

PoC Client A invites PoC Client to a Pre-established Session Confirmed Indication with Auto Answer at PoC Client B (IMS PoC Client Invitation)						
Wireless Network A	IMS				Wireless Network B	EventStudio System Designer 4.0
User Equipment A	IMS Network A		IMS Network B		User Equipment B	
PoC Client A	PoC Server A	IMS Core A	IMS Core B	PoC Server B	PoC Client B	29-Jun-08 11:31 (Page 1)

Push-to-talk over Cellular (PoC) service allows cell phones to be used as walkie-talkies. A group of users in a PoC session can communicate by simply pressing a button and speaking when the phone indicates it is OK to do so. The user releases the button when he or she is done speaking.

When a user begins to speak, the PoC server allocates resources and notifies other users in the PoC session that the user is speaking. The PoC server then delivers the speech packets to all the users in the session.

PoC is resource efficient as it allocates resources only when a user is actually speaking. This makes it suitable for applications where there are long gaps between individual session participants speaking.

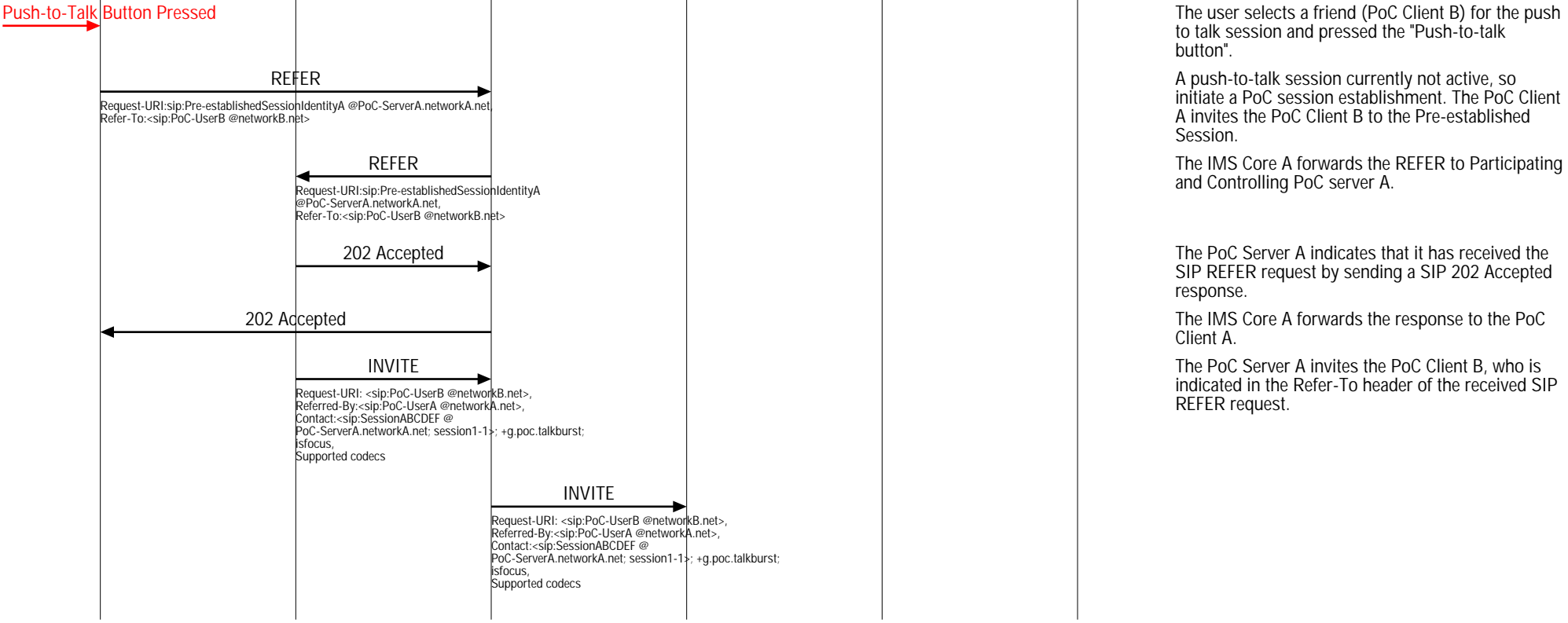
This flow covers the case where PoC Client A invites PoC Client B to a Pre-established Session by sending SIP REFER request to PoC Server A.

