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**Work Item Description**

**Source** SA WG3 (Modified by TSG SA #16)  
**Title** Network Domain Security; Authentication Framework  
(NDS/AF): Feasibility Study

**1** 3GPP Work Area

	Radio Access
X	Core Network
	Services

**2** Linked work items

- Network Domain Security; IP network layer security

**3** Justification

For ~~the long-term evolution of~~ 3GPP systems there is a need for truly scalable entity authentication framework since an increasing number of network elements and interfaces are covered by security mechanisms. The work item needs to be completed preferably in Release 6 time frame but no later than the Release7 (more specifically, early 2004) timeframe.

**4** Objective

The general objective of the feasibility study is to study the impacts of development of a highly scalable entity authentication framework for 3GPP network nodes. ~~This~~The framework to be will be developed would be in the context of the Network Domain Security work items. This effectively limits the scope to the control plane entities of the core network.

The primary objective is for the studied authentication framework to provide entity authentication for the nodes that are using NDS/IP. This means that the authentication is developed to replace the (not so scalable) default IPsec/IKE use of pre-shared secrets to authenticate the network elements. The authentication framework will therefore be based on profiled X.509v3 type of digital certificates and of profiled public key infrastructure technology and standards.

The Feasibility Study (FS) shall indicate the domains to which the NDS/AF will apply. Furthermore, the FS will specifically show the benefits of applying NDS/AF to the current NDS/IP domain. The consequences and alternatives are to be presented along with the pro's and con's. It is included into the study how operator CA's are organized feasibly and what are the trust relationships between them. Thus, different trust models and their effects are studied more closely. Additionally the FS will present high level requirements for the used protocols and certificate profiles, so as it is possible for operator IPsec and PKI implementations to interoperate.

**This work may later be extended to the development of the authentication framework itself depending on the results of the feasibility study.**

This work might also later be extended to provide entity authentication services to non-control plane nodes.

**5 Service Aspects**

None identified yet.

**6 MMI-Aspects**

None identified.

**7 Charging Aspects**

None identified yet.

**8 Security Aspects**

The work item is a security item.

**9 Impacts**

<b>Affects:</b>	<b>USIM</b>	<b>ME</b>	<b>AN</b>	<b>CN</b>	<b>Others</b>
<b>Yes</b>				X	
<b>No</b>	X	X			
<b>Don't know</b>			X		X

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

<b>Meeting</b>	<b>Date</b>	<b>Activity</b>
SA3#23	May, 2002	SA3 approval of WID Initiate feasibility study (some work already done in context of NDS/IP)
SA#16	June, 2002	WID approved
SA3#24	July, 2002	Feasibility study concluded. Initiate discussions on TOC and scope of new NDS/AF TS. This includes requirements capture. Work on phased introduction/migration scenarios.
<u>SA#17</u>	<u>September, 2002</u>	<u>Decision about whether the work should continue based on the results of the feasibility study. In case the decision is positive the time scales presented below may be used in the subsequent work.</u>
SA3#25	October, 2002	Broad agreement on TOC and scope of NDS/AF TS Work on NDS/AF general architecture and profiling of X509v3

		certificates. Discussions on certificate distribution (and revocation) and the associated services and requirements. Work on trust model, CA hierarchy and RA issues.
SA3#26	TBD	Work on profiling of digital certificates. Work on certificate distribution. Work on trust model, CA hierarchy and RA issues. Involve related 3GPP workgroups (if any).
SA3#27	TBD (Feb/March 2003?)	Agree on all top-level principles for the NDS/AF TS. Continue work on actual specification. Finalize trust model.
SA3#28	TBD, May/June 2003?	Progress work on NDS/AF TS. Finalize certificate profile(s).
SA3#29	TBD, Aug/Sept 2003?	Finalize certificate distribution. Prepare to submit NDS/AF TS to SA for information.
SA#21?	TBD, Oct. 2003	NDS/AF TS submitted for information to SA plenary
SA3#30	TBD, Nov 2003	Resolve any remaining issues. Submit NDS/AF TS for approval.
SA#22?	Dec, 2003	NDS/AF TS submitted for approval to SA plenary
SA/CN #23?	March 2004	(if applicable) Stage-3 work approved

New specifications						
Spec No.	Title	Prime resp. WG	2ndary resp. WG(s)	Presented for information at plenary#	Approved at plenary#	Comments
33.xxx	NDS/AF	SA3				<u>Whether a new spec is created depends on the outcome of the FS.</u>
Affected existing specifications						
Spec No.	CR	Subject		Approved at plenary#	Comments	

**11 Work item raporteurs**

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**12 Work item leadership**

TSG SA WG3

**13 Supporting Companies**

**14 Classification of the WI (if known)**

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

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

**14b The WI is a Building Block:**