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Title: Security solution for UTRAN IP transport

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Agenda Item: 7.2

1. INTRODUCTION

This paper proposes the enhancement of NDS/IP specification to cover also the control plane of UTRAN IP transport (IP based Iu [1], Iur [2], Iub [3] and Iupc [4] interfaces) in Rel6. The proposal is in line with the response LS on 'Security of Rel5 IP Transport in UTRAN' to RAN WG3 sent from S3#21 (S3-010662), where it states the following: "SA 3 is willing to take the responsibility of standardizing the needed transport security. SA 3 has already started this work by extending the scope of the work on NDS/IP (Network domain security: IP layer security; TS 33.210). The UTRAN interface protection will be covered in Rel-6 and will build upon the Rel-5 NDS/IP specification."

The control plane in question is used to transfer signalling messages in UTRAN IP transport network. While IP is used there as main protocol, the security is one very important feature. Based on known threats of IP, this kind of traffic needs to be protected properly. One requirement for the security solution is the support of SCTP multihoming.

2. DISCUSSION

The security solution for IP based UTRAN transport (control-plane) can follow principles introduced in the NDS/IP since the IPSec provides application independent security solution for all IP traffic.

IPSec's security level can also be modified by choosing/using different security algorithms and their options and based on this flexibility it provides wide scale of different security configurations.

Only the general, basic configuration shall be standardized by 3GPP for guaranteeing the minimum level security on UTRAN IP transport layer.

While creating the UTRAN IP security solution, it shall be noted that successor of IKE shall be chosen as key distribution protocol. The current version of IKE does not support multihoming of SCTP [5] but it is mandatory and key requirement of IKE's successor protocol. This successor protocol will be chosen by IETF by the end of 2002. However, if the multi-homing is not used with the SCTP present version of the IKE is sufficient. It is also possible to use present version of the IKE with mutihoming by creating $2 * N * M$ security associations if one endpoint uses N addresses and the other M addresses [6].

3. CONCLUSION AND PROPOSAL

As conclusion, the recommendation is to enhance NDS/IP specification TS 33.210 to cover also the control plane of UTRAN IP transport (IP based Iu, Iur, Iub, Iupc interfaces). The solution proposal is to use IPsec to protect these interfaces with support of current IKE's successor defined by IETF so that also multihoming of SCTP can be applied in a secure way.

References:

- [1] 3GPP TS 25.412 UTRAN Iu interface signalling transport
- [2] 3GPP TS 25.422 UTRAN Iur interface signalling transport
- [3] 3GPP TS 25.432 UTRAN Iub interface: signalling transport
- [4] 3GPP TS 25.452 UTRAN Iupc interface signalling transport
- [5] Bellovin, Ioannidis, Keromytis & Stewart: On the Use of SCTP with Ipsec. IETF Working draft. See: <http://www.ietf.org/internet-drafts/draft-ietf-ipsec-sctp-03.txt>
- [6] Stream Control Transmission Protocol Applicability Statement