DHCP & BOOTP

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1 Introduction

In this report I will describe briefly how to set up DHCP and BOOTP. The DHCP server will be used to assign dynamic IP adresses that can be used for instance to autmatically configure a workstation for network connectivity. Also, a BOOTP server has to be set up that will advertise a boot image, that will automatically be transferred to a client machine

2 DHCP

Dynamic Host Configuration Protocol[1] is used to automatically distribute IP addresses. The main advantage of DHCP is the ease of configuring the network connections of a large number of computers. This makes setting up clients a lot easier.

To obtain an IP, subnet, default gateway, dns server IP, etc. the client wil issue a DISCOVER message. This message will be received by the DHCP server who will return a OFFER message, which will consist of the IP information it would like to assign to the client. If the client accepts, it will send an REQUEST message, requesting the use of the offered information. If all works out, the server will send an ACK message.

Settting up DHCP on a GENTOO-machine is really easy, just emerge the DHCP server and edit the dhcpd.conf file. Just set up

- the domain name

- the default and max lease time

- the lease range which will look simething like this:

```
subnet a.b.c.d. netmask 255.255.255.0 {
 range 1.2.3.4 1.2.3.250
 option domain-name-servers ns1.a.b.c
 option domain-name "test"
 option routers 1.2.3.4
 option broadcast-address 1.2.3.254
 }
```

Then just start the service like /etc/init.d/dhcpd start and the DHCP server is online.

3   BOOTP

Bootp is a protocol that works quite the same as DHCP but it has less options. It can not set a lease time for an IP and vendor tags etc. aren't incorporated. For this second task we where asked to set up a BOOTP server that can be used to transfer an image to the client where it can boot from. For this a extra option a parameter has to be set in the BOOTP configuration pointing to the location of the boot image. This image has to be set up on a TFTP server in order for the client to download it. When the client boots up it will have to mount it's root filesystem somewhere. For this a NFS server is used to mount it on.

References

[1] Dynamic   Host   Configuration   Protocol,
    http://www.ietf.org/rfc/rfc2131.txt

[2] DHCP   options   and   BOOTP   Vendor   Extentions,
    http://www.ietf.org/rfc/rfc2132.txt

[3] The DHCPD manpage, http://www.8ung.at/spblinux/doc/dhcpd.conf.html