

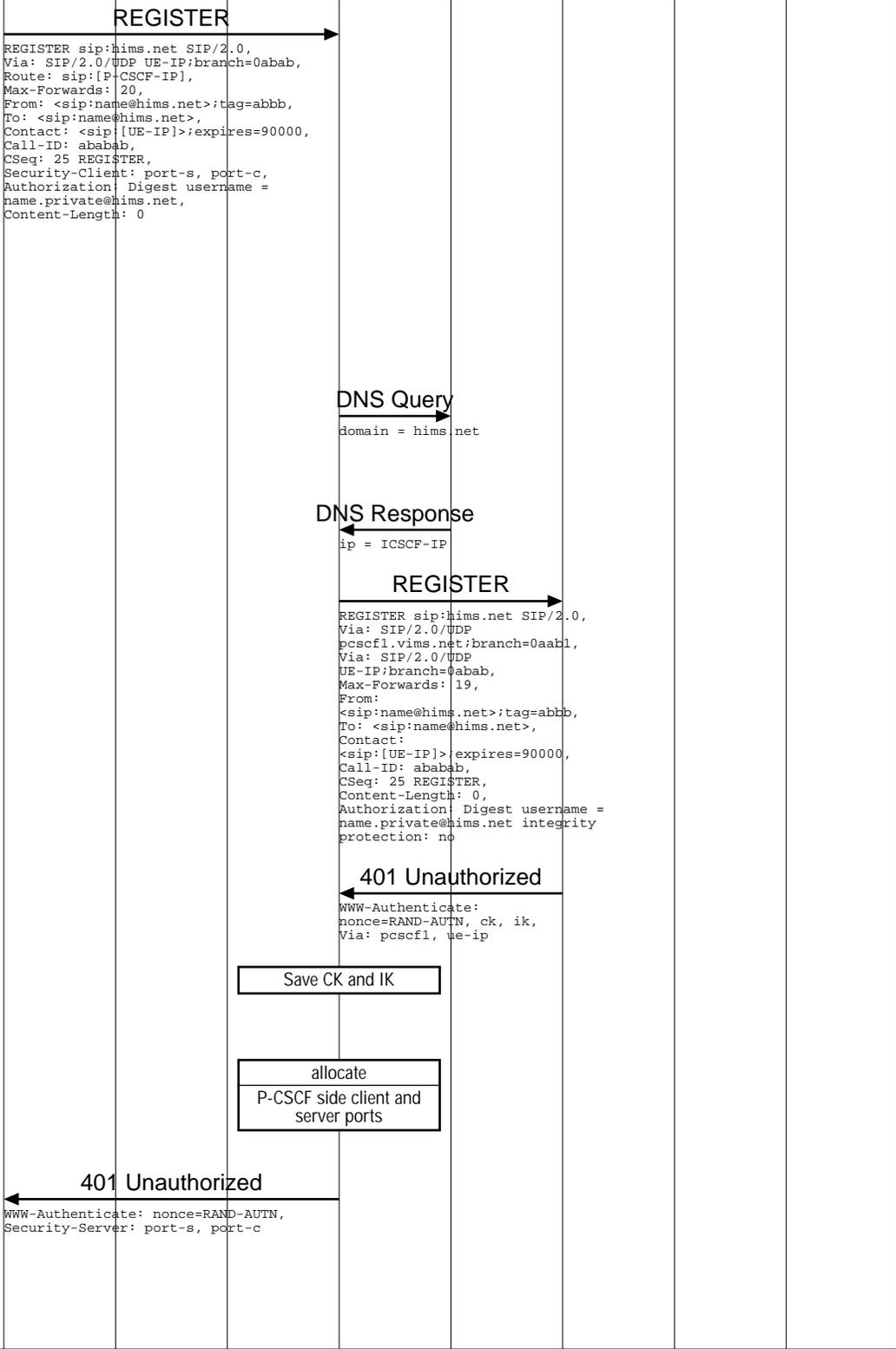
P-CSCF Interfaces (IMS Registration for an Unauthenticated User)								
Visited Network			Internet	Home Network				EventStudio System Designer 4.0
User Equipment	Visited CN		Visited IMS	DNS Server	Home IMS		Home CN	
Subscriber	SGSN	GGSN	P-CSCF	DNS Server	I-CSCF		S-CSCF	HSS

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GPRS Attach

PDP Context Activation

Unauthenticated IMS Registration Attempt



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.

The P-CSCF receives the REGISTER message and uses the DNS to translate from the domain hims.net to the IP address of the home network.

P-CSCF adds a Via header and removes the Route header. The REGISTER message will be routed to the IP address obtained from the DNS response. Note that the integrity protection flag is set to false to signify that the user has not been authenticated.

Pass the message to the P-CSCF. CK and IK are carried in the WWW-Authenticate header.

The P-CSCF saves the ciphering and integrity keys. These keys will be needed for establishing the IPsec security association.

The P-CSCF allocates the subscriber side client and server ports. These ports will be included in the 401 Unauthorized message sent to the Subscriber.

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.

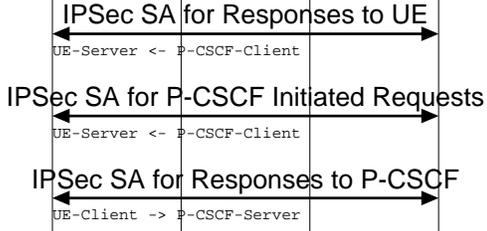
IPSec Security Association Establishment



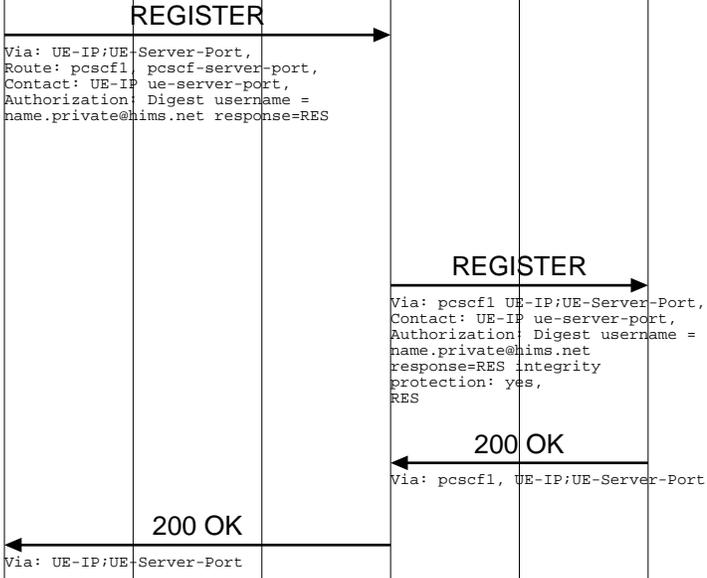
Establish IPsec security associations for all the client and

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server ports.



Authenticated IMS Registration



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.

Pass the REGISTER message to the I-CSCF. This time the Authorization header indicates that integrity protection is enabled.

The success is relayed back to the P-CSCF.

The IMS registration of the user is now complete.