Lab 2: DHCP

Objective:

To help students understand how DHCP works and setup a DHCP Server.

Scenario:

- IP Address Range: **192.168.1.0/24**
- Gateway: **192.168.1.1**
- DNS: **192.168.1.2**
- DHCP Server: **192.168.1.1**
  Workstation: **Linux (hostname: lin): 192.168.1.100**

Open Hadrian from the vSphere Client:

[1] Installation:

1-1 Required packages:
- **dhcp**
1-2 Configuration files:
    /etc/dhcpd.conf
1-3 Installation:

[root@dhcp /root]# **yum –y install dhcp**

[2] Configuration:
Collecting MAC Addresses:

[root@dhcp /root]# **for i   in $(seq 100 101); do   ping –c1   192.168.1.$i; done**
[root@dhcp /root]# **arp –a|grep 192.168.1.10**

Edit /etc/dhcpd.conf
#
DHCP Server Configuration file.
#

ddns-update-style interim;
ignore client-updates;

subnet 139.182.148.0 netmask 255.255.255.0 {

> **option routers   192.168.1.1;**
> **option subnet-mask   255.255.255.0;**
>
> **option domain-name   "coyote.net";**
> **option domain-name-servers   139.182.2.1;**
>
> **option time-offset   -18000; # Eastern Standard Time (Change to PST)**

[3] Start the services:

```
[root@dhcp /root]# service dhcpd start
[root@dhcp /root]# chkconfig dhcpd on
```

[4] Set up DHCP Client:

```
[root@dhcp /root]# setup
```

Select "Network configuration"

```
-------------- Choose a Tool --------------------
|        Authentication configuration      |
|        Firewall configuration            |
|        Network configuration             |
|        System services                   |
|                                          |
|        -----------------  ---------      |
|        | Run Tool |  | Quit |            |
|        -----------------  ---------      |
|                                          |
----------------------------------------------------
```

Select "eth0"

```
--------------------- Select a Device ----------------------
|                                               |
|      eth0 - 3Com Corporation 3c905C           |
|      lo                                        |
|                                               |
|                                               |
|      -----------             -----------       |
|      |  Quit  |              | Cancel |        |
|      -----------             -----------       |
|                                               |
----------------------------------------------------------
```

Select "Use DHCP" and "OK"

```
--------------------- Devernet Configuration ---------------------
|                                                    |
|      Name                eth0_____       |
|      Device              eth0_____       |
|      Use DHCP            [ * ]                      |
|      Static IP           _____         |
|      Netmask             _____         |
|      Default gateway     _____         |
|                                                    |
|      -----------           ------------            |
|      |  OK  |              | Cancel |              |
|      -----------           ------------            |
|                                                    |
--------------------------------------------------------------------
```

Select "Quit"

```
------------------- Select a Device ---------------------
|                                                       |
|      eth0 - 3Com Corporation 3c905C                   |
|      lo                                               |
|                                                       |
|      -----------            -----------               |
|      | Quit  |              | Cancel |                |
|      -----------            -----------               |
|                                                       |
---------------------------------------------------------
```

Select "Quit"

```
-------------- Choose a Tool --------------------
|          Authentication configuration        |
|          Firewall configuration              |
|          Network configuration               |
|          System services                     |
|          ------------------   --------        |
|          |  Run Tool  |   | Quit |           |
|          ------------------   --------        |
|                                               |
-------------------------------------------------
```

[5] Testing

```
[root@hadrian ~]# service network restart
Shutting down interface eth0:              [ OK ]
Shutting down loopback interface:          [ OK ]
Bringing up loopback interface:            [ OK ]
Bringing up interface eth0:                [ OK ]

[root@lin ~]# ifconfig eth0
eth0     Link encap:Ethernet  HWaddr 00:06:5B:90:E3:01
         inet addr:192.168.1.100 Bcast: 192.168.1.255  Mask:255.255.255.0
         UP BROADCAST RUNNING MULTICAST  MTU:1500  Metric:1
         RX packets:1593171 errors:0 dropped:0 overruns:1 frame:0
         TX packets:47247 errors:0 dropped:0 overruns:0 carrier:0
         collisions:0 txqueuelen:1000
         RX bytes:126402286 (120.5 MiB)  TX bytes:4807182 (4.5 MiB)
         Interrupt:11 Base address:0x2c00
```

```
default-lease-time 21600;
max-lease-time 43200;

#    Example:
#    host lin {
#         hardware ethernet 00:06:5B:90:E3:01;
#         fixed-address 192.168.1.100;
#    }
#    host win {
#         hardware ethernet 00:06:5B:90:E3:02;
#         fixed-address 192.168.1.101;
#    }

host _____ {
     hardware ethernet _____;
     fixed-address _____;
}
host _____ {
     hardware ethernet _____;
     fixed-address _____;
}

}
```

Lab 2: DHCP Report

Name: _____   Team Member:_____

[1] What is purpose of DHCP Server?

[2] Draw the Network diagram for DHCPD server and Clients.

[3] What are the advantages of DHCP?

[4] What package(s) you should install in order to setup a DHCP server?

[5] What command you want to use in order to setup a DHCP server?

[6] Write your own dhcpd.conf file for following scenario.

Scenario:
- IP Address Range: **192.168.0.0/22**
- Gateway: **192.168.0.1**
- DNS: **192.168.0.2**
- DHCP Server: **192.168.0.3**

Workstations (Windows Xp):

        ws-0: 192.168.1.100 = 00:01:E3:FE:A0
        ws-1: 192.168.1.101 = 00:01:E3:FE:A1
        ws-2: 192.168.1.102 = 00:01:E3:FE:A2
        ws-3: 192.168.1.103 = 00:01:E3:FE:A3
        ws-4: 192.168.1.104 = 00:01:E3:FE:A4
        ws-5: 192.168.1.105 = 00:01:E3:FE:A5

[7] How to test your Windows Xp clients?

- **How to check your network settings?**

    ipconfig /all

- **How to renew your network settings?**

    ipconfig /renew

- **How to release your network settings?**

    ipconfig /release

[8] What did you learn from this lab?