

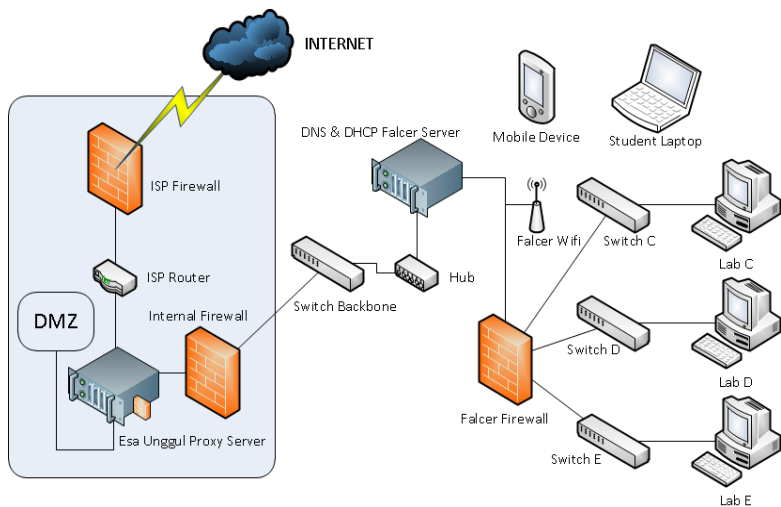
## LAMPIRAN A :

### Network Mapping

Gambaran infrastruktur jaringan pada Fakultas Ilmu Komputer Universitas Esa Unggul sebelum implementasi *proxy server* :

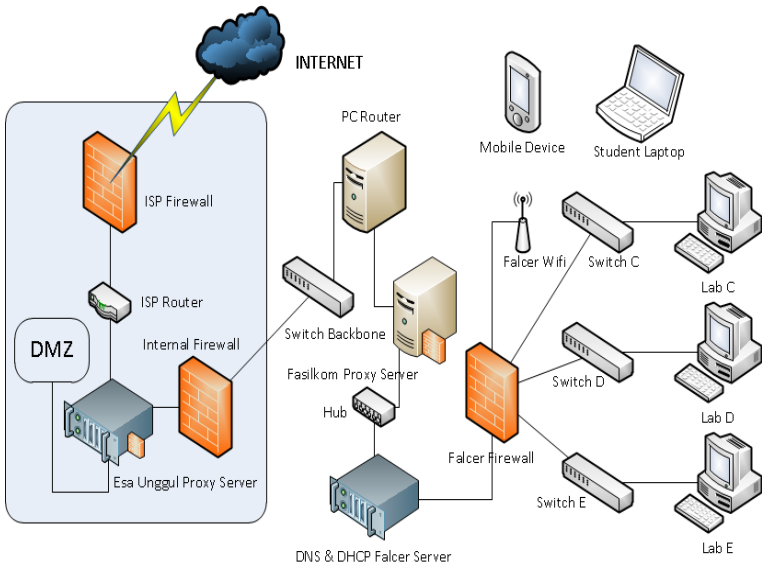
1. Cenderung lebih rentan terjadi kesalahan teknik ataupun dari segi fisik pada perangkat pendukung jaringan yang menjadi kendala terputusnya akses internet
2. Limitasi langsung melalui BPSTI melalui akses untuk kegiatan akademik di setiap laboratorium
3. Seringnya terjadi penyalahgunaan pada akun tertentu untuk kegiatan di luar akademik yang memiliki akses lebih luasa dibanding milik mahasiswa

