

PROJECT

SYSTEM ADMINISTRATION WITH INFRASTRUCTURE



OVERVIEW

- **NETWORKING**
- **DOMAIN NAME SYSTEM**
- **DYNAMIC DNS**
- **WEB APPLICATION SERVER**
- **SLAVE DNS**
- **PROXY**
- **FIREWALL**

NETWORKING

```
cd /etc/NetworkManager/system-connections/
```

```
nano enp0s3.nmconnection
```

```
reboot enp0s3.nmconnection
```

```
[ipv4]
```

```
address1=10.70.20.182/24,10.70.20.1
```

```
dns=8.8.8.8;8.8.4.4;
```

```
method=manual
```

```
เพิ่ม enp0s8
```

```
sudo nmcli con add type ethernet ifname enp0s8 con-name "enp0s8"  
ip4 192.168.5.10/24 gw4 192.168.5.1
```

```
sudo nmcli con up "enp0s8"
```

```
sudo nmcli con show "enp0s8"
```

DOMAIN NAME SYSTEM

set ip

download bind.tgz

tar xvfvz

install bind

cd /etc/bind

cp db.moowan.com -> /var/named

cp db.192.168.100 -> /var/named

cd /etc

nano /etc/named.conf

setup zone

systemctl restart named

nslookup

```
i@localhost:/etc/dhcp
TX packets 105 bytes 12908 (12.6 KiB)
TX errors 0 dropped 0 overruns 0 carrier 0 collisions 0

vetha39dc48: flags=4163<UP,BROADCAST,RUNNING,MULTICAST> mtu 1500
inet6 fe80::b072:ccff:febe:5c09 prefixlen 64 scopeid 0x20<link>
ether b2:72:cc:be:5c:09 txqueuelen 0 (Ethernet)
RX packets 17 bytes 1286 (1.2 KiB)
RX errors 0 dropped 0 overruns 0 frame 0
TX packets 172 bytes 19819 (19.3 KiB)
TX errors 0 dropped 0 overruns 0 carrier 0 collisions 0

[root@localhost dhcp]# systemctl restart dhcpcd
[root@localhost dhcp]# systemctl status dhcpcd
● dhcpcd.service - DHCPv4 Server Daemon
   Loaded: loaded (/usr/lib/systemd/system/dhcpcd.service; enabled; preset: disabled)
   Active: active (running) since Fri 2024-03-22 04:17:16 +07; 10s ago
     Docs: man:dhcpcd(8)
           man:dhcpcd.conf(5)
     Main PID: 19827 (dhcpcd)
      Status: "Dispatching packets..."
        Tasks: 1 (limit: 18436)
       Memory: 4.6M
          CPU: 24ms
         CGroup: /system.slice/dhcpcd.service
             └─19827 /usr/sbin/dhcpcd -f -cf /etc/dhcp/dhcpcd.conf -user dhcpcd -group dhcpcd --no-pid

Mar 22 04:17:16 localhost.localdomain dhcpcd[19827]: 
Mar 22 04:17:16 localhost.localdomain dhcpcd[19827]: No subnet declaration for enp0s3 (10.70.28.182).
Mar 22 04:17:16 localhost.localdomain dhcpcd[19827]: ** Tearing requests on enp0s3. If this is not what
ant, please write a subnet declaration
ur dhcpcd.conf file for the network segment
CPv4 Server Daemon.
ich interface enp0s3 is attached. **
on Socket/fallback/fallback-net
tarting service.
```

```
i@localhost:/etc/bind
Mar 22 04:17:16 localhost.localdomain dhcpcd[19827]: in your dhcpcd.conf file for the network segment
Mar 22 04:17:16 localhost.localdomain systemd[1]: Started DHCPv4 Server Daemon.
Mar 22 04:17:16 localhost.localdomain dhcpcd[19827]: to which interface enp0s3 is attached. **
Mar 22 04:17:16 localhost.localdomain dhcpcd[19827]: 
Mar 22 04:17:16 localhost.localdomain dhcpcd[19827]: Sending on Socket/fallback/fallback-net
Mar 22 04:17:16 localhost.localdomain dhcpcd[19827]: Server starting service.
[root@localhost dhcp]# nano dhcpcd.conf
[root@localhost dhcp]# nano /etc/named.
named.conf          named.rfc1912.zones  named.root.key
[root@localhost dhcp]# nano /etc/named.
named.conf          named.rfc1912.zones  named.root.key
[root@localhost dhcp]# nano /etc/named.conf
[root@localhost dhcp]# cd /etc/bind/
[root@localhost bind]# ls
bind.keys  db.127      db.192.168.100  db.255      db.empty      db.local      db.root      named.conf
db.0        db.172.16.0  db.192.168.200  db.buu.in.th  db.gonggang.com  db.moowan.com  dhcp.key  named.conf.db
[root@localhost bind]# ddns-confgen -k dhcp.moowan.com
# To activate this key, place the following in named.conf, and
# in a separate keyfile on the system or systems from which nsupdate
# will be run:
key "dhcp.moowan.com" {
    algorithm hmac-sha256;
    secret "/lQTF8SuJx1Mb7WGnoloCZLa4gIRLKaaY0QZ/g1YFP0=";
};

# Then, in the "zone" statement for each zone you wish to dynamically
# update, place an "update-policy" statement granting update permission
# to this key. For example, the following statement grants this key
# permission to update any name within the zone:
update-policy {
    grant dhcp.moowan.com zonesub ANY;
};

# After the keyfile has been placed, the following command will
# execute nsupdate using this key:
nsupdate -k <keyfile>
[root@localhost bind]#
```

