

CDNI Request Routing with ALTO

draft-seedorf-cdni-request-routing-alto-05

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ALTO within CDNI Request Routing

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

draft-seedorf-cdni-request-routing-alto

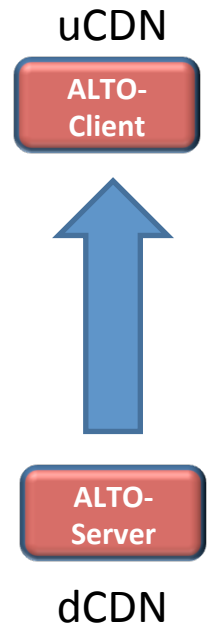
- outlines how ALTO can be used as CDNI FCI protocol and for dCDN selection
- discusses design choices, advantages of ALTO, and presents concrete examples

Recent Changes

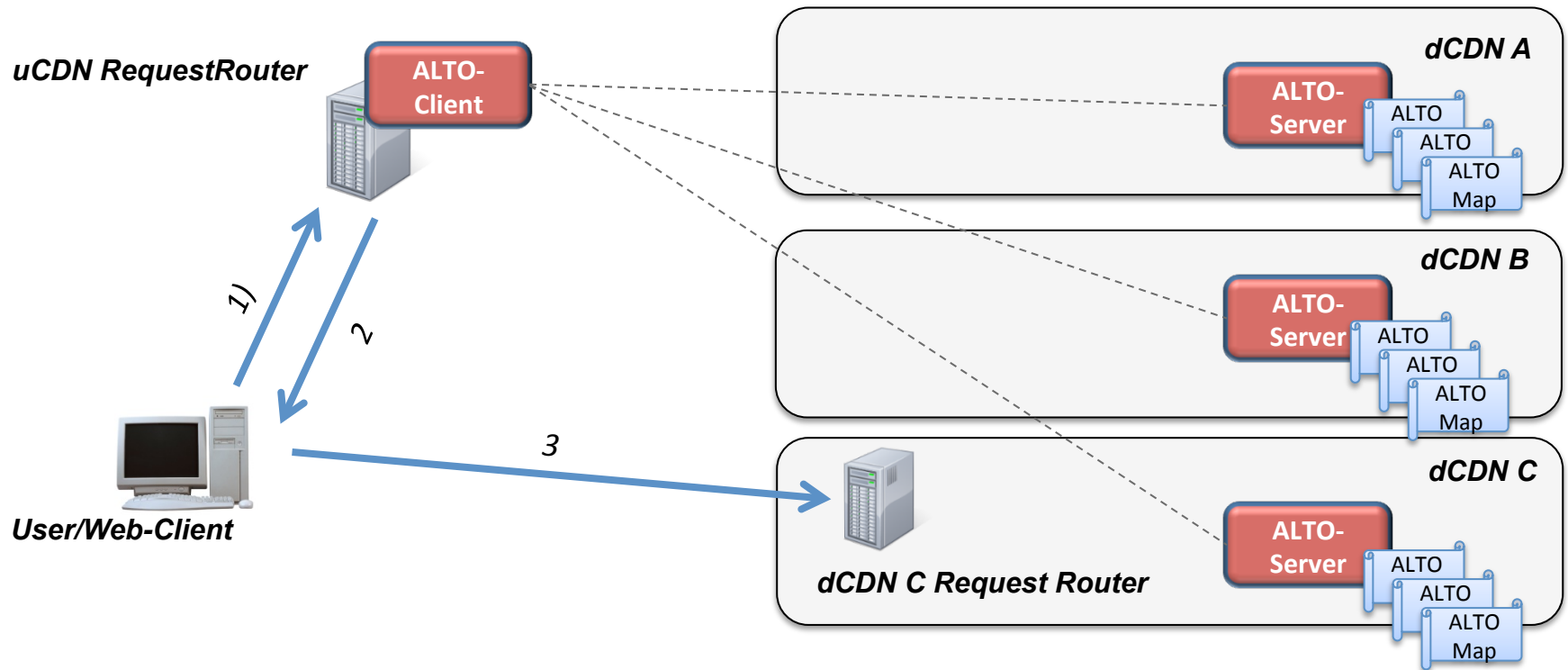
- Text and examples aligned with latest conclusions in the “footprint/capabilities advertisement” design team, i.e. semantics for Footprint/Capabilities Advertisement (see draft-ietf-cdni-footprint-capabilities-semantics-00)

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

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