

The Sysadmin's Daily Grind: DNSmasq

Perfect Pizza Choice

Running your own Domain Name Service is a good idea, even in smaller LANs. Maintaining a `/etc/hosts` file for more than about five machines can be tiresome. On the other hand, managing the bind DNS daemon is not exactly a piece of cake.

BY CHARLY KÜHNAST

Running the heavyweight name service BIND on a home or small office network is definitely overkill. Fortunately, there are lightweight alternatives and DNSmasq [1] is one of them. The name server – primarily a NS forwarder – is designed for use in small networks with dialup connections. It runs on Linux and FreeBSD and is included by several distributions such as Debian and Gentoo. Also, the router manufacturer Linksys uses DNSmasq in its WLAN router firmware.

It is quite a simple principle: DNS requests for addresses outside the local network are forwarded by DNSmasq to a name server higher up the DNS tree, typically a name server run by the dialup networking provider. If the connection is down, DNSmasq immediately returns a timeout – rather than letting the client wait idle for a few minutes while nothing happens. DNSmasq parses `/etc/hosts` for the names of the machines on the local network, meaning that I only need to maintain the file on the DNSmasq machine. The name of the superordinate name server is stored in `/etc/resolv.conf`.

The best thing is that this GPL software has its own DHCP server, and we can leverage this combination of DNS and DHCP. DHCP allows us to assign a specific IP to a specific client, while DNS supplies the matching host name.

Practical Application

Let's launch DNSmasq. If I simply want to run the name server without DHCP, it shouldn't take too long to complete. I already have a `/etc/resolv.conf` file for the superordinate DNS machine, and I have created entries for the local machine in `/etc/hosts`! All I need to do, is launch DNSmasq.

If you need more advanced features, such as automatic domain name completion, when only the host name is known, you will need to add a couple of lines to the configuration file. The file is called `/etc/dnsmasq.conf` by default:

```
expand-hosts
domain=mydomain.tld
```

If you also want to enable DHCP, you need yet another entry. In our example, we want the DHCP server to assign the address range 10.0.0.20 through 10.0.0.50, and to set the lease time to six hours:

```
dhcp-range=10.0.0.20,10.0.0.50,255.255.255.0,6h
```

Talking to Salami

The next thing I want to do, is to assign the host name *salami* (yes, all of my



machines are named after pizzas!), and a static IP address (10.0.0.10) to my machine. I could theoretically use the following line to do so:

```
dhcp-host=salami,2
10.0.0.10,infinite
```

For security reasons, I want to make sure that the MAC address is checked. Otherwise, any old pizza could pretend to be *salami*! I need the following line to do so:

```
dhcp-host=11:de:ad:be:ef:11,2
salami,10.0.0.10,infinite
```

That's all it takes to set up a basic, but functional, configuration. DNSmasq has lots more bells and whistles for admins to play with. Check out the *example* config file for more details – the comments are exemplary. Va bene! ■

INFO

[1] DNSmasq: <http://thekelleys.org.uk/dnsmasq/doc.html>

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