DOMAIN NAME SYSTEM

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FAKULTAS ILMU KOMPUTER

PROGRAM STUDI SISTEM KOMPUTER

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DNS (Domain Name System) adalah sistem yang menerjemahkan nama domain ke alamat IP yang sesuai. Ini penting dalam mengarahkan permintaan web ke server yang tepat.

Langkah-langkah Instalasi DNS di Linux Mint:

Persiapan :

1. Check IP address yang didapatkan oleh mesin

```
farca2@NANN:~$ ip a
1: lo: <LOOPBACK,UP,LOWER_UP> mtu 65536 qdisc noqueue state UNKNOWN group defa
t qlen 1000
    link/loopback 00:00:00:00:00:00 brd 00:00:00:00:00:00
    inet 127.0.0.1/8 scope host lo
       valid_lft forever preferred_lft forever
    inet6 ::1/128 scope host
       valid_lft forever preferred_lft forever
2: enp0s3: <BROADCAST,MULTICAST,UP,LOWER_UP> mtu 1500 qdisc fq_codel state UP
oup default qlen 1000
    link/ether 08:00:27:52:18:d9 brd ff:ff:ff:ff:ff:ff
    inet 192.168.1.18/24 brd 192.168.1.255 scope global dynamic noprefixroute
p0s3
       valid_lft 85763sec preferred_lft 85763sec
    inet6 fe80::6bfd:d45:4ede:d787/64 scope link noprefixroute
       valid_lft forever preferred_lft forever
farca2@NANN:~$
```

1. Installasi DNS Server

Jakankan perintah berikut untuk install bind9

```
farca2@NANN:~$ sudo apt install bind9
Reading package lists... Done
Building dependency tree... Done
Reading state information... Done
The following package was automatically installed and is no longer required:
  systemd-hwe-hwdb
Use 'sudo apt autoremove' to remove it.
The following additional packages will be installed:
  bind9-dnsutils bind9-host bind9-libs bind9-utils
Suggested packages:
  bind-doc resolvconf
The following NEW packages will be installed:
  bind9 bind9-utils
The following packages will be upgraded:
  bind9-dnsutils bind9-host bind9-libs
3 upgraded, 2 newly installed, 0 to remove and 562 not upgraded.
Need to get 1.876 kB of archives.
After this operation, 3.443 kB disk space will be freed.
Do you want to continue? [Y/n] y
Get:1 http://archive.ubuntu.com/ubuntu jammy-updates/main amd64 bind9-host amd64
 1:9.18.18-0ubuntu0.22.04.2 [52,5 kB]
Get:2 http://archive.ubuntu.com/ubuntu jammy-updates/main amd64 bind9-dnsutils a
```

Setelah itu nonaktifkan firewall pada Linux Mint

```
farca2@NANN:~$ sudo su
root@NANN:/home/farca2# su farca2
farca2@NANN:~$ sudo ufw allow 53
[sudo] password for farca2:
Rules updated
Rules updated (v6)
farca2@NANN:~$
```

2. Konfigurasi Network Interface

Sebelumnya kita konfigurasi IP Address secara Static, Resolv.conf dan hosts seperti dibawah ini.

Konfigurasi interface

```
File  Edit  View  Search  Terminal  Help
  GNU nano 6.2          /etc/netplan/00-installer-config.yaml *
network:
  ethernets:
    enp0s3:
      dhcp4: false
      addresses: [192.168.1.18/24]
      gateway4: 192.168.1.1
      nameservers:
        search: [farcagaming.com]
        addresses: [192.168.1.18, 192.168.1.1]
  version: 2
```

Konfigurasi Resolv.conf

```
nameserver 192.168.1.18
nameserver 192.168.1.1
options edns0
search farcagaming.com
```

Konfigurasi Hosts

```
  GNU nano 6.2                          /etc/hosts
127.0.0.1 localhost
127.0.1.1 srv1
192.168.1.18  farcagaming.com
# The following lines are desirable for IPv6 capable hosts
::1     ip6-localhost ip6-loopback
fe00::0 ip6-localnet
ff00::0 ip6-mcastprefix
ff02::1 ip6-allnodes
ff02::2 ip6-allrouters
```

3. Konfigurasi DNS Server

Pada bagian ini BIND9 akan dikonfigurasi sebagai server utama dengan contoh nama domain menggunakan nama kyputra.com.

Edit file /etc/bind/named.conf.local untuk menambahkan zone pada Primary Server

```
//
// Do any local configuration here
//

// Consider adding the 1918 zones here, if they are not used in your
// organization
//include "/etc/bind/zones.rfc1918";


 zone "farcagaming.com" {
        type master;
        file "/etc/bind/db.farcagaming";
};
```

Selanjutnya gunakan file zone yang sudah ada sebagai template untuk membuat file /etc/bind/db.aspal

```
root@NANN:/home/farca2# nano /etc/bind/named.conf.local
root@NANN:/home/farca2# cp /etc/bind/db.local /etc/bind/db.farcagaming
```

Lalu edit seperti dibawah ini. Untuk Coomon Record Types bisa lihat disini

```
;
; BIND data file for local loopback interface
;
$TTL    604800
@       IN      SOA     ns.farcagaming.com. root.farcagaming.com. (
                              2         ; Serial
                         604800         ; Refresh
                          86400         ; Retry
                        2419200         ; Expire
                         604800 )       ; Negative Cache TTL
;
@       IN      NS      ns.farcagaming.com.
@       IN      A       192.168.1.18
@       IN      MX      10      mail.farcagaming.com.
ns      IN      A       192.168.1.18
www     IN      CNAME   ns
mail    IN      A       192.168.1.18



^G Help      ^O Write Out ^W Where Is  ^K Cut       ^T Execute   ^C Location
^X Exit      ^R Read File ^\ Replace   ^U Paste     ^J Justify   ^/ Go To Line
```

Simpan perubahan lalu restart service BIND9

```
root@NANN:/home/farca2# systemctl restart bind9.service
```

Selanjutnya kita akan membuat Reverse zone file. Reverse zone perlu ditambahkan untuk memungkinkan DNS untuk me resolv dari IP Address ke nama domain.

