LOMBA KETERAMPILAN SISWA
SEKOLAH MENENGAH KEJURUAN
TINGKAT NASIONAL XXIV 2016

IT NETWORK SYSTEMS ADMINISTRATION
LKS2016_ITNSA_MODUL2

MODUL 2
SYSTEM INTEGRATION ISLAND

KEMENTERIAN PENDIDIKAN DAN KEBUDAYAAN
DIREKTORAT JENDERAL PENDIDIKAN MENENGAH
DIREKTORAT PEMBINAAN SEKOLAH MENENGAH KEJURUAN

ISLAND 3 – SYSTEM INTEGRATION ISLAND

CONTENTS

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

LKSN2016_ITNSA_MODUL2.pdf

INTRODUCTION

The competition has a fixed start and finish time. You must decide how to best divide your time.

Please **carefully** read the following instructions!

When the competition time ends, please leave your station in a running state.

Please do not touch the VMware configuration as well as the configuration of the VM itself except the CD-ROM / HDD drives

PHYSICAL MACHINE (HOST)

FOLDER PATHS

Virtual Machines: E:\Virtual Machine
ISO Images: E:\Apps

ISLAND 3 – SYSTEM INTEGRATION ISLAND

PART I

WORK TASK INSTALLATION (WINSRV1, LNXSRV1,LNXSRV2)

Note Please use the default configuration if you are not given details.

WORK TASK SERVER WINSRV1

Configure the server with the hostname, domain and IP specified in the appendix.

- o Modify the default Firewall rules to allow ICMP (ping) traffic
- o Install Active Directory Domain Services for **inaskills.net**.
    - Create a new Organization Unit named **InaSkills2015**. All new users and groups must be created in this OU.
    - Create the user and security global group with members as indicated in the table in Appendix. Use **Malang2016** as the password for all user accounts.
- o DNS
    - Create a forward zone called "**inaskills.net**"
    - Create a reverse zone for the IP range.
    - Create 3 subdomain:
        - **info.inaskills.net**
        - **training.inaskills.net**
        - **competition.inaskills.net**
- o GPO – Password Policies
    - Ensure the company user password must meet the following criteria:
        - Domain passwords will be at least 6 characters.
        - Strong passwords need not be enforced.
        - Passwords will not be stored with reversible encryption.
        - Passwords will be changed exactly every 90 days.
        - Accounts will be locked out for 30 minutes after three invalid logon attempts.
    - The password of the users in IT group must meet the following criteria:
        - Domain passwords will be at least 10 characters.
        - Strong passwords will be enforced.
        - Passwords will not be stored with reversible encryption.
        - Passwords will be changed exactly every 30 days.
        - Accounts will be locked out for 15 minutes after two invalid logon attempts.
- o GPO – Security Policies
    - At logon on **WINCLT**, users should see this message before logging in: Message Title: "Welcome to InaSkills2015" with Message Text "Only authorized personnel allowed to access." and prohibit this message on all servers.
    - All users, except the IT group, are not allowed to access the display settings on the Control Panel.
    - disable "First Sign-in Animation" for all Windows 8.1 clients
    - disable the use of "cmd" and "run" for the Visitor group
- o Configure users profiles and share folders :

- Create users home folder \\inaskills.net\skills\rfolders\username and ensure it is mapped to Z: at each logon automatically.
  - Limit the storage space to every home folder to 20 MB.
  - Prevent any .exe and .bat files to be stored on the home folder.
- Redirect the *Documents* folder to \\inaskills.net\skills\rfolders\username\Documents
- Create departmental share folders on \\inaskills.net\skills\IT, \\inaskills.net\skills\Marketing and map the respective share folder to Y: at logon, depending on the department the user is in. Users should not be allowed to access other departments' or users' home shares.

