Cross-implementation configuration and provisioning management

draft-toorop-dnsop-dns-catalog-zones

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

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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:

| Catalog zones		NETCONF / YANG	
+	Provisioning infrastructure native to DNS	–	New infrastructure at least for DNS implementers
–	No feedback channel	+	Feedback on status
+	Implementations exist (ISC & PDNS) CZ.NIC is working on one	+	CZ.NIC & PDNS are working on it
+ –	(expired) draft exists (from ISC) draft lacks actual to configure properties	–	No draft yet for zone provisioning

Standard Configuration & Provisioning Management

- Catalog zones lowest barrier to a working solution

- A new draft with minimal to configure properties

Standard Configuration & Provisioning Management
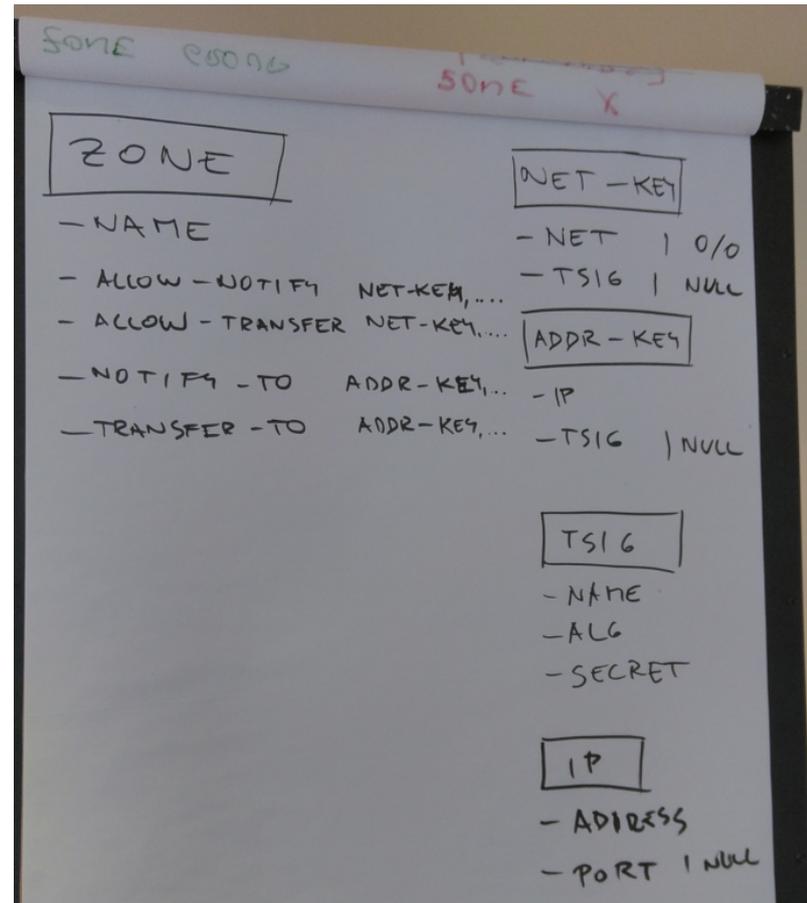
- Catalog zones lowest barrier to a working solution

- A new draft with minimal to configure properties defined in YANG
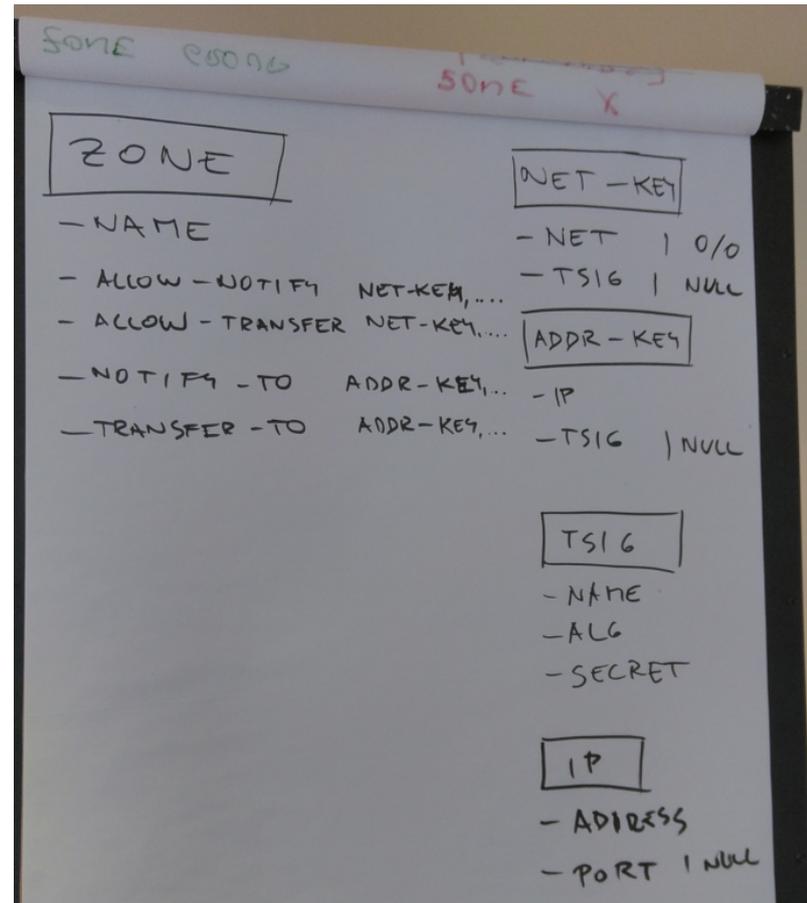
Catalog zones

`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.
