Koneru Lakshmaiah Education Foundation
(Deemed to be University estd. u/s. 3 of the UGC Act, 1956)
Off-Campus: Bachupally-Gandimaisamma Road, Bowrampet, Hyderabad, Telangana - 500 043.
Phone No: 7815926816, www.klh.edu.in

1. Title: Upgrading the Network Setup for Improved Efficiency in a Small Office

2. Introduction:

- **Overview**: Small offices often start with basic network setups that may become insufficient as the business grows. This case study explores the process of upgrading a small office network to enhance performance and reliability.

- **Objective**: To demonstrate how a small office can improve its network infrastructure to support daily operations more effectively.

3. Background:

- **Organization/System/Description**: The organization in this case study is a small marketing agency with 15 employees. The office relies on network connectivity for internet access, file sharing, and email communication.

- **Current Network Setup**: The existing network consists of an old router, a few unmanaged switches, and basic wireless access points. The network often experiences slow speeds, intermittent connectivity issues, and limited range.

4. Problem Statement:

- **Challenges Faced**:

1. **Slow Internet Speeds**: The old router struggles to handle the bandwidth requirements.
2. **Connectivity Issues**: Frequent dropouts and weak Wi-Fi signals in certain areas of the office.
3. **Limited Network Expansion**: Difficulty in adding new devices and managing the network efficiently.

5. Proposed Solutions:

- **Approach**: Upgrade the network hardware and improve network configuration to enhance performance and reliability.

- **Technologies/Protocols Used**:

1. **Hardware**: Modern router with higher throughput, managed switches, and updated wireless access points.
2. **Network Design**: Basic network redesign to ensure optimal coverage and performance.

6. Implementation:

- **Process**:

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1. **Assessment**: Identify current network issues and plan improvements.

2. **Design**: Select appropriate hardware and plan the network layout.
3. **Deployment**: Install new equipment and configure the network.

- **Implementation**:

Phase 1: Replace the old router with a new, high-performance router.
Phase 2: Install managed switches to improve network management and connectivity.
Phase 3: Set up new wireless access points to ensure strong Wi-Fi coverage throughout the office.

- **Timeline**: The upgrade process was completed in one week, including assessment (1 day), design (1 day), deployment (3 days), and testing (2 days).

7. Results and Analysis:

- **Outcomes**:

1. **Enhanced Performance**: Improved internet speeds and more reliable connections.
2. **Better Coverage**: Stronger Wi-Fi signal throughout the office.
3. **Easier Management**: Simplified network management with new switches and router.

8. Security Integration:

- **Security Measures**:

1. **Firewall**: Configured basic firewall settings on the new router to protect against external threats.
2. **Wi-Fi Security**: Updated Wi-Fi security settings to WPA3 for improved protection.
3. **Access Control**: Set up guest network to isolate visitor traffic from the main office network.

9. Conclusion:

- **Summary**: The network upgrade successfully addressed the small office's performance and connectivity issues. The new setup supports current needs and provides a foundation for future growth.

- **Recommendations**:

1. Regularly review and update network hardware as technology advances.
2. Monitor network performance to address any emerging issues promptly.
3. Provide basic training to staff on using new network features and security practices.

NAME: BABBULA NISHANTH

ID-NUMBER: 2320030119

SECTION-NO: 7

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