WOTK TASK SERVER LNXSRV1

Configure the server with the hostname, domain and IP specified in the appendix.
o Create 50 local UNIX users with password "Malang2016"
  - Username: user[1-50]
o Configure the disk and partitions (RAID)
  - Add 2 disks with 5 GB of each disk.
  - Use the two virtual disks to create a software RAID 1.
  - Mount it as /www
o RADIUS (freeradius)
  - Configure radius server for router and switch access authentication. Use "Secret1234" as share key.
  - Create "swuser" with password "LKSN2016". Will be used for switch access authentication.
  - Create "rouser" with password "LKSN2016". Will be used for router access authentication.
o Web Server (apache2)
  - Install apache2 including php5
    - Create 3 virtual webhost for **info.inaskills.net; training.inaskills.net; competition.inaskills.net**
o VPN Server
  - Configure VPN access to Internal network. External clients should connect to 220.132.33.3
  - Use address range 10.2.1.1 to 10.2.1.62 for VPN clients
  - For login create a user "vpn" with password "Malang2016"

WORK TASK SERVER LNXSRV2

Configure the server with the hostname, domain and IP specified in the appendix.
o DHCP
  - Scope for Internal network:
    - Range: 10.202.178.130– 10.202.178.254
    - Netmask: /25
    - Gateway: 10.202.178.129
    - DNS: 10.202.178.2
o NTP
  - Set NTP server service. Use local clock as time server source

- o Monitoring Server (Cacti)
  - Install Cacti
  - Create an admin-user "master" with password "Malang2016"
  - Create a graph showing the statistics of the CPU, Memory and interfaces traffic of the LNXSRV1, RO-MALANG and SW-MALANG
- o DNS (Secondary)
  - Create secondary zone for inaskills.net and use this server as the backup DNS for the inaskills.net domain.

PART II

WORK TASK NETWORK CONFIGURATION (RO-MALANG, SW-MALANG)

Note Please use the default configuration if you are not given details.

WORK TASK SWITCH (SW-MALANG)

o   Configure the server with the hostname SW-MALANG
o   Use the "**Malang2016**" secret password.
o   Use the "**LKSN2016**" password for line console and line vty 0 – 4.
o   Encrypt all clear text password.
o   Configure port VLAN

Port	Vlan
1 – 4	Trunk
5 – 8	vlan linux (vlan 20)
9 – 12	vlan win (vlan 10)
13 - 16	vlan services (vlan 30)
17 - 20	vlan client (vlan 100)

o   Configure VLAN 30 with IP Address 10.202.178.66/26
o   Join switch management into VLAN "services"
o   Configure port interface and switchport security with 3 maximum mac address and

- Use port 1 for connection to the router Gi0/1
- Use port 5 for LNXSRV1
- Use port 6 for LNXSRV2
- Use port 9 for Windows server
- Use port 12 for VLAN "services"
- Use port 17 for VLAN "client"

WORK TASK ROUTER (RO-MALANG)

o   Configure the server with the hostname RO-MALANG
o   Enable AAA login with the LNXSRV1 as RADIUS server.
o   Create username **admin** and password **LKSN2016** for failover user if RADIUS server is not available
o   Enable SSH access (Authentication with Radius)
o   Configure SSH authentication using radius LNXSRV1
o   Configure Gi0/0 with IP Address 220.132.33.1/27
o   Configure Gi0/1 with 802.1Q:

- Gi0/1.10 with IP Address 10.202.178.1/27
- Gi0/1.20 with IP Address 10.202.178.33/27
- Gi0/1.30 with IP Address 10.202.178.65/26
- Gi0/1.100 with IP Address 10.202.178.129/25

o   Enable DHCP relay for VLAN "client"

- o NAT/PAT
  - Configure PAT for internal hosts
  - Configure static NAT for outside connections:
  - Static NAT to LNXSRV1 from ip-address 220.132.33.3
  - Static NAT to WINSRV1 from ip-address 220.132.33.2
- o Deny all traffic from external to LNXSRV2

PART III

WORK TASK WINDOWS CLIENT (WINCLT)

Note Please use the default configuration if you are not given details.

Configure the server with the hostname, domain and IP specified in the appendix.