### Sebelum Implementasi



**Gambar L1 Topologi Jaringan Sebelum Implementasi**

## Sesudah Implementasi



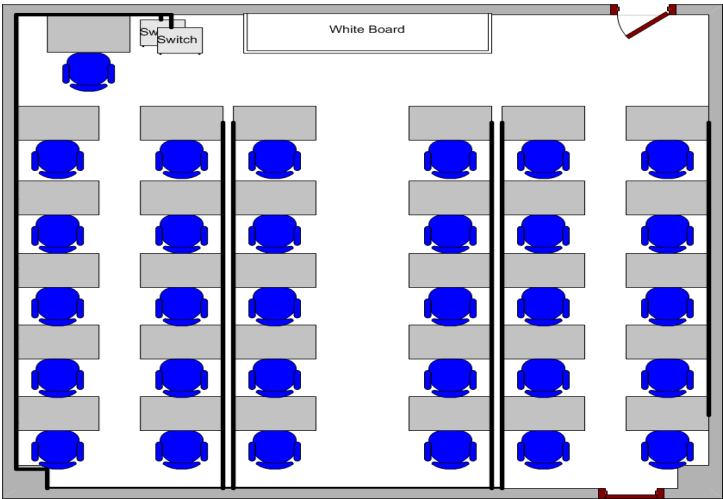
**Gambar L2 Topologi Jaringan Sesudah Implementasi**

**LAMPIRAN B :**

Berikut adalah denah kodisi laboratorium pada Fakultas Ilmu Komputer Universitas Esa Unggul

**Lab C**

**31 unit komputer**



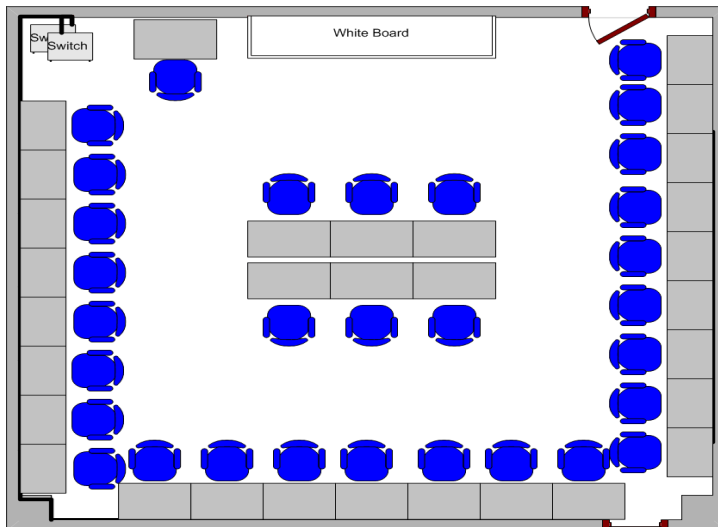
**Gambar L3 Denah Ruangn Praktikum Lab C**

| INSTALLED HARDWARE |                                   |
|--------------------|-----------------------------------|
| Peripheral         | Details                           |
| Processor          | Intel P4 3.0Ghz LGA775            |
| Mainboard          | Wearnes 7890L-A1                  |
| Memory             | Apogee 512MB DDR-II               |
| Display Adapters   | NVIDIA GeForce 7300LE PCI-E       |
| Harddrive          | Hitachi HDS728080PLA380 80GB SATA |
| Monitor            | Wearnes VGA1781 17"               |
| Keyboard / Mouse   | Wearnes / Optical USB             |

| INSTALLED SOFTWARE |                              |
|--------------------|------------------------------|
| 1                  | Adobe Photoshop CS           |
| 2                  | Adobe Reader 7               |
| 3                  | Boson NetSim                 |
| 4                  | Corel Draw 12                |
| 5                  | Java SDK & JRE 6u1           |
| 6                  | Macromedia Studio MX 2004    |
| 7                  | Microsoft Office Prof. 2003  |
| 8                  | Microsoft SQL Server 2000    |
| 9                  | Microsoft Visual Studio 6 EE |
| 10                 | Net Support Client           |
| 11                 | Rational Rose EE             |
| 12                 | VMWare Workstation           |
| 13                 | WinRAR                       |
| 14                 | XAMPP                        |

