

Success Story

Allied Telesis™

# Ankara University

Choose Allied Telesis to standardize their IT infrastructure and as a solution for their core network.



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



# The client

## Overview

Ankara University is a highly respected university that comprises 15 faculties, 7 graduate schools, 12 schools, and 25 research centers. Currently the University offers top quality education and training in 40 vocational, 114 undergraduate and 110 graduate programs; within basic and applied science subjects such as agriculture, dentistry, medicine, pharmacy, science, veterinary medicine, engineering and social sciences including communications, divinity, education, law and political science.

Ankara University is the Turkish Republic's first public university, and is located in the nation's capital, Ankara. Within the country and internationally, it has established a high reputation for the experience and qualifications of academic staff; its innovative teaching, learning and research facilities and the quality of their graduates.

Ankara University places great importance on following the latest trends in information technology. Therefore, in keeping with today's fast-moving and increasing demands, as well as anticipating future predicted needs, the University is constantly striving to improve its IT infrastructure so that it can continue to expand the education, research and development and administrative activities of the University.

The IT department of the University has several responsibilities but the prime one is to provide an uninterrupted, secure, fast and high-quality communication environment for the whole University. They provide staff and students in all departments with services such as electronic libraries, databases and access to required web sites. In addition they create and update official websites; support all University staff with IT problems as well as supplying, distributing, maintaining and repairing all hardware and software needed throughout the campus.

They are aware of the importance of sustainability of their IT services and, to do this, they invest in training and developing the personnel of the IT department and in improvements to the IT infrastructure itself.



# The challenge

The major concern for the University was that their existing network infrastructure had a single core switch, which meant that the backbone of the network did not provide resiliency. An analysis of the network also revealed that there were some important weaknesses in the infrastructure such as lack of reliability, causing network outages; the large number of diverse equipment on the topology, causing management challenges; and lack of performance, resulting in poor user experience.

As the network traffic and demands increased, the infrastructure had become out-of-date and insufficient to meet the needs of the users. Also, over time, the University had built up a variety of legacy products from different suppliers, which resulted in management and troubleshooting being more time consuming and costly for both IT staff and the University. Therefore, there was a need to standardize the IT infrastructure to provide cost and time efficiencies, as well as achieve ease of management.

The University had four ESX servers each with a 1GB connection. E-mail, Web, FTP, DNS, DHCP, RADIUS roles operated as virtual services, which resulted in interruptions to services because these servers were insufficient to meet the needs and demands of the University's 17,000 clients.

In order to remedy these weak points, it was decided that a reintegration and modernization of the IT operation and network was required.

## Solution Overview

- » VCStack™ + LAG
- » DHCP snooping + ARP security
- » Loop faults automatic detection and prevention
- » PoE and PoE+ support
- » RPS on core and edge switches (dedicated PSU)
- » sFlow
- » Storm control

# The solution

The core switch was replaced with two SwitchBlade® x908 switches using Allied Telesis Virtual Chassis Stacking (VStack) technology. This provided a highly resilient network.

Six new servers were installed to carry all service roles into the new ESX hosts. Two AT-VNC10S 10GbE network interface cards, which have VMware certification, were inserted into each of them.

Each of the ESX servers were connected to the core switches with multiple 10GbE connections that were bonded together using link aggregation. The use of multi-port cards in this virtualized environment was critical to the application, so that redundancy and data connectivity for the workloads in the virtual machines could be ensured.

A number of AT-x610-48Ts/X switches were used for interconnecting servers and VM Management traffic. VStack technology was deployed between these switches. Four 10GbE link aggregated connections were set up between the x610 Series and the core switches so that management of traffic could be maintained with high resiliency and load balancing.

AT-x510-52GTX and AT-x510-52GPX switches have increased the end user performance and access point connections to a 10GbE back haul connection, while edge switches gained power redundancy by RPS and dual PSU.

Moreover, the PoE and PoE+ features supply the power needs of the wireless access points, eliminating the need for additional power supplies. DHCP snooping and ARP protection features ensure that security is increased to the edge of the network, while loop detection and protection features automatically detect and prevent broadcast storms caused by network loops.

sFlow is a big advantage for the University to be able to follow and monitor their Layer 2 to Layer 7 traffic. This is supported by all Allied Telesis x-Series switches and also rapidly provides them with a detailed description of any problems if they occur.

Although other manufacturers provide active-active core switching, the Allied Telesis solution better served the University's needs and requirements. The high stacking bandwidth offered by the SwitchBlade x908, together with the VMware certified 10GbE Network Interface Cards and the integrity in the command line interface of the x-Series means that future expansion and demands have been anticipated.

## VStack

### VIRTUAL CHASSIS STACKING

VStack makes networking simple. It allows you to connect multiple switches together 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, and often eliminating the need to configure protocols like VRRP and Spanning Tree.

**VStack™**

At the commencement of the project, the University had determined that it wanted to create an active-active core solution, using 10GbE fiber connections. As a result of co-operation and collaboration between the Allied Telesis solution engineers and the University Network Director, Mehmet Ali Oksuz, an alternative hi-speed stack connection was implemented. The embedded hi-speed stacking ports available within the SwitchBlade x908 made the 10GbE connections unnecessary. This provided the opportunity to reduce the number of modules required; and thus the costs involved. In addition to network efficiency, the Total Cost of Ownership (TCO) was dramatically reduced as a result.

