

# CDNI Framework

draft-davie-cdni-framework-01.txt

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# Overview

- ▶ Explains how do all the pieces fit together
  - Records and justifies architectural decisions
- ▶ Explores design choices
  - Informs how pieces are designed
  - Informed by experience building the pieces



# Locus of Control

- ▶ Locus of control remains with upstream CDN
  - dCDN queries uCDN in-line (Conditional GET)
  - HTTP If-Modify-Since + X-Forwarded-For

VS

- ▶ Locus of control delegated to downstream CDN
  - via Metadata interface
- ▶ Hybrid approach lowers the bar for what **MUST** be supported by the Metadata interface
  - Add “check with me” parameter to the metadata

# Delegated Authorization

- ▶ URL signing is prime example
  - Have to propagate keys
- ▶ Modest proposal – start with simple case
  - CSP authorizes
  - Annotates URL accordingly
  - CDNs simply validate

# In-Line Metadata Exchange

- ▶ Piggyback metadata on RRI messages
- ▶ Rationale for disallowing
  - More efficient (likely many more RRI exchanges)
  - May need to piggyback a substantial amount of metadata
  - RR and Metadata Interfaces evolve independently

# Cascading CDNs

- ▶ Explicit (visible) cascading is not necessary
  - RESTful behavior implies CDNs stack transparently
  - All peer CDNs are directly connected

vs

- ▶ Full generality of cascading CDNs is supported
- ▶ Discussion points...
  - General: Must solve anyway vs Not our problem
  - Specific: DNS/HTTP x Cascade-or-Not x CDN Topology
    - Acknowledge limitation of one case: DNS x Cascade x Diamond

# Out-Sourced Discussions

- ▶ CDN Capabilities – RR Semantics
- ▶ Control vs Metadata – Triggers
  - That triggers return Status is a key differentiator
  - Meaning? → Transfer of responsibility (liability)
  - Does that mean Metadata is advisory only?
- ▶ Handling ABR content – Next Talk

# CDNI-wide Data Model

- ▶ Need to express the resources (assets) to which policy is to be applied
  - Metadata – Availability Directives
  - Request Routing – Redirection Directives
  - Logging – Aggregate event records
- ▶ Need an “aggregation” construct – logical asset set
  - e.g., collection of segments in a single video
  - e.g., collection of videos to be treated in the same way
- ▶ How to represent?
  - Top-level: CDN-Domain (FQDN at beginning of URI)
  - Subsets: Regular expressions? Manifest files?



# Next Steps

- ▶ Discuss and resolve open issues
- ▶ Re-post as WG draft