



# MikroTik & VMware ESXi untuk Jaringan Kampus

**Azriel Christian Nurcahyo, M.Kom.**

**Institut Shanti Bhuana  
2021/2022**

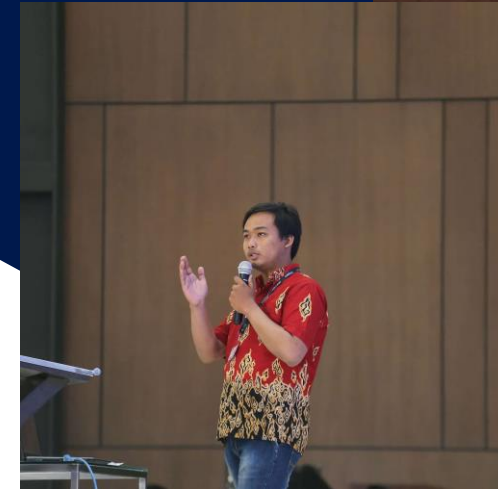


# Perkenalan

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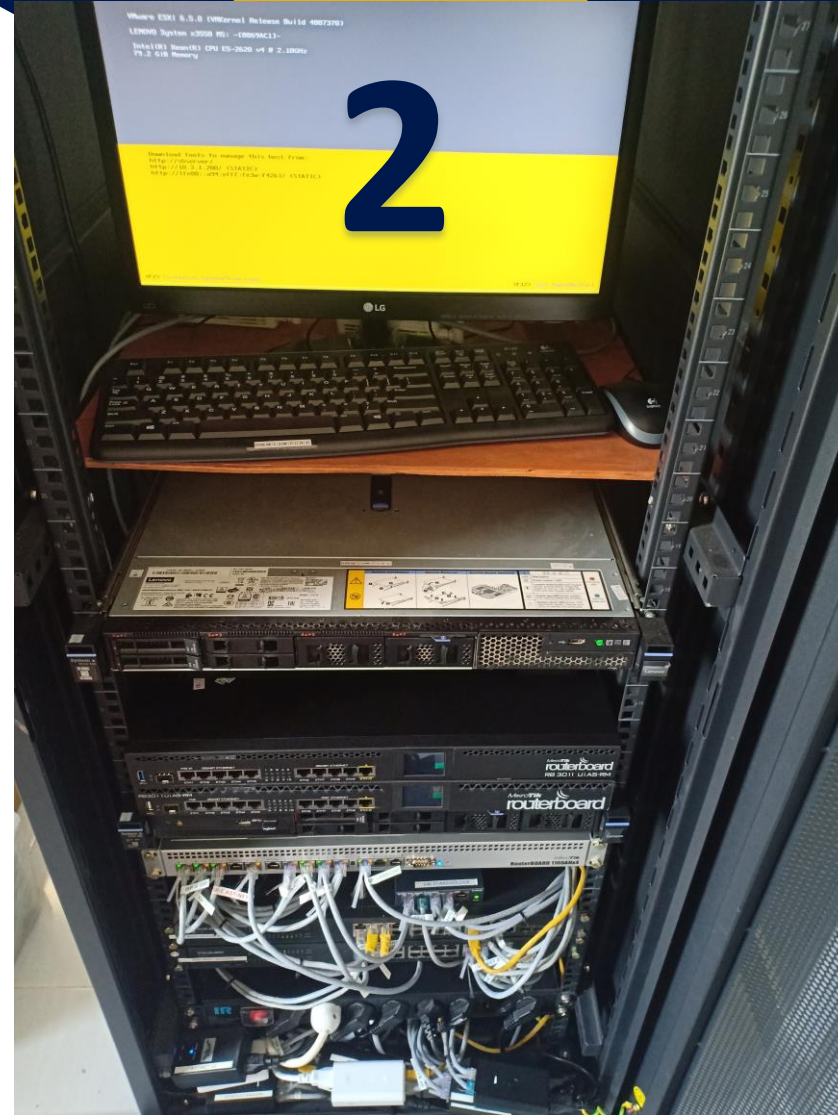
- S1 Teknik Informatika Universitas Kristen Immanuel, Yogyakarta (2017)
- S2 Teknik Informatika Universitas AMIKOM, Yogyakarta (2019)
- Network Administrator UKRIM, Yogyakarta (2016-2018)
- System Administrator Institut Shanti Bhuana, Bengkayang, Kalimantan Barat.
- Dosen Teknologi Informasi, Institut Shanti Bhuana, Bengkayang, Kalimantan Barat.



**MikroTik**

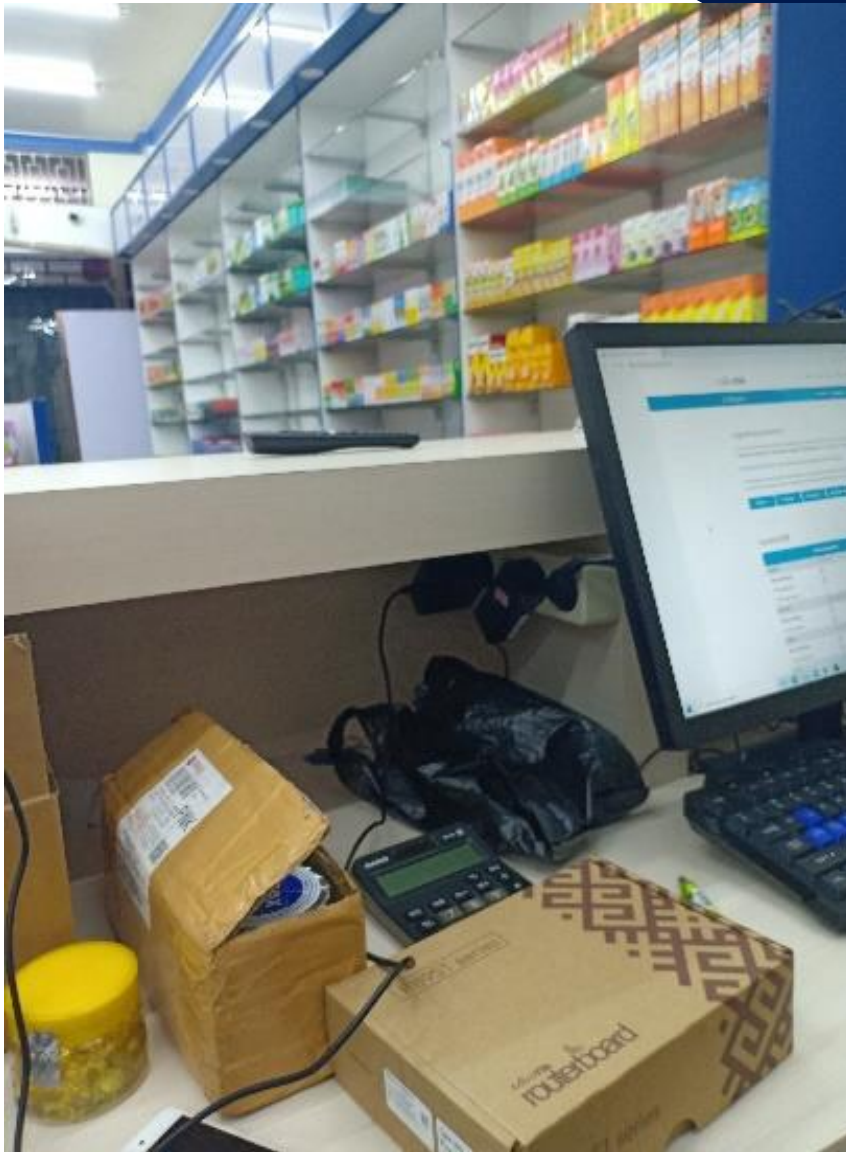


# Tipe-tipe User MikroTik



# Tipe-tipe User MikroTik

5

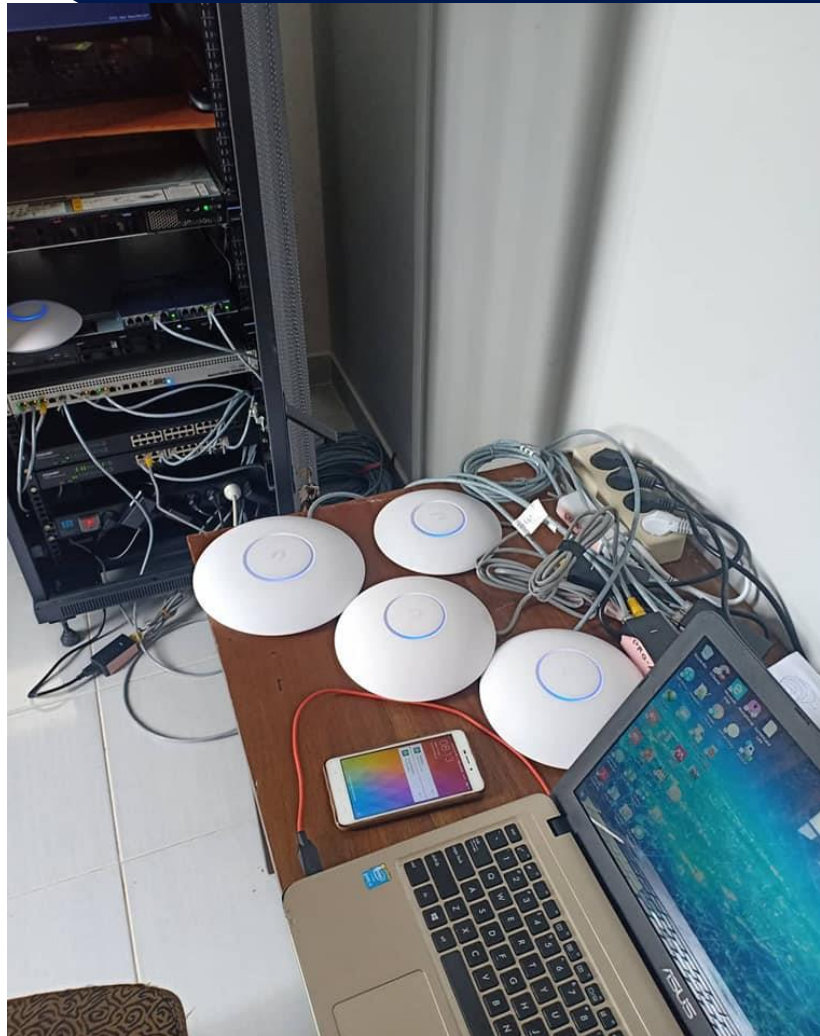


6



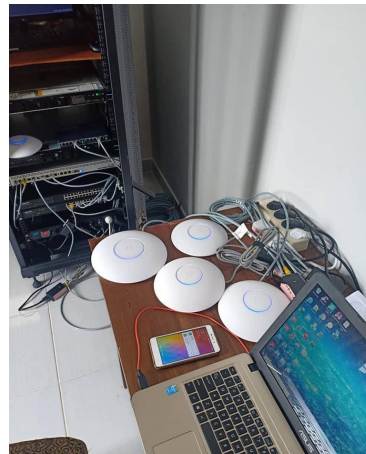
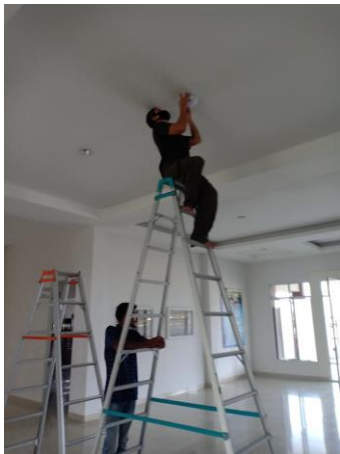
# Tipe-tipe User MikroTik

7



# MASALAH JARINGAN KAMPUS DI ERA COVID-19

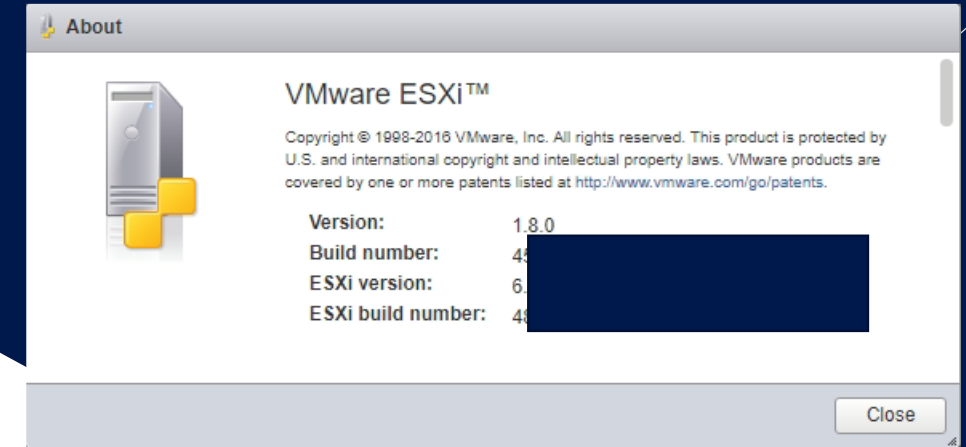
Pandemi saat ini pembelajaran tentu semuanya berjalan via online. Namun hal itu menjadi tantangan bagi kami yang berada di zona perbatasan Kalimantan Barat di mana ip publik saat ini jumlahnya terbatas, dan juga koneksi kebutuhan untuk hosting ke publik semakin hari semakin banyak hal ini terjadi di kampus kami yang membutuhkan alokasi seperti website kampus, server moodle kampus, server siakad, repository, sister dikti dan lain lain.