Edit file /etc/bind/named.conf.local lalu Tambahkan script dibawah ini.

```
//
// Do any local configuration here
//

// Consider adding the 1918 zones here, if they are not used in your
// organization
//include "/etc/bind/zones.rfc1918";


 zone "farcagaming.com" {
        type master;
        file "/etc/bind/db.farcagaming";
};

zone "1.168.192.in-addr.arpa" {
        type master;
        file "/etc/bind/db.192";
};
```

Selanjutnya buat file /etc/bind/db.192

```
root@NANN:/home/farca2# nano /etc/netplan/00-installer-config.yaml
root@NANN:/home/farca2# nano /etc/resolv.conf
root@NANN:/home/farca2# nano /etc/hosts
root@NANN:/home/farca2# nano /etc/resolv.conf
root@NANN:/home/farca2# nano /etc/netplan/00-installer-config.yaml
root@NANN:/home/farca2# nano /etc/resolv.conf
root@NANN:/home/farca2# nano /etc/hosts
root@NANN:/home/farca2# nano /etc/bind/named.conf.local
root@NANN:/home/farca2# nano /etc/bind/named.conf.local
root@NANN:/home/farca2# cp /etc/bind/db.local /etc/bind/db.farcagaming
root@NANN:/home/farca2# nano /etc/bind/db.farcagaming
root@NANN:/home/farca2# systemctl restart bind9.service
root@NANN:/home/farca2# nano /etc/bind/named.conf.local
root@NANN:/home/farca2# nano /etc/bind/named.conf.local
root@NANN:/home/farca2# cp /etc/bind/db.127 /etc/bind/db.192
root@NANN:/home/farca2# nano /etc/bind/db.192
root@NANN:/home/farca2#
```

Lalu edit seperti dibawah ini.

```
BIND reverse data file for PT.farcagaming

TTL    604800
       IN      SOA     ns.farcagaming.com. root.farcagaming.com. (
                              2         ; Serial
                         604800         ; Refresh
                          86400         ; Retry
                        2419200         ; Expire
                         604800 )       ; Negative Cache TTL

       IN      NS      ns.farcagaming.com.
       IN      PTR     ns.farcagaming.com.
       IN      PTR     www.farcagaming.com
       IN      PTR     mail.farcagaming.com
```

DNS Caching berfungsi jika Client menggunakan DNS Local dan ingin terhubung dengan Internet. jadi PC Client masih bisa terhubung ke Internet meskipun Client menggunakan DNS Local. untuk konfigurasinya cukup simple anda hanya uncomment pada bagian forwarders dan mengganti dengan IP DNS dari ISP atau menggunakan IP DNS public disini saya mencoba menngunakan DNS public 8.8.8.8 dan 8.8.4.4

Edit file /etc/bind/named.conf.options lalu konfigurasi seperti dibawah ini.

```
  GNU nano 6.2                        /etc/bind/named.conf.options *
options {
        directory "/var/cache/bind";

        // If there is a firewall between you and nameservers you want
        // to talk to, you may need to fix the firewall to allow multiple
        // ports to talk.  See http://www.kb.cert.org/vuls/id/800113

        // If your ISP provided one or more IP addresses for stable
        // nameservers, you probably want to use them as forwarders.
        // Uncomment the following block, and insert the addresses replacing
        // the all-0's placeholder.

        forwarders {
              8.8.8.8;
              8.8.4.4;
        };

        //========================================================================
        // If BIND logs error messages about the root key being expired,
        // you will need to update your keys.  See https://www.isc.org/bind-keys
        //========================================================================
        dnssec-validation auto;
```

4. Pengetesan

Untuk pengetesan jalankan nslookup nama domain anda.

```
root@NANN:/home/farca2# nslookup www.farcagaming.com
Server:         192.168.1.18
Address:        192.168.1.18#53

www.farcagaming.com     canonical name = ns.farcagaming.com.
Name:   ns.farcagaming.com
Address: 192.168.1.18

root@NANN:/home/farca2#
```

Lalu test ping ke domain anda

```
root@NANN:/home/farca2# ping -c 4 farcagaming.com
PING farcagaming.com (192.168.1.18) 56(84) bytes of data.
64 bytes from farcagaming.com (192.168.1.18): icmp_seq=1 ttl=64 time=0.023 ms
64 bytes from farcagaming.com (192.168.1.18): icmp_seq=2 ttl=64 time=0.067 ms
64 bytes from farcagaming.com (192.168.1.18): icmp_seq=3 ttl=64 time=0.881 ms
64 bytes from farcagaming.com (192.168.1.18): icmp_seq=4 ttl=64 time=0.085 ms

--- farcagaming.com ping statistics ---
4 packets transmitted, 4 received, 0% packet loss, time 3043ms
rtt min/avg/max/mdev = 0.023/0.264/0.881/0.356 ms
root@NANN:/home/farca2#
```