

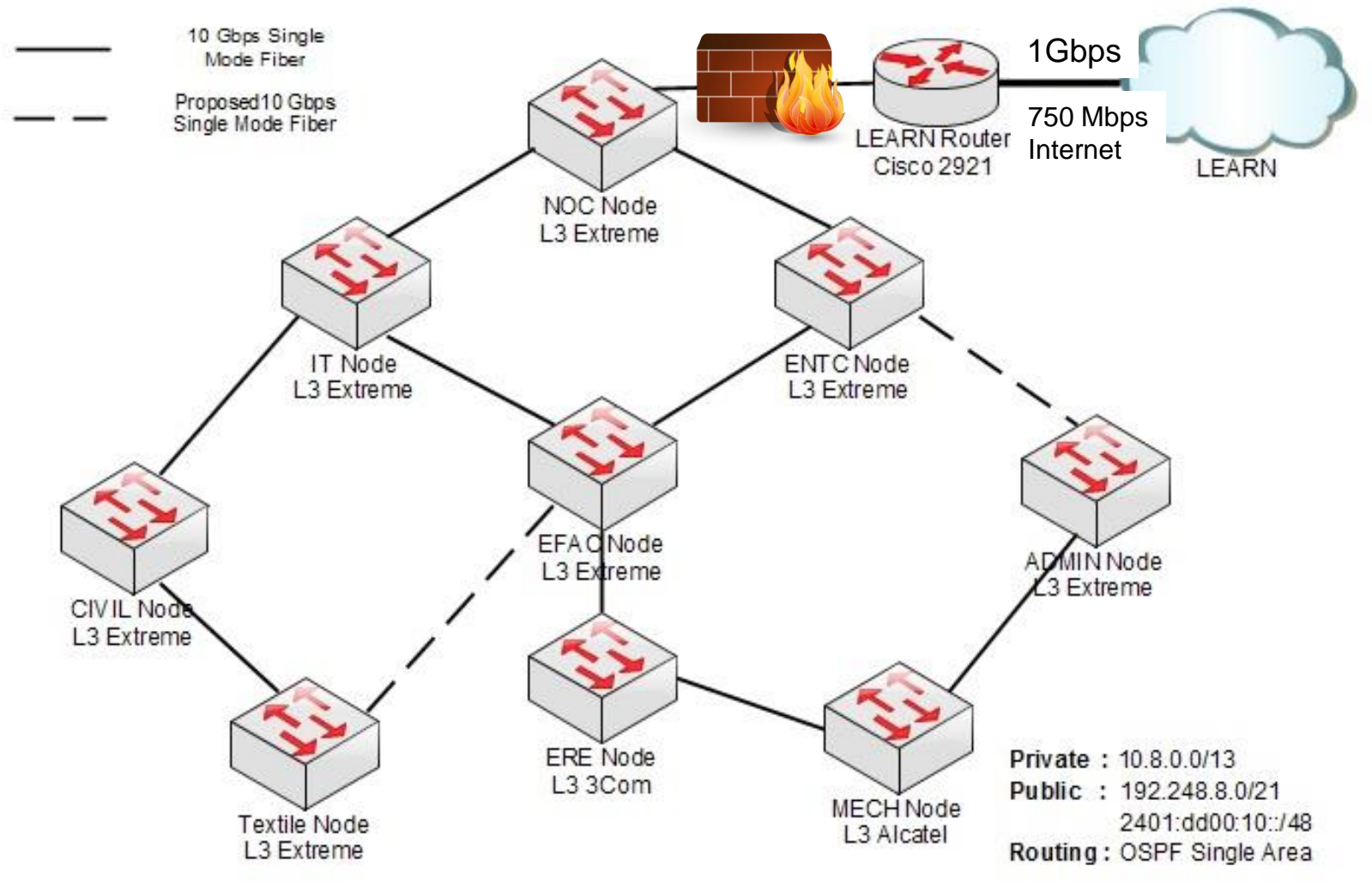
# Network Status Review University of Moratuwa

