Alternate Root Name Server Systems

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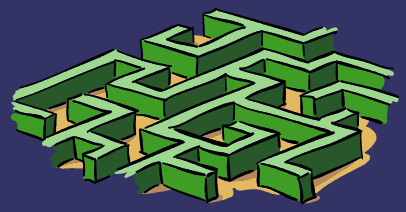
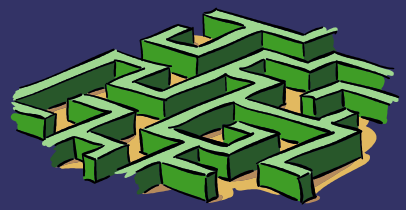


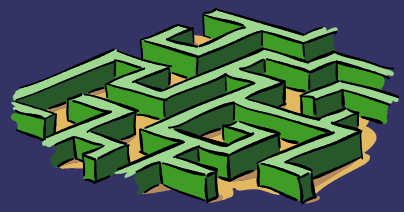
Zones

- Identity:
  - Name (domain of apex)
  - Serial number (apex SOA RR)
- Content:
  - Apex NS RR set (plus glue A/AAAA and DNSSEC-bis meta-data)
  - In-zone content (not delegations)
  - Delegation (non-apex NS RR sets, plus glue A/AAAA and DNSSEC-bis meta-data)



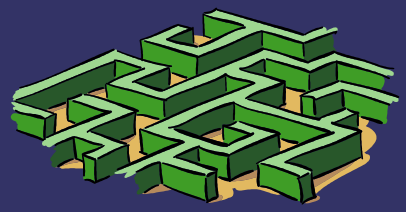
Identity vs. Content

- Zone identity <*name*,*serial*> is used to for management of zone transfer (AXFR/IXFR)
- Zone content is not expected by clients to be different if <*name*,*serial*> is not different
- In practice, some content is more sensitive to identity mapping than others
  - In-zone content, and delegations: *very sensitive*
  - Apex NS RR set, glue, meta-data: *not sensitive*
- Alternate root name server systems depend on this (demonstrated) insensitivity



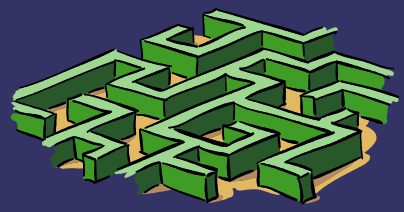
Uses For Alternativity

- Changing the NS RR set but mirroring everything else (private system)
- Adding new glue types that might not be understood by older clients (AAAA, etc)
- Adding new meta-data types that might not be understood by older clients (DNSSEC-bis, etc)
- Testing new protocol options (EDNS*n*, etc)



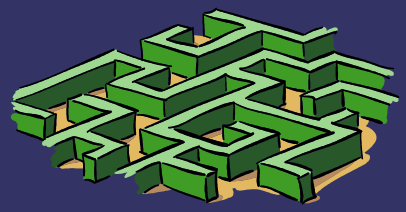
Pitfalls

- Mathematically speaking, this form of alternate root server system is equivalent to the paranoia/piracy based ones
- Politically speaking, if IANA drives it, and if it's the same root server operators, and the same infrastructure, it should be OK
- The message would have be crafted and published very carefully to avoid rioting
- Only users of the alternate `root.hints` file should ever see alternative data



First Proposal

- IANA should publish an advanced services zone by FTP, containing DS RR for .SE (and others?), and signed by a published key?
- This would allow testbed operators to base their zones on IANA's data with no need to amend the zone content beyond changing the apex NS RR set.



Second Proposal

- IANA should ask the existing rootops to establish a (virtual?) second infrastructure with one-off IPv4 and IPv6 addresses under names like *x*`.root-advanced.net`?
- Next, IANA should publish (AXFR/IXFR) an advanced services zone and associated `root.hints` file with the new server names?
- This would allow migration to full IPv6 glue and DNSSEC-bis without destabilizing the current root server system.