Active Directory Deployment Project for Company (Tech Net) via Oracle VirtualBox VM.

Project Overview

Company (Tech Net), a medium-sized IT organization with offices in multiple locations, aims to deploy Active Directory (AD) to centralize user and computer management, enhance security, and streamline network administration. The IT department is responsible for planning and implementing the AD deployment. This project plan outlines the detailed steps, timeline, resources, and risk mitigation strategies to ensure a successful deployment.

Project Scope

The project focuses on deploying Active Directory across Company XYZ's network infrastructure to manage users, computers, and resources efficiently. Key objectives include:

- Centralizing user and computer management.
- Enhancing network security through group policies.
- Streamlining administration for multiple office locations.

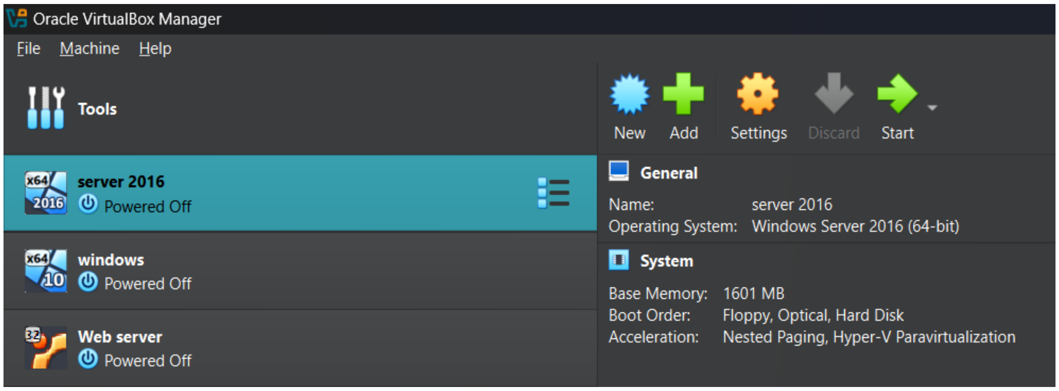
Deployment and Configuration Plan

1. Server Installation and Configuration

Objective: Set up the foundational infrastructure for Active Directory.

Tasks:

- **Hardware and Software Setup:**
  - Procure and install server hardware (e.g., Dell PowerEdge or equivalent) with sufficient resources (minimum 16 GB RAM, 2 TB storage, multi-core CPU).
  - Install Windows Server 2022 on the designated hardware for domain controllers.
  - For my project, i installed server 2016 on Oracle VirtualBox and windows PC.



server 2016
Powered Off

windows
Powered Off

Web server
Powered Off

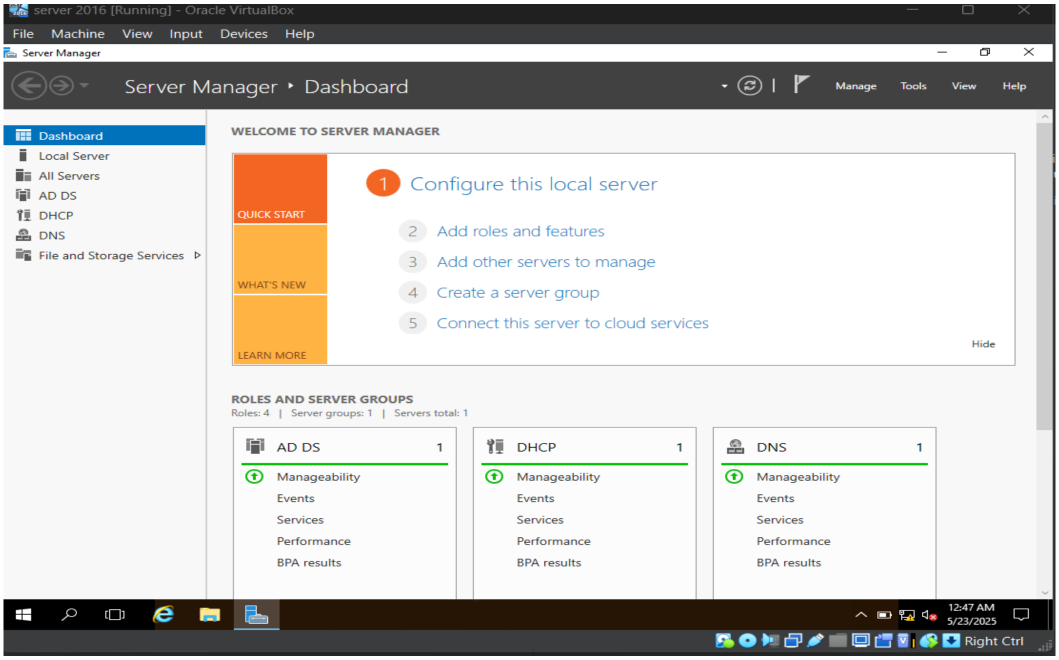
General

Name: server 2016
Operating System: Windows Server 2016 (64-bit)

System

Base Memory: 1601 MB
Boot Order: Floppy, Optical, Hard Disk
Acceleration: Nested Paging, Hyper-V Paravirtualization

- **Primary Domain Controller (PDC) Configuration:**
    - Configure the first server as the Primary Domain Controller (PDC) and root of the AD forest.
    - Assign a static IP address, configure DNS, and ensure network connectivity across all office locations.
    - Promote the server to a domain controller using the Active Directory Domain Services (AD DS) role.



