DNS with IPv6

Networks Three

Otago Polytechnic
Dunedin, New Zealand

IPv6 works with DNS

- It is possible to integrate IPv6 DNS resources together with existing IPv4 ones.
- Only one new resource record type is required.
- Reverse zones work in a similar way.
- Recent versions of the main DNS servers are compatible with IPv6.

Initial Considerations

- Your DNS servers need IPv6 connectivity.
- Your domain name registrar needs to support IPv6.[1]
- Your TLD needs to support IPv6. (.nz does)

[1] See http://dnc.org.nz/content/srs_registrar_list.html

Configuring DNS

- Ensure that your NS records point to servers with IPv6 addresses as well as IPv4 addresses.
- Configure your DNS servers to listen on IPv6 interfaces, e.g.: `listen-on-v6 { any; }` in named.conf.

Forward lookup: AAAA

The IPv6 equivalent of an A record is an AAAA record:

```
gredo   IN   A   2402:6000:0:101::83cb:30a
```

For machines that have both IPv4 and IPv6 addresses, be sure that you have distinct A and AAAA records for them, e.g. `gredo.ip4` and `gredo.ip6`.

Reverse lookup

Reverse lookup is a wee bit more complicated. for example, suppose our network is `2400:330A:0:118/64`
What is the reverse zone?

2400:330A:0:118/64

1. Expand the network address: `2400:330A:0000:0118`
2. Reverse the characters and put dots between them
   `8.1.1.0.0.0.0.0.A.0.3.3.0.0.2.4`
3. Append `.ip6.arpa`

So the zone is 8.1.1.0.0.0.0.0.A.0.3.3.0.0.2.4.ip6.arpa.

PTR records

PTR records work the same way in IPv6. Since the resulting names get very long, so you want to abbreviate.

```
a.0.3.0.b.c.3.8.0.0.0.0.0.0.0.0.0.0.0.0.0.0.0.0.0.0.0.0.0.0.0.0.ip6.
```

There are some online tools that will help you generate these entries, e.g.: http://rdns6.com/zone.