# Test Project

## *IT Network Systems Administration*

## *Module C – Windows Environment*

Submitted by:
ITNSA-ID Team

# Contents

# Introduction to Test Project

## This Test Project proposal consists of the following document/file:

- LKSN2019_ITNETWORK_MODUL_C.pdf

# Introduction

You are the IT consultant responsible for **LKSNSMK** in DIY. You have to build and configure the network for the LKSNMK in DIY, which consists of a new domain **LKSNSMK**.net, implement features for the LKS and WSC, policies and file services.

This project several components, you need to:

1. Build a new domain (**LKSNSMK**.net)
2. Maintain connectivity and access to resources between the LKS and the WSC.
3. Setup a new site-to-site connection

**NOTE:**

- Refer to the diagram on the last page for quick specification reference, as well as the configuration table.
- Please use the default configuration if you are not given the details
- All local and domain users on ALL machines should have a password of "**P@ssw0rd**" unless otherwise specified.
- Pre-supplied machines that the competitor needs to logon to will also be pre-configured with this password.

# Work Task all VMs

- Configure the hostname, network settings as per configuration table/network diagram.
- Modify the default Firewall rules to allow ICMP (ping) traffic.

# PART 1 – LKS ZONE

## Work Task LKS-SRV

### Active Directory

- Configure this server as the initial domain controller for **LKSNSMK.net**

### DHCP

- Configure DHCP for the clients
- Mode: Load balancer
- Partner Server: **LKS-FILES**
- State Switchover: 10 minutes
- Range **172.16.0.150-180**
- Set the appropriate scope options for both DNS servers and default gateway

### DNS

- Configure DNS for **LKSNSMK.net**
- Create a reverse Zone for the **172.16.0.0/24** network
- Add static records for **LKS-SRV, LKS-FILES and LKS-RTR**.

### Users/Groups

- Create OUs named "**Expert**", "**Competitor**", "**Manager**" and "**Visitor**"
- Create the following AD groups:
  - **LKS-Experts**
  - **LKS-Competitors**
  - **LKS-Managers**
  - **LKS-Visitors**
- Create the users from the CSV file **LKS-Users**.csv (c:\LKS-Users.csv) on LKS-SRV VM.
  - Fill up all fields in the Active Directory user object and add the users to the corresponding **LKS**-xx groups and OUs
- Create for every user a home drive in on **LKS-FILES d:\shares\users**.
- Connect the home drive automatically to drive

  **U: -> \\LKS-FILES.LKSNSMK.net\users$\%username%**

### NOTE:

- This is a required list of users, groups and OUs that have to be created in the domain. If you believe that you should create additional users/groups to perform the tasks you can create them.
- If you are unable to do import all the users from the Excel file create at least the following users manually

| Username/Login | Password | Domain |
|---|---|---|
| test_expert | P@ssword | LKS-Experts |
| test_competitor | P@ssword | LKS-Competitors |
| test_manager | P@ssword | LKS-Managers |
| test_visitor | P@ssword | LKS-Visitors |

## GPO

- Disable "first sign in Animation" on all Windows 10 Clients
- Members of the **LKS-Experts** group must be members of the local admin group on all Windows 10 computers in the domain
- Disable Recycle Bin on the Desktop for all domain users except users in "**LKS-Experts**" Group and domain administrators
- Disable changing the screen saver for all domain users except users in "**LKS-Experts**" Group and domain administrators
- Disable changing the background picture for all domain users except users in "**LKS-Experts**" Group and domain administrators
- Redirect (Folder redirection) only for all users in the Expert group "my Documents" and the "Desktop" to **LKS-FILES** -> **d:\shares\redirected**
    - share path: **\\LKS-FILES.LKSNSMK.net\redirected\%username%**
- Create a fine grained password policy required 7 character non-complex passwords for regular users, 8 characters complex password for members of the **LKS-Experts** group
    - Disable “enforce minimum password age”

## Work Task LKS-FILES

This will be the primary file server for the **LKSNSMK**.net domain, but will also provide redundancy for other network services, including DHCP.

### Install/Configure

- Add new disk **10** GB, map it on drive **D:**
- Join to **LKSNSMK.net** domain

### Shares

- Create shares for departments (**Competitors, Experts and Managers**)
- on **LKS-FILES** → **d:\shares\departments**
  - **\\LKS-FILES\Experts** → **d:\shares\departments\Experts**
  - **\\LKS-FILES\Competitors** → **d:\shares\departments\Competitors**
  - **\\LKS-FILES\Managers** → **d:\shares\departments\Managers**

### DFS

- Create a Namespace with the name "**dfs**"
- Add **LKS-SRV** as the second server for this Namespace
- Create DFS links for the department shares (**Experts, Competitors, Managers**)
- Create a DFS Replication to implement a backup of the department shares on **LKS-SRV**. The shares should be replicated/backed up like this:
  - **LKS**-FILES: D:\shares\departments\Experts → **LKS-SRV**: C:\backup\Experts
  - **LKS**-FILES: D:\shares\departments\Competitors → **LKS-SRV**: C:\backup\Competitors
  - **LKS**-FILES: D:\shares\departments\Managers → **LKS-SRV**: C:\backup\Managers
- Map the department shares and have full access depending on the corresponding group (**LKS-Experts**, **LKS-Competitors**, **LKS-Managers**) to drive **G**: using the DFS Namespace

### DHCP

- Install and configure DHCP
- Mode: Load balancer
- Partner Server: **LKS-SRV**
- State Switchover time: 10 minutes

### Quota/Screening

- Set the quota to every home drives to 5GB
- Prevent storing .cmd and .exe files on the home drives. All other file extensions are allowed!

