Resource discovery, Object Security and other news from CoAP

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Constrained RESTful environments
CoAP

Discovery
Interfaces
PubSub
CoRE-Conf
Resource Directory
LWM2M
Custom apps

Links
SenML
CBOR
OSCORE

CoAP
UDP
DTLS
TCP
TLS
WS
IPv6
IPv6 / v4
6lo
LoRa
802.15.4
BLE
NFC
wired
WiFi
Cell

IETF
WG
2018
2014
CoRE Resource Directory
Regular resource discovery

GET coap://[fd02::fd]/.well-known/core
  ?rt=temperature

Response: 2.05 Content from [2001:db8:f0::1]
Payload:
  </temp>;rt=temperature;ct=0
Registration at Resource Directory

POST coap://[2001:db8:f01::ff]/rd
?ep=node42&lt=300
from [2001:db8:f0::1]
Payload:
</temp>;rt=temperature;ct=0

Response: 2.04 Changed
Discovery via Resource Directory

GET coap://[2001:db8:f01::ff]/rd-lookup/res?rt=temperature

Response: 2.05 Content
Payload:
<coap://[2001:db8:f0::1]/temp>;
rt=temperature;ct=0;
anchor="coap://[2001:db8:f0::1]"
OSCORE request protection

GET coap://node42.example.com/ambient/
Token: "0123"
Observe: yes

POST coap://node42.example.com/
Token: "0123"
Observe: yes
Object—Security: key ID, nonce
Encrypted payload:
   GET /ambient/
   the AEAD tag
OSCORE response protection

2.05 Content
Token: "0123"
Observation update: 15
Payload:
   air is still hot but not as dry any more

2.04 Changed
Token: "0123"
Observation update: 15
Object—Security: empty
Encrypted payload:
   2.05 Content, Payload:
       air is still hot but not as dry any more
   AEAD tag
Recap

- Resource Directory: discovery where multicast won’t do
- OSCORE: compact end to end protected exchanges across proxies
- SenML, Links-CBOR: compact versatile media types
- CoREConf, PubSub, CoRE interfaces: application building blocks
Thanks for having me here

Slides and more links on http://christian.amsuess.com/presentations/2018/summit-coap/