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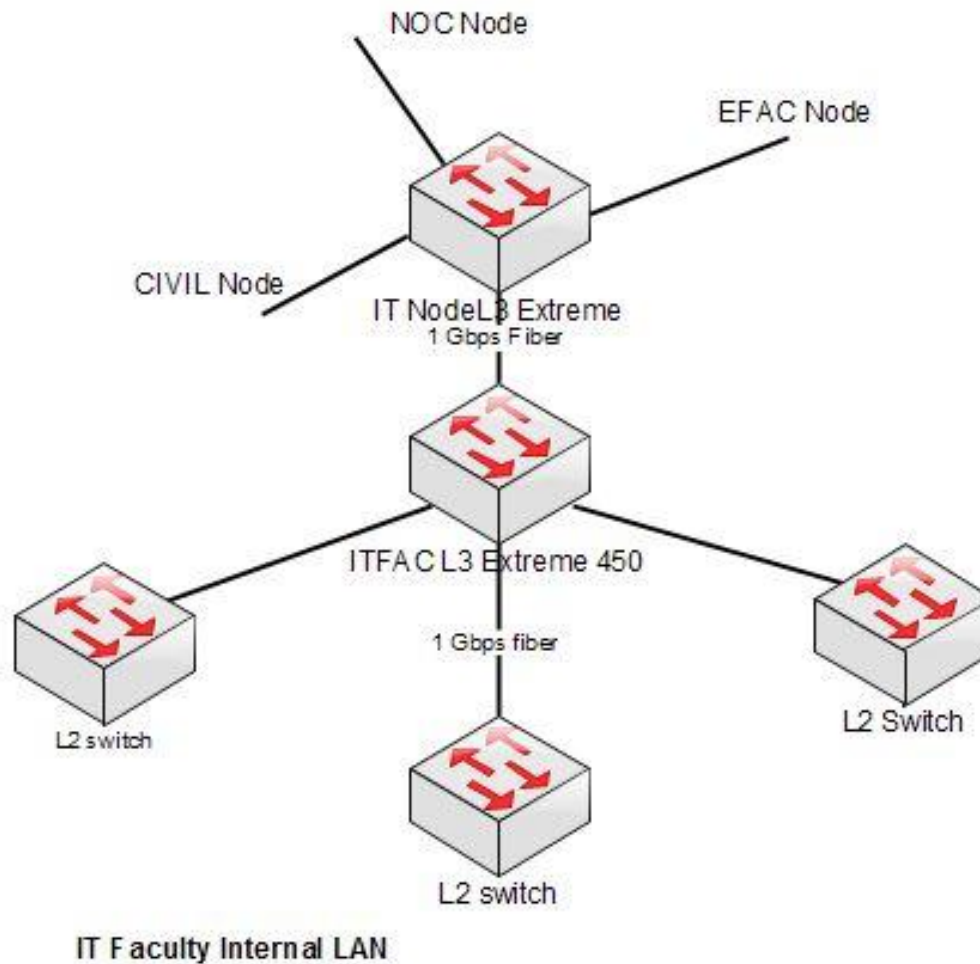
# Introduction

- ▶ Center for Information Technology Enabled Services (CITeS) is the responsible authority for managing the core network and its services.
- ▶ The network infrastructure consists of 150+, L2 switches and 13, L3 switches. 10 Nodes
- ▶ Faculties/Departments have technical staff to manage their local networks.

