TSG-RAN Meeting #4
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TSGRP#4(99)353

Agenda: 5.4

Source: Motorola

Title: Iur Control Plane Signalling Bearer

Document For: Discussion

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Date: **June 1-4, 1999**

Source: **Motorola**

Key Issue: **Allowing both IP and SS7 as options for Iur Control Plane SB**

1. Introduction

The Liaison TSGRP#4(99)301 asks the TSG RAN to select one of the following as the Signalling Bearer for Iur Control Plane:

1. Signalling bearer based on CTP/IP
2. Signalling bearer based on SS7
3. Signalling bearer based on CTP/IP and SS7, with the operators having the option of choosing between the two.

This contribution gives status update on CTP work in IETF and explains why specifying both CTP/IP and SS7 (Option 3 above) is the best alternative.

2. Status Update on CTP

CTP (Common Transport Protocol) is a generic term used to describe the protocol being developed by the Sigtran working group of the IETF for the purpose of transporting signalling protocols over IP networks. The specific protocol being considered for CTP is the MDTP (Multi-network Datagram Transmission Protocol).

The companies participating in the drafting of the MDTP include Motorola, Cisco, Siemens, Nortel, and Ericsson. Currently, version 5 of the draft is out for review. It is anticipated that version 6 will reach RFC status. Also, free source code implementation of the MDTP based on v5 will be available by end of June.

3. Discussion

Many operators and manufactures (including Motorola) very much believe that IP is the best solution for Signalling Bearers in 3G networks if we are to invent tomorrow's technology, and not be locked into yesterday's. Over the past few months, many reasons and arguments have been presented in various WGs - RAN WG3 and SA WG2 in particular - as to why IP based Signalling Bearers are superior to SS7 based Signalling Bearers.

However, we wish to respect the sincerely held views of others in the standardization process. An indicative vote taken during the RAN WG3 Meeting #3 in Kawasaki, Japan made it clear that neither the CTP/IP-only nor the SS7-only option has an outright (71%) majority. Balancing our deeply held views on the use of IP with the concerns of those who remain unconvinced, we would like to support the same compromise on the Iur that was achieved on the Iu[1], i.e., the Option 3.

The reasons that support the compromise option of specifying both CTP/IP and SS7 are: a) **Consistency** between the Iu and Iur, b) **cost-effective** deployment of IP based technology, c) **Robustness and reliability in the control and user planes**, and d) the offer of **a risk-less 'bridge' to the future**.

- **Consistency**

[1] The SA WG2 made a similar decision on Iu allowing both IP and SS7 as SBs, with the operators having the option of choosing either one during deployment

The Iu and Iur interfaces should be structurally aligned since they will very likely use the same transmission infrastructure in the field. Based upon this logic, up until now, TSG RAN WG3 and TSG RAN have mapped the structure of the Iur signalling bearers on the structure of Iu signalling bearer. A solid, SA TSG endorsed, decision on the Iu is now in place. The Iur should reflect this. It is illogical for the Iu and Iur to differ structurally.

- **Cost-effectiveness**

For a 'meshed' RNC network, it is much more cost-effective and simpler to implement the network using IP-addressable RNCs than using STP-capable RNCs.

- **Robustness and reliability in the control and user planes**

Designed, quite literally, for nuclear war, IP was designed to operate with robustness and reliability in the harshest of environments. Since reliability is a key factor in the cost-effective operation of 2G networks, one can assume that it will be so in 3G networks as well. IP offers this. This applies to the signalling bearer and to the user bearer. It would be possible to lose an intermediate node between RNCs, automatically switch to a new node, and continue the communication.

- **Risk-less ‘bridge’ to the future**

As was the case when the SA WG2 settled for the Iu-interface compromise, allowing the operators to select IP vs SS7 provides a 'bridge' between the past and the future. It paves the way for a future where signalling over IP networks becomes the norm. It is risk-less because if the CTP/IP solution fails, and we do not believe for a moment that it will, the SS7 solution, though much more limited in function and future flexibility, offers a safety net.

4. Proposal

It is proposed that the TSG RAN choose the compromise alternative of allowing both CTP/IP based and SS7 based Signaling Bearers as options on the Iur Control Plane and send a reply LS back to the RAN WG3 indicating this decision.

5. References

[1] RP#4(99)301, LS regarding RNSAP signalling bearer on Iur

[2] RP#4(99)339, TS 25.422, UTRAN Iur Interface Signalling Transport, v 2.0.1