This sequence diagram was generated with EventStudio System Designer 4.0 (<http://www.EventHelix.com/EventStudio>). Copyright © 2008 EventHelix.com Inc. All Rights Reserved. The EventStudio source files for this document can be downloaded from <http://www.eventhelix.com/call-flow/ims-poc-pre-established.zip>.

**IMS Registration and PoC Session Pre-establishment**



**Invite Client B to a session with SIP REFER**



The user selects a friend (PoC Client B) for the push to talk session and pressed the "Push-to-talk button".

A push-to-talk session currently not active, so initiate a PoC session establishment. The PoC Client A invites the PoC Client B to the Pre-established Session.

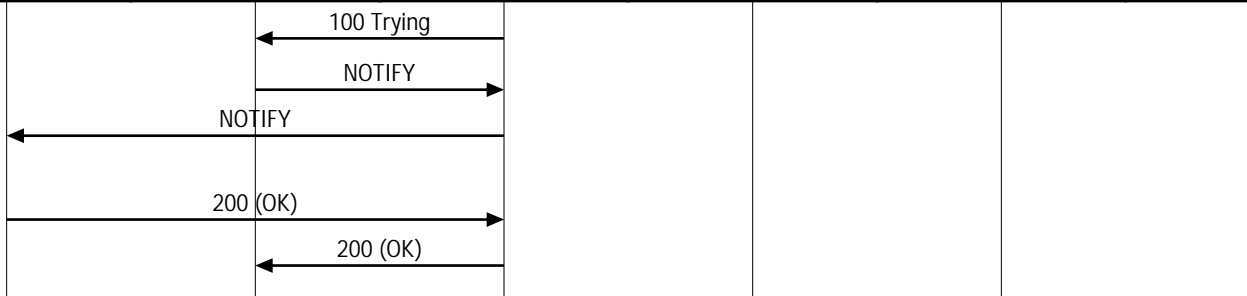
The IMS Core A forwards the REFER to Participating and Controlling PoC server A.

The PoC Server A indicates that it has received the SIP REFER request by sending a SIP 202 Accepted response.

The IMS Core A forwards the response to the PoC Client A.

The PoC Server A invites the PoC Client B, who is indicated in the Refer-To header of the received SIP REFER request.

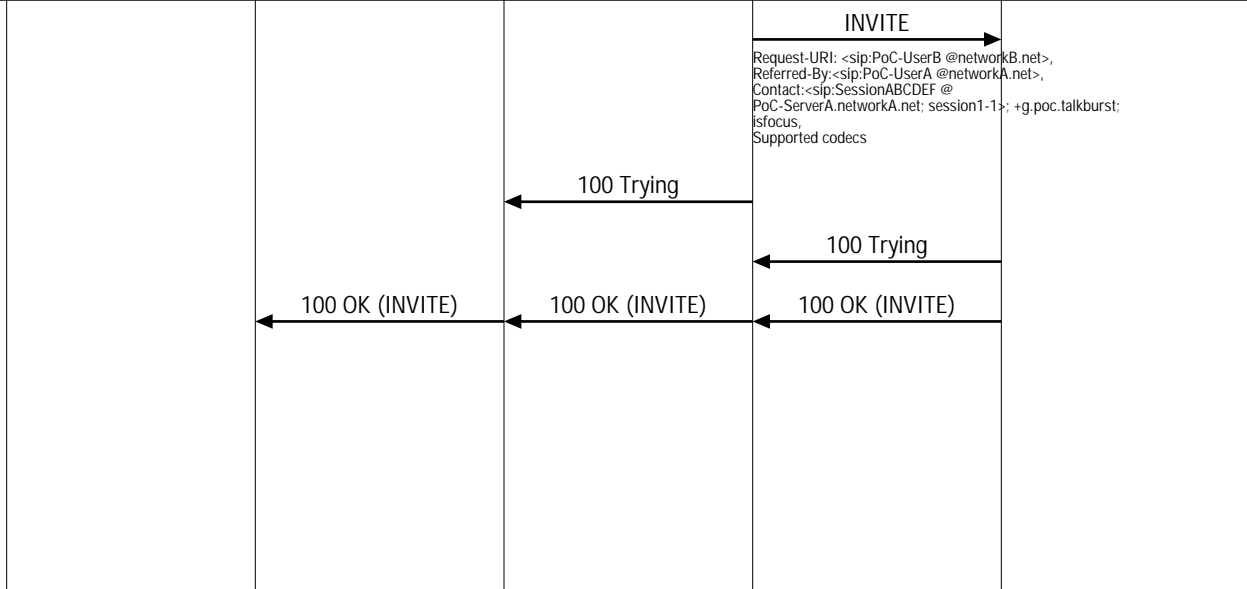
PoC Client A invites PoC Client to a Pre-established Session Confirmed Indication with Auto Answer at PoC Client B (IMS PoC Client Invitation)						
Wireless Network A	IMS				Wireless Network B	EventStudio System Designer 4.0
User Equipment A	IMS Network A		IMS Network B		User Equipment B	
PoC Client A	PoC Server A	IMS Core A	IMS Core B	PoC Server B	PoC Client B	29-Jun-08 11:31 (Page 2)