## Lab D

31 unit komputer



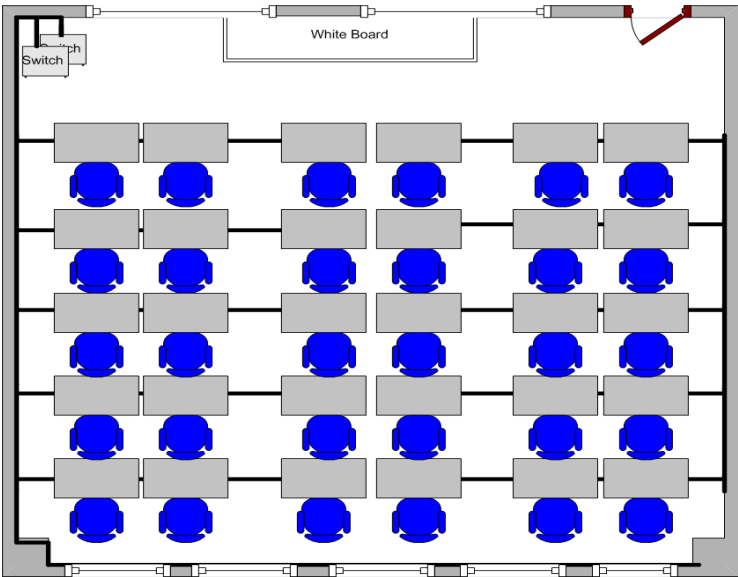
Gambar L4 Denah Ruangan Praktikum Lab D

| INSTALLED HARDWARE |                            |
|--------------------|----------------------------|
| Peripheral         | Details                    |
| Processor          | Intel P4 2.66Ghz socket478 |
| Mainboard          | Fujitsu Siemens D1522      |
| Memory             | Kingston 512MB DDR-I       |
| Display Adapters   | NVIDIA GeForce MX440 AGP   |
| Harddrive          | Seagate ST340014A 40GB IDE |
| Monitor            | Samsung SyncMaster753s     |
| Keyboard / Mouse   | Logitech Y-SP29 / Ball     |

| INSTALLED SOFTWARE |                              |
|--------------------|------------------------------|
| 1                  | Adobe Photoshop CS           |
| 2                  | Adobe Reader 7               |
| 3                  | Autodesk 3D Max 8            |
| 4                  | Boson NetSim                 |
| 5                  | Java SDK & JRE 6u1           |
| 6                  | Macromedia Studio MX 2004    |
| 7                  | Microsoft Office Prof. 2003  |
| 8                  | Microsoft SQL Server 2000    |
| 9                  | Microsoft Visual Studio 6 EE |
| 10                 | Net Support Client           |
| 11                 | Rational Rose EE             |
| 12                 | VMWare Workstation           |
| 13                 | WinRAR                       |
| 14                 | XAMPP                        |

Lab E

30 unit komputer



Gambar L5 Denah Ruang Praktikum Lab E

| INSTALLED HARDWARE |                              |
|--------------------|------------------------------|
| Peripheral         | Details                      |
| Processor          | Intel P4 2.8Ghz socket478    |
| Mainboard          | Fujitsu Siemens D1675        |
| Memory             | Kingston 512MB DDR-I         |
| Display Adapters   | Gigabyte ATi Radeon 9200 AGP |
| Harddrive          | Seagate ST340014A 40GB IDE   |
| Monitor            | ViewSonic E72f 17"           |
| Keyboard / Mouse   | Logitech Y-ST39 / Ball       |

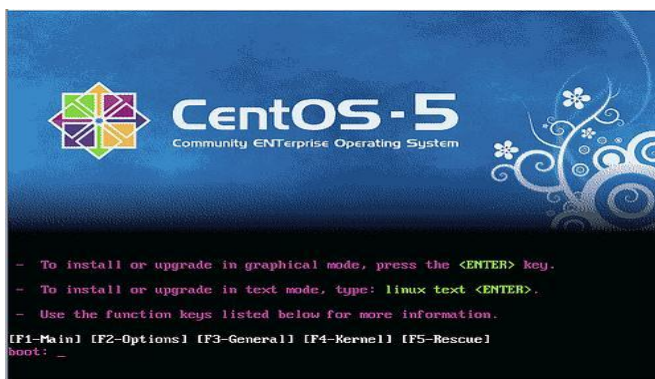
| INSTALLED SOFTWARE |                              |
|--------------------|------------------------------|
| 1                  | Adobe Photoshop CS           |
| 2                  | Adobe Reader 7               |
| 3                  | Boson NetSim                 |
| 4                  | Java SDK & JRE 6u1           |
| 5                  | Macromedia Studio MX 2004    |
| 6                  | Microsoft Office Prof. 2003  |
| 7                  | Microsoft SQL Server 2000    |
| 8                  | Microsoft Visual Studio 6 EE |
| 9                  | Net Support Client           |
| 10                 | Rational Rose EE             |
| 11                 | VMWare Workstation           |
| 12                 | WinRAR                       |
| 13                 | XAMPP                        |

