CDNI Logging Formats for HTTP and HTTP Adaptive Streaming Deliveries

(draft-lefaucheur-cdni-logging-delivery-01)

CDNI Working Group
IETF 84 Vancouver, Canada
July, 2012

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Scope

- Objectives:
  - Track a number of considerations/functionalities regarding regular HTTP logging that are not yet covered in [I-D.bertrand-cdni-logging].
  - discusses in more details how the recommendations of [I-D.brandenburg-cdni-has] would impact the CDNI Logging interface.

CDNI Logging for regular HTTP Delivery

- Triggers

Event	Description
content Request	Reception and processing of a request for a content

- Fields

Field	Description
Current-Time	
Time-to-Serve	
Client-IP	
Action	
Status-Returned	
Bytes-Transferred	
Method	
URI	
Content-Type	
User-Agent (other HTTP headers)	Content of the HTTP User-Agent
URI-Signing-Validation	Flag indicating URI validation performed

CDNI Log Header

Field	Description	Examples
Format-Version	Version of the CDNI Log format.	v1.0
Log-Field-List	The list of the fields provided in the log records	time cs-method cs-uri
Log-ID	Unique identifier for the CDNI Log (facilitates detection of duplicate Logs and tracking in case of aggregation).	
Log-Timestamp	Time, in milliseconds, the CDNI Log was generated.	[20/Feb/2012:00:29.510+0200]

CDNI per-Log-Record Information

Field	Description	Examples
Log Record Digest	Digest of the Log records (facilitates recovery of uncorrupted Log records inside a corrupted CDNI Log)	

CDNI Log Footer

Field	Description	Examples
Log Digest	Digest of the complete Log (facilitates detection of Log corruption)	

CDNI Customized Log Format

- the uCDN uses the CDNI Metadata interface to indicate to the dCDN which subset of the CDNI logging fields are to be provided in a log record for corresponding to a request for a given content
- the dCDN provides, via the CDNI Logging interface, log records containing the subset of CDNI logging fields requested by the uCDN.
- The dCDN explicitly lists in the CDNI Log Header the fields actually provided

CDNI Logging for HAS Delivery

- Assumes proposed recommendation of [I-D.brandenburg-cdni-has]
- HAS Chunk-Based Log records

CDNI Logging for HAS Delivery

- Triggers

Event	Description
Chunk/Manifest Request	Reception and processing of a request for a chunk or Manifest File

- Fields:
  - Same as for regular HTTP Delivery
  - Plus two additional fields:

Field	Description
Content Collection ID	Identifier for Content Collection
Session-ID	a string generated by delivering and unique (to the delivering CDN) to identify the Session. (*)

(*) The Session-ID value to be included in a log record by the delivering CDN is such that:

- different per-chunk log records with the same Session-ID value must correspond to the same user session (.i.e delivery of same content to same enduser at a given point in time)
- log records for different chunks of the same user session (.i.e delivery of same content to same enduser at a given point in time) should be provided with the same session-ID value. While undesirable, there may be situations where the delivering CDN uses more than one session-ID value for different per-chunk log records of a given session, for example in scenarios of fail-over or load-balancing across multiple Surrogates and where the delivering CDN does not implement mechanism to synchronize session-IDs across Surrogates.

Impact on CDNI Metadata

- ***META-X [HIGH]*** *The CDNI Metadata Distribution interface shall support an OPTIONAL mechanism allowing the Upstream CDN to indicate to the Downstream CDN which CDNI Log fields are to be provided for all, for specific sets of, or for specific content items delivered using HTTP. A CDNI implementation that does not support this optional CDNI Metadata Distribution Interface mechanism MUST ignore this log format indication and generate CDNI logging format for adaptive streaming using the default set of CDNI Logging fields.*
- ***META-X [MID]*** *The CDNI Metadata Distribution interface shall allow the uCDN to signal to the dCDN the Content Collection ID value for all, for specific sets of, or for specific content items delivered using HTTP. Whenever the dCDN is instructed by the uCDN to report the Content Collection ID field in the log records, the dCDN is to use the value provided through the CDNI Metadata interface for the corresponding content.*

Impact on CDNI Footprint and Capabilities Advertisement

- ***REQ-X [MID]*** *The CDNI Request Routing/Footprint and Advertisement Interface shall support advertisement of the following capabilities:*
  - *support for customized CDNI Logging*
  - *support of Content Collection ID logging*
  - *support for Session-ID logging*