

A Concise Binary Object Representation (CBOR) of DNS Messages

draft-lenders-dns-cbor-02

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Motivation

Objectives and Definition

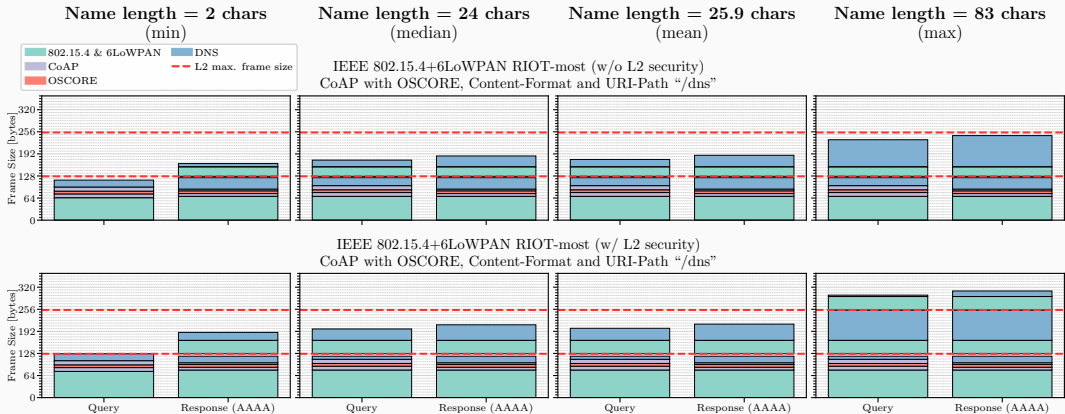
Progress

Next Steps

Motivation: DNS in Constrained Networks

Packet size exceeds 802.15.4 PDU depending on queried name length

⇒ Fragmentation



DNS over CoAP (draft-ietf-core-dns-over-coap) messages for different name lengths

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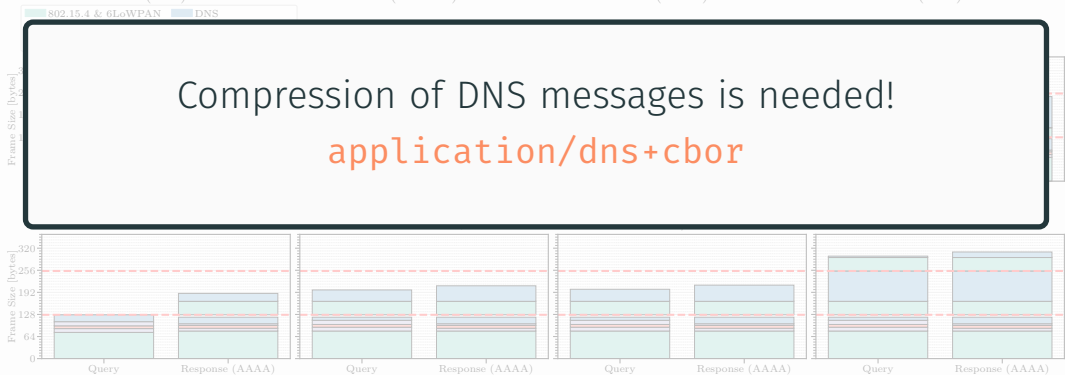
⇒ Fragmentation

Name length = 2 chars
(min)

Name length = 24 chars
(median)

Name length = 25.9 chars
(mean)

Name length = 83 chars
(max)



DNS over CoAP (draft-ietf-core-dns-over-coap) messages for different name lengths

Objectives of draft-lenders-dns-cbor (application/dns+cbor)

Reduce packet sizes of DNS queries and replies:

1. Encoding of DNS messages in CBOR
2. Omit (redundant) DNS fields in DNS queries and responses
3. Address and name compression using packed CBOR (optional)

Changes to DNS+CBOR Draft Since IETF 115

Addressing feedback from Carsten Bormann (now a co-author):

- Remove definition of `applicaton/dns+cbor-packed`,
now `application/dns+cbor;packed=1`

Addressing feedback from Ben Schwartz & Vadim Goncharov (thanks!):

- + Extensibility: Resource records may now also be represented as pure `bs
 - Clarify that fallback to application/dns-message MUST always possible`

More changes:

- Queries, like responses, now also array of arrays to allow for inclusion of additional and authority section (for OPT records)

- + Discuss format decisions for Packed CBOR
 - Clarify that compression algorithm for Packed CBOR is up to the implementation

TBD:

- + Provide and compare examples for compression algorithms
- + Addressing Vadim Concharov's feedback: Provide comparison DNS **wire-format** vs. **CBOR** vs. **Packed CBOR**

- Implementation and in-depth evaluation of DNS+CBOR
- Define more details on using packed CBOR:
 - Explore potential for global compression contexts/implied table entries
 - ⟨Your thoughts.⟩