DID Resolution

A work item of the W3C CCG

7th November 2019
IPR rules apply!

Zoom Call:
https://zoom.us/j/7077077007

Text Chat:
http://irc.w3.org/?channels=ccg
(type q+ to get into the queue)

This call is being recorded!

Agenda Thursday 07 November 2019

Welcome and CCG IPR reminder

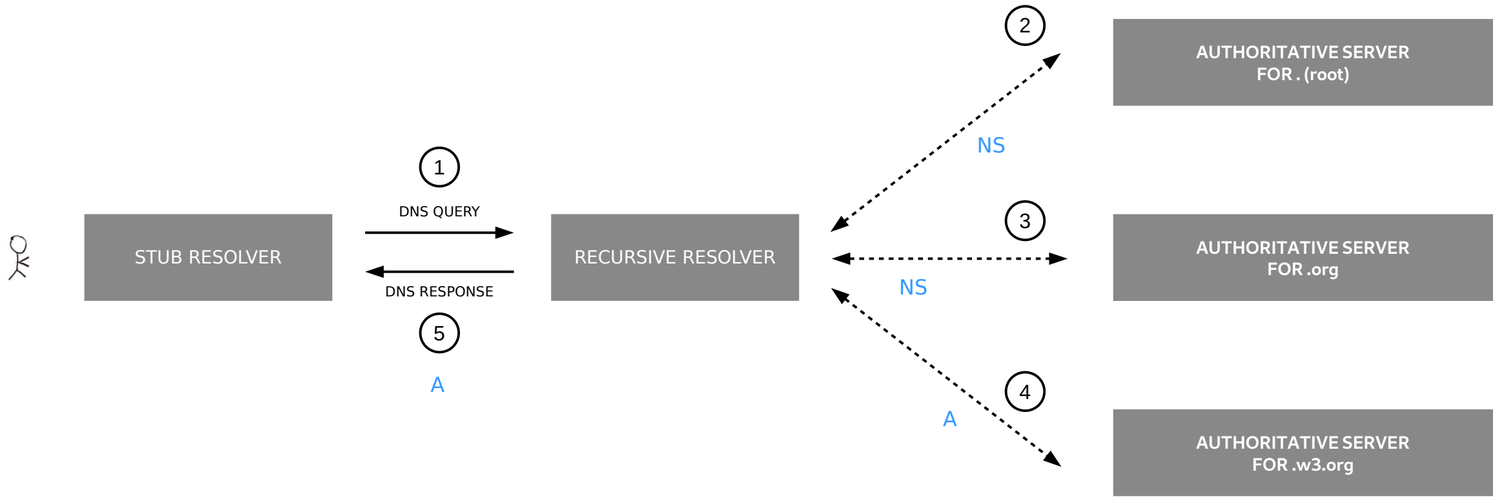
Call info and scribe selection

Agenda creation/review/prioritization

Continue discussion about trusted resolution, proofs on DID documents and DID resolution results; comparison with DNSSEC.

AOB

Next meeting



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← NS – IP(s) of authoritative nameserver for **.org**

