

DYNAMIC CONFIGURATION WITH DHCP

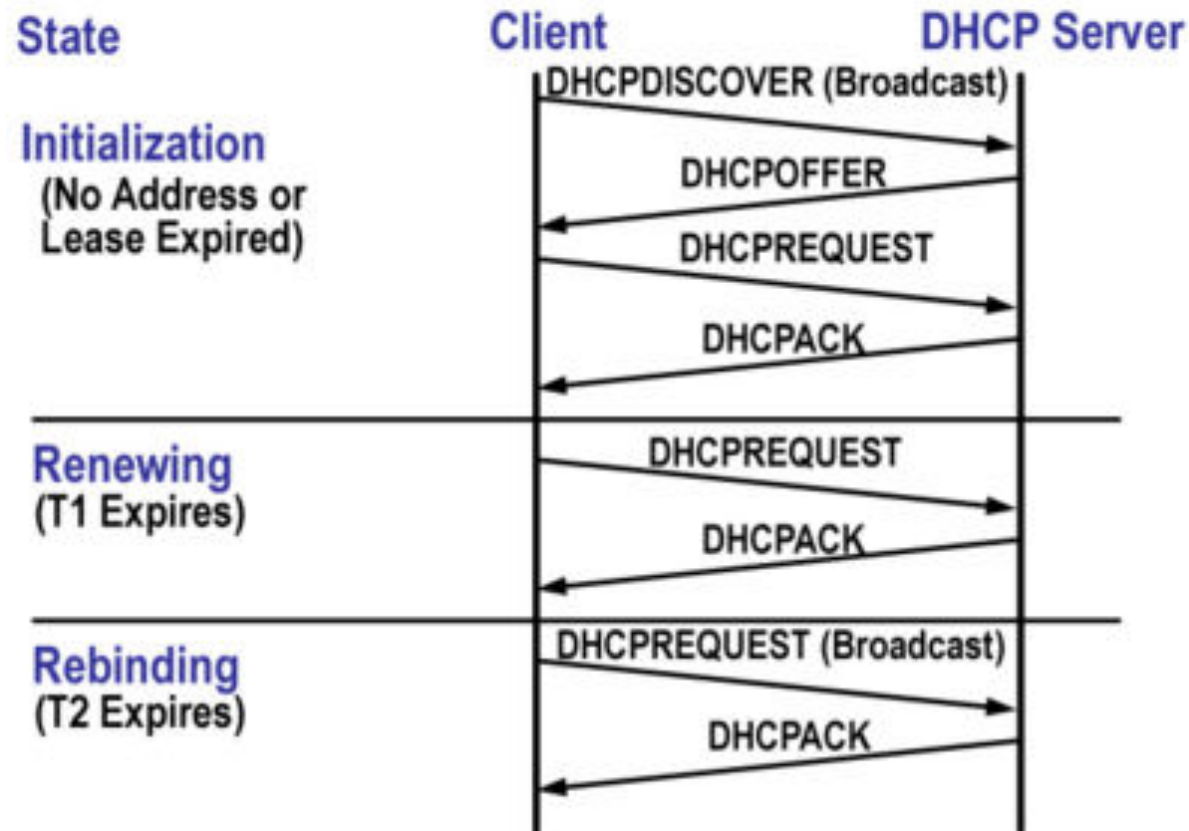
DHCP

- Dynamic Host Configuration Protocol (DHCP) is a network configuration protocol for hosts on IP networks
- A DHCP client obtains from a DHCP server a set of configuration parameters, typically:
 - IP address/netmask (for a given lease time)
 - Default GW
 - DNS server
 - Domain name
 - Search name list
 - NetBIOS name server
 - SMTP server

DHCP basics

- 4 way handshake
 - Discover, Offer, Request, ACK
- Works with multiple DHCP servers on the same LAN (DHCP Release message)
- The Client broadcast (typically at startup) the discover and receive one or more offer from the Server(s) – (then the protocol continues, but we don't care for now...)
- The Client can Renew (/Rebind) a lease for a previously assigned IP address
- 1 DHCP server for each LAN
 - DHCP-Relays allow DHCP communication through routers

DHCP handshakes



DHCP in Linux

- ISC DHCP is the most used opensource DHCP implementation
 - <http://www.isc.org/software/dhc>
- Provides:
 - DHCP Client (`dhclient`), Server (`dhcp3-server`), Relay (`dhcrelay`)
- ISC DHCP client and sever are already in the NETKIT VM filesystem
 - DHCP relay can be installed with `apt-get`

NETKIT lab with DHCP

Lab0-dhcp

Same topology as in Lab0-interfaces.

Differences:

1) In `router.startup` add the following command:

```
/etc/init.d/dhcp3-server start
```

2) In `pc{1,2}/etc/network/interfaces` remove the static configuration and add:

```
auto eth0
iface eth0 inet dhcp
```

3) Create the DHCP server configuration file in `router/etc/dhcp3/dhcpd.conf` (see the next slide)

4) Router has also a tap to the outside world:

```
router[2]=tap,192.168.0.1,192.168.0.2
```

5) `lab.dep` to start router first

DCHP server configuration

```
default-lease-time 3600;
option domain-name-servers 8.8.8.8;
option domain-name "lab0-dhcp.org";
option domain-search "lab0-dhcp.org";

subnet 10.0.0.0 netmask 255.255.255.0 {
    range 10.0.0.100 10.0.0.254;
    option routers 10.0.0.1;
}

subnet 10.0.1.0 netmask 255.255.255.0 {
    range 10.0.1.100 10.0.1.254;
    option routers 10.0.1.1;
}
```