

# **CDNI Request Routing with ALTO**

## **draft-seedorf-cdni-request-routing-alto-07**

**Jan Seedorf, Richard Yang, Jon Peterson**

IETF 90, Toronto  
CDNI WG  
July 2014

# CDNI FCI Status Quo

- Old: Competing Drafts
  - draft-seedorf-cdni-request-routing-alto-06
    - proposes an ALTO-based approach with ALTO maps
    - Expressing capabilities with ALTO maps not a perfect match
  - draft-ma-cdni-capabilities-04
    - CDNI-specific JSON format
    - Rudimentary security/error handling, not RESTful
- Now: Unified View among all Authors – “Best of two Worlds”
  - draft-seedorf-cdni-request-routing-alto-07
    - Specifies new ALTO service for CDNI FCI
    - Re-using ALTO security, error codes, RESTfulness, ...
  - draft-ma-cdni-capabilities-06
    - Specifies CDNI FCI object format (JSON) to be conveyed via new ALTO CDNI FCI service

# Example: CDNI FCI object format, conveyed via new ALTO service

```
GET /fcimap HTTP/1.1
Host: alto.example.com
Accept: application/alto-fcimap+json,application/alto-error+json
```

```
HTTP/1.1 200 OK
Content-Length: 439
Content-Type: application/alto-fcimap+json
{
  "meta" : {
    "vtag": {
      "resource-id": "my-default-fcimap",
      "tag": "da65eca2eb7a10ce8b059740b0b2e3f8eb1d4785"
    }
  },
  "fcimap": [
    { "name": "delivery_protocol",
      "values": [
        "HTTP",
        "RTSP",
        "MMS"
      ]
    },
    { "name": "delivery_protocol",
      "values": [
        "RTMP",
        "HTTPS"
      ]
    },
    "footprint": [
      { "type": "IPv4CIDR",
        "values": [
          "10.1.0.0/16",
          "10.10.10.0/24"
        ]
      }
    ]
  }
}
```

# Example: Footprint in ALTO network map

```
GET /networkmap HTTP/1.1
Host: http://alto.example.com/fcifootprint001
Accept: application/alto-networkmap+json,application/alto-error+json
```

```
HTTP/1.1 200 OK
Content-Length: TBA
Content-Type: application/alto-networkmap+json
```

```
{
  "meta" : {
    "vtag": [
      { "resource-id": "my-eu-netmap",
        "tag": "1266506139"
      }
    ]
  },
  "network-map" : {
    "south-france" : {
      "ipv4" : [ "192.0.2.0/24", "198.51.100.0/25" ], "cdni-fruit" : ["orange"]
    },
    "germany" : {
      "ipv4" : [ "192.0.3.0/24" ]
    },
    "rest" : { "ipv4": [0.0.0.0/0], "ipv6": [::/0] }
  }
}
```

# Example: CDNI FCI object format, conveyed via new ALTO service, footprint via reference to ALTO network map

```
GET /fcimap HTTP/1.1
Host: alto.example.com
Accept: application/alto-fcimap+json,application/alto-error+json
```

```
HTTP/1.1 200 OK
Content-Length: 439
Content-Type: application/alto-fcimap+json
```

```
{
  "meta" : {
  },
  "fcimap": [
    { "name": "delivery_protocol",
      "values": [
        "HTTP",
        "RTSP",
        "MMS"
      ]
    },
    { "name": "delivery_protocol",
      "values": [
        "RTMP",
        "HTTPS"
      ]
    },
    "footprint": [
      { "type": "altonetworkmap",
        "values": [
          "http://alto.example.com/fcifootprint001",
          "germany",
          "south-france",
        ]
      }
    ]
  ]
}
```

# Acknowledgements

Acknowledgement: Jan Seedorf has been partially supported by the GreenICN project (GreenICN: Architecture and Applications of Green Information Centric Networking ), a research project supported jointly by the European Commission under its 7th Framework Program (contract no. 608518) and the National Institute of Information and Communications Technology (NICT) in Japan (contract no. 167). The views and conclusions contained herein are those of the authors and should not be interpreted as necessarily representing the official policies or endorsements, either expressed or implied, of the GreenICN project, the European Commission, or NICT.