```
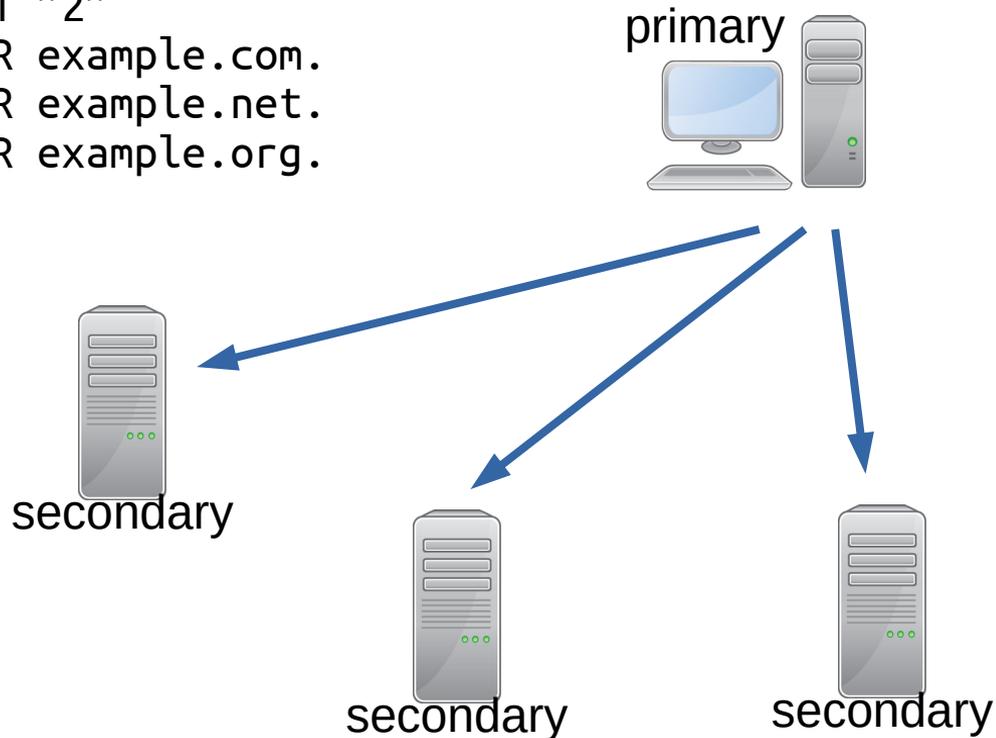
Catalog zones

draft-toorop-dnsop-dns-catalog-zones
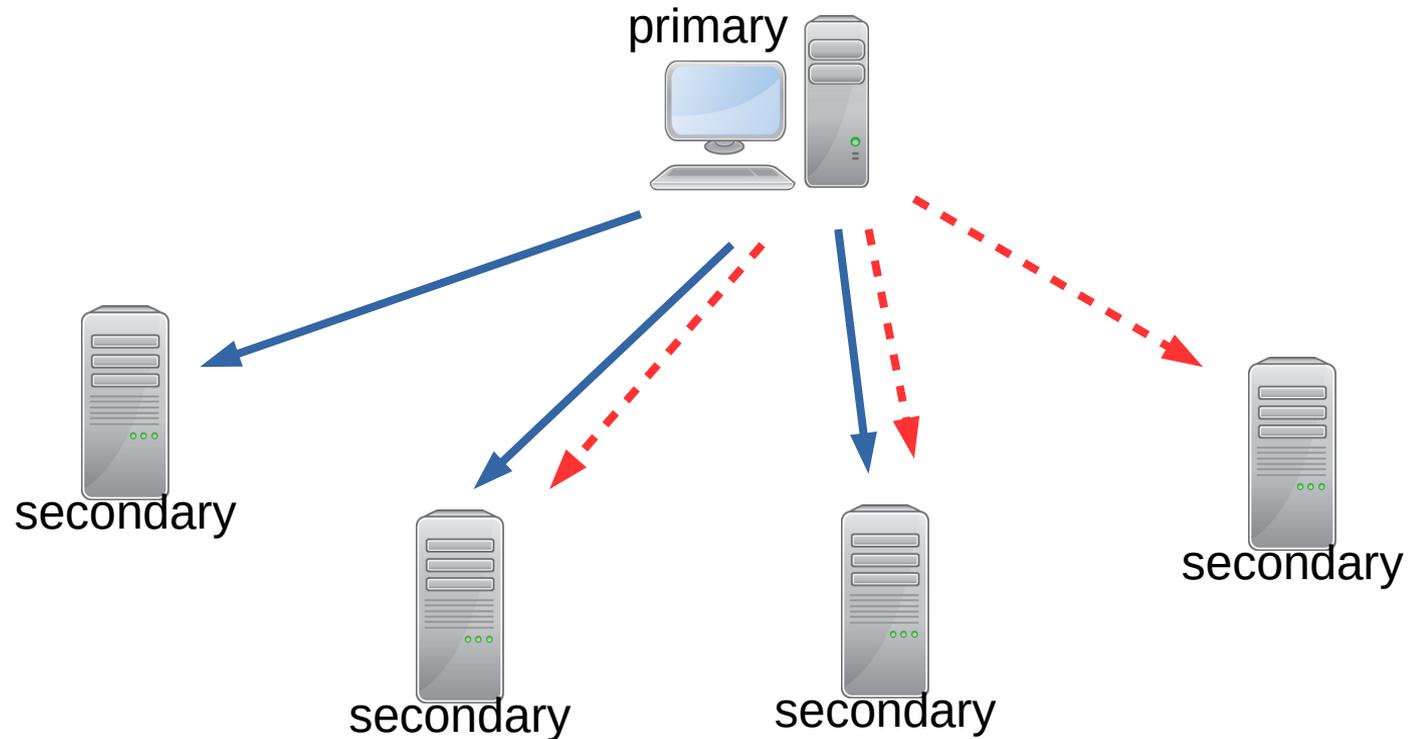
- Multiple catalog zones

Catalog zones

draft-toorop-dnsop-dns-catalog-zones

- Multiple catalog zones
- With different primary/secondary relationships
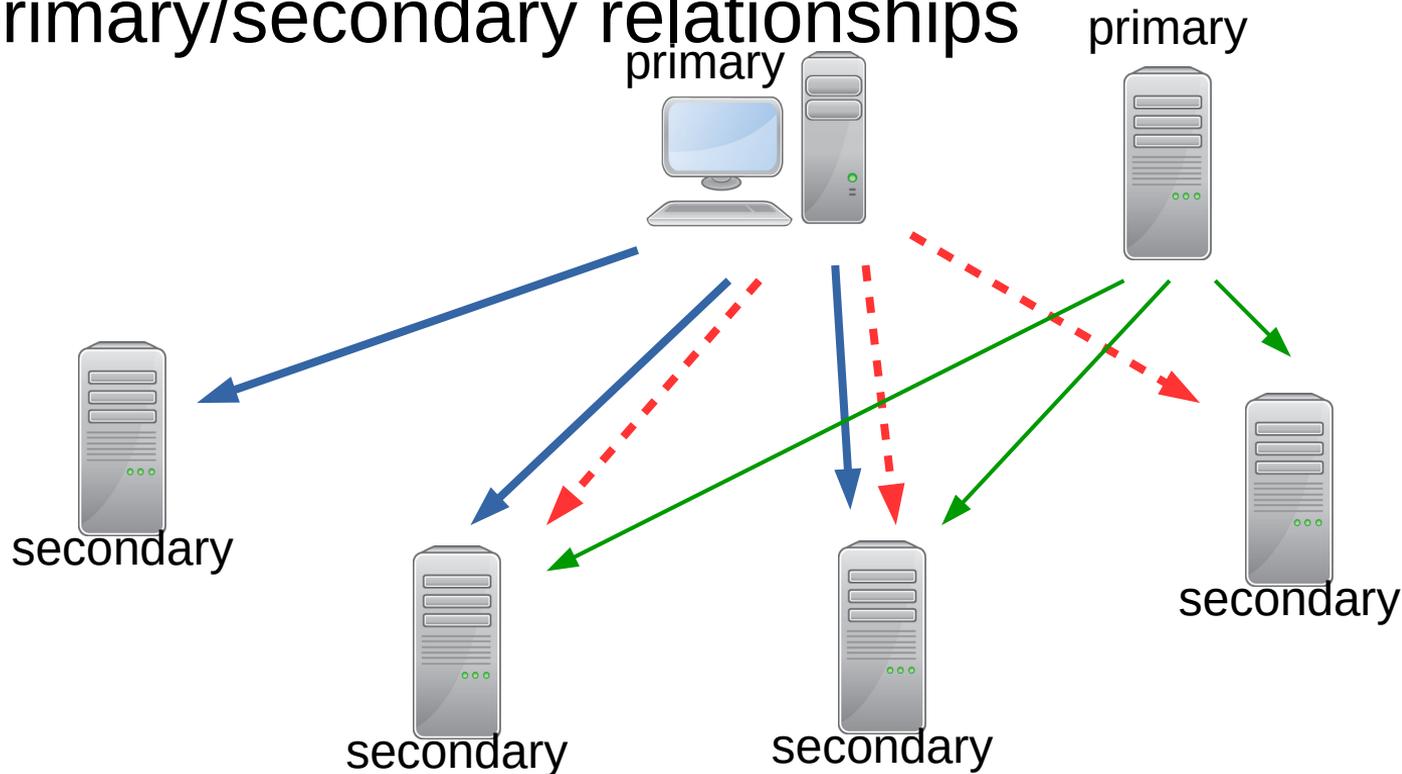
Catalog zones

- Multiple catalog zones
