CDNi Control - Initialization and Bootstrapping

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

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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 news 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 uthorization 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
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.cmd": [
{
  "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.ccmd": [ .. ],
      "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.cdni.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.cmd": [
      {
        "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.cmd": [ .. ],
        "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