

# Discovery Mapping

CoRE Link Format <-> DNS-SD RRs

draft-ietf-core-rd-dns-sd

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# Why? (Use Cases)

- Support alternate methods of discovery in heterogeneous environments (e.g. HTTPS clients and CoAPS servers)
- Support hierarchical discovery in large environments (e.g. many K's of points)
  - DNS-SD for coarse-grained discovery
  - CoRE Link Format for fine-grained discovery
- Discovery bootstrapping (i.e. locating Resource Directories)

# CoRE Background

- CoRE => CoAP (COnstrained Application Protocol [RFC7252])
- CoAP = UDP + REST (Note: REQs can be multicast)
- REST (Representational State Transfer)
  - Clients/Servers/”Servients”
    - CRUDN methods (create, read, update, delete, notify)
    - Stateless transactions
  - Resources
    - Identified by URIs [RFC3986], have a Content Type
  - HATEOS (Hypertext As The Engine Of Application State)

# CoRE Resource Discovery

- CoRE Link Format [RFC6690] based on Web Linking [RFC8288]
  - Typed link = URI + link relation [+ target attributes]
- GET /.well-known/core (perhaps with a query string) and receive a body containing a collection of typed links
- [RFC6690] defines new target attributes:
  - rt= (resource type); application-specific semantic tag
  - if= (interface description); e.g. a URI to a schema or WADL
  - sz= (maximum size estimate for target resource)

# New/Required Link Target Attributes

- exp, hint that information about this resource should be exported
- ins=, instance name in UTF-8 format
- rt=, resource type (federated namespace?)
- if=, semantic tag or link to interface description

# Link-format to DNS-SD mapping

Link Format	DNS-SD
Resource Instance (ins=)	<Instance>
Resource Type (rt=)	<ServiceType>
<uri>	TXT path=/{relativeURI}
Interface Description (if=)	TXT if={anyURI}
Other attribute (key=value)	TXT key=value

TBD:

- Domain name (the DNS zone where the records are created)
- Host name (if it doesn't already exist) for naming AAAA RRs

# Link Format -> DNS-SD Example

## CoRE query

REQ: GET coap://[ff02::1]/.well-known/core?exp

RES: 2.05 "Content" (from [fdfd::1234]:5678)

</sensors/temp/1>;exp;ct=50;rt="oic.r.temperature";  
ins="indoorTemp"; if="oic.if.s",

## Resulting RRs

\_oic.\_udp.example.com. IN PTR indoorTemp.\_oic.\_udp...  
r-temperature.\_sub.\_oic.\_udp... IN PTR indoorTemp.\_oic.\_udp...  
indoorTemp.\_oic.\_udp... IN TXT txtver=1  
indoorTemp.\_oic.\_udp... IN TXT path=/sensors/temp/1  
indoorTemp.\_oic.\_udp... IN TXT if=oic.if.s  
indoorTemp.\_oic.\_udp... IN SRV 0 0 5678 node1234...  
node1234.example.com. IN AAAA fdfd::1234