The PoC Server A sends a SIP NOTIFY request via the IMS Core A towards the PoC Client A to inform about the progress of the session request.

The PoC Client A acknowledges the NOTIFY with 200 OK towards PoC Server A.

PoC Server A invites PoC Client B



Request-URI: <sip:PoC-UserB@networkB.net>  
 Referred-By: <sip:PoC-UserA@networkA.net>  
 Contact: <sip:SessionABCDEF@PoC-ServerA.networkA.net; session1-1>; +g.poc.talkburst:isfocus,  
 Supported codecs

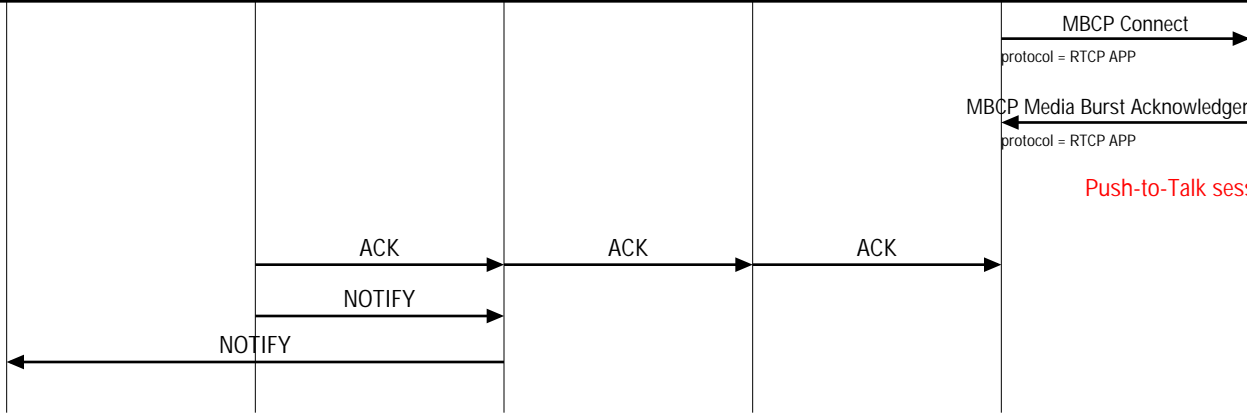
The IMS Core B forwards the INVITE to PoC Server B. The IMS Core A resolves the IMS Core B address of the PoC Client B and forwards the SIP INVITE request to the IMS Core B.

The IMS Core B responds to the SIP INVITE request with a SIP 100 Trying provisional response.

The PoC Server B responds to the SIP INVITE request with a SIP 100 Trying provisional response.

