Technical Specification Group Services and System Aspects
Meeting #9, Hawaii, USA, 25-28 September 2000

TSGS#9(00)0420

Source: **SA WG3**

Title: **2 revised Work Items**

Document for: **Approval**

Agenda Item: **7.3.3**

The attached Work Irtem desciption sheets have been updated and agreed by SA WG3 and are presented to TSG SA#09 for approval:

Document & Work Item		Revisions
S3-000606	Network domain security	revised title and scope to include Iu interface
S3-000626	Access security for IM subsystem	end date 06/00 (was 03/00)

3GPP TSG SA WG3 Security — S3#15 **S3-000606**

12-14 September, 2000

Washington D.C., USA

Work Item Description

Title

Network Domain Security
(formerly called the Core Network Security)

1 3GPP Work Area

X	Radio Access
X	Core Network
	Services

2 Linked work items

- Related work is in RAN3, N2 and N4 to specify the solutions developed by S3.

3 Justification

An identified security weakness in 2G systems is the absence of security in SS7 networks. This was formerly perceived not to be a problem, since this network was the province of a small number of large institutions. This is no longer the case, and so there is now a need for security precautions.

This work item describes ongoing work in S3, which had been originally tasked by SA to S3 under the name of “MAP Security”, an early version of which had originally been included in R’99.

4 Objective

The general objective is to develop security solutions for all core network protocols which need protection. This includes protocols used between CSCF and HSS as well as MAP and GTP.

~~Various protocols and interfaces are used for signaling in and between core networks. These include among the applications MAP, CAP, and GTP, among the interfaces Iu, A, and Iur, and possibly other applications or interfaces that are new to R’00 or have yet to be identified~~. The security characteristics that have been identified as being in need of protection are confidentiality, integrity, and authentication. These will be ensured by standard procedures, based on cryptographic techniques.

This work might also be extended to protection of the user plane.

Within this WI MAP Application Security has been separated out into its own work item as a sort-of minimal solution, for completion for R’00; MAP-over-IP is foreseen as belonging to this WI proper and not to the minimal solution. In addition, the protection of GTP has a high time priority; completion of this aspects of the feature is expected well in advance of the others.

5 Service Aspects

None identified.

6 MMI-Aspects

None identified.

7 Charging Aspects

None identified.

8 Security Aspects

The work item is a security item.

9 Impacts

Affects:	USIM	ME	AN	CN	Others
Yes			X	X	
No	X	X			X
Don't know					

10 Expected Output and Time scale (to be updated at each plenary)

Meeting	Date	Activity
CN/S3 joint meeting	June 13-14, 2000	Presentation by S2 of R'00 architecture
CN	July-August, 2000	Specification of the protocol stacks of the core network interfaces
S3	June-July, 2000	Requirements capture GTP signalling security Feasibility study of GTP signalling security, including definition of work tasks and completion of plan
S3#14	August 1-4, 2000	Requirements capture (~~CAP,~~ MAP-over-IP, etc.) Feature specification of GTP signalling security
S3#15	September 12-15, 2000	Specification of other security features (~~CAP,~~ MAP-over-IP, etc.) ~~Approval of GTP CRs~~
SA#9	September 25-28, 2000	~~Approval of GTP CRs~~

N4#5	November 13-17, 2000	N4 approval of GTP CRs
S3#16	November 27-30, 2000	Feasibility study, including definition of work tasks and completion of plan. Requirements capture for security over ~~A,~~ Iu and Iur interfaces.
CN#10	December 6-8, 2000	Approval of GTP CRs
~~S3#17~~SA #10	~~January, 2001~~December 2000	~~Definition of security architecture, first draft~~Approval of GTP CRs. Approval of new TS on Network Domain Security.
~~S3#18~~	~~February, 2001~~	~~Approval of CRs to the drafts~~ ~~Integration of security architecture (presentation to other WGs)~~
S3#1~~79~~	February~~March~~, 2001	S3 approval of final versions
SA#12, CN#12	June, 2001	Approval of final versions

New specifications						
Spec No.	Title	Prime rsp. WG	2ndary rsp. WG(s)	Presented for information at plenary#	Approved at plenary#	Comments

Affected existing specifications				
Spec No.	CR	Subject	Approved at plenary#	Comments
33.102				Re-inclusion and extension of core network signalling security in 33.102 (R'00 for MAP and GTP, R'01 for the rest)
33.103				Re-inclusion and extension of core network signalling security in 33.102 (R'00 for MAP and GTP, R'01 for the rest)
33.105				Inclusion of core network signalling security algorithm requirements in 33.102 (R'00 for MAP and GTP, R'01 for the rest)

11 Work item raporteurs

Geir M. Køien, Telenor
Geir-myrdahl.koien@telenor.com
Tel +47 9075 2914
Fax +47 3704 5284