<https://shantibhuana.ac.id/>

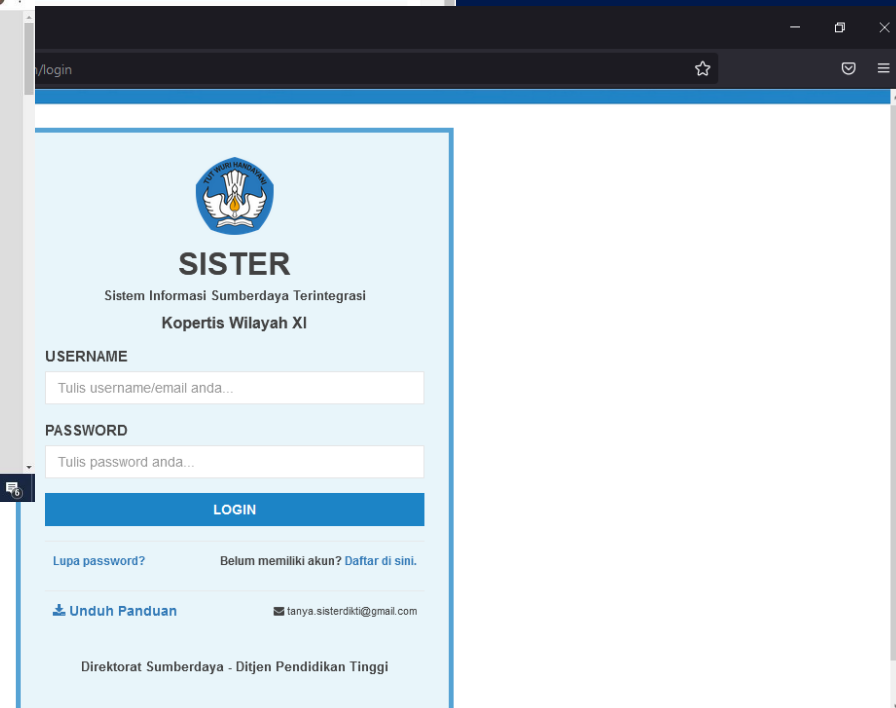
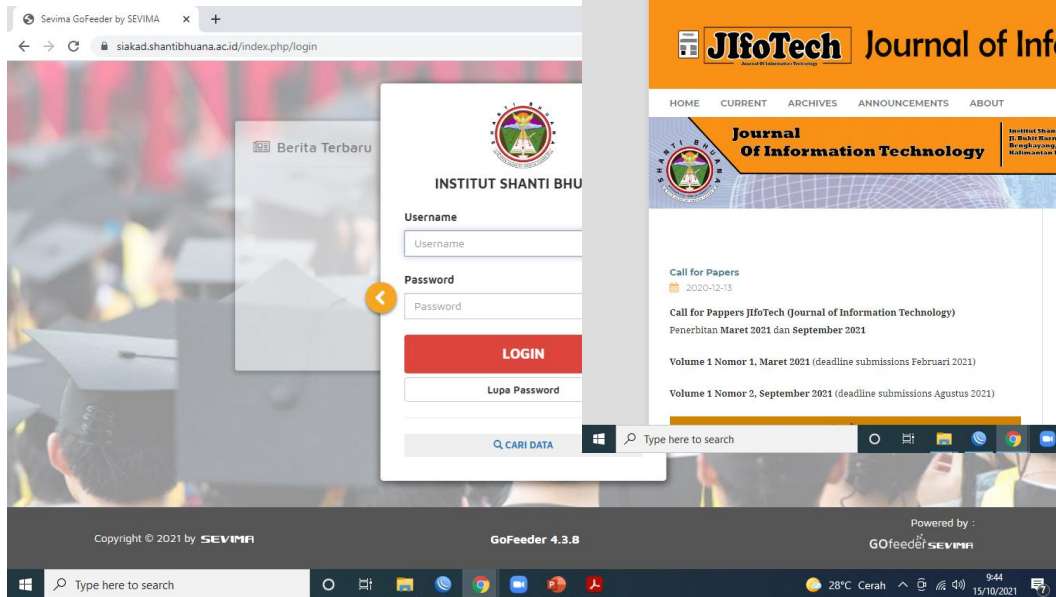
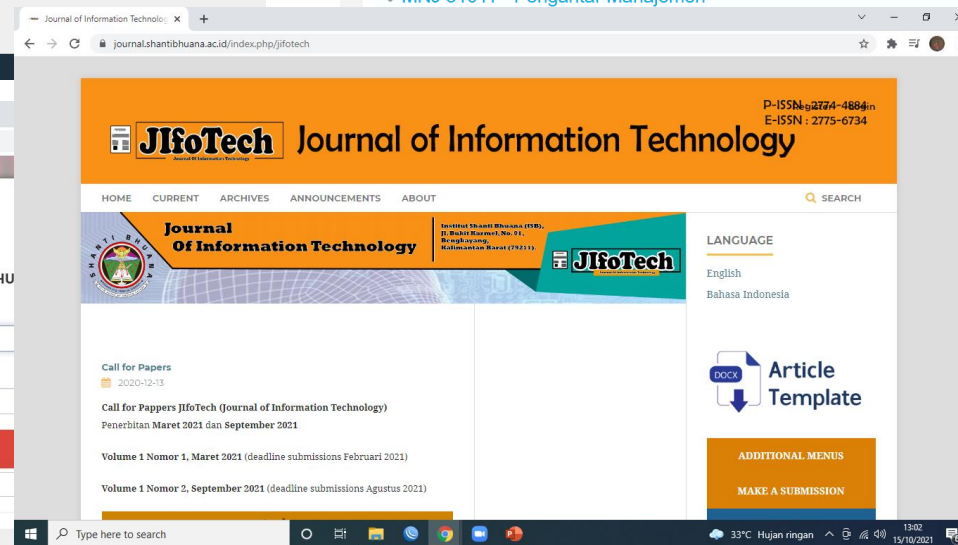
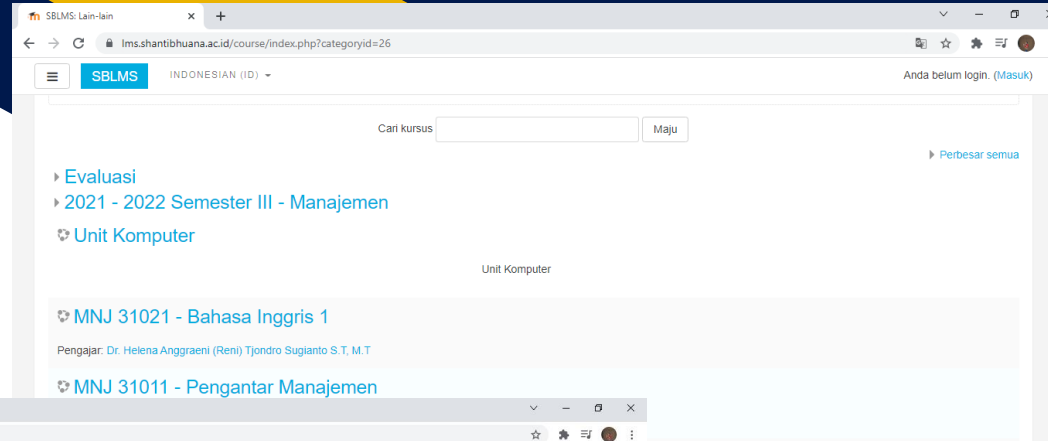
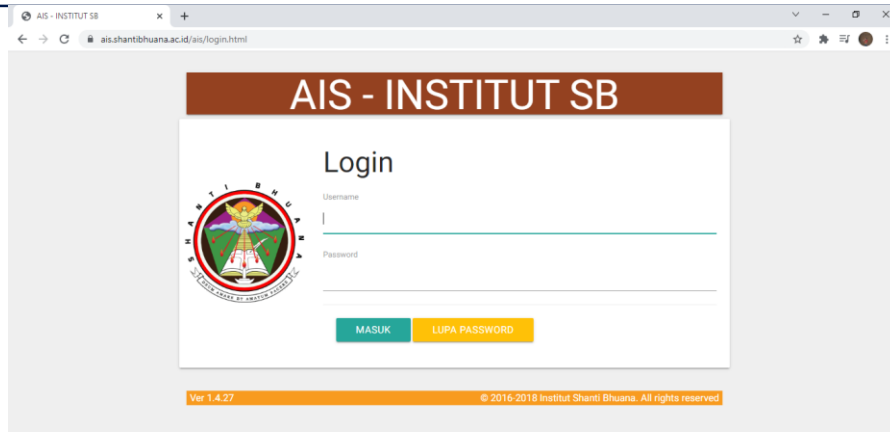
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<input type="checkbox"/>	Virtual machine	Guest OS	Host name
<input type="checkbox"/>	VM2Linux	Ubuntu Linux (64-bit)	vm2
<input type="checkbox"/>	VM3Linux	Ubuntu Linux (64-bit)	vm3
<input type="checkbox"/>	VM4Linux	Ubuntu Linux (64-bit)	vm4
<input type="checkbox"/>	VM1Linux	Ubuntu Linux (64-bit)	vm1
<input type="checkbox"/>	Windows	Microsoft Windows 10 (6...	
<input type="checkbox"/>	VM5Linux	Ubuntu Linux (64-bit)	Unknown

