Source:	Nokia
Title:	GAA Enhancements
Agenda item:	6.9.1 (GAA)
Document for:	Discussion and decision

1   Introduction

Latest developments and discussions point out use cases and scenarios that would benefit from the integration of GAA into their authentication architecture. Since GAA was designed to be generic, some of the scenario specific requirements are not accommodated in the specifications of GAA as they are today.

2   Discussion

For many specific use cases and scenarios additional functionalities are needed to ease the deployment, usage and integration of GAA into these systems. During the drafting of GAA, assumptions were made that are not applicable or useful for all scenarios. We outline some possible examples of GAA enhancements below.

- **HTTP based reference point Zn**: A NAF that use GAA has currently to implement the full diameter protocol and also needs to support SCTP. The NAF is using diameter only for this purpose, then it has to implement the full diameter protocol, and the SCTP protocol only to be able to use Bootstrapping Info Request, Answer Messages and Error codes. The goal of these two messages in the Zn reference point is to transfer some GAA related data. On the other hand, it can be assumed that the BSF and the NAF support HTTP. Therefore, the study of a HTTP-based reference point Zn is suggested.

- **Usage of GBA in broadcast scenarios:** During the development of GBA it was assumed that there is a return channel between the UE and the NAF. There are scenarios, e.g. DVB-H enabled UEs, or set top boxes with ISIM or USIM for digital video broadcasting that do not have such a return channel available. There might be even scenarios, where no return channel between BSF and UE exist. For these kind of scenarios, GBA can not be used as it is currently specified, since the UE cannot bootstrap with the BSF, nor have a downlink communication with the NAF.

- **Split terminal use case:** The terminal might be connected to a PC and GAA shall be used for authentication purposes. The UE would be split into two parts: the mobile terminal that contains the ISIM or USIM and the PC or laptop that desires to use GAA remotely to authenticate to a NAF. The PC would host the NAF client application, and the UE the bootstrapping client. The scenario is referred to as split terminal. The usage of GAA system in a remote terminal should be studied.

- **Usage of GAA in WLAN:** The possibility to use GAA in WLAN by utilizing for example EAP/MD5 or EAP/TLS with shared key TLS should be studied.

3   Conclusion

The outlined examples show that there are well-defined scenarios that would benefit from the integration of GAA. But these scenarios cannot accommodate GAA as it is specified today, hence some GAA enhancements are needed. We suggest to study these and other possible GAA enhancement under a new work itm "GAA enhancements".

Work Item Description

Enhancements to the Generic Authentication Architecture

1   3GPP Work Area

	Radio Access
X	Core Network
X	Services

2   Linked work items

GAA and Support for subscriber certificates (SEC1-SC)

3   Justification

During the final phase of the work on the details of the Generic Authentication Architecture for Release 6 it became clear that many useful and desired features would not be able to be included in that release. These additional features would optimise and ease the usage of GAA for various kinds of services. Some examples of possible enhancements are listed below:

- **HTTP-based Zn Reference Point**
  A study should be conducted whether the Zn should additionally be usable over HTTP as there may be NAFs that don't support the complex Diameter for anything else that Zn in which case only the extended Diameter messages are used and the basic Diameter messages are not used at all.
- **Usage of GBA in broadcast scenarios**
  The possibility to use GAA in service scenarios where the UE does not have return channel to the NAF as is the case in DVB-H, or even to the BSF.
- **Split terminal use case**
  The usage of GAA system in a remote terminal should be studied. A scenario, where the PC hosts the NAF client application, and the UE hosts the bootstrapping client application.
- **Usage of GAA in WLAN**
  The possibility to use GAA in WLAN by utilizing for example EAP/MD5 or EAP/TLS with shared key TLS should be studied.

4   Objective

Ease usage and integration of GAA for a broad range of services.

5   Service Aspects

The release-6 GAA-architecture does not take into account all service aspects. Hence enhancements to support a broader variety of services are needed.

6   MMI-Aspects

None identified

7   Charging Aspects

None

8 Security Aspects

This is a security work item.

9 Impacts

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

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

Affected existing specifications				
Spec No.	CR	Subject	Approved at plenary#	Comments

11 Work item rapporteur(s)

Silke Holtmanns (Nokia)

12 Work item leadership

TSG SA WG3

13 Supporting Companies

Nokia, ...(at least 4 Individual Members)

14 Classification of the WI (if known)

	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

(list of Work Items identified as building blocks)

14b   The WI is a Building Block: parent Feature

SEC1-SC (GAA and subscriber certificates)

14c   The WI is a Work Task: parent Building Block

(one Work Item identified as a building block)