

# CDNi Control - Initialization and Bootstrapping

draft-choi-cdni-control-init-bootstrapping-00.txt

Taesang Choi (choits@etri.re.kr)

Young-IL Seo (yohan.seo@kt.com)

Jongmin Lee (jminlee@sk.com)

Ja-Ryeong Koo (wjbkoo@lguplus.co.kr)

John Dongho Shin (eastsky@solbox.com)

Yonghwan Bang (yjhvyp@gmail.com)

March 14, 2013

86<sup>th</sup> IETF, Orlando

CDNi WG

# Introduction

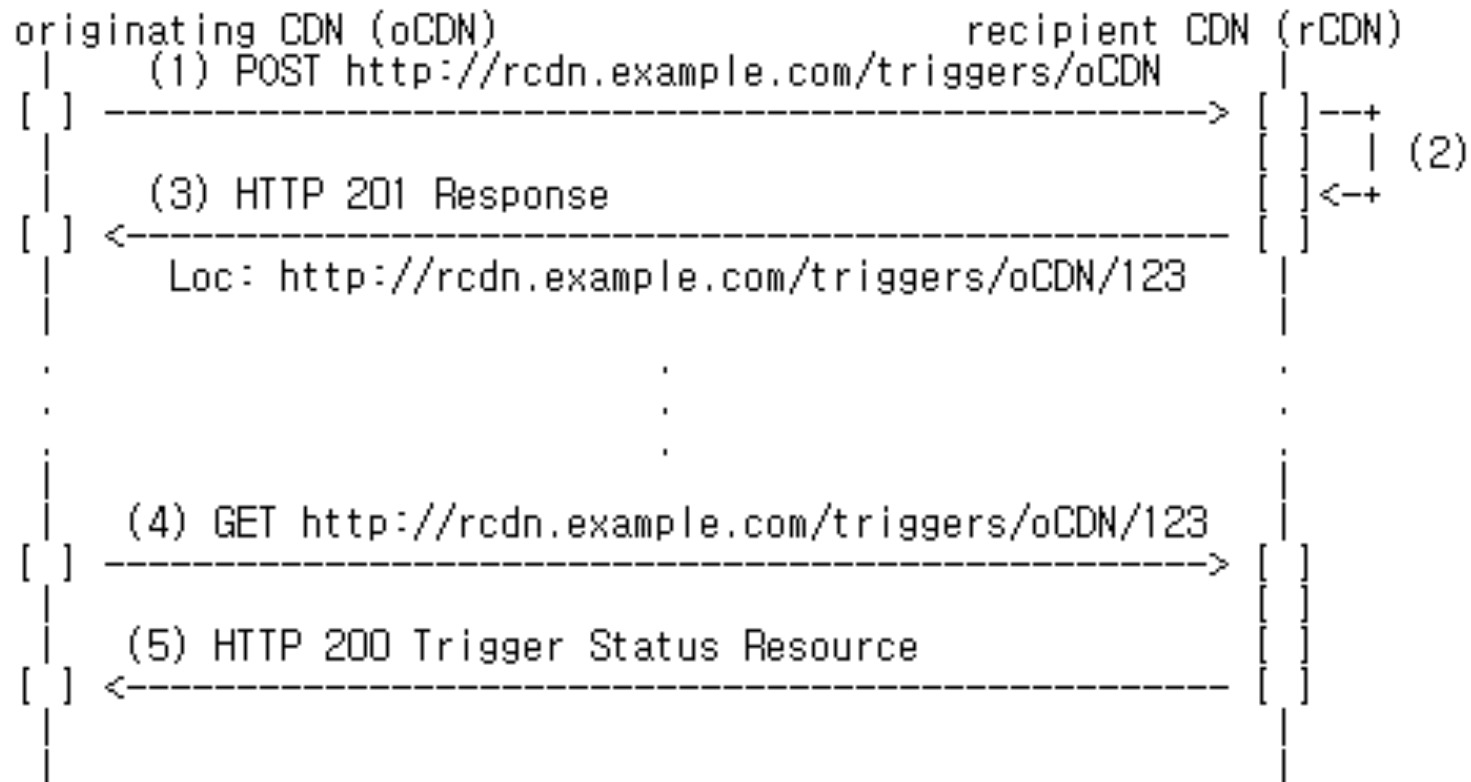
- Related Requirements: the CDNI Control interface may
  - allow a CDN to establish, update and terminate a CDN interconnection with another CDN
  - allow control of the CDNI interconnection between any two CDNs independently for each direction
  - allow bootstrapping of the Request-Routing/Metadata/Content Acquisition/Logging interface
  - allow exchange and negotiation of delivery authorization mechanisms to be supported across the CDNs
- To meet such requirements, this document describes
  - Re-use trigger/RESTful interface defined in “draft-murray-cdni-triggers-01”
  - Defines new trigger resources for initialization and bootstrapping
  - Lists properties of Trigger Requests and Status
  - Provides some examples

# Control Interface Initialization and Bootstrapping Actions

- initialize - used to instruct a CDN to initialize a CDN interconnection with another CDN at boot time
- add - used to instruct a CDN to add newly created footprint & capabilities(fp\_cap) or content and metadata(cdmd)
- update - used to instruct a CDN to update the existing fp\_cap or cdmd when there are changes
- remove - used to instruct a CDN to remove the existing fp\_cap or cdmd
- negotiate auth - used to instruct a CDN to negotiate delivery a authorization mechanism

