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Open Service Access (OSA); Application Programming Interface (API); Part 4: Call Control; Sub-part 3: Multi-Party Call Control SCF (Parlay 6)

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Foreword

This ETSI Standard (ES) has been produced by ETSI Technical Committee Telecommunications and Internet converged Services and Protocols for Advanced Networking (TISPAN).

The present document is part 4, sub-part 3 of a multi-part deliverable covering Open Service Access (OSA); Application Programming Interface (API), as identified below. The API specification (ES 204 915) 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";

Part 15: "Multi-Media Messaging SCF"

Part 16: "Service Broker 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 6.0 set of specifications.

The present document is equivalent to 3GPP TS 29.198-4-3 V7.0.0 (Release 7).

1 Scope

The present document is part 4, sub-part 3 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-Party Call Control Service Capability Feature (SCF) aspects of the interface. All aspects of the Multi-Party 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 204 915-1 contain provisions which, through reference in this text, constitute provisions of the present document.

ETSI ES 204 915-1: "Open Service Access (OSA); Application Programming Interface (API); Part 1: Overview (Parlay 6)".

3 Definitions and abbreviations

3.1 Definitions

For the purposes of the present document, the terms and definitions given in ES 204 915-1 apply.

3.2 Abbreviations

For the purposes of the present document, the abbreviations given in ES 204 915-1 apply.

