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CDN Interconnection Architecture

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Contents

Intellectual Property Rights	6
Foreword.....	6
Introduction	6
1 Scope	7
2 References	7
2.1 Normative references	7
2.2 Informative references	7
3 Definitions and abbreviations.....	8
3.1 Definitions	8
3.2 Abbreviations	8
4 High-level overview	9
4.1 CDN interconnection services and capabilities	9
4.2 CDN interconnection capabilities.....	10
4.3 CDN-I basic capability set.....	10
4.4 CDN-I extended capability set	11
4.5 Compliance.....	12
5 Overview of functional entities	12
5.1 Functional architecture for CDN interconnection services.....	12
5.2 Functional entities	12
5.2.1 CDN Interconnection Control Function (ICF).....	13
5.2.2 Request and Content Control Function (RCF).....	13
5.2.3 Distribution of Content Function (DCF).....	13
5.3 Reference points	13
5.3.1 ICF - ICF (CDN-Ic).....	13
5.3.2 RCF - RCF (CDN-Ir).....	14
5.3.3 DCF - DCF (CDN-Id).....	14
6 Procedures	14
6.1 CDN interconnection phases	14
6.1.1 Interconnection establishment	14
6.1.2 Interconnection phase	15
6.1.3 Interconnection release	16
6.2 Content distribution.....	18
6.2.1 General.....	18
6.2.2 Content distribution control	18
6.2.2.1 General	18
6.2.2.2 Upstream-initiated content distribution.....	18
6.2.2.3 Downstream-initiated content distribution.....	19
6.2.2.4 Upstream-initiated content deletion	20
6.2.2.5 Downstream notification of content deletion	21
6.2.3 Content exchange.....	22
6.2.3.1 General	22
6.2.3.2 File transfer	22
6.2.3.3 Stream set-up.....	22
6.2.3.4 Stream release	23
6.2.3.5 Segmented content	24
6.3 Request routing	25
6.3.1 General.....	25
6.3.2 Single-delivery request routing.....	25
6.3.3 Multiple-delivery request routing	25
6.4 Reporting.....	26
6.4.1 General.....	26
6.4.2 Upstream-initiated reporting.....	26

6.4.3	Downstream-initiated reporting	27
6.5	Interconnection Control Function Procedures	27
6.5.1	General	27
6.5.2	Capabilities exchange	28
6.5.3	Footprint exchange	28
6.5.4	Services status exchange	29
6.6	DRM Procedures	30
6.6.1	General	30
6.6.2	Flagging CDN content for DRM	30
6.6.3	Key exchange for DRM	30
6.6.3.1	uCDN-initiated key exchange for DRM	30
6.6.3.2	dCDN-initiated key exchange for DRM	31
7	Data models	32
8	Security	32
8.1	Security feature interoperability	33
8.2	CDN interconnection service protection	33
8.2.1	Secure CDN-I connection establishment	33
8.3	CDN interconnection content and metadata authenticity	33
8.4	Security policy definition by content provider	34

Annex A (informative): Interfaces and Functions35

A.1	CDN interconnect interfaces under study	35
A.1.1	ETSI CDN	35
A.1.2	IETF CDN-I	36
A.1.2.1	General	36
A.1.2.2	IETF CDN-I compatibility with ETSI CDN-I	36
A.1.3	ATIS CSF	37
A.1.4	FP7 OCEAN	37
A.2	Functionality of the CDN interconnection	37
A.2.1	Content distribution, upstream or downstream initiated	37
A.2.2	File-based and stream-based content	38
A.2.3	Request routing, per request or not	39
A.2.4	Reporting or logging	39
A.2.5	Security mechanisms	39
A.2.6	Content adaptation	39

Annex B (informative): Datamodel analysis40

B.1	Metadata structure	40
B.1.1	General	40
B.1.2	CDN Blacklists/Whitelists	40
B.1.3	Capabilities required for content delivery	40
B.1.4	Content Access Lists	40
B.1.5	Content Manipulation Policy	40
B.1.6	Multi-Segment related metadata	41
B.1.7	Security and DRM related metadata	41
B.1.8	Reporting related metadata	41

Annex C (informative): Scenarios for using CDN-I procedures42

C.1	General	42
C.2	Basic CDN Interconnection life-cycle	42
C.3	Premium delivery of content	43
C.4	Managed delivery of content	44
C.5	Best-effort delivery of content	45

Annex D (informative): Datamodels46

D.1	CDN related data models	46
D.1.1	CDN information data model	46
D.1.2	CDN footprint data model	46
D.1.3	CDN Capabilities data model	46
D.2	Content related data models	47
D.2.1	Content related metadata data model	47
D.2.2	Content distribution reporting data model	47
D.2.3	Content request source data model	47
D.2.4	Content delivery reporting data model	48
D.3	Data model entity relations	48
History		49

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Foreword

This Technical Specification (TS) has been produced by ETSI Technical Committee Network Technologies (NTECH).

Introduction

Content Delivery Networks (CDN) are systems for the efficient delivery of digital objects (e.g. files with multimedia content as video on demand or other file types) and multimedia streams (e.g. live television streams) over IP networks to many end points and viewers. Typically, a CDN consists of one or more servers that deliver the digital objects and/or streams, and a management/control system. The management/control system takes care of content distribution, request routing, reporting, metadata and other aspects that make the system work.

Currently implemented CDNs are based on a widespread network of distribution nodes controlled by a functional entity taking care of content distribution decisions. The control functional entity keeps track of all content locations, manages distribution amongst the distribution nodes and/or clusters and also decides which distribution node should serve a client request.

Every CDN may have a specific network footprint in which it can deliver content effectively. This footprint depends on the locations of distribution nodes that the CDN controls. It is often inefficient to build new distribution nodes that are not in the region in which the company running the CDN is operating. A solution is to interconnect two CDNs and share existing infrastructure for content delivery. Interconnection of CDNs is achieved by interconnecting the centralized functional entities that represent the logic behind the decisions in each CDN. This is called CDN-I or Content Delivery Network Interconnection.

The present document defines the architecture and principles of the interconnection between CDNs according to the requirements defined in TS 102 990 [1], which also contains informational use cases for CDN interconnections.

Other sources of relevant information on CDN interconnection topics are the following organizations:

- ETSI (e.g. TS 182 019 [i.6], TR 102 688-9 [i.1])
- IETF: WG CDN-I (e.g. RFC 6707 [i.2])
- ATIS Cloud Services Forum (e.g. ATIS-0200003 [i.3], ATIS-0200004 [i.5])