

Success Story

 Allied Telesis™

A Modern, Secure Campus Network - Military College Gets the Bandwidth and Resiliency they Require

The Military College of Electronic and Mechanical Engineering (MCEME) in India selects an Allied Telesis solution for their new network.



the **solution** : the **network**

Overview

During World War II, India recognized a need to modernize their armed forces to meet potential future challenges. As a result, the Military College of Electronic and Mechanical Engineering (MCEME) was founded. In the intervening years, the college has expanded and diversified.

In November 2012, as a part of further modernization, the MCEME undertook a network upgrade using Allied Telesis advanced products to provide a robust, reliable and secure network backbone for their campus.



CUSTOMER PROFILE

Military College of Electronic and Mechanical Engineering (MCEME)

The MCEME, then called 'EME School,' was established in Kirkee in 1946.

The school's original purpose was to provide technical training to the Corps of Electrical and Mechanical Engineers (EME Corps). Over time this training was extended to include Army, Navy and Air Force, as well as public sector units.

In July, 1953, the EME School moved from Kirkee to Secunderabad. In 1967 the school changed its name to the Military College of Electronic and Mechanical Engineering, and added faculties in electronics, electrical and mechanical engineering, industrial engineering and tactics. In 1987, they added a faculty of aeronautical engineering to support the newly formed Army Aviation Corps.

Today, the MCEME offers graduate and post-graduate engineering courses in computer science, communications, radars, missiles, aeronautics and mechanical engineering. It also conducts management courses for middle and senior level officers, and diploma courses in various engineering disciplines for other ranks. Large numbers of officers and other ranks from friendly foreign countries come to the MCEME for training.

The MCEME has a 'Simulator Development Division' which develops state-of-the-art training simulators for armed forces.

2013 marked 50 years since the MCEME moved to Secunderabad. During these 50 years it has produced many highly trained 'Soldier Engineers' who have won accolades for their exceptional technical knowledge and skills both at home and abroad.

Secunderabad

- Popularly known as the twin city of Hyderabad, Secunderabad is located in the Indian state of Andhra Pradesh. Secunderabad was founded in 1806.
- Secunderabad and Hyderabad are collectively known as Hyderabad, and together form the sixth largest metropolis in India.
- Secunderabad is one of the largest military quarters in India, and has a large army and air force presence.



The old network

The MCCEM campus network is spread over a large area, with 6 primary distribution locations which connect to 83 access layer locations. Prior to the redesign with Allied Telesis switching infrastructure, there were numerous network problems.

The network's fibre optic cable was run overhead. This left it vulnerable to fibre cuts and frequent failures which resulted in network downtime.

The network backbone had evolved in a piece-meal manner on a daisy-chain network. This highly unreliable network infrastructure was slowing down network access, causing high latency and multiple points of failure.

There was no standardization of equipment. Most switches were unmanaged, leading to serious issues for the school's IT team.

With no segmentation and heavy traffic, the network was vulnerable to loops. The school had little network control and trouble shooting procedures had to be rather ad hoc.

There was no centralized network management, meaning staff were not being utilized efficiently.

The school had no port or end point security in place, so the network was vulnerable to attack.

Lastly, there was no IPv6 compliance. This is required by the Indian government.

The network requirements

The MCCEM's campus is spread across a very large area. Because of this, they favoured a phased deployment approach.

In the first phase, the complete network core, distribution layer and 52 access locations were overhauled. In the second phase, another 30 + access locations were added to the network backbone.

The MCCEM wanted the following features in their new network:

A reliable network infrastructure with no single point of failure

The MCCEM required highly available switching infrastructure for all their Intranet applications. Therefore they needed a network that was highly reliable. Key to this reliability is the need to have no single point of failure.

Quality of Service (QoS)

The MCCEM's new network needed to provide the essential bandwidth required by their priority applications, such as video conferencing. Low latency was also an important requirement, particularly for interactive applications.

Scalability

Further to the phased deployment approach, the campus wanted the future potential to add other IP-based services, such as security surveillance, Virtual Desktop/Private Cloud, e- Learning, Digital Library and more. The MCCEM needed the solution to be scalable and capable of handling these add-on IP based services in the near future.

Centralized management

Centralized management was a key requirement. The central data centre needed to manage the network end to end, using network management software with a high level of monitoring and management features.

A secure LAN

All end points had to be secured and under complete IT control. RADIUS was needed, to centralize authentication, and to apply MAC address filtering in all access-layer switches.

The ability to transition from IPv4 to IPv6

As per the mandate by the Indian government, the new network infrastructure had to be capable of smoothly migrating the MCCEM's IPv4 supported end points to an IPv6 infrastructure, once their back end applications were IPv6 ready.

