draft-stephan-cdni-alto-session-ext-00

IETF83 – Paris

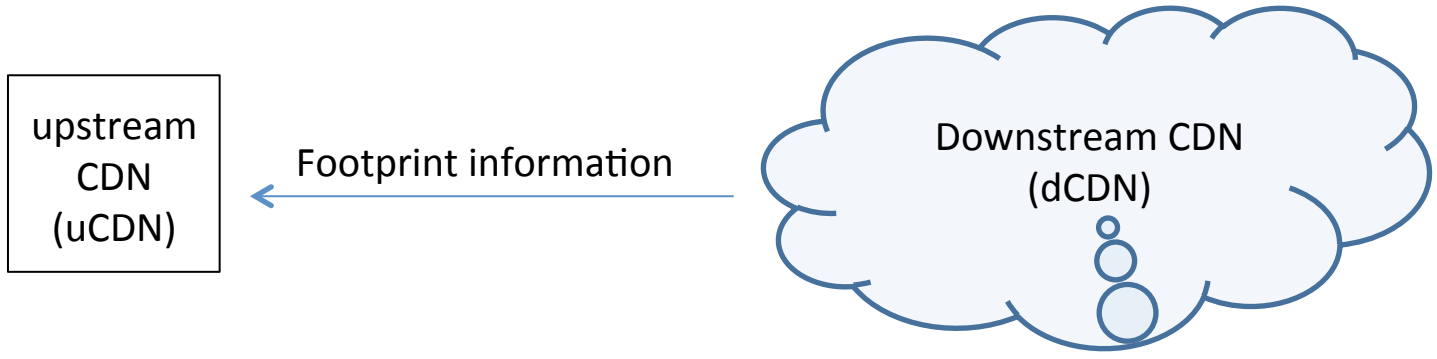
CDNi WG

E. Stephan, S. Ellouze

France Telecom - Orange

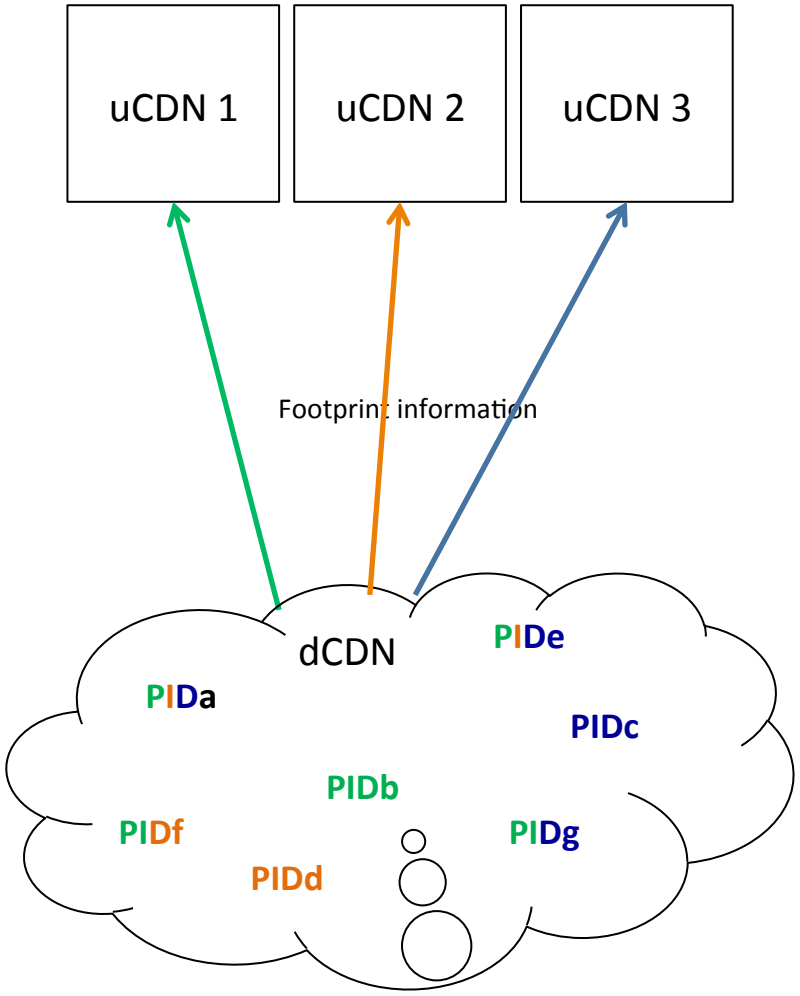
draft-stephan-cdni-alto-session Scope

- Extension of ALTO protocol and services for exchanging of footprint information between 2 CDNs
- Avoid boiling the planet and stick to the CDNi charter
  - Direct CDN interconnection only
  - Cascading of CDNs and redistribution of footprint information are out of the scope of the draft