### LAMPIRAN C :

Berikut adalah beberapa tahapan mengkonfigurasi proxy server dengan menggunakan CentOS 5.5

1. Tahap instalasi OS CentOS 5.5 sebagai proxy server

Tampilan Screen Booting awal instalasi CentOS 5.5



**Gambar L6 Menu Booting Instalasi Awal**

Pilihan untuk memulai instalasi atau untuk mencoba CentOS melalui Live-CD



**Gambar L7 Menu Pilihan Testing Live CD / Instalasi**

Screen awal instalasi CentOS 5.5



**Gambar L8 Menu Konfirmasi Instalasi**

## Menu Screen Pilihan Bahasa



## Gambar L12 Pilihan Default Bahasa

## Menu Screen pilihan default keyboard



## Gambar L13 Pilihan Default Keyboard

## Menu Screen Pemilihan Partisi



Installation requires partitioning of your hard drive.  
By default, a partitioning layout is chosen which is reasonable for most users. You can either choose to use this or create your own.

Create custom layout. ▾

☐ Encrypt system

Select the drive(s) to use for this installation.

☒ hda1 2047 MB VBOX HARDDISK

Advanced storage configuration

☒ Review and modify partitioning layout

Release Notes

Back Next

**Gambar L14 Pemilihan Partisi**

## Menu Screen Kustomisasi Pembagian Partisi



Drive /dev/hda (8189 MB) (Model: VBOX HARDDISK)

| Device             | Mount Point/<br>RAID/Volume | Type | Format | Size<br>(MB) | Start | End  |
|--------------------|-----------------------------|------|--------|--------------|-------|------|
| <b>Hard Drives</b> |                             |      |        |              |       |      |
| ▼ /dev/hda         |                             |      |        |              |       |      |
| /dev/hda1          | /                           | ext3 | ✓      | 6000         | 1     | 765  |
| /dev/hda2          | /home                       | ext3 | ✓      | 1498         | 766   | 956  |
| /dev/hda3          |                             | swap | ✓      | 690          | 957   | 1044 |

☐ Hide RAID device/LVM Volume Group members

New Edit Delete Reset RAID LVM

Release Notes

Back Next

**Gambar L15 Kustomisasi Partisi**

## Menu Screen Kustomisasi Grub Loader



### CentOS

☒ The GRUB boot loader will be installed on /dev/hda.  
☐ No boot loader will be installed.

You can configure the boot loader to boot other operating systems. It will allow you to select an operating system to boot from the list. To add additional operating systems, which are not automatically detected, click 'Add'. To change the operating system booted by default, select 'Default' by the desired operating system.

| Default                             | Label  | Device    |
|-------------------------------------|--------|-----------|
| <input checked="" type="checkbox"/> | CentOS | /dev/hda1 |

[Add](#)  
[Edit](#)  
[Delete](#)

A boot loader password prevents users from changing options passed to the kernel. For greater system security, it is recommended that you set a password.

☐ Use a boot loader password [Change password](#)

☐ Configure advanced boot loader options

[Release Notes](#) [Back](#) [Next](#)

**Gambar L16 Kustomisasi Grub Loader**

## Menu Screen Konfigurasi Perangkat Jaringan



### CentOS

#### Network Devices

| Active on Boot                      | Device | IPv4/Netmask | IPv6/Prefix |
|-------------------------------------|--------|--------------|-------------|
| <input checked="" type="checkbox"/> | eth0   | DHCP         | Auto        |

[Edit](#)

#### Hostname

Set the hostname:

☒ automatically via DHCP

☐ manually  (e.g., host.domain.com)

#### Miscellaneous Settings

Gateway:

Primary DNS:

Secondary DNS:

[Release Notes](#) [Back](#) [Next](#)

