ISO/IEC 14543-5-21:2012-02 (E)

Information technology - Home electronic system (HES) architecture - Pa rt 5-21: Intelligent grouping and resource sharing for HES Class 2 and Class 3 - Application profile - AV profile

Contents

Page

FOREWORD 5
INTRODUCTION 6
1 Scope 7
2 Normative references 7
3 Terms, definitions and abbreviations 7
3.1 Terms and definitions 7
3.2 Abbreviations 9
3.3 Conventions 9
4 Conformance 9
5 Architecture 9
5.1 Overview 9
5.2 Four types of device interaction models in the IGRS AV application 10
5.2.1 Interaction model between a single media server and a single media client 10
5.2.2 Interaction model between multiple media servers and a single media client 10
5.2.3 Interaction model between a single media server and multiple media clients 11
5.2.4 Interaction model between multiple media servers and multiple media clients 11
6 Components of the IGRS AV system 12
6.1 IGRS AV applications 12
6.2 Media server 12
6.2.1 General 12
6.2.2 Content index service 13
6.2.3 BCM TCP service 13
6.2.4 IGRS SOAP service 13
6.3 Media client 14
6.3.1 General 14
6.3.2 BCM TCP service 15
6.3.3 IGRS SOAP service 15
6.3.4 Rendering management service 16
6.4 Media device group 16
6.4.1 Overview 16
6.4.2 Content index service device group 16
6.4.3 Audio video multicast device group 17
6.5 Modular expansion of media server and media client 17
7 Interaction flow of the IGRS AV system 18
7.1 Overview of interaction flow 18
7.2 Interaction flow of device grouping 18
7.2.1 Overview of interaction flow of device grouping 18
7.2.2 Inner-group information exchange mechanism of IGRS device group 19
7.2.3 Group management mechanism of IGRS centrialised device group 22
7.2.4 Content index service device group 24
7.2.5 Audio video multicast device group 28
7.3 Interaction flow of dynamic service invocation flow determination 32

7.4 Interaction flow of AV playback 33
7.4.1 General 33
7.4.2 Media server initiated transport mode 36
7.4.3 Media client initiated transport mode 37
7.5 Interaction flow of multicast AV playback 39
7.6 Interaction flow of content management 41
7.6.1 General 41
7.6.2 Interaction flow of collaborative content analysis 41
7.6.3 Interaction flow of a personalised content recommendation 43
8 Session 44
8.1 Session setup 44
8.2 Session setup condition 45
8.3 Session setup process 45
8.4 Session termination 45
8.5 Service invocation message format 45
8.5.1 General 45
8.5.2 Service invocation request message 45
8.5.3 Service invocation response message 47
8.5.4 Content directory object update notification message 48
8.5.5 Service attribute update notification message 51
Bibliography 53

Figure 1 – Device grouping model of the IGRS AV profile 10
Figure 2 – Interaction model of a single media server and single media client 10
Figure 3 – Interaction model of multiple media servers and a single media client 11
Figure 4 – Interaction model of a single media server and multiple media clients 11
Figure 5 – Interaction model of multiple media servers and multiple media clients 12
Figure 6 – Components of a media server 12
Figure 7 – Components of a media client 14
Figure 8 – Modular expansion of a media server and media client 17
Figure 9 – Overall interaction flow of the IGRS AV system 18
Figure 10 – Flow of centralised device group management from the perspective of a master device 23
Figure 11 – Flow of centralised device group management from the perspective of slave device 24
Figure 12 – Flow of content index service device group management from the perspective of media server set as CIS group master 27
Figure 13 – Flow of content index service device group management from the perspective of a media server set as CIS group slave 28
Figure 14 – Flow of AV multicast device group management from the perspective of master device 31
Figure 15 – Flow of audio video multicast device group management from the perspective of a slave device 32
Figure 16 – Interaction flow of dynamic service invocation 32
Figure 17 – Interaction flow of AV playback 34
Figure 18 – Control of media server initiated transport based on BCM (IGRS dynamic service invocation module located on media client) 36

Figure 19 – Control of media server initiated transport based on BCM (IGRS dynamic service invocation module located on a media server) 37
Figure 20 – Control of media server initiated transport based on SOAP 37
Figure 21 – Control of a media client initiated transport based on BCM (IGRS dynamic service invocation module located on a media client) 38
Figure 22 – Control of media client initiated transport based on BCM (IGRS dynamic service invocation module located on media server) 38
Figure 23 – Control of media client initiated transport based on SOAP 39
Figure 24 – Flow of multicast AV playback 40
Figure 25 – Interaction flow of collaborative content analysis 42
Figure 26 – Interaction flow of a media client accessing a content index service device group 43
Figure 27 – Flow of content recommendation by offline personalisation 44
Figure 28 – Flow of content recommendation by online personalization 44

Table 1 – IGRS device group inner-group information exchange notification message 20
Table 2 – IGRS device group inner-group information exchange request message 21
Table 3 – IGRS device group inner-group information exchange response message 22
Table 4 – Content index service device group online advertisement message 25
Table 5 – Audio video multicast device group online advertisement message 29
Table 6 – Service invocation request message 46
Table 7 – Service invocation response message 47
Table 8 – Content directory object update notification message 48
Table 9 – Service attribute update notification message 51