TSG-RAN Working Group 3 meeting #5 *TSGR3#5(99)938*
Sophia Antipolis, France, 24-27 Aug 1999

Agenda Item: 11

Source: **Ericsson**

Title: Clarification on usage of Classical IP over ATM

Document for: Decision

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1. Introduction

Two contributions were submitted to TSG RAN WG3 meeting #4 concerning the use of Classical IP over ATM (CLIP) in the Iu data transport and transport signalling specification [1]. One contribution [2] was concerned about the use of ATMARP and Inverse ATM ARP because of the complexity of supporting ARP servers for ATM ARP. The other contribution [3] was concerned about the need to support CLIP when ATM SVCs are used.

The purpose of this contribution is to clarify Ericsson´s view on the use of CLIP over the Iu interface with respect to the use of ATM ARP and SVCs. The following is a summary of this view:

There is no mention of using the ARP protocol in [1]. ARP servers are only required when the ARP protocol is used ARP is only required for CLIP when SVCs are used.

Since specification of the use of ATM SVCs over the Iu is beyond the scope of TSG RAN WG3, it should be made clear in [1] that the use of CLIP only applies when PVCs are used.

2. Description

The following statements are contained in the Classical IP and ARP over ATM RFC [4].

Section 5.2:

"All members of a LIS [Logical IP Subnetwork] MUST have a mechanism for resolving VCs to IP addresses via InATMARP [5] when using PVCs."

Section 8.2:

 "An IP station MUST have a mechanism (e.g., manual configuration) for determining what PVCs it has, and in particular which PVCs are being used with LLC/SNAP encapsulation."

"All IP members supporting PVCs are required to use the Inverse ATM Address Resolution Protocol (InATMARP) [5] on those VCs using LLC/SNAP encapsulation.

Section 5.2:

"All members of a LIS MUST have a mechanism for resolving IP addresses to ATM addresses via ATMARP and vice versa via InATMARP when using SVCs.

As can be seen from these statements it is only systems supporting SVCs that require ATMARP. Systems supporting PVCs only require Inverse ATM ARP which does not require ARP servers. This only requires the support of the InATMARP_Request and InAT-MARP_Reply messages that are sent using a PVC to determine the IP address of the corresponding node.

Since the specification of the use of SVCs is beyond the scope of TSG RAN WG3, it should be specified in [1] that the use of Classical IP over ATM only applies when PVCs are used.

3. Proposal

In section 6.1.4 of [1], ATM Adaptation Layer Type 5, the following change should be made:

AAL5 virtual circuits are used to transport the IP packets across the Iu interface toward the packet switched domain. Multiple VCs can be used over the interface. There is a one-to-one relationship between the VC and the IP address as required by Classical IP over ATM. An association must be made between a peer node's IP address and a VC. This association can be made using O&M or using ATM Inverse ARP according to Classical IP over ATM when PVCs are used.

In section 6.1.5 of [1], IP/ATM, the following change should be made:

Classical IP over ATM protocols are used to carry the IP packets over the ATM transport network when PVCs are used. Classical IP over ATM is specified in IETF RFC 2225 [15]. Multiprotocol Encapsulation over AAL5 is specified in IETF RFC 1483.

4. References

 [1]   3GPP TSG RAN "UTRAN Iu Interface Data Transport and Transport Signalling", TS 25.414.

[2]   "Iu transport: Support of Address Resolution in PVC scenario"; Nokia, TSGR3#4 99520.

[3]   "Classical IP over ATM used in Iu for SVC", NEC TSGR3#4 99444.

[4]   "Classical IP and ARP over ATM", RFC 2225.

[5]   "Inverse Address Resolution Protocol", RFC 1293.

3G CHANGE REQUEST

Please see embedded help file at the bottom of this page for instructions on how to fill in this form correctly.

25.414 CR

3G specification number ↑

Current Version: **3.0.0**

↑ CR number as allocated by 3G support team

For submision to TSG **RAN3#6**
list TSG meeting no. here ↑

for approval **X**
for information

(only one box should be marked with an X)

Form: 3G CR cover sheet, version 1.0   The latest version of this form is available from: ftp://ftp.3gpp.org/Information/3GCRF-xx.rtf

Proposed change affects:
(at least one should be marked with an X)

USIM ☐   ME ☐   UTRAN **X**   Core Network **X**

Source:	Ericsson	**Date:**	24 Aug 1999

Subject: The use of Classical IP over ATM over the Iu interface

3G Work item:

Category:

(only one category shall be marked with an X)

F	Correction	**X**
A	Corresponds to a correction in a 2G specification	
B	Addition of feature	
C	Functional modification of feature	
D	Editorial modification	

Reason for change: Classical IP over ATM should only be required when ATM Permanent Virtual circuits are used over the Iu and should not be required when Switched Virtual Circuits are used.

Clauses affected: 6.1.4 and 6.1.5

Other specs affected:

Other 3G core specifications	☐	→ List of CRs:
Other 2G core specifications	☐	→ List of CRs:
MS test specifications	☐	→ List of CRs:
BSS test specifications	☐	→ List of CRs:
O&M specifications	☐	→ List of CRs:

Other comments:

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6.1.4   ATM Adaptation Layer Type 5 (I.363.5)

AAL5 shall be used according to I.363.5 [3].

AAL5 virtual circuits are used to transport the IP packets across the Iu interface toward the packet switched domain. Multiple VCs can be used over the interface. There is a one-to-one relationship between the VC and the IP address as required by Classical IP over ATM. An association must be made between a peer node's IP address and a VC. This association can be made using O&M or using ATM Inverse ARP according to Classical IP over ATM when PVCs are used.

6.1.5   IP/ATM

Classical IP over ATM protocols are used to carry the IP packets over the ATM transport network when PVCs are used. Classical IP over ATM is specified in IETF RFC 2225 [15]. Multiprotocol Encapsulation over AAL5 is specified in IETF RFC 1483 [14].