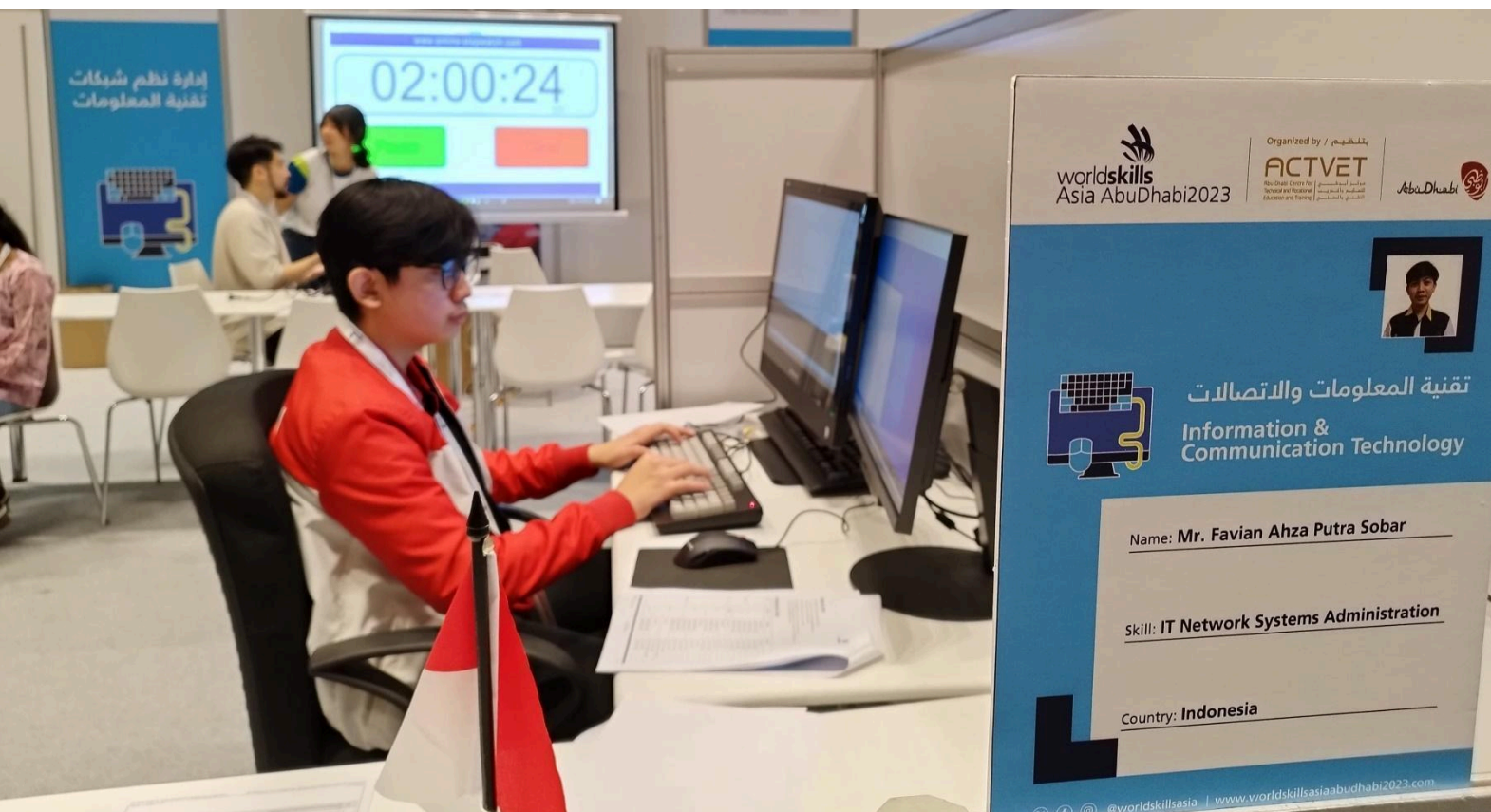


LOMBA KOMPETENSI SISWA (LKS) SEKOLAH MENENGAH KEJURUAN TINGKAT PROVINSI TAHUN 2024

TEST PROJECT MODUL C CLIENT SERVER ENVIRONMENT



Bidang Lomba IT NETWORK SYSTEMS ADMINISTRATION

Introduction

Login credentials

Debian 12

Username : root/user

Password : P@ssw0rd

Windows Server 2022

Username : Administrator

Password : P@ssw0rd

System environments

utara.site

Region/Timezone : Asia/Makassar

selatan.site

Region/Timezone : Asia/Jakarta

Instructions to the Competitor

Part 1. Utara Site

Configure the system environment timezone, and hostname, IP address according to the appendix

