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"IPv6 for Second and Third Generation Cellular Hosts"
in the IETF
<draft-ietf-ipv6-cellular-host-01.txt>

Paul Voskar and Juha Wiljakka

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‘Cellular host IPv6' draft

- Starting point: a clearly defined IPv6 feature set was needed for cellular terminals.
  - IPv6 covers many aspects, numerous IETF RFCs and is also partly still evolving.
  - A rapid adoption of IPv6 is desired for cellular terminals.
  - Cellular terminal software often cannot be upgraded, yet it must meet tough demands for interoperability.
- Implementers need guidance on what to implement in their cellular hosts, and cellular standardization organizations need a reference to how IPv6 should be used.
- The goal is an Informational IETF RFC to be used especially in 3GPP. The draft is already used as a reference in 3GPP 23.221 specification (3GPP S2).

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What is cellular host?

- Cellular IPv6 host is an IPv6 host with a cellular interface, for example one based on GSM/GPRS or UMTS standards.
- Different ways to implement cellular hosts:
  - “Closed 2G or 3G host" with a very compact size and optimized applications, with no possibility to add or download applications that can have IP communications. An example: a very simple mobile phone.
  - “Open 2G or 3G host" with a compact size, but where it is possible to download applications; such as a PDA-type of phone.
- If a cellular host has additional interfaces on which IP is used (Ethernet, WLAN, Bluetooth, etc.), there may be additional requirements for the device – those are *not* including in this draft.
- Cellular host draft does not make any recommendations on the functionality required on laptop computers having a cellular interface such as a PC card, other than recommending link specific behavior on the cellular link.

Cellular host IPv6 writing process

- The cellular host IPv6 work was initiated late 2000. A team for writing the draft was created with members from Nokia and Ericsson early 2001.
- The first personal draft was published in July 2001 and the presentation was held in London 51st IETF meeting.
- The draft was accepted as a Working Group document in the IETF IPv6 Working Group in Salt Lake City IETF meeting and the first Working Group document was produced early 2002.
- Now the next steps will be Working Group Last Call in the IETF IPv6 Working Group and finally making an Informational RFC.

Cellular host draft goals

- To promote rapid adoption of IPv6 (in the mobile handsets and networks) and ensure a smooth deployment.
- Cellular host typically has a very limited size, weight, memory, processor capacity and battery capacity
  - The size and the complexity of the software implementation should be minimized.
- Cellular host software often cannot be upgraded, yet it must meet tough demands for interoperability with other IPv6 hosts.
  - The protocol software shall be well defined to avoid interoperability problems.

IPv6 is coming to cellular networks and terminals