DYNAMIC DNS

```
cp /usr/share/doc/dhcp-
server/dhcpd.conf.example
/etc/dhcp/dhcpd.conf
```

```
set ip enp0s8 192.168.100.1
```

```
install dhcp-server
```

```
nano /etc/dhcp/dhcpd.conf
```

```
i@localhost:/etc/dhcp
```

```
TX packets 105 bytes 12968 (12.6 KiB)
TX errors 0 dropped 0 overruns 0 carrier 0 collisions 0

veth839dc48: flags=4163<UP,BROADCAST,RUNNING,MULTICAST> mtu 1500
inet6 fe80::b0T2:ccff:febe:5c09 prefixlen 64 scopeid 0x20<link>
ether b2:72:cc:be:5c:09 txqueuelen 0 (Ethernet)
RX packets 17 bytes 1286 (1.2 KiB)
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Mar 22 04:17:16 localhost.localdomain dhcpcd[19827]: 
Mar 22 04:17:16 localhost.localdomain dhcpcd[19827]: No subnet declaration for enp0s3 (192.168.100.1).
Mar 22 04:17:16 localhost.localdomain dhcpcd[19827]: ** Ignoring requests on enp0s3. If this is not what
Mar 22 04:17:16 localhost.localdomain dhcpcd[19827]: you want, please write a subnet declaration
Mar 22 04:17:16 localhost.localdomain dhcpcd[19827]: in your dhcpcd.conf file for the network segment
Mar 22 04:17:16 localhost.localdomain systemd[1]: Started DHCPv4 Server Daemon.
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Mar 22 04:17:16 localhost.localdomain dhcpcd[19827]: Server starting service.
[root@localhost dhcp]# systemctl restart dhcpcdss
```

DYNAMIC DNS

systemctl restart dhcpcd

systemctl status dhcpcd

cd /etc/bind

ddns-confgen -k dhcp.moowan.com

nano /etc/named.conf

```
i@localhost:/etc/bind

Mar 22 04:17:16 localhost.localdomain dhcpcd[19827]:    in your dhcpcd.conf file for the network segment
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Mar 22 04:17:16 localhost.localdomain dhcpcd[19827]:
Mar 22 04:17:16 localhost.localdomain dhcpcd[19827]: Sending on   Socket/fallback/fallback-net
Mar 22 04:17:16 localhost.localdomain dhcpcd[19827]: Server starting service.
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[root@localhost dhcp]# cd /etc/bind/
[root@localhost bind]# ls
bind.keys  db.127      db.192.168.100  db.255      db.empty      db.local      db.root      named.conf
db.0        db.172.16.0  db.192.168.200  db.buu.in.th  db.gonggang.com  db.moowan.com  dhcp.key  named.conf.d
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    secret "/lQTF8SuJx1Mb7WGnoloCZLa4gIRLKaay0QZ/g1YFP0=";
};

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# permission to update any name within the zone:
update-policy {
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};

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# execute nsupdate using this key:
nsupdate -k <keyfile>
[root@localhost bind]#
```

