**Healthcare Network System User Manual**

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**1. Introduction**

This manual provides an overview of the **Healthcare Network System**, which supports secure and efficient communication and access to medical services across three floors of our facility.

**2. System Requirements**

**Hardware and Software Needs:**

* **Network Devices:**
  + Cisco ASA Firewall
  + Cisco WAN Router
  + Catalyst Switches
  + Cisco Voice Gateways
  + Wireless LAN Controller (WLC)
* **Servers:**
  + Two HP ProLiant DL38 Gen10 servers
* **Design Tool:**
  + Cisco Packet Tracer
* **IP Addressing:**
  + WLAN: 10.10.0.0/16
  + LAN: 192.168.0.0/20
  + Voice: 172.16.0.0/20
  + DMZ: 10.20.20.0/26
  + Public: 197.200.100.0

**3. Installation Guide**

1. **Setup Hardware:**
   * Position servers and network devices.
   * Connect the firewall and router to the internet.
2. **Configure Devices:**
   * Access device interfaces using their IP addresses.
   * Set up basic configurations (hostnames, passwords).
3. **Testing:**
   * Use Cisco Packet Tracer to verify network connectivity.

**4. Getting Started**

* Log in to the management interfaces for each network device using admin credentials.
* Follow the installation guide for initial configurations.

**5. Features Overview**

* **Internet Connectivity:** Reliable access via Airtel ISP.
* **Network Security:** Cisco ASA Firewall protects data.
* **VoIP Services:** Enables phone communication.
* **Wireless Access:** Wi-Fi access managed by WLC and access points.
* **Virtualization:** HP servers host essential applications like Email and Health Information Systems.

**6. User Interface Guide**

* **Cisco Packet Tracer:** Use it for network design and simulation.
* **Device Management Interfaces:** Access configuration settings for switches and routers.

**7. How to Perform Tasks**

**Configuring VLANs**

1. Access the switch interface.
2. Create VLANs:
   * **10:** LAN
   * **50:** WLAN
   * **99:** VoIP
3. Assign ports to the VLANs.

**Setting Up DHCP**

1. Access the DHCP server.
2. Set IP address ranges for each VLAN.
3. Verify devices receive IP addresses.

**Configuring VoIP**

1. Access the WAN Router interface.
2. Configure VoIP settings.
3. Test calls to ensure functionality.

**8. Troubleshooting**

This section addresses common issues and solutions for the healthcare network system.

* **Issue:** Unable to connect to WLAN.
  + **Solution:** Check WLC configurations and ensure access points are correctly set up. Ensure devices are connected to the correct SSID (WLAN).
* **Issue:** Devices are not receiving IP addresses from DHCP.
  + **Solution:** Ensure the DHCP server is running and configured with the correct IP ranges. Verify that the network devices are properly connected to the DHCP server.
* **Issue:** Slow network performance.
  + **Solution:** Check for network congestion, faulty hardware, or misconfigured VLANs. Monitor bandwidth usage to identify bottlenecks.
* **Issue:** VoIP calls have poor quality (choppy audio).
  + **Solution:** Ensure that QoS (Quality of Service) settings are configured on the routers to prioritize VoIP traffic. Check for sufficient bandwidth and avoid network congestion during peak usage.
* **Issue:** Inability to access internal servers.
  + **Solution:** Verify that the server IP addresses are correctly configured and that the necessary firewall rules allow traffic from the network segments. Check for VLAN configuration issues.
* **Issue:** Firewall is blocking necessary traffic.
  + **Solution:** Review firewall rules and zones to ensure they allow the required traffic. Adjust rules as necessary to permit access while maintaining security.
* **Issue:** VPN connection failures for remote users.
  + **Solution:** Check VPN configurations, including user credentials and IP address assignments. Ensure the firewall allows VPN traffic through the designated ports.

**9. FAQ**

* **Q:** How do I log into the network devices?  
  **A:** Use the console port or the web interface with admin credentials.
* **Q:** What should I do if I forget my admin password?  
  **A:** Use the password recovery procedure for the specific device to reset your password.

**10. Contact Support**

Example:  
For any further assistance, contact our support team:

* **Email:** support@healthcarenetwork.com
* **Phone:** +1 (800) 123-4567
* **Website:** www.healthcarenetwork.com/support