LOMBA KOMPETENSI SISWA
SMK TINGKAT NASIONAL KE-29
TAHUN TAHUN 2021

TEST PROJECT
MODUL A – INTEGRATION SYSTEMS
DAY 2

BIDANG LOMBA

TEKNOLOGI INFORMASI SISTEM ADMINISTRASI JARINGAN

IT NETWORK SYSTEMS ADMINISTRATION

DESCRIPTION OF PROJECT

A small startup company's production environment contains numerous services within multiple Operating Systems. We will ask you to install, configure, and integrate the different services. You will have two work days to complete two different sets of tasks. Each set of tasks is to be completed within one work day. For the second work day, you will continue the work of another engineer, who should have fully configured systems according to the day one set of tasks. You may check, change, or update the existing systems, but we will only score the tasks you're supposed to do on the second work day.

DAY 2 - LINUX SERVICES

Folder Backup

- Backup all users virtual host folder in srv1 and srv2 to C:\public in STORAGE.
    - Backup all 100 users folder.
        - /var/www/user001/
        - /var/www/user002/
        - /var/www/user003/
        - …
        - /var/www/user099/
        - /var/www/user100/
    - Mount the remote backup folder locally at /backup.
        - For server srv1, place backup content in directory /backup/srv1/
        - For server srv2, place backup content in directory /backup/srv2/
    - Schedule backup every 1 hour using cron as root user. It is okay to overwrite previous backups.

Email Services

- Install any mail service and configure a sending-only mail server in fw.sabang.net
    - Secure SMTP Port 465
    - Enable PAM Authentication
        - Make sure all local users are able to authenticate
    - Use the self-signed certificate from Windows CA for this task.

Securing HTTP Access

- Use CA from Windows to generate self-signed certificates required for this task.
- Enable HTTPS in the load balancer serving www.sabang.net.
- Enable HTTPS in the web server serving user websites.
    - Configure load balancer to forward traffic non-terminated HTTPS. Load balancer will not handle HTTPS, HTTPS is handled by the backend web server.
    - Only enable to the first 5 and last 5 users :
        - user001.public.sabang.net
        - user002.public.sabang.net
        - user003.public.sabang.net
        - user004.public.sabang.net
        - user005.public.sabang.net
        - user096.public.sabang.net
        - user097.public.sabang.net
        - user098.public.sabang.net
        - user099.public.sabang.net
        - user100.public.sabang.net

DAY 2 - WINDOWS SERVICES

Basic Configuration

- Configure IP Address of all windows servers according to the addressing table.
- Determine and set gateway IP address to all windows servers.
- Configure hostname of all windows servers.
- Make all windows servers pingable from any devices.

File Sharing

- Create and Share Folder C:\backup\ in host STORAGE
  - Enable AD Authentication, permit user 'Administrator' only
- Create and Share Folder C:\public\ in host STORAGE
  - Disable Authentication, anonymous user can read and write to this folder.

Cross Platform iSCSI

- Configure iSCSI Initiator on STORAGE
- Connect to all 20 disks in Sabang iSCSI.
- Create an NTFS filesystem and mount all 20 disks to E:/, F:/, and so on in any order.
  - Make sure 20 extra disks is accessible via File Explorer

Configure Web Service HTTPS

- Access STORAGE and Install IIS web service.
- Serve web https://www.merauke.net
  - Serve file index.html as specified in the appendix
  - Use a Self-Signed Certificate from LKSN2021-CA to enable HTTPS.
- Serve 25 user websites:
  - Make sure it is accessible using following URL https://user01.merauke.net, https://user02.merauke.net, https://user03.merauke.net, and so on until https://user25.merauke.net.
  - Use a Self-Signed Certificate from LKSN2021-CA to enable HTTPS.
  - Serve file users.html in the following directory:
    - C:\www\users\01\users.html
    - C:\www\users\02\users.html
    - C:\www\users\03\users.html
    - …
    - C:\www\users\25\users.html

Setup VPN

- Access STORAGE and Install RRAS and NPS.
- Configure VPN Server for Windows Client
  - Authenticate using username and password in Active Directory.
  - Permit any users in the domain to authenticate.
- Make sure budi-pc can connect to the VPN using previously configured Public IP from NAT.

    - Create the VPN in budi-pc with the name ‘Public’ so that the user can connect immediately.
    - Access the network device and open the ports needed.
- Make the VPN also accessible via local IP of STORAGE from budi-pc.
    - Create the VPN in budi-pc with the name ‘Direct’ so that the user can connect immediately.
    - Configure routing as needed.

