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A BLOG FOR THOSE WITH A BIG APPETITE FOR IT KNOWLEDGE...

THIS BLOG HAS BEEN MADE TO SHARE THE GREAT STUFF I HAVE TO DEAL WITH ON A DAILY BASIS, AS REMINDER TO MYSELF OF EVERY LITTLE BATTLE I HAD WON AN LOST, IN THIS EXTREMELY COMPLICATED AND BEAUTIFUL IT WORLD AND ALSO TO MAKE THE LIFE OF THOSE LIKE ME, A LITTLE BIT EASIER WHENEVER THEY HAVE TO FIGHT THE SAME BATTLES I HAD FOUGHT IN THE PAST. :)

THURSDAY, SEPTEMBER 2, 2010

dhcp-helper : A DHCP Relay Agent for Linux

DHCP Relay Agents are commonly used on routed networks with centralized DHCP services. The relay agent is a service that is typically configured on a router and converts DHCP broadcasts into unicast messages directed at the DHCP servers IP address.

dhcp-helper is a simple, straightforward DHCP and BOOTP relay agent which was written by Simon Kelley as alternative to the ISC relay. It's Linux only, but doesn't require any kernel support other than the network stack. (No LPF or packet sockets). It listens for DHCP and BOOTP broadcasts on directly connected subnets and relays them to DHCP or BOOTP servers elsewhere. It also relays replies from the remote servers back to partially configured hosts. Once hosts are fully configured they can communicate directly with their servers and no longer need the services of a relay.

This post will cover the installation and setup of dhcp-helper in Ubuntu. This package has been ported to some other distros as well, so feel free to try it in whatever your distribution is ;).

For installing dhcp-helper in Ubuntu the following command should be executed:

```
$ sudo apt-get install dhcp-helper
```

The service starts on installation automatically, listening on interface eth0. You'll want to configure it in the file /etc/default/dhcp-helper.

The only required option is at least one DHCP server to relay to. The simplest way to configure dhcp-helper on a router is just to give the interface to the network containing the DHCP server with a -b option. All the other interfaces present on the machine will then accept DHCP requests. On a machine which does not have an interface on the network containing the DHCP server, use a -s option instead.

The following options can be used on the dhcp-helper configuration file to suit every environment:

-s server

Specify a DHCP or BOOTP server to relay to. The server may be given as a machine name or dotted-quad IP address. More than one server may be specified.

-b interface

Relay to a DHCP or BOOTP server using broadcast via . This eliminates the need to give a server address. is automatically added to the list of interfaces which will not receive DHCP requests.

-i interface

Specify which local interfaces to listen on for DHCP/BOOTP broadcasts. If no -i flags are given all interfaces are used except those specified by -e flags and those specified by -b flags.

-e interface

Specify which local interfaces to exclude.

-p

Use alternative ports (1067/1068) for the DHCP client and server.

-v

Report the software release version and copyright information.

-d

Debug mode, do not change UID, write a pid-file or go into the background.

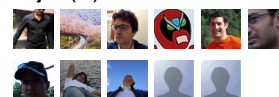
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AMADYS DANIEL

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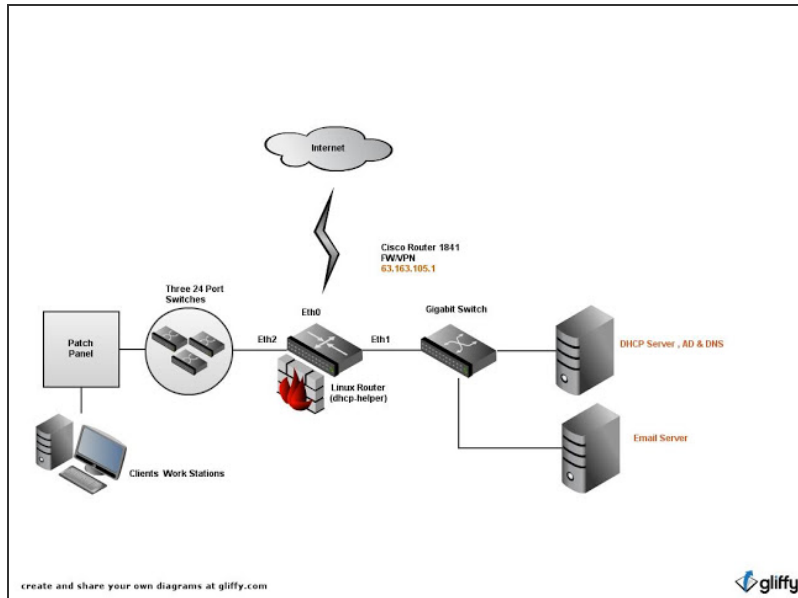
-r file

Specify an alternate path for dhcp-helper to record its process-id in. Normally /var/run/dhcp-helper.pid.

-u username

Specify the userid to which dhcp-helper will change after startup. The daemon must normally be started as root, but it will drop root privileges after startup by changing id to another user. Normally this user is "nobody" but that can be over-ridden with this switch.

For an scenario like this:



An example of the content of an /etc/default/dhcp-helper config file could be:

```
# Option flags used to start dhcp-helper.
#
# You will need at least "-s" or
# "-b" so that dhcp-helper knows where
# to relay DHCP requests.
#
# See "man 8 dhcp-helper" for more details.
```

```
DHCPHELPER_OPTS="-b eth1 -e eth0"
```

In this case the option "-b eth1" is used, because the dhcp server is connected to the eth1 interface of the Linux box acting as a router between 3 different networks connected to eth0, eth1 and eth2 respectively.

The option "-e eth0" is used because we don't want to listen for DHCP or BOOTP broadcast on the interface connected to the internet. Such service is not needed for anyone sitting behind the external interface and this option will also help avoid creating security breaches since the daemon will stop listening on the interface specified.

After setting up the options the service needs to be restarted. Use the following command:

```
$ sudo /etc/init.d/dhcp-helper restart
```

A nice thing to do now, is to use **tcpdump** on any of the interfaces involved on the DHCP relay process (eth1 or eth2 if an scenario as the one in the picture above is used). You should be able to watch the clients pull an IP address from your DHCP server !!!

Note: If you are using iptables on the same Ubuntu box as the dhcp-helper, remember to add an incoming rule that allow the box to receive the broadcast from the clients. You will probably also need an outgoing rule that allows the Ubuntu box to talk to the DHCP server.

POSTED BY AMADYS DANIEL AT 4:54 P.M.

REACTIONS: funny (0) interesting (0) cool (0)