – technology, acquisition support, materiel development, logistics power projection, and sustainment – to the total force, across the spectrum of joint military operations.

AMC is currently headquartered in Fort Belvoir, Virginia and is located in 149 locations worldwide, including more than 48 states and 55 countries. Manning these organizations is a work force of more than 66,000 military and civilian employees, many with highly developed specialties in weapons development, manufacturing and logistics.

The Command's complex missions range from development of sophisticated weapon systems and cutting-edge research to maintenance and distribution of spare parts.

The Need To Securely Connect All Base Facilities

Like all organizations, AMC is constantly looking for ways to streamline operations, improve productivity and reduce costs. The older infrastructure in place at many bases did not allow AMC to take advantage of the technological advances that have erupted in the past decade.

For example, many AMC personnel work in mechanic shops, hangers and storage facilities that do not have access to any networked computers. This required constant traveling between the work site and areas that housed computers to input or retrieve information, resulting in lost productivity and inaccuracies in data entry.

Some AMC bases are also expansive in size, and in certain cases are 10-20 miles wide with no connectivity to AMC servers. Consequently, AMC needed a way to bring all its facilities, even the most remote locations on base, into the Command network.

In addition, personnel using handheld devices for inventory tracking needed to communicate logistical information back to AMC's central database. AMC required a secure wireless LAN (WLAN) that would enable its personnel to communicate with Command databases at the work site from a host of different devices such as laptops, PDAs and other handhelds.

Finally, AMC wanted a WLAN that could

take advantage of the Army's Logistics Modernization Program (LMP), a suite of software and business processes that streamline maintenance, repair and overhaul (MRO), as well as planning, finance, acquisition and supply of weapons systems, spare parts, services and materiel.

A FIPS-Validated, Secure Wireless Network

To address these needs and help modernize its U.S. installations, AMC selected Aruba Networks. Aruba was chosen as the exclusive provider of WLANs to AMC because it was the only FIPS 140-2-compliant provider on the U.S. Army's approved products list. Aruba was also the only provider to offer a full spectrum of products and services that met AMC's needs, including 802.11n and wireless mesh.

By the end of 2010, Aruba WLANs will be deployed in almost half of all AMC installations in the U.S., with additional deployments continuing over the next several years.

The Aruba WLAN includes Mobility Controllers that reside in the secure data center, where they manage complex and processing-intensive management and security functions. WLAN services are virtualized and implemented in 802.11a/b/g/n access points (APs) at the network edge.

The Aruba validated controllers meet stringent DoD security standards including FIPS, DoD Directives 8100.2



The Aruba Networks Secure Government WLAN Architecture

Aruba Mobility Controller

- Up to 16 Gbps of AES-256 throughput
- Automated WLAN design and activation
- Centralized security, control and management of the entire network
- Identity-based security gateway with role-based access control policies
- FIPS-140-2 Level 2 Validated and listed on the US Army IA-Approved Products List

Aruba Access Points

- Single- and dual-radio 802.11a/b/g/n APs
- Indoor and outdoor capable; support harsh environment applications
- Integrated Trusted Platform Modules (TPMs) in 802.11n APs to ensure device security
- APs configurable to support mesh and remote access applications

ArubaOS Wireless Intrusion Protection

- Integrated into the Mobility Controller
- Incorporates wireless intrusion protection into the network infrastructure
- Eliminates the need for a separate system of RF sensors and security appliances
- Thwarts malicious wireless attacks, impersonations and unauthorized intrusions

and 8420.1, and Common Criteria. The APs provide secure wireless connectivity to client devices and tunnel all wireless LAN traffic to one or more mobility controllers located in the distribution or core of the network.

A Turnkey Infrastructure

A critical factor to the success of any large scale deployment is the effectual installation of WLAN products. By Light Professional IT Services, Inc., an Aruba partner, utilized a systematic process of incorporating detailed site surveys, comprehensive engineering packages, critical design reviews, and an extensive test and acceptance plan to ensure an optimized, robust, and scalable product was delivered to the customer.