### Customized error messages

- Make sure that unauthorized users get the following error message, when they want to access one of the three department shares (Experts, Competitors and Managers) they are not allowed to!
  - Expert share:
    - Error message: "Access only for EXPERTS allowed"
  - Competitor share:
    - Error message: "Access only for COMPETITORS allowed"
  - Manager share:
    - Error message: "Access only for MANAGERS allowed"

# Work Task LKS-CLIENT

## Configure

- Join the client to the **LKSNSMK.net** domain
- Use this client for testing the GPO settings

# Part 2 – WSC ZONE

## Work Task WSC-SRV

This server is used for Published Applications in the **WSC** domain.

### Active Directory

- Configure this server as the initial domain controller for WSC.net
- Create OU named RDS and two users rds_user1 and rds_user2

### DNS

- Create **www** and **rds** records for **WSC.net**

### CA

- Install Enterprise Root CA
- Name: **WSC-ROOT-CA**
- Lifetime: **5** years
- Configure a template for all clients called "**Skills39_WSC_Clients**"
  - Set the "subject name format" to Common Name
  - Auto enroll this template to all **WSC.net** Windows 10 Clients
- Create the necessary certificates for the **WSC** websites on **WSC-SRV**

### IIS

- Host **www.WSC.net** website
- Add index file to show "**Improving Our World with the Power of Skills**"
- This site should use https using certificate approved in **WSC CA**

### Remote Desktop Services

- Install Remote Desktop Services
  - Do not install RD Licensing component.
- Configure web-access for terminal services.
- The RDS login page should be accessible by entering the URL **https://rds.WSC.net**
- On the **WSC-SRV** server, generate and use the corresponding SSL certificate for terminal services. Apply this certificate for all components of the terminal services. When connecting to the website **https://rds.WSC.net** from any computer in the **WSC** domain, the certificate must be trusted and valid (no certificate warning should be shown).
- Make sure, only users **rds_user1** and **rds_user2** are able to login via RDP.
- Publish Wordpad on the web-portal of RemoteApp for the domain user **rds_user1**
- Publish Notepad on the web-portal of RemoteApp for the domain user **rds_user2**

# Part 3 – VPN

In Part 3 you have to setup Site-to-Site VPN between **LKS** network and **WSC** network.

## Work Task WSC-RTR

### Install/Configure

- Join to **WSC.net** domain
- Install RRAS service

### Site-to-Site VPN

- Configure Site-to-Site VPN to **LKS**-RTR
- Use pre-shared key **P@ssw0rd** for the authentication
- Set the connection type to persistent connection
- All traffic bound for **LKS** will be placed in the VPN tunnel

## Work Task LKS-RTR

### Install/Configure

- Join to **LKSNSMK.net** domain
- Install RRAS service

### Site-to-Site VPN

- Configure Site-to-Site VPN to the **WSC**-RTR
- Use pre-shared key **P@ssw0rd** for the authentication
- Set the connection type to persistent connection
- All traffic bound for **WSC** will be placed in the VPN tunnel

### Remote access VPN

- Configure VPN for client access.
- Use the IKEv2 protocol and make sure authentication is done by client certificate
- Use the IP range 192.168.0.50 – 192.168.0.79, DNS: 192.168.0.1
- The VPN clients should have access to all internal networks (**LKS** and **WSC**)

