ISO/IEC 29341-20-1:2017-09 (E)

Information technology - UPnP Device Architecture - Part 20-1: Audio video device control protocol - Level 4 - Audio video architecture

Contents

Page

1 Scope 1
1.1 Introductioin 1
1.2 Goals 1
1.3 Non-Goals 1
2 Normative references 1
3 Terms, definitions, symbols and abbreviations 2
4 Architectural Overview 3
5 Playback Architecture 5
5.1 MediaServer 6
5.1.1 ContentDirectory Service 7
5.1.2 ConnectionManager Service 7
5.1.1 AVTransport Service 7
5.2 MediaRenderer 7
5.2.1 RenderingControl Service 8
5.2.2 ConnectionManager Service 8
5.2.3 AVTransport Service 8
5.3 Control point 8
5.3.1 2-Box model: Control point with Decoder 11
5.3.2 2-Box model: Control point with Content 12
5.4 Tracking streams in the network 12
6 Example Playback Scenarios 12
6.1 3-Box model: Isochronous-Push (IEC61883/IEEE1394) 13
6.2 3-Box model: Asynchronous-Pull (e.g. HTTP GET) 14
6.3 2-Box model: Control point with Decoder using Isochronous-Push (e.g. IEEE-1394) 15
6.4 2-Box model: Control point with Decoder using Asynchronous-Pull (e.g. HTTP GET) 17
6.4.1 Minimal Implementation 17
6.5 2-Box model: Control point with Content using Isochronous-Push (e.g. IEEE-1394) 19
6.6 2-Box Model: Control point with Content using Asynchronous-Pull (e.g. HTTP GET) 20
6.7 No *ConnectionManager::PrepareForConnection()* Action 20
7 Advanced Playback Scenarios 21
7.1 Synchronized playback 22
7.2 Multi-streaming 24
8 Recording Architecture 26
8.1 Legacy recording mechanism 26
8.2 Scheduled Recording 26

List of Figures

Figure 1 — Typical UPnP Device Interaction Model 3
Figure 2 — UPnP AV Device Interaction Model 4
Figure 3 — General Device Architecture aka the 3-Box model 5
Figure 4 — General Interaction Diagram of the 3-Box model 10
Figure 5 — Control point with Decoder 11
Figure 6 — Control point with Content 12
Figure 7 — 3-Box Model: Isochronous-Push transfer protocols 14
Figure 8 — 3-Box model:Asynchronus-Pull transfer protocol 15
Figure 9 — 2-Box model: Control point with Decoder using Isochronous-Push 16
Figure 10 — 2-Box model: Control point with Decoder using Asynchronous-Pull 17
Figure 11 — 2-Box model: Minimal Implementation 18
Figure 12 — 2-Box model: Control point with Content using Isochronous-Push 19
Figure 13 — 2-Box model: Control point with Content using Asynchronous-Pull 20
Figure 14 — 3-Box model: no *ConnectionManager::PrepareForConnection()* action 21
Figure 15 — Sequence diagram for setting up synchronized playback 23
Figure 16 — Multi-streaming playback sequence 25
Figure 17 — Relationship between a Schedule and the related Tasks 27
Figure 18 — Out of bounds content creation by the ScheduledRecording service 27