IPv6 DNS integration

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- Issue: Integration of DNS in a mixed environment of IPv4-only, IPv6-only and dual-stacks networks.
- 2 approaches
  - Let DNS break if it has to break
  - Make sure DNS works.
- Requirement document made by NGtrans, presented in DNSext and DNSop.
- If the requirements are accepted, some work needs to be done in DNSext.

Draft-ietf-ngtrans-dns-ops-req-03 Architectural principles

- The public DNS has a unique root valid for IPv4 & IPv6 (derived from RFC2826).

- DNS is an IP version agnostic application.

  – Any node (v4, v6, dual stack) should be able to query any record in any zone

  – Queries should get the same answers regardless of the IP version used during the process.
  (Note: this does not apply to additional sections)

- The burden has to be placed on new IPv6 systems

Consequences

- A bridging system is needed
- Bridging does not need to be symmetric
- Any change to the existing IPv4 resolvers is out of scope.
- Bridging v4 to v6 is technically very difficult. However, It can be achieved by administrative procedures:
  - Mandate at least one v4 server per zone
  - Can be achieved by contracted 3rd party dual stack servers
- Bridging v6 to v4 requires something new.

Bridging requirements
(v4 to v6 or v6 to v4)

- Any change to existing IPv4 resolvers is out of scope.
- The bridging system is required to have good scaling properties.
- The bridging system discovery is required to have good scaling properties.
- All zones should be reachable through the bridging system.
- Security is not an option.

DNSext?

- Designing such a bridging system is not easy, may be a huge kludge.
- Draft-durand-dns-proxy-00.tx is an attempt at a possible solution.
- There might be other solutions.

- DNSext should be the place to design it.