NABTATECH SOLUTIONS

DOCUMENTATION SUITE

Nabtatech Network Configuration Report

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This document follows the unified NabtaTech documentation style guide with standardized cover layout, branding, header/footer structure, and formal section presentation.

NabtaTech Solutions – Internal Network & File Server Deployment Report

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1. Project Overview

This report documents the internal network infrastructure and the configuration of the Ubuntu File Server deployed for NabtaTech Solutions. The setup aims to provide a segmented, VLAN-based network supporting multiple departments, inter-VLAN routing, and centralized file services. The report includes network topology, switch and VLAN configurations, server deployment details, and verification steps to ensure full operational readiness.

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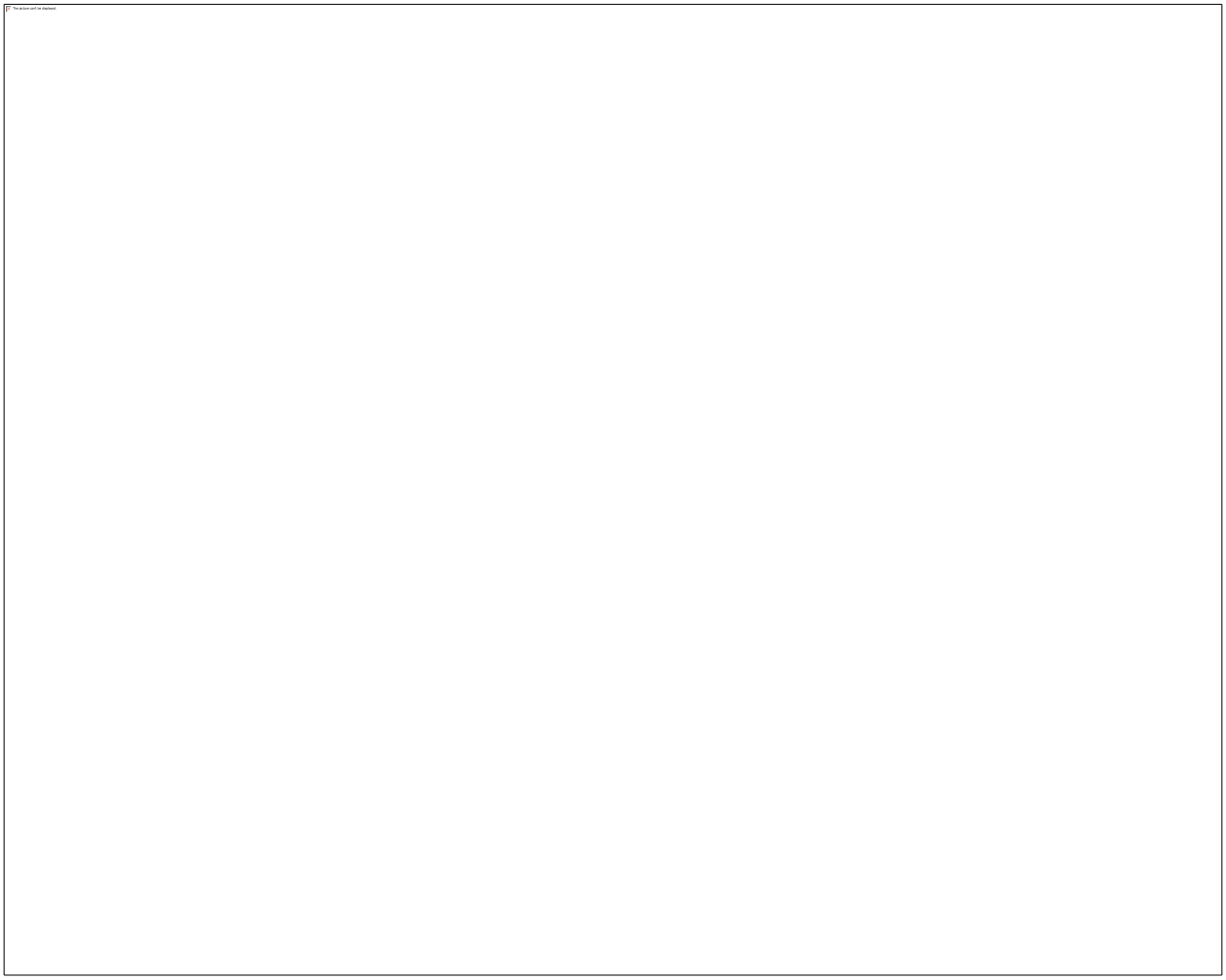
2. Network Topology