4 MultiParty Call Control Service Sequence Diagrams

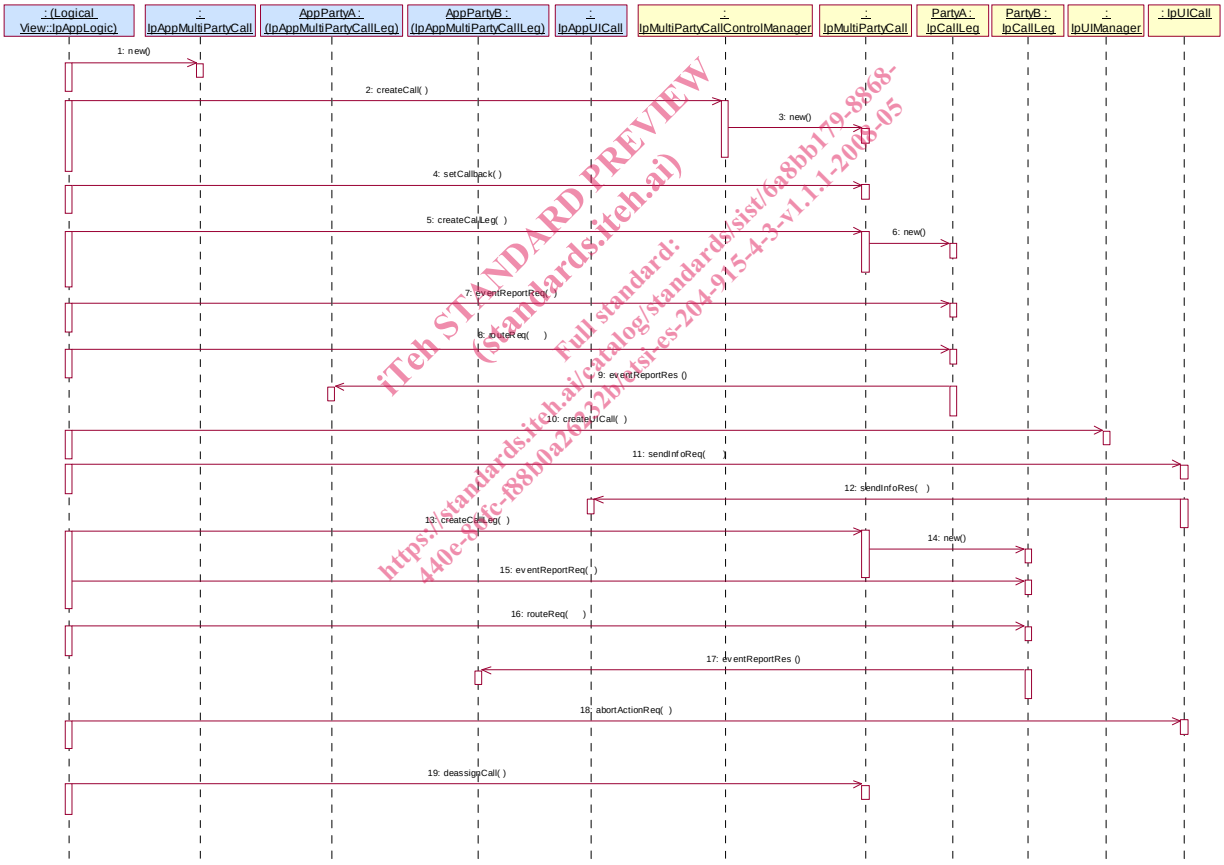
4.1 Application initiated call setup

The following sequence diagram shows an application creating a call between party A and party B. Here, a call is created first. Then party A's call leg is created before events are requested on it for answer and then routed to the call. On answer from Party A, an announcement is played indicating that the call is being set up to party B. While the announcement is being played, party B's call leg is created and then events are requested on it for answer. On answer from Party B the announcement is cancelled and party B is routed to the call.

The service may as a variation be extended to include 3 parties (or more). After the two party call is established, the application can create a new leg and request to route it to a new destination address in order to establish a 3 party call.

The event that causes this to happen could for example be the report of answer event from B-party or controlled by the A-party by entering a service code (mid-call event).

The procedure for call setup to party C is exactly the same as for the set up of the connection to party B (sequence 13 to 17 in the sequence diagram).



1: This message is used to create an object implementing the IpAppMultiPartyCall interface.

2: This message requests the object implementing the IpMultiPartyCallControlManager interface to create an object implementing the IpMultiPartyCall interface.

3: Assuming that the criteria for creating an object implementing the IpMultiPartyCall interface (e.g. load control values not exceeded) is met it is created.

4: Once the object implementing the IpMultiPartyCall interface is created it is used to pass the reference of the object implementing the IpAppMultiPartyCall interface as the callback reference to the object implementing the IpMultiPartyCall interface. Note that the reference to the callback interface could already have been passed in the createCall.

5: This message instructs the object implementing the IpMultiPartyCall interface to create a call leg for customer A.

6: Assuming that the criteria for creating an object implementing the IpCallLeg interface is met, message 6 is used to create it.

7: This message requests the call leg for customer A to inform the application when the call leg answers the call.

8: The call is then routed to the originating call leg.

9: Assuming the call is answered, the object implementing party A's IpCallLeg interface passes the result of the call being answered back to its callback object. This message is then forwarded via another message (not shown) to the object implementing the IpAppLogic interface.

10: A UICall object is created and associated with the just created call leg.

11: This message is used to inform party A that the call is being routed to party B.

12: An indication that the dialogue with party A has commenced is returned via message 13 and eventually forwarded via another message (not shown) to the object implementing the IpAppLogic interface.

13: This message instructs the object implementing the IpMultiPartyCall interface to create a call leg for customer B.

14: Assuming that the criteria for creating a second object implementing the IpCallLeg interface is met, it is created.

15: This message requests the call leg for customer B to inform the application when the call leg answers the call.

16: The call is then routed to the call leg.

