CoAP Transport Indication

ietf-core-transport-indication-06

Christian Amsüss, Martine Lenders

2024-07-24
CoRE at IETF 120 in Vancouver
Goals

1. Enablement of transport discovery
2. No Aliasing
3. Optimization (no cost per request)
4. Proxy usability
5. Proxy announcement

- Give way forward after coap:// and coap+tcp diverged
Recent changes worth discussing

- Scope of has-proxy relation
- A lot about SVCB
Open question: Scope of has-proxy

“only through link relations”
- URIs regarded as opaque
- Relations are explicit
- Allows to exclude individual resources from transport indication
- Uses RFC 6690 rel=hosts which is not very clear
- Hard to keep track of what works where

vs.

“Applies per Origin”
- HTTP’s mechanism
- Simple
- Way shorter wording in terminology section
Recent changes worth discussing

- Scope of has-proxy relation
- A lot about SVCB

...without moving away from “transports are proxies” as a guiding principle
Rough URI equivalents

URI
coap://example.com/d

CoAP message
Envelope: UDP
to [2001:db8::1]:5863
Header: GET
Options:
    Uri-Host: example.com
    Uri-Path: d

RFC 7252

A / AAAA lookup
(with unique transport per scheme if successful)
DNS discovery requirements

A / AAAA lookup
(with unique transport per scheme if successful)

CoAP message
Envelope: UDP
to [2001:db8::1]:5863
Header: GET
Options:
    Uri-Host: example.com
    Uri-Path: d

RFC 7252

URI
coap://example.com/d

RFC 9462

DDR
Query: _dns.$DOMAIN IN SVCB

RFC 9463

DNR
DHCPv6 or RA provides SVCB-ish data

SVCB data
Service: _dns
Name: example.com
Sevice Params:
    coap-transport=udp
    (or alpn=co)
    port=5683
    docpath=["d"]
    AAAA: 2001:db8::1

DoC / this

Christian Amsüss, Martine Lenders
2024-07-24 CoRE at IETF 120 in Vancouver
Using SVCB

CoAP message
Envelope: UDP
ton [2001:db8::1]:5863
Header: GET
Options:
  Uri-Host: example.com
  Uri-Path: d

RFC 7252

A / AAAA lookup (with unique transport per scheme if successful)

SVCB lookup for _coap.example.com

SVCB data
Service: _dns
Name: example.com
Sevice Params:
  coap-transport=udp
  (or alpn=co)
  port=5683
  docpath=["d"]
  AAAA: 2001:db8::1

RFC 9462

DDR
Query: _dns.$DOMAIN IN SVCB

RFC 9463
DNR
DHCPv6 or RA provides SVCB-ish data

Christian Amsüss, Martine Lenders
CoAP Transport Indication
2024-07-24 CoRE at IETF 120 in Vancouver
Extra benefits

SVCB lookup for _coap.example.com

CoAP message
Envelope: UDP
to [2001:db8::1]:5863
Header: GET
Options:
  Uri-Host: example.com
  Uri-Path: d

RFC 7252
coap://example.com/d

URI

A / AAAA lookup
(with unique transport per scheme if successful)

RFC 7252

CoAP message

SVCB data
Service: _dns
Name: example.com
Sevice Params:
  coap-transport=udp
  (or alpn=co)
  port=5384
doopath=\"d\"
AAA: 2001:db8::1
TLSA: hexhex1234

SVCB lookup
for _coap.example.com

DoC / this

DDR / RFC9462
Query:
_dns.$DOMAIN IN SVCB

DNR / RFC9463
DHCPv6 or RA provides SVCB-ish data

Christian Amsüss, Martine Lenders
CoAP Transport Indication
2024-07-24 CoRE at IETF 120 in Vancouver 9 / 10
SVCB records for name resolutions

- Not retroactively activated.
- Applications can opt in.

Questions:
- Is the above too cautious?
- _coap SVCB or COAP RR?
- Extra _coaps SVCB?
Next steps

- Who would review this?
- Follow SVCB-parameters literals\(^1\)?
- Who would implement enough of this to interop test?\(^2\)

---

\(^1\)Necessary if we want the next IP based CoAP transport to work without a new scheme, or are we happy if that can’t use literals

\(^2\)Document is probably useful as theoretical background for new transports on its own, but I doubt that’s all we want.