DESIGN AND IMPLEMENTATION OF A SECURE COMPANY NETWORK SYSTEM

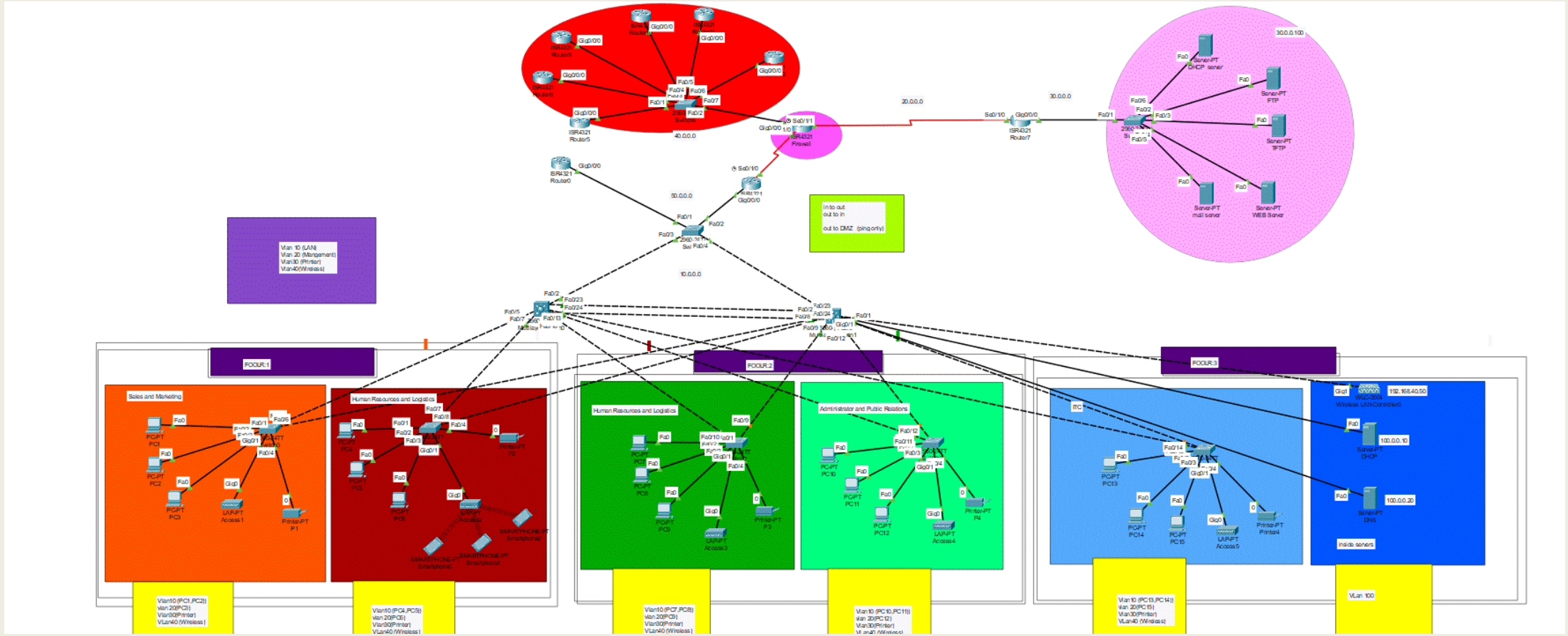
Requirements

- Cytonn Innovation Ltd is a progressive company specializing in innovative cloud solutions, leveraging cutting-edge technology and a skilled team to cater to global clients. With a focus on enhancing operational efficiency, scalability, and competitiveness, the company recently expanded to a new building with three floors, housing various departments, including a comprehensive ICT department.

The company is in the process of designing a new network service with robust security measures. A firewall with outside, inside, and DMZ security zones will protect the network, with essential servers like DHCP, DNS, and Radius located in the inside zone, and FTP, WEB, Email, and NAS storage in the DMZ. Additionally, the main campus hosts a server farm in the DMZ, providing secure access to resources for users at the branch campus. This strategic network design ensures both security and seamless operations for Cytonn Innovation Ltd in its new location.

Technologies Implemented

1. Design Tool: Use Cisco Packet Tracer for network design and implementation.
2. Hierarchical Design: Implement a redundant hierarchical model for resilience.
3. ISPs: Connect to an Airtel ISP router.
4. WLC: Deploy WAPs for each department, centrally managed by a WLC.
5. VLANs: Use VLANs with IDs 10 (LAN), 20 (Management), 30 (Printer), 40 (WLAN).
6. LACP: Configure EtherChannel with LACP for link aggregation.
7. STP: Set up STP Port Fast and BPDU guard for quick port transitions
8. Basic Settings: Configure hostnames, passwords, banners, encryption, and disable IP domain lookup.
9. Inter-VLAN Routing: Enable inter-department communication via a multilayer switch
10. Core Switch: Assign IPs for routing and switching on multilayer switches.
11. DHCP: Set up DHCP for dynamic IP assignment.
12. HSRP: Implement HSRP for redundancy and load balancing.
13. Static Addressing: Use static IPs in the server room.
14. Routing Protocol: Deploy OSPF for routing on firewalls, routers, and switches.
15. ACL for SSH: Apply a standard ACL for SSH access on the VTY line for the Senior Network Security Engineer PC.


Vlan 10 (LAN)
Vlan 20 (Manpement)
Vlan30 (Printer)
Vlan40(Wireless)
In to out
out to in
out to DMZ (ping only)
FOOUR:1
FOOUR:2
FOOUR:3
Sales and Marketing
Human Resources and Logistics
Human Resources and Logistics
Administrator and Public Relations
ITC
Inside severs
VLan 100
30.0.0.100
Server-PT DHCP server
Server-PT FTP
Server-PT TFTP
Server-PT mail server
Server-PT WEB Server
20.0.0.0
30.0.0.0
40.0.0.0
50.0.0.0
10.0.0.0
192.168.40.50
100.0.0.10
100.0.0.20