# MASALAH JARINGAN KAMPUS DI ERA COVID-19

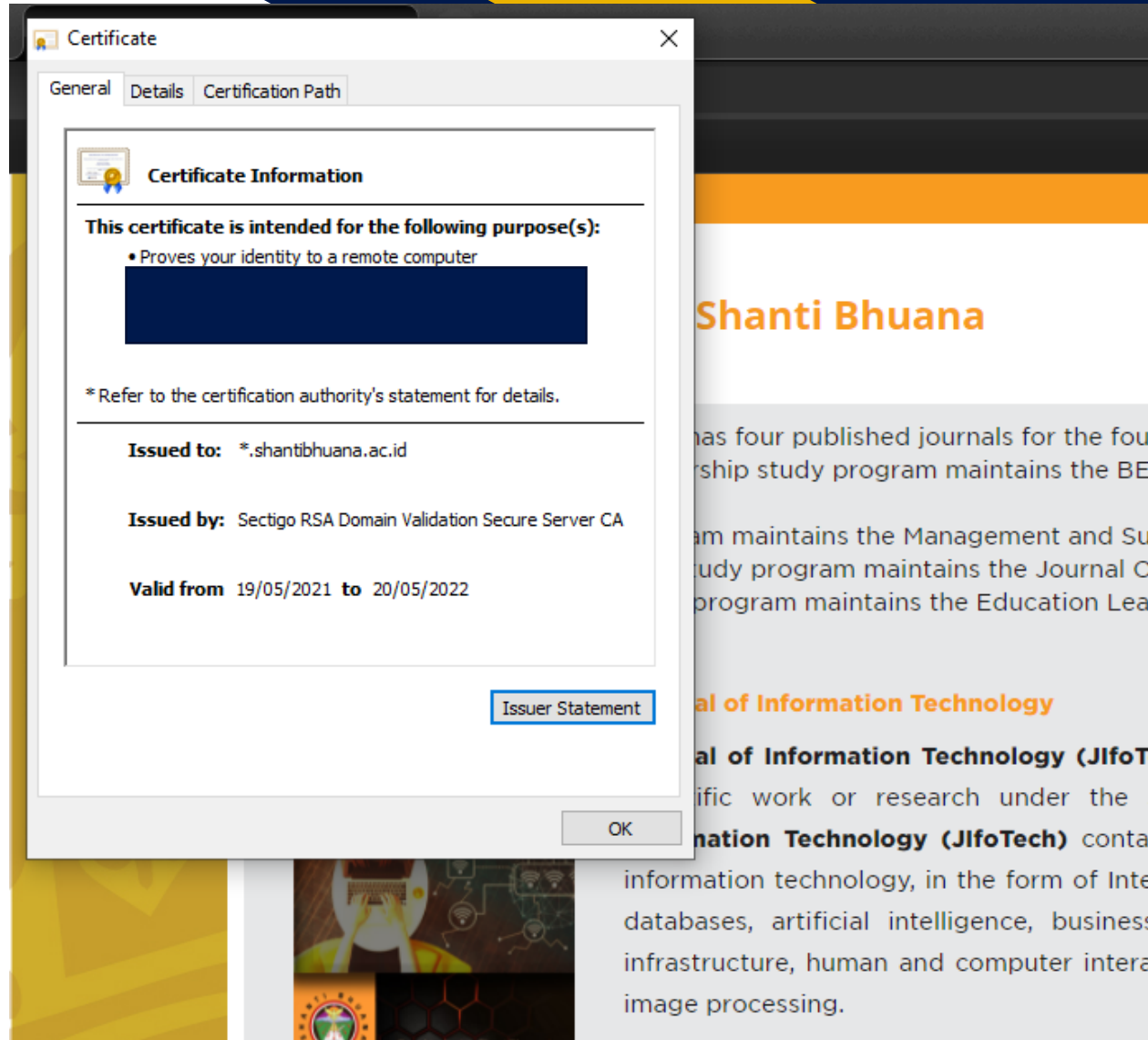


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# MASALAH JARINGAN KAMPUS DI ERA COVID-19



The image shows a Windows 'Certificate' dialog box with the 'General' tab selected. The dialog box contains the following information:

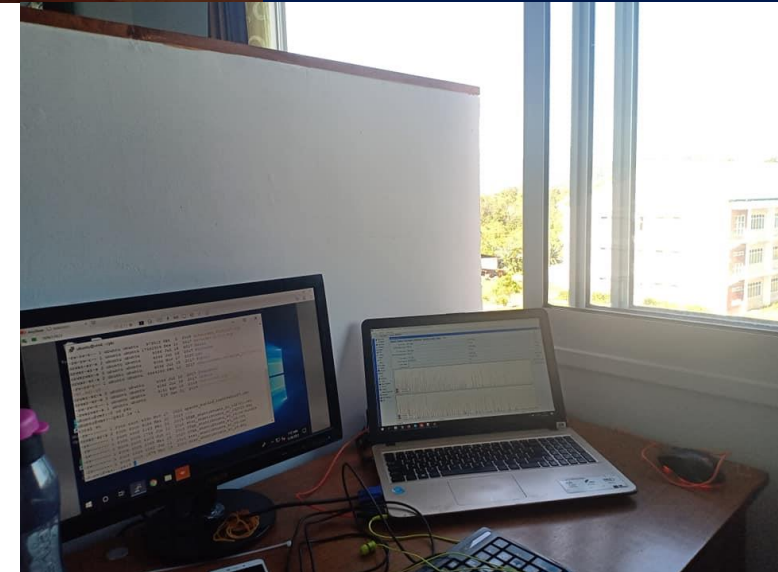
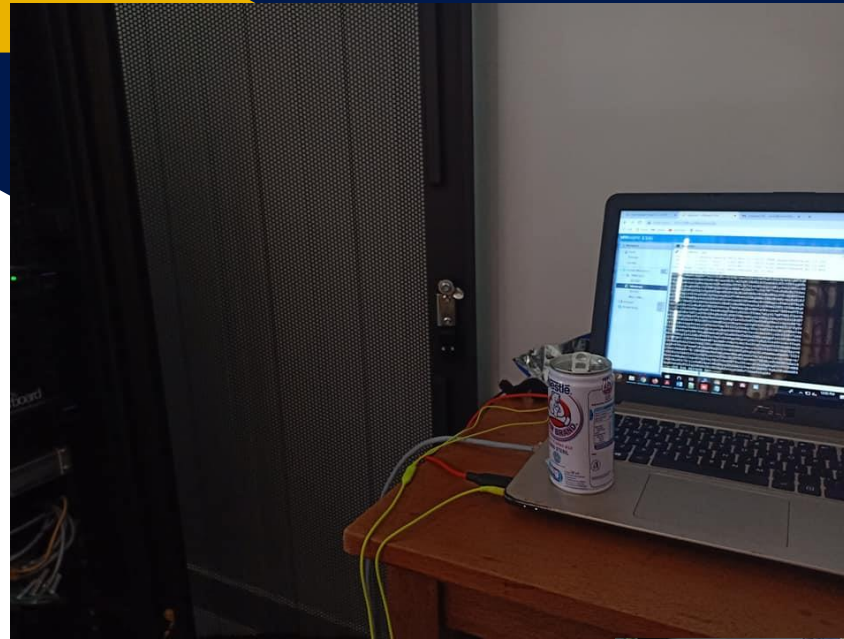
- Certificate Information**
- This certificate is intended for the following purpose(s):**
  - Proves your identity to a remote computer
- Issued to:** \*.shantibhuana.ac.id
- Issued by:** Sectigo RSA Domain Validation Secure Server CA
- Valid from:** 19/05/2021 to 20/05/2022

Buttons for 'Issuer Statement' and 'OK' are visible at the bottom of the dialog box. The background shows a website for Shanti Bhuana with text about journals and information technology.

<https://shantibhuana.ac.id/>

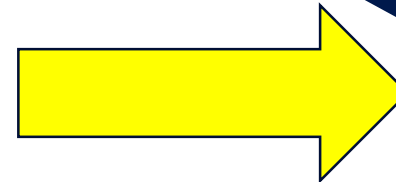
# MASALAH JARINGAN KAMPUS DI ERA COVID-19

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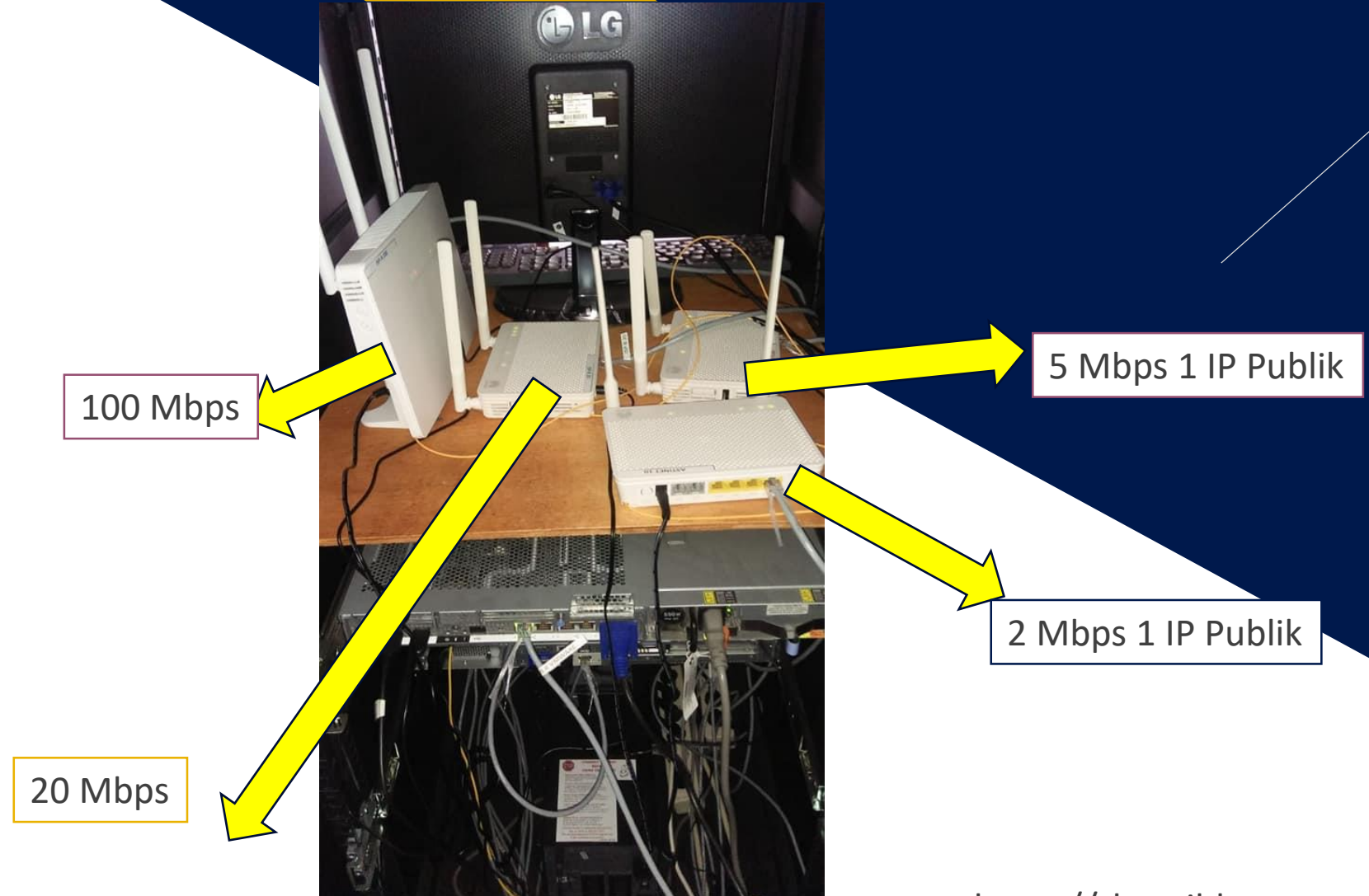
# SOLUSI JARINGAN KAMPUS DI ERA COVID-19

Sebagai solusi kami menerapkan VMWare untuk menghemat biaya pengeluaran daripada harus membeli pc server yang jumlahnya puluhan. Tetapi dengan keterbatasan ip publik, kami dituntut untuk mengkonfigurasi jaringan agar dapat diterapkan proxy untuk terhubung publik hanya dengan 1 ip publik saja.