Optimized cost

The new network had to provide excellent value for money, and the equipment had to be energy efficient.

The solution

The MCEME chose an Allied Telesis solution for their new network. Allied Telesis were chosen over other vendors, including Cisco, Juniper, and Extreme Networks, because of our ability to liaise with the MCEME to provide a complete solution and customer support. We also had a positive prior deployment reference from the Indian Defence forces:

Some of the major benefits provided by the Allied Telesis solution are outlined below:

Solution benefits:

- Virtual Chassis Stacking (VCStack)
- Ethernet Protection Switched Ring (EPSRing)
- Network Access Control (NAC)
- Superior Quality of Service (QoS)
- Remote Access Dial In User Service (RADIUS)

Virtual Chassis Stacking (VCStack™)

VCStack makes networking simple. It allows connection of multiple switches via high-speed stacking links. This aggregates the switches, which then appear as a single switch, or “virtual chassis.” The virtual chassis can be configured and managed via a single serial console or IP address, providing greater ease of management in comparison to an arrangement of individually managed switches. Moreover, VCStack provides inherent resilience at Layer 2 and Layer 3, often eliminating the need to configure protocols like Virtual Router Redundancy Protocol and Spanning Tree.

Ethernet Protection Switched Ring (EPSRing™)

Allied Telesis EPSRing solutions provide high performance, high reliability, flexible, scalable distributed network cores. The core can be as small or as large as required. It can be connected by copper or fiber, or even copper and fiber in the same ring. The core bandwidth can be anything from 100Mbps to multiples of 10Gbps. The recovery time when links or nodes go down is extremely fast — as low as 50 ms, making this solution ideal for the provision of converged voice, video and data services for the MCEME.

Network Access Control (NAC)

NAC allows unprecedented control over user access, in order to mitigate threats to network infrastructure. Allied Telesis switches use 802.1x port-based authentication in partnership with standards compliant dynamic VLAN assignment, to assess a user’s adherence to network security policies to be assessed, and then either grant access or offer remediation.

Superior Quality of Service (QoS)

Comprehensive low-latency wire-speed QoS provides flow-based traffic management with full classification, prioritization, traffic shaping and min/

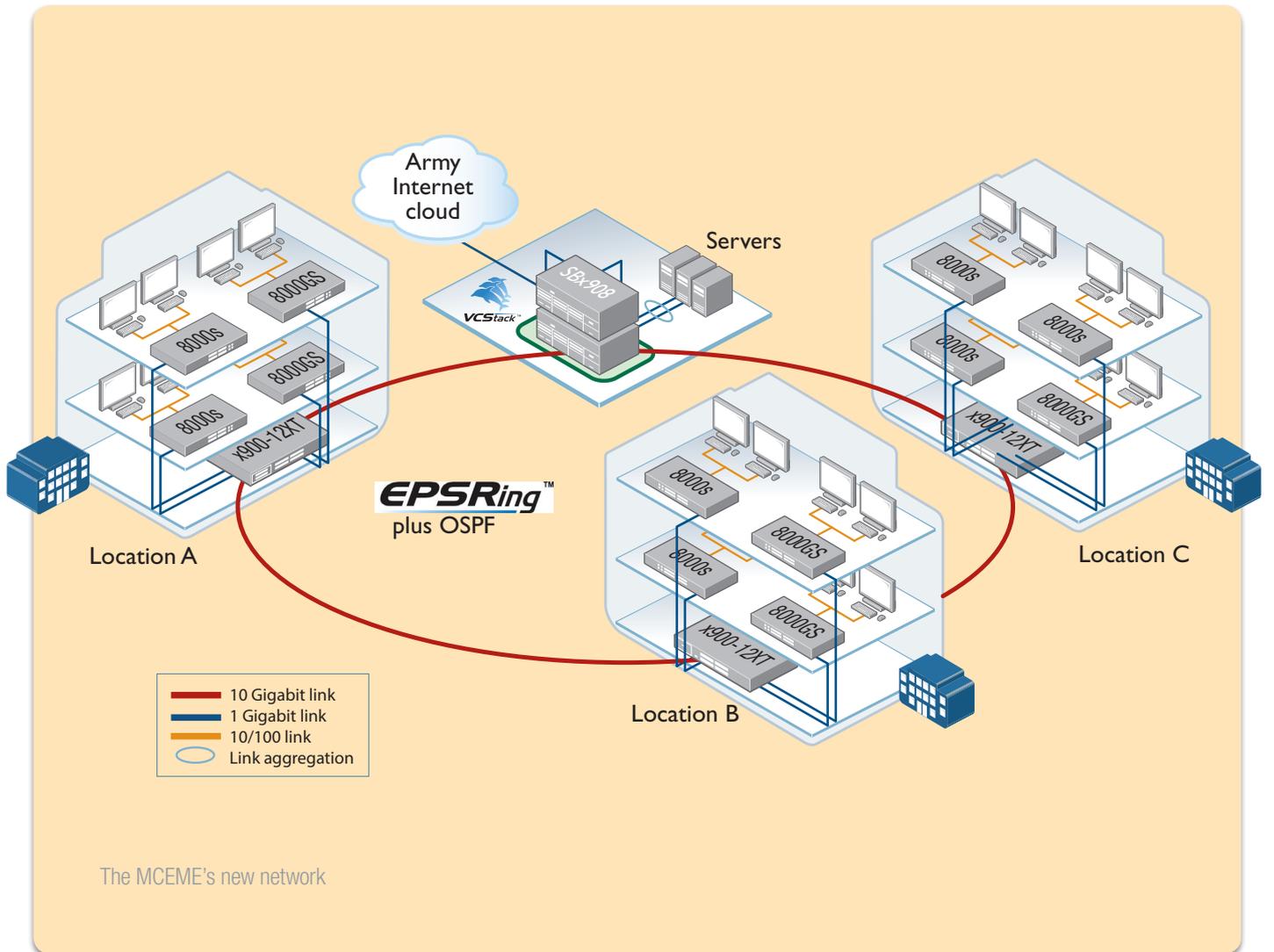
max bandwidth profiles. Enjoy boosted network performance and guaranteed delivery of business-critical Ethernet services and applications. Time-critical services like voice and video applications take precedence over less interactive services like file downloads, maintaining responsiveness of Enterprise applications.

