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Open Service Access (OSA); Application Programming Interface (API); Part 4: Call Control; Sub-part 4: Multi-Media Call Control SCF (Parlay 4)

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Foreword

This ETSI Standard (ES) has been produced by ETSI Technical Committee Services and Protocols for Advanced Networks (SPAN).

The present document is part 4, sub-part 4 of a multi-part deliverable covering Open Service Access (OSA); Application Programming Interface (API), as identified below. The API specification (ES 202 915) is structured in the following parts:

Part 1: "Overview";

Part 2: "Common Data Definitions";

Part 3: "Framework";

Part 4: "Call Control";

- Sub-part 1: "Call Control Common Definitions";
- Sub-part 2: "Generic Call Control SCF";
- Sub-part 3: "Multi-Party Call Control SCF";
- **Sub-part 4: "Multi-Media Call Control SCF";**
- Sub-part 5: "Conference Call Control SCF";

Part 5: "User Interaction SCF";

Part 6: "Mobility SCF";

Part 7: "Terminal Capabilities SCF";

Part 8: "Data Session Control SCF";

Part 9: "Generic Messaging SCF";

Part 10: "Connectivity Manager SCF";

Part 11: "Account Management SCF";

Part 12: "Charging SCF";

Part 13: "Policy management SCF";

Part 14: "Presence and Availability Management SCF".

The present document has been defined jointly between ETSI, The Parlay Group (http://www.parlay.org) and the 3GPP, in co-operation with a number of JAIN™ Community (http://www.java.sun.com/products/jain) member companies.

The present document forms part of the Parlay 4.1 set of specifications.

The present document is equivalent to 3GPP TS 29.198-4-4 V5.2.0 (Release 5).

1 Scope

The present document is part 4, sub-part 4 of the Stage 3 specification for an Application Programming Interface (API) for Open Service Access (OSA).

The OSA specifications define an architecture that enables application developers to make use of network functionality through an open standardised interface, i.e. the OSA APIs.

The present document specifies the Multi-Media Call Control Service Capability Feature (SCF) aspects of the interface. All aspects of the Multi-Media Call Control SCF are defined here, these being:

- Sequence Diagrams
- Class Diagrams
- Interface specification plus detailed method descriptions
- State Transition diagrams
- Data Definitions
- IDL Description of the interfaces
- WSDL Description of the interfaces
- Reference to the Java API description of the interfaces

The process by which this task is accomplished is through the use of object modelling techniques described by the Unified Modelling Language (UML).

2 References

The references listed in clause 2 of ES 202 915-1 contain provisions which, through reference in this text, constitute provisions of the present document.

ETSI ES 202 915-1: "Open Service Access (OSA); Application Programming Interface (API); Part 1: Overview (Parlay 4)".

ETSI ES 202 915-2: "Open Service Access (OSA); Application Programming Interface (API); Part 2: Common Data Definitions (Parlay 4)".

ETSI ES 202 915-4-1: "Open Service Access (OSA); Application Programming Interface (API); Part 4: Call Control; Sub-part 1: Call Control Common Definitions (Parlay 4)".

3 Definitions and abbreviations

3.1 Definitions

For the purposes of the present document, the terms and definitions given in ES 202 915-1 apply.

