

# IPv6 Transition Solutions for 3GPP Networks

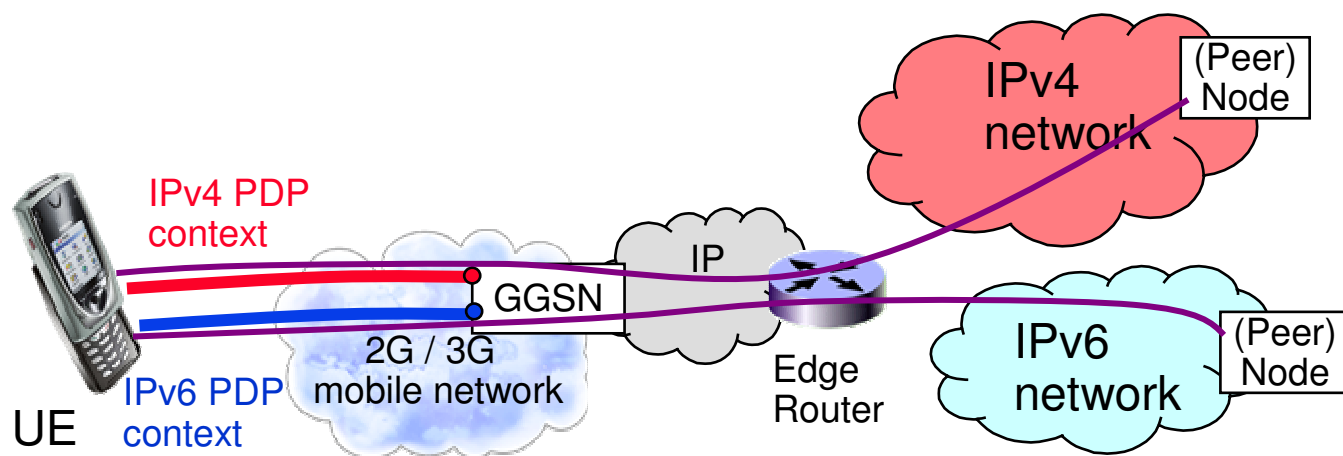
**draft-wiljakka-3gpp-ipv6-transition-01.txt**

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v6ops Interim meeting, Sunnyvale, CA, USA  
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# GPRS scenario 1

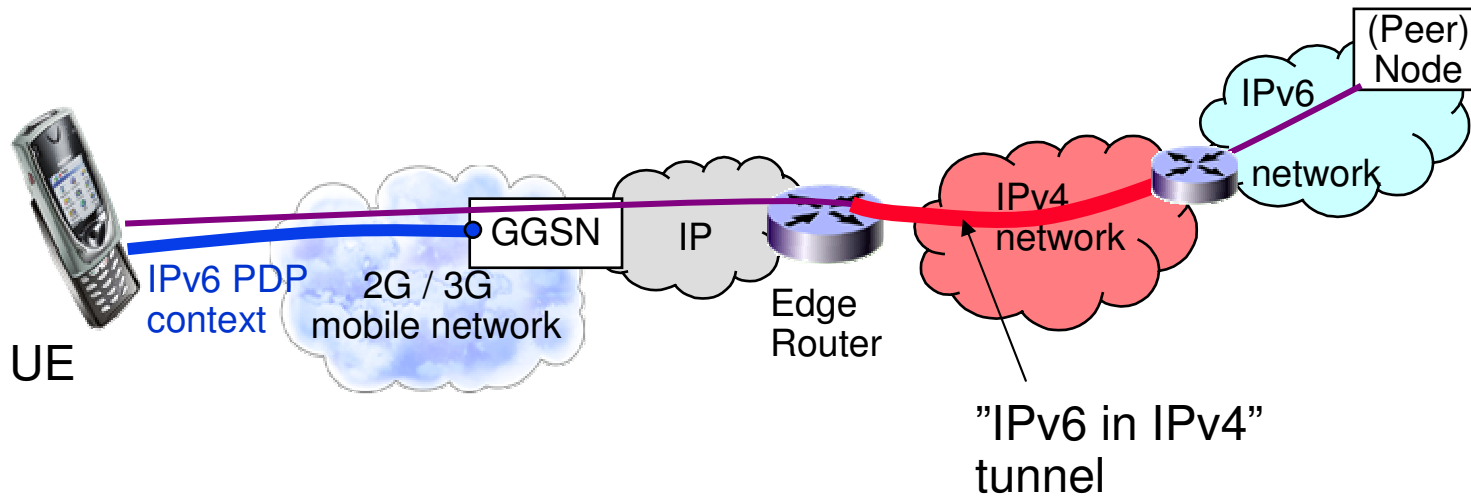
## 1. Dual stack UE connecting to IPv4 and IPv6 nodes



- The most extensive scenario.
- Dual stack UE: both stacks can be simultaneously active.
- Managing the IPv4 address pool is a challenge.
- Use of private IPv4 addresses means use of NATs.
- Tunneling can be made in the UE if needed (in the case the GGSN does not support IPv6 Access Points).

