**ASSIGNMENT - 10**

**CN-LAB**

****

**Submitted To:**

*Sir Rasikh Ali*

**Submitted By:**

*Muhammad Shahram (200)*

**Submitted On:**

*10/30/2024*

**Department of Software Engineering**

**Superior University, Lahore**

**TASK:**

Research about Topics for Project and submit a deliverables document having:

• Organization Name

• Number of Floors of the Organization

• Number of PC / Server in the system

**Solution:**

To create a deliverables document for a network project based on the provided details, I’ll outline the necessary structure. This document will cover the **organization name, number of campuses, and the number of PCs/servers**. It will also propose potential topics related to the project.

### **Deliverables Document**

#### **Organization Name**

Campus Net

***Number of Campuses***

2

#### **Number of PCs/Servers**

10+

### **Project Topics for Consideration**

#### **Topic 1: Interconnecting Multi-Campus Networks**

**Objective**: Design a network to connect the two campuses, ensuring seamless communication and efficient resource sharing.  
**Scope**:

* Implement a WAN connection between campuses using technologies like MPLS or VPN.
* Design a hierarchical network structure for each campus.
* Use VLANs to segregate departments (e.g., Admin, Faculty, and Students).
* Assign dynamic IPs using DHCP and secure the network using ACLs.

**Deliverables**:

1. Network diagram showing the connection between campuses.
2. Router and switch configurations.
3. Testing results for inter-campus communication.

#### **Topic 2: Server Integration and Resource Optimization**

**Objective**: Deploy centralized servers for services such as file sharing, authentication, and backups.  
**Scope**:

* Introduce a centralized server for each campus with services like DHCP, DNS, and File Sharing.
* Implement redundancy for servers to ensure uptime.
* Connect the servers via a secure inter-campus link.

**Deliverables**:

1. Server configurations (e.g., DNS, File Server).
2. Network topology for server integration.
3. Bandwidth utilization analysis.

#### **Topic 3: Network Security and Monitoring**

**Objective**: Enhance the security of the campus network by implementing firewalls, IDS/IPS, and real-time monitoring.  
**Scope**:

* Deploy firewalls at each campus edge.
* Configure Intrusion Detection and Prevention Systems (IDS/IPS).
* Use SNMP for real-time network monitoring.

**Deliverables**:

1. Firewall rules and configurations.
2. IDS/IPS setup and alerting system.
3. Monitoring tool outputs and analysis.

#### **Topic 4: IoT Integration in the Campus Network**

**Objective**: Integrate IoT devices for smart campus management (e.g., smart lights, security cameras).  
**Scope**:

* Design a network that includes IoT support for both campuses.
* Segment IoT traffic using VLANs to avoid congestion.
* Ensure secure communication for IoT devices.

**Deliverables**:

1. Network layout with IoT integration.
2. VLAN configurations for IoT.
3. Security measures for IoT traffic.