**Gambar L17 Kofigurasi Network**

### Menu Screen Pilihan Waktu Region



**Gambar L18 Pilihan Zona Waktu**

### Menu Screen Root Password



**Gambar L19 Seting Root Password**

## Menu Screen Pilihan Paket Pendukung



**Gambar L20 Pilihan Paket Instalasi Pendukung**

## Menu Konfirmasi Instalasi



**Gambar L21 Konfirmasi Instalasi**

## Menu Screen Proses Awal Format Partisi



**Gambar L22 Screen Format Partisi**

## Screen Proses Instalasi



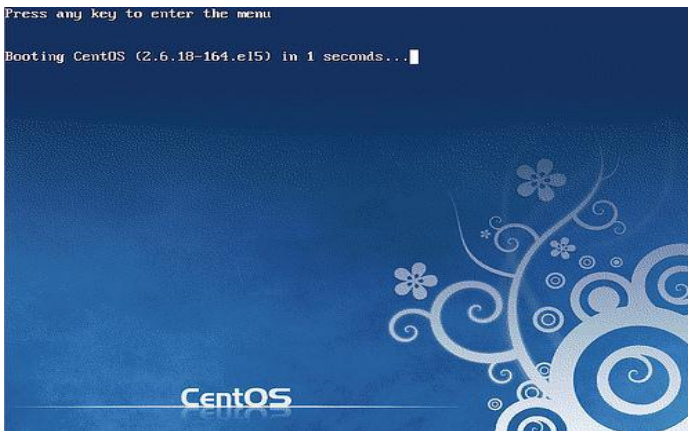
**Gambar L23 Screen Proses Instalasi**

### Menu Screen Konfirmasi Reboot



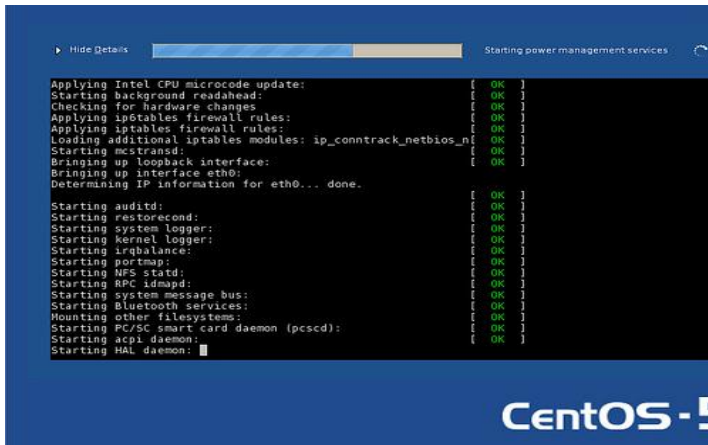
**Gambar L24 Pilihan Konfirmasi Reboot**

### Menu Screen Proses Reboot



**Gambar L25 Proses Reboot**

## Menu Screen Loading Modul Booting Awal



Gambar L26 Loading Modul

## Menu Screen Proses Awal Instalasi Service



Gambar L27 Konfirmasi Instalasi Jaringan

## Menu Screen Kustomisasi Firewall



**Gambar L28 Memilih Service Di Firewall**

## Menu Screen Pilihan SELinux



**Gambar L29 Pilihan Aktifasi Jenis SELinux**

## Menu Screen Pengaturan Tanggal Dan Waktu



Welcome  
Firewall  
SELinux  
Date and Time  
Create User  
Sound Card  
Additional CDs

**CentOS-5**  
Community Enterprise Operating System

### Date and Time

Please set the date and time for the system.

**Date & Time** | Network Time Protocol

**Date**

February 2010

| Sun | Mon | Tue | Wed | Thu | Fri | Sat |
|-----|-----|-----|-----|-----|-----|-----|
| 31  | 1   | 2   | 3   | 4   | 5   | 6   |
| 7   | 8   | 9   | 10  | 11  | 12  | 13  |
| 14  | 15  | 16  | 17  | 18  | 19  | 20  |
| 21  | 22  | 23  | 24  | 25  | 26  | 27  |
| 28  | 1   | 2   | 3   | 4   | 5   | 6   |
| 7   | 8   | 9   | 10  | 11  | 12  | 13  |

**Time**

Current Time : 11:28:12

Hour :

Minute :

Second :

[Back](#) [Forward](#)

Gambar L30 Seting Tanggal dan Waktu

## Menu Screen Pembuatan User



Welcome  
Firewall  
SELinux  
Date and Time  
Create User  
Sound Card  
Additional CDs

**CentOS-5**  
Community Enterprise Operating System

### Create User

It is recommended that you create a 'username' for regular (non-administrative) use of your system. To create a system 'username', please provide the information requested below.