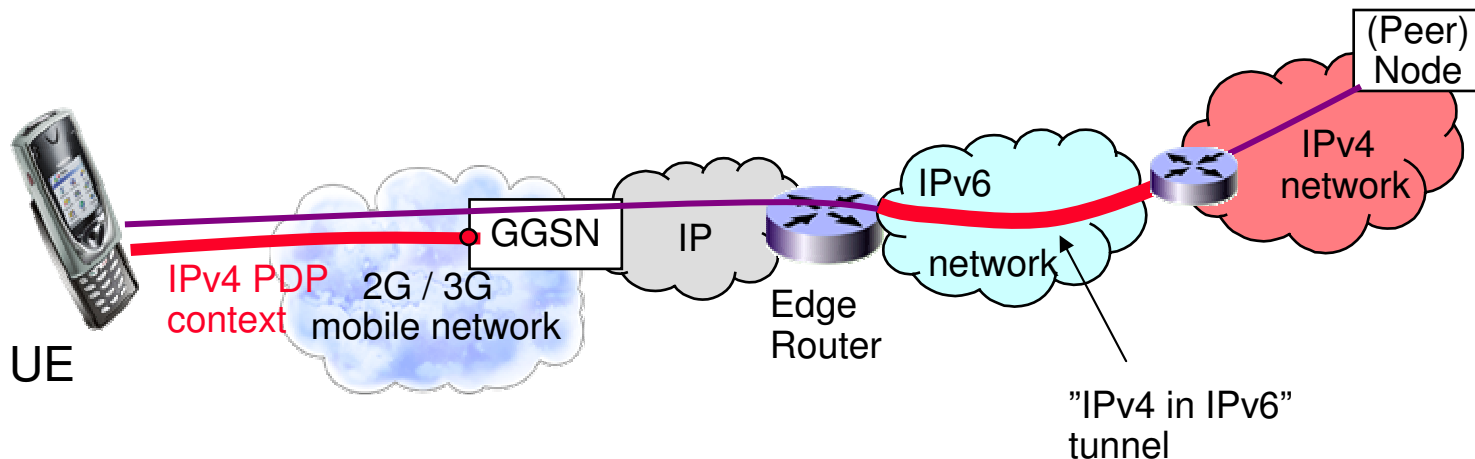
# GPRS scenarios 2 and 3

## 2. IPv6 UE connecting to IPv6 node through an IPv4 network



- Making the "IPv6 in IPv4" tunneling in the network.
- Tunneling can be static or dynamic.
- Compare with 6bone.

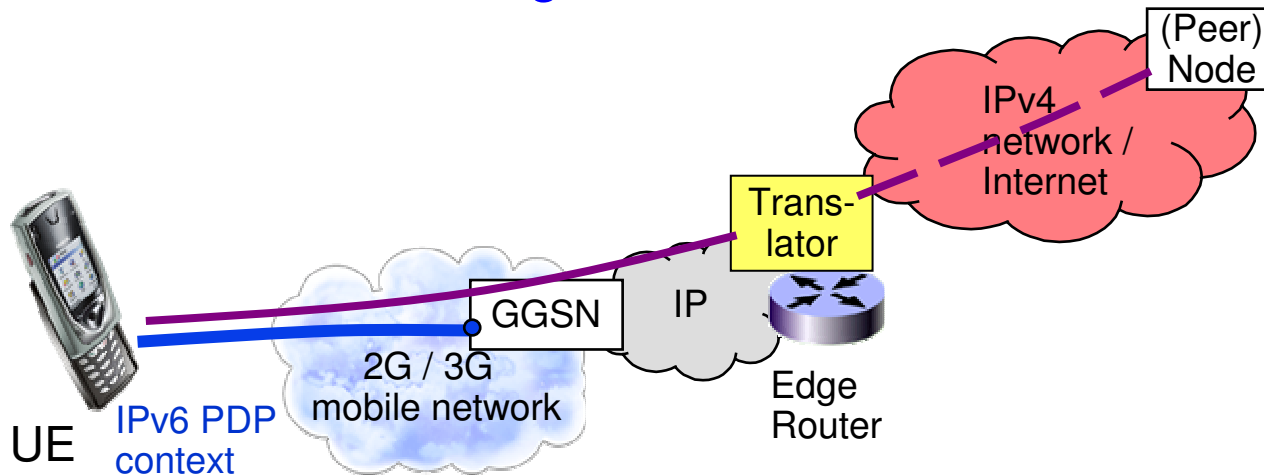
## 3. IPv4 UE connecting to IPv4 node through an IPv6 network



