Minimum IPv6 Functionality for a Cellular Host

<draft-ietf-ipv6-cellular-host-00.txt>

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Objectives

- Brief background

- Changes from the last revision

- Open issues:
  - Resolve technical issues
  - Discuss structural changes

- Proposal for next steps

Brief Background

- IPv6 contains many RFCs covering different features
- No clear guide for required interoperable implementations
- IPv6 has been included in 3GPP since Rel 99. Deployment is expected very soon, on a large scale.
- Must get it right the first time! (limited upgradeability and configurability)
- IPv6 will be used over new Cellular networks which have demanding requirements
- The above reasons lead to the need for a draft that outlines the need for interoperable implementations for IPv6, as well as, describe the behaviour of IPv6 nodes on cellular links (the only cellular system that has approved specifications for IPv6 use so far is 3GPP)

Current draft Structure

- Discusses issues around using and implementing IPv6 for core IPv6 functionality as well as security and mobility
- Using the IPv6 specifications in cellular
- Needed interoperable implementation requirements
  - For any cellular host, based on common characteristics of cellular hosts (limited computing power) and links (p2p, BW limited, High BER…etc)
  - Cellular hosts can implement more than the minimum
  - Analysis of implementation and use
- Future work: 2 New drafts
  - The details of IPv6 over <cellular> . Standards Track
 - General node requirements draft

Changes from the last revision

- Added [ADDRARCHv3] to section 2.2.
- Minor change to section 2.5.
- Minor change to section 2.6 and 2.6.1.
- Added section 2.8.1 on IPv6 over PPP in 3GPP.
- Removed section 2.13.1 on privacy extensions to stateless address auto-configuration in 3GPP.
- Added recommendation on use of recursive mode DNS in section 2.17.
- Changed recommendation on DNS extensions to support IPv6 (A6) from MAY to SHOULD NOT in section 2.17.1.
- Added section 2.17.2 and 2.17.3 on DNS discovery.
- Moved section 2.18 to the introduction of section 3.
- Section 3: Minor revisions throughout this section.
- Section 4: MIPv6 drafts moved to a new appendix, Appendix D.

Questions raised on the list

- Technical discussions:
  - Scoping? Title?
  - Describe the use of ND in 3GPP
  - The use of Stateless address autoconfig (for 3GPP cases)
  - What is a cellular host? (Generic, not specific for 3GPP)
  - Should IP security be optional? (Generic, not specific for 3GPP)
  - Use of the word 'terminal' instead of host. (Generic, not specific for 3GPP)
  - Use of keywords

IPv6-centric view of the 3GPP Networks

Host (e.g. phone)

3ffe:200:1:2::/64

Host (e.g. phone)

GGSN

Host

IP Network

3ffe:200:1:1::/64
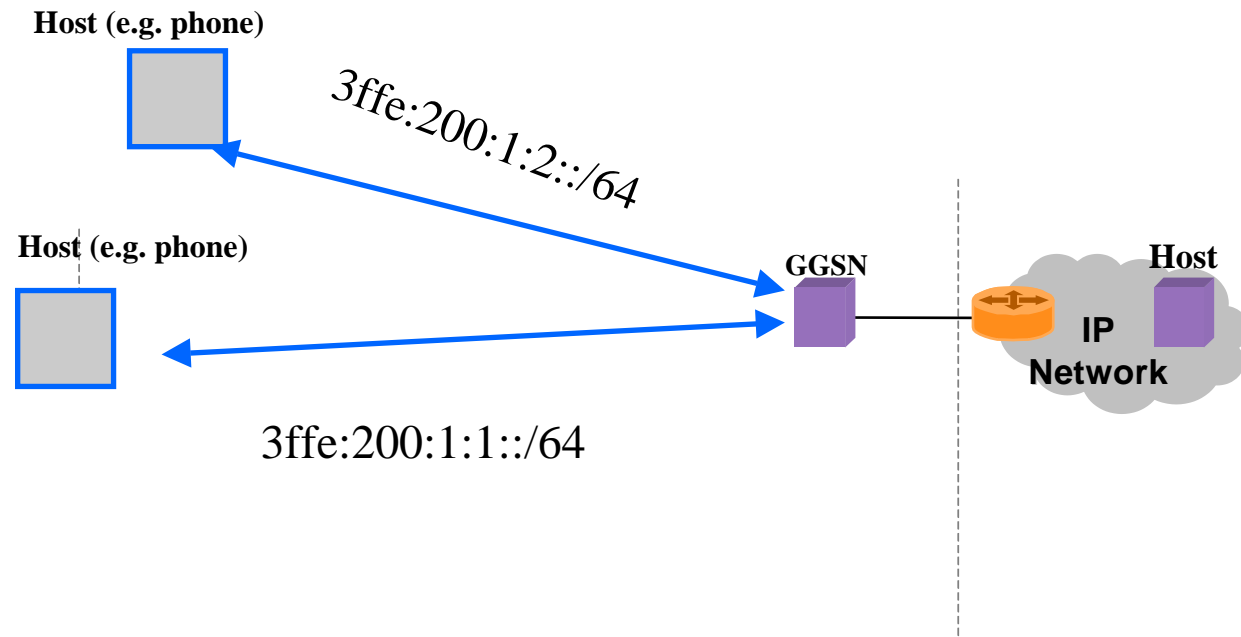
- P2P link between the Host (UE) and default router (GGSN)
- No concept of ethernet-like Link layer addresses
- Each link is assigned a unique /64 prefix

Should IP security be optional?

- IPsec (AH & ESP) are mandatory for all IPv6 hosts
- The draft will not change this definition
- The draft should keep the discussion about the use of IPsec under certain scenarios

Terminology and Keywords

- The draft uses different words for 'host', like 'terminal'
  - Proposal: The draft should use 'Host' everywhere instead of 'terminal'

- What is a Cellular Host?
  - Proposal: Any host with a Cellular interface (e.g. mobile phone)

- Keywords ? Should we keep the keywords or remove them?
  - Proposal: (?)
    - » Option 1: Keep Keywords (no change in IPsec support)
    - » Option 2: Keep Keywords for the <function x in 3GPP> sections only. I.e. link specific sections.

Stateless addr-conf description

- Link-local addresses are negotiated between host and GGSN to ensure uniqueness

- /64 is assigned to the host

- The GGSN can not configure an address derived from the host's /64

- Conclusion: Address duplication is not possible

Next steps

- Informational RFC: 'IPv6 in 2G and 3G Cellular Hosts'
  - 01 version with updates based on mailing list discussions
  - Remove RFC2374 (?)
  - WG last call in April ?