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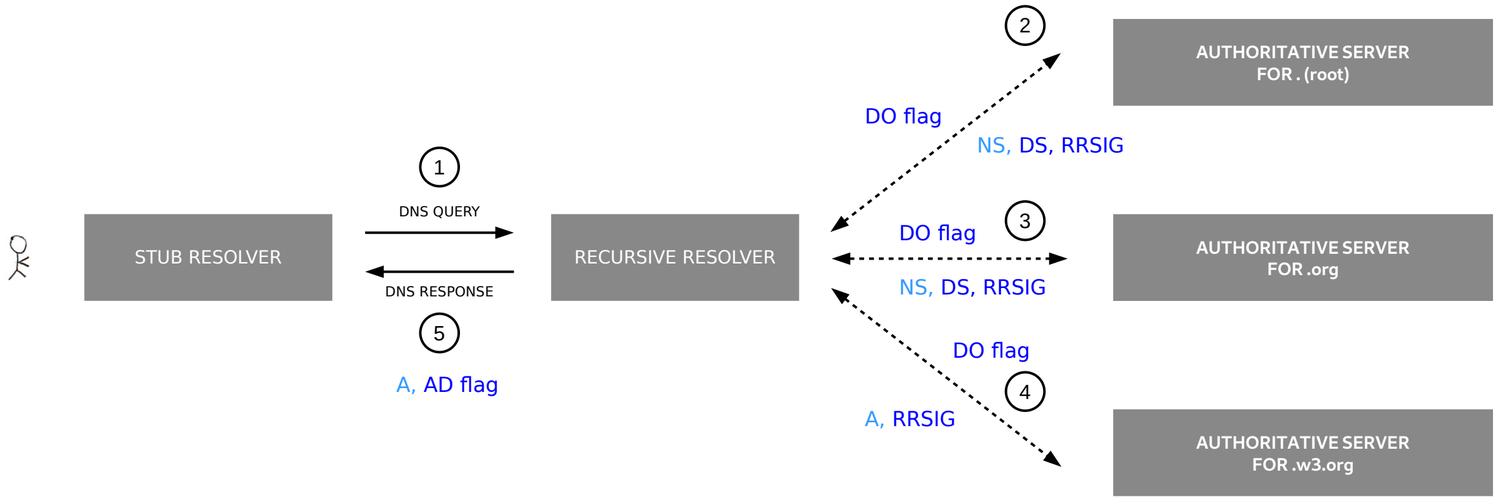

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2 → Lookup **“www.w3.org”**
→ Set DO flag (“DNSSEC OK”)

← NS – IP(s) of authoritative nameserver for **.org**
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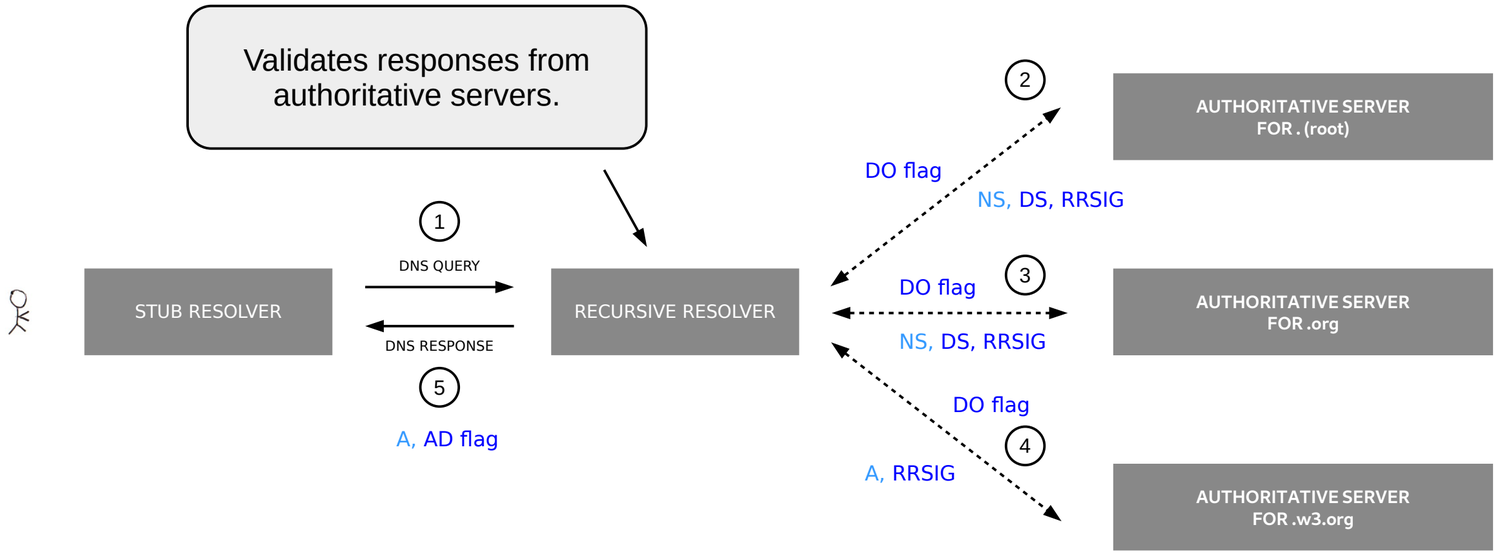

