

two transactions with P1 and P2, which can be used any time to initiate interactive communication within the session.

[0561] 4. The numbers can be re-used for each participant and can remain unique for a participant as long as the numbers in the pool for that participant are not exhausted.

13 Prepaid Billing Solution for Mobile Conference and PTT Services

[0562] The Prepaid Billing Solution service enables a real-time billing mechanism for a prepaid subscriber. The Prepaid Billing Solution is applicable to both mobile conferences and PTT services.

[0563] The primary benefits of the Prepaid Billing Solution are:

[0564] To bill prepaid subscribers real-time for the mobile conference and PTT services, and

[0565] To reuse the existing operator infrastructure to perform this billing.

[0566] 13.1 Mobile Conference Call Flow Description

[0567] This service works with a client application in the handset **120** and the RTX **102**.

[0568] The RTX **102** terminates signaling on STP and bearer connectivity on the GMSC **104**.

[0569] The subscriber can make a conference call by selecting list of contacts on the handset **120**.

[0570] The following call flow illustrates the steps performed:

[0571] A, B, C and D are subscribers.

[0572] Subscriber A has a Conference-Client installed on the handset **120** and A is configured on the RTX **102**.

[0573] Subscriber A launches the Conference-Client, selects B, C, and D, and initiates a conference call.

[0574] The Conference-Client establishes a call to the number for the RTX **102**, and the MSC **104** routes the call to the RTX **102**. In this way, the Conference-Client is connected to the RTX **102**.

[0575] The Conference-Client sends an SMS to the RTX **102** having the mobile numbers of group members B, C and D in the SMS. Based on this SMS, the RTX **102** terminates the legs to B, C and D.

[0576] The RTX **102** terminates the legs towards, B, C and D via the GMSC **104**.

[0577] The RTX **102** bridges the call between A, B, C and D.

[0578] The two different Prepaid Billing Solution for the Mobile Conference are:

[0579] Option 1: Prefix based solution, and

[0580] Option 2: Charging Number based solution.

[0581] 13.2 PTT Call Flow Description

[0582] This service works with a client in the handset **120** and the RTX **102**.

[0583] The RTX **102** terminates signaling on STP and bearer connectivity on the GMSC **104**.

[0584] The subscriber can create groups, and each group is allocated a unique group ID by the RTX **102**.

[0585] Subscribers can make a PTT call to a group of people and talk in simplex mode. At any given point in time, one participant speaks others listen. When the floor is available, the floor can be occupied by anybody.

[0586] The following call flow illustrates the steps performed:

[0587] A, B, C and D are subscribers.

[0588] Subscriber A creates "Sales Group" with B, C and D as members.

[0589] Subscriber A selects the Sales Group and press the PTT button on the handset **120**.

[0590] The PTT-Client on A's handset **120** dials the following number: RoutingDelimiter+TypeofCall+GroupIndex

[0591] The serving MSC **104** initiates an InitialDP [DP2 based on Routing Delimiter] with dialed digits as [RoutingDelimiter+TypeofCall+GroupIndex] towards the RTX **102**.

[0592] The RTX **102** sends a connect message back to the originating MSC **104** with the number of the RTX **102**.

[0593] The originating MSC **104** sends an IAM towards the RTX **102**. In this way, the handset **120** for Subscriber A is connected to the RTX **102**.

[0594] The RTX **102** dials out the legs towards B, C, D as follows via the GMSC **104**:

[0595] IAM [Calling=MSISDN of A+44, Called=MSISDN of B, Charging Number=A]

[0596] IAM [Calling=MSISDN of A+44, Called=MSISDN of C, Charging Number=A]

[0597] IAM [Calling=MSISDN of A+44, Called=MSISDN of C, Charging Number=A]

[0598] The RTX **102** bridges the call between A, B, C and D.

[0599] Real Time prepaid billing option for PTT is:

[0600] Option2: Charging Number based solution

[0601] 13.3 Prefix Based Billing Solution for Mobile Conference

[0602] The following call flow describes Option1, namely the prefix-based billing solution for a mobile conference, which is applicable to prepaid subscribers. Specifically, in this example, Subscriber A is prepaid subscriber and Subscriber A initiates a conference call to B, C, and D.

[0603] 1. Subscriber A selects B, C and D and initiates the conference call. The client application on Subscriber A's handset **120** establishes a call to the number of the RTX **102**.

[0604] 2. The originating MSC **104** routes the call towards the RTX **102**. Before routing it to the RTX **102**, the MSC **104** identifies Subscriber A as a prepaid subscriber by putting a prefix [111] on the number of the RTX **102**.

[0605] 3. The client on the handset **120** forms an SMS with the numbers for B, C and D, and sends the SMS to the RTX **102** via the GMSC **104**.

[0606] 4. The RTX **102** reads the SMS and initiates the terminating legs towards B, C and D. The RTX **102** identifies Subscriber A as a prepaid subscriber based on the prefix [111] of the number received in the incoming IAM. If Subscriber A is prepaid, then the RTX **102** puts the same prefix [111] on the called party numbers in all IAMs sent to the GMSC **104** for all terminating legs. For example, if Subscriber A is prepaid, then the terminating legs are dialed out as: A to 111+B, A to 111+C and A to 111+D.

[0607] 5. Based on the prefix [111], the GMSC **104** identifies Subscriber A as a prepaid subscriber, removes the prefix [111] from the number, and initiates a session with a prepaid server handling Subscriber A. The GMSC **104** repeats this for all the terminating legs and, as a result, Subscriber A is billed for all of the terminating legs simultaneously.