LAB: IPv6 capable nameserver (DNS)

Target:
To install an authoritative DNS server on your VM, and add both A(IPv4) record and AAAA(IPv6) record in your zone file, at the end, we can query both of the records.

Lab Environment Introduction:
The workshop wifi:
SSID: apnictraining2-5Ghz
PASS: 2406:6400::/32

Hosts - Virtual machines (Ubuntu14.04LTS/LXC):
IPv6: 2001:db8:1::XX
IPv4: 192.168.30.XX
Note: XX is your group id

For group1, it's 2001:db8:1::1 and 192.168.30.1
For group10, it's2001:db8:1::10 and 192.168.30.10
username: apnic
password: training

Domain names:
groupXX.local
Note: XX is your gourp id
group01.local for group1, group10.local for group10, and so on

Step 1: Log into the virtual machines
ssh to your host
Linux users in the terminal: ssh apnic@192.168.30.X
Windows users, log in via Putty

Configure the IPv6 address on your server
$sudo ifconfig eth0 inet6 add 2001:db8:1::XX

Note: sudo password is apnic/training

Note: XX is your gourp id
group01.local for group1, group10.local for group10, and so on

You can run ifconfig to verify the IPv6 address
$ifconfig eth0

Step 2: Configure bind9

Bind9 has already been installed, since the application will be started automatically, we can stop it now:
$ sudo /etc/init.d/bind9 stop

Edit '/etc/bind/named.conf.options' to modify options.
$ sudo vi /etc/bind/named.conf.options

To make the nameserver as an authoritative only server, change the 'dnssec-validation' option as a comment, and add 'recursion no;' as follows:
//dnssec-validation auto;
recursion no;
Notes: type 'i' to start editing in VI view. To save the configuration, press 'Esc', type ':wq' to save and exit.

Edit '/etc/bind/named.conf.local' to manage your domain name.
$ sudo vi /etc/bind/named.conf.local

Add the following lines to the named.conf.local file to serve your zone.
zone "groupXX.local"{
type master;
file "/etc/bind/db.groupXX.local";
};
Note: XX is your group id

Create a zone file in '/etc/bind/' directory.
$ sudo vi /etc/bind/db.groupXX.local
Note: The filename should match with your zone configuration in the named.conf.local file (db.groupXX.local in this example).
And edit it as like follows:
```
@     IN    SOA   nsXX.local.    root.nsXX.local. (
              1
              604800
              86400
              2419200
              86400 )
@     IN    NS    nsXX.local.
```

Start bind service:
```
$ sudo service bind9 start
```

And check bind9 status by rndc and service commands
```
$ sudo rndc status
$ sudo service bind9 status
```

Check bind9 by dig
```
$ dig groupXX.local @localhost
```

Step 3 Add A record (IPv4):

Open zone file.
```
$ sudo vi /etc/bind/db.groupXX.local
```

Add the following record at the bottom of your zone file.
```
ping.groupXX.local.    IN    A    192.168.30.X
```

Let restart bind9.
```
$ sudo /etc/init.d/bind9 restart
```

Check the dig result
```
$ dig ping.groupXX.local @localhost
```

ping your host by using the hostname. (dnsserver is the localhost on the Vs)
```
$ ping ping.groupXX.local
```

Step 4 Add AAAA record (IPv6):
Open zone file.
```
$ sudo vi /etc/bind/db.groupXX.local
```

Add the following record at the bottom of your zone file.
```
ping.groupXX.local.  IN  AAAA  2001:db8:1::XX
```

Let restart bind9.
```
$ sudo /etc/init.d/bind9 restart
```

Check the dig result
```
$ dig ping.groupXX.local AAAA @localhost
```

ping your host by using the hostname.
```
$ ping6 ping.groupXX.local
```