Extended Error Reporting

Reporting errors to where it may be fixed

Roy Arends
Principal Research Scientist, ICANN's Office of the CTO

26 October 2021

ICANN

Extended Error Reporting

⊙ Extended Error Reporting depends on implementation of RFC8914

⊙ Draft is currently in 00 status, 01 after this presentation
   ○ Same as 00, with discussion points added, and some wording changes.

⊙ Many Extended DNS Error implementations exist/forthcoming
   ○ BIND: merge request is ready, might make V9.18
   ○ PowerDNS recursor since 4.5
   ○ NSD: since 4.3.6, UNBOUND: in features tree
   ○ KNOT-DNS: since 3.1, KNOT-resolver, not yet
   ○ GoDaddy auth NS supports EDE
   ○ Cloudflare 1.1.1.1 supports EDE
   ○ OpenDNS supports EDE
   ○ Quad9 9.9.9.9 supports EDE

Extended Error Reporting

- ◉ encapsulation of the erroneous domain
  - ○ The qname and the reporting agent domain is separated by "._er."
  - ○ Due to qname minimisation, the reporting agent auth server can't distinguish between a minimised and full qname
  - ○ Suggestion is to start with _er as well.
  - ○ Example: _er.7.1.broken.test._er.a01.reporting-agent.example
  - ○ We're open to better suggestions for encapsulation
    - • (please bikeshed on mailing list)

- ◉ Signalling EDE reporting support
  - ○ Currently, resolver indicates support via EDNS0 option
  - ○ Some auth will return FORMERR or SERVFAIL, causing a retry
  - ○ Suggestion is to allow auth server to return reporting agent domain unsolicited. (EDE/RFC8914 already does this)
  - ○ Resolvers are far more resilient against unknown EDNS0 options
    - • (please discuss on mailing list)

Extended Error Reporting

- ◉ Which errors to report back
  - ○ Some errors may be returned by an authoritative server, and observed by the resolver, such as:
    - 14: Not Ready
    - 15: Blocked
    - 20: Not Authoritative
    - 21: Not Supported
    - Should the resolver report these back to the reporting agent, if a reporting agent string is present in the response?
  - ○ Some errors can only be concluded after a complete resolving session:
    - 22: No Reachable Authority
  - ○ Multiple errors (i.e. stale zone with expired sigs) cause a report for each error to each reporting agent.
  - ○ Some errors reveal resolver policy such as 16 (censored), 17 (filtered), 18 (prohibited). They should not be reported back to a reporting agent.

Engage with ICANN – Thank You and Questions

One World, One Internet

Visit us at icann.org

@icann

facebook.com/icannorg

youtube.com/icannnews

flickr.com/icann

linkedin/company/icann

soundcloud/icann

instagram.com/icannorg