

3 - 6 July, 2001, Newbury, UK

Source: Ericsson

Title: Updated Work Item Description for Network based end-to-end- security

Document for: Discussion & Action

Agenda Item: 7.10

Abstract: This is an updated work item description of Network Wide End to End Encryption of user traffic to 3G TS 33.102 'Security Architecture'. Change bars indicate the differences to the WI description as presented in S3-010090 in Gothenburg).

The basic idea is to introduce a key management scheme, which can be used to set up SA's between clients for SRTP and IPSec ESP. That is, the only end-to-end encrypted services that are offered are IP based. These services are mainly the services carried by RTP in the IMS (Streaming, Voice, etc) and IP in the IMS (and possibly the PS domain). The new services will thus only affect the terminals and the IMS(/CN).

This proposal is as presented at S3#18 in Phoenix. List of supporting companies shall be confirmed and WI Time plan shall be revised.

Work Item Description

Network-based end-to-end security

1 3GPP Work Area

X	Radio Access
X	Core Network
X	Services

2 Linked work items

There are five related work items in S3:
User plane protection in access network
Access security for IP-based services
Core network security: full solution
Lawful interception in the R00 architecture
Visibility and configurability

3 Justification

The R400 system architecture ~~may create new requirements and/or opportunities for extending user plane traffic security further back into the core network. In addition it~~ may allow for security mechanisms to be applied on an end-to-end basis, providing that the necessary lawful interception requirements are addressed when encryption is applied. This work will take advantage of concepts and hooks for key management for network-wide encryption which have been considered in R99.

4 Objective

The overall objective of this WI is to specify a network-based security architecture which provides security features to users on an end-to-end basis for IP based traffic (GPRS, VoIP, Streaming, etc). ~~The architecture is expected to be based on an evolution / re-use of the existing R99 security architecture.~~

The main security feature to be provided is expected to be encryption. However, the specification of other security features (e.g. authentication and integrity protection) will also be investigated.

The work ~~may~~ involves defining an appropriate key management architecture to support the end-to-end security mechanisms and the integration of these into the system architecture. Where possible this would be based on an evolution / re-use of the existing R99 authentication and key agreement mechanism. Some key management concepts for end-to-end security were presented in an old version of the R99 security architecture (33.102 v3.4.0).

The work may involve the specification of the end-to-end security mechanisms and the integration of these mechanisms into the system architecture. This work would involve the specification of an end-to-end security mode control mechanism which will handle algorithm selection, mode selection and user control. It would also involve the specification of any necessary end-to-end synchronisation mechanisms.

5 Service Aspects

Service requirements for end-to-end security need to be identified and addressed in conjunction with S1.

6 MMI-Aspects

Visibility and configurability of end-to-end security will be important. For example, the existing ciphering indicator may need to be enhanced to indicate whether or not the call is encrypted on an end-to-end basis.

7 Charging Aspects

End-to-end security may be considered to be a value-added service, especially if it is not, or cannot, be provided as a default.

8 Security Aspects

The main aspect of this work item is security.

9 Impacts

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

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

Meeting	Date	Activity
S3~#187	February 2001 <u>May 2001</u>	Agreement of work item and CR to reintroduce text removed from R99
	April 2001	Definition of Work Tasks and completion of the plan for this Feature
S3#18	May 2001	Feasibility study and definition of security architecture: new CRs approved
S3#19	July 2001	Concept presented to CN, RAN, <u>and T and GERAN</u>
S3#20	October 2001	Integration of security architecture: Complete CRs
S3#21 and SA#14	December 2001	Integration of security architecture: CRs approved at TSG level

This table will be finalised when the plan for this feature is complete (see milestones above)

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						
33.103						
33.105						

11 Work item rapporteurs

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12 Work item leadership

TSG SA WG3

13 Supporting Companies

Draft list: Vodafone, BT, Nortel, Lucent

14 Classification of the WI (if known)

<input checked="" type="checkbox"/>	Feature (go to 14a)
<input type="checkbox"/>	Building Block (go to 14b)
<input type="checkbox"/>	Work Task (go to 14c)