# Basic CDNI Message Flow for Triggers

– reuse “draft-murray-cdni-triggers-01”



# Properties of Trigger Requests

- Property: cdni.general  
Description: The general information used to initialize CDN interconnection at boot time.  
Type: General  
Mandatory: Yes
- Property: cdni.contracts  
Description: The contract information used to initialize CDN interconnection at boot time.  
Type: Contract  
Mandatory: Yes
- Property: cdni.fp\_caps  
Description: Footprint and capabilities that need to be added, updated, or removed.  
Type: Fp\_cap  
Mandatory: Yes
- Property: cdni.cdmds  
Description: Contents and metadata that need to be added, updated, or removed.  
Type: Cdmd  
Mandatory: Yes

# Example: Initialize - Request

```
REQUEST - init
POST /triggers HTTP/1.1
User-Agent: example-user-agent/0.1
Host: dcdn.example.com
Accept: */*
Content-Type: application/vnd.cdni.control.trigger.request+json
Content-Length: xx
{
  "trigger" : {
    "type": "initialize",
    "cdni.general" : [
      {
        "cdnname": "UCDN1",
        "cdnid":100000,
        "cdnhostname": "ucdn.example.com"
      }
    ],
    "cdni.contract" : [
      {
        "cdnname": "DCDN1",
        "cdnid":200000,
        "cdnhostname": "dcdn.example.com"
        "dcdnflag": 1
        "ucdnflag": 0
      }
    ],
    "cdni.fp_cap" : [
      {
        "cdnname": "UCDN1",
        "iprange": 0.0.0.0/32,
        "delay": 10,
        "load": 30,
        "bandwidth: 20
      },
      {
        "cdnname": "UCDN1",
        "iprange": 211.224.204.0/24,
        "delay": 10,
        "load": 30,
        "bandwidth: 20
      }
    ]
  }
}
```

# Example: Initialize - Request

```
    },
  ],
  "cdni.cdmd" : [
    {
      "HostIndex": [
        {
          "hosts": [
            {
              "host": "video.example.com",
              "links": [
                {
                  "rel": "host-metadata",
                  "type": "application/cdni.HostMetadata",
                  "href": "http://metadata.example.ucdn.com/video"
                }
              ]
            },
            {
              "host": "images.example.com",
              "links": [
                {
                  "rel": "host-metadata",
                  "type": "application/cdni.HostMetadata",
                  "href": "http://metadata.ucdn.example.com/images"
                }
              ]
            }
          ]
        }
      ]
    }
  ]
}
```

# Example: Initialize - Response

RESPONSE:

HTTP/1.1 201 Created

Date: Sat, 23 Feb 2013 14:20:08 GMT

Content-Type: application/vnd.cdni.control.trigger.status+json

Location: http://dcdn.example.com/triggers/1

Server: example-server/0.1

Content-Length: xx

```
{
  "ctime": 1361629208,
  "etime": 1361629216,
  "mtime": 1361629208,
  "status": "pending",

  "trigger": {
    "cdni.general" [ .. ],
    "cdni.contract" [ .. ],
    "cdni.fp_cap" [ .. ],
    "cdni.cdmd" [ .. ],
    "type": "initialize"
  }
}
```



# Example: Add - Request

```
REQUEST - add
POST /triggers HTTP/1.1
User-Agent: example-user-agent/0.1
Host: dcdn.example.com
Accept: */*
Content-Type: application/vnd.cdn.control.trigger.request+json
Content-Length: xx
{
  "trigger" : {
    "type": "add",
    "cdni.fp_cap" : [
      {
        "cdnname": "UCDN1",
        "iprange": "211.224.205.0/24",
        "delay": 30,
        "load": 10,
        "bandwidth": 70
      }
    ],
    "cdni.cdmd" : [
      {
        "HostIndex": [
          {
            "hosts": [
              {
                "host": "streaming.example.com",
                "links": [
                  {
                    "rel": "host-metadata",
                    "type": "application/cdni.HostMetadata",
                    "href": "http://metadata.ucdn.example.com/streaming"
                  }
                ]
              }
            ]
          }
        ]
      }
    ]
  }
}
```

# Example: Add - Response

RESPONSE:

```
HTTP/1.1 201 Created
Date: Sat, 23 Feb 2013 14:20:08 GMT
Content-Type: application/vnd.cdni.control.trigger.status+json
Location: http://dcdn.example.com/triggers/2
Server: example-server/0.1
Content-Length: xx
```

```
{
  "ctime": 1361629208,
  "etime": 1361629216,
  "mtime": 1361629208,
  "status": "pending",
  "trigger": {
    "cdni.fp_cap" [ .. ],
    "cdni.cdmd" [ .. ],
    "type": "add"
  }
}
```

# Summary

- This draft proposed
  - Re-use trigger/RESTful interface defined in “draft-murray-cdni-triggers-01”
  - Defines news trigger resources for initialization and bootstrapping
  - Lists properties of Trigger Requests and Status
  - Provides some examples (initialize, add, update, remove, add log)
- Any comments or suggestions for improvements are invited