COLLEGE OF ENGINEERING, PUNE (COEP)
CASE **STUDY**

OVERVIEW

College of Engineering, Pune (COEP) is an autonomous engineering institute affiliated to Savitribai Phule Pune University in Pune, Maharashtra, India. Established in 1854, it is one of the oldest engineering colleges in Asia. The National Board of Accreditations has accredited 9 undergraduate programmes with tier-1 (Washington Accord) status in 2014. This particular accreditation gives way to recognition of the quality of undergraduate engineering education offered by the member country and is an avenue to bring it into the world class category. It encourages and facilitates the mobility of engineering graduates and professionals at international level.

REQUIREMENT

The college had over 2,500 students who used the wireless network daily along with over 200 staff and faculty. In addition, the college received hundreds of visitors daily who also demanded access to the WiFi network. The IT manager was looking for a solution to control WiFi access, track each user's activity, verify user identity using MIS number and control the usage of torrent and P2P on the network.

Although the college already had Cisco WLC controller, it was incapable of providing all the requirements of their wireless network. They wanted an all-in-one controller capable of providing captive portal with built-in AAA server and bandwidth control. The controller needed to work with existing Cisco access points and integrate with their complex VLAN enabled network.

HOW WE HELPED

▮ Customised captive portal
Cost effective solution as the existing network was leveraged
▮ Single dashboard control
▮ No subscription, license, recurring fee of any kind
▮ Access point Monitoring
▮ A reduction in network fault calls
▮ Ability to remotely control, monitor and troubleshoot
▮ Seamless and scalable WiFi
▮ The ability to support high density environments with more concurrent users per access point

▮ Manage student logins and control the usage
▮ Discourage multiple logins by the same user
▮ Bandwidth management
Policy management

COLLEGE OF ENGINEERING, PUNE (COEP) CASE STUDY

Being an apex institute in its cadre, all its facilities have to match the same grade. To provide its students the best in class wireless access, COEP deployed Wifi-Soft's solution to manage and monitor its users.

COEP's precursor, The Poona Engineering Class and Mechanical School was opened in July 1854, with an aim to provide suitable learning to the subordinate officers in the Public Works Department. The School was situated in Bhawani Peth, Poona , and the accommodation consisted of three small detached houses for teaching purposes and a separate house for the Principal. College was affiliated to University of Bombay in 1866. In 1868 the College moved to the New Buildings. The college was divided into three departments for matriculated and unmatriculated students. In 1879 two new classes, an Agricultural

class and a Forest class , were added to the college , and the name of the college was changed from " The Poona Civil Engineering College " to " The College of Science". The school became "Poona Civil Engineering College", and subsequently in the year 1911, the nomenclature was changed to the "College of Engineering, Poona". It was initially affiliated to the University of Bombay for a degree of Licentiate in Civil Engineering known as LCE and later to the University of Pune. The degree programs in civil engineering, mechanical engineering and electrical engineering were started in 1908, 1912 and 1932, respectively. From then on, the college has gone on expanding adding new departments and new wings by the year. In 2003, the college got autonomous status, thus giving it the freedom to set its own curricula and manage its own finances. This has been the biggest change as far as pedagogy at COEP is concerned. Today, COEP offers nine UG and twenty-three PG programmes, and has more than 3200 students enrolled in its various courses.

Considering the increase in usage of smart phones and tablets COEP College realized that existing wireless setup required an expansion. There were several challenges when it came to providing Wi-Fi ready campus without compromising the quality of service for the students and the staff. The college had over 2,500 students who used the wireless network daily along with over 200 staff and faculty. In addition, the college received hundreds of visitors daily who also demanded access to the WiFi network. The IT manager was looking for a solution to control WiFi access, track

each user's activity, verify user identity using MIS number and control the usage of torrent and P2P on the network.

Although the college already had Cisco WLC controller, it was incapable of providing all the requirements of their wireless network. They wanted an all-in-one controller capable of providing captive portal with built-in AAA server and bandwidth control. The controller needed to work with existing Cisco access points and integrate with their complex VLAN enabled network.

The college surveyed solutions offered by many vendors but concluded that Indio networks's solution was the most suitable one. Unlike other solutions, UniBox came with a built-in AAA and captive portal solution so there was no need to invest in additional AAA and server infrastructure. It also integrated seamlessly in the college's complex VLAN enabled network and worked with Cisco access points that were deployed all over the campus.