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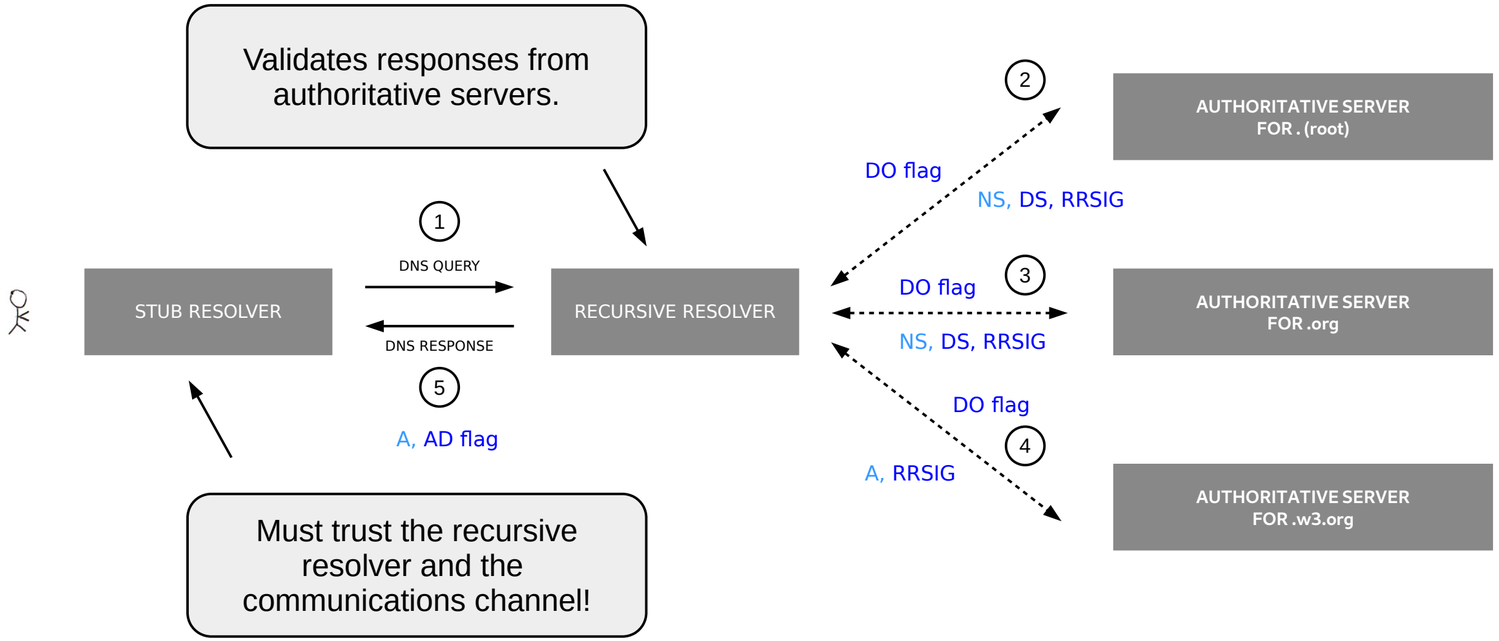

