

CDNI Request Routing with ALTO

draft-seedorf-cdni-request-routing-alto-04

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August, 2013

ALTO within CDNI Request Routing

ALTO is Candidate for the CDNI Footprint / Capabilities Advertisement Interface (FCI)

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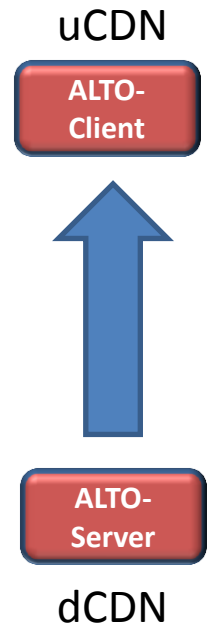
- outlines how ALTO can be used as CDNI FCI protocol and for dCDN selection
- discusses design choices, advantages of ALTO, and presents concrete examples

Recent Changes

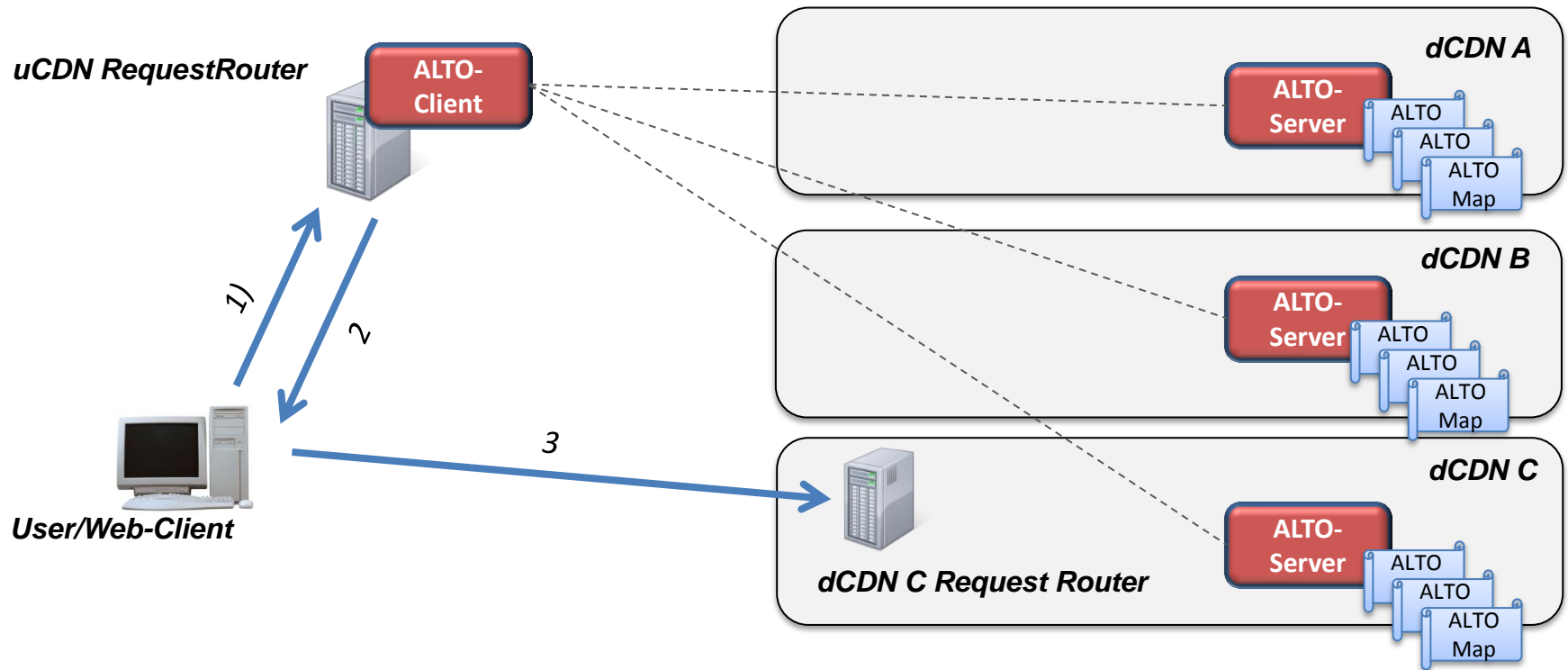
- Text and examples aligned with latest conclusions in the “footprint/capabilities advertisement” design team, i.e. semantics for Footprint/Capabilities Advertisement (see draft-ietf-cdni-footprint-capabilities-semantics-00)

How can mandatory types of footprint/capabilities be conveyed with ALTO?

- **Footprint Advertisement with ALTO network map**
 - dCDN provides ALTO network map
 - ALTO network map: groups network locations (e.g. IP-prefixes) into “PIDs”
 - Network map of dCDN contains footprint of dCDN grouped into PIDs
- **Capabilities Advertisement with ALTO network maps**
 - dCDN provides ALTO network maps
 - network maps provided by a dCDN can group the dCDN's coverage footprint into several PIDs, where each PID name has a certain 'capability' semantic
 - E.g., for each supported delivery protocol, the dCDN would provide an ALTO PID in a network map that contains all IP-prefixes that support this delivery protocol



High-Level Example of Selecting a Downstream CDN



- 1) Each dCDN provides a footprint network map "NM_cov"
- 2) Each dCDN additionally provides capability network maps "CM_1", ..., "CM_n"
 - provide the upstream CDN information regarding the support for capabilities each individual downstream CDN would imply depending on the given location of an end user request
 - can be retrieved selectively by the uCDN by using the Filtered Network Map option, see Section 10.2.1. in draft-ietf-alto-protocol-17

Advantages of using ALTO

- CDN request routing is done at the application layer
 - **ALTO is a protocol specifically designed to improve application layer traffic by providing additional information to applications that these applications could not easily retrieve themselves**
 - **Exactly the CDNI dCDN selection use case**
- ALTO network maps are a straightforward way to express a dCDN footprint
- ALTO network maps are suitable means to convey what capability is available at what partial dCDN footprint
- Flexible granularity: The concept of the PID allows for different degrees of granularity
- ALTO maps provide integrity protection

Outlook / Next Steps

- Provide more concrete examples
 - Examples with actual network maps
 - More examples for all mandatory types of footprint and capabilities
- Feedback ?

Acknowledgements

- Special thanks to Richard Yang for valuable contributions to this draft
- Jan Seedorf is partially supported by the CHANGE project (CHANGE: Enabling Innovation in the Internet Architecture through Flexible Flow-Processing Extensions, <http://www.change-project.eu/>), a research project supported by the European Commission under its 7th Framework Program (contract no. 257422). 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 CHANGE project or the European Commission.