Building a DHCP Server

LPIC-2: Linux Engineer (202-450)

Objectives:

At the end of this episode, I will be able to:

1. Install and configure a DHCP server on Linux
2. Create and activate a DHCP address pool.

> Additional resources used during the episode can be obtained using the download link on the overview episode.

- *dhcpd*
    - Managed by ISC
    - The same people who manage BIND
    - Standards based DHCP server
    - Installed like most other services
        1. `sudo apt-get install isc-dhcp-server`
        2. `sudo systemctl enable --now isc-dhcp-server`
    - NOTE: May fail to start prior to being configured
    - NOTE: May not start if `/var/lib/dhcp/dhcpd.leases` does not already exist
- Getting Started
    - There is an example file to help us get started
        - `/usr/share/doc/isc-dhcp-server/examples/dhcpd.conf.example`
        - It contains a lot more than we really need
    - You have to create at least one range (scope)
    - The IP range must overlap with an interface IP
        - eth0 has 192.168.0.10
        - Range is 192.168.0.100-150
    - If the range does not overlap, DHCP will not listen on that NIC
- Editing the Configuration
    - `/etc/dhcp/dhcpd.conf`
    - Delete the file and start clean
        - `sudo mv /etc/dhcp/dhcpd.conf /etc/dhcp/dhcpd.conf.bak`
- Enabling *dhcpd*
    - `systemctl enable --now isc-dhcp-server`
    - `sudo ufw allow 67/udp`
    - `sudo ufw allow bootps`
- Troubleshooting *dhcpd*
    - Config checker
        - `dhcpd configtest`
    - The lease database
        - `/var/lib/dhcp/dhcpd.leases`
    - The *systemd* journal
        - `journalctl -u isc-dhcp-server`
        - `journalctl -xeu isc-dhcp-server`

Sample Range

```
subnet 192.168.0.0 netmask 255.255.255.0 {
    range 192.168.0.100 192.168.0.150;
}
```

Sample Config File

```
default-lease-time 28800; # 8 Hours
max-lease-time 86400; # 24 Hours
subnet 172.16.0.0 netmask 255.255.255.0 {
    option subnet-mask 255.255.255.0;
    option routers 172.16.0.2;
    option domain-search "lab.itpro.tv";
    option domain-name-servers 8.8.8.8, 8.8.4.4;
    range 172.16.0.100 172.16.0.150;
}
```

```
sudoedit /etc/netplan/00-installer-config
  enps0s6
    dhcp4: no
    addresses: [172.16.1.51/24]
```