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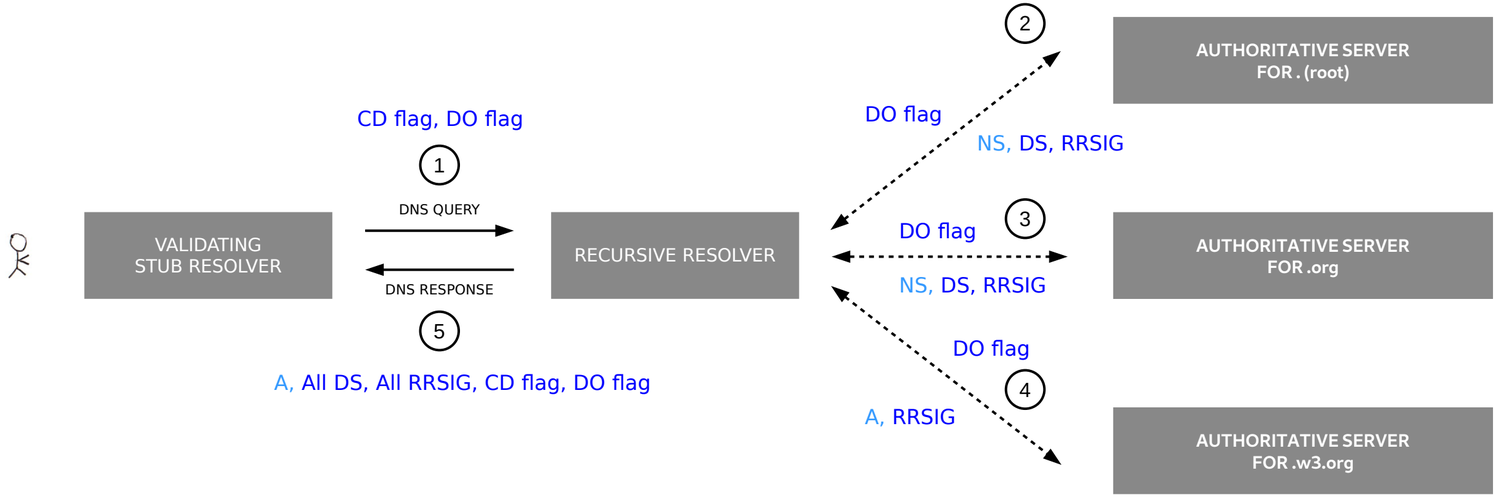

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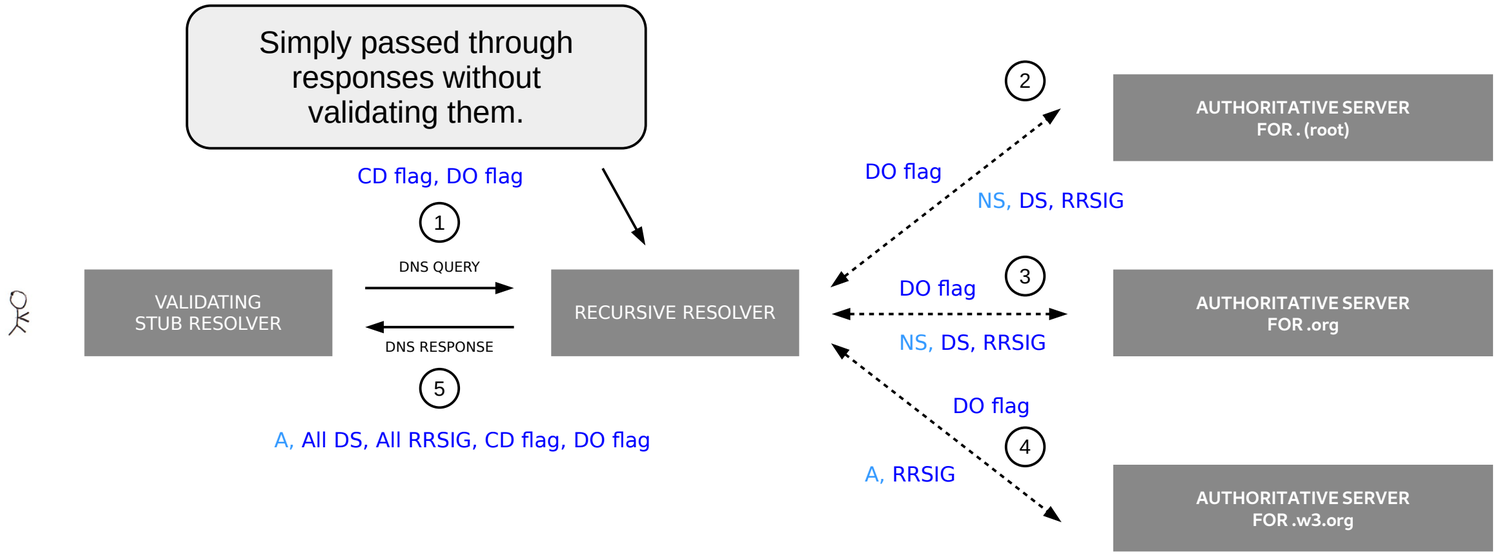