Active Directory and DNS

- Access DC and Configure AD for domain merauke.net
- Create a normal AD user ‘patah’ with password specified in the appendix.
- Create DNS Address Record for servers in merauke.net according to their hostnames, for example DC.merauke.net
- Create DNS Record www.merauke.net pointing to IP Address of STORAGE
- Create 25 DNS Records for users website pointing to IP Address of STORAGE:
    - user01.merauke.net
    - user02.merauke.net
    - user03.merauke.net
    - …
    - user25.merauke.net

Certificate Authority

- Access CA and Configure CA to issue required Certificates by Linux Services
    - Common Name : LKSN2021-CA
    - Do not join this server to any domain.
- Generate certificates required by other services with the following DNS name:
    - www.sabang.net
    - *.public.sabang.net
    - www.merauke.net
    - *.merauke.net
    - Save these certificates and their private keys as one pfx file in C:\cert\
    - Use **Skills39** as export password
    - Use the DNS name as filename :
        - www.sabang.net.pfx
        - public.sabang.net.pfx
        - www.merauke.net.pfx
        - wildcard.merauke.net.pfx

Backup Configuration

- Access CA and Schedule Backup using Windows Backup.
- Backup folder C:\cert and all its contents to \\STORAGE\backup right away.
    - Create at least one empty .txt file to the backup folder
- Schedule the backup every day at 1 AM.

APPENDIX

Users and Passwords

Username	Password	Remark
patah	KesultananDemak2021	New User
user	Skills39	-
Administrator	Skills39	Windows Server only
root	Skills39	Debian only

Network Devices Addressing Table

Device Name	IP Address CIDR	Network
RTX	172.17.1.2/30	edge.sabang.net
	192.168.199.1/21	indonesia.com
	172.10.1.1/16	client
	30.9.65.9/29	Public
RTB	30.9.65.11/29	Public
	172.17.9.1/22	merauke.net

End Devices Addressing Table

Device Name	IP Address CIDR	Network
srv1.sabang.net	172.16.1.201/20	sabang.net
srv2.sabang.net	172.16.1.202/20	sabang.net
fw.sabang.net	172.16.15.254/20	sabang.net
	172.17.1.1/30	edge.sabang.net
CA	192.168.192.168/21	indonesia.com
DC	172.17.10.100/22	merauke.net
STORAGE	172.17.11.102/22	merauke.net
budi-pc	172.10.19.45/16	client