The success of this effort was made possible through By Light's close coordination and teamwork between the AMCIO-T PM, the individual Life Cycle Management Commands, and the Depot personnel. Strict oversight of each step ensured all objectives and milestones were accomplished on schedule and under budget. Skilled, yet flexible, installation teams ensured customer satisfaction by meeting and exceeding network requirements, while not impeding critical mission operations.

Connecting And Modernizing The Base

The Aruba WLAN solution enables AMC personnel to connect to each other within a facility and connect from these facilities to the main AMC databases. Aruba's WLANs have helped to modernize many AMC functions including:

Acquisition and distribution: In the past AMC personnel were required to hand-write tracking and inventory information and then travel to a location on the depot where the information could be entered into a networked computer.

While technological advances such as handheld scanners could make inventory data collection more efficient, AMC needed to ensure transmission of the data met stringent DoD security regulations.

Aruba's WLAN allows AMC to take advantage of the Army's LMP program by providing a FIPS-compliant wireless network for transmission of inventory data to Command databases. With Aruba's WLAN, inventory information is now collected on the spot, saving time, increasing productivity and reducing errors.

Wireless connectivity is especially important when retrieving information from remote locations, such as "igloos" that store hazardous materials. In this case Aruba mesh networks are able to bring remote locations 10-15 miles away to the AMC network without the cost and disruption of having to dig trenches and lay cables for a wired infrastructure. AMC personnel are now able to wirelessly communicate key data from these igloos directly to Command databases.

Industrial base operations: When repairing existing machinery or assembling new products, AMC personnel must refer to a myriad of manuals. In the past, these manuals were physically carried to the work site and could be easily misplaced or damaged.

Utilizing Aruba's WLAN architecture, AMC personnel now use laptops to access online manuals and other relevant information directly at the work site. The use of online manuals eliminates the need to store, track and maintain hard copy manuals and ensures that the most up-to-date manuals are easily available and accessible.

Administrative operations: Because many administrative buildings on base had an older network infrastructure, LAN connectivity within these offices was limited and deployment of wireless was challenging.

Aruba's Adaptive Radio Management (ARM) addressed the RF issues posed by the older facilities by using automatic, infrastructure-based controls to maximize Wi-Fi client performance and enhance the stability and predictability of the entire WLAN. ARM detects RF interference and automatically adapts to it by changing channel and power settings. This is achieved without requiring expensive site surveys or manual performance tuning.

Aruba WLANs and wireless mesh networks are helping to modernize base operations for AMC, enabling AMC personnel to take advantage of new technologies such as handheld devices, as well as streamline core processes such as inventory management and equipment repair.

As the sole FIPS-compliant 802.11a/b/g/n provider, Aruba provides AMC with a secure wireless network, safeguarding the sensitivity of the data while seamlessly connecting personnel and facilities throughout their bases.

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ArubaOS Policy Enforcement Firewall

- Integrated into the Mobility Controller
- Enforces user-centric role-based network access
- Enforces network and application access and priority policies on a per-user basis

ArubaOS Secure Mesh

- Any Aruba AP can be provisioned for secure enterprise mesh operation
- Allows outdoor and indoor environments to be networked without any wires
- APs can to be placed wherever needed

About By Light

By Light is an ISO9001:2008 Registered, Service-Disabled Veteran-Owned (SDVO) Small Business specializing in all facets of network design, implementation and sustainment, including IP, MPLS, WDM, 802.11a/b/g/n and IP over SATCOM networks. For the AMC deployments, By Light serves as a subcontractor to Jacobs Engineering, under the ITSS Vehicle. By Light leverages real-world expertise from the commercial, defense, and intelligence sectors to provide tailored solutions that meet the demanding requirements of the federal market. For more information, visit www.by-light.com.



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