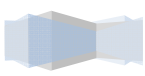
LOMBA KETERAMPILAN SISWA

SEKOLAH MENENGAH KEJURUAN TINGKAT
KABUPATEN TULANG BAWANG BARAT
PROVINSI LAMPUNG 2020

MODUL A
LINUX ENVIRONMENT



IT NETWORK SYSTEMS ADMINISTRATION

LKSKAB2020_ITNSA_MODUL_A

MODUL A – LINUX ENVIRONMENT

CONTENTS

This Test Project proposal consists of the following document/file:
LKSKABUPATEN2020_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

PART I

WORK TASK INSTALLATION (CORESRV, BRANCHSRV)

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

WORK TASK CORESRV

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

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

- Create 30 local UNIX users with password "**lkskabupaten2020**"
  - Username: user[1-30]. ex: user1, user2, …, user30

- Install the services:

1. DNS (bind9)
   - Configure and install DNS Server with two domain
     - **lkskabupatentubaba.net** to **CORESRV**
     - **lkskabupaten2019.id** to **BRANCHSRV**
   - Create subdomain **files. lkskabupatentubaba.net** and **internal. lkskabupatentubaba.net**
   - Create subdomain **monitor. lkskabupaten2019.id** and **vpn. lkskabupaten2019.id**
   - Create a host **www. lkskabupatentubaba.net** for IP Public **CORERTR**

2. Web Server (apache2 including php5)
   - Create website "**http://internal.lkskabupatentubaba.net**" and "**http://www.lkskabupatentubaba.net**"
     - Use the following code for index.html in the **http://internal.lkskabupatentubaba.net**

```
<html>
    <center>
    <h1>Welcome to the INTERNAL lkskabupatentubaba.net</h1>
    </center>
</html>
```

     - Use the following code for index.html in the **http://www.lkskabupatentubaba.net**

```
<html>
    <center>
    <h1>Welcome to the lkskabupatentubaba.net</h1>
    </center>
</html>
```

     - Create info.php in the **http://internal.lkskabupatentubaba.net/info.php** and **http://www. lkskabupatentubaba.net/info.php** to check the php version installed. Use the following code for info.php

```
<?php
    phpinfo();
?>
```

- Make sure "**http://internal.lkskabupaten2020.id**" is protected by authentication
  - Allow users from "user11" to "user20"
- Enable HTTPs for both sites
  - Use a certificate signed by CA Service in **BRANCHSRV**
  - Make sure no certificate warning is shown.

3. FTP (proftpd)
   - Enable FTPS
     - Use a certificate signed by **BRANCHSRV**
   - Each user (user21 to user30) will have a home directory.
   - 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"
     - Path is /files/manager
     - Give access only to users "user1" to "user10"
     - Make sure the share is not shown in the network browser of the clients
   - Share "GUEST"
     - Path is /files/guest
     - Enable read-only access to everyone

6. SSH Server
   - Install SSH Server
   - Change SSH port default to 2018

WORK TASK BRANCHSRV

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

- Install the services:
  1. CA (openssl)
     - Configure as CA
     - CA attributes should be set as follows
       - Country code is set to **ID**
       - State or Province Name is set to **Lampung**
       - Locallity Name is set to **Tulang Bawang Barat**
       - Organization Name is set to **LKSKABUPATEN2020**
       - Organizational Unit Name is set to **IT Network Systems Administration**
     - Create a root CA certificate
     - Store the certificate in directory /cert

  2. Monitoring Server (Cacti)
     - Configure Cacti with url **http://monitor.lkskabupaten2020.id**
     - Create an admin-user "admin" with password "**lkskab2020**"
     - Create a graph showing the statistics of the CPU, Memory and interfaces traffic of **CORERO**

  3. DHCP
     - Create DHCP Pool INTERNAL:
       - Range: 192.168.172.2 – 192.168.172.126
       - Netmask: /25
       - Gateway: 192.168.172.1
       - DNS: 172.70.55.3
     - DNS-Suffix: **lkskabupatentubaba.net**
     - 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 (CORERTR)

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

WORK TASK ROUTER CORERTR

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

- Install the services:
  1. Routing
     - Enable routing to router forward IPv4 Packet
  2. DHCP Relay
     - Configure DHCP Relay to **BRANCHSRV** for internal client
  3. Reverse Proxy (nginx)
     - Configure a reverse proxy for **http://www.lkskabupatentubaba.net** (**https://www.lkskabupatentubaba.net**), which is hosted by **CORESRV**
  4. VPN Server
     - Configure VPN for access to **CORESRV** and **BRANCHSRV**. External clients should connect to 212.77.25.65
     - Use address range 10.20.0.1 to 10.20.0.10 and DNS **CORESRV** for VPN clients
     - For login create a user "remote" with password "**usercoresrv2020**"
  5. Firewall
     - External network allows the ICMP packet to interface external **CORERTR**
     - External network can access to **http://www.lkskabupatentubaba.net**
     - External network can't access to **CORESRV** and **BRANCHSRV** before the vpn established.
     - Ensure the vpn client can't access to internal client (**PELAJARCLT**) when the vpn established. (Can only access to **CORESRV** and **BRANCHSRV**)
     - Deny all other traffic from external to all internal network.

PART III

WORK TASK LINUX CLIENT (PUBLICCLT, STUDENTCLT)

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

WORK TASK LINUX EXTERNAL (PUBLIKCLT)

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

- Install the base OS and use Gnome for the GUI
- Configure the client with the hostname, domain and IP specified in the appendix.
- Make sure the **PUBLICCLT** can access to **http://www.lkskabupatentubaba.net**
- Make sure the **PUBLICCLT** can access to **BRANCHSRV** and **CORESRV** (via **CORERTR**) through VPN
- Make sure the root CA certificate of **BRANCHSRV** is trusted
- Make sure the client certificate is installed
- Install FileZilla FTP client
- Make sure the client can access samba shares.

