

# **University of Colombo School of computing**

**Vishwajith Mapa**  
**Network Manager**  
**UCSC**



# History

- UOC is the oldest university with a 93 years of service
- One of the first three institutions established network in 1991 with dialups
- In year 1998 university was connected with 64Kbps leased circuit with LEARN
- The connection was jointly managed by ICT (Institute of Computer Technology) and Department of Computer Science (Science Faculty)



# History

- In 2003 server room was expanded and UCSC LAN was upgraded to 1G fiber core network infrastructure
  - There were 9 servers at that time with 5KVA UPS
  - The proposal was to have a room with 5 times larger capacity, 12 new racks 100,000 BTU cooling with failovers (total 200,000 BTU), two 10 KVA UPS with 9 hour battery backup in clustered mode and upgraded network to two 1G links to each cabinet



## By 2008

- We had 50+ servers and desktops in the main server room
- UCSC LAN connected with IBMBB via 1Gbps and all other faculties via 100Mbps fibers
- We had expanded some services like DNS, mail, web, and e-learning systems



## In 2010

- Decision was made to have a 10G ring network and a separated network room for UOC and separated from UCSC
- Separate IP blocks were requested from LEARN
- Some services were transferred to UOC NOC from UCSC except UOC backup website



## 2010

- UCSC server room had been hosted 65+ physical servers and majority of them were rack mounted servers and few desktops
- Capacity of UPS increased from two 10KVA to two 30KVA UPS on Cluster mode with 200min backup time
- Cooling capacity was increased from 100,000BTU to 150,000BTU
- 3 Core switches were deployed to manage connectivity



# Today UCSC

- The LAN is being upgraded to dual redundant core with HP7503
- Have been moved from individual physical servers to virtual server hosting via VMware
- An agreement has been signed with VMware for Cloud solutions as a first government institute in the country to have virtual data center solutions
- Two VC units are being in operation
- HP IMC, Cati and several other tools are being used for monitoring and configuring



# Today UCSC

- VMware vCenter Server provides a centralized platform for managing our VMware vSphere environments.
- Hosting 3 number of high performance clusters & Providing services to other departments
- Has a fortinet Firewall with IDP, Virus and content filtering facility
- PfSense is deployed for students for web filtering
- Each lab contains a separate Vlan for not more than 50 computers





# Today UCSC

- Students are centrally authenticated using AD
- Two separate WiFi systems
- MIS segment is separated and have a separate additional layer of defense
- Deploys a network based CCTV system



## Future plan

- NOC will move away from basic services like mail and web
- Will continue providing more technical and specialized services to university community
- Implementing to shift from 1Gbps to 10Gbps for end switches and 40Gbps for inside the server room



## Future plan

- Network will be expanded its' services to CCTV, access controlling, building management, power, AC and other infrastructure monitoring and management for Green IT related tasks
- Virtualization will be extended to facilitate BYOD (Bring Your Own Device) for students
- Each student will be provided separate work space and sufficient storage



- **Thank You!!!**