The PoC Server B receives the SIP INVITE request, identifies that auto answer is defined for the PoC Client B and that the PoC Client B has already a Pre-established Session established. Therefore the PoC Server B sends a SIP 200 (OK) final response to the SIP INVITE request to the IMS Core B. The SIP 200 (OK) response is sent along the signaling path. The SIP 200 (OK) response contains the SDP answer including the accepted media information (e.g. Codecs, IP address and port number(s) of the PoC Server B) and accepted Media Burst Control Protocol.

Media Burst Control Protocol (MBCP) Session Setup using RTCP Port



Push-to-Talk session activated

The PoC Server B sends the MBCP Connect to the PoC Client B. The message includes the PoC Session Identity.

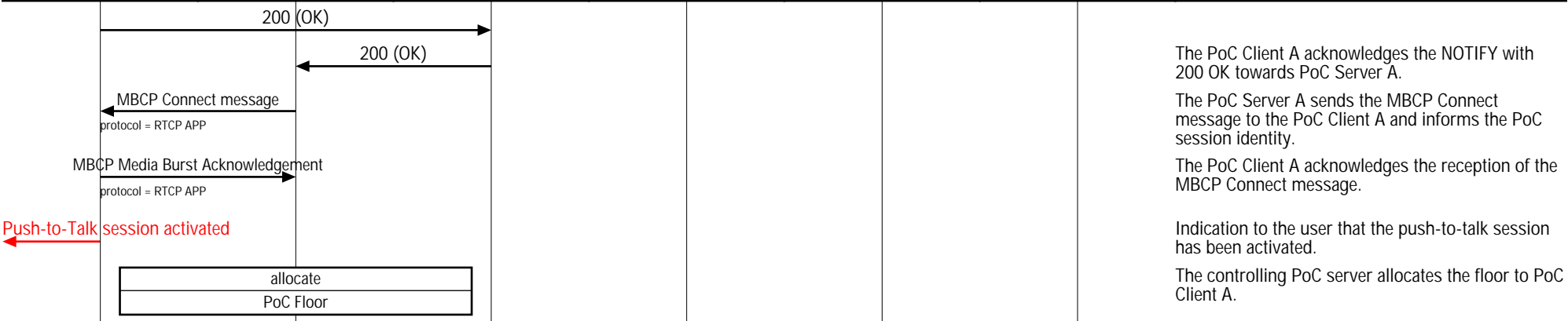
The PoC Client B acknowledges the reception of the MBCP Connect message.

Indication to the user that the push-to-talk session has been activated.

The PoC Server A sends a SIP NOTIFY request via the IMS Core A towards the PoC Client A to inform about the progress of the session request.

**PoC Client A invites PoC Client to a Pre-established Session Confirmed Indication with Auto Answer at PoC Client B (IMS PoC Client Invitation)**

Wireless Network A	IMS				Wireless Network B	EventStudio System Designer 4.0
User Equipment A	IMS Network A		IMS Network B		User Equipment B	
PoC Client A	PoC Server A	IMS Core A	IMS Core B	PoC Server B	PoC Client B	29-Jun-08 11:31 (Page 3)



The PoC Client A acknowledges the NOTIFY with 200 OK towards PoC Server A.

