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ASSIGNMENT-2

Assignment: Set up a domain, setup a server on a VM and use the DNS server for traffic

Part 1: Configure DNS Server on VM1

Step-1 : install the bind package. The BIND (Berkeley Internet Name Domain) package is used in Linux to translate domain names into IP addresses

```
root@localhost:~
[root@localhost ~]# yum install -y bind* --skip-broken
Updating Subscription Management repositories.
Unable to read consumer identity

This system is not registered with an entitlement server. You can use subscription-manager to register.

Last metadata expiration check: 1 day, 0:08:42 ago on Tue 22 Oct 2024 06:08:27 PM IST.
Package bind-32:9.16.23-1.el9.x86_64 is already installed.
Package bind-chroot-32:9.16.23-1.el9.x86_64 is already installed.
Package bind-dnssec-doc-32:9.16.23-1.el9.noarch is already installed.
Package bind-dnssec-utils-32:9.16.23-1.el9.x86_64 is already installed.
Package bind-libs-32:9.16.23-1.el9.x86_64 is already installed.
Package bind-license-32:9.16.23-1.el9.noarch is already installed.
Package bind-utils-32:9.16.23-1.el9.x86_64 is already installed.
Dependencies resolved.
Nothing to do.
Complete!
```

Step-2: configure the Configuration file. A zone file is a plain text file stored in a DNS server that contains an actual representation of the zone and contains all the records for every domain within the zone.

Vim /etc/named.conf

```
root@localhost:~ — vim /etc/named.conf
options {
                directory "/var/named";
                recursion no;
};
zone "engineering.tech" IN {
                type master;
                file "engineering";
                allow-transfer {192.168.136.128;};
                allow-query {any;};
};
```

Step-3: Create a Zone File.

@ represents domain.

www.engineering.tech is the canonical/alias of engineering.tech.

-> vim /var/named/engineering.tech

```
root@localhost:~ — vim /var/named/engineering
$TTL 86400
@        IN      SOA     @ root.engineering.tech. (
                                                 0         ; Serial
                                                 3600      ; Refresh
                                                 1800      ; Retry
                                                 604800    ; Expire
                                                 86400 )   ; Minimum
@        IN      NS      ns1.engineering.tech.
ns1      IN      A       192.168.136.128
@        IN      A       192.168.136.128
www      IN      CNAME   engineering.tech.
```

Step-4: Set ownership and permissions for the zone file:

```
[root@localhost ~]# chown root:named /var/named/engineering
[root@localhost ~]# chmod 640 /var/named/engineering
[root@localhost ~]# cd /var/named/
[root@localhost named]# ll
total 32
-rw-r-----. 1 root  named  268 Oct  1 10:48 abc
drwxr-x---. 8 root  named   73 Oct 23 18:09 chroot
drwxrwx---. 2 named named  101 Oct 20 11:44 data
drwxrwx---. 2 named named   60 Oct 17 21:27 dynamic
-rw-r-----. 1 root  named  400 Oct 21 19:39 engineering
-rw-r--r--. 1 named named  821 Oct 23 18:16 managed-keys.bind
-rw-r--r--. 1 named named 3872 Oct 23 18:16 managed-keys.bind.jnl
-rw-r-----. 1 root  named 2253 Nov 26  2021 named.ca
-rw-r-----. 1 root  named  152 Nov 26  2021 named.empty
-rw-r-----. 1 root  named  152 Nov 26  2021 named.localhost
-rw-r-----. 1 root  named  168 Nov 26  2021 named.loopback
drwxrwx---. 2 named named    6 Nov 26  2021 slaves
[root@localhost named]#
```

Step-5: After making changes in configuration file always start and enable the service.

Step-6: Configure the firewall to allow DNS traffic.

Firewall is used for **Traffic Filtering**: control and filter DNS traffic (usually on port 53) based on predefined rules. This helps prevent unauthorized access and malicious DNS queries.

Step-7: Verify the dns using nslookup.

```
[root@localhost ~]# systemctl enable --now named
[root@localhost ~]# firewall-cmd --permanent --add-service=dns
Warning: ALREADY_ENABLED: dns
success
[root@localhost ~]# firewall-cmd --reload
success
[root@localhost ~]# nslookup www.engineering.tech @localhost
nslookup: couldn't get address for '@localhost': not found
[root@localhost ~]# nslookup www.engineering @localhost
nslookup: couldn't get address for '@localhost': not found
[root@localhost ~]# nslookup www.engineering.tech
Server:         192.168.136.128
Address:        192.168.136.128#53

www.engineering.tech    canonical name = engineering.tech.
Name:   engineering.tech
Address: 192.168.136.128
```

Part 2: Test DNS from Another VM (VM2)

Step-1: The `resolv.conf` file is a configuration file used to specify the DNS (Domain Name System) resolver settings for the system. It tells the system how to resolvedomain names into IP addresses.

```
root@localhost:~ — vim /etc/resolv.conf

# Generated by NetworkManager
nameserver 192.168.136.128
~
```

In the nameserver add the IP of VM1.

Step-2: Now check the connectivity with the Server using ping command.

```
root@localhost ~]# ping 192.168.136.128
ING 192.168.136.128 (192.168.136.128) 56(84) bytes of data.
4 bytes from 192.168.136.128: icmp_seq=1 ttl=64 time=0.087 ms
4 bytes from 192.168.136.128: icmp_seq=2 ttl=64 time=0.093 ms
4 bytes from 192.168.136.128: icmp_seq=3 ttl=64 time=0.095 ms
C
-- 192.168.136.128 ping statistics ---
packets transmitted, 3 received, 0% packet loss, time 2080ms
tt min/avg/max/mdev = 0.087/0.091/0.095/0.003 ms
root@localhost ~]#
```