LOMBA KETERAMPILAN SISWA

SEKOLAH MENENGAH KEJURUAN
TINGKAT NASIONAL XXV 2017

MODUL A
LINUX ISLAND

IT NETWORK SYSTEMS ADMINISTRATION

LKS2017_ITNSA_MODUL_A

ISLAND A – LINUX ISLAND

CONTENTS

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

LKSN2017_ITNSA_MODULA.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.

PHYSICAL MACHINE (HOST)

FOLDER PATHS

Virtual Machines: C:\LKS\Virtual Machine

ISO Images: C:\LKS\ISO

Password for OS Pre-Install : Skills39

PART I

WORK TASK INSTALLATION (SOLOSRV, SEMARANGSRV)

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

WORK TASK SERVER SOLOSRV

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

o Configure the disk and partitions
- Add 3 disk with 7 GB of each disk.
- Use the three virtual disks to create a software RAID 5.
- Mount it as /files

o Create 30 local UNIX users with password "InaSkills2017"
- Username: user[1-30]. ex: user1, user2, …, user30

o Install the services:
1. DNS (bind9)
   - Configure and install DNS Server with two domain
     - **skills4future.net** to SOLOSRV
     - **skills39.edu.id** to SEMARANGSRV
   - Create subdomain **files.skills4future.net** and **internal.skills4future.net**
   - Create subdomain **monitor.skills39.edu.id** and **vpn.skills39.edu.id**
   - Create a host **www.skills4future.net** for IP Public JATENGRO

2. Web Server (apache2 including php5)
   - Create website "http://internal.skills4future.net" and "http://www.skills4future.net"
     - Use the following code for index.html in the http://internal.skills4future.net
       ```
       <html>
               <h1>Welcome in the INTERNAL skills4future.net</h1>
       </html>
       ```

     - Use the following code for index.html in the http://www.skills4future.net
       ```
       <html>
               <h1>Welcome in the skills4future.net</h1>
       </html>
       ```

   - Make sure "http://internal.skills4future.net" is protected by authentication
     - Allow users from "user11" to "user20"
   - Enable HTTPs for both sites
     - Use a certificate signed by CA Service in SEMARANGSRV
     - Make sure no certificate warning is shown.

3. FTP (proftpd)
   - Enable FTPS
     - Use a certificate signed by SEMARANGSRV
   - Each user (user21 to user30) will have a home directory.

- ▪ Make sure the user is jailed in their respective website document root directories.
- ▪ Make sure file transfer to the server is possible.

4. Mail
   - ▪ Make sure user11 to user20 have access via POP3, IMAP and SMTP
   - ▪ Before you finish your project make sure you send an email message from user14 to user19 and another message from user19 to user14.
   - ▪ Do not delete these email messages.

5. File Server (Samba)
   - ▪ Share "MANAGER"
     - o Path is /files/manager
     - o Give access only to users "user1" to "user10"
     - o Make sure the share is not shown in the network browser of the clients
   - ▪ Share "GUEST"
     - o Path is /files/guest
     - o Enable read-only access to everyone

6. SSH Server
   - ▪ Install SSH Server
   - ▪ Use RADIUS SEMARANGSRV to authentication users.
   - ▪ Change SSH port default to 1945

WORK TASK SERVER SEMARANGSRV
Configure the server with the hostname, domain and IP specified in the appendix.
- o Install the services:
  1. CA (openssl)

     - ▪ Configure as CA
     - ▪ CA attributes should be set as follows
       - - Country code is set to ID
       - - Organization is set to LKSN2017
     - ▪ Create a root CA certificate
     - ▪ Store the certificate in directory /cert

  2. Monitoring Server (Cacti)
     - ▪ Configure Cacti with url http://monitor.skills39.edu.id
     - ▪ Create an admin-user "master" with password "InaSkills2017"
     - ▪ Create a graph showing the statistics of the CPU, Memory and interfaces traffic of JATENGRO

  3. RADIUS (FreeRadius)
     - ▪ Create 5 users with password "InaSkills2017" for SSH login SOLOSRV
       - o Username: user[31-35]. ex: user31, user32, …, user35
     - ▪ Use "InaSkills2017" as share key

4. DHCP
  - Create DHCP Pool INTERNAL:
    - Range: 192.168.150.51 – 192.168.150.100
    - Netmask: /25
    - Gateway: 192.168.150.1
    - DNS: 172.23.199.3
  - DNS-Suffix: skills4future.net
  - SOLOCLT should always receive the following IP: 192.168.150.88
  - The clients should automatically register their name with the DNS server after they have been assigned with an IP address by the DHCP server.