WELCOME TO SERVER MANAGER

1 Configure this local server

2 Add roles and features

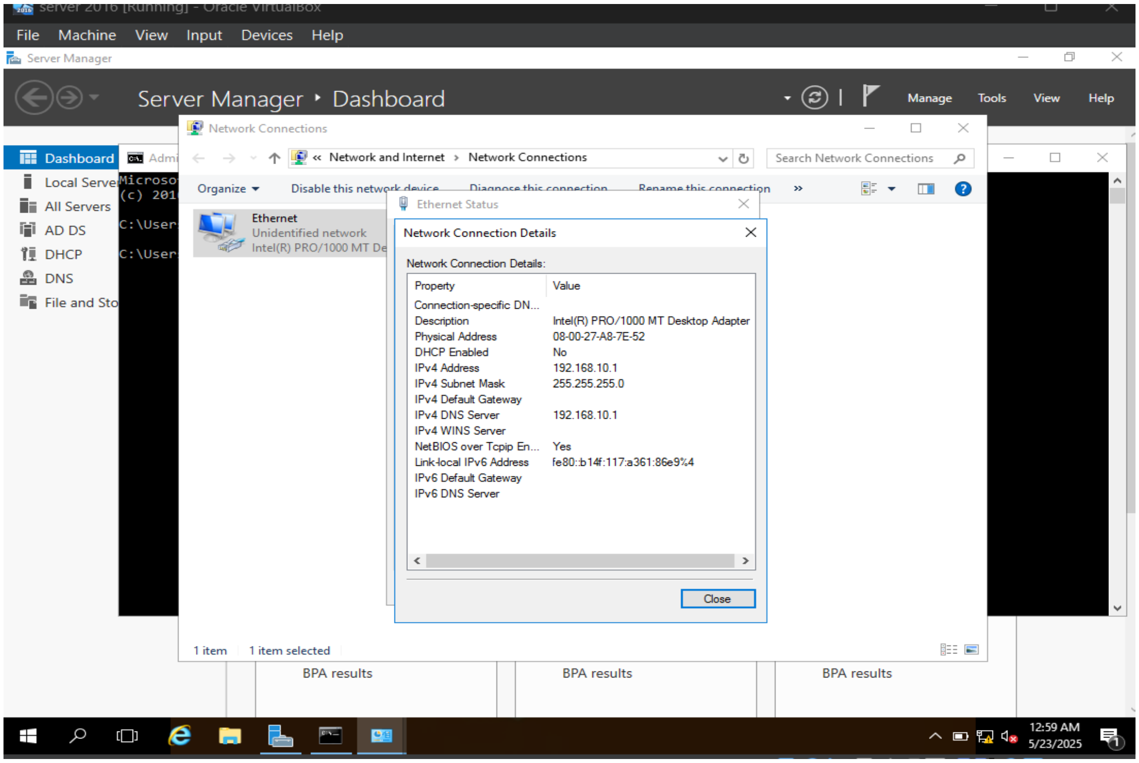
3 Add other servers to manage

4 Create a server group

5 Connect this server to cloud services

ROLES AND SERVER GROUPS
Roles: 4 | Server groups: 1 | Servers total: 1

AD DS 1	DHCP 1	DNS 1
Manageability	Manageability	Manageability
Events	Events	Events
Services	Services	Services
Performance	Performance	Performance
BPA results	BPA results	BPA results

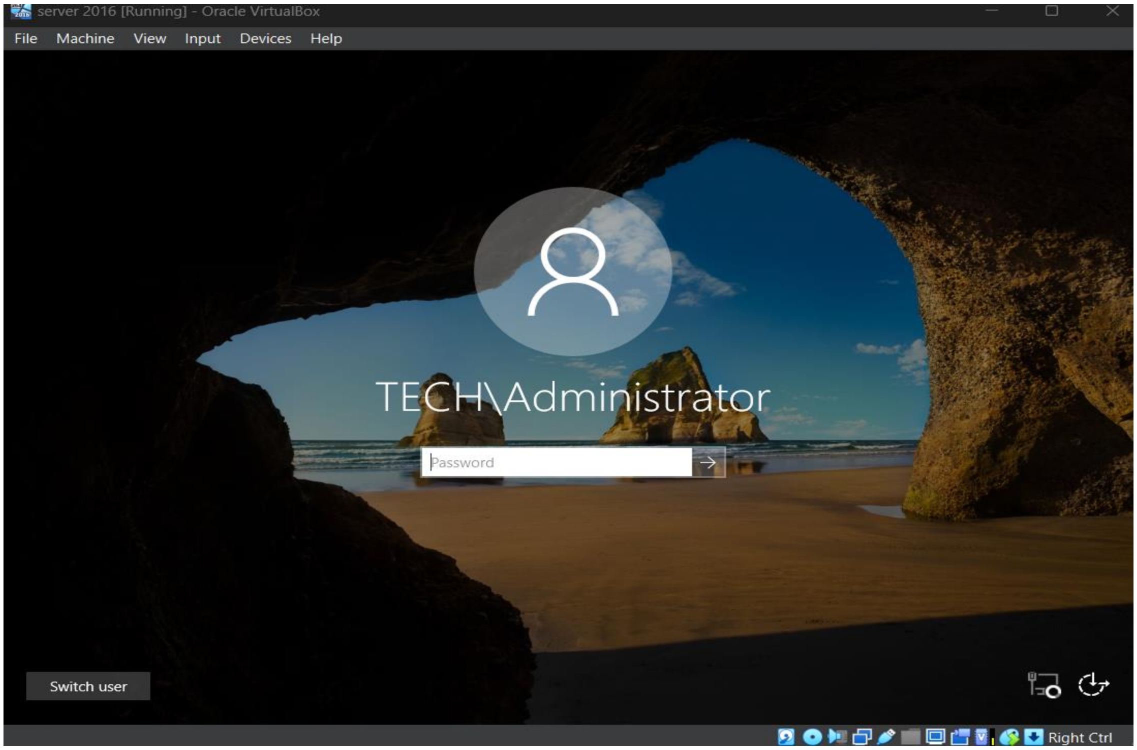

server 2016 [Running] - Oracle VirtualBox
File Machine View Input Devices Help
Server Manager
Server Manager ‣ Dashboard
Manage Tools View Help
Dashboard
Local Server
All Servers
AD DS
DHCP
DNS
File and Sto
Network Connections
« Network and Internet › Network Connections
Search Network Connections
Organize ▾ Disable this network device Diagnose this connection Rename this connection »
Ethernet
Unidentified network
Intel(R) PRO/1000 MT De
Ethernet Status
1 item 1 item selected
BPA results
BPA results
BPA results
12:59 AM
5/23/2025

```
Microso
(c) 201

C:\User

C:\User
```

Network Connection Details

Network Connection Details:

Property	Value
Connection-specific DN...	
Description	Intel(R) PRO/1000 MT Desktop Adapter
Physical Address	08-00-27-A8-7E-52
DHCP Enabled	No
IPv4 Address	192.168.10.1
IPv4 Subnet Mask	255.255.255.0
IPv4 Default Gateway	
IPv4 DNS Server	192.168.10.1
IPv4 WINS Server	
NetBIOS over Tcpip En...	Yes
Link-local IPv6 Address	fe80::b14f:117:a361:86e9%4
IPv6 Default Gateway	
IPv6 DNS Server	


server 2016 [Running] - Oracle VirtualBox
File Machine View Input Devices Help
TECH\Administrator
Password
Switch user
Right Ctrl

- **Secondary Domain Controller (Optional for Redundancy):**
  - Install a secondary domain controller in a different location for fault tolerance.
  - Ensure replication between the PDC and secondary DC.

