DNS Workbench
SIDN Labs

- SIDN’s R&D team
- SIDN = .nl registry (Netherlands)
- 5.2M domain names, 1.600 registrars
- Largest DNSSEC zone in the world (1.5M signed)
Motivation

- Overheard: “Does anyone know a public zone with a wildcard record, using opt-out, signed by ldns, served on BIND 9?”

- Answer: “Oh yeah, there’s one on that server, I think. Perhaps. Well at least there was one last year. I think. Maybe. I don’t know.”

- Need for a one-stop-shop for name server testing that is well-managed and supports multiple implementations
Enter the DNS Workbench
Added Value

- One-stop-shop and easy-to-use service for name server testing, supporting many RR types

- Well-documented set of zones, consistently available across multiple name server implementations

- DNS developers: interoperability testing, discovering and reporting bugs in name server software

- DNS operators: workbench as a reference point for production servers (compare responses)
Support for many RR Types

```
unsigned.workbench.sidnlabs.nl -> /home/jelte/repos/workbench/zones

149 type 26
150 px 10 map4032 map480
152 ; type 27
153 ip6 — TYPE27 \# 15 05 32 32 2e 36 37 05 32 32 32 2e 36 37 05 32 32 32 2e 36 3
154
155 ; type 28
156 aaaa — AAAA 2001:7B8::05:00:4
157
158 ; type 29
159 loc81 — LOC 60 9 N 24 39 E 10 20 2000 20
160 loc82 — LOC 60 9 00.000 N 24 39 00.000 E 10.00m 20.00m
161 loc — LOC 60 9 N 24 39 E 10 20 2000 20
```
Current Setup

- 2 zones
  - {unsigned, signed}.workbench.sidnlabs.nl
  - Zones transferable with and without TSIG
  - Several algorithms, keys public

- 4 implementations
  - NSD 3.2
  - BIND 10.1.1
  - Knot 1.2
  - PowerDNS 3.0
Some Example Uses

- Query directly:
  
  ```
  dig +dnssec -t MINFO minfo.signed.workbench.sidnlabs.nl @knot.sidnlabs.nl
  ```

- Use knot.sidnlabs.nl as the primary for your secondary:
  
  ```
  zone:
    name: “unsigned.workbench.sidnlabs.nl”
    request-xfr: 94.198.152.169 NOKEY
  ```
Challenge: Complexity

Approach: start small and let grow
Growth Path

- Additional servers
  - Yadifa
  - BIND 9
  - NSD 4

- Add (many) more zones
  - Different signers and parameters
  - ‘Delegation’ corner cases
  - Known bad data cases (e.g., erroneous signatures)
Experimental Service -> Feedback Wanted!

- Other testables: what else might be useful to add to the workbench?

- Did the workbench help you as a developer or operator? Let us know when and how!

- Current “score”
  - Fixed handling of uncommon RR types
  - Tested recent TSIG issue
Questions?

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