3.2 Abbreviations

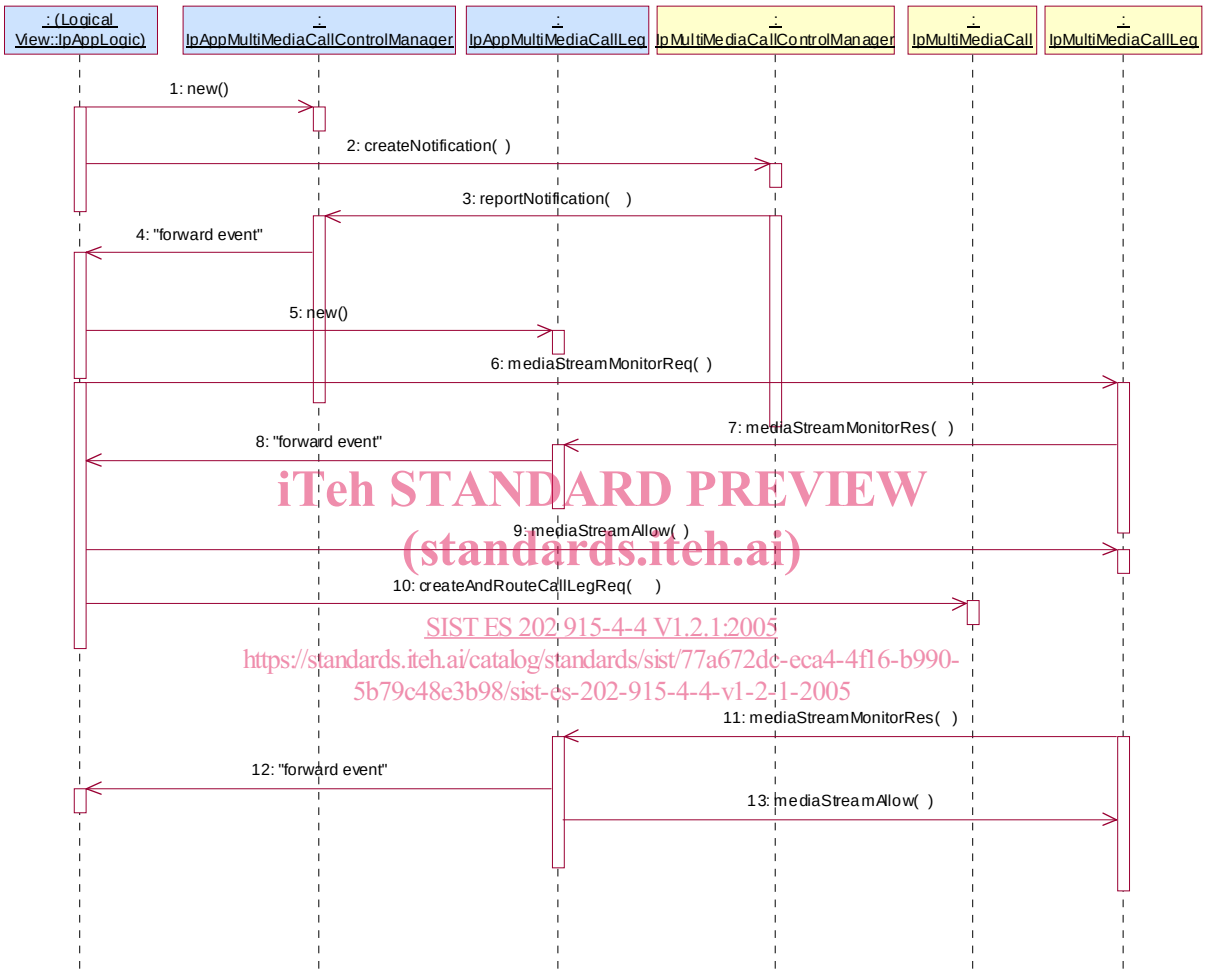
For the purposes of the present document, the abbreviations defined in ES 202 915-1 apply.

4 MultiMedia Call Control Service Sequence Diagrams

4.1 Barring for media combined with call routing, alternative 1

This sequence illustrates how one application can influence both the call routing and the media stream establishment of one call.

In this sequence there is one application handling both the media barring and the routing of the call.



1: The application creates a AppMultiMediaCallControlManager interface in order to handle callback methods.

2: The application expresses interest in all calls from subscriber A. Since createNotification is used and not createMediaNotification all calls are reported regardless of the media used.

3: A makes a call with the SIP INVITE with SDP media stream indicating video. The application is notified.

4: The event is forwarded to the application.

5: The application creates a new AppMultiMediaCallLeg interface to receive callbacks.

6: The application sets a monitor on video media streams to be established (added) for the indicated leg.

7: Since the video media stream was included in the SIP invite, the media streams monitored will be returned in the monitor result.

8: The event is forwarded to the application.

9: The application denies the video media stream, i.e., it is not included in the allowed media streams. This corresponds to removing the media stream from the setup.

10: The application requests to reroute the call to a different destination (or the same one...)

11: Later in the call the A party tries to establish a lower bandwidth video media stream. This is again reported with MediaStreamMonitorRes.

12: The event is forwarded.

13: This time the application allows the establishment of the media stream by including the media stream in the allowed list.