# UoM Core Network



# IT Faculty Network



# Network Services

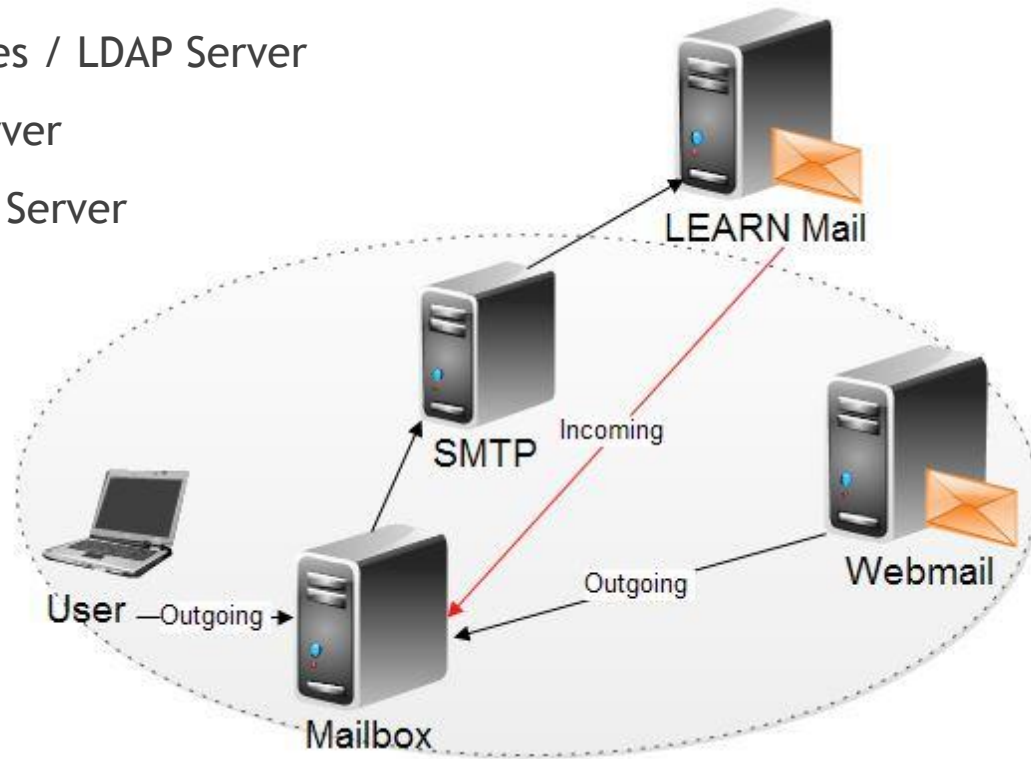
- ▶ Web, Email, DNS, Proxy
- ▶ Voice over IP (VoIP)
- ▶ Wireless Internet Access
- ▶ IP Camera
- ▶ Video Conferencing
- ▶ Virtual Servers
- ▶ Antivirus
- ▶ LearnOrg and Moodle

# Web Service

- ▶ Main web site. :[www.mrt.ac.lk](http://www.mrt.ac.lk)
- ▶ Each Faculty/Department maintains their own website.  
e.g. [www.cites.mrt.ac.lk](http://www.cites.mrt.ac.lk).
- ▶ Accessible on IPv6.

# Email Service

- ▶ Email Service is running on 3 servers.
  - ▶ Mail Boxes / LDAP Server
  - ▶ SMTP Server
  - ▶ Webmail Server