- With different primary/secondary relationships
- Catalog zone of catalog zones
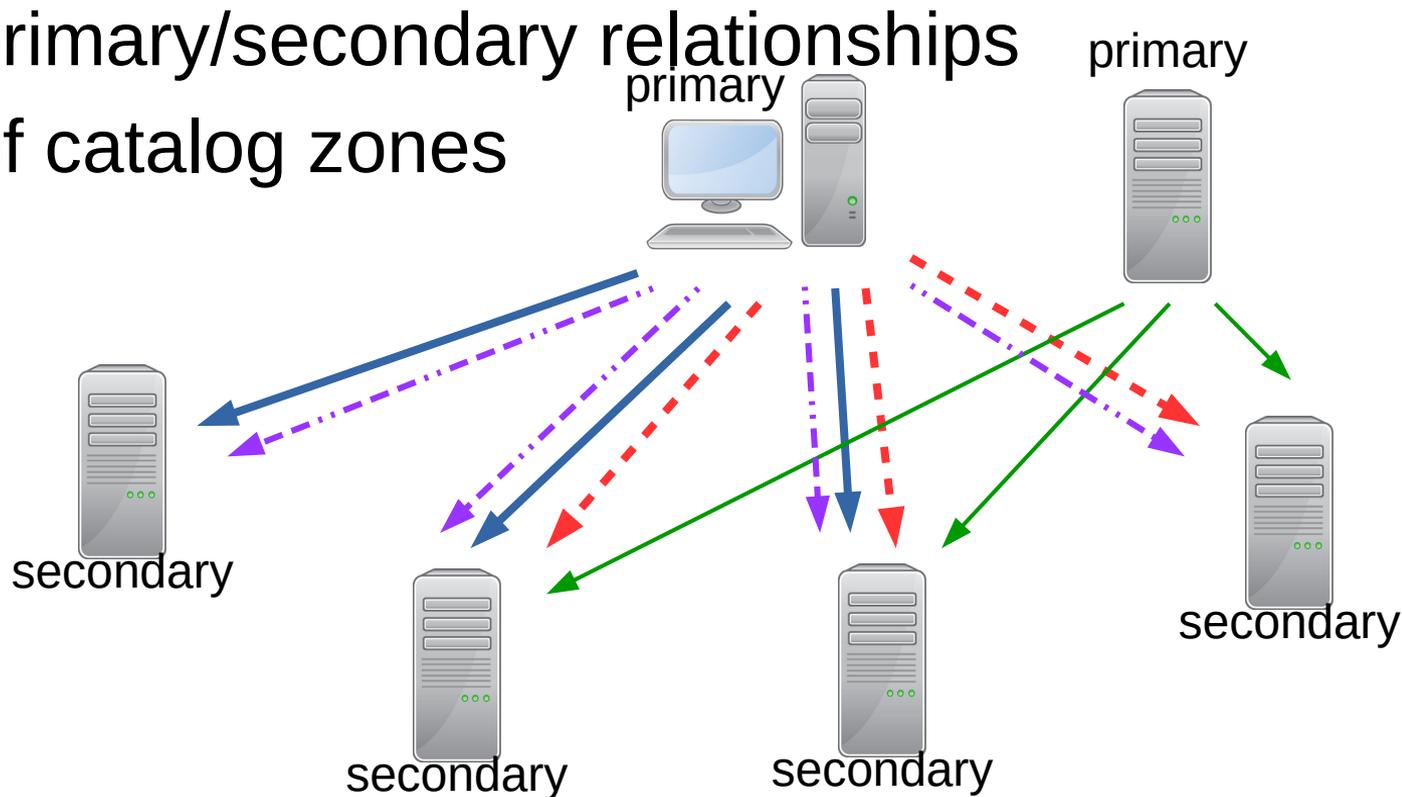
Catalog zones
draft-toorop-dnsop-dns-catalog-zones

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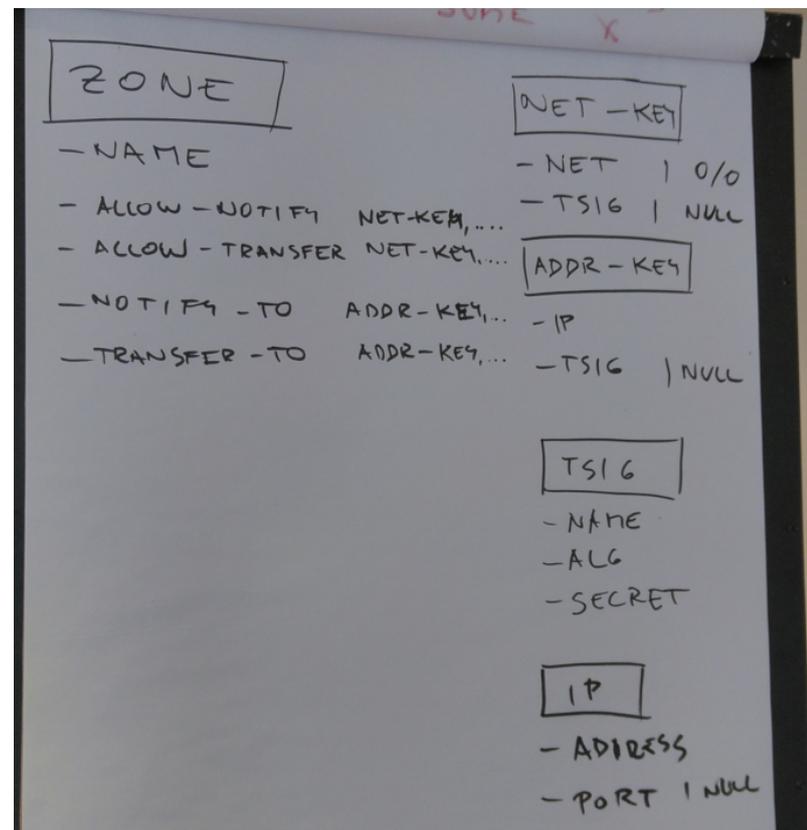
Catalog zones
draft-toorop-dnsop-dns-catalog-zones

- 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.