VLAN Table

VLAN ID	**Network Address**
10	172.17.1.0/30
20	192.168.192.0/21

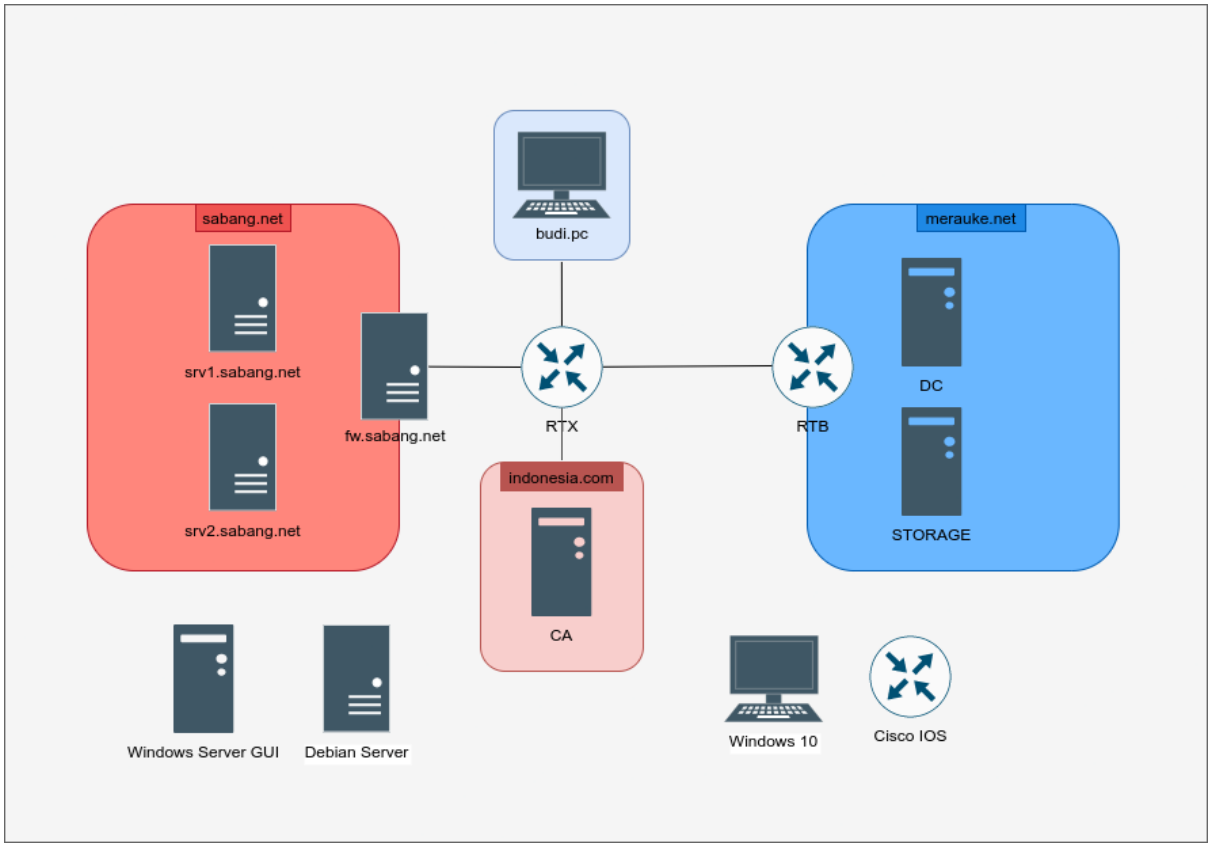
index.html

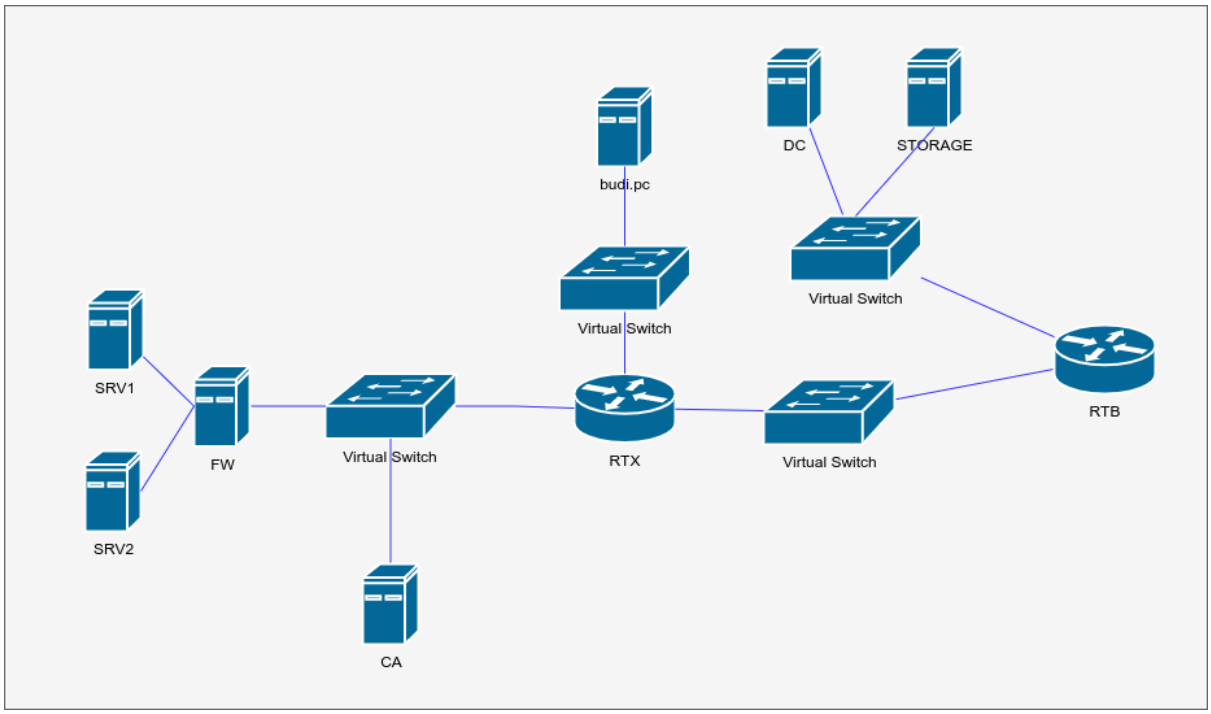
```
<h1> Default Page </h1><br>
<br>
This page has not been modified by the owners.
```

users.html

```
<h1> Users Page </h1><br>
<br>
This is the default page for users' websites.
```

TOPOLOGY


sabang.net
srv1.sabang.net
srv2.sabang.net
fw.sabang.net
budi.pc
RTX
indonesia.com
CA
merauke.net
DC
STORAGE
RTB
Windows Server GUI
Debian Server
Windows 10
Cisco IOS


budi.pc
DC
STORAGE
Virtual Switch
Virtual Switch
SRV1
SRV2
FW
Virtual Switch
RTX
Virtual Switch
RTB
CA