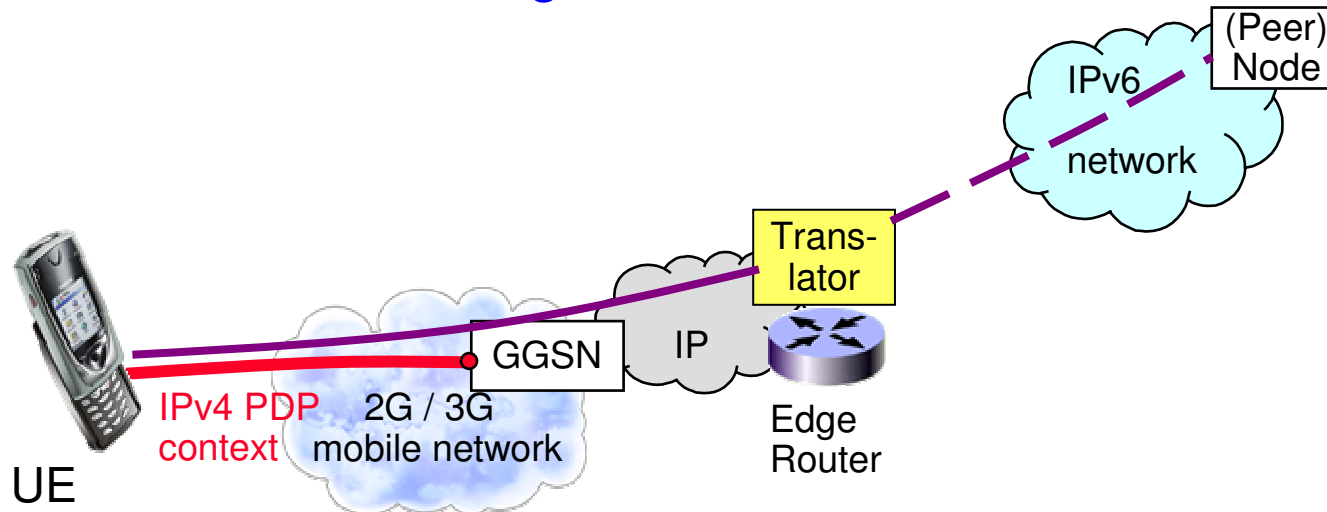
- "IPv4 in IPv6" (static or dynamic) tunneling in the network
- The scenario is not considered very likely in 3GPP networks.

# GPRS scenarios 4 and 5

## 4. IPv6 UE connecting to an IPv4 node



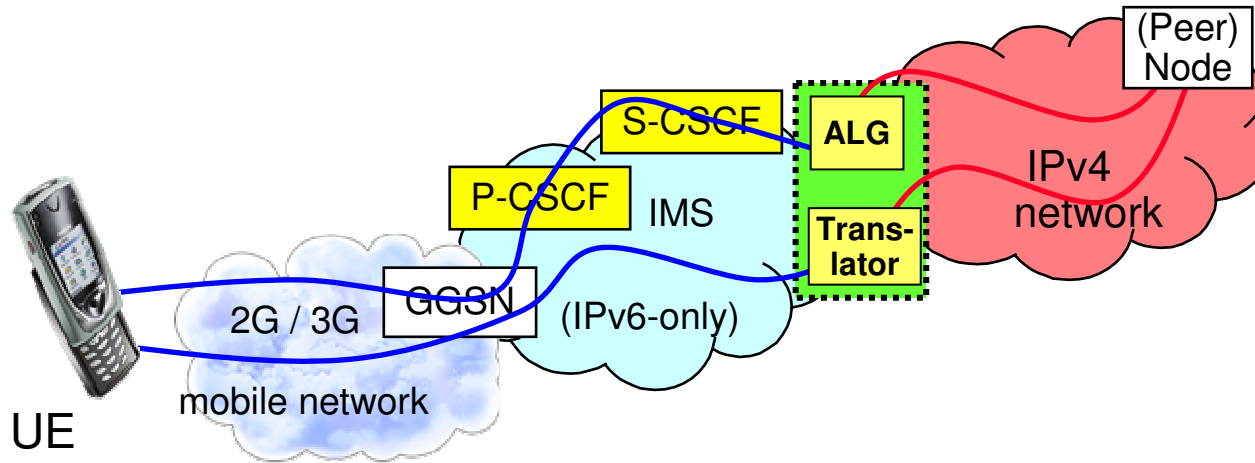
## 5. IPv4 UE connecting to an IPv6 node



