**Course work Computer networks – Group Project**

**The Case**

One of the largest. Micro banking organization in Sri Lanka is setting up an island wide network to facilitate the micro banking activities.

Since the bank is not establish for profit-oriented operation. The bank requires minimizing the operational and setting up cost for the entire network and for the software.

The bank is organized having a head office in Colombo, Regional officers in province (9 officers) and district level (24 officers in district secretariats) and root level branches (850) consisting of Societies Manage by the beneficiaries them self and parent societies (215 societies). Generally, a parent society may have 4 to 5 root level branch officers and engage in bank investment and staff account maintained activities

The grassroot level branches report to the beneficiary societies/parent societies) and report on the progression to the district /provincial level. The head office collects this provincial level information to process the island wide status reports.

The software developed using web technologies. The system is hosted in one of the largest ISP's in the country which provides cloud hosted solution, helpdesk services, software maintenance services for a monthly fee pay by the individual bank branch /regional office and head office bank branch.

The bank branches are connected to a private VPN network provided by ISP using layer 2 technologies. The hosted solution use IP layer (layer 3) and above technologies to secure the data and applications.

The ISP have given 2401:DD02:1A28:/48 for the network implementation to connect all the branches( society /parent society/district office/provincial ) to head office.

A branch has following systems /users.

* Bank core application users- 3 front office workstations ,2 Backoffice consoles, 1 manager console.
* Two computers are used for general purpose (not connected to banking application) connected to the network.
* Passbook printers 2 one dedicatedly connects to one front office terminal directly; other one is shared using direct COM connected switch. (not using ethernet).
* One multifunctional printer/copier shared through network to all the workstations /desktops.
* Staff Attendance marking system(fingerprint) connected to the ERP systems (used Island wide).
* 4 phones (one in front office, 2 in back office , and manager) using VOIP technology connected to head office via “Trixbox” open VoIP solution.
* CCTV 5 IP camera and NVDR for surveillance individual branch level system
* IP based PA system to provide client entertainment (pipe music) and make announcements. The music is played using an online stream beam from Head Office to all bank branchers.
* Firewall with 8 Ethernet ports & filtering capabilities to each branch and manage remotely through central policy management solution from HQ.

**The Task**

Prepare a detail proposal document /report highlighting and addressing the following correctly.

* Identify the segments of this network.
* Propose a Subnet structure for the above scenario.
* Develop the IP address distribution plan for the entire setup
* Develop a sample detail IP addressing plan for a sample Bank branch.
* Design a detail logical network design with all the segmentation details,
* Identify detail specifications for each network Item according to business needs for a branch.
* Using simulator Implement the network (for a sample branch).
* Discuss the design and plan to implement the security and network management plan for the above scenario if there is a single SOC and a NOC operation center maintain by the head office.

Marking scheme

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| Fully documented design including IP addressing approach with justification of your choice of technologies and recommendations. | 50% |
| Implementation of the sample branch networks | 25% |
| Individual contribution to the group and the output | 25% |