PART II

WORK TASK NETWORK CONFIGURATION (JATENGRO)

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

WORK TASK ROUTER JATENGRO

Configure the server with the hostname, domain and IP specified in the appendix.
o Install the services:
1. Routing
   - Enable routing to router forward IPv4 Packet

2. DHCP Relay
   - Configure DHCP Relay to SEMARANGSRV for internal client

3. Reverse Proxy (nginx)
   - Configure a reverse proxy for http://www.skills4future.net (https://www.skills4future.net), which is hosted by SOLOSRV

4. VPN Server
   - Configure VPN for access to SOLOSRV and SEMARANGSRV. External clients should connect to 212.99.45.65
   - Use address range 10.20.0.1 to 10.20.0.10 and DNS SOLOSRV for VPN clients
   - For login create a user "remote" with password "InaSkills2017"

5. Firewall
   - External network allows the ICMP packet to interface external JATENGRO
   - External network can access to http://www.skills4future.net
   - External network can't access to SOLOSRV and SEMARANGSRV before the vpn established.
   - Ensure the vpn client can't access to internal client (SOLOCLT) when the vpn established. (Can only access to SOLOSRV and SEMARANGSRV)
   - Deny all other traffic from external to all internal network.

PART III

WORK TASK LINUX CLIENT (JEPARACLT, SOLOCLT)

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

WORK TASK LINUX EXTERNAL (JEPARACLT)

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

- o Install the base OS and use Gnome for the GUI
- o Configure the client with the hostname, domain and IP specified in the appendix.
- o Make sure the JEPARACLT can access to http://www.skills4future.net
- o Make sure the JEPARACLT can access to SEMARANGSRV and SOLOSRV (via JATENGRO) through VPN
- o Make sure the root CA certificate of SEMARANGSRV is trusted
- o Make sure the client certificate is installed
- o Install FileZilla FTP client
- o Install Icedove mail client
    - ▪ Configure mailbox of user14
    - ▪ Make sure user14 can send mails to user19
- o Make sure the client can access samba shares.

WORK TASK LINUX INTERNAL (SOLOCLT)

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

- o Install the base OS and use Gnome for the GUI
- o Configure the client with the hostname, domain and IP specified in the appendix.
- o Make sure the root CA certificate of SEMARANGSRV is trusted
- o Make sure the client certificate is installed
- o Install FileZilla FTP client
- o Install Icedove mail client
    - ▪ Configure mailbox of user19
    - ▪ Make sure user19 can send mails to user14
- o Make sure the client can access samba shares.
    - ▪ Mount the MANAGER SMB share to /mnt/manager on boot using fstab

APPENDIX

SPECIFICATIONS

SOLOSRV

Operating System	Linux Debian 7.8
Computer name:	SOLOSRV
Root password	Nasional2017
User Name:	batik
User Password:	Semarang2017
eth0:	172.23.199.3/29

SEMARANGSRV

Operating System	Linux Debian 7.8
Computer name:	SEMARANGSRV
Root password	Nasional2017
User Name:	batik
User Password:	Semarang2017
IP address:	172.23.199.4/29

JATENGRO

Operating System	Linux Debian 7.8
Computer name:	JATENGRO
Root password	Nasional2017
User Name:	batik
User Password:	Semarang2017
eth0:	212.99.45.65/28
eth1:	172.23.199.1/29
eth2:	192.168.150.1/25

JEPARACLT

Operating System	Linux Debian 7.8 (GUI)
Computer name:	JEPARACLT
Root password	Nasional2017
User Name:	Batik
User Password:	Semarang2017
IP address:	212.99.45.70/28

SOLOCLT

Operating System	Linux Debian 7.8 (GUI)
Computer name:	SOLOCLT
Root password	Nasional2017
User Name:	batik
User Password:	Semarang2017
IP address:	DHCP

SOLOCLT

NETWORK SPESIFICATION

Windows 8.1 Hostmachine (PC1)

Name : SOLOSRV
OS : Debian 7.8

IP-Address :
172.23.199.3/29
Service:
- RAID
- DNS
- Web
- FTP
- Email
- Samba
- SSH

SOLOSRV

Host Only

JATENGRO

Name : SEMARANGSRV
OS : Debian 7.8

IP-Address :
172.23.199.4/29
Service:
- Cacti
- FreeRadius
- CA
- DHCP Server

SEMARANGSRV

Host Only

Name : lnxrtr1
OS : Debian 7.8

IP-Address :
External : 212.99.45.65/28
Server : 172.23.199.1/29
Internal : 192.168.150.1/25
Service:
- Routing
- DHCP Relay
- Reverse Proxy (nginx)
- Firewall
- OpenVPN Server

Windows 8.1 Hostmachine (PC2)

VMnet1

Pre-Install

VMNet1

VMNet2

Name : JEPARACLT (External)
OS : Debian 7.8 (GUI)

IP-Address :
212.99.45.70/28
Service:
- OpenVPN Client
- IceDove
- Filezilla

JEPARACLT

Pre-Install

VMnet2

Name : SOLOCLT (Internal)
OS : Debian 7.8 (GUI)

IP-Address :
DHCP From SEMARANGSRV
Service:
- IceDove
- Filezilla
- DDNS

SOLOCLT