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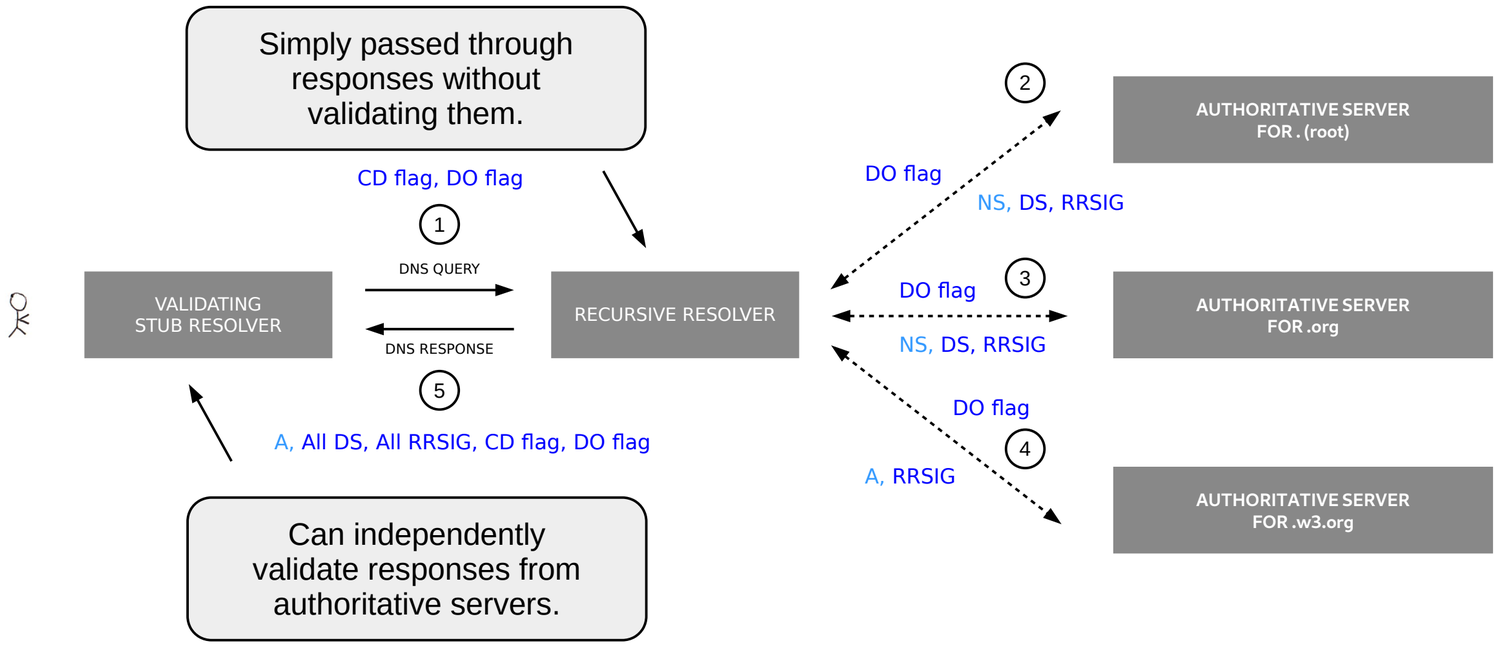