DHCP Server

- Configure the DHCP service in FW-UTARA by referring to the below table

Option	Value
Subnet	/24
Range	192.168.10.100 - 192.168.10.200
Domain Name Server	192.168.10.11
Domain Name	utara.site
Gateway	192.168.10.1

- Configure static DHCP IP Address for LINSRV2 192.168.10.12

DNS Server

- Set up the utara.site domain on LINSRV1 using Bind9
 - The server works as the master DNS server.
 - Add domain records.

Type	Record	Value
NS	utara.site	ns1.utara.site
		ns2.utara.site
A	ns1	192.168.10.11
	ns2	192.168.10.12
	LINSRV1	192.168.10.11
	LINSRV2	192.168.10.12
	www	103.10.70.110
	file	192.168.10.12
MX	utara.site	10, mail.utara.site

- Configure name server forwarder so can resolve domain selatan.site
 - The target address is "103.10.70.120"
- Set up the utara.site domain on LINSRV2
 - The server works as the slave DNS server from LINSRV1

Certificate Authority

- Set up root certificate authority on LINSRV2 using OpenSSL on directory /root/ca.
- Create Root Certificate cacert.pem and cacert.key with attributes should be set as follows.
 - Country Code: ID
 - Organization: LKS Jawa Barat
 - Common Name: Jabar 2024 CA
- Create additional certificate

Issued Certificate	Note
CN = mail.utara.site	Mail Server
CN = www.utara.site	Web
CN = file.utara.site	Web
CN = www.selatan.site	Web

WEB Server

- Configure web server on LINSRV1 using apache2
 - Create a virtual host HTTP only for serving www.utara.site
 - The website page should display "Hello World from utara site"
 - Add the HTTP header "X-Served-By" with the server hostname as the value
- Configure web server on LINSRV2 using nginx
 - Create a virtual host HTTP only for serving www.utara.site
 - The website page should display "Hello World from utara site"
 - Add the HTTP header "X-Served-By" with the server hostname as the value
 - Create a virtual host on LINSRV2 for serving file.utara.site
 - Enable HTTPS using the Certificate Authority from Jabar 2024 CA
 - Redirect all HTTP requests to HTTPS.
 - This virtual host is set as a file server for directory /data/file/
 - Add basic authentication using username rahasia with password Skills39s
 - Make sure LINCLT can access without any warning

Email Server with SMTP and IMAP

- Install and configure Postfix and Dovecot on LINSRV1
 - Use the domain utara.site so that email can be sent to user@utara.site email address.
 - Enable SMTP with negotiable TLS on port 25
 - Enable IMAP with negotiable TLS on port 143
 - Use certificates from Jabar 2024 CA
- Enable web-based email using Roundcube
 - Make it accessible using the domain mail.utara.site.
 - Enable HTTPS access using a certificate Jabar 2024 CA
 - Make sure LINCLT can access the web-based email Roundcube
- Create two mail users: admin@utara.site and user@utara.site with password Skills39s
 - Send a test mail from user@utara.site to admin@utara.site.
- Create email alias contact@utara.site should be received by admin@utara.site
 - Send a test mail from user@utara.site to contact@utara.site

SSH

- Install and configure the SSH Server on LINSRV2
 - Create a user file with the password Skills39s and set the home directory to /data/file/
 - Make sure to configure the file user not to be able to use sudo and become root
- Configure the user "user" in LNXCLT SSH to file@linsrv2.utara.site without a password and use key-based SSH authentication
- Change SSH port default to 2024

Load Balancer HAProxy

- Configure HTTP/HTTPS load balancer for www.utara.site, which is hosted by LINSRV1 and LINSRV2
 - Use a certificate from Jabar 2024 CA
 - Use round-robin as an algorithm
- Make sure LINCLT can access without any warning

Firewall

- Make sure that the firewall operates in stateful mode
- Configure DNAT for DNS using external IP.
- Configure utara.site can ping to 103.10.70.120

Part 2. Selatan Site

Configure the system environment timezone, and hostname, IP address according to the appendix. Enable WINSRV pingable.

