**Case Study: Simulated Network Environment**

**Scenario:** You are part of the IT team responsible for managing network traffic within a simulated online corporate environment. The company, TechCorp Solutions, operates two major network systems that require ongoing traffic management and performance optimization. Since there is no physical network at the RTO, both networks will be simulated using online tools.

**Network Systems:**

1. **Guest Network (Simulated WLAN - Wireless Local Area Network)**

o Simulated using Cisco Packet Tracer – Create a Simple Network.pka

o Used by employees for daily operations, including email, document storage, and shared access to applications.

o Complaints: Users report slow internet speeds and delays in accessing cloud storage.

o Identified Issue: High network congestion during peak business hours due to

excessive streaming and large file transfers.

**2. Corporate Network (Simulated LAN - Local Area Network)**

o Simulated using Cisco Packet Tracer – Troubleshooting Connectivity Issues.

o Provided for visitors and clients accessing the premises.

o Complaints: Unreliable connections, frequent disconnections, and security concerns.

o Identified Issue: Unregulated access causing bandwidth overload and potential security risks.

**Scope of Work:**

• Evaluate current network performance and identify traffic congestion issues.

• Develop and implement solutions to optimize traffic flow.

• Monitor the implemented changes and adjust configurations as needed.

• Ensure network security and improve user experience.

**Planned Network Strategy:**

• **Segment the network** by creating VLANs to separate employee and guest traffic.

• **Implement Quality of Service (QoS) policies** to prioritize critical applications.

• **Upgrade bandwidth allocation** based on usage patterns.

• **Enhance network security** by introducing access controls and authentication measures

**Budget Available:**

• The project must be completed using existing infrastructure with minimal additional costs.

• Any upgrades must be justified with performance improvement data.

**Site Access Arrangements & Timelines:**

• Access credentials will be provided for simulated network management tools.

• Students will need to log in to designated platforms for network configuration.

**Network Monitoring Software & Online Tools:**

• Wireshark – for packet analysis.

• Cisco Packet Tracer – for network simulation and configuration.

Students must familiarize themselves with these tools before conducting the assessment.

**Final Submission Requirements:**

• Detailed Network Assessment Report

• Documented Solution Implementation Plan