3.1.2. Session join/leave and session refresh

The signaling flow for a client joining or leaving an MBS session over WiMAX is shown in Fig. 4. Before going into details, we point out that all the SIP protocol messages used in Fig. 4 are SIP Message requests. For the sake of neatness, all SIP 200 OK responses are not shown in Fig. 4.

In order to join a multicast group, the client becomes aware of the multicast address and port through the announcement phase and issues an unsolicited IGMP report. This report is forwarded by the SU to the BS, and from the BS to the closest multicast capable router which, in our scenario, is the ASN-GW. In order to optimize traffic delivery, the BS can “snoop” the IGMP report [38] and send it to the ASN-GW only. Once the latter receives the IGMP report, a new SIP Message request, called Join/Leave Request, is created and sent to the MBSC-SS. The message body of the Join/Leave request contains both user information and the IGMP report that has triggered it. The signaling server parses such an information and uses it to check whether the user is allowed to join the desired session. For example, the MBSC-SS can check on the MBSC-DB if the user has subscribed to that session. If the authorization check is successful, the MBSC-SS issues an MBS Context Request towards the ASN-GW in order to either trigger the creation of a new multicast context or reuse an already existing one for the new client.

When the ASN-GW receives the MBS Context request, a message exchange between ASN-GW and BS is initiated through the R6 reference point. If this signaling exchange is successful, it triggers a BS-initiated three-way Dynamic Service Addition (DSA) handshake, carried out at MAC layer, between the BS and the SU of the client. Once the multicast context is created, the