DYNAMIC DNS

addkey include dhcp.key

systemctl restart named

systemctl status named

WEB APPLICATION SERVER

Install docker

```
cat /etc/system-release ; hostname ; hostname -I ; dnf groupinstall  
"Development Tools" -y
```

```
sudo dnf config-manager --add-  
repo=https://download.docker.com/linux/centos/docker-ce.repo  
sudo dnf update
```

```
sudo dnf install -y docker-ce docker-ce-cli containerd.io
```

```
docker --version
```

```
sudo systemctl enable docker ; sudo systemctl start docker ; sudo systemctl  
status docker
```

```
sudo usermod -aG docker trin(yourname)
```

```
id trin(yourname)
```

```
docker run hello-world
```

```
Install docker-compose  
dnf install -y docker-compose-plugin
```

```
docker compose version
```

Download file docker-compose.yml & site.conf

```
yum install nginx
```

```
Cd /etc/nginx
```

```
Cp /home/NameUser/Downloads/site.conf ชื่อ folder
```

```
Nano เข้าไป site.conf นั้น folder แล้ว # 上去 listen 80;
```

```
upstream moowan {  
    server localhost:8090;  
}
```

```
#  
#  
server {  
    listen 80;  
    server_name moowan.buu.in.th;  
    rewrite ^ https://moowan.buu.in.th$uri permanent;  
}  
#  
server {  
    listen 443 ssl; # managed by Certbot  
    listen 80;  
    server_name moowan.buu.in.th;
```

```
location / {  
    proxy_pass http://moowan;  
    proxy_redirect off;  
    proxy_set_header Host $host:$server_port;  
    proxy_set_header X-Real-IP $remote_addr;  
    proxy_set_header X-Forwarded-For $proxy_add_x_forwarded_for;  
    proxy_set_header X-Forwarded-Proto $scheme;
```

WEB APPLICATION SERVER

Cd /home

Mkdir moowan

Cp /home/trin/Downloads/docker-compose.yml ./

Nano docker-compose.yml

Change port 8030:3000 -> 8090:8000

Port 8051:8000 -> 8091:8000

nano /etc/hosts

```
GNU nano 5.6.1          /etc/hosts      Modified
127.0.0.1   localhost localhost.localdomain localhost4 localhost4.localdomain4
192.168.2.34  moowan.buu.in.th
::1         localhost localhost.localdomain localhost6 localhost6.localdomain6
```

Ping moowan.buu.ac.th
Netstat -na | more

SLAVE DNS

```
cd /etc/bind  
nano named.conf.local  
replace ด้วย  
master config ที่อาจารย์ให้มา  
config ip เครื่อง master ด้วย ip slave  
groupadd bind  
useradd bind -g bind  
chgrp -R bind /etc/bind  
chown -R bind /etc/bind  
systemctl restart named  
systemctl status named
```

SLAVE DNS

เครื่อง slave

cd /etc/bind

nano named.conf.local

replace ด้วย

Slave ที่อาจารย์ให้มา

config ip เครื่อง slave ด้วย ip master

config path

```
zone "moowan.com" {
    type slave; //Secondary Slave DNS
    masters { 10.70.20.45; }; //Master Server IP
    file "/etc/bind/slave/db.moowan.com";
};
```

MEMBER

64160086 ชนาธิป วงศ์สิง

64160100 บุณยกร แก่นประธูป

64160106 สหรัช มนต์วิเศษ

64160193 ตฤณ เเดชโขติ

THANK YOU

FOR WATCHING THIS PRESENTATION