Deliverables:

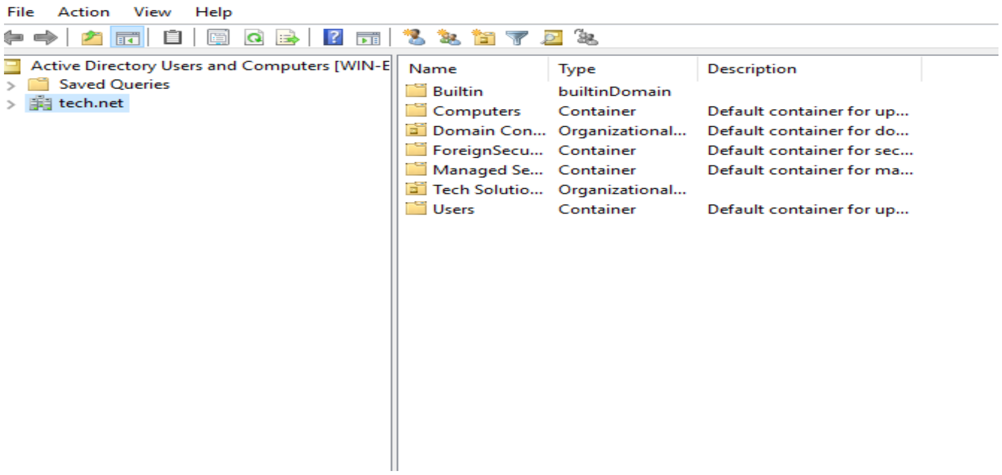
- Fully operational PDC with Windows Server 2016.
- Configured DNS and network settings.
- Optional secondary DC for redundancy.

Duration: 1 day

2. Active Directory Configuration

Objective: Build the AD structure to align with Tech Net's organizational needs.

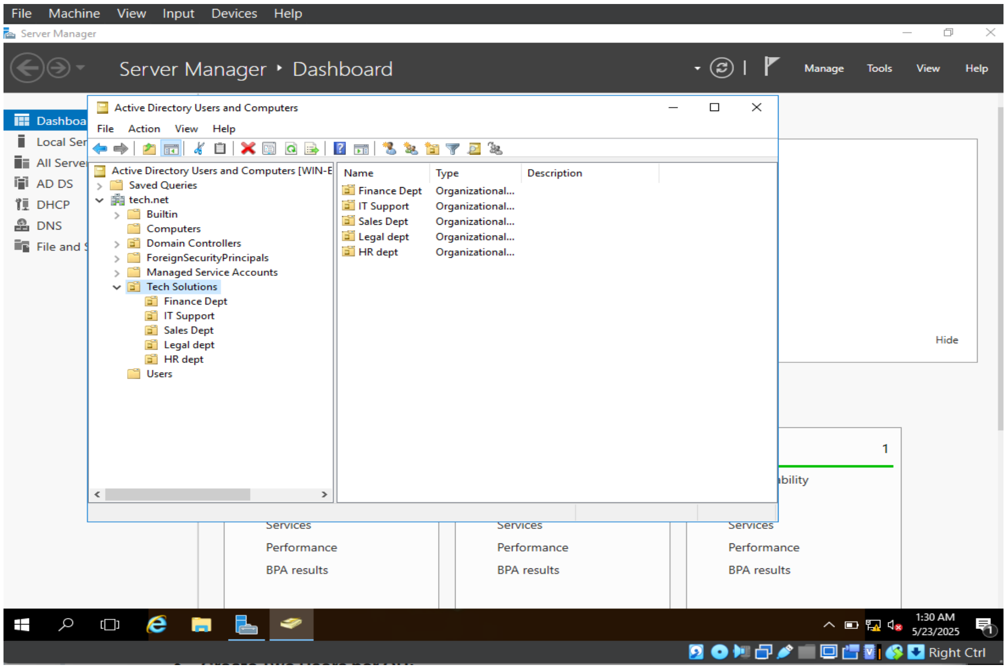
Tasks:

- **Create AD Forest and Domain:**
  - Use the Active Directory Domain Services Installation Wizard to create the AD forest and domain – Tech.net.
  - Set the forest and domain functional levels to Windows Server 2016 for optimal features.
  - 

Active Directory Users and Computers [WIN-E
> Saved Queries
> tech.net

Name	Type	Description
Builtin	builtinDomain	
Computers	Container	Default container for up...
Domain Con...	Organizational...	Default container for do...
ForeignSecu...	Container	Default container for sec...
Managed Se...	Container	Default container for ma...
Tech Solutio...	Organizational...	
Users	Container	Default container for up...