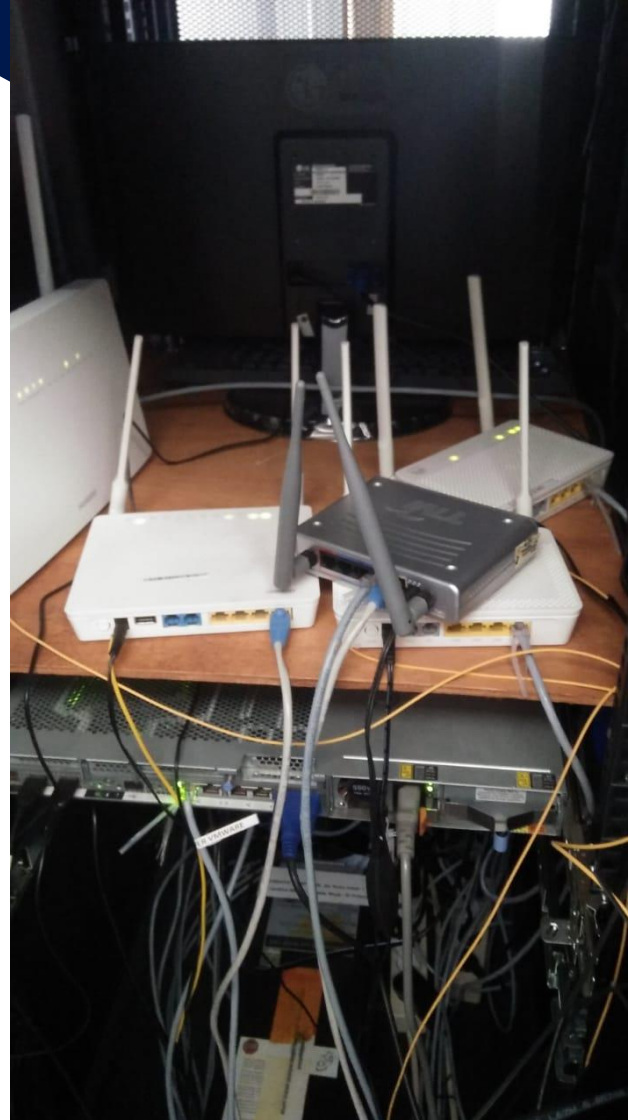
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Server VMWare ke Jaringan A

Backbone Jaringan B

Backbone Jaringan A

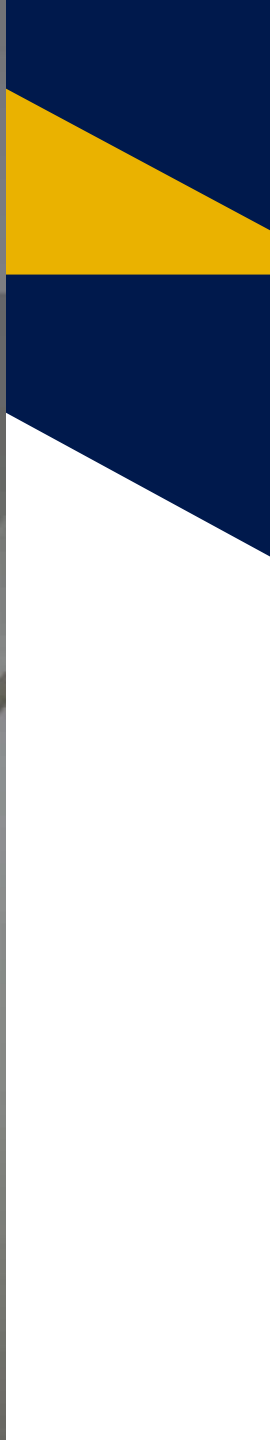
Distribusi Jaringan B

Disitribusi Jaringan A





AP tiap  
Ruangan



AP tiap  
Ruangan



Perangkat Sebelum Konfigurasi



Gedung Kelas



Server dan Router Backbone

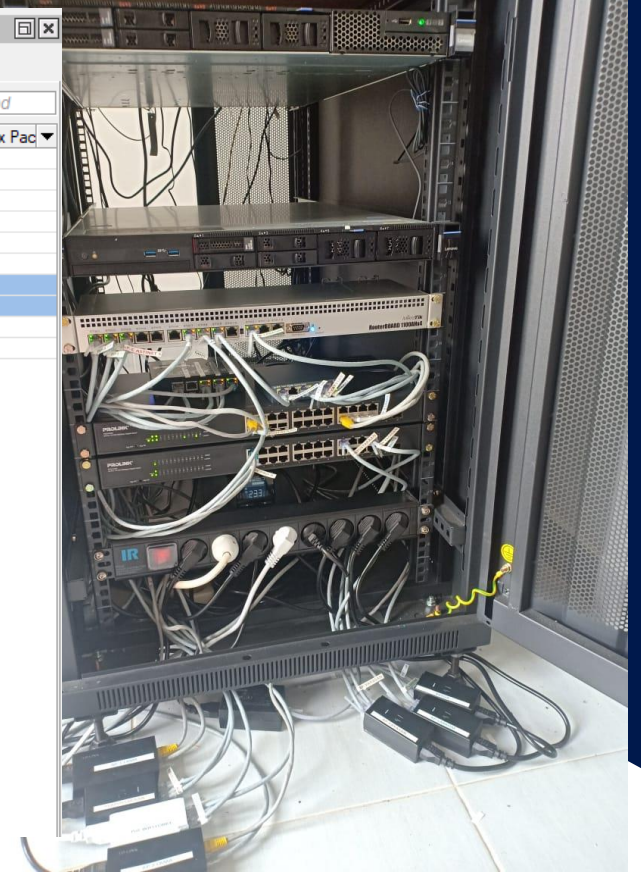


# Sisi MikroTik Jaringan A

The screenshot displays the MikroTik WinBox interface. On the left is a sidebar menu with various configuration options like Quick Set, CAPsMAN, Interfaces, Wireless, Bridge, PPP, Switch, Mesh, IP, MPLS, Routing, System, Queues, Files, Log, RADIUS, Tools, New Terminal, Dot1X, MetaROUTER, Partition, Make Supout.rf, New WinBox, and Exit. The main window is titled 'Interface List' and shows a table of network interfaces. A 'DNS Static' dialog box is open, displaying a list of static DNS entries. The table in the dialog has columns for #, Name, Regexp, Address, and TTL (s). The entries are as follows:

#	Name	Regexp	Address	TTL (s)
0	ibhuana.ac.id		.1.201	1d
1	ibhuana.ac.id		.1.202	1d
2	ibhuana.ac.id		.1.202	1d
3	ibhuana.ac.id		.1.202	1d
4	ibhuana.ac.id		.1.203	1d
5	ibhuana.ac.id		.1.204	1d
6	ibhuana.ac.id		.1.204	1d
7	ibhuana.ac.id		.1.204	1d
8	ibhuana.ac.id		.1.204	1d
9	ibhuana.ac.id		.1.220	1d
10	ibhuana.ac.id		.1.202	1d
11	ibhuana.ac.id		.1.202	1d
12	ibhuana.ac.id		.1.204	1d
13	ibhuana.ac.id		.1.204	1d
14	ibhuana.ac.id		.1.201	1d
15	ibhuana.ac.id		.1.230	1d

The interface list table in the background shows columns for Name, Type, Actual MTU, L2 MTU, Tx, Rx, Tx Packet (p/s), Rx Packet (p/s), FP Tx, FP Rx, FP Tx Packet (p/s), and FP Rx Packet (p/s). The interface 'ether5' is selected.



# Sisi MikroTik Jaringan A

The screenshot displays the MikroTik WinBox interface. On the left is a vertical menu with various system and network management options. The main window is titled 'Interface List' and shows a table of network interfaces. An 'Address List' popup window is open over the 'ether3' interface, showing a list of IP addresses and their associated networks.

Interface	Type	MTU	Actual MTU	L2 MTU	Tx	Rx	Tx Packet (p/s)	Rx Packet (p/s)	FP Tx	FP Rx	FP Tx Packet (p/s)
ether1						0 bps	0	0	0 bps	0 bps	0
ether2						0 bps	0	0	0 bps	0 bps	0
ether3						0 bps	0	0	0 bps	0 bps	0
ether4 TELKOM						365.3 kbps	677	671	0 bps	0 bps	0
ether5						9.6 kbps	10	14	0 bps	0 bps	0

Address	Network	Interface
SERVER		ether3
WA		ether4 TELKOM
LAN		ether2
		ether5

# Sisi MikroTik Jaringan A

The screenshot shows the MikroTik WinBox interface with the 'IP Service List' window open. The left sidebar contains a navigation menu with categories like Quick Set, CAPsMAN, Interfaces, Wireless, Bridge, PPP, Switch, Mesh, IP, MPLS, Routing, System, Queues, Files, Log, RADIUS, Tools, New Terminal, Dot1X, MetaROUTER, Partition, Make Supout.rif, New WinBox, and Exit. The main window displays a table of IP services with columns for Name, Port, Available From, and Certificate. The 'Name' column lists services like api, api-ssl, ftp, ssh, telnet, winbox, www, and www-ssl. The 'Port' column shows values like 8728 and 22. The 'Available From' column is mostly redacted with a dark blue box. The 'Certificate' column shows 'none' for several services.

Name	Port	Available From	Certificate
X api	8728		
X api-ssl			none
ftp			
ssh	22		
X telnet			
winbox			
www			
X www-ssl			none

# Sisi MikroTik Jaringan B

azriel@... .6 on RB1100AHx4 (arm)  
Session S

- Quick Set
- CAPsMAN
- Interfaces
- Wireless
- Bridge
- PPP
- Switch
- Mesh
- IP
- MPLS
- Routing
- System
- Queues
- Files
- Log
- RADIUS
- Tools
- New Terminal
- Dot1X
- Partition
- Make Supout.nrf
- Manual
- New WinBox
- Exit

Interface List

Interface	Name	Type	Actual MTU	L2 MTU	Tx	Rx	Tx Packet (p/s)	Rx Packet (p/s)	FP Tx	FP Rx	FP Tx Packet (p/s)	FP Rx Packet (p/s)
::: ISP - A 125 Mbps Indihome Mix GGC												
R	ether1	Ethernet	1500	1592	1115.3 kbps	1198.7 kbps	290	320	1192.5 kbps	10.8 Mbps	397	1 272
::: ISP - B 20 Mbps Indihome												
R	ether2	Ethernet	1500	1592	0 bps	0 bps	0	0	0 bps	0 bps	0	0
::: ISP - C 5 Mbps Astinet												
R	ether3	Ethernet	1500	1592	162.0 kbps	12.6 kbps	18	14	132.5 kbps	13.6 kbps	23	22
R	ether4	Ethernet	1500	1592	0 bps	0 bps	0	0	0 bps	0 bps	0	0
R	ether5	Ethernet	1500	1592	0 bps	0 bps	0	0	0 bps	0 bps	0	0
R	ether6	Ethernet	1500	1592	0 bps	0 bps	0	0	0 bps	0 bps	0	0
::: WIFI OUTDOOR												
R	ether7	Ethernet	1500	1592	0 bps	0 bps	0	0	0 bps	0 bps	0	0
::: WIFI HOTSPOT LOGIN												
R	ether8	Ethernet	1500	1592	1195.1 kbps	1069.4 kbps	310	283	10.8 Mbps	1171.9 kbps	1 255	385
::: WIFI REKTORAT												
R	ether9	Ethernet	1500	1592	14.7 kbps	25.9 kbps	11	13	12.8 kbps	23.3 kbps	9	11
::: LAB KOMPUTER												
R	ether10	Ethernet	1500	1592	0 bps	0 bps	0	0	0 bps	0 bps	0	0
R	ether11	Ethernet	1500	1592	0 bps	512 bps	0	1	0 bps	480 bps	0	1
R	ether12	Ethernet	1500	1592	0 bps	0 bps	0	0	0 bps	0 bps	0	0
R	ether13	Ethernet	1500	1592	0 bps	0 bps	0	0	0 bps	0 bps	0	0

Interface <ether1>

General | Ethernet | Loop Protect | Overall Stats | Rx Stats | Tx Stats | Status | Traffic

Tx/Rx Rate: 1115.3 kbps / 1198.7 kbps  
Tx/Rx Packet Rate: 290 p/s / 320 p/s  
FP Tx/Rx Rate: 1192.5 kbps / 10.8 Mbps  
FP Tx/Rx Packet Rate: 397 p/s / 1 272 p/s  
Tx/Rx Bytes: 9.8 GiB / 47.0 GiB

Legend:  
Tx: 1115.3 kbps  
Rx: 1198.7 kbps  
Tx Packet: 290 p/s  
Rx Packet: 320 p/s

enabled | running | slave | link ok

# Sisi MikroTik Jaringan B

RouterOS WinBox

azriel@... 46.6 on RB1100AHx4 (arm)

Session

Quick Set  
CAPsMAN  
Interfaces  
Wireless  
Bridge  
PPP  
Switch  
Mesh  
IP  
MPLS  
Routing  
System  
Queues  
Files  
Log  
RADIUS  
Tools  
New Terminal  
Dot1X  
Partition  
Make Supout.rf  
Manual  
New WinBox  
Exit

Firewall

Filter Rules NAT Mangle Raw Service Ports Connections Address Lists Layer7 Protocols