Remote Access Dial In User Service (RADIUS)

Allied Telesis switches feature built in RADIUS capabilities. RADIUS is a networking protocol that provides centralized Authentication, Authorization, and Accounting (AAA) management.

“We are impressed with the simple, fail-proof network design and implementation. We now have a future proof LAN network. It is efficient, reliable, scalable and most importantly cost effective”

Col. Paramjit Singh Gill
OIC IT Cell & HOD CS Dept, MCEME



The products

The MCEME's new network contains the following Allied Telesis products:

SwitchBlade x908 ADVANCED LAYER 3+ MODULAR SWITCHES

The Allied Telesis SwitchBlade x908 modular switch is the ideal solution for the modern enterprise network core where reliability, resiliency and high performance are the key requirements.



x900-12XTS ADVANCED GIGABIT LAYER 3+ EXPANDABLE SWITCHES

Allied Telesis x900 Series Layer 3+ switches feature high speed 60Gbps expansion bays, providing a level of port flexibility and application versatility unmatched by any other IRU Gigabit Ethernet switch on the market.



AT-XEM-12T Expansion Modules

High speed XEMs provide both copper and fiber connectivity, delivering the ultimate in flexibility. All XEMs provide non-blocking performance. XEMs are ideal for aggregating Gigabit to the desktop, or for Gigabit uplinks from Fast Ethernet switches.

AT-9000/28SP

28 port Gigabit Managed eco-friendly switch with 24 port 100/1000 Mbps SFP fixed configuration and 4 additional 100/1000 Mbps SFP ports in combination with 10/100/1000T ports. The Allied Telesis 9000 Series is a low cost managed Gigabit Ethernet switch family with a IRU form factor. All switches in this series are rack mountable.

AT-8000S/24

10/100TX x 24 ports stackable Fast Ethernet switch with 2 combo SFP ports. Allied Telesis 8000S Fast Ethernet switches are low-cost, managed and stackable. They are IRU high and rack mountable. Some switches in this series have optional PoE.

AT-8000GS/24

10/100/1000T x 24 ports stackable Gigabit Ethernet switch with 4 combo SFP ports. The 8000GS/24 is a low-cost managed stackable Gigabit Ethernet switch ideal for extending the port count at the edge of the network with stacking. This cost-effective switch has an IRU form factor, four Gigabit Ethernet SFP combo bays and dedicated stacking interfaces.

AT-SNMPc 7

Network monitoring and management software.

About Allied Telesis, Inc.

Founded in 1987, and with offices worldwide, Allied Telesis is a leading provider of networking infrastructure and flexible, interoperable network solutions. The Company provides reliable video, voice and data network solutions to clients in multiple markets including government, healthcare, defense, education, retail, hospitality, and network service providers.

Allied Telesis is committed to innovating the way in which services and applications are delivered and managed, resulting in increased value and lower operating costs.

Visit us online at alliedtelesis.com



the **solution** : the **network**

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