- Translation is needed, because the UE and the peer node do not share the same IP version.
- NAT-PT has certain problems.

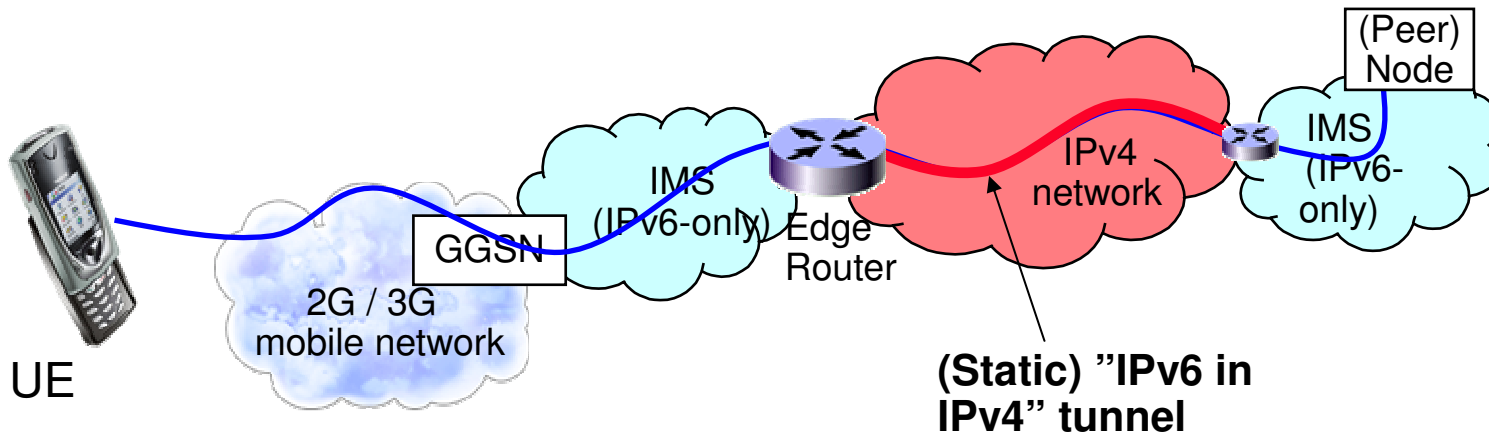
# IMS scenarios 1 and 2

## 1. UE connecting to a node in an IPv4 network through IMS



- UE has IPv6 connection to the IMS and from IMS to an IPv4 node.
- Translation needed in two levels:
  - SIP and SDP in an ALG.
  - User data traffic at IP level.
- This is a challenging case.

## 2. Two IMS islands connected via an IPv4 network



- Closely related to GPRS scenario 2.
- Connection of two IPv6-only IMS islands has to be made over IPv4 network.
- Compare with 6bone.

# IPv4/IPv6 issues related to SIP

- **IMS scenario 1** is challenging due to two levels of translation:
  - SIP / SDP signalling (-> SIP ALG)
  - User IP traffic (-> Translator, such as NAT-PT)
- In the proposed solution, SIP ALG translates SIP traffic, and also coordinates user IP traffic translation.
  - E.g. setting up the IP addresses in the user traffic translator.

# We are asking for your participation

- We appreciate comments and input from the people in the v6ops wg a lot.
- Please read the documents and give comments on the v6ops mailing list. Comments can also be sent directly to the document editor [juha.wiljakka@nokia.com](mailto:juha.wiljakka@nokia.com)

⇒ Can this draft become a WG draft?