WORK TASK LINUX INTERNAL (STUDENTCLT)

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

- Install the base OS and use Gnome for the GUI
- Configure the client with the hostname, domain and IP specified in the appendix.
- Make sure the root CA certificate of **BRANCHSRV** is trusted
- Make sure the client certificate is installed
- Install FileZilla FTP client
- Make sure the client can access samba shares

APPENDIX

SPECIFICATIONS

CORESRV

Operating System	Linux Debian 8.7
Computer name:	**CORESRV**
Root password	mastercoresrv2020
User Name:	Coresrvuser
User Password:	usercoresrv2020
eth0:	172.70.55.3/29

BRANCHSRV

Operating System	Linux Debian 8.7
Computer name:	**BRANCHSRV**
Root password	masterbranchsrv2020
User Name:	Branchsrvuser
User Password:	userbranchsrv2020
eth0:	172.70.55.4/29

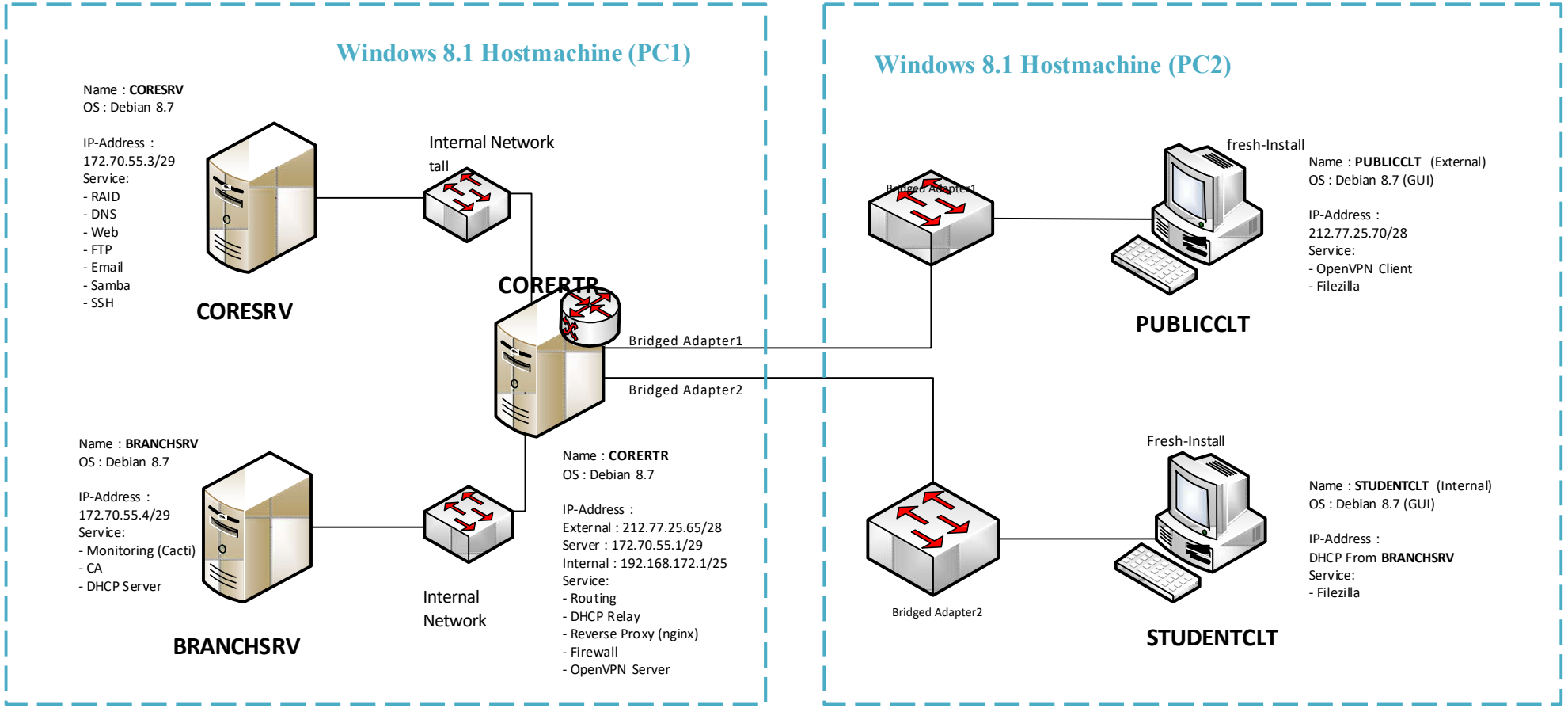
CORERTR

Operating System	Linux Debian 8.7
Computer name:	**CORERTR**
Root password	Mastercorertr2020
User Name:	Corertruser
User Password:	Usercorertr2020
eth0:	212.77.25.65/28
eth1:	172.70.55.1/29
eth2:	192.168.172.1/25

PUBLICCLT

Operating System	Linux Debian 8.7 (GUI)
Computer name:	**PUBLICCLT**
Root password	Masterpublicclt2020
User Name:	Publiccltuser
User Password:	Userpublicclt2020
eth0:	212.77.25.70/28

STUDENTCLT

Operating System	Linux Debian 8.7 (GUI)
Computer name:	**STUDENTCLT**
Root password	Masterstudentclt2020
User Name:	Studentcltuser
User Password:	Userstudentclt2020
eth0:	DHCP from **BRANCHSRV**

NETWORK SPESIFICATION