                             IN  HINFO   ”1552507036”     <unique-id-2>
    <unique-id-2>            IN  PTR     example.net.
                             IN  HINFO   ”1552501234”     <unique-id-3>
    <unique-id-3>            IN  PTR     example.org.
                             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.
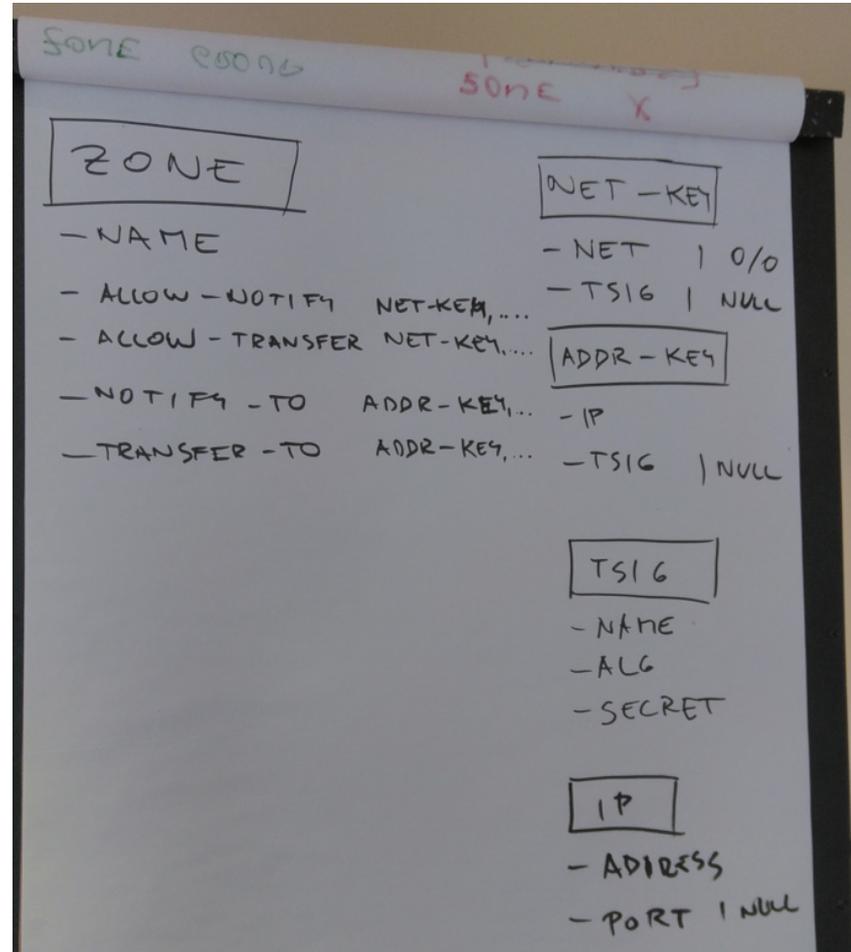
Zone provisioning definitions in YANG
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- From discussions with Pieter Lexis
  - type inet:domain-name could use re-evaluation
    - type dns:domain-name
  - introduce new types inheriting from domain-name:
    - type dns:host-name
  - Make translations 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?