## Work Task COMPETITOR

### VPN

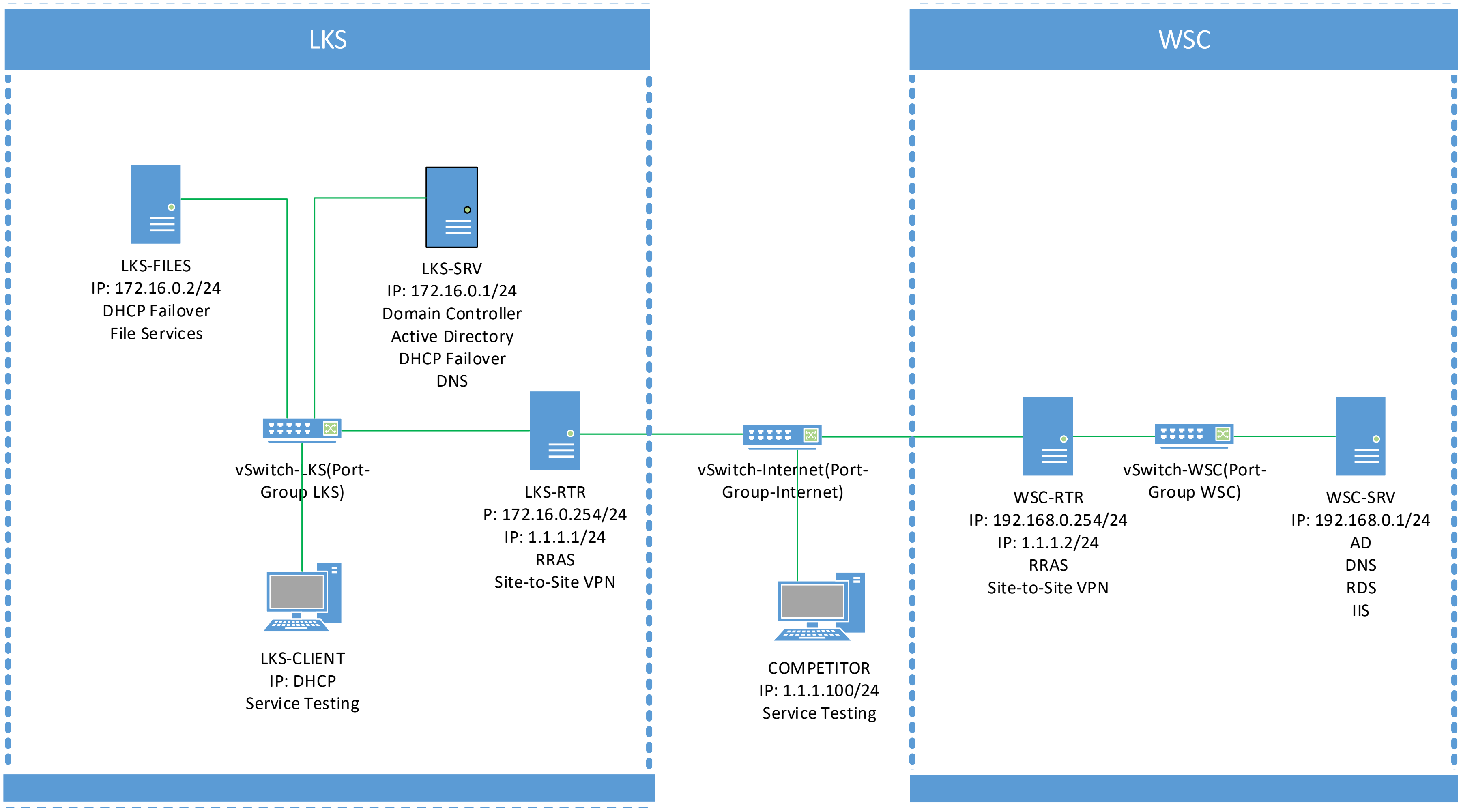
- Configure the VPN client settings for all users on this computer
- Add a VPN connection name **WSC-VPN**
  - Connect the VPN using the public IP **WSC**-RTR
  - Use IKEv2 protocol with machine certificate authentication
- Use this client for testing with access to the https www.**WSC**.net
- Join to **WSC.net** domain

## CONFIGURATION TABLE

| Hostname | Operation System | Domain | IP Address(es) | Gateway | OS Preinstalled |
|---|---|---|---|---|---|
| **WSC-SRV** | Windows Server 2016 GUI | **WSC.net** | 192.168.0.1/24 | 192.168.0.254 | Yes |
| **WSC-RTR** | Windows Server 2016 no GUI | **WSC.net** | 192.168.0.254/24<br>1.1.1.2/24 | N/A | Yes |
| **LKS-SRV** | Windows Server 2016 GUI | **LKSNSMK**.net | 172.16.0.1/24 | 172.16.0.254 | Yes |
| **LKS-FILES** | Windows Server 2016 GUI | **LKSNSMK**.net | 172.16.0.2/24 | 172.16.0.254 | Yes |
| **LKS-RTR** | Windows Server 2016 no GUI | **LKSNSMK**.net | 172.16.0.254/24<br>1.1.1.1/24 | N/A | Yes |
| **LKS-CLIENT** | Windows 10 | **LKSNSMK**.net | DHCP | 172.16.0.254 | Yes |
| **COMPETITOR** | Windows 10 | **WSC.net** | 1.1.1.100/24 | N/A | Yes |

Machines indicated as being preinstalled with "**Yes**" will have the operating system installed.

# NETWORK DIAGRAM


LKS
WSC
LKS-FILES
IP: 172.16.0.2/24
DHCP Failover
File Services
LKS-SRV
IP: 172.16.0.1/24
Domain Controller
Active Directory
DHCP Failover
DNS
vSwitch-LKS(Port-Group LKS)
LKS-RTR
P: 172.16.0.254/24
IP: 1.1.1.1/24
RRAS
Site-to-Site VPN
LKS-CLIENT
IP: DHCP
Service Testing
vSwitch-Internet(Port-Group-Internet)
COMPETITOR
IP: 1.1.1.100/24
Service Testing
WSC-RTR
IP: 192.168.0.254/24
IP: 1.1.1.2/24
RRAS
Site-to-Site VPN
vSwitch-WSC(Port-Group WSC)
WSC-SRV
IP: 192.168.0.1/24
AD
DNS
RDS
IIS