+ - ✓ ✗ ☰ 🔍 00 Reset Counters 00 Reset All Counters Find all

#	Action	Chain	Src. Address	Dst. Address	Protocol	Src. Port	Dst. Port	In. Inter...	Out. Int...	In. Inter...	Out. Int...	Src. Ad...	Dst. Ad...	Bytes	Packets
0	✓ accept	prerouting	50.50.50.0/24	50.50.50.0/24										0 B	0
1	✓ accept	prerouting	50.50.50.0/24	10.10.10.0/30										0 B	0
2	✓ accept	prerouting	50.50.50.0/24	20.20.20.0/30										0 B	0
3	✓ accept	prerouting	60.60.60.0/24	60.60.60.0/24										0 B	0
4	✓ accept	prerouting	60.60.60.0/24	20.20.20.0/30										0 B	0
5	✓ accept	prerouting	60.60.60.0/24	10.10.10.0/30										0 B	0
6	✓ accept	prerouting	90.90.90.0/24	90.90.90.0/24										500.3 KiB	6 184
7	✓ accept	prerouting	90.90.90.0/24	10.10.10.0/30										1523.9 KiB	22 848
8 X	✓ accept	prerouting	90.90.90.0/24	20.20.20.0/30										0 B	0
9	✓ accept	prerouting	192.168.20.0/23	192.168.20.0/23										10.2 MiB	112 093
10	✓ accept	prerouting	192.168.20.0/23	10.10.10.0/30										4005.0 KiB	58 319
11 X	✓ accept	prerouting	192.168.20.0/24	20.20.20.0/30										0 B	0
12	✓ accept	prerouting	70.70.70.0/24	70.70.70.0/24										288 B	3
13	✓ accept	prerouting	70.70.70.0/24	20.20.20.0/30										0 B	0
14 X	✓ accept	prerouting	70.70.70.0/24	10.10.10.0/30										0 B	0
15	✓ accept	prerouting	100.100.100.0/27	100.100.100.0/27										75.9 KiB	925
16	✓ accept	prerouting	100.100.100.0/27	36.94.35.23										0 B	0
17 X	✓ accept	prerouting	100.100.100.0/27	20.20.20.0/30										0 B	0
18 X	✓ accept	prerouting	100.100.100.0/27	10.10.10.0/30										0 B	0
19	✓ accept	prerouting	110.110.110.0/25	110.110.110.0/25										322.2 KiB	3 441
20	✓ accept	prerouting	110.110.110.0/25	10.10.10.0/30										1959.1 KiB	28 724
21 X	✓ accept	prerouting	110.110.110.0/25	20.20.20.0/30										0 B	0
22	✓ mark connection	prerouting						ether1						56.9 MiB	271 719
23	✓ mark routing	output												1950.3 KiB	11 103
24	✓ mark connection	prerouting						ether2						0 B	0
25	✓ mark routing	output												0 B	0
26	✓ mark connection	prerouting						ether3						1367.4 KiB	21 666
27	✓ mark routing	output												4069.5 KiB	14 377
28	✓ mark routing	prerouting										Group-A		8.8 GiB	20 442 518
29	✓ mark routing	prerouting										Group-B		800 B	8
30	✓ mark routing	prerouting										Group-C		3361.4 KiB	36 223
::: ICMP															
31	✗ mark packet	prerouting			1 (icmp)									3939.7 KiB	36 698
32	✗ mark packet	postrouting			1 (icmp)									15.6 MiB	74 428
::: wifi Hotspot eth7															
33	✗ mark packet	postrouting		70.70.70.0/24	!1 (icmp)			ether7	ether7					0 B	0
34	✗ mark packet	prerouting	70.70.70.0/24		!1 (icmp)			ether7						0 B	0
::: wifi Hotspot eth8															
35	✗ mark packet	postrouting		192.168.20.0/23	!1 (icmp)				ether8					20.8 GiB	20 372 595
36	✗ mark packet	prerouting	192.168.20.0/23		!1 (icmp)			ether8						5.2 GiB	10 715 785
::: PIMPINAN_RUANGRAPAT															
37	✗ mark packet	postrouting		90.90.90.0/24	!1 (icmp)				ether9	ether9				9.4 GiB	8 874 527
38	✗ mark packet	prerouting	90.90.90.0/24		!1 (icmp)			ether9						2301.5 MiB	5 258 784
::: LABORATORIUM_UTAMA															
147 items															

# Sisi MikroTik Jaringan B

RouterOS WinBox

Hotspot

Servers Server Profiles Users User Profiles Active Hosts IP Bindings Service Ports Walled Garden

Name	Session Time...	Idle Timeout	Shared U...	Rate Limit (x/tx)
default	1d 00:00:00	1d 00:00:00	1000	
dosen		none	100	45M/45M 0/0 0/0 0/0 6 40M/40M
mahasiswa		none	220	20M/20M 0/0 0/0 0/0 8 10M/10M
mhs		none	220	

Hotspot User Profile <dosen>

General Queue Scripts

Name: dosen

Address Pool: hs-pool-8

Session Timeout: [ ]

Idle Timeout: none

Keepalive Timeout: 08:00:00

Status Autorefresh: 08:00:00

Shared Users: 100

Rate Limit (x/tx): 45M/45M 0/0 0/0 0/0 6 40M/40M

Add MAC Cookie

MAC Cookie Timeout: 1d 00:00:00

Address List: [ ]

Incoming Filter: [ ]

Outgoing Filter: [ ]

Incoming Packet Mark: wifihotspoteth8-Upload

Outgoing Packet Mark: wifihotspoteth8-Download

Open Status Page: always

Transparent Proxy

8 items (1)

- OK
- Cancel
- Apply
- Copy
- Remove

# Sisi MikroTik Jaringan B

- Quick Set
- CAPsMAN
- Interfaces
- Wireless
- Bridge
- PPP
- Switch
- Mesh
- IP
- MPLS
- Routing
- System
- Queues
- Files
- Log
- RADIUS
- Tools
- New Terminal
- Dot1X
- Partition
- Make Supout.nf
- Manual
- New WinBox
- Exit

Queue List

Simple Queues Interface Queues Queue Tree Queue Types

Reset Counters Reset All Counters Find

Name	Parent	Packet Marks	Priority	Limit At (b...	Max Limit ...	Avg. Rate	Queued Byt...	Bytes	Packets
00-ICMP	global	icmp	1	512k	728k	176 bps	0 B	16.7 MiB	91 785
01-DOWNLOAD	global		2			4.2 Mbps	0 B	46.1 GiB	43 160 259
01-WIFIHOTSPOTDOSENSTAFF-dn	01-DOWNLOAD		8	75M	90M	3.7 Mbps	0 B	21.5 GiB	21 055 371
WIFI REKTORAT DOSEN STAFF STAKEH...	01-WIFIHOTSPOTD...	wifihotspoteth8-Download	4	60M	68M	3.7 Mbps	0 B	21.5 GiB	21 055 371
01-WIFI_MAHASISWA-dn	01-DOWNLOAD		4	18M	20M	0 bps	0 B	0 B	0
1-WIFIHOTSPOT-dn	01-WIFI_MAHASIS...	wifihotspoteth7-Download	4	15M	20M	0 bps	0 B	0 B	0
LABORATORIUM-UTAMA-TOTAL-dn	01-DOWNLOAD		7	20M	25M	0 bps	0 B	15.2 GiB	13 218 792
LABORATORIUM_UTAMA_Download	LABORATORIUM-U...	LABORATORIUM_UTAMA_Download	7	19M	20M	0 bps	0 B	15.2 GiB	13 218 792
PIMPINANRAPAT-TOTAL-dn	01-DOWNLOAD		3	59M	60M	530.0 kbps	0 B	9.4 GiB	8 884 737
PIMPINAN_RUANGRAPAT_Download	PIMPINANRAPAT-T...	PIMPINAN_RUANGRAPAT_Download	3	54M	55M	530.0 kbps	0 B	9.4 GiB	8 884 737
02-UPLOAD	global		2			724.6 kbps	0 B	9.6 GiB	22 859 959
01-WIFIHOTSPOTDOSENSTAFF-up	02-UPLOAD		8	28M	50M	559.9 kbps	0 B	5.3 GiB	10 874 967
WIFI REKTORAT DOSEN STAKEHOLDER	01-WIFIHOTSPOTD...	wifihotspoteth8-Upload	5	25M	45M	559.9 kbps	0 B	5.3 GiB	10 874 967
01-WIFI_MAHASISWA-up	02-UPLOAD		4	2M	8M	0 bps	0 B	0 B	0
1-WIFIHOTSPOT-up	01-WIFI_MAHASIS...	wifihotspoteth7-Upload	4	2M	8M	0 bps	0 B	0 B	0
LABORATORIUM-UTAMA-TOTAL-up	02-UPLOAD		5	25M	31M	0 bps	0 B	2146.8 MiB	6 738 396
LABORATORIUM_UTAMA_Upload	LABORATORIUM-U...	LABORATORIUM_UTAMA_Upload	5	23M	30M	0 bps	0 B	2146.8 MiB	6 738 396
PIMPINANRAPAT-TOTAL-up	02-UPLOAD		3	38M	40M	164.6 kbps	0 B	2299.1 MiB	5 246 596
PIMPINAN_RUANGRAPAT_Upload	PIMPINANRAPAT-T...	PIMPINAN_RUANGRAPAT_Upload	3	38M	40M	164.6 kbps	0 B	2299.1 MiB	5 246 596

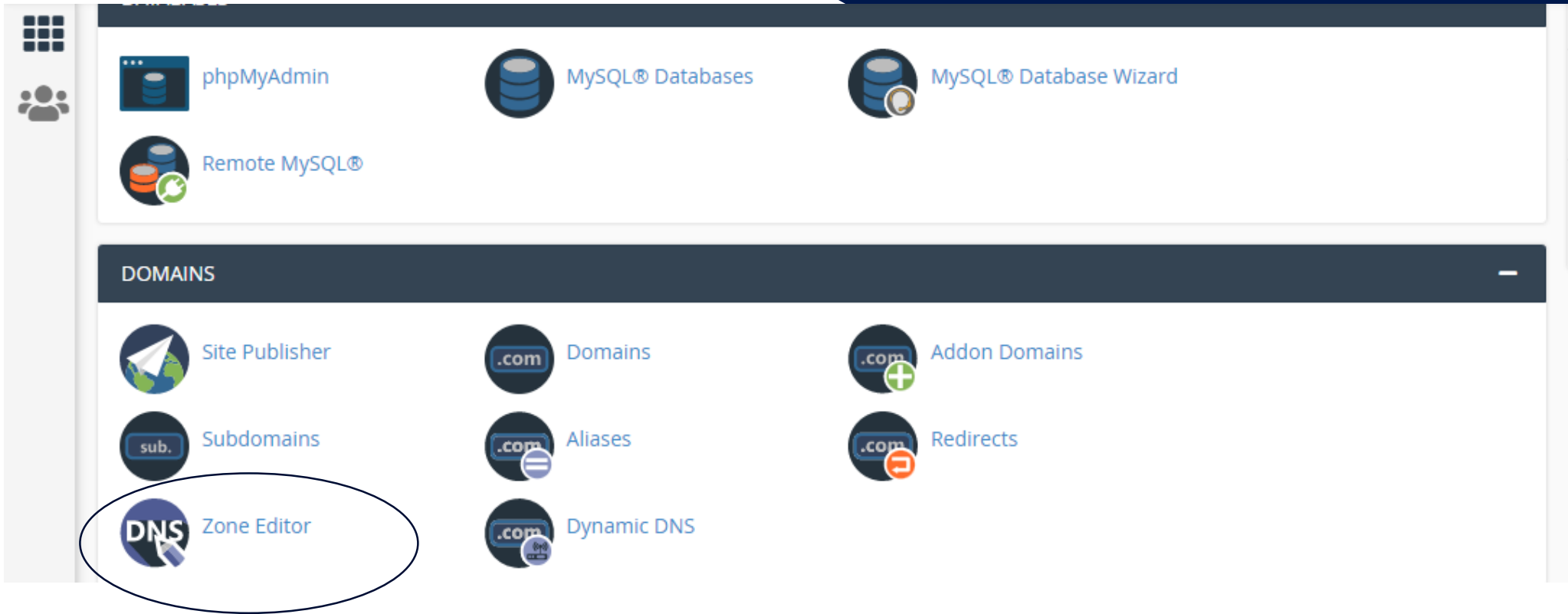
Interface List

Interface Interface List Ethernet EoIP Tunnel IP Tunnel GRE Tunnel VLAN VRRP Bonding LTE

