3GPP TSG-CN1 Meeting #29   *Tdoc N1-030548*
Sophia-Antipolis, France,   31 March – 04 April 2003

Title:	**LS on IPv6 DNS server discovery in release 99 and release 4**
Response to:	-
Source:	CN1
To:	SA2, CN3
Cc:	CN

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Attachments: N1-030426

1. Overall Description:

Over the past 2 years, 3GPP has made ways to align support of IPv6 in GPRS according to IETF standards. During this time, how to provide the UE with DNS server address(es) has been an issue not fully resolved or completed. Originally the possibilities considered for the 3GPP UE to get IPv6 DNS server address(es) were the following methods:

- Method 1; DNS Discovery (the progress of this work in IETF is uncertain).
- Method 2; DHCPv6 (this has been work in progress in IETF, now completed).
- Method 3; Manual or OTA configuration (the exact mechanism is out of scope of 3GPP standardisation).

Note also that the PPP option for DNS IPv6 discovery (as available in IPv4) is not available according to current IETF RFCs or stable Internet Drafts.

CN1 and CN3 have already introduced a GPRS specific generic method to introduce the IPv6 DNS server address to release 5. This generic mechanism is described in 24.008, 27.060 and 29.061. The reasons for proposing the same generic GPRS specific mechanism for release 99 and release 4 are similar to what have already been approved for release 5.

The following is proposed:

- The same GPRS specific mechanism for DNS IPv6 server address discovery as available in release 5 is introduced for release 99 and release 4. This means that the same method to download the IPv6 DNS server address will be available from the introduction of IPv6 for vendors and operators taking IPv6 into operation prior to release 5.
- Ericsson offers to submit CRs to 24.008, 27.060 and 29.061 to the next CN1 and CN3 meetings in May to continue the discussion in the topic to allow UEs and GGSNs to use the method already approved in release 5 in cases where IPv6 is introduced in release 99 or release 4.

2. Actions:

To SA2 group.

ACTION: CN1 kindly asks SA2 group to consider and comment on the above proposal.

3. Date of Next TSG-CN1 Meetings:

Source:	**Ericsson**
Title:	**Support of IPv6 in pre-rel 5 networks**
Agenda item:	**6.1**
Document for:	**INFORMATION / APPROVAL**

Background

Over the past 2 years, 3GPP has made ways to align support of IPv6 in GPRS according to IETF standards. During this time, how to provide the UE with DNS server addresses has been an issue not fully resolved/completed.
Originally the possibilities considered for the 3GPP UE to get IPv6 DNS server addresses were:

- DNS Discovery (this has been a work in progress in IETF, now this seems to be discontinued)
- DHCPv6 (this as well a work in progress then in IETF, now completed)
- Manual configuration (the exact mechanism is out of scope of 3GPP standardisation)

As the way forward for the DNS Discovery option (draft-ietf-ipv6-dns-discovery) was a bit uncertain it was agreed, driven by the emerging IMS, to introduce the possibility for a UE to request the IPv6 DNS server address via the PCO IE from release 5 onwards. Now it is clear that the I-D for the DNS Discovery or similar approaches will not be completed anytime soon within IETF, leaving the terminals with only two options in Release 99 and Release 4: DHCPv6 or manual configuration.

Yet these two options are not optimal for the following reasons:

> Support of DHCP:
> Support of a DHCP client in the terminal has so far been seen as unnecessary complicated as indicated by 'draft-ietf-ipv6-cellular-host'.

> Manual configuration:
> The use of manual configuration is seen as non-user friendly and imposes operational constraints on the operator and the network (e.g. reconfiguring the service network requires reconfiguration of terminals). It also introduces a non-common mechanism to provide UE with the information.

In rel-5, the situation changes, as it is possible for the UE to request IPv6 DNS server addresses via the PCO IE, which is a simpler and more efficient method than manual configuration or use of DHCP for the GPRS architecture. However, in order to support pre-release 5 terminals in a release 5 network, the operator will still have to support either or both the manual and DHCP configuration, which adds to the administrative burden.

Ericsson is concerned that this situation, where a proper method for discovery of IPv6 addresses for DNS servers are not in place from the beginning may delay or complicate the introduction and use of IPv6, and propose the following:

Proposed way forward

Ericsson proposes that the possibility to allow the use of DNS IPv6 server address discovery via the PCO IE is introduced earlier, preferably from the general introduction of IPv6 starting from Release 99. The support in the UE shall be optional but in order for the feature to be useful, GGSN shall provide the DNS server addresses via PCO, when configured by the Operator."

The following is proposed:

- The use of the PCO-IE for DNS IPv6 server address discovery is introduced from rel-99.
- Ericsson provides CRs to 24.008, 27.060 and 29.061 to the next joint CN1/3 meeting in May to allow UEs and GGSNs to use the method already approved in rel-5.

- Operators take the situation into account when IPv6 networks are set into operation.