

**Source:** Motorola  
**Title:** Feasibility study on SS7 signalling transportation in the core network with SCCP-User Adaptation (SUA)  
**Agenda item:** 9.7  
**Document for:** APPROVAL

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**1 3GPP Work Area**

	Radio Access
X	Core Network
	Services

**2 Linked work items**

*Network Domain Security and Key Management  
#7 Signalling over IP in Core Network.*

**3 Justification**

SCCP-User Adaptation (SUA) is a new protocol, currently developed by IETF (see draft-ietf-sigtran-sua-05.txt), for the transport of any SS7 SCCP-User signalling (e.g., TCAP, RANAP, etc.) over IP using the Stream Control Transport Protocol (SCTP). SUA aims to be modular and symmetric, to allow it to work in diverse architectures, such as a Signalling Gateway to IP Signalling Endpoint architecture as well as a peer-to-peer IP Signalling Endpoint architecture.

The SUA delivery mechanism provides the following functionality:

- Support for transfer of SS7 SCCP-User Part messages;
- Support for SCCP connectionless service;
- Support for SCCP connection oriented service;
- Support for the seamless operation of SCCP-User protocol peers;
- Support for the management of SCTP transport associations between a Signalling Gateway and one or more IP-based signalling nodes;
- Support for distributed IP-based signalling nodes; and
- Support for the asynchronous reporting of status changes to management.

Given the above capabilities, in many cases, SCCP (and the associated adaptation protocol, M3UA) may be unnecessary and a signalling transport based on SUA/SCTP/IP could be considered preferable in terms of efficiency and implementation complexity. In general, the protocol stack based on SUA is less complex and more efficient compared to the protocol stack based on SCCP and M3UA. Consequently, SUA could enhance the efficiency of the core network, could reduce the overhead and could provide the means for simpler implementations.

**4 Objective**

The objective of this WI is:

- i) To evaluate the benefits and disadvantages associated with the implementation of SUA in the core network, and to compare it with the SCCP/M3UA option;
- ii) To identify and study the technical issues related to the implementation of SUA in the core network, e.g. the SCCP segmentation function, how SUA offer the SCCP user a payload at least as large as the one offered by the SCCP white book;
- iii) To propose possible technical solutions that will enable the efficient implementation of SUA in the core network;
- iv) To monitor the progress of the SUA standardization in IETF;
- v) To identify and study the interactions with basic services, supplementary services, network features, making use of SCCP GT routing, like SMS, CAMEL, Number Portability, and CCBS
- vi) ~~To propose the inclusion of this option in 3GPP—given that SUA is stable and proofed to~~ Evaluate whether provide sufficient improvement compared to SCCP/M3UA - including the impacts on existing 3GPP specifications.
- vii) To evaluate the interoperability within and between networks using alternative protocol stacks such as SCCP/M3UA.

**5 Service Aspects**

. Possible service impact includes Number Portability and CCBS. These and other service interactions need to be further investigated.

**6 MMI-Aspects**

None

**7 Charging Aspects**

None

**8 Security Aspects**

Impact on MAP security, Look at the possibility of IPSec instead of MAP Application as an alternative.

**9 Impacts**

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

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

New specifications						
Spec No.	Title	Prime rsp. WG	2ndary rsp. WG(s)	Presented for information at plenary#	Approved at plenary#	Comments
TR 29.9cde	- Feasibility Study on the usage of SUA	-CN4	-CN1, CN2	-TSG CN#12	-CN#12	-
Affected existing specifications						
Spec No.	CR	Subject		Approved at plenary#	Comments	

**11 Work item rapporteurs**

Michael Young, Motorola

**12 Work item leadership**

CN4

**13 Supporting Companies**

Cisco, Motorola, Nortel Networks, Siemens, Tellabs, Ericsson

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

	Feature (go to 14a)
	Building Block (go to 14b)
X	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: parent Feature

**14c** The WI is a Work Task: parent Building Block:  
IP Transport of CN Protocols (WI id 859)