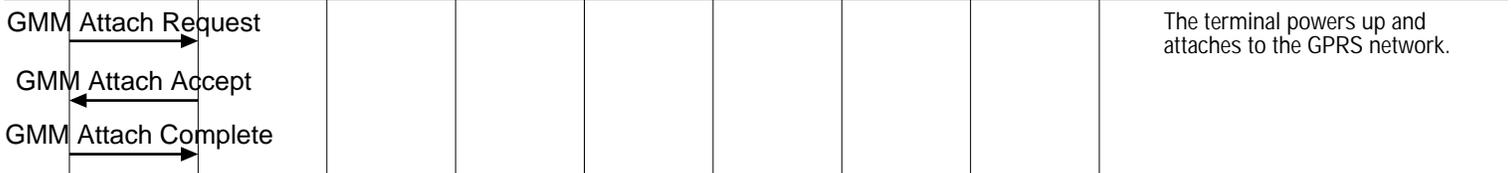


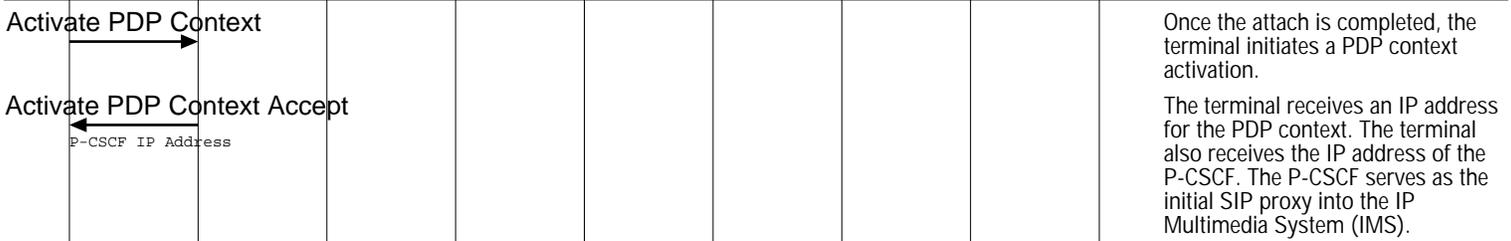
Subscriber Interfaces (IMS Registration for an Unauthenticated User)								
Visited Network			Internet	Home Network				EventStudio System Designer 4.0
User Equipment	Visited CN		Visited IMS	DNS Server	Home IMS		Home CN	
Subscriber	SGSN	GGSN	P-CSCF	DNS Server	I-CSCF		S-CSCF	HSS
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**GPRS Attach**



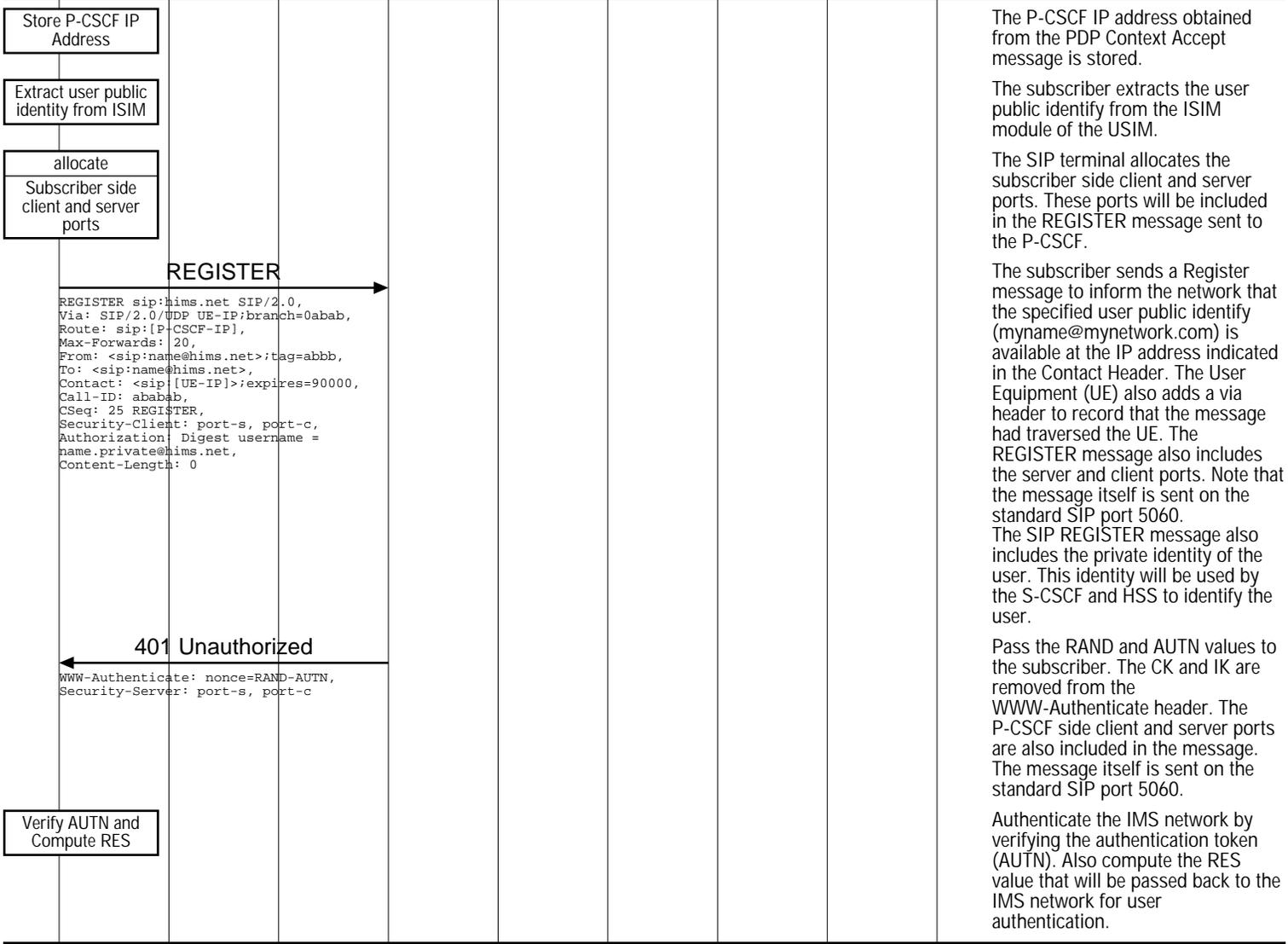
The terminal powers up and attaches to the GPRS network.