Detect Internet Find

Name	Type	Actual MTU	L2 MTU	Tx	Rx	Tx Packet (p/s)	Rx Packet (p/s)	FP Tx	FP Rx	FP Tx Packet (p/s)	FP Rx Packet (p/s)
::: ISP - A 125 Mbps Indihome Mix GGC											
R ether1	Ethernet	1500	1592	910.7 kbps	33.3 Mbps	709	3 528	848.7 kbps	20.0 Mbps	603	2 241
::: ISP - B 20 Mbps Indihome											
ether2	Ethernet	1500	1592	0 bps	0 bps	0	0	0 bps	0 bps	0	0
::: ISP - C 5 Mbps Astinet											
R ether3	Ethernet	1500	1592	157.1 kbps	9.5 kbps	16	11	189.2 kbps	14.3 kbps	21	17
ether4	Ethernet	1500	1592	0 bps	0 bps	0	0	0 bps	0 bps	0	0
ether5	Ethernet	1500	1592	0 bps	0 bps	0	0	0 bps	0 bps	0	0
ether6	Ethernet	1500	1592	0 bps	0 bps	0	0	0 bps	0 bps	0	0
::: WIFI OUTDOOR											
ether7	Ethernet	1500	1592	0 bps	0 bps	0	0	0 bps	0 bps	0	0
::: WIFI HOTSPOT LOGIN											
R ether8	Ethernet	1500	1592	33.9 Mbps	786.1 kbps	3 521	646	19.8 Mbps	766.2 kbps	2 169	541
::: WIFI REKTORAT											
R ether9	Ethernet	1500	1592	27.8 kbps	47.6 kbps	28	27	191.2 kbps	82.1 kbps	57	51
::: LAB KOMPUTER											
R ether10	Ethernet	1500	1592	0 bps	0 bps	0	0	0 bps	0 bps	0	0
R ether11	Ethernet	1500	1592	0 bps	5.8 kbps	0	4	0 bps	3.9 kbps	0	3
ether12	Ethernet	1500	1592	0 bps	0 bps	0	0	0 bps	0 bps	0	0

# Sisi CPANEL





# Sisi CPANEL

The screenshot displays the 'Zone Editor' section of a cPanel interface. At the top left, there is a navigation menu with a grid icon and a 'DNS Domains' link. The main header reads 'Zone Editor Domains'. Below this, a descriptive text states: 'DNS converts domain names into computer-readable IP addresses. Use this feature to manage DNS zones. For more information, read the [documentation](#).' The 'Domains' section features a search bar labeled 'Filter by domain' and a search icon. To the right of the search bar are navigation arrows and the text 'Displaying 1 to 1 out of 1 item'. A settings gear icon is located below the search bar. The main content area is a table with two columns: 'Domain' and 'Actions'. The 'Domain' column contains the text 'kampusq.ac.id', which is circled in black. The 'Actions' column contains four buttons: '+ A Record', '+ CNAME Record', '+ MX Record', and 'Manage'. The footer of the interface includes the 'cPanel 98.0.12' logo on the left and a navigation menu with links for 'Home', 'Trademarks', 'Privacy Policy', 'Documentation', and 'Help' on the right.

# Sisi CPANEL

The image shows a cPanel interface with a DNS zone file for three domains: ojsque.ac.id, latihan.ac.id, and sister.ac.id. A red box highlights a column of IP addresses (14400) and record types (MX and A). Arrows point from domain names to specific rows and from IP addresses to a 36.89.x.x/32 range.

Domain	IP Address	Record Type
ojsque.ac.id	14400	MX
	14400	MX
	14400	MX
	14400	MX
latihan.ac.id	14400	A
	14400	A
	14400	A
	14400	A
sister.ac.id	14400	A
	14400	A
	14400	A
	14400	A

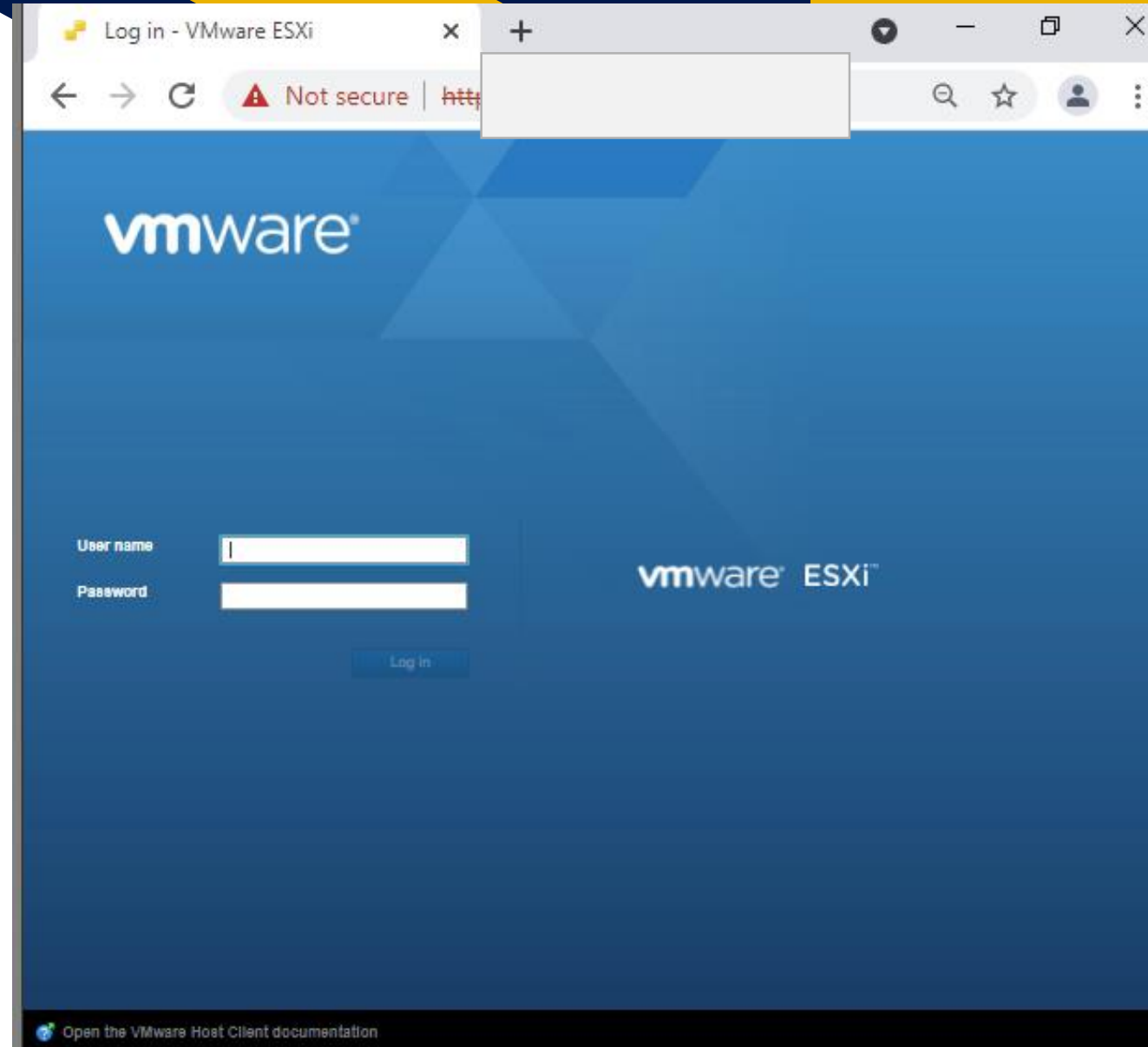
36.89.x.x/32

36.89.x.x/32

36.89.x.x/32

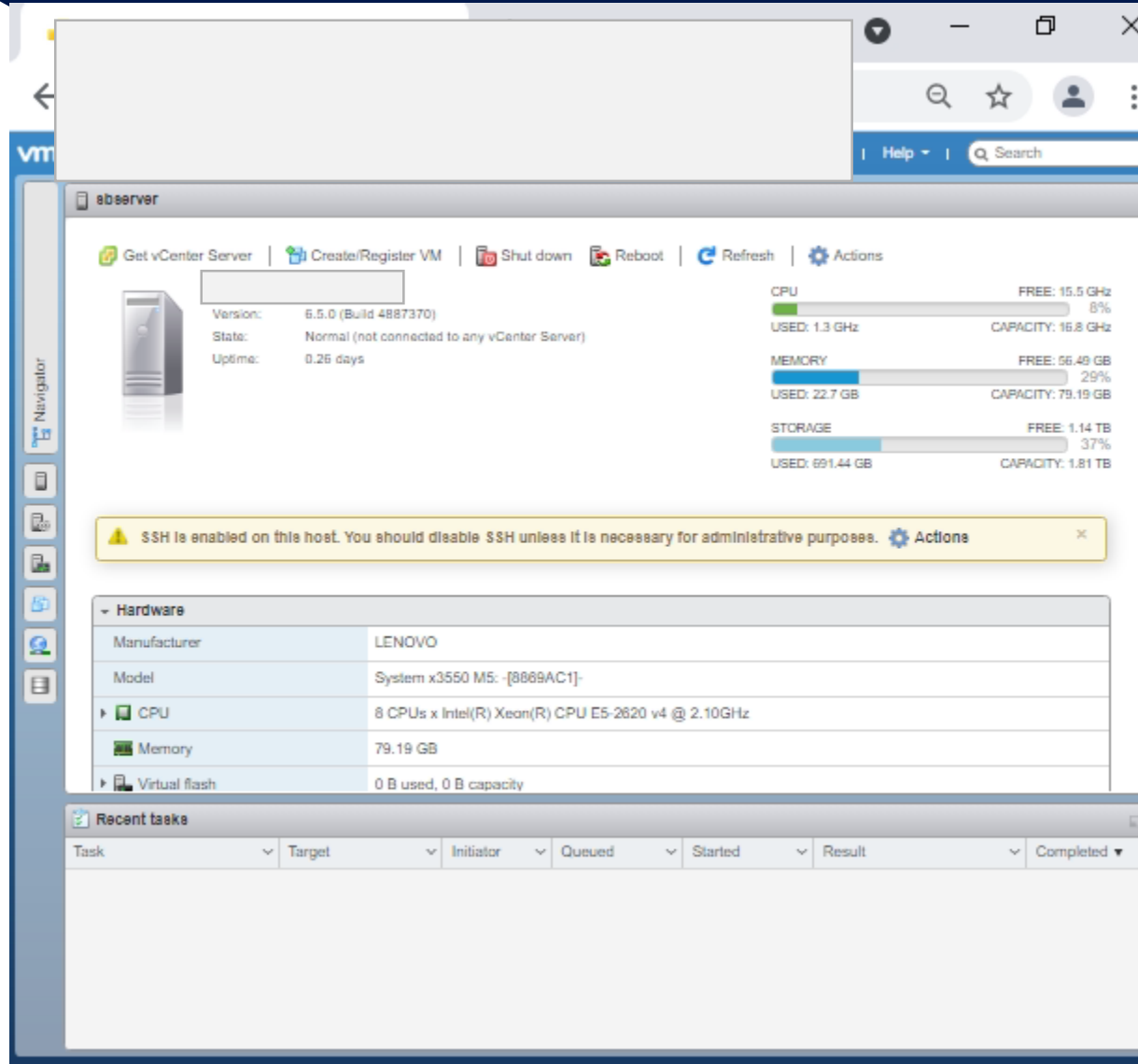
# Sisi VMWare

Pada VM aplikasi terpasang dan sudah bisa diakses menggunakan IP address VM tersebut secara langsung.



# Sisi VMWare

Pada VM aplikasi terpasang dan sudah bisa diakses menggunakan IP address VM tersebut secara langsung.



The screenshot displays the VMware vSphere interface for a virtual machine named 'observer'. The interface includes a top navigation bar with search and help options, and a left sidebar with navigation icons. The main content area shows the VM's status and performance metrics.

