One-click nameserver deployment

presented by Jeroen Bulten at the OARC 39 & 47th CENTR Technical Workshop

On anycast nodes

1. Don’t announce prefix yet
2. Load zones
   *when all zones are loaded:*
3. Announce prefix
Motivation

- Feature in Knot-DNS
- Uses D-Bus
  - Publish/subscribe
  - Specified under freedesktop.org¹
- SIDN One-click deploy Knot-DNS only

¹ freedesktop.org is a "collaboration zone" for standards and specifications, and not a formal standards organization.
Requirements

- What other conditions are interesting to signal?
- What associated action could they have?
- What publish/subscribe mechanism suit those best?

<table>
<thead>
<tr>
<th>Condition</th>
<th>Possible Action</th>
</tr>
</thead>
<tbody>
<tr>
<td>All zones are loaded and ready (started)</td>
<td>BGP start announcing prefix (for some zones)</td>
</tr>
<tr>
<td>A zone is (about to) expire</td>
<td>BGP stop announcing prefix (for some zones)</td>
</tr>
<tr>
<td>DNSSEC signatures are (about to) expire</td>
<td>BGP stop announcing prefix</td>
</tr>
<tr>
<td>Query rate is exceeding a threshold</td>
<td>lengthen BGP path</td>
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<tr>
<td>A zone is loaded/updated (SOA serial)</td>
<td>Zone validation etc.</td>
</tr>
</tbody>
</table>

draft-grubto-dns-out-of-protocol-signalling
DNS Out Of Protocol Signalling

- Existing signalling stays within the DNS realm
  - NOTIFY / Extended DNS Errors monitoring agent

- D-Bus
  - local to the nameserver
  - SASL for security [RFC 4422]
  - Linux native, support for BSDs

```python
import dbus, dbus.mainloop.glib
from gi.repository import GLib

def sig_started(*args, **kwargs):
    print("Server started")

def sig_updated(*args, **kwargs):
    (zone, serial) = args
    print("Updated zone=%s to serial=%d" % (zone, serial))

knotd = dbus.SystemBus().get_object('cz.nic.knotd', '/cz/nic/knotd',
                                        follow_name_owner_changes=True, introspect=False)

events_if = dbus.Interface(knotd, 'cz.nic.knotd.events')
events_if.connect_to_signal("started", sig_started)
events_if.connect_to_signal("zone_updated", sig_updated)

dbus.mainloop.glib.DBusGMainLoop(set_as_default=True)
GLib.MainLoop().run()
```

draft-grubto-dns-out-of-protocol-signalling
DNS Out Of Protocol Signalling

● New in version -01
  ○ Co-authors from four Open Source nameservers
    BIND / ISC          Cathy Almond
    PowerDNS / Open Xchange Peter van Dijk
    Knot-DNS / CZ.NIC   Daniel Salzman
    NSD / NLnet Labs    Willem Toorop

● Looking for:
  ○ Statements of interest
    *anycast operators in particular*
  ○ Conditions / Actions

"I'm not sure if D-Bus is the right choice for the event signaling… Maybe we just don't know how to do it better."