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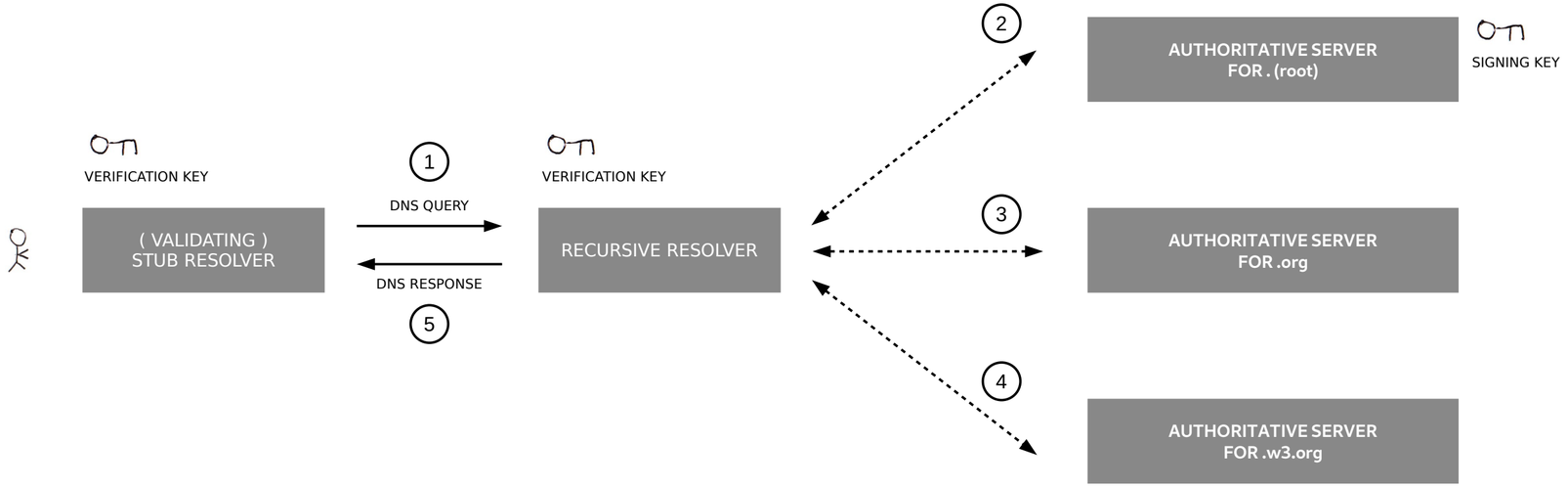
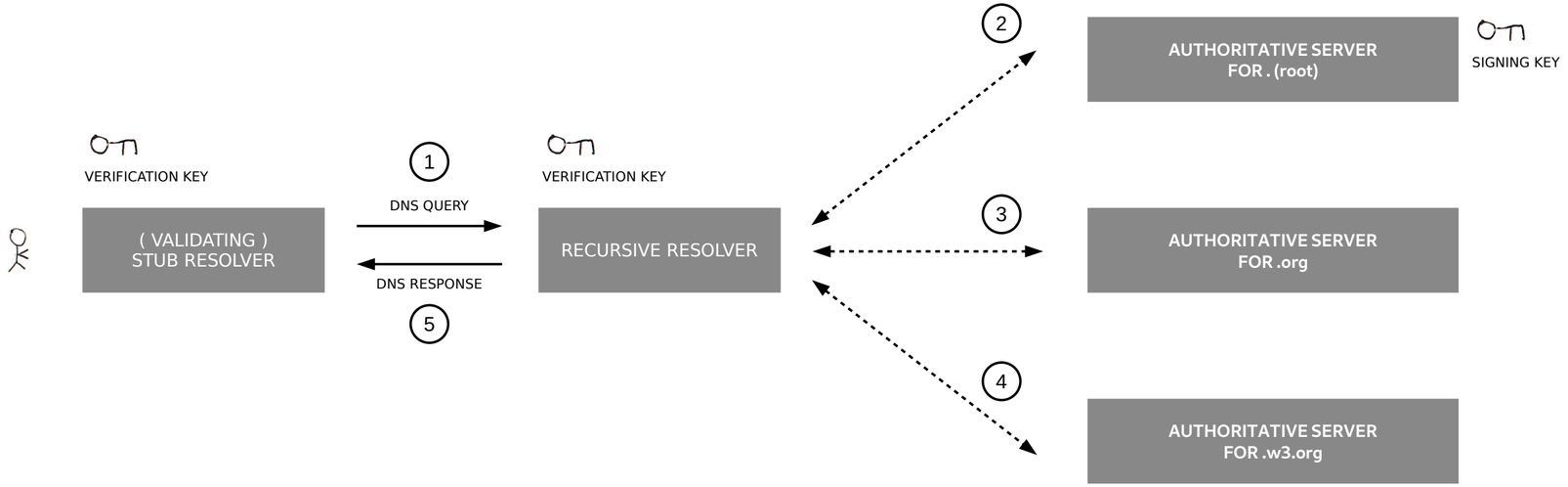


Can the recursive resolver verify the DNS records? ← Achieved by DNSSEC

Can the stub resolver verify the DNS records? ← Achieved by DNSSEC

Can the resolver verify the DID document? ← Should always be possible, specific to DID method, and depends on implementation

Can the client verify the DID document? ← May or may not be possible, specific to DID method, and depends on implementation



Can the stub resolver verify the recursive resolver response?