Username:

Full Name:

Password:

Confirm Password:

If you need to use network authentication, such as Kerberos or NIS, please click the Use Network Login button.

[Use Network Login...](#)

[Back](#) [Forward](#)

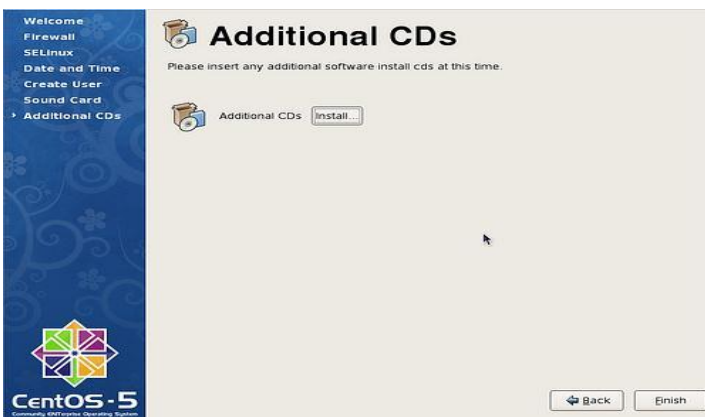
Gambar L31 Membuat User

## Menu Screen Testing Sound Card



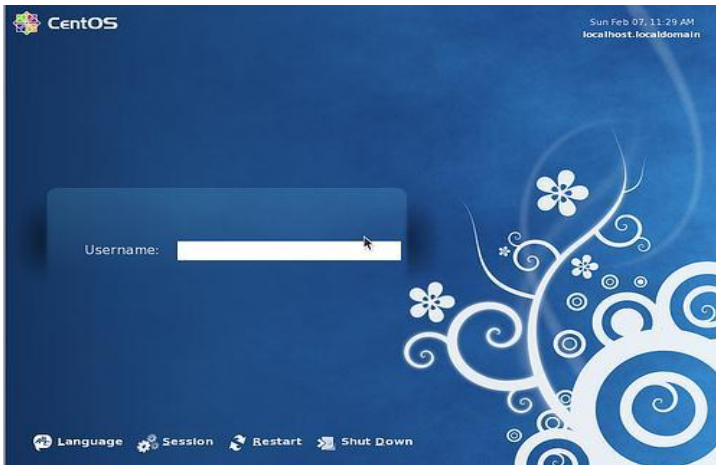
Gambar L32 Tes Sound Card

## Menu Pilihan Instalasi Paket Tambahan



Gambar L33 Instalasi Paket Tambahan

## Menu Login Screen



**Gambar L34 Screen Login**

2. Tahap selanjutnya setelah proses sebelumnya selesai, yaitu mengkonfigurasi IP table sebagai benteng pertahanan server demi menjaga dari hal yang tidak diinginkan dan menyimpan file konfigurasi tersebut dalam folder `/sbin/iptables` .

```
#!/bin/sh
```

```
#####
```

```
# Falcer IP Tables Script with NAT
```

```
#####
```

```
# Configuration Options
```

```
EXTERNAL_INTERFACE="eth1"
```

```
LOOPBACK_INTERFACE="lo"
```

```
LAN_INTERFACE_1="eth0"
IPTABLES_CMD="/sbin/iptables"
```

```
# Load needed Modules
/sbin/modprobe ip_tables
/sbin/modprobe ip_conntrack
/sbin/modprobe iptable_filter
/sbin/modprobe iptable_mangle
/sbin/modprobe iptable_nat
/sbin/modprobe ipt_LOG
/sbin/modprobe ipt_limit
/sbin/modprobe ipt_state
/sbin/modprobe ipt_REJECT
#/sbin/modprobe ipt_MASQUERADE
/sbin/modprobe ip_conntrack_ftp
/sbin/modprobe ip_conntrack_irc
/sbin/modprobe ip_nat_ftp
/sbin/modprobe ip_nat_irc
# /sbin/modprobe ipt_owner
```

```
# Get the IP Addresses for the network cards
IPADDR=`/sbin/ifconfig $EXTERNAL_INTERFACE | grep -i
"addr:" | cut -f2 -d: | cut -f1 -d "`
LAN_IPADDR=`/sbin/ifconfig $LAN_INTERFACE_1 | grep -i
"addr:" | cut -f2 -d: | cut -f1 -d "`
LOCALHOST_IP="127.0.0.1/32"
LAN_BCAST_ADDRESS=`/sbin/ifconfig
$LAN_INTERFACE_1 | grep -i "Bcast:" | cut -f3 -d: | cut -f1 -d "
"`
```

```
#####
```

```
echo "Starting Firewalling... "
echo "1" > /proc/sys/net/ipv4/ip_forward
# clear existing Tables/Chains
$IPTABLES_CMD -F
$IPTABLES_CMD -X
```

```
##### Set default policies
$IPTABLES_CMD -P INPUT DROP
$IPTABLES_CMD -P OUTPUT DROP
$IPTABLES_CMD -P FORWARD DROP
$IPTABLES_CMD -A INPUT -i $LOOPBACK_INTERFACE -j
ACCEPT
$IPTABLES_CMD -A OUTPUT -o
$LOOPBACK_INTERFACE -j ACCEPT
```

```
##### Port Forwarding in Prerouting Chain
# Example of Port Forwarding, first allow the specific
FORWARD connection, then reroute it
# $IPTABLES -t nat -A PREROUTING -i eth0 -p tcp -dport 80 -j
REDIRECT --to-port 3128
```

```
##### Drop certain bad packets
$IPTABLES_CMD -N bad_tcp_packets
$IPTABLES_CMD -A bad_tcp_packets -p tcp --tcp-flags
SYN,ACK Syn,ACK -m state --state NEW -j REJECT --reject-
with tcp-reset
$IPTABLES_CMD -A bad_tcp_packets -p tcp ! --syn -m state --
state NEW -j LOG --log-prefix "NEW not syn:"
$IPTABLES_CMD -A bad_tcp_packets -p tcp ! --syn -m state --
state NEW -j DROP
$IPTABLES_CMD -A INPUT -p tcp -j bad_tcp_packets
```

```