A few features of the deployment are as follows,

Captive Portal - Unibox allowed the network administrator to create and managed their custom branded captive portal. The portal login had COEP college logo and its name on it. The portal page resided inside the UniBox thus allowing quick loading of the captive portal. UniBox integrated with their MIS database to validate all students and staff before allowing them access to the WiFi network. The captive portal allowed a prepaid coupon login option for the guest who visited the COEP campus.

Approval Process – UniBox also provided two-step registration process thus allowing

COLLEGE OF ENGINEERING, PUNE (COEP) CASE STUDY

The college administrator was extremely pleased with the UniBox solution. Within a month, the unwanted bandwidth consumption came down drastically. The students and staff reported improved browsing speed once the fair usage and bandwidth quota restrictions were in place. Students were far more cautious about their network usage once they realized that their activities are now getting tracked and recorded. UniBox also reduced the workload of the IT staff by automating the registration and user login process. Overall, UniBox managed to improve the usability and security of the college's WiFi network.

Citation:
*http://www.dw.com/en/mexico-marks-record-number-of-foreign-tourist-visits-revenue-in-early-2017/a-38807362
[1]https://en.wikipedia.org/wiki/Canc%C3%BAn_Internatiol_Ai port#cite_note-sct.gob.mx-1
[2]https://en.wikipedia.org/wiki/Canc%C3%BAn_International_Airport#cite_note-2
[3]https://en.wikipedia.org/wiki/Canc%C3%BAn_International_Airport#cite_note-27
[4]https://en.wikipedia.org/wiki/Canc%C3%BAn_International_Airport#cite_note-28

Excerpts:
https://www.worldatlas.com/webimage/countrys/namerica/caribb/cancun.htm
https://www.cancunairport.com/?gclid=Cj0KCQiAhrbTBRCFARIsACY7MW3NVrXXOv9p2cnTnOCcKiDWHAp_y93uWh4yA6-7dD2f6fIk7ITQ5LIaAjBgEALw_wcB

"Modern, well organized immigration & customs. Everything flows very nicely. Facilities exceed expectations. This is an airport for tourists and they do exceed in all ways. Comfortable, easy to navigate. Well done again! The WiFi made my life easy. Its easy to operate and didn't disconnect even once (like many other Airport networks do!)

- L Baker
United States
Traveller Review on 12th November 2016

★ ★ ★ ★ ★

administrator to ensure only legitimate students get access on the college WiFi network. Each student's registration was sent for approval to the IT admin who was responsible for verifying the user's credentials and approve the registration.

Daily upload/download quota – Prior to installing UniBox, student had unrestricted and uncontrolled Internet access thus resulting in unwanted downloads and congestions on the network. UniBox enforced per user bandwidth and speed restrictions which curtailed over-usage of bandwidth and enforced fair usage policy on each user. All students were allowed daily quota thus ensuring that bandwidth was utilized for legitimate purpose.

MAC Binding – The college administration wanted to only genuine users (students and staff) to access the Internet. They didn't want the students to share their MIS numbers with their friends outside the college campus. UniBox implemented automatic MAC binding along with MAC-based authentication to ensure that student's devices were automatically detected and allowed access to the Internet. UniBox also ensured that existing students/staff were not prompted to enter MIS number and password if they are accessing the internet from a registered device.

Content Filtering - The college management wanted to restrict students from accessing

adult and blocked content on the network to ensure that the network is used only for academic purpose. UniBox allowed the administrator to implement URL filtering services that automatically blocked access to the unwanted content. UniBox periodically downloaded the database of blocked URLs from central server to ensure that the latest URLs were also included in the blocked list.

Detecting Torrents and P-2P software - College environments are notorious for the usage of Torrents and peer-to-peer software like limewire, gnutella, eDonkey, etc. These applications are responsible for hogging most of the network bandwidth and adversely affect the performance of the network. The administrator wanted to ensure that the students are prevented from using such software on the college network. UniBox provides advanced traffic engineering module that identified students using sharing software and automatically quarantined them from the network.

Online Activity and Tracking – The IT manager also wanted to keep an anonymous log of the activity for individual users on the network to comply with the Internet laws. The online activity tracking system in UniBox allowed the administrator to keep a log of all browsing activities on the network and generate monthly report for the management.

Alerts and Reports - In addition, the network administrator required an automated reporting system through which management can track and monitor system performance, usage patterns and network activity. UniBox provided complete reporting features like online users, bandwidth utilization reports, system performance reports and per-user bandwidth usage.