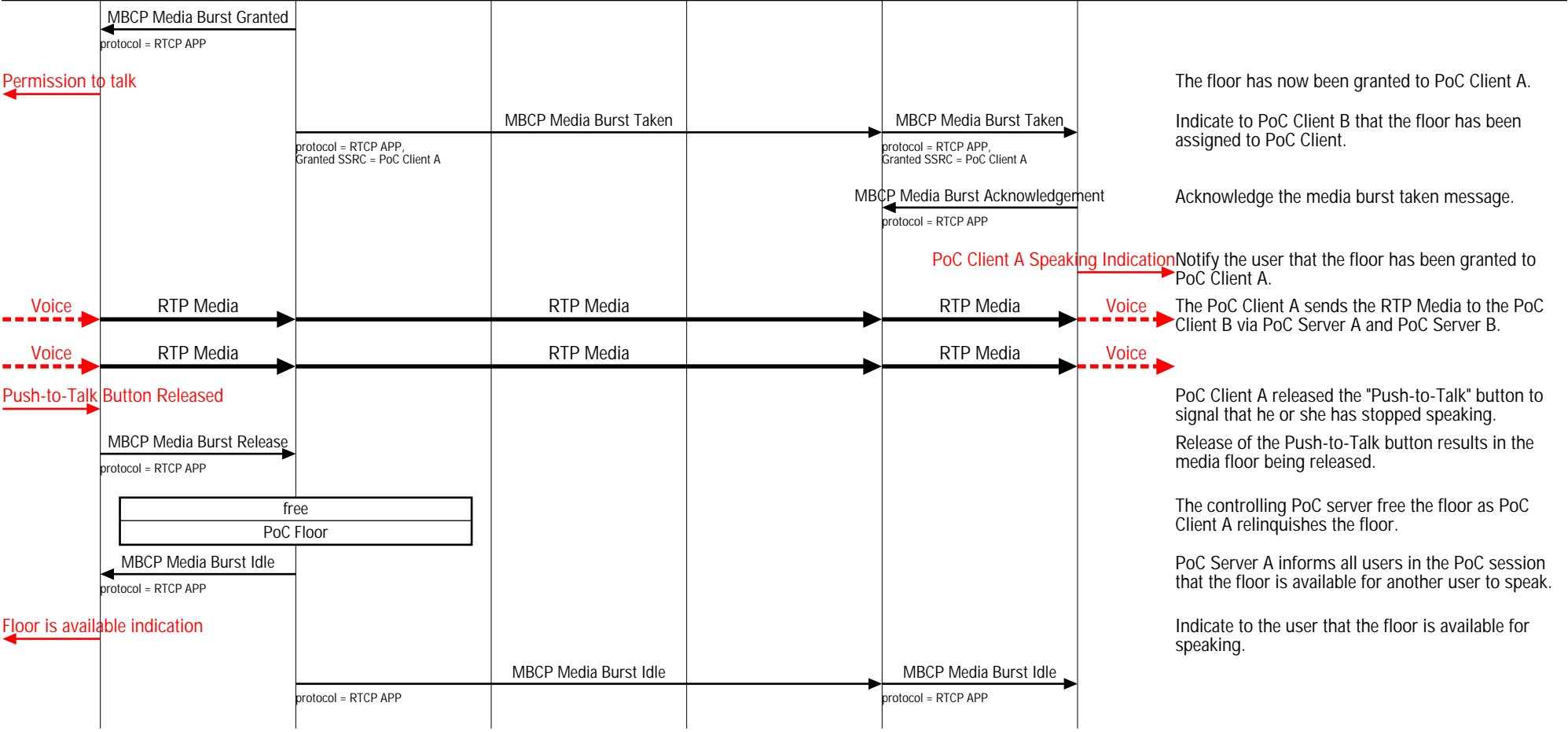
The PoC Server A sends the MBCP Connect message to the PoC Client A and informs the PoC session identity.

The PoC Client A acknowledges the reception of the MBCP Connect message.

Indication to the user that the push-to-talk session has been activated.

The controlling PoC server allocates the floor to PoC Client A.

**Talk Burst from PoC Client A to B**



The floor has now been granted to PoC Client A.

Indicate to PoC Client B that the floor has been assigned to PoC Client.

Acknowledge the media burst taken message.

Notify the user that the floor has been granted to PoC Client A.

The PoC Client A sends the RTP Media to the PoC Client B via PoC Server A and PoC Server B.

PoC Client A released the "Push-to-Talk" button to signal that he or she has stopped speaking.

Release of the Push-to-Talk button results in the media floor being released.

The controlling PoC server free the floor as PoC Client A relinquishes the floor.

PoC Server A informs all users in the PoC session that the floor is available for another user to speak.

Indicate to the user that the floor is available for speaking.

PoC Client A invites PoC Client to a Pre-established Session Confirmed Indication with Auto Answer at PoC Client B (IMS PoC Client Invitation)						
Wireless Network A	IMS				Wireless Network B	EventStudio System Designer 4.0
User Equipment A	IMS Network A		IMS Network B		User Equipment B	
PoC Client A	PoC Server A	IMS Core A	IMS Core B	PoC Server B	PoC Client B	29-Jun-08 11:31 (Page 4)