**VM Status:**

- Version: 6.5.0 (Build 4887370)
- State: Normal (not connected to any vCenter Server)
- Uptime: 0.26 days

**Performance Metrics:**

- CPU:** FREE: 15.5 GHz (8%), USED: 1.3 GHz, CAPACITY: 16.8 GHz
- MEMORY:** FREE: 56.49 GB (29%), USED: 22.7 GB, CAPACITY: 79.19 GB
- STORAGE:** FREE: 1.14 TB (37%), USED: 691.44 GB, CAPACITY: 1.81 TB

**Warning:** SSH is enabled on this host. You should disable SSH unless it is necessary for administrative purposes.

**Hardware Details:**

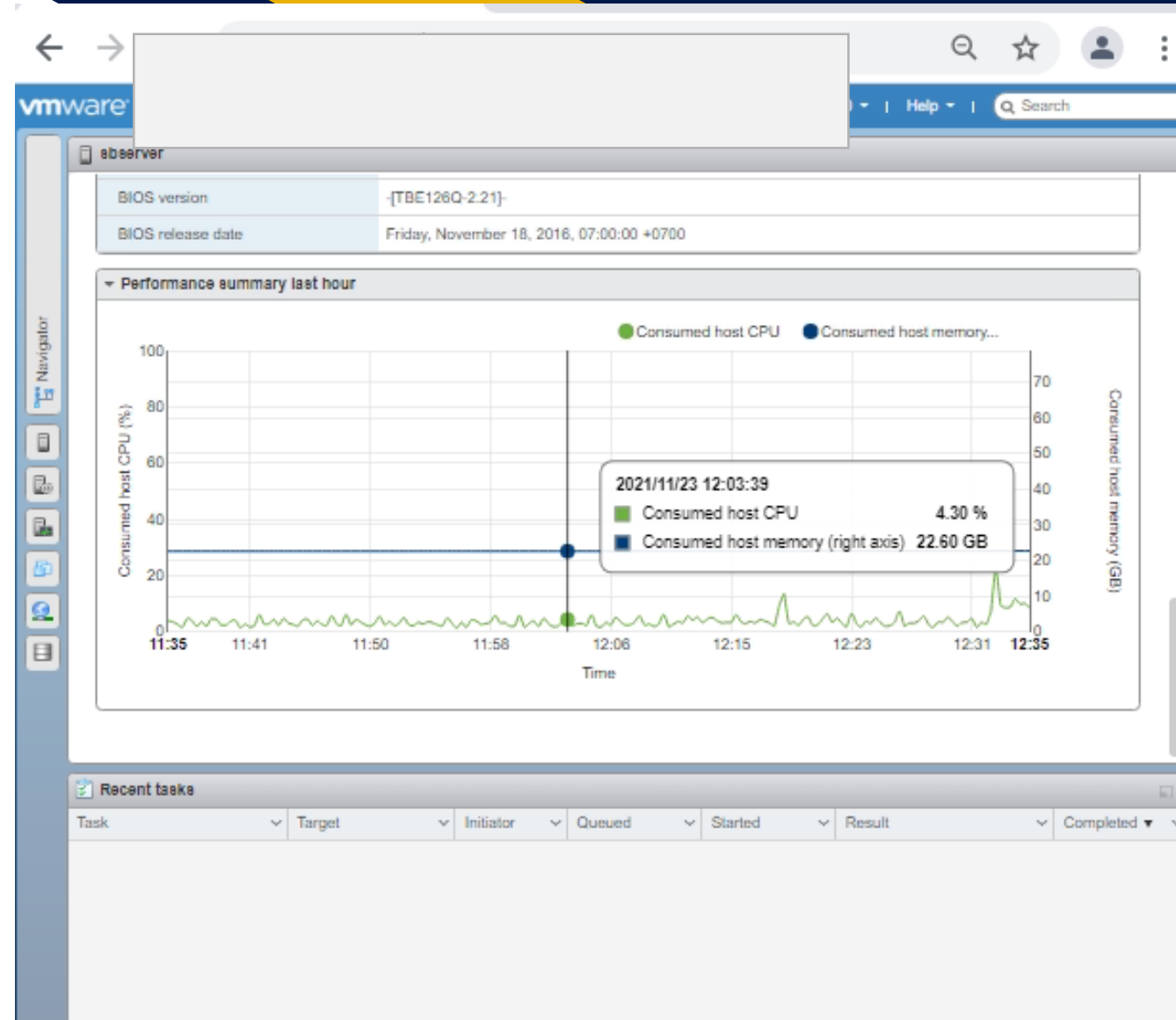
Hardware	
Manufacturer	LENOVO
Model	System x3550 M5: -[8869AC1]-
CPU	8 CPUs x Intel(R) Xeon(R) CPU E5-2620 v4 @ 2.10GHz
Memory	79.19 GB
Virtual flash	0 B used, 0 B capacity

**Recent tasks:**

Task	Target	Initiator	Queued	Started	Result	Completed
------	--------	-----------	--------	---------	--------	-----------

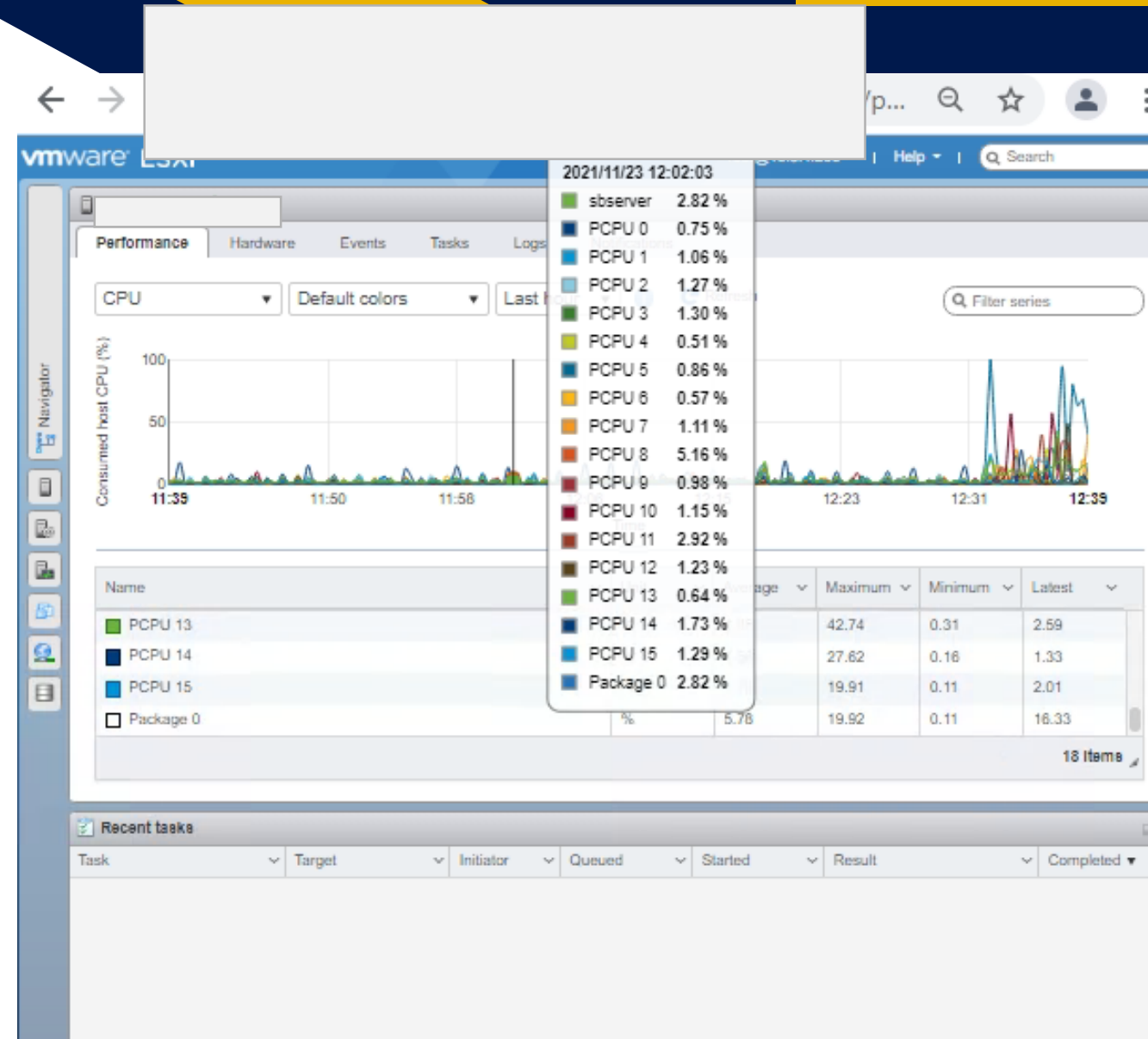
# Sisi VMWare

Pada VM aplikasi terpasang dan sudah bisa diakses menggunakan IP address VM tersebut secara langsung.



# Sisi VMWare

Pada VM aplikasi terpasang dan sudah bisa diakses menggunakan IP address VM tersebut secara langsung.



# Sisi VMWare

Pada VM aplikasi terpasang dan sudah bisa diakses menggunakan IP address VM tersebut secara langsung.

The screenshot displays the VMware ESXi management console for a virtual machine named 'Eprints'. The interface includes a top navigation bar with search and user options, and a left-hand 'Navigator' sidebar. The main content area shows the VM's status and configuration details.

**VMware ESXi**

vmware ESXi | Help | Search

**Eprints**

Console | Monitor | Power on | Power off | Suspend | Restart | Edit | Refresh | Actions

**Eprints**

Guest OS	Ubuntu Linux (64-bit)	CPU	0 MHz
Compatibility	ESXi 6.5 and later (VM version 13)	MEMORY	0 B
VMware Tools	No	STORAGE	5.17 GB
CPUs	1		
Memory	7.84 GB		

VMware Tools is not installed in this virtual machine. VMware Tools allows detailed guest information to be displayed as well as allowing you to perform operations on the guest OS, e.g. graceful shutdown, reboot, etc. You should install VMware Tools.

**General Information**

Networking	No network information	
VMware Tools	Not installed	Actions
Storage	1 disk	
Notes		Edit notes

**Recent tasks**

Task	Target	Initiator	Queued	Started	Result	Completed
------	--------	-----------	--------	---------	--------	-----------

# Sisi VMWare

Pada VM aplikasi terpasang dan sudah bisa diakses menggunakan IP address VM tersebut secara langsung.

The screenshot displays the VMware ESXi management console for a virtual machine named 'Eprints'. The interface includes a top navigation bar with 'vmware ESXi' and 'root' labels. Below this, there are control buttons for 'Console', 'Monitor', 'Power on', 'Power off', 'Suspend', 'Reset', 'Edit', 'Refresh', and 'Actions'. The main area shows the 'Eprints' VM details, including 'Guest OS: Ubuntu Linux (64-bit)', 'Compatibility: ESXi 6.5 and later (VM version 13)', and 'VMware Tools: No'. A notification indicates that VMware Tools is not installed. The 'Recent tasks' table at the bottom shows a successful 'Power On VM' task.

Task	Target	VM Name	Start Time	End Time	Status	Completion Time
Power On VM	Eprints	root	11/23/2021 12:41...	11/23/2021 12:41...	Completed successfully	11/23/2021 12:41...



# Sisi VMWare

Pada VM aplikasi terpasang dan sudah bisa diakses menggunakan IP address VM tersebut secara langsung.

The screenshot shows the VMware Workstation interface with a Linux terminal window open. The terminal displays the output of the command `ls -ld /`, showing the permissions and ownership of the root directory and its subdirectories. The VMware interface includes a taskbar with application icons, a system tray with the time 12:41, and a task list at the bottom showing 'Power On VM' completed successfully.

```
root/initrd.img-4.4.0-176-generic
lrwxrwxrwx 1 root root 33
-> boot/initrd.img-4.4.0-174-generic
drwxr-xr-x 22 root root 4096
drwxr-xr-x 2 root root 4096
drwx----- 2 root root 16384
drwxr-xr-x 2 root root 4096
drwxr-xr-x 2 root root 4096
drwxr-xr-x 5 root root 4096
dr-xr-xr-x 291 root root 0
drwx----- 6 root root 4096
drwxr-xr-x 33 root root 1060
drwxr-xr-x 2 root root 12288
drwxr-xr-x 2 root root 4096
drwxr-xr-x 2 root root 4096
dr-xr-xr-x 13 root root 0
drwxrwxrwt 13 root root 4096
drwxr-xr-x 11 root root 4096
drwxr-xr-x 15 root root 4096
lrwxrwxrwx 1 root root 30
/vmlinuz-4.4.0-176-generic
lrwxrwxrwx 1 root root 30
boot/vmlinuz-4.4.0-174-generic
ls
```

Task	Target	Initiator	Queued	Started	Result	Completed
Power On VM	Eprints	root	11/23/2021 12:41...	11/23/2021 12:41...	Completed successfully	11/23/2021 12:41...

# Sisi VMWare

Pada VM aplikasi terpasang dan sudah bisa diakses menggunakan IP address VM tersebut secara langsung.