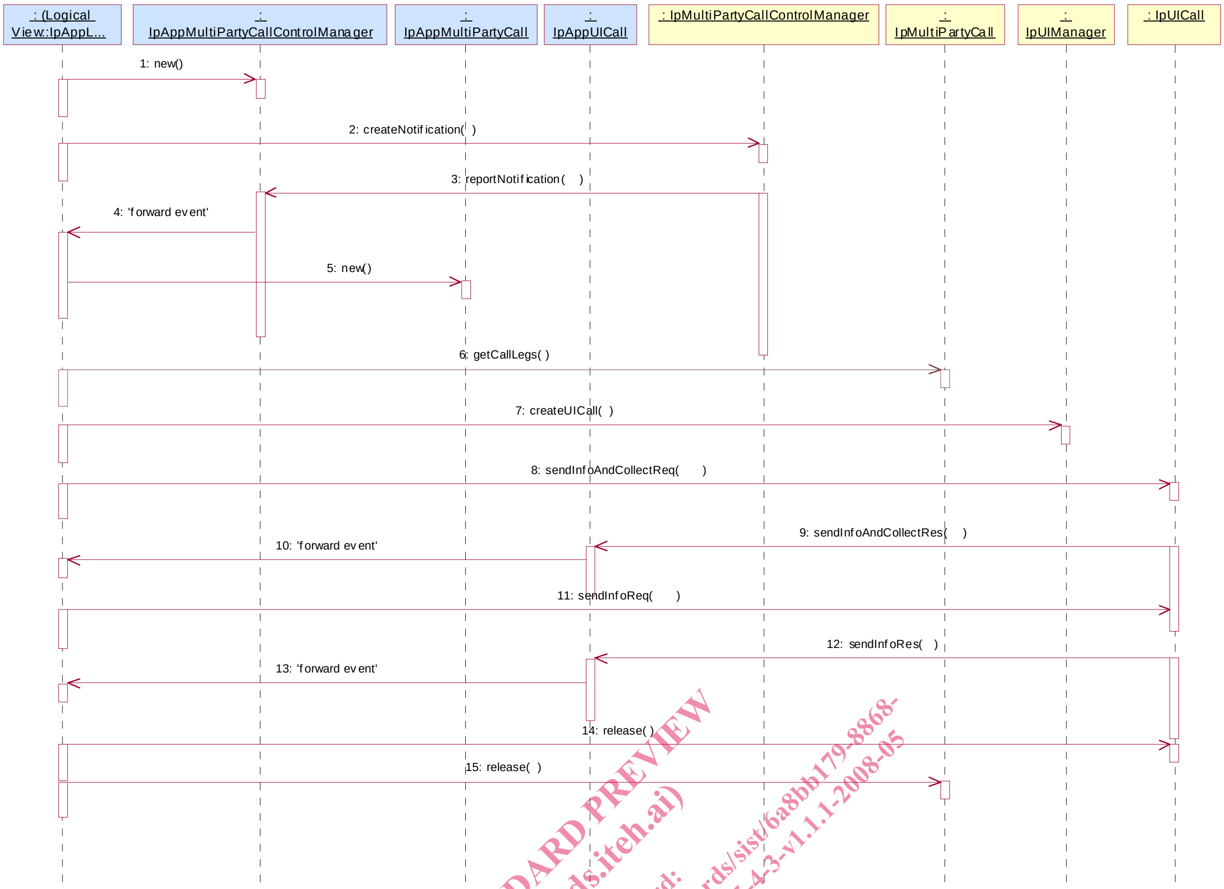
17: Assuming the call is answered, the object implementing party B's IpCallLeg interface passes the result of the call being answered back to its callback object. This message is then forwarded via another message (not shown) to the object implementing the IpAppLogic interface.

18: This message then instructs the object implementing the IpUICall interface to stop sending announcements to party A.

19: The application deassigns the call. This will also deassign the associated user interaction.

4.2 Call Barring 2

The following sequence diagram shows a call barring service, initiated as a result of a prearranged event being received by the call control service. Before the call is routed to the destination number, the calling party is asked for a PIN code. The code is rejected and the call is cleared.



1: This message is used by the application to create an object implementing the IpAppMultiPartyCallControlManager interface.

2: This message is sent by the application to enable notifications on new call events. As this sequence diagram depicts a call barring service, it is likely that all new call events destined for a particular address or address range prompted for a password before the call is allowed to progress. When a new call, that matches the event criteria, arrives a message (not shown) is directed to the object implementing the IpMultiPartyCallControlManager. Assuming that the criteria for creating an object implementing the IpMultiPartyCall interface (e.g. load control values not exceeded) is met, other messages (not shown) are used to create the call and associated call leg object.

3: This message is used to pass the new call event to the object implementing the IpAppMultiPartyCallControlManager interface.

4: This message is used to forward message 3 to the IpAppLogic.

5: This message is used by the application to create an object implementing the IpAppMultiPartyCall interface. The reference to this object is passed back to the object implementing the IpMultiPartyCallControlManager using the return parameter of the callEventNotify.

6: The application requests a list of all the legs currently in the call.

7: This message is used to create a UICall object that is associated with the incoming leg of the call.

8: The call barring service dialogue is invoked.

9: The result of the dialogue, which in this case is the PIN code, is returned to its callback object.

10: This message is used to forward the previous message to the IpAppLogic.

11: Assuming an incorrect PIN is entered, the calling party is informed using additional dialogue of the reason why the call cannot be completed.

12: This message passes the indication that the additional dialogue has been sent.

13: This message is used to forward the previous message to the IpAppLogic.