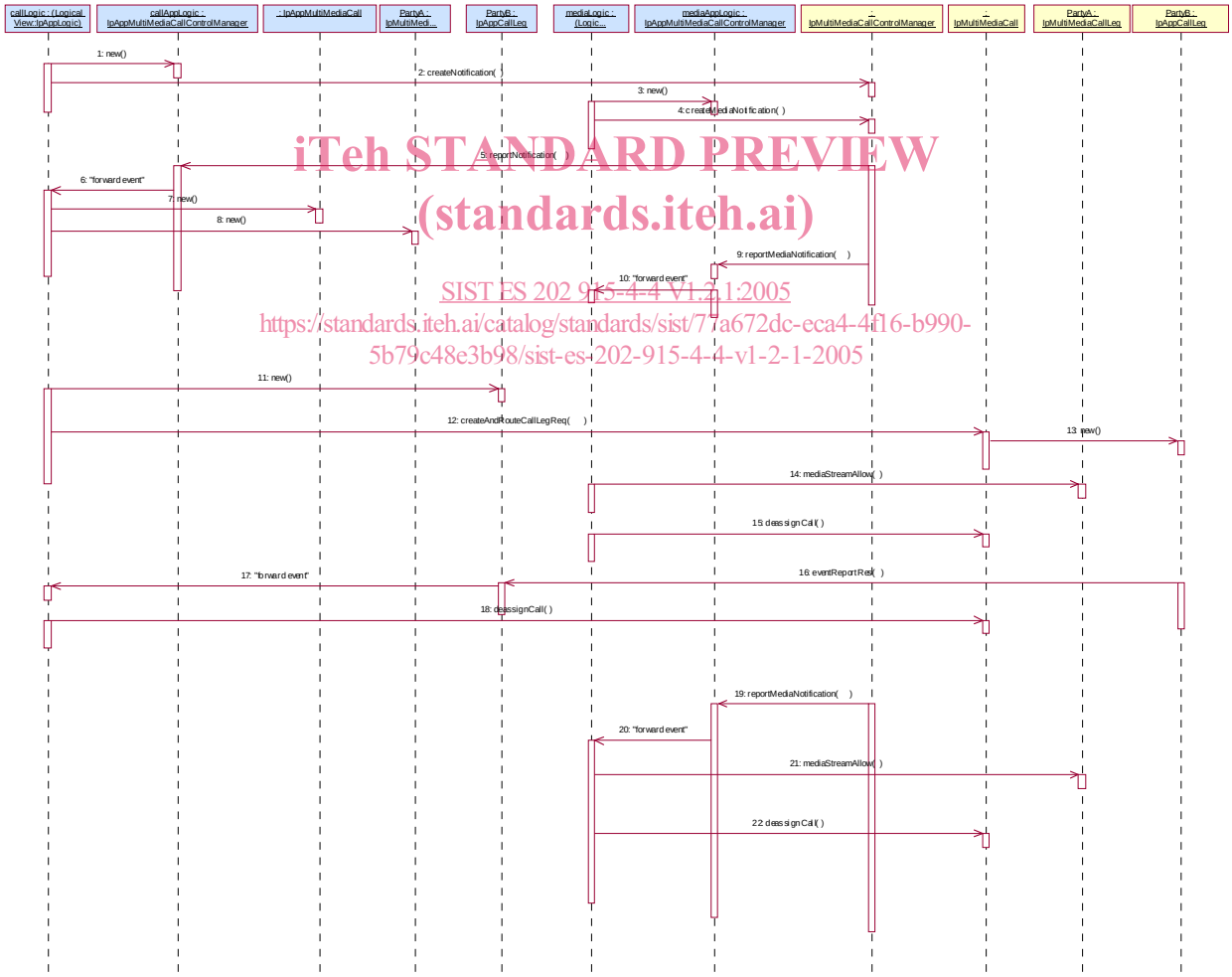
4.2 Barring for media combined with call routing, alternative 2

This sequence illustrates how one application can influence both the call routing and the media establishment of one call.

Media establishment and call establishment are regarded separately by the application.

From the gateway point of view it can actually be regarded as two separately triggered applications, one for media control and one for routing. This is also the way that it is shown here, for clarity.

However, an implementation of the application could combine the media logic and call logic in one object.



1: The application creates a new AppMultiMediaCallControlManager interface.

2: The application expresses interest in all calls from subscriber A for rerouting purposes.

