TTL mapping for EPP

Gavin Brown, Technical Fellow, CentralNic Group PLC

IETF 116, Yokohama, March 2023

CentralNic Registry

Problem Statement

- Some TLD operators set long TTL values on delegations:
  - .er: 14 days(!)
  - .ru, .su, .moscow: 4 days
  - .com, .net, .uk: 2 days
- …which prevents rapid rollback of changes
- …which deters rollout of "risky" technologies i.e. DNSSEC
- Anecdotally, at least one FAANG operator would turn on DNSSEC if they could tune the TTL record on their delegation, so they can roll back quickly if there's a problem
- Providing a way for zone operators to set the TTL on their delegations in the parent zone seems useful

CentralNic Registry

Delegation TTL survey

TTL range	Number of TLDs
> 2d	10 (1%)
= 2d	244 (17%)
= 1d	466 (32%)
1h - 1d	130 (9%)
= 1h	409 (28%)
< 1h	219 (15%)

CentralNic Registry

TTL extension for EPP

- Extends the <create>, <update> and <info> commands for domain and host objects
  - <ttl:secs>3600</ttl:secs> - specific value
  - <ttl:secs/> - no specific value, use server default
- Allows EPP clients to specify a TTL value to be applied to:
  - NS & DS records (for domain objects)
  - A & AAAA records (for host objects)
- Does not mandate server behaviour (server operators can set policy according to their own needs)
- Asks server operators to use the Change Poll extension to notify clients of OOB changes to TTL values

CentralNic Registry

Examples

```
<?xml version="1.0" encoding="UTF-8" standalone="no"?>
<epp xmlns="urn:ietf:params:xml:ns:epp-1.0">
  <command>
    <update>
      <domain:update
        xmlns:domain="urn:ietf:params:xml:ns:domain-1.0">
        <domain:name>example.com</domain:name>
      </domain:update>
    </update>
    <extension>
      <ttl:update>
        xmlns:ttl="urn:ietf:params:xml:ns:ttl-1.0">
        <ttl:secs>3600</ttl:secs>
      </ttl:update>
     </extension>
    <clTRID>ABC-12345</clTRID>
  </command>
</epp>
```

CentralNic Registry

Examples

```
?xml version="1.0" encoding="UTF-8" standalone="no"?>
<epp xmlns="urn:ietf:params:xml:ns:epp-1.0">
 <response>
  <result code="1000">
   <msg>Command completed successfully</msg>
  </result>
  <resData>
   <host:infData
    xmlns:host="urn:ietf:params:xml:ns:host-1.0">
    <host:name>ns1.example.com</host:name>
    <host:roid>NS1_EXAMPLE1-REP</host:roid>
    <host:status s="linked"/>
    <host:addr ip="v4">192.0.2.2</host:addr>
    <host:addr ip="v4">192.0.2.29</host:addr>
    <host:addr ip="v6">1080::8:800:200C:417A</host:addr>
    <host:clID>ClientY</host:clID>
    <host:crID>ClientX</host:crID>
    <host:crDate>1999-04-03T22:00:00.0Z</host:crDate>
   </host:infData>
  </resData>
  <extension>
   <ttl:infData
    xmlns:ttl="urn:ietf:params:xml:ns:ttl-1.0">
    <ttl:secs>3600</ttl:secs>
   </ttl:infData>
  </extension>
  <trID>
   <clTRID>ABC-12345</clTRID>
   <svTRID>54322-XYZ</svTRID>
  </trID>
 </response>
</epp>
```

CentralNic Registry

Next steps

- How should this extension interact with the host attribute model?
- Do we need separate TTLs for separate RR types (NS, DS, A, AAAA)?
- WG adoption
- Implementations!

CentralNic Registry

Feedback welcome!

Email: gavin.brown@centralnic.com

Mastodon: @gbxyz@noc.social

CentralNic Registry