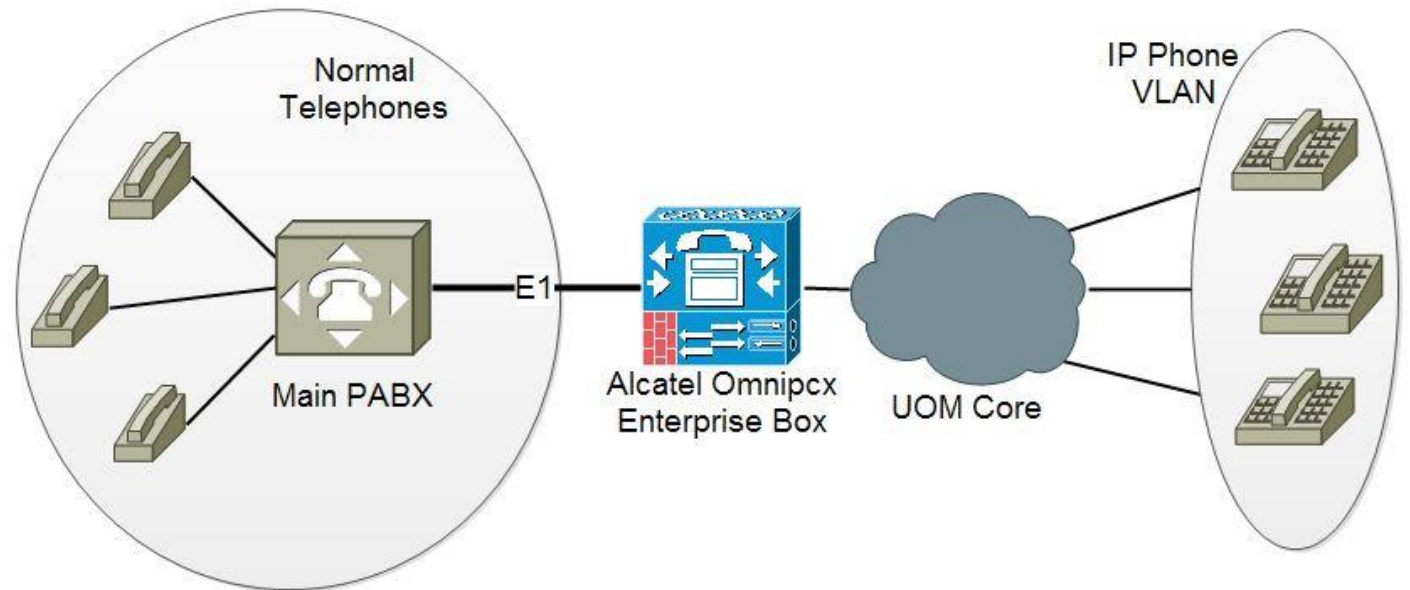
# Proxy Service

- ▶ All the users (except users with public ip addresses) access the Internet via the Proxy Server.
- ▶ Squid-cache runs on CentOS.
- ▶ Maximum downloadable file size is 100MB during working hours. (MON-SAT 8.30A.M. - 5.30 P.M. before upgrading the Bandwidth)
- ▶ IPv6 Enabled on Internet side.



# Voice over IP (VoIP)

- ▶ SIP-based Voice over IP (VoIP) network.