Active Directory

- Configure this server as the initial domain controller (new forest) for selatan.site

DNS Server

- Configure DNS for selatan.site
- Create a reverse Zone for the 172.16.20.0/24 network
 - Add domain records.

Type	Record	Value
NS	selatan.site	ns.selatan.site
A	ns	172.16.20.11
	www	103.10.70.120
	manager	172.16.20.11

- Configure name server forwarder so we can resolve domain utara.site
 - The target address is "103.10.70.110"

Web Server

- Install IIS web service
- Create web for host www.selatan.site
 - Path C:\inetpub\wwwroot
 - The website page should display "Hello World from selatan site"
- Create internal web with host manager.selatan.site
 - Path C:\inetpub\manager
 - The website page should display "Hello Managers !"
 - Enable basic authentication and allow user 'manager' with password 'Skills39s'

Windows Backup

- Create folder C:\backups
- Create a backup job to backup folder C:\inetpub\wwwroot at 4 PM daily.

Load Balancer Nginx

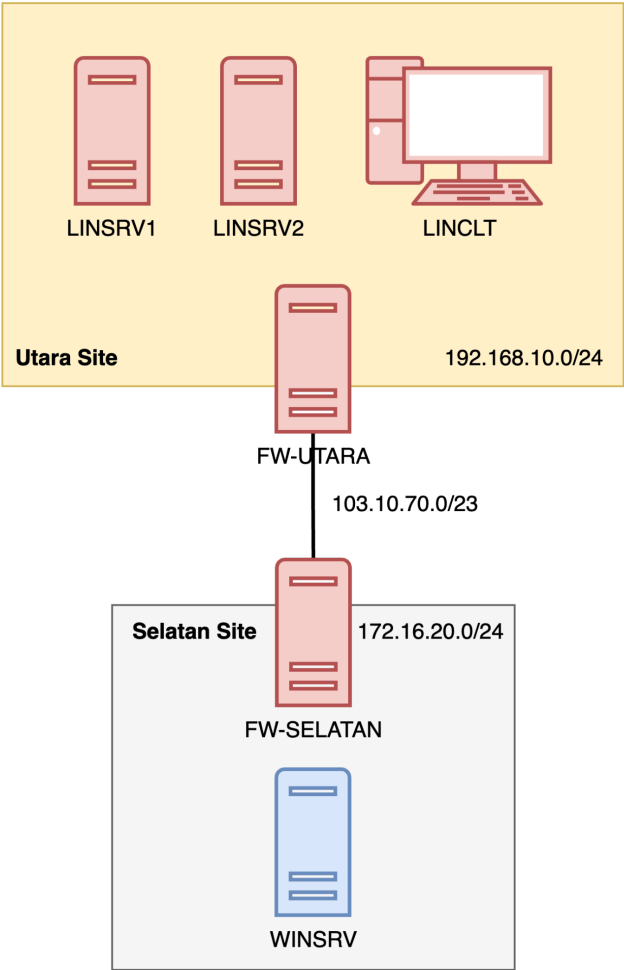
- Configure HTTP/HTTPS reverse proxy for www.selatan.site, hosted by WINSRV
 - User certificate from Jabar 2024 CA
 - Make sure LINCLT can access without any warning

Firewall

- Make sure that the firewall operates in stateful mode
- Configure DNAT for DNS using external IP.
- Configure selatan.site can ping to 103.10.70.110

Appendix

Topology



System Table

Device	IP	OS
LINCLT	DHCP	Debian 12 GUI
LINSRV1	192.168.10.11/24	Debian 12 CLI
LINSRV2	192.168.10.12/24 (DHCP static)	Debian 12 CLI
FW-UTARA	192.168.10.1/24 103.10.70.110/23	Debian 12 CLI
FW-SELATAN	172.16.20.1/24 103.10.70.120/23	Debian 12 CLI
WINSRV	172.16.20.11/24	Windows Server 2022 Desktop