**PDP Context Activation**



Once the attach is completed, the terminal initiates a PDP context activation.  
The terminal receives an IP address for the PDP context. The terminal also receives the IP address of the P-CSCF. The P-CSCF serves as the initial SIP proxy into the IP Multimedia System (IMS).

**Unauthenticated IMS Registration Attempt**



The P-CSCF IP address obtained from the PDP Context Accept message is stored.  
The subscriber extracts the user public identify from the ISIM module of the USIM.  
The SIP terminal allocates the subscriber side client and server ports. These ports will be included in the REGISTER message sent to the P-CSCF.  
The subscriber sends a Register message to inform the network that the specified user public identify (myname@mynetwork.com) is available at the IP address indicated in the Contact Header. The User Equipment (UE) also adds a via header to record that the message had traversed the UE. The REGISTER message also includes the server and client ports. Note that the message itself is sent on the standard SIP port 5060. The SIP REGISTER message also includes the private identity of the user. This identity will be used by the S-CSCF and HSS to identify the user.  
Pass the RAND and AUTN values to the subscriber. The CK and IK are removed from the WWW-Authenticate header. The P-CSCF side client and server ports are also included in the message. The message itself is sent on the standard SIP port 5060.  
Authenticate the IMS network by verifying the authentication token (AUTN). Also compute the RES value that will be passed back to the IMS network for user authentication.

**IPSec Security Association Establishment**



Establish IPSec security associations for all the client and server ports.

Subscriber Interfaces (IMS Registration for an Unauthenticated User)								
Visited Network			Internet	Home Network				EventStudio System Designer 4.0
User Equipment	Visited CN		Visited IMS	DNS Server	Home IMS		Home CN	
Subscriber	SGSN	GGSN	P-CSCF	DNS Server	I-CSCF		S-CSCF	HSS

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**IPSec SA for Responses to UE**

UE-Server <- P-CSCF-Client

**IPSec SA for P-CSCF Initiated Requests**

UE-Server <- P-CSCF-Client

**IPSec SA for Responses to P-CSCF**

UE-Client -> P-CSCF-Server

**Authenticated IMS Registration**

**REGISTER**

Via: UE-IP;UE-Server-Port,  
Route: pscf1 pscf-server-port,  
Contact: UE-IP ue-server-port,  
Authorization: Digest username =  
name.private@hims.net response=RES

**200 OK**

Via: UE-IP;UE-Server-Port

The Subscriber has now established the IPSec security associations with the P-CSCF. At this point, the SIP REGISTER message is sent again. This time the message is protected by IPSec and the message is addressed to the P-CSCF server port passed in the 401 Unauthorized message. The message contains the RES in the Authorization header.

The IMS registration of the user is now complete.