CDNI Request Routing with ALTO
draft-seedorf-cdni-request-routing-alto-05

Jan Seedorf, Richard Yang

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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
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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