COSE Key Thumbprint

draft-ietf-cose-key-thumbprint

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Since IETF117

- Update: Supporting Symmetric Keys
  - Security Consideration enhanced
- New: CWT Confirmation Method
- New: COSE Key Thumbprint URI

Implementations updated.

Supporting Symmetric Keys

- Definition of Symmetric Key Objects for calculating Thumbprint
  - The required parameters for a symmetric key are:
    "kty" (label: 1, data type: int, value: 4)
    "k" (label: -1, data type: bstr)

- Security Consideration
  - Low-entropy enables attackers to guess symmetric keys.
  - Solution: Symmetric key must have enough entropy!

CWT Confirmation Method

- RFC 8747 Proof-of-Possession Key Semantics for CBOR Web Tokens (CWTs) defines `cnf` claim to convey key information for confirmation.
  - Currently 3 Confirmation Methods are defined and registered in IANA registry.
    - COSE_Key, Encrypted_COSE_Key, kid
- Add COSE Key Thumbprint as confirmation method
  - Define `ckt` as a new confirmation method.

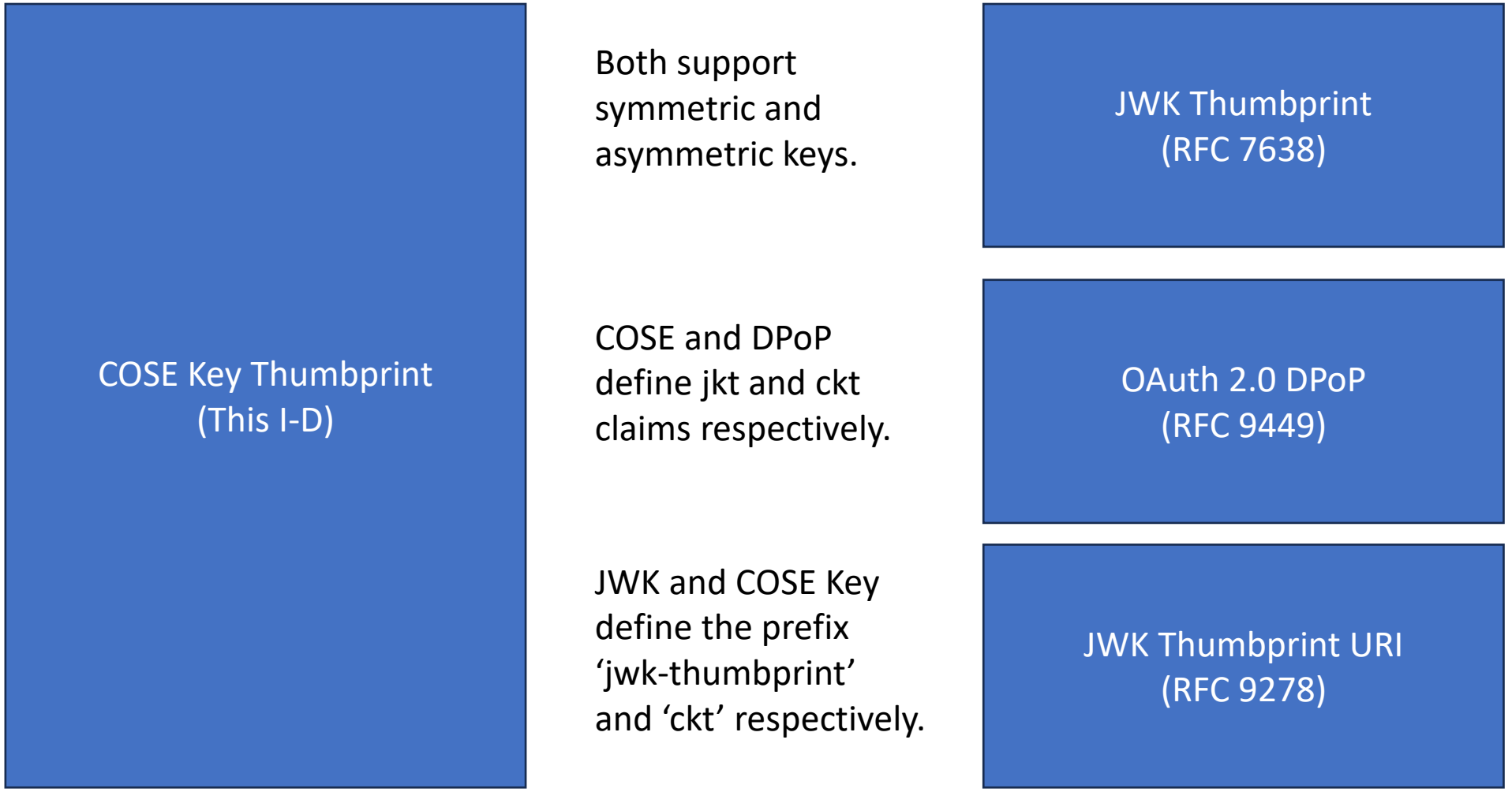
```
{
  /iss/ 1 : "coaps://as.example.com",
  /aud/ 3 : "coaps://resource.example.org",
  /exp/ 4 : 1361398824,
  /cnf/ 8 : {
    /ckt/ [[TBD1]] : h'496bd8afadf307e5b08c64b0421bf9dc01528a344a43bda88fadd1669da253ec’
  }
}
```

COSE Key Thumbprint URI

urn:ietf:params:oauth:ckt:sha-256:SWvYr63zB-WwjGSwQhv53AFSijRKQ72oj63RZp2iU-w

- Based on JWK Thumbprint URI (RFC 9278)
- ckt
  - Prefix for COSE Key Thumbprint URI
- Hash Algorithm
  - Choose from IANA Named Information Hash Algorithm Registry
- Value
  - Base64url-encoded COSE Key Thumbprint bstr

Comparison with JOSE Functionality



Next Steps

- Document shepherded by Mike.
- Ready for the IESG