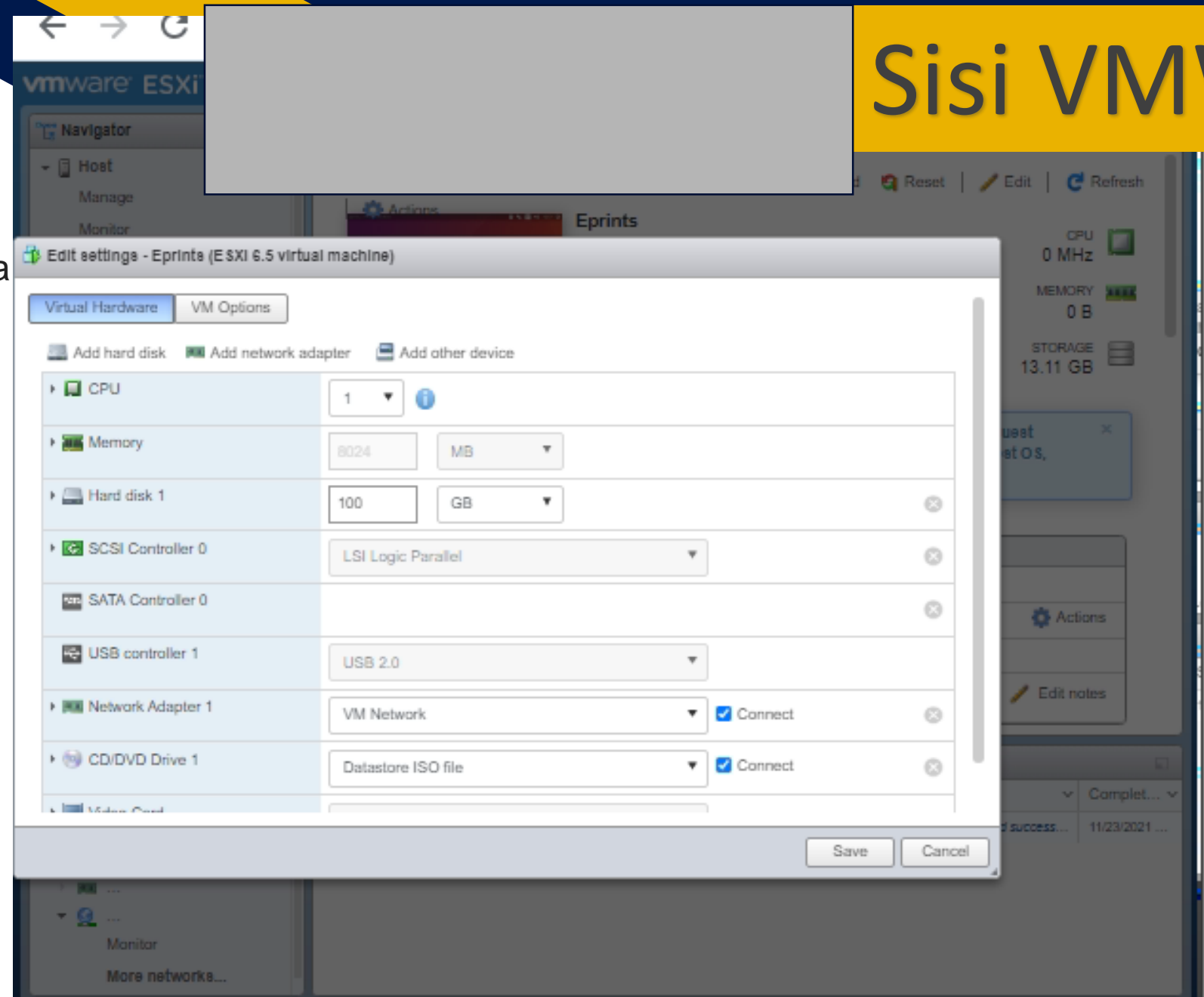
The screenshot shows the VMware vSphere interface. The 'Port groups' tab is selected, displaying a table with the following data:

Name	Active p...	VLAN ID	Type	vSwitch	VMs
VM Network	8	0	Standard port group	vSwitch0	10
Management Network	1	0	Standard port group	vSwitch0	N/A

Below the table, it indicates '2 items'. At the bottom of the interface, the 'Recent tasks' section shows a task 'Power On VM' with a target of 'Eprints', initiated by 'root', which was completed successfully on 11/23/2021 at 12:41:...

# Sisi VMWare

Pada VM aplikasi terpasang dan sudah bisa diakses menggunakan IP address VM tersebut secara langsung.



# Sisi Server Ubuntu

```
rd.img-4.4.0-176-generic
lrwxrwxrwx  1 root  root      33 Mar      nitrd.img.old -> boot/
initrd.img-4.4.0-174-generic
drwxr-xr-x  22 root  root    4096 Jul      ib
drwxr-xr-x   2 root  root    4096 Sep      ib64
drwx-----  2 root  root   16384 Jul      ost+found
drwxr-xr-x   2 root  root    4096 Jul      edia
drwxr-xr-x   2 root  root    4096 Jul      nt
drwxr-xr-x   5 root  root    4096 Jul      pt
dr-xr-xr-x  302 root  root      0 Nov      roc
drwx-----  6 root  root    4096 Sep      oot
drwxr-xr-x  33 root  root   1080 Nov      un
drwxr-xr-x   2 root  root   12288 Feb      bin
drwxr-xr-x   2 root  root    4096 Feb      nap
drwxr-xr-x   2 root  root    4096 Jul      rv
dr-xr-xr-x  13 root  root      0 Nov      ys
drwxrwxrwt  14 root  root    4096 Nov      ng
drwxr-xr-x  11 root  root    4096 Jul      sr
drwxr-xr-x  15 root  root    4096 Jul      ar
lrwxrwxrwx  1 root  root      30 Mar      mlinux -> boot/vmlinuz
-4.4.0-176-generic
lrwxrwxrwx  1 root  root      30 Mar      mlinux.old -> boot/vml
inuz-4.4.0-174-generic
Azriel :/#
```

Masuk ke dalam folder `/var/www` dan buat direktori “home” untuk web baru. Mis: `/var/www/aplikasique`

# Sisi Server Ubuntu

```
drwxr-xr-x 18 root root 4096 Feb
drwxrwsrwt 2 root whoopsie 4096 Feb
drwxr-xr-x 76 root root 4096 Jul
drwxrwsr-x 2 root staff 4096 Apr
lrwxrwxrwx 1 root root 9 Jul
drwxrwxr-x 17 root syslog 4096 Nov
drwxrwsr-x 2 root mail 4096 Jul
drwxrwsrwt 2 root whoopsie 4096 Jul
drwxr-xr-x 2 root root 4096 Jul
lrwxrwxrwx 1 root root 4 Jul
drwxr-xr-x 2 root root 4096 Jun
drwxr-xr-x 8 root root 4096 Jul
drwxrwxrwt 243 root root 32768 Nov
drwxr-xr-x 7 root root 4096 Agu

Azriel /var# cd www
Azriel /var/www# ls -l
total 44
-rw-r--r-- 1 root root 15802 config.inc.php
drwxr-xr-x 2 root root 4096
drwxrwxr-x 16 appuser www-data 12288
drwxrwxr-x 50 appuser www-data 4096
drwxr-xr-x 18 www-data www-data 4096
drwxrwxr-x 18 appuser www-data 4096

Azriel /var/www#
```

Masuk ke dalam folder `/var/www` dan buat direktori “home” untuk web baru. Mis: `/var/www/moodle`

# Sisi Server Ubuntu

```
vmware ESXi
Azriel /etc# cd apache2
Azriel /etc/apache2# ls -l
total 84
-rw-r--r-- 1 root root 7115 apache2.conf
drwxr-xr-x 2 root root 4096 conf-available
drwxr-xr-x 2 root root 4096 conf-enabled
-rw-r--r-- 1 root root 1782 envvars
-rw-r--r-- 1 root root 31063 magic
drwxr-xr-x 2 root root 16384 mods-available
drwxr-xr-x 2 root root 4096 mods-enabled
-rw-r--r-- 1 root root 342 ports.conf
drwxr-xr-x 2 root root 4096 sites-available
drwxr-xr-x 2 root root 4096 sites-enabled
Azriel /etc/apache2#
```

Masuk ke folder web server misal /apache2/sites-available

# Sisi Server Ubuntu

```
<VirtualHost *:80>
  ServerName      aplikasique.ac.id

  ServerAdmin     webmaster@localhost
  DocumentRoot    /var/www/aplikasique

  # Available loglevels: trace8, ..., tracel, debug, info, notice,
warn,
  # error, crit, alert, emerg.
  # It is also possible to configure the loglevel for particular
  # modules, e.g.
  #LogLevel info ssl:warn

  ErrorLog        ${APACHE_LOG_DIR} aqe_error.log
  CustomLog       ${APACHE_LOG_DIR} aqe_access.log combined

  # For most configuration files from conf-available/, which are
  # enabled or disabled at a global level, it is possible to
  # include a line for only one particular virtual host. For exampl
e the
  # following line enables the CGI configuration for this host only
  # after it has been globally disabled with "a2disconf".
```

*User dapat membuat file sesuai nama aplikasi kemudian berisi*

- 1. ServerName*
- 2. VirtualHost \*:80*
- 3. ErrorLog*
- 4. CustomLog*
- 5. ProxyPass*
- 6. ProxyPassReversed*

*Dan jangan lupa*

- 7. SSLCertificateFile*

# Sisi Server Ubuntu

```
vmware ESXi
root@vm4: /etc/apache2/sites-available

# It is also possible to configure the loglevel for particular
# modules, e.g.
#LogLevel info ssl:warn

ErrorLog ${APACHE_LOG_DIR}/lms_error.log
CustomLog ${APACHE_LOG_DIR}/lms_access.log combined

# For most configuration files from conf-available/, which are
# enabled or disabled at a global level, it is possible to
# include a line for only one particular virtual host. For exampl
e the
# following line enables the CGI configuration for this host only
# after it has been globally disabled with "a2disconf".
#Include conf-available/serve-cgi-bin.conf

RewriteEngine On
RewriteCond %{REMOTE_ADDR} != Berikan IP Lokal
RewriteCond %{HTTPS} !on
RewriteRule (.*) https://%{HTTP_HOST}$1 [L]
#RewriteRule ^/(.*) https://%{SERVER_NAME}%{REQUEST_URI} [R]
#Redirect permanent "/" "https: aplikasique.ac.id"

</VirtualHost>
<VirtualHost *:443>
```

*User dapat membuat file sesuai nama aplikasi kemudian berisi*

- 1. ServerName*
- 2. VirtualHost \*:80*
- 3. ErrorLog*
- 4. CustomLog*
- 5. ProxyPass*
- 6. ProxyPassReversed*

*Dan jangan lupa*

- 7. SSLCertificateFile*



# Sisi Server Ubuntu

```
</VirtualHost>
<VirtualHost *:443>
    ServerName : aplikasi.ac.id
    ServerAlias : aplikasi.ac.id
    DocumentRoot : var/www/aplikasique

    ErrorLog ${APACHE_LOG_DIR}/lms_error.log
    CustomLog ${APACHE_LOG_DIR}/lms_access.log combined

    SSLEngine On

    SSLCertificateFile /home/ubuntu/pki/STAR_aplikasique_ac_id.crt
    SSLCertificateKeyFile /home/ubuntu/pki/star_aplikasique_ac_id.ke
y
# SSLCertificateChainFile /home/ubuntu/pki/STAR_aplikasique_ac_id
.ca-bundle
    SSLCertificateChainFile /home/ubuntu/pki/apache_bundle_Kodeunik
67.crt

    BrowserMatch ".*MSIE.*" nokeepalive ssl-unclean-shutdown downgrad
e-1.0 force-response-1.0
    SSLCipherSuite ALL:!ADH:!EXPORT56:RC4+RSA:+HIGH:+MEDIUM:+LOW:+SSL
```

Azriel

```
sudo apache2ctl configtest
```

*Khusus kasus global DNS bisa memakan waktu 1-3 hari.*

***“MikroTik sangat membantu untuk mengalokasikan jaringan, manajemen bandwidth dan membagi jalur” publik dan lokal dengan proxy dari VMWare dan Server Virtual di dalamnya. “***