Date: 07/06/2024

Objective:

To establish a reliable and high-speed Internet Leased Line (ILL) setup at BVM Schools to ensure seamless connectivity and efficient network management for academic and administrative purposes.

Key Components and Setup Details:

1. Internet Leased Line (ILL):

- Provider: Connect Broadband
- Bandwidth: 15 Mbps symmetric (15 Mbps upload and 15 Mbps download)

2. Connectivity Equipment:

- Radio Device: Rocket M5 AirGrid
- **Purpose:** Ensures seamless connectivity via Radio, providing Point-to-Point (P2P) connectivity with a range of up to 2 km.
- Reason for Choice: Preferred over fiber optics due to better reliability in maintaining connections.

3. Network Infrastructure:

- CAT-6 Cable: Connects the Rocket M5 AirGrid to the Server room located under the stairs.
- **Point-to-Point Connectivity:** Utilized to enhance network stability and performance.

4. IP Address Allocation:

- Total IPs Provided by Connect Broadband: 8
- 1 Gateway
- 1 Static IP
- 1 Subnet
- 5 Regular IPs

5. Firewall and Security:

- **Firewall:** Fortinet Firewall
- **Purpose:** Protects the network by leveraging the static IP provided, and acts as the Network Operating System.

6. Network Configuration:

- Class B Network:
 - **Range:** 172.16.0.1 to 172.16.0.254
 - VLANs: Created within the range 172.16.1.1 to 172.16.10.254 to segregate network traffic.
- Class C Network for Cameras:
- **Range Options:** 192.168.0.1 to 192.168.0.254 or 192.168.1.1 to 192.168.1.254

7. Guest WiFi Network:

• Configured under a separate guest policy to ensure network security and manage guest access.

8. Server and Storage:

- Debian Apache Server:
 - Location: Kitchlu Nagar
 - Usage: Hosts the ERP system for school management.

• Storage System:

• **Solution:** TrueNAS

• **Purpose:** Provides a robust storage solution for school data.

Summary:

The ILL setup for BVM Schools includes a 15 Mbps symmetric leased line from Connect Broadband, ensuring high-speed and reliable internet connectivity. The Rocket M5 AirGrid Radio device supports seamless Point-to-Point connectivity with a 2 km range, chosen for its reliability over fiber optics. The network infrastructure includes a structured CAT-6 cabling system, a Fortinet Firewall for security, and specific IP address allocations for efficient network management. The setup also incorporates a dedicated server for ERP and a TrueNAS storage system to support the school's data needs.

This structured approach ensures that BVM Schools have a robust, secure, and efficient network infrastructure capable of supporting their educational and administrative requirements.