- o   Connect the notebook to the internet
- o   Configure it as an OpenVPN client
- o   Connect the WINCLT to the switch vlan client
- o   Join the notebook to the domain

APPENDIX

SPECIFICATIONS

WINSRV1

Computer name:	WINSRV1
Operating System	MS Windows 2012 R2
Domain Name:	inaskills.net
Administrator User name:	Administrator
Administrator password:	Malang2016
IP address:	10.202.178.2/27
Domain NetBIOS Name:	INASKILLS

LNXSRV1

Computer name:	LNXSRV1
Operating System	Linux Debian 7.8
User name:	root
Password:	Malang2016
IP address:	10.202.178.34/27

LNXSRV2

Computer name:	LNXSRV2
Operating System	Linux Debian 7.8
User name:	root
Password:	Malang2016
IP address:	10.202.178.35/27

WINCLT

Computer name:	WINCLT
Operating System	MS Windows 8.1
User name:	Administrator
Password:	Malang2016
Domain name:	inaskills.net
IP address:	DHCP

NETWORK SPESIFICATION

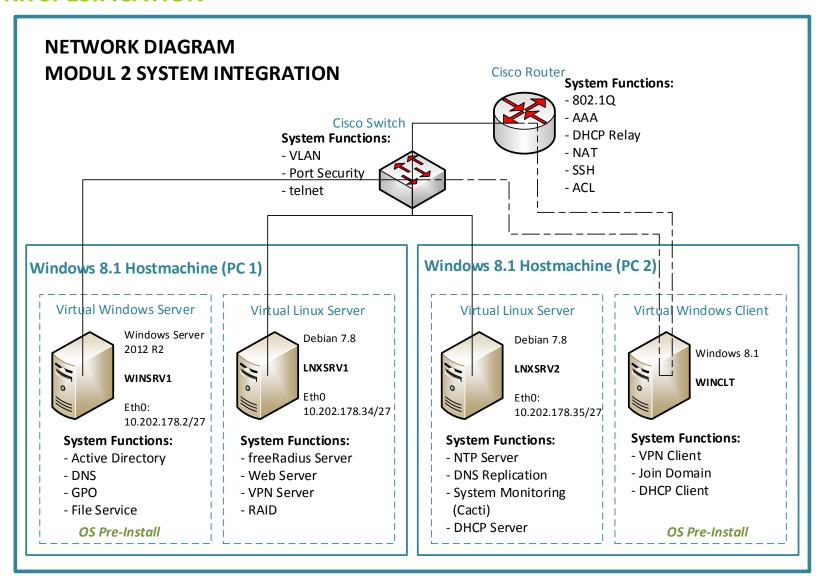|	
VLAN win (ID: 10)	10.202.178.0/27
VLAN linux (ID: 20)	10.202.178.32/27
VLAN services (ID: 30)	10.202.178.64/26
VLAN client (ID: 100)	10.202.178.128/25
External	220.132.33.0/27

DOMAIN USER LIST

Group	Members
IT	itXX (01 – 50)
Marketing	mktXX (01 – 50)
Visitors	vtrXX (01 - 30)
Employees	IT, Marketing

NETWORK SPESIFICATION

NETWORK DIAGRAM
MODUL 2 SYSTEM INTEGRATION

Cisco Router

System Functions:
- 802.1Q
- AAA
- DHCP Relay
- NAT
- SSH
- ACL

Cisco Switch

System Functions:
- VLAN
- Port Security
- telnet

Windows 8.1 Hostmachine (PC 1)

Virtual Windows Server

Windows Server 2012 R2

WINSRV1

Eth0:
10.202.178.2/27

System Functions:
- Active Directory
- DNS
- GPO
- File Service

OS Pre-Install

Virtual Linux Server

Debian 7.8

LNXSRV1

Eth0
10.202.178.34/27

System Functions:
- freeRadius Server
- Web Server
- VPN Server
- RAID

Windows 8.1 Hostmachine (PC 2)

Virtual Linux Server

Debian 7.8

LNXSRV2

Eth0:
10.202.178.35/27

System Functions:
- NTP Server
- DNS Replication
- System Monitoring (Cacti)
- DHCP Server

Virtual Windows Client

Windows 8.1

WINCLT

System Functions:
- VPN Client
- Join Domain
- DHCP Client

OS Pre-Install

Version: 1.0

Date: 11.12.2015