- **Organizational Units (OUs) Setup:**

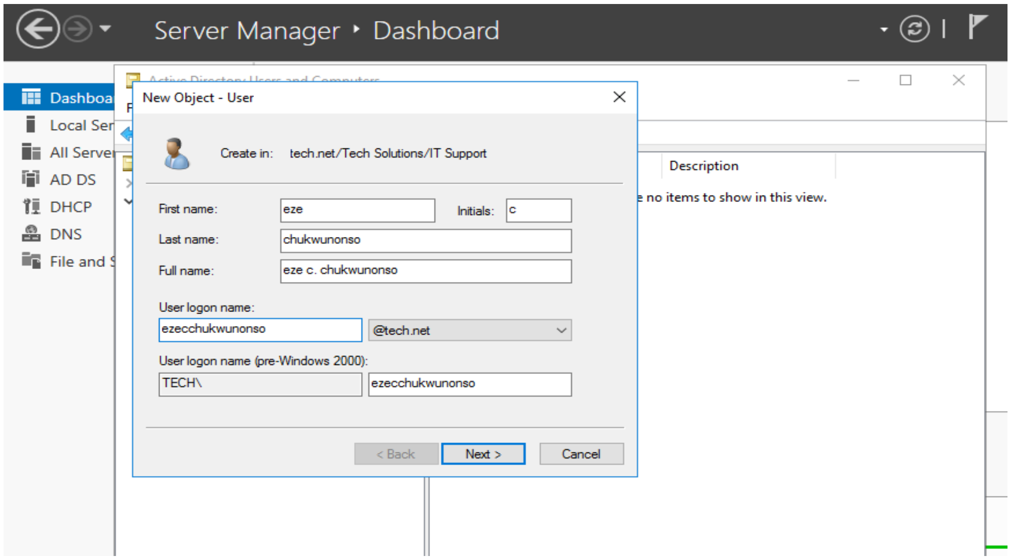
- Create 5 OUs based on departments: SALES, HR, ICT, FINANCE, and LEGAL.
- Nest OUs as needed for sub-departments or locations.
- 

Active Directory Users and Computers

File Action View Help

Active Directory Users and Computers [WIN-E
- Saved Queries
- tech.net
  - Builtin
  - Computers
  - Domain Controllers
  - ForeignSecurityPrincipals
  - Managed Service Accounts
  - Tech Solutions
    - Finance Dept
    - IT Support
    - Sales Dept
    - Legal dept
    - HR dept
  - Users

Name	Type	Description
Finance Dept	Organizational...	
IT Support	Organizational...	
Sales Dept	Organizational...	
Legal dept	Organizational...	
HR dept	Organizational...	

- **User Accounts and Groups:**
  - Create user accounts for all employees, mapping them to their respective OUs – Eze Chukwunonso in IT OU.
  - Create security groups for each department. Assign users to appropriate groups for access control.
  - 

Server Manager ‣ Dashboard
Dashboard
Local Server
All Servers
AD DS
DHCP
DNS
File and Storage Services
Active Directory Users and Computers
Description
no items to show in this view.

New Object - User

Create in: tech.net/Tech Solutions/IT Support

First name: eze

Initials: c

Last name: chukwunonso

Full name: eze c. chukwunonso

User logon name:

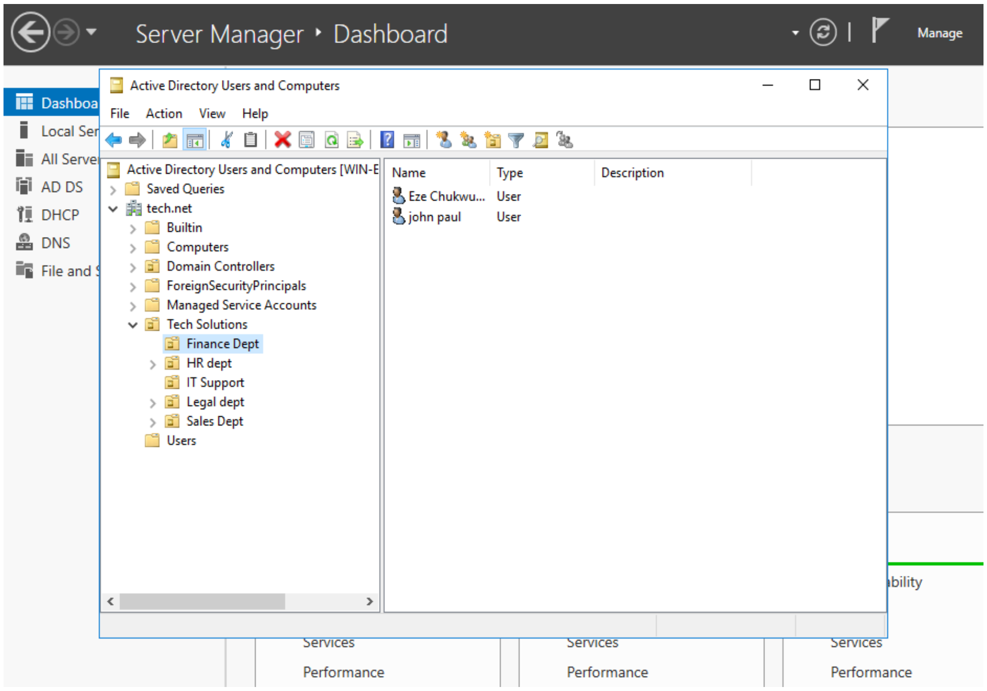
ezecchukwunonso @tech.net

User logon name (pre-Windows 2000):

TECH\ ezecchukwunonso

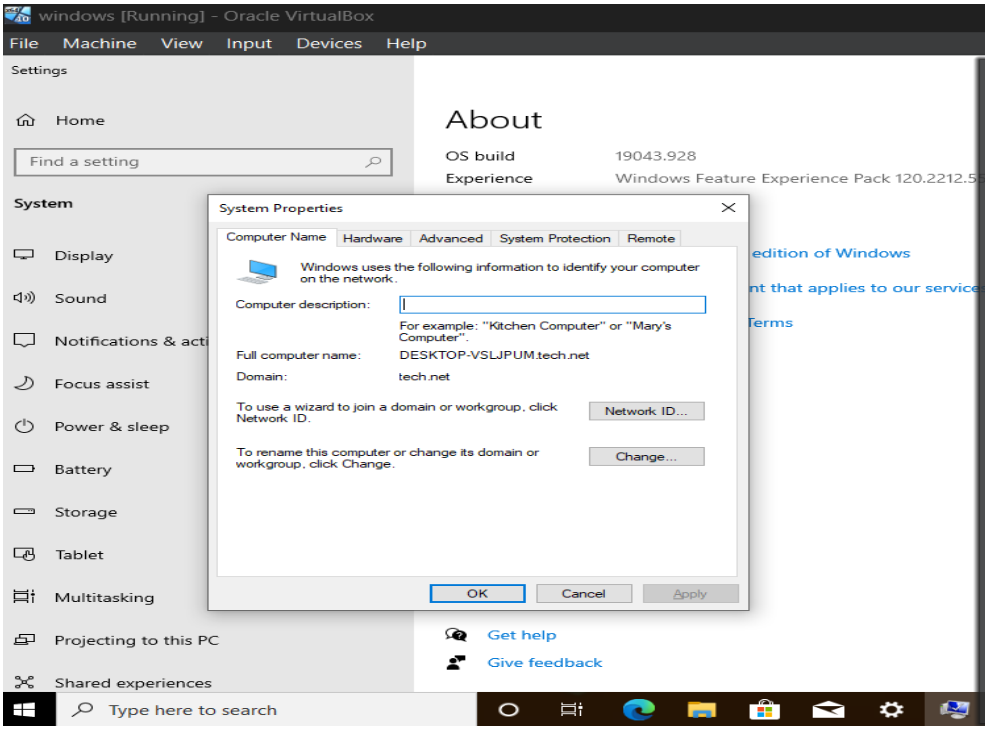
< Back Next > Cancel

- **Create Two Users per OU:**
  - Example for FINANCE OU:

        - User 1: Eze Chukwunonso (Sales Manager)
        - User 2: John Paul (Sales Associate)
    - Repeat for HR, ICT, FINANCE, and LEGAL OUs (total 10 users).
    - 

Name	Type	Description
Eze Chukwu...	User	
john paul	User	

- **Join Users' PCs to the Domain:**
    - Configure each user's PC to join the ***tech.ne***t domain.
    - Ensure proper DNS settings on client machines (pointing to the PDC's IP).
    - Test domain login for each user account.



windows [Running] - Oracle VirtualBox

File Machine View Input Devices Help

Settings

Home

Find a setting

System

Display

Sound

Notifications & acti

Focus assist

Power & sleep

Battery

Storage

Tablet

Multitasking

Projecting to this PC

Shared experiences

About

OS build 19043.928

Experience Windows Feature Experience Pack 120.2212.5

edition of Windows

nt that applies to our service

Terms

Get help

Give feedback

System Properties

Computer Name | Hardware | Advanced | System Protection | Remote

Windows uses the following information to identify your computer on the network.

Computer description:

For example: "Kitchen Computer" or "Mary's Computer".

Full computer name: DESKTOP-VSLJPUM.tech.net

Domain: tech.net

To use a wizard to join a domain or workgroup, click Network ID. [Network ID...]

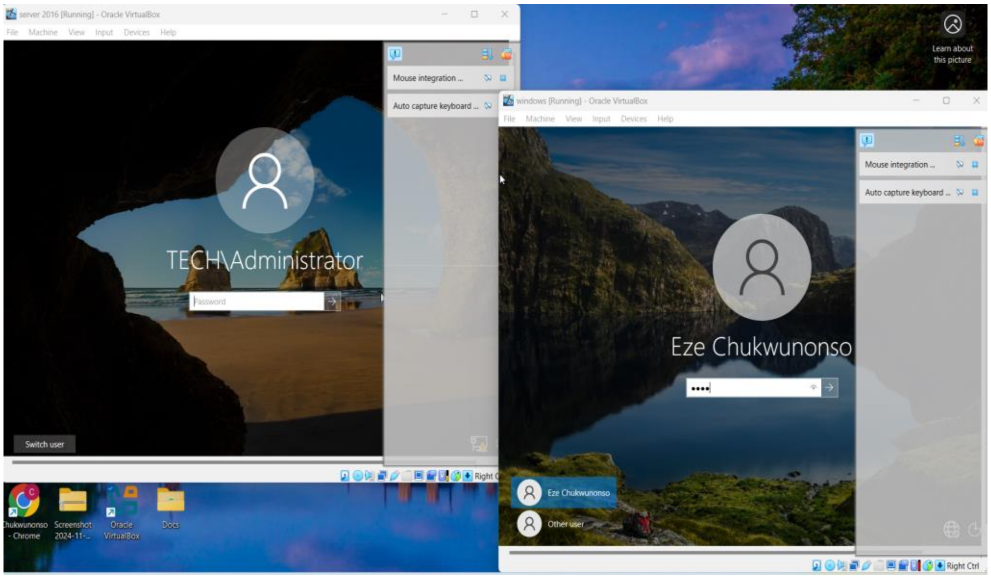
To rename this computer or change its domain or workgroup, click Change. [Change...]