3: The application creates a new AppMultiMediaCallControlManager interface. This is to be used for the media control only.

4: Separately the application expresses interest is some media streams for calls from and to A. The request indicates interrupt mode.

5: Subscriber A makes a call with the SIP INVITE with SDP media stream indicating video. Since the media establishment is combined with the SIP INVITE message, both applications are triggered (not necessarily in the order shown). Here the call application is notified about the call setup.

6: The event is forwarded to the call control application.

7: The call control application creates a new AppMultiMediaCall interface.

8: The call control application creates a new AppMultiMediaCallLeg interface.

9: The media application is notified about the call setup. All media streams from the setup will be indicated.

10: The event is forwarded to the media application.

11: The call control application creates a new AppMultiMediaCallLeg interface.

12: The call application decides to reroute the call to another address. Included in the request are monitors on answer and call end. However, since the media was also triggered in mode interrupt the call will not proceed until the media streams are confirmed or rejected.

14: The application allows the audio media stream, but refuses the high bandwidth video, by excluding it from the allowed list. Since both call processing and media handling is now acknowledged, the call routing can continue (with a changed SDP parameter reflecting the manipulated media).

15: The Media application is no longer interested in the call.

16: When the B subscriber answers the call application is notified.

17: The event is forwarded to the call application.

19: When later in the call A tries to establish a lower bandwidth video stream the media application is triggered.

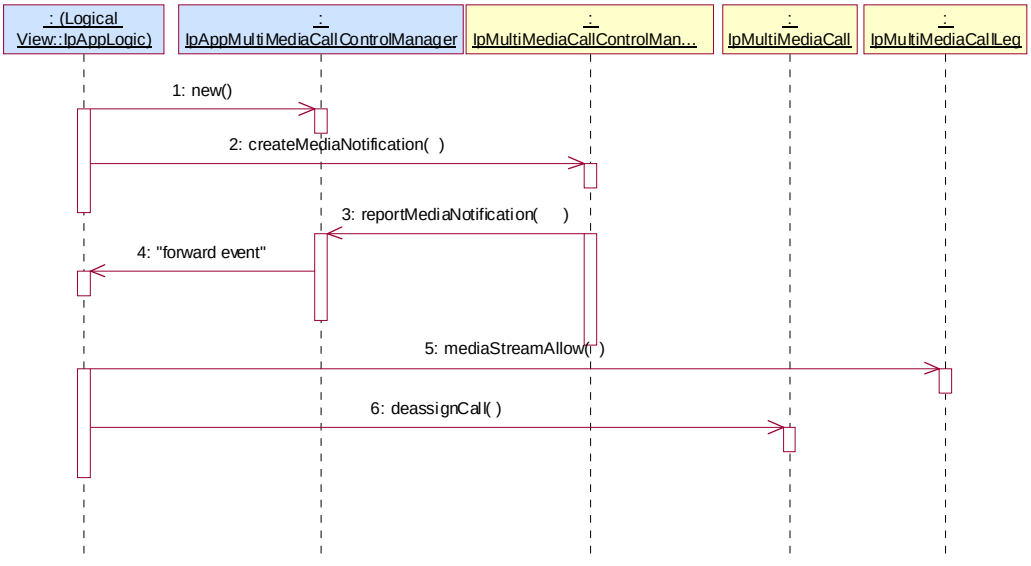
20: The triggering is forwarded to the media application.

21: The application now allows the establishment of the media stream by including the media stream in the mediaStreamAllow list.

22: The media application is no longer interested in the call.

4.3 Barring for media, simple

This sequence illustrates how an application can block the establishment of video streams for a certain user.



1: The application starts a new AppMultiMediaCallControlManager interface for reception of callbacks.

2: The application expresses interest in all calls from or to subscriber A that use video. The just created App interface is given as the callback interface.

3: Subscriber A makes a call with the SIP INVITE with SDP media stream indicating video.

4: The message is forwarded to the application.

5: The application indicates that the setup of the media stream is not allowed by not including the media stream in the allowed list. This has the effect of suppressing the video capabilities in the setup.

6: The application is no longer interested in the call.

New attempts to open video streams will again be indicated with a createMediaNotification.

4.4 Call Volume charging supervision

This sequence illustrates how an application may supervise a call based on the number of bytes that are exchanged.