##### Ensure LAN ADDR aren't blocked
$IPTABLES_CMD -A INPUT -p ALL -i $LAN_INTERFACE_1
-d $LAN_BCAST_ADDRESS -j ACCEPT
$IPTABLES_CMD -A INPUT -p ALL -d $LOCALHOST_IP -j
ACCEPT
$IPTABLES_CMD -A INPUT -p ALL -d $LAN_IPADDR -j
ACCEPT
$IPTABLES_CMD -A INPUT -p ALL -d $IPADDR -m state --
state ESTABLISHED,RELATED -j ACCEPT
```

```
##### Open TCP rules (Transmission Control Protocol)
```

```
### FTP port
$IPTABLES_CMD -A tcp_packets -p TCP -i
$EXTERNAL_INTERFACE -s 0/0 --dport 21 -j allowed
### SSH port
$IPTABLES_CMD -A tcp_packets -p TCP -i
$EXTERNAL_INTERFACE -s 0/0 --dport 22 -j allowed
### SMTP Mail Server port
# $IPTABLES_CMD -A tcp_packets -p TCP -i
$EXTERNAL_INTERFACE -s 0/0 --dport 25 -j allowed
### DNS port
$IPTABLES_CMD -A tcp_packets -p tcp -i
$EXTERNAL_INTERFACE -s 0/0 --dport 53 -j allowed
### HTTP port
# $IPTABLES_CMD -A tcp_packets -p tcp -i
$EXTERNAL_INTERFACE -s 0/0 --dport 80 -j allowed
### POP3 port
# $IPTABLES_CMD -A tcp_packets -p TCP -i
$EXTERNAL_INTERFACE -s 0/0 --dport 110 -j allowed
### IRC port
# $IPTABLES_CMD -A tcp_packets -p TCP -i
$EXTERNAL_INTERFACE -s 0/0 --dport 113 -j allowed
### IMAP port
# $IPTABLES_CMD -A tcp_packets -p TCP -i
$EXTERNAL_INTERFACE -s 0/0 --dport 143 -j allowed

##### Open UDP ports (User Datagram Protocol)
### DNS
$IPTABLES_CMD -A udpincoming_packets -p UDP -i
$EXTERNAL_INTERFACE -s 0/0 --source-port 53 -j ACCEPT
### NTP
$IPTABLES_CMD -A udpincoming_packets -p UDP -i
$EXTERNAL_INTERFACE -s 0/0 --source-port 123 -j ACCEPT
### IMAP
$IPTABLES_CMD -A udpincoming_packets -p UDP -i
$EXTERNAL_INTERFACE -s 0/0 --source-port 143 -j ACCEPT

#### Enable to log INPUT errors That didn't match anything
above
```

```
$IPTABLES_CMD -A INPUT -m limit --limit 3/minute --limit-burst 3 -j LOG --log-level DEBUG --log-prefix "IPT INPUT packet died: "
```

```
##### FORWARD RULES
```

```
$IPTABLES_CMD -A FORWARD -p tcp -j bad_tcp_packets  
$IPTABLES_CMD -A FORWARD -i $LAN_INTERFACE_1 -j  
ACCEPT  
$IPTABLES_CMD -A FORWARD -m state --state  
ESTABLISHED,RELATED -j ACCEPT  
$IPTABLES_CMD -A FORWARD -m limit --limit 3/minute --  
limit-burst 3 -j LOG --log-level DEBUG --log-prefix "IPT  
FORWARD packet died: "
```

```
##### OUTPUT chain # Establish the basic Output chain
```

```
$IPTABLES_CMD -A OUTPUT -p tcp -j bad_tcp_packets  
$IPTABLES_CMD -A OUTPUT -p ALL -s $LOCALHOST_IP -  
j ACCEPT  
$IPTABLES_CMD -A OUTPUT -p ALL -s $LAN_IPADDR -j  
ACCEPT  
$IPTABLES_CMD -A OUTPUT -p ALL -s $IPADDR -j  
ACCEPT  
$IPTABLES_CMD -A OUTPUT -m limit --limit 3/minute --  
limit-burst 3 -j LOG --log-level DEBUG --log-prefix "IPT  
OUTPUT packet died: "
```

```
##### Enable SNAT / Masquerading
```

```
# If you want to use Masquerading instead of SNAT  
# $IPTABLES_CMD -t nat -A POSTROUTING -o  
$EXTERNAL_INTERFACE -j MASQUERADE  
$IPTABLES_CMD -t nat -A POSTROUTING -o  
$EXTERNAL_INTERFACE -j SNAT --to-source $IPADDR
```

