Borderless Architecture

Cyprus University of Technology uses Cisco's Borderless Network to Implement a Multitude of Services for Today and for the Future

EXECUTIVE SUMMARY

CUSTOMER NAME
- Cyprus University of Technology (CUT)

LOCATION
- Limassol, Cyprus

INDUSTRY
- Education

COMPANY SIZE
- 2000 students, 500 academic faculty and administrative staff

CHALLENGE
- Meet the need for fast growth in the next 5 years
- Link an expanded campus area, spread at multiple locations in the city
- Provide secure instant information to students and staff
- Link with the local community
- Provide green field architecture

SOLUTION
- Borderless Architecture implementing a multitude of services in a variable and secure way, with emphasis on video technologies supported by state of the art data centers (IP Telephony, Unified Communications, Security products, WiFi solutions, Application Accelerators, Digital Media System (DMS), Remote Access VPN solutions).

RESULTS
- 10Gb network traffic over own dark fiber
- Borderless Network for 30 buildings, 2000 students, 500 academic faculty and administrative staff
- Scalable and flexible networking solutions to handle approximately 8.000 users in the next 5 years

The University

Being a relatively new University, the Cyprus University of Technology (CUT) started its operations with eight Departments in September 2007. Today there are ten Departments in five schools, covering Engineering, Geotechnical and Food Technology, Communications and Internet Studies, Finance, Management and Health Sciences - the last being operated in collaboration with the Harvard School of Public Health. Being in the heart of the old city of Limassol, the University now becomes a major employer of Limassol, having its own impact on the life of the city.

"Cyprus University of Technology's objective is to develop an e-culture, exploiting new information and communication technologies, offering a better quality of teaching, of research and administration to the University community", says Dr Andreas Mallouppas, Secretary and Registrar at CUT. "The main aim of the University is to offer the best possible services to the University community through the use of modern technology. For this reason, CUT has imported technology in classrooms, hostels, offices and laboratories".

The Needs

Cyprus University of Technology aspires to become a modern and pioneering environment, capable of offering high level training and research in various scientific fields and the largest possible autonomy in training.

Cyprus University of Technology started with 200 students, 40 people at the academic section and 40 people at administration. The initial installation included one router, a pix firewall and two switches to cover the needs of a small operating environment. Having a fast growth in mind, the University needs to implement a robust, scalable, and flexible networking infrastructure to securely accommodate its dispersed locations and an expansion to approximately 8.000 users, and at the same time to provide a solid basis to develop a variety of advanced technologies and services in the following 5 years.

A borderless architecture

Cisco's borderless architecture provided the intelligent infrastructure where a multitude of services has been implemented in a variable and secure way.

"Through its product range and depth, which provided all elements of the deployment phase, Cisco offered a promising design, allowing the University to grow in its own pace to any size required", says Constantinos Christodoulou, Senior Network Engineer, Information Systems and Technology at CUT.

The deployment includes a number of 7600 Series Routers with more than 50 X 4500 Series Distribution and Access Switches and 6500 Series core Switches, supporting 10 gigabit network backbone over its private fiber infrastructure, to satisfy the needs of about 30 buildings, 2000 students, 250 academic faculty and 250 administrative staff.

This is giving Cyprus University of Technology the capability to support an advanced collaboration network, with emphasis on video technologies, supported by state of the art data centers. On top of Cisco's borderless architecture with the highest level of security, reliability, scalability and accessibility embedded, the University has implemented a pure IP telephony solution, integrated into a unified communications system, next to a Wireless LAN, application accelerators, Digital Media System (DMS), and remote access VPN solutions.

"We are confident for the outcome through every roll out of this project. We know Cisco engineers are by our side, assisting us to get the results we are looking for. They have specialized and experienced personnel in all network technologies, and that makes us feel comfortable", says Constantinos Christodoulou.

Increasing productivity through state of the art solutions

Security. Right from the beginning, security has been a main concern for Cyprus University of Technology. The University's diverse environment had to accommodate thousands of users requiring a variety of network resources. Students, academic and administrative staff may require access to different resources, like as records, course schedules, study material, internal and research documents, e-mails, archives, network-enabled and specialized applications. There are also visitors, vendors, guests and many others which only require Internet access. Trying to isolate each user in a separate network has been a very tedious and challenging task.

Cisco's Network Access Control (NAC) offers an automated solution with centralized remote administration and seamless single sign on process for all users. This security level fully protects and prevents all users to get into the system without been authenticated in the first place.

Wifi. University Campus-wide wireless LAN network is based on the existing network infrastructure, typically reducing the costs of network deployment and expansion. All campus buildings are located in the heart of the old city of Limassol and therefore spaces where cables cannot be run, such as in historical buildings, host a wireless LAN. The basic idea is to use a laptop within the campus area and retrieve exactly the same profile as at the local area network.

"University currently uses Cisco's controllers for the indoor access points, with plans to expand it outdoors. There are plans to run voice traffic over the Wireless LAN service, so that the support teams can use wireless IP phones while moving from building to building" says Constantinos Christodoulou, Senior Network Engineer, Information Systems and Technology.

DMS. All University buildings are interconnected with dark fiber optics infrastructure. Using the unlimited capacity advantage of bandwidth, Cisco's Digital Media System provides scalable, centralized management and publishing of high-quality content to networked, on-premise digital signage displays.

Cisco's DMS solution is currently running on 40 LCD screens campus-wide, with plans to add more screens in the near future. DMS delivers instant information by using the power of multimedia that includes audio and video on demand. The pieces of information are delivered campus-wide in a matter of seconds. Distributing information solved issues of speed, readiness, but mainly paper reduction. On top of that, technologies such as IPTV allowed DMS to be used as a method of broadcasting.

Unified Communications. University's strategy is to develop a unified on-campus communication system. The University has been more competitive investing on solutions that integrate voice, data, video, security and mobility into a single, comprehensive solution that takes full advantage of the existing network infrastructure.

Collaboration between IT staff and faculty members has been more productive using communication mobile devices from anywhere, at any place at any given time, from one single point easy-to-use interface.

The University buildings are located in the old city of Limassol, keeping the employees "isolated". Cisco's IP telephony system built-in video capabilities gave the identities back to University employees, as it made easy for them to see the person that were talking to, on the phone. By using the features of IP telephony, daily office collaboration has been significantly improved. Currently, the system is being expanded, enabling setting up web office collaboration meetings and bridged voice conferences arrangements.

Looking into the future

The ultimate goal of the Cyprus University of Technology is based on a "Design-Implement-Operate" model. Additionally, Cyprus University of Technology provides an absolutely reliable, flexible, scalable and expandable system on staff and faculty members, based on the philosophy of green field architecture.

According to Filippos Filippou, Chief Information Officer at CUT, "In order to successfully introduce new technologies, you need to have the appropriate networking infrastructure to support them. The main idea is to create a state of the art University using all unified technologies to enable the process change for a competitive advantage with users, operational efficiency, centralized management and cost control. Selecting and adopting the latest cutting edge technologies, makes a big difference to attracting, not only more qualified students, but also distinguished faculty members to our institution."

For More Information

To find out more about Cisco Borderless Architecture, go to www.cisco.com/go/borderless

PRODUCT DETAILS
7600 Series Routers
Catalyst 6500 Series Switches
Catalyst 4500 Series Switches
CiscoWorks LAN Management Solution
Cisco Wireless Location Appliance
Aironet 1500 Series Outdoor Mesh Access Point
ACE Application Control Engine Module
NAC Appliance
Security Monitoring, Analysis and Response System
Unified Communications Manager
Unified IP Phones 7900 Series

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