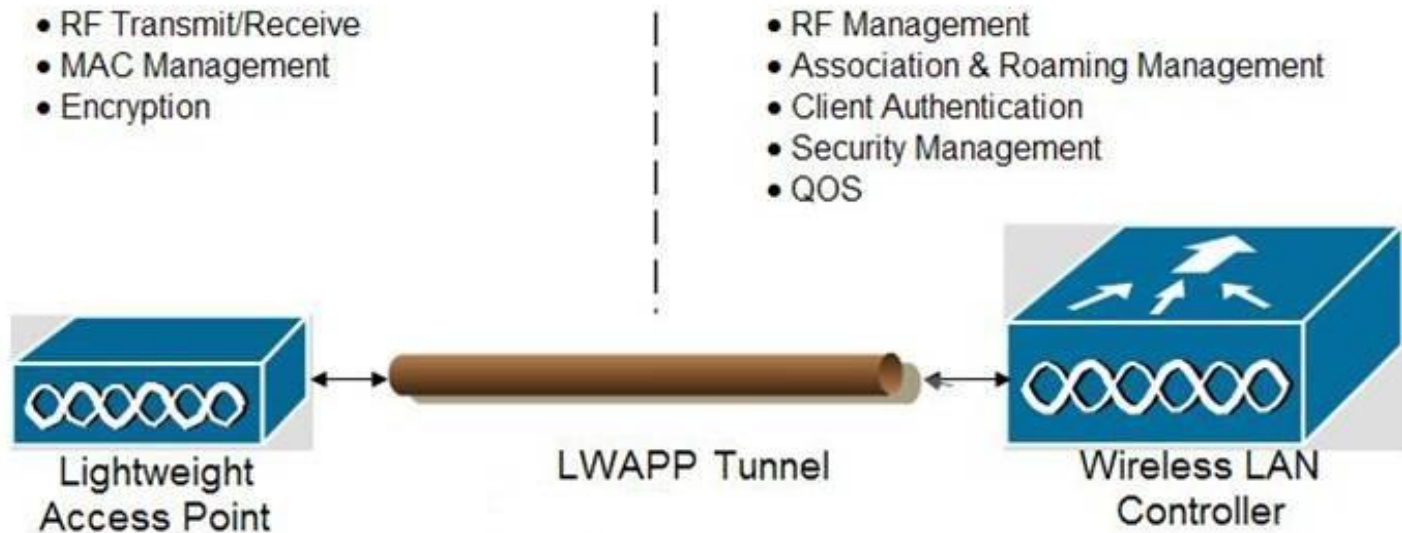


# Voice over IP (VoIP)

- ▶ **SIP Proxy Server - Alcatel-Lucent OmniPCX Enterprise Box.**
  - ▶ 250 user licences
  - ▶ Currently almost 230 sip extensions in the network.
- ▶ **SIP User Agent - Cisco & Grandstream IP Phones.**
- ▶ **An E1 link connects PBX to SIP Proxy Server.**

# Wireless Internet Access

- ▶ Lightweight Access Points in combination with WLAN Controller.



# Wireless Internet Access

- ▶ Wireless Controller Support for up to 500 access points and 7,000 clients
  - ▶ Current license supports 25 APs
  - ▶ support both 802.11n and 802.11ag networks
- ▶ Lightweight Access Points
  - ▶ Dual-band (802.11a/g/n) Controller-based AP.
  - ▶ 25 APs deployed throughout the university

# IP Camera

- ▶ 23 IP Cameras are installed in the University.

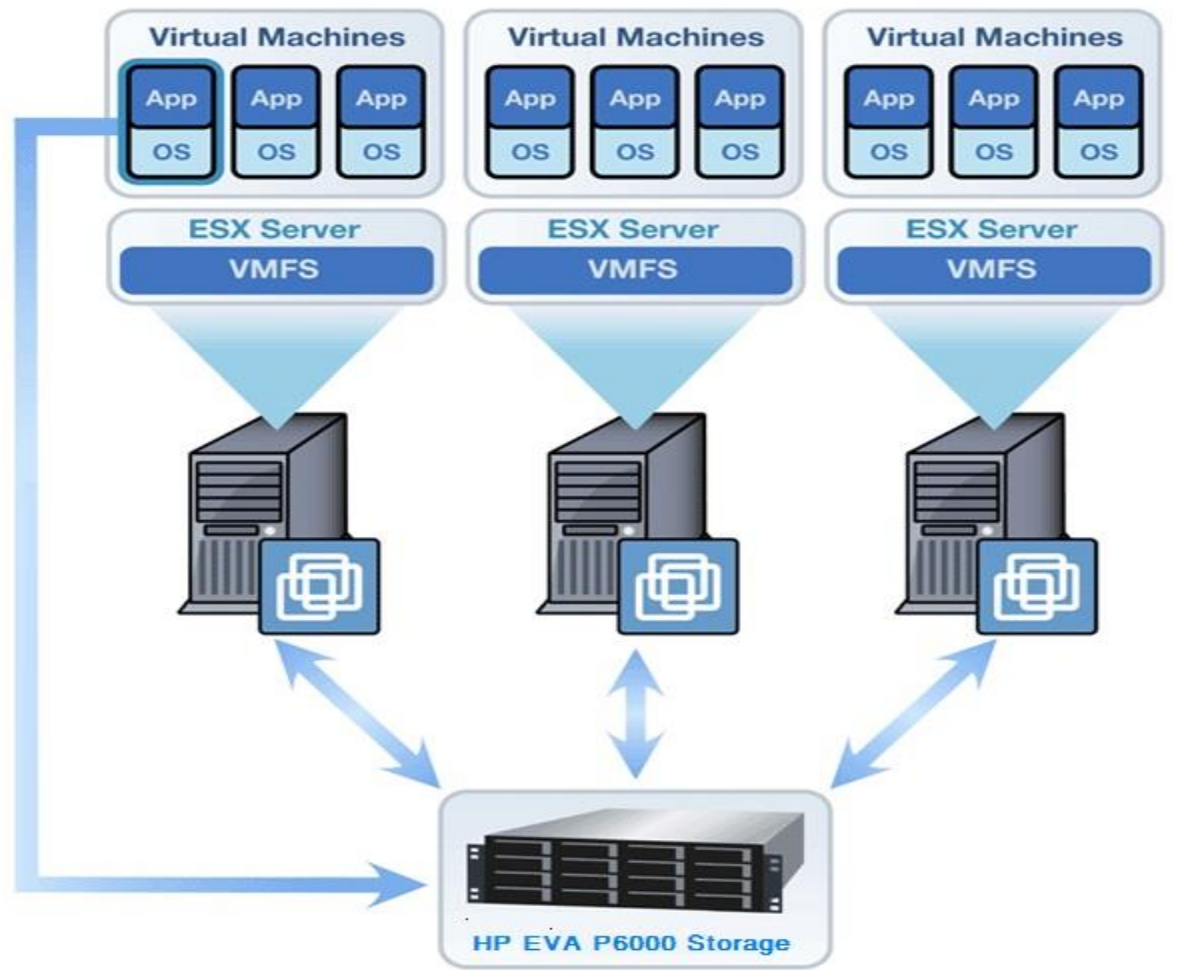
## Camera Features:

