

CDNI Request Routing: Footprint and Capabilities Semantics

draft-ietf-cdni-footprint-capabilities-semantics-04

IETF 91

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Changes since last version

- Addressed most (all?) comments from Iuniana
- Added generic Capability Advertisement Object and definition of corresponding registry
 - Defining a common base for future FCI advertisement objects of the various CDNI interfaces
- Added Security Considerations

Dependencies & interactions between FCI and LI/MI/RI/CI

- Issue (already raised and discussed at IETF-90 session)
 - Problem: Binary options for Logging/Metadata capability support is unlikely to be sufficient to describe optional modes
 - Need a common format, but would like to progress specifications of the individual CDNI interfaces without waiting on FCI advertisement object fully figured out
- Agreed solution (confirmed on mailing list)
 1. The MI/LI/RI/CI drafts remove any place holders for FCI discussion.
 2. The FCI semantics draft will define the template for FCI objects.
 3. The FCI semantics draft will define a registry for FCI objects.
 4. We will publish separate RFCs describing capability advertisement for MI/LI/RI/CI.
 - The FCI objects defined in these RFCs will be registered in the FCI object registry created by the FCI semantics draft.

Generic Capability Advertisement Object (Example)

```
{
  "capabilities": [
    {
      "capability-type": "application/cdni.FCI.RedirectionMode.v1"
      "capability-value": {
        "redirection-modes": [
          "DNS-I",
          "HTTP-I"
        ]
      }
    },
    {
      "capability-type": "application/cdni.FCI.LI.s-ccid.v1"
      "capability-value": {
        "s-ccid-support": true
      }
    }
  ]
}
```

Security Considerations

- Specific security mechanisms will be defined in actual FCI protocols
 - Semantics draft only provides general constraints
- Authentication and Integrity protection required
- Confidentiality optional
 - Now privacy risks – highly aggregated information
 - But dCDNs may wish to keep advertised info confidential from competing dCDNs
- Security requirements can be fulfilled by hop-by-hop transport layer security
 - E.g. TLS with certificates for uCDN and dCDN

Next Steps

- Need to address discussion on JSON serialization for FCI advertisement objects