ISO/IEC 23009-5:2017-02 (E)

Information technology - Dynamic adaptive streaming over HTTP (DASH) - Part 5: Server and network assisted DASH (SAND)

Contents

Page

Foreword v

Introduction vi

1 Scope 1

2 Normative references 1

3 Terms,definitions,symbolsandabbreviatedterms 1
3.1 Terms and definitions 1
3.2 Abbreviated terms 2
3.3 Conventions 2

4 Overview 3

5 SAND reference architecture and interfaces 3

6 SAND messages 7
6.1 General 7
6.2 Common Envelope for SAND messages 7
6.3 Metrics messages 9
6.3.1 General 9
6.3.2 TCPConnections 9
6.3.3 HTTPRequestResponseTransactions 9
6.3.4 RepresentationSwitchEvents 9
6.3.5 BufferLevel 10
6.3.6 PlayList 10
6.4 Status Messages 11
6.4.1 AnticipatedRequests 11
6.4.2 SharedResourceAllocation 11
6.4.3 AcceptedAlternatives 12
6.4.4 AbsoluteDeadline 13
6.4.5 MaxRTT 14
6.4.6 NextAlternatives 14
6.4.7 ClientCapabilities 15
6.5 PER Messages 16
6.5.1 ResourceStatus 16
6.5.2 DaneResourceStatus 17
6.5.3 SharedResourceAssignment 19
6.5.4 MPDValidityEndTime 19
6.5.5 Throughput 20
6.5.6 AvailabilityTimeOffset 21
6.5.7 QoSInformation 22
6.5.8 DeliveredAlternative 23
6.5.9 DaneCapabilities 24
6.6 PED Messages 25

7 SAND message representation format 25

8 Transport Protocol to carry SAND messages 25
8.1 General 25

8.2 Protocol to carry metrics and status messages 25
8.2.1 General 25
8.2.2 Sending a message directly to Metrics server or DANE 26
8.2.3 Attaching a message to requests for media 26
8.3 Protocol to carry PER messages 27
8.3.1 General 27
8.3.2 Assistance 28
8.3.3 Enforcement 28
8.3.4 Error case 28

9 Signalling of SAND communication channel 28
9.1 General 28
9.2 XML schema for sand:Channel element 29

10 Optional transport protocols to carry SAND messages 30
10.1 General 30
10.2 WebSocket protocol 30
10.2.1 General 30
10.2.2 Signalling via the MPD 31
10.2.3 WebSocket messages 32

11 Reporting of metrics via SAND protocols 32

Annex A (normative) XML Schema for SAND messages 33

Annex B (normative) SharedResourceAllocation allocation strategies 41

Annex C (normative) MIME type registration for SAND message 45

Bibliography 47