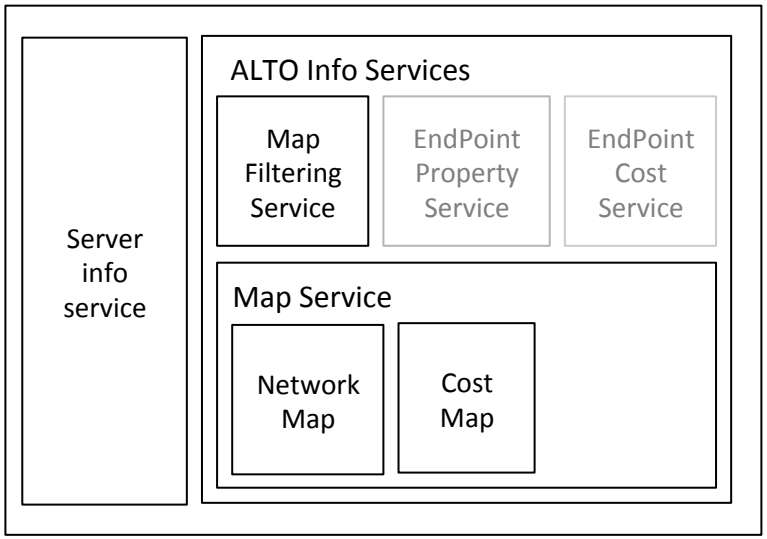
Motivation

- When one CDN interconnects with several CDNs the motivations of the interconnections differs (inter-affiliate, geographic footprint extension, etc.; see draft-ietf-cdni-usecase);
- A dCDN has a specific agreement with each of the uCDNs it interconnects with.
- A uCDN has a specific agreement with each of the dCDNs it interconnects with.
- The footprint information that should be exchanged depends on each case.
- The draft specifies ALTO session-level services and parameters enabling the control and the customization of the Footprint information to exchange.

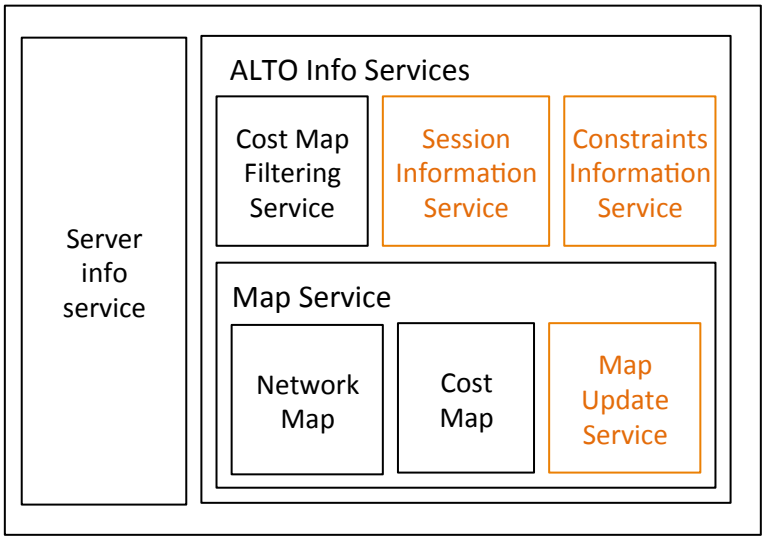


ALTO Session Extension Overview

Current ALTO



ALTO Session Extension



Session Extension Service

Current ALTO

Session

- No logical association
- No PIDs views

Session Extension for CDN interconnection

Session

- Interoperability requires standard session parameters that should be exchanged on the CDNi control interface
- uCDN doesn't want to be flooded with useless information. dCDN want to limit the information exposed.
- Need of session-level services and parameters to control and customize the information exchanged

ALTO Info Services

Current ALTO

EndPoint Cost Service

- Ranking information

EndPoint Property Service

- Information on UA

Network Map Filtering Service

- HTTP POST messages potentially redirected to HTTP GET of cached filtered Map

Cost Map Filtering Service

- 2 information services provide filtering, one with GET, the second with POST

Session Extension for CDN interconnection

EndPoint Cost Service

- Useless: already provided by RRI

EndPoint Property Service

- Useless, introduces privacy issues

Network Map Filtering Service

- Need of session-level PIDs selection to focus on the footprint of interest of uCDN (the ALTO client)

Cost Map Filtering Service

- Need of pre-configured cost map views
- Interoperability require a single service based on HTTP GET

ALTO Map Services

Current ALTO

Network Map

- Includes all the PIDs
- Includes all the details

Cost Map

- Includes the whole cost Map
- Multi-cost

Map Update

- Require downloading all the maps
- Based on polling only

Session Extension for CDN interconnection

Network Map

- Scalability requires session-level PIDs selection and customization of the default level of detail of the information exchanged

Cost Map

- An uCDN needs only the Cost map for its PIDs of interest.
- Multi-cost maps will require the customization of the default level of detail

Map Update

- Scalability requires an incremental update and the customization of the heart beat
- May require notification

Session Parameters

- session_PIDs: The PIDs of interest of the session (e.g. ipv4 and on-net, etc.).
- pre_generated_cost_map:s The list of pre-generated cost maps of the session. A map is defined by a cost parameter and the name of the URI where the information is downloadable. As an example a value of pre_generated_cost_map sof { 'routingcost', www.NSP.com/rccm.html } means that at the initialization of the session the dCDN ALTO server will created the pre-generated cost map with the parameters 'routingcost' and make this map accessible to uCDN with the URI www.NSP.com/rccm.html).
- network_map_level_of_details: The default level of details of the network maps.
- costmap_level_of_details: The default level of details of the cost maps.
- update_heartbeat: The time scale of the update (e.g. minute, hour, day, week, month).
- update_mode:
  - Synchronous: dCDN sends an update or an notification when an information changed.
  - Asynchronous: dCDN downloads the maps using GET methods.
  - The rhythm must respect the update time scale given by update_heartbeat.

Drafts related to the same topic

- draft-seedorf-i2aex-alto-cdni-perpective
  - DC and CDNi info exposure
- draft-spp-cdni-rr-foot-cap-semantics
  - Footprint and capabilities semantics
- draft-previdi-cdni-footprint-advertisement
  - Footprint exposure using a BGP extension
- draft-jenkins-alto-cdn-use-cases
  - Use cases for ALTO within CDNs