- ▶ PoE Enabled
- ▶ 720p HD images up to 30 fps
- ▶ PTZ (Pan,Tilt,Zoom) Control
- ▶ SD Memory Backup

# IP Camera

- ▶ Network Video Recorder (NVR) provides recording, live views and playback of recorded video.
- ▶ Upto 64 cameras can be connected and recorded.
- ▶ 24\*7 video recording upto 30 days.
- ▶ 6\*3TB Serial ATA HDDs installed.

# Virtual Servers



# Virtual Servers

- ▶ Fifteen servers with dual processors (12 core) and 128GB RAM in each.
- ▶ VMware ESX 5.5 is used build a server cluster with the HP Enterprise Virtual Array shared storage.
- ▶ HP EVA has around (50TB) storage capacity.
- ▶ Assign virtual servers for departments and student projects on request.



# Virtual Servers

- ▶ Minimize Downtime from Server and OS Failures.
- ▶ Supports IPv6 networking
- ▶ Improve disaster recovery, load balancing, availability and management (HA, Vmotion,....)
- ▶ resource optimization

# Antivirus Server

- ▶ Sophos antivirus server
- ▶ 2000 licenses

# Software License service

- Administers a pool of licenses to be shared.
- Used for software with floating license. e.g. ArcGIS, Mathematica

# LearnOrg & Moodle

- ▶ Student academic administration is handled by LearnOrg learning management system, which is developed in house.
- ▶ It maintains students records for students, staff and other systems.
- ▶ It provides authentication and authorization details for other systems such as moodle.
- ▶ Moodle is the course management system
- ▶ It shares the course materials such as slides, videos, e-books etc.. and assignment submissions.

# Success Stories

- ▶ Bandwidth Upgrade to 1Gbps
- ▶ Joined with the Eduroam community on March 2016
- ▶ Providing e-resources from library subscriptions for remote users through external proxy server
- ▶ Introducing VPN solution for internal services using Open-Source product SoftEther
- ▶ Most of the External accessible servers using IPv6 (Eg: Web....)

# Future Development plan

- ▶ To upgrade the Hardware Firewall and provide cluster wise protection.
- ▶ To extend the wireless coverage within the University and provide wifi facility for student hostel premises.
- ▶ To get a backup vpn link from LEARN through a different service provider.
- ▶ To have a DR site (Preferred to have mutual agreement with an another University).
- ▶ To have citrix based cloud platform with DR site enabled

**Thank you**

The background features abstract, overlapping geometric shapes in various shades of green, ranging from light lime to dark forest green. These shapes are primarily located on the right side of the frame, creating a modern, layered effect against the white background.