3. Setelah menyelesaikan tahap sebelumnya, setelah itu perlu di integrasikan dengan service dari squid yang dapat di tambahkan di dalam file squid.conf

visible\_hostname proxy.falcer.net

```
cache_mgr admin@falcer.net
cache_effective_user squid
cache_effective_group squid
maximum_object_size 3000 kb
cache_mem 2048 MB
minimum_object_size 4 KB
maximum_object_size_in_memory 2500 kb
cache_dir ufs /var/log/squid/squid.cache 60000 128 256
cache_access_log /var/log/squid/access.log
cache_log /var/log/squid/squid.log
cache_store_log /var/log/squid/store.log
http_port 3128 transparent
acl all src 0.0.0.0/0.0.0.0
acl manager proto cache_object
acl localhost src 127.0.0.1/255.255.255.0
acl falcer src 192.168.10.11-192.168.10.254/24
acl dmz src 192.168.10.1-192.168.10.10/24
acl falcer_wifi 192.168.100-192.168.254/24
http_access deny all
acl download url_regex -i ftp .exe .mp3 .mp4 .flv .avi .mpeg .3gp
acl blacklist url_regex -i http://www.youtube.com/
http://ww.vimeo.com/ http://www.redtube.com/
http://www.veoh.com/ http://www.metacafe.com/
http://www.dailymotion.com/ http://www.ustream.com/
http://www.redtube.com/ http://www.ovguide.com/
http://www.hulu.com/ http://www.freshpornclips.com/
http://www.absolutgirl.com/
reply_body_max_size 2048000 allow download
```

4. Langkah terakhir yaitu membuat service dansguardian dan squid berjalan secara otomatis setiap proxy server di nyalakan.

