Visited Network User User Visited NN Visited IMS DNS Server Home IMS H Cuppment Subscriber SGSN GGSN P-CSCF DNS Server I-CSCF S-CSCF S-CSCF  S-CSCF  DNS PDP Context Activation  REGISTER  REGISTER  REGISTER  REGISTER  DNS Registration Attempt  Registration Attempt  Registration Attempt  DNS Registration Attempt  DNS Registration Attempt  Registration Attempt  DNS Registration Attempt  Registration Attempt  Registration Attempt  Registration Attempt  Registration Attempt  DNS Registration Attempt  Registrat		
iguipment	Home CN	EventStudio System Designer 4.0
PPS Attach PP Context Activation P Context Activation P Context Activation P EBGISTER		24-Nov-07 18:36 (Page 1)
PP Context Activation nauthenticated IMS Registration Attempt	HSS	
hauthenticated IMS Registration Attempt		
REGISTER Were Forced 120 Prove the statistical 20 Prove the statist		
Wais (Strypt and the net of 1/2 d.).         Wais (Strypt and the net of 1/2 d.).         Wais (Strypt and the net of 1/2 d.).         Mark Forwards (30)         Promit (stip) (Processe);         Contract (stip) (Processe);         (Contract (stip) (Processe);         (Processe);     <		
REGISTER sipihims.net SIP/2.0, Via: SIP/2.0/DP prosofl.vims.net/branch=0aahl, Via: SIP/2.0/DP UE-IP/branch=0abab, Max-Porwards: 19, From: <sip:imame@hims.net>/tag=abbb, To: <sip:mame@hims.net>, Contact: <sip(ue-ip)>(expires=90000, Call-ID: ababb, CSeq: 25 RRGISTER, Content-Length: 0, Authorization: Digest username = name.private@hims.net integrity protection: no 401 Unauthorized WWW-Authenticate: nonce=RAND-AUTN, ck, ik, Via: prosofl, ue-ip Save CK and IK Authorization Save CK and IK</sip(ue-ip)></sip:mame@hims.net></sip:imame@hims.net>		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 indicate 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 th 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 th user. The P-CSCF receives the REGISTE message and uses the DNS to
Save CK and IK allocate P-CSCF side client and		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 th DNS response. Note that the integrity protection flag is set to false to signify that the user has n been authenticated.
allocate P-CSCF side client and		Pass the message to the P-CSCF. CK and IK are carried in the WWW-Authenticate header.
P-CSCF side client and		The P-CSCF saves the ciphering a integrity keys. These keys will be needed for establishing the IPSec security association.
		The P-CSCF allocates the subscrit side client and server ports. These ports will be included in the 401 Unauthorized message sent to the Subscriber.
401 Unauthorized		Pass the RAND and AUTN values the subscriber. The CK and IK are removed from the WWW-Authenticate header. The P-CSCF side client and server por are also included in the message. The message itself is sent on the standard SIP port 5060.
Sec Security Association Establishment		
IPSec SA for UE Initiated Requests		Establish IPSec security associations for all the client and

P-CSCF Interfaces (IMS Registration for an Unauthenticated User)																
Visited Network         Internet         Home Network           User         Visited CN         Visited IMS DNS Server         Home IMS         Home CN												- 01	EventStudio System Designer 4.0			
User Equipment		Visited	CN	Visite	a IMS	UNS S	Server			Home	e IMS	Home				
Subscriber	SGS	N I	GGSN	P-0	SCF	DNS S	Server	I-C	SCF			S-C	SCF	HS	SS	24-Nov-07 18:36 (Page 2)
											•					server ports.
IPSe	c SA f	or Res	ponses	to UE												
	er <- P-		-													
IPSec SA	for P-	CSCE	Initiate	d Reau	lests											
UE-Serv	er <- P-	CSCF-C1:	lent													
	5A 10[ 1	-		P-050												
Authenticate	ed IMS I	Registr	ation				1						1			
	R	EGIS	ΓER													The Subscriber has now established
Via: UE Route:	-IP;UE-S	erver-Po	ort, erver-port	t.												the IPSec security associations with the P-CSCF. At this point, the SIP
Contact Authori	: UE-IP	ue-serve Digest w	er-port, isername :	=												REGISTER message is sent again.
name.pr	ivate@hi	.ms.net 1	response=1	RES												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.
						REGI	STER	►								Pass the REGISTER message to the I-CSCF. This time the Authorization
					Contact	: UE-II	E-IP;UE- Pue-ser	ver-po	rt,							header indicates that integrity
					name.pr	ivate@l	Digest nims.net		ame =							protection is enabled.
						se=RES : ion: ye	integrit s,	y								
					RE5											
							OK									The success is relayed back to the P-CSCF.
					Via: po	scfl, t	JE-IP;UE	-Serve	r-Port							
		200 C	)K													The IMS registration of the user is now complete.
Via: UE	-IP;UE-S	erver-Po	ort													now complete.
I	I				I		I		I				I		I	