**3GPP TSG-SA WG1 Meeting #97e S1-220085r1**

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**Title: Considerations on Application Requirements in SA1**

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*Abstract: This proposal suggests that, as SA1 has successfully defined 3GPP standardized application requirements in the past, this can be pursued again, explicitly, in the future. It also considers aspects of this process.*

**1. Introduction**

SA1 defined mission critical requirements for ProSe and GCSE\_LTE (Rel-12), MCPTT (Rel-13) and MCX Services including video and data, as well as for FRMCS (Railways). This work program has had demonstrable success. On the basis of these requirements, 3GPP has successfully standardized mission critical application standards in stage 2 and stage 3 that have been widely adopted. Continuing enhancements and evolution of these standards is an important part of the work in SA1, SA6, CT1 and other working groups.

*Teleservices*, such as mobile digital voice call, SMS, mobile fax, mobile data and mission critical communication services are defined in 3GPP, though rarely. The Internet Multimedia Service (IMS) provides a 3GPP standard specifies a platform upon which additional teleservices have been defined by 3GPP (such as presence, conferencing and mission critical communications.)

In some cases SA1 has defined functional requirements dedicated to a 3GPP specified service such as service requirements for V2X services (TS22.185 and TS22.286) and mission critical common requirements (TS22.280). TS22.468 defines group communication system enabler – a 3GPP feature enabling an application level functionality to provide group communication.

Most new services defined in 3GPP are *system enablers*. These provide valuable functionality for services that make use of the 3GPP system. The 3GPP system provides valuable functionality for communications without (in most cases) specifying the application or teleservice that performs the communication. For example, there are a range of capabilities defined to support machine type communication / Internet of Things that have been specified and continue to be developed throughout 3GPP. These comprise so many different services, 3GPP generally has not defined specific support but rather opted for general purpose functionality that can be employed as needed.

In 4G standards, whose requirements are principally specified in 22.278 “Service requirements for the Evolved Packet System (EPS)”, the term API does not appear in any normative text at all, though a number of requirements specify how a ProSe-enabled UE obtains ProSe discovery services. The SA6 WG focussed on critical communications standards during the development of 4G standards.

In 5G standards, whose requirements are principally specified in 22.261 “Service requirements for the 5G system”, the term API and ‘suitable means’ appears frequently in normative requirements. This coincides with the introduction of the general service concept in 5G of “exposure,” to facilitate 3rd party service providers to customize, obtain information and otherwise control services provided by the 5G system to meet their specific requirements. The SA6 WG broadened their focus to include both critical communications standards as well as other application enabler-layer aspects. The SA2 WG are providing “network exposure” through the NEF.

SA1 produces stage 1 specifications that stop at functional aspects of the system. All realization of these functions is left to other groups in 3GPP. The requirements that pertain to APIs, system enablers or teleservices in SA1’s specification are pursued elsewhere in 3GPP, such as SA2 and SA6.

**2. Discussion**

For any given requirement specified in SA1 that involves system enablers and APIs, it has become increasingly unclear which downstream group is the appropriate one to pursue stage 2 specification to fulfill the requirement. To some extent this is natural and necessary. It is not SA1’s role to define how work will progress in 3GPP. This is a matter for individual 3GPP members to decide, work proposals are ‘contribution driven.’ To some extent ambiguity may arise, however, where a particular requirement may result in proposals to more than one group at the same time. At best, these proposals complement each other – and require extra thought as to how the work progress can be coordinated. At worst, the proposals are redundant, compete and confuse or delay the start of work until the ‘primary responsible working group’ is decided by e.g. scoping and objectives provided to SA plenary for approval. Coordination for many topics are handled successfully but in some cases SA plenary may reach agreement as needed. .

SA1 has in the past defined both application level services (e.g. mission critical communications, V2X) and requirements for application layer interfaces (CAMEL and MExE are early examples of this.)

SA6 has defined application interfaces to mission critical services and other services application layer enablers (e.g. V2XAPP, UASAPP, FFAPP).

What SA1 has not explicitly done in their specifications is define requirements for application enabler layer interfaces for services. It is therefore open to S/WID in down stream working groups to define how and where such SA1 requirements may be supported as well as architecture and solution oriented contributions whether any requirement in a SA1 specification that indicates an exposure of functionality or information to third parties is supported by the SA2 defined NEF or by an application enabler framework in SA6. For example, requirements that begin ‘the 5G system shall provide suitable APIs to allow…’ is too broad natured, and could be pursued either through SA2 or SA6.

Though this proposal suggests that SA1continues to define stage 1 requiremenst as decribed above, this does not imply that SA1 would determine which downstream groups should play a role in identifying and possibly specifying mechanisms to fulfill the requirements. The proposal does not suggest that the ‘normal process’ of proposing work change. The requirement could be proposed for work or study in SA6, or another group, or more than one group.

**3. Conclusions**

It is clear that SA1 has and may in future define application level services, with explicit requirements that application functionality and required network capabilities to support such applications.

**4. Proposal**

It is proposed SA1 to consider work on application level services functional requirements in Rel19 as previously done.

It is proposed in Rel19 work that whenever SA1 defines a requirement as “the 5G system shall provide an API [or ‘suitable means’]” access functionality or information:

* The 5G network shall provide an API to…
The 5G network shall provide suitable means to …
	+ This is functionality to be exposed from the 5G network as specified by SA2, SA4, SA5 and SA6.