OK | Cancel | Apply

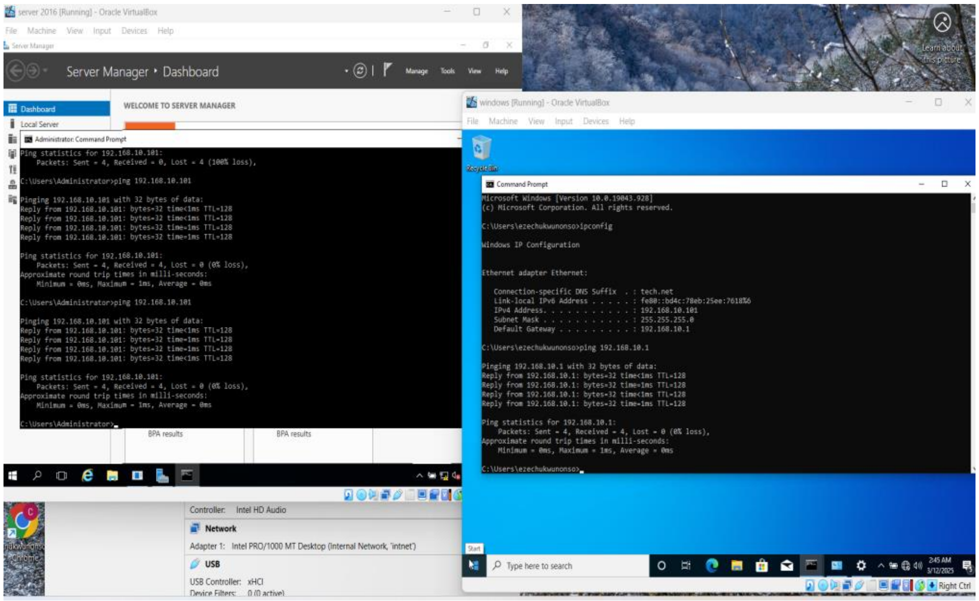
Type here to search

○

○



○

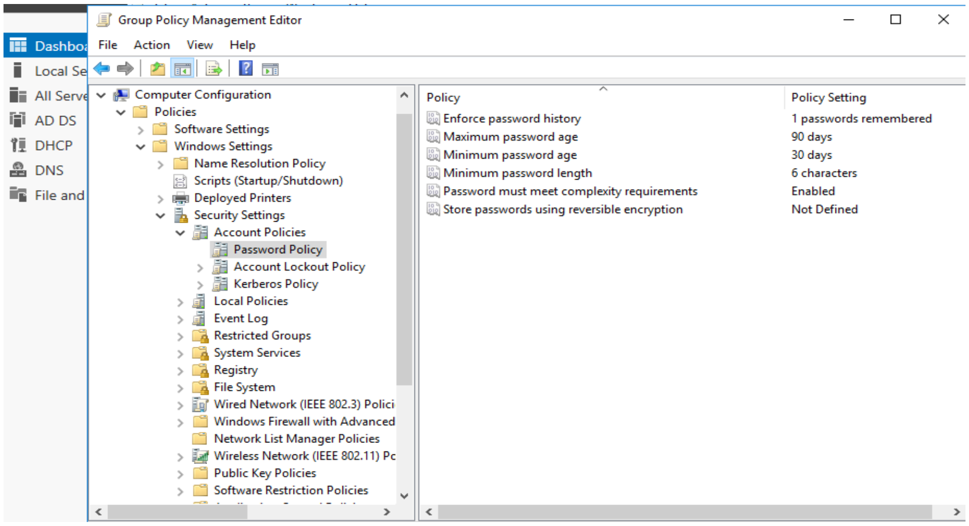
- Pinging the server from the client windows pc which has been configured as a DHCP, using the server IP as its DNS Server.
    - 

server 2016 [Running] - Oracle VirtualBox
File Machine View Input Devices Help
Server Manager • Dashboard
Manage Tools View Help
Dashboard
Local Server
WELCOME TO SERVER MANAGER
Administrator: Command Prompt
BPA results
BPA results
Controller: Intel HD Audio
Network
Adapter 1: Intel PRO/1000 MT Desktop (Internal Network, 'intnet')
USB
USB Controller: xHCI
Device Filters: 0 (0 active)
windows [Running] - Oracle VirtualBox
Recycle Bin
Command Prompt
Type here to search
2:45 AM
3/12/2025
Right Ctrl

```
Ping statistics for 192.168.10.101:
    Packets: Sent = 4, Received = 0, Lost = 4 (100% loss),

C:\Users\Administrator>ping 192.168.10.101

Pinging 192.168.10.101 with 32 bytes of data:
Reply from 192.168.10.101: bytes=32 time<1ms TTL=128
Reply from 192.168.10.101: bytes=32 time<1ms TTL=128
Reply from 192.168.10.101: bytes=32 time=1ms TTL=128
Reply from 192.168.10.101: bytes=32 time=1ms TTL=128

Ping statistics for 192.168.10.101:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
Approximate round trip times in milli-seconds:
    Minimum = 0ms, Maximum = 1ms, Average = 0ms

C:\Users\Administrator>ping 192.168.10.101

Pinging 192.168.10.101 with 32 bytes of data:
Reply from 192.168.10.101: bytes=32 time<1ms TTL=128
Reply from 192.168.10.101: bytes=32 time=1ms TTL=128
Reply from 192.168.10.101: bytes=32 time=1ms TTL=128
Reply from 192.168.10.101: bytes=32 time<1ms TTL=128

Ping statistics for 192.168.10.101:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
Approximate round trip times in milli-seconds:
    Minimum = 0ms, Maximum = 1ms, Average = 0ms

C:\Users\Administrator>_
```

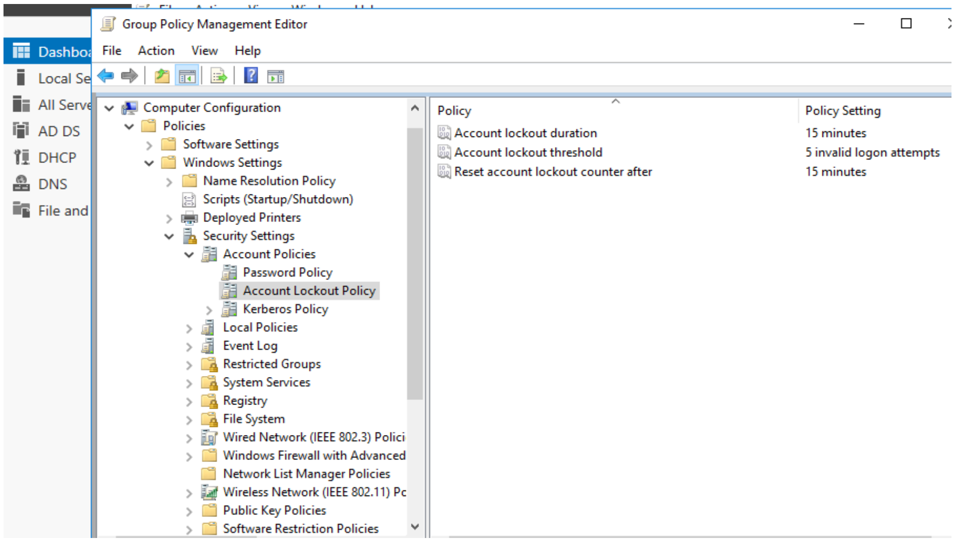
```
Microsoft Windows [Version 10.0.19043.928]
(c) Microsoft Corporation. All rights reserved.

C:\Users\ezechukwunonso>ipconfig

Windows IP Configuration


Ethernet adapter Ethernet:

   Connection-specific DNS Suffix  . : tech.net
   Link-local IPv6 Address . . . . . : fe80::bd4c:78eb:25ee:7618%6
   IPv4 Address. . . . . . . . . . . : 192.168.10.101
   Subnet Mask . . . . . . . . . . . : 255.255.255.0
   Default Gateway . . . . . . . . . : 192.168.10.1

C:\Users\ezechukwunonso>ping 192.168.10.1

Pinging 192.168.10.1 with 32 bytes of data:
Reply from 192.168.10.1: bytes=32 time<1ms TTL=128
Reply from 192.168.10.1: bytes=32 time=1ms TTL=128
Reply from 192.168.10.1: bytes=32 time<1ms TTL=128
Reply from 192.168.10.1: bytes=32 time=1ms TTL=128

Ping statistics for 192.168.10.1:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
Approximate round trip times in milli-seconds:
    Minimum = 0ms, Maximum = 1ms, Average = 0ms

C:\Users\ezechukwunonso>_
```

- **Define Group Policies (GPOs):**
    - Create GPOs to enforce:
        - **Password Policies:** Minimum length of 8 characters, complexity enabled, 90-day expiration.