12 Work item leadership

TSG SA WG3

13 Supporting Companies

T-Mobil, Vodafone, Ericsson, Telenor, Nokia, Siemens, Motorola

14 Classification of the WI (if known)

X	Feature (go to 14a)
X	Building Block (go to 14b)
	Work Task (go to 14c)

14a The WI is a Feature: List of building blocks under this feature

Network Domain Security: protection of MAP Application Layer
Network Domain Security: key exchange and distribution
Other possibilities:
GTP signalling security
CAMEL signalling security
Building blocks from N2, N4, S2, S5

14b The WI is a Building Block: parent feature „provision of IP based multimedia services“

3GPP TSG SA WG3 Security — S3#15 **S3-000626**

12-14 September, 2000

Washington D.C., USA

Work Item Description

Title: Access security for IP-based services

1 3GPP Work Area

	Radio Access
X	Core Network
	Services

2 Linked work items

1. There are related work items in S3: "User plane protection in access network", "Core Network Solution" and "Lawful Interception in the R'2000 architecture"
2. There is a related work item in S2: "An architecture for Call control and roaming to support IP-based multimedia services in UMTS"

3 Justification

The work item "An architecture for Call control and roaming to support IP-based multimedia services in UMTS" describes the ongoing work in 3GPP for R00, which has been initially tasked by SA to S2 under the "all-IP option" by SA#4 (6/99).

TSG-S3 has prime responsibility for all security-related specification work in 3GPP including the new all-IP architecture and secure access to IM-services.

4 Objective

The objective with this WI is to solve the security aspects that are related to secure access for the new IP Multimedia services, IM services in R00. The IM services will include different applications like voice, video and data. The trustrelations and the security services between the end-user, the IM-domain, the PS-domain and the CS-domain shall be defined. Also the mechanisms for registration/authentication of a roaming/non-roaming end-user making registration to the IM-domain using SIP will be treated in this WI. This shall include the definition of the needed encryption and integrity mechanisms for protection of the control plane and the user plane. The evolution and/or reuse of the existing R99 architecture for authentication and key agreement shall be considered.

5 Service Aspects

yes, the end-user shall be able to access the services located at the home IM-domain wherever the end-user may roam to. It shall also be possible to use different access technology to connect the "IP multimedia CN Subsystem" e.g. xDSL, wireline and Wireless LAN etc.

6 MMI-Aspects

yes, visibility and configurability. Issues like visibility of offered security level and user interaction shall be studied.

7 Charging Aspects

none identified

8 Security Aspects

yes, this WI issues security features

9 Impacts

Affects:	USIM	ME	AN	CN	Others
Yes		X		X	
No			X		X
Don't know	X				

10 Expected Output and Time scale (to be updated at each plenary)

The timeplan is taken from S3-000314 and it has to be updated.

Meeting	Date	Activity
S3#13	May 23-26, 2000	Presentation by S2 to S3 of well-defined and understandable system architecture concepts and principles
S3/CN WGs Joint ad-hoc	June 14-15, 2000	Requirements capture
S3#14	August 1-4, 2000	Security feature specification
S3#15	September 12-14, 2000	Feasibility study, including definition of Work Tasks and completion of the plan for this Building Block
-	-	*Definition of security architecture*
S3#16	November, 2000	First draft
S3#17	~~January~~February/March, 2001	CRs approved
-	-	*Integration of security architecture*
	~~February~~April, 2001	Concept presented to CN, RAN, T and GERAN
	~~March~~May, 2001	First draft CRs
	~~April~~May, 2001	Complete CRs
	~~May~~June, 2001	CRs approved at TSG level
	~~June~~July, 2001	Review of complete CRs by S3
	~~July~~August, 2001	First corrective CRs prepared
	~~August~~September, 2001	Corrections agreed at TSG level

New specifications						
Spec No.	Title	Prime rsp. WG	2ndary rsp. WG(s)	Presented for information at plenary#	Approved at plenary#	Comments

Affected existing specifications				
Spec No.	CR	Subject	Approved at plenary#	Comments
33.102				Include IP-base services
21.333				Include IP-base services

11 Work item raporteurs

~~N.N.~~ Ericsson
Krister Boman
Krister.boman@emw.ericsson.se
+46 31 747 6045

12 Work item leadership

S3

13 Supporting Companies

Ericsson, ~~….~~Nokia, Motorola, Siemens, Lucent, Nortel Networks, AT&T

~~Please indicate if your company should also be here!~~

14 Classification of the WI (if known)

	Feature (go to 14a)
X	Building Block (go to 14b)
	Work Task (go to 14c)

14b The WI is a Building Block: parent feature

"Provisioning of IP-based multimedia services"