Logical Network Layout

Device/Segment	IP Range	VLAN	Purpose
HR Workstations	192.168.10.0/24	10	Human Resources department
Reception Workstations	192.168.20.0/24	20	Front desk and visitor management
Finance Workstations	192.168.30.0/24	30	Financial operations
IT Support Workstations	192.168.40.0/24	40	IT maintenance and support
DevOps Workstations	192.168.50.0/24	50	Development & operations
File Server (Ubuntu)	192.168.100.10	100	Centralized file storage
Web Server (Ubuntu)	192.168.100.11	100	Internal and external web services
Database Server (Ubuntu)	192.168.100.12	100	Centralized database services

Connectivity Diagram:



3. Switch Configuration

Main Switch – VLAN and Trunk Setup

Interface	Mode	VLAN Assigned/Allowed	Description
Fa0/1	Trunk	10,20,30,40,50,100	Trunk to Core/Main Switch
Fa0/2	Access	20	Reception
Fa0/3	Access	30	Finance
Fa0/4-6	Access	10	HR

Interface	Mode	VLAN Assigned/Allowed	Description
Fa0/7-8	Access	40	IT Support
Fa0/10	Access	50	DevOps
Fa0/23	Trunk	10,20,30,40,50,100	Trunk to File Server Switch

Configuration Notes:

```
# Example trunk setup on main switch
interface fa0/1
 switchport mode trunk
 switchport trunk native vlan 100
 switchport trunk allowed vlan 10,20,30,40,50,100
 no shutdown
```

- **Access ports** are assigned to the corresponding VLAN for each department.
- **Trunks** carry multiple VLANs to the server switch and core router.

Spanning Tree & Connectivity Verification

- All VLANs are in forwarding state except VLANs not assigned locally.
- show spanning-tree vlan 100 confirms root bridge and port roles.
- CDP shows connectivity to other switches and router interfaces.

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4. Ubuntu File Server Deployment
Server Specifications

Parameter	Value
VM Name	File-Server
OS	Ubuntu 24.04 LTS
CPU	2 cores
RAM	4 GB

Parameter	Value
Storage	40 GB VDI
Network Adapter	Bridged Adapter
VLAN	100

Installation Steps

- Mount the **Ubuntu Server ISO** in VirtualBox under storage.
- Boot the VM and select **Install Ubuntu Server**.
- Configure language, location, and keyboard layout.
- Create an administrative user (mozan) and password.
- Choose default installation with standard utilities.
- Set hostname as File-Server.
- Configure **network with static IP**: 192.168.100.10/24, gateway: 192.168.100.1.
- Complete installation and reboot the VM.

Post-Installation Configuration

```
sudo apt update
sudo apt upgrade -y
sudo apt install build-essential dkms linux-headers-$(uname -r)
```

1. Installed essential build tools and kernel headers for future services.
2. Enabled network services for file sharing (NFS/Samba) in preparation for production use.

Network Verification

```
# Ping other VLAN gateways and servers
ping 192.168.10.1
ping 192.168.50.1
ping 192.168.100.11
```

1. All pings successful, confirming inter-VLAN routing through the router.

5. Connectivity Tests

1. **Switch to Server**: Verified trunk connectivity using show interfaces trunk.
2. **Ping Tests**: Conducted from each VLAN to the File Server, all successful.
3. **Service Verification**: SSH enabled and accessible from management workstation.
4. **Spanning Tree**: All trunk links in forwarding state, no loops detected.

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6. Troubleshooting Notes

1. Native VLAN mismatches observed in CDP logs during initial testing; resolved by aligning trunk configurations on both switches.
2. System services (systemd-resolved, systemd-networkd) initially failed during installation; reboot resolved service startup issues.
3. Future installations should monitor ISO integrity and ensure proper VM network adapter type (bridged or host-only).

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7. Next Steps

1. Deploy Web Server and Database Server in VLAN 100.
2. Configure NFS or Samba file sharing services on File Server.
3. Perform additional connectivity and user access tests.
4. Backup VM snapshots for all production servers.

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