Cross-implementation configuration and provisioning management

draft-toorop-dnsop-dns-catalog-zones
Peter van Dijk
Libor Peltan
Ondřej Surý
Willem Toorop
Leo Vandewoestijne
draft-toorop-dnsop-dns-zone-provisioning-yang
Pieter Lexis
Ladislav Lhotka
Petr Špaček
Ondřej Surý
Willem Toorop
Genesis

- /me works for NLnet Labs
- Meet with operators at conferences
- Other Open Source DNS Software do the same
- A recurring topic:
  - Standard Configuration & Provisioning Management
Genesis

- Afilias one of those operators
  - Key is cross-implementation cooperation
  - Preferably standardized approaches and solutions

- Afilias DNS Summit
  - Friday prior to IETF105 in Montreal
  - Attendees from NLnet Labs, ISC and CZ.NIC
  - One of the topics:
    - Standard Configuration & Provisioning Management
## Standard Configuration & Provisioning Management

- **Two candidates:**

<table>
<thead>
<tr>
<th>Catalog zones</th>
<th>NETCONF / YANG</th>
</tr>
</thead>
<tbody>
<tr>
<td>+ Provisioning infrastructure native to DNS</td>
<td>- New infrastructure at least for DNS implementers</td>
</tr>
<tr>
<td>- No feedback channel</td>
<td>+ Feedback on status</td>
</tr>
<tr>
<td>+ Implementations exist (ISC &amp; PDNS) CZ.NIC is working on one</td>
<td>+ CZ.NIC &amp; PDNS are working on it</td>
</tr>
<tr>
<td>+ (expired) draft exists (from ISC)</td>
<td>- No draft yet for zone provisioning</td>
</tr>
<tr>
<td>- draft lacks actual to configure properties</td>
<td></td>
</tr>
</tbody>
</table>
Standard Configuration & Provisioning Management

• Catalog zones lowest barrier to a working solution

• A new draft with minimal to configure properties
Standard Configuration & Provisioning Management

- Catalog zones lowest barrier to a working solution

- A new draft with minimal to configure properties defined in YANG
Catalog zones
draft-toorop-dnsop-dns-catalog-zones

- Presentation from Leo Vandewoestijne at FOSDEM2020
- Picked up from draft-muks-dnsop-dns-catalog-zones
- Authors from FOSDNSS implementations +Leo
  - Peter van Dijk – PowerDNS
  - Libor Peltan – CZ.NIC
  - Ondřej Surý – ISC
  - Willem Toorop – NLnet Labs
  - Leo Vandewoestijne
Catalog zones
draft-toorop-dnsop-dns-catalog-zones

• Abstract
  – “a method for automatic DNS zone provisioning by storing and transferring the catalog of zones to be provisioned as one or more regular DNS zones.”
Catalog zones
draft-toorop-dnsop-dns-catalog-zones

$ORIGIN catzone.
@ IN SOA . . 1552507036 86400 14400 86400 0
@ IN NS invalid.
version IN TXT "2"
<unique-id-1>.zones IN PTR example.com.
<unique-id-2>.zones IN PTR example.net.
<unique-id-3>.zones IN PTR example.org.
Catalog zones

draft-toorop-dnsop-dns-catalog-zones

- Multiple catalog zones
Catalog zones

draft-toorop-dnsop-dns-catalog-zones

- Multiple catalog zones
- With different primary/secondary relationships
• Multiple catalog zones
• With different primary/secondary relationships
• Catalog zone of catalog zones
Catalog zones

draft-toorop-dnsop-dns-catalog-zones

- Changes since draft-muks-dnsop-dns-catalog-zones
  - Just the catalog, no properties
Catalog zones

draft-toorop-dnsop-dns-catalog-zones

• Changes since draft-muks-dnsop-dns-catalog-zones
  - Just the catalog, no properties
  - Changing unique id resets zone state

$ORIGIN catzone.
@ IN SOA . . 1552507036 86400 14400 86400 0
@ IN NS invalid.
version IN TXT ”2”
<unique-id-1>.zones IN PTR example.com.
<unique-id-2>.zones IN PTR example.net.
<unique-id-3>.zones IN PTR example.org.
Catalog zones

draft-toorop-dnsop-dns-catalog-zones

• Idea from Leo
  – Make the list enumerable
    – $ORIGIN catzone.
      @                              IN  SOA  .  . 1552507036 86400 14400 86400 0
      @                              IN  NS  invalid.
      version                        IN  TXT  ”2”
      $ORIGIN zones.catzone.
      @                              IN  HINFO  ”0”  <unique-id-1>
      <unique-id-1>                  IN  PTR  example.com.  <unique-id-1>
      IN  HINFO  ”1552507036”  <unique-id-2>
      <unique-id-2>                  IN  PTR  example.net.  <unique-id-2>
      IN  HINFO  ”1552501234”  <unique-id-3>
      <unique-id-3>                  IN  PTR  example.org.  <unique-id-3>
      IN  HINFO  ”1552505432”  @
Catalog zones
draft-toorop-dnsop-dns-catalog-zones

• We’d like to discuss and develop this further on list
Zone provisioning definitions in YANG

draft-toorop-dnsop-dns-zone-provisioning-yang

- **YANG**: A Data Modeling Language for the Network Configuration Protocol (NETCONF)
  RFC6020, RFC7950

- **IANA** maintains a registry for IETF yang models:
  https://www.iana.org/assignments/yang-parameters/yang-parameters.xhtml

- **Abstract**:
  - “A data model for configuring DNS Zone provisioning.
    This data model includes definitions for configuration of primary and secondary relationships.”
Zone provisioning definitions in YANG

draft-toorop-dnsop-dns-zone-provisioning-yang

• Gathered authors:
  - Pieter Lexis – PowerDNS
  - Ladislav Lhotka – CZ.NIC
  - Petr Špaček – CZ.NIC
  - Ondřej Surý – ISC
  - Willem Toorop – NLnet Labs

• Quick translation of our sketch to YANG.
Zone provisioning definitions in YANG
draft-toorop-dnsop-dns-zone-provisioning-yang

- From discussions with Pieter Lexis
  - type inet:domain-name could use re-evaluation
    - type dns:domain-name
  - introduce new types inheriting from domain-name:
    - type dns:host-name
  - Make translations for IANA parameters to YANG
    - type dns:tsig-algorithm
Zone provisioning definitions in YANG
draft-toorop-dnsop-dns-zone-provisioning-yang

• Maybe review initial model internally first…
  after that

• Is DNSOP a good place to develop these models?