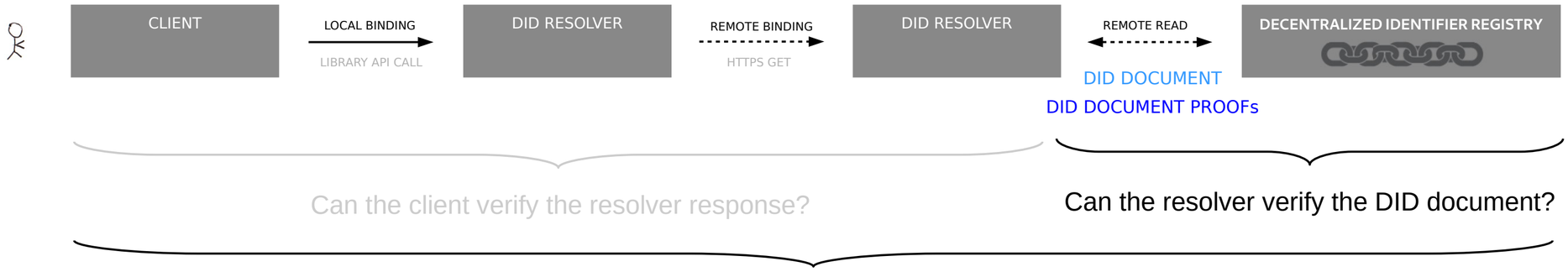
Can the recursive resolver verify the DNS records? ← Achieved by DNSSEC

Can the stub resolver verify the DNS records? ← Achieved by DNSSEC

Can the client verify the resolver response?

Can the resolver verify the DID document? ← Should always be possible, specific to DID method, and depends on implementation

Can the client verify the DID document? ← May or may not be possible, specific to DID method, and depends on implementation



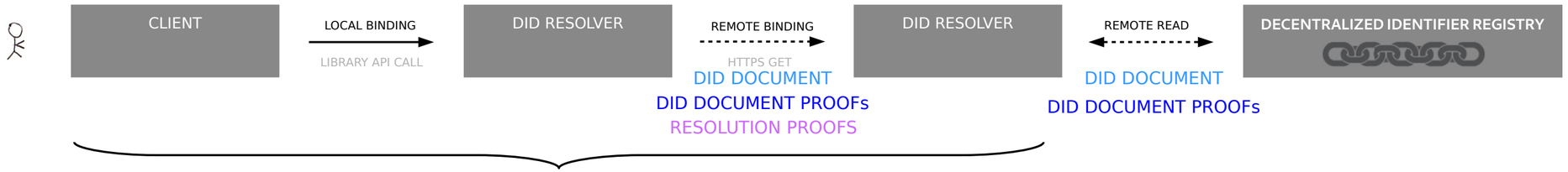
Examples of DID DOCUMENT PROOFS:

- Satoshi audit trail (btcr)
- BLS state proofs (sov)
- Signature by DID subject (web)

Analogous to DS, RRSIG in DNSSEC !

Is this part of the DID document, or DID resolution metadata?
(see https://github.com/w3c/did-core/issues/65)

```
{
    "@id": "did:example:12345",
    "service": [ ... ],
    "publicKey": [ ... ],
    "proof": [{
        "type": "SatoshiAuditTrail",
        ...
    }, {
        "type": "SovrinStateProof",
        ...
    }, {
        "type": "RsaSignature2018",
        ...
    }]
}
```



Can the client verify the resolver response?

Example of RESOLUTION PROOF:
- Signature added by DID resolver
- Method-independent

```
{
    "didDocument": {
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        "service": [ ... ],
        "publicKey": [ ... ],
        "proof": [{
            "type": "SatoshiAuditTrail",
            ...
        }, {
            "type": "SovrinStateProof",
            ...
        }, {
            "type": "RsaSignature2018",
            ...
        }]
    },
    "resolverMetadata": {
    },
    "methodMetadata": {
    },
    "proof": {
        "type": "RsaSignature2018",
        "proofPurpose": "assertionMethod",
        "created": "2019-11-23T10:14:22Z",
        "verificationMethod": "https://uniresolver.io/keys.json",
        "jws": "eyJ0eXAiOiJK...gFWFOEjXk"
    }
}
```