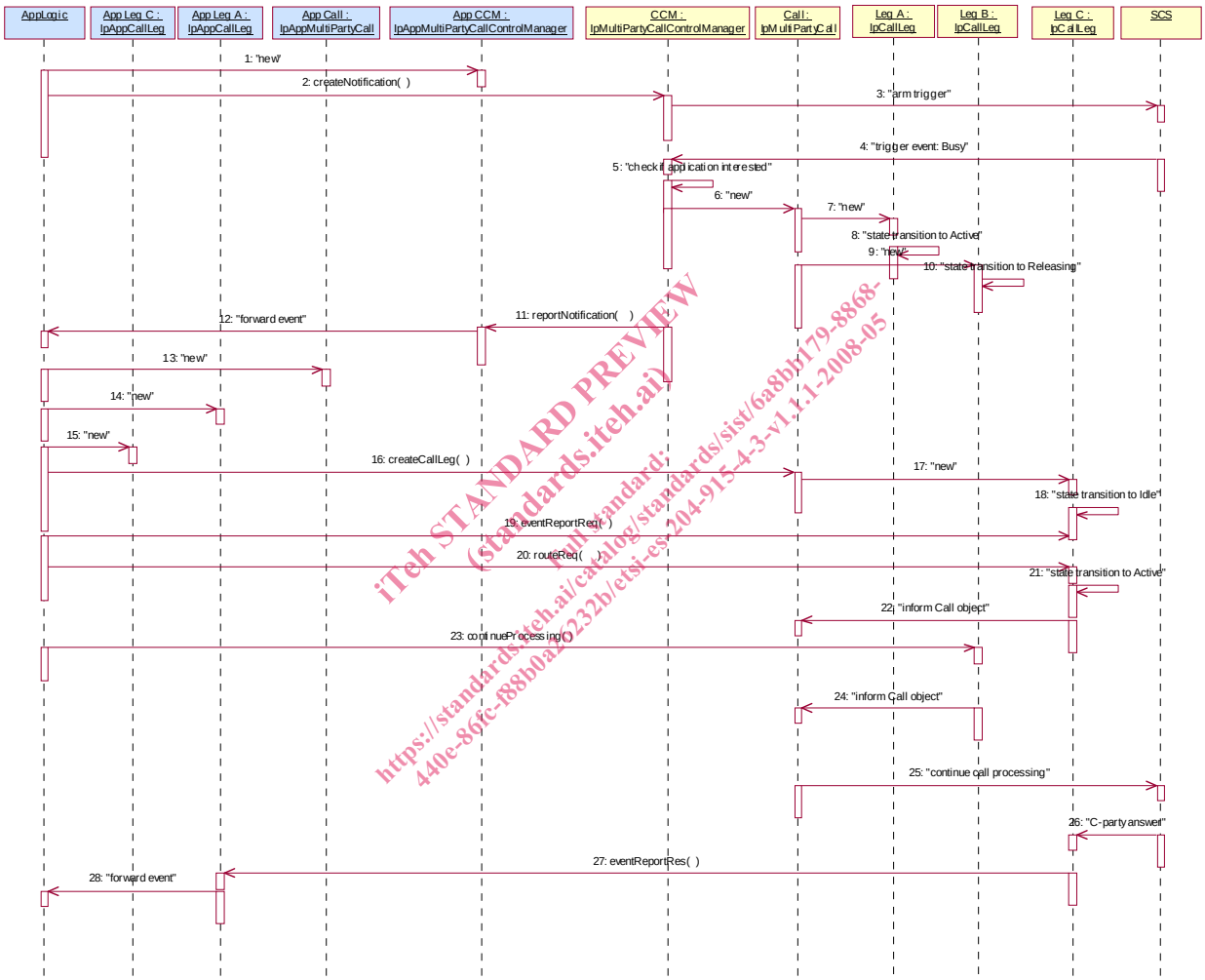
14: No more UI is required, so the UICall object is released.

15: This message is used by the application to clear the call.

4.3 Call forwarding on Busy Service

The following sequence diagram shows an application establishing a call forwarding on busy.

When a call is made from A to B but the B-party is detected to be busy, then the application is informed of this and sets up a connection towards a C party. The C party can for instance be a voicemail system.



1: This message is used by the application to create an object implementing the IpAppMultiPartyCallControlManager interface.

2: This message is sent by the application to enable notifications on new call events.

4: When a new call, that matches the event criteria, arrives a message ("busy") is directed to the object implementing the IpMultiPartyCallControlManager. Assuming that the criteria for creating an object implementing the IpMultiPartyCall interface is met, other messages are used to create the call and associated call leg objects.

6: A new MultiPartyCall object is created to handle this particular call.

7: A new CallLeg object corresponding to Party A is created.

8: The new Call Leg instance transits to state Active.