Despite the continued high level of usage; researchers, academic and administrative staff as well as students are now able to access information via a faster and more secure network and the University now owns an updated, resilient, redundant and high performance solution thanks to the project.

As a result of the success of this installation, Ankara University School of Medicine has also chosen to implement an Allied Telesis SwitchBlade x908 and VCStack solution for their core network.

## The Future

### » AMF

They University could now start to use Allied Telesis Management Framework on their network by purchasing the basic AMF license.

### » IPv6

All the Allied Telesis products that the University now owns are ready to transition to IPv6.

# Simplifying Network Management with Allied Telesis Management Framework

Managing network infrastructure is time intensive, costly, and has traditionally required expensive, third-party applications to effectively manage larger networks. Cloud computing and converged infrastructures deliver a great deal of business value to the enterprise, but they also add complexity. In turn, networks must be more fluid and

evolve at increasingly greater speeds in order to keep pace with the modern applications and service delivery models that are driving that complexity. For everything from virtualization to mobility and BYOD, networks must be able to keep pace with business. Allied Telesis Management Framework (AMF) helps IT do just that by greatly reducing the time and cost of managing network infrastructure.



**AMF**<sup>TM</sup>



# Featured products

## SwitchBlade x908

### ADVANCED LAYER 3 SWITCHES

The SwitchBlade x908 advanced Layer 3 modular switch offers high flexibility and density in a small physical size. It provides scalable and versatile switching solutions for today's data center networks. Each chassis supports up to eight high-speed 60Gbps expansion bays, and is also capable of being stacked through VCS passive backplane.

- 10GbE /GbE aggregator for mid-size data center
- 3RU medium density modular platform
- 8 x 60Gbps "XEM" module bays (same XEMs as x900 family)
- Hot-swappable PSUs, 1 + 1 PSU redundancy

#### Max capability:

- 96 x GbE ports RJ-45
- 192 x GbE ports RJ point 5
- 16 x 10GbE ports

#### With VCStack passive backplane:

- 192 x GbE ports
- 32 x 10GbE ports



## VCStack

### VIRTUAL CHASSIS STACKING

VCStack makes networking simple. It allows you to connect multiple switches together 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, and often eliminating the need to configure protocols like VRRP and Spanning Tree.

**VCStack™**

## AT-VNCI0S

### PCI-EXPRESS 2 X SFP+ 10 GIGABIT INTERFACE CARD

The Allied Telesis AT-VNCI0S dual port direct attach 10 Gigabit Ethernet (GbE) PCI Express Network Interface Card (NIC) with TCP/IP Offload Engine (TOE) and iSCSI offload is the next-generation in C-NIC, combining offload technology with standard Ethernet functionality. Together, these features provide the necessary performance and bandwidth critical to I/O intensive applications such as virtualization and High Performance Computing (HPC).





## x610 Series

### ISCSI OPTIMIZED TOR / ALL-IN-ONE SOLUTION

The Allied Telesis x610 Series is the high performing and scalable solution for today's networks. Optimized for iSCSI support with a choice of 24-port and 48-port versions, with optional 10 Gigabit uplinks and low latency; the x610 Series ensures excellent performance, whilst optional redundant power supplies allow network availability.



## x510 Series

### STACKABLE GIGABIT EDGE SWITCHES

The Allied Telesis x510 Series of advanced stackable Gigabit edge switches offers comprehensive resiliency, security and management features in a compact, highly-reliable package. These switches can be easily upgraded from Layer 2+ to a full Layer 3 feature set and be used as ToR switch once the servers or storage system are equipped with Gigabit interfaces. With a choice of 24 or 48 Gigabit ports, dual-speed SFP+ uplinks, virtual chassis stacking and Power over Ethernet (PoE) on specific models offers a powerful and versatile solution able to cover not only the Cloud infrastructure but also enterprise edge of large education, healthcare, hospitality, government and industrial installation.

### Key features

- » VCSStack (virtual chassis stacking)
- » EPSRing™ (Ethernet Protection Switching Ring)
- » Industry-leading Quality of Service (QoS)
- » Loop protection
- » Link Layer Discovery Protocol – Media
- » Voice VLAN
- » Layer 2+ to Layer 3 upgradable

## About Allied Telesis, Inc.

Allied Telesis is a leading global provider of high-quality, flexible, and interoperable network solutions. Founded in 1987 and publicly held in Japan, the Company operates manufacturing, R&D, support, and sales offices worldwide, servicing customers in key markets including government, healthcare, defense, education, retail, hospitality and network service providers.

Allied Telesis provides standards-based, reliable video, voice and data network solutions for mission-critical applications. Delivering high-performance, future-proof and fully end-to-end solutions, Allied Telesis works closely with customers and partners worldwide to build lasting relationships, partnerships and alliances.

For further information visit us online at [alliedtelesis.com](http://alliedtelesis.com)



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

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