Policy	Policy Setting
Enforce password history	1 passwords remembered
Maximum password age	90 days
Minimum password age	30 days
Minimum password length	6 characters
Password must meet complexity requirements	Enabled
Store passwords using reversible encryption	Not Defined

- **Account Lockout Policies:** Lockout after 5 failed attempts, 15-minute lockout duration.

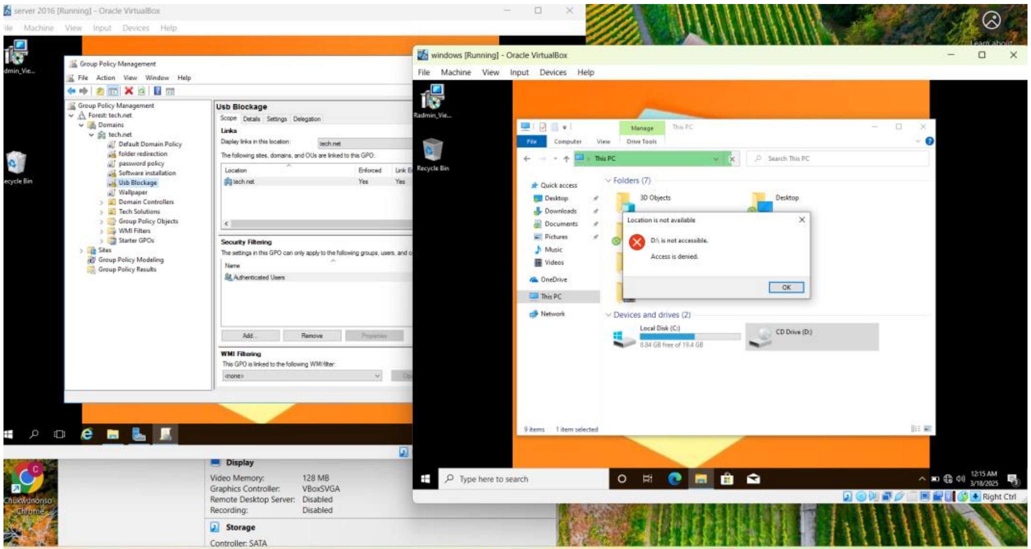


Group Policy Management Editor

Computer Configuration > Policies > Windows Settings > Security Settings > Account Policies > Account Lockout Policy

Policy	Policy Setting
Account lockout duration	15 minutes
Account lockout threshold	5 invalid logon attempts
Reset account lockout counter after	15 minutes

- **USB Blockage**: Restriction of external drives (eg, Flash Drives, Hard Disk) access to employee's devices by blocking ports.



Group Policy Management

Forest: tech.net > Domains > tech.net > Usb Blockage

Usb Blockage

Links

Display links in this location: tech.net

The following sites, domains, and OUs are linked to this GPO:

Location	Enforced	Link E
tech.net	Yes	Yes

Security Filtering

The settings in this GPO can only apply to the following groups, users, and c

Name
Authenticated Users

WMI Filtering

This GPO is linked to the following WMI filter: <none>

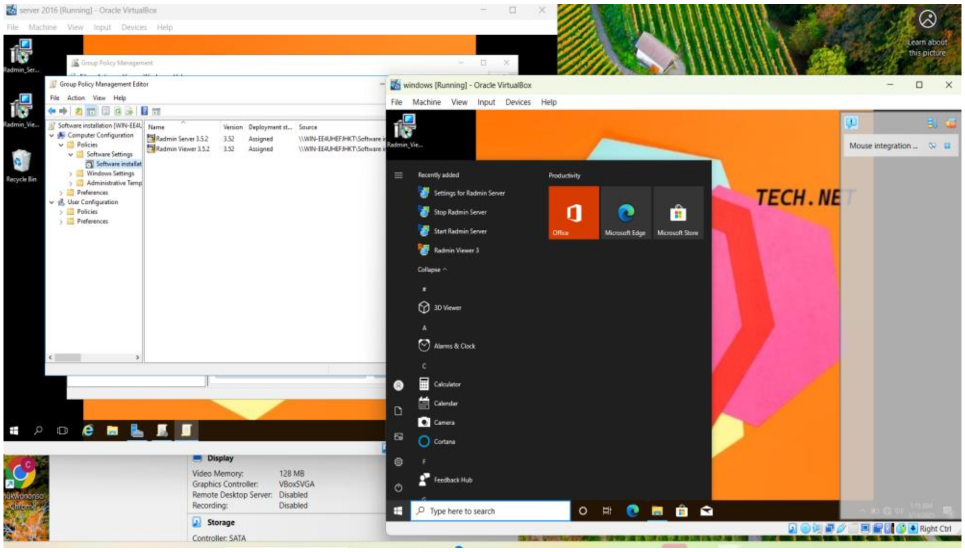
Location is not available

D:\ is not accessible.

Access is denied.

OK

- **Folder Redirection:** Redirect user folders (e.g., Documents) to a centralized file server for backups.
- **Software Deployment:** Deploy essential software (e.g., Radmin Server, Radmin Viewer, Microsoft Office) via GPO.



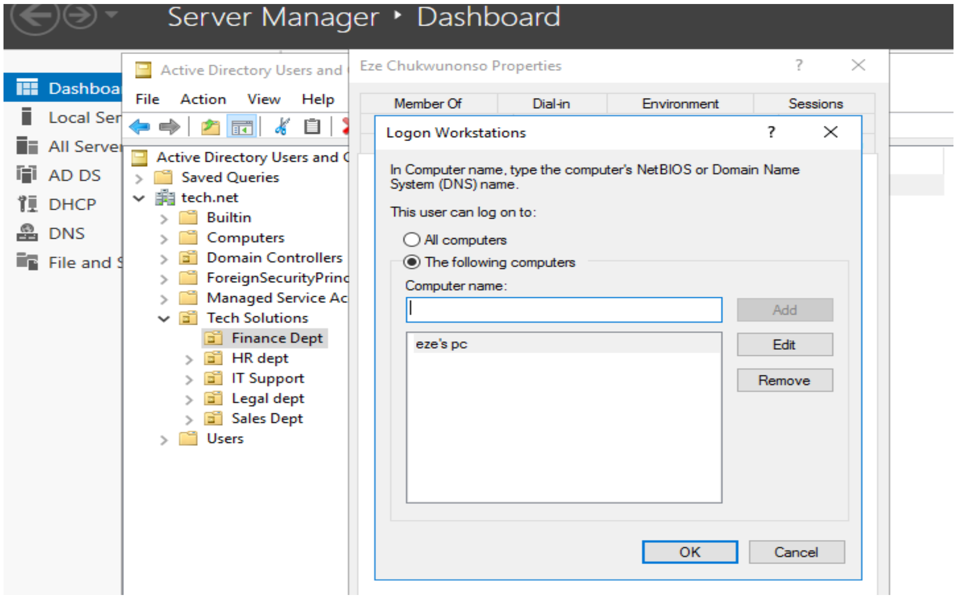
Software installation [WIN-EE4U
- Computer Configuration
  - Policies
    - Software Settings
      - Software installat
    - Windows Settings
    - Administrative Temp
  - Preferences
- User Configuration
  - Policies
  - Preferences

Name	Version	Deployment st...	Source
Radmin Server 3.5.2	3.52	Assigned	\\WIN-EE4UHEFJHKT\Software i
Radmin Viewer 3.5.2	3.52	Assigned	\\WIN-EE4UHEFJHKT\Software i

Display
Video Memory: 128 MB
Graphics Controller: VBoxSVGA
Remote Desktop Server: Disabled
Recording: Disabled

Storage
Controller: SATA

- **Computer Restriction:** This policy denies employees access to multiple systems.



Active Directory Users and C
- Saved Queries
- tech.net
  - Builtin
  - Computers
  - Domain Controllers
  - ForeignSecurityPrinc
  - Managed Service Ac
  - Tech Solutions
    - Finance Dept
    - HR dept
    - IT Support
    - Legal dept
    - Sales Dept
  - Users

Eze Chukwunonso Properties

Logon Workstations

In Computer name, type the computer's NetBIOS or Domain Name System (DNS) name.

This user can log on to:

○ All computers
● The following computers

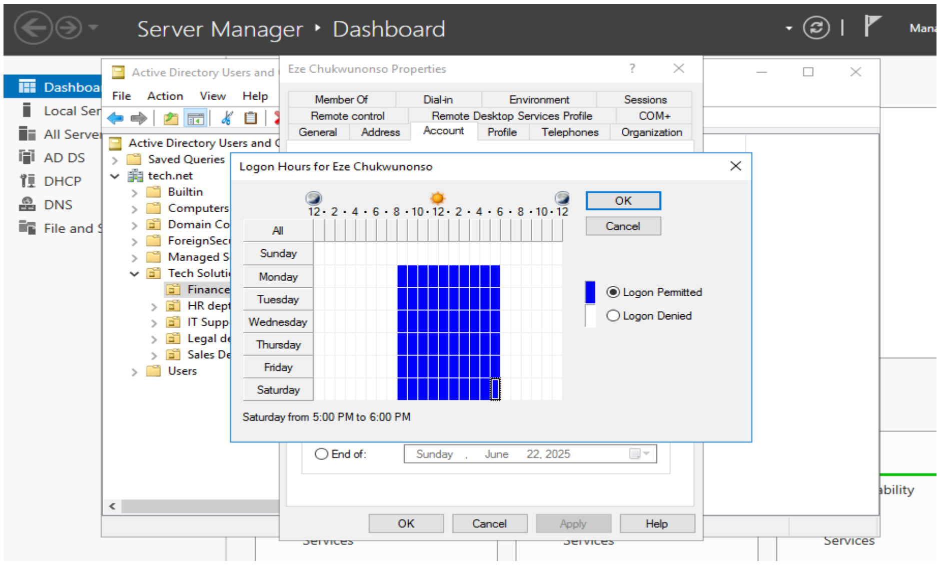
Computer name:

eze's pc

Add
Edit
Remove

OK Cancel

- **Login Hours**: Working hours is from 8am to 6pm as displayed below.



● Logon Permitted
○ Logon Denied

Saturday from 5:00 PM to 6:00 PM

○ End of: Sunday , June 22, 2025

- ○ Link GPOs to respective OUs (e.g., SALES OU gets SALES-specific policies).

Deliverables:

- AD forest and domain (tech.net).
- 5 OUs (SALES, HR, ICT, FINANCE, LEGAL) with 2 users each.
- Security groups and user assignments.
- Client PCs joined to the domain.
- Configured GPOs for security and management.

Resources

- **Personnel:**
  - Systems Administrator (1): Leads the deployment.
  - IT Support Staff (2): Assists with PC domain joining and testing.
- **Hardware:**
  - 1-2 servers for domain controllers.
  - Network infrastructure (switches, routers) to ensure connectivity.
- **Software:**
  - Windows Server 2016 licenses.
  - Client OS licenses (e.g., Windows 10/11 Pro for domain joining).

Testing and Validation

- **Test Domain Functionality:**
  - Verify replication between PDC and secondary DC (if applicable).
  - Test user logins from different locations.
- **Test GPOs:**
  - Ensure password policies and account lockout policies are enforced.
  - Confirm folder redirection and software deployment via GPO.
- **User Acceptance Testing (UAT):**
  - Allow department heads to test access to resources and user logins.
  - Gather feedback and address issues.

Risk Mitigation

Risk	**Mitigation Strategy**
Server failure during deployment	Use redundant hardware; maintain backups.
Network connectivity issues	Pre-test connectivity between locations.
GPO misconfiguration	Test GPOs in a staging OU before deployment.
User resistance to change	Provide training and clear communication.

Success Criteria

- All servers and client PCs are successfully joined to the tech.net domain.
- Users can log in and access resources based on their OU and group membership.
- GPOs are applied correctly (password policies, folder redirection, software deployment).
- No major disruptions to daily operations during deployment.