**Multi-Site Network Infrastructure Project**

A comprehensive multi-site network infrastructure implementation featuring centralized NFS storage, secure inter-site connectivity, and real-time file synchronization across geographically distributed Ubuntu servers.

# Project Overview

**Objective:** Design and implement a scalable, secure multi-site network infrastructure supporting Realtime collaboration and centralized data management.

**Technology Stack:**

* **Operating System:** Ubuntu Server 22.04 LTS
* **Networking:** Multi-subnet architecture with VPN connectivity
* **Storage:** Network File System (NFS) v4.2
* **Security:** Firewall rules, access controls, permission management
* **Management:** SSH-based remote administration   
  **Architecture**

**[Ubuntu-HQ - NFS Server]**

**192.168.10.10**

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**[Ubuntu-Branch] [Ubuntu-Remote]**

**192.168.20.10 192.168.30.10**

**NFS Client NFS Client**

# Implementation Phases

## Phase 1: Network Infrastructure

* Multi-subnet network topology
* Inter-site connectivity verification
* Basic security implementation

## Phase 2: Centralized Storage

* NFS server deployment on Ubuntu-HQ
* NFS client configuration on Branch/Remote sites
* Real-time file synchronization
* Permission and security management

# Technologies Used

* **Ubuntu Server 22.04 LTS** - Operating system platform
* **NFS v4.2** - Network file system protocol
* **SSH** - Secure remote administration
* **UFW** - Uncomplicated Firewall
* **Netplan** - Network configuration
* **systemd** - Service management

**Security Features**

* **Network-level security:** Firewall rules restricting access to authorized subnets
* **File-level permissions:** Directory-specific read/write access controls
* **User authentication:** Secure SSH-based management
* **Data integrity:** Real-time synchronization with checksums
* **Real-time file synchronization** across multiple sites
* **Centralized storage management** with distributed access
* **Scalable architecture** supporting additional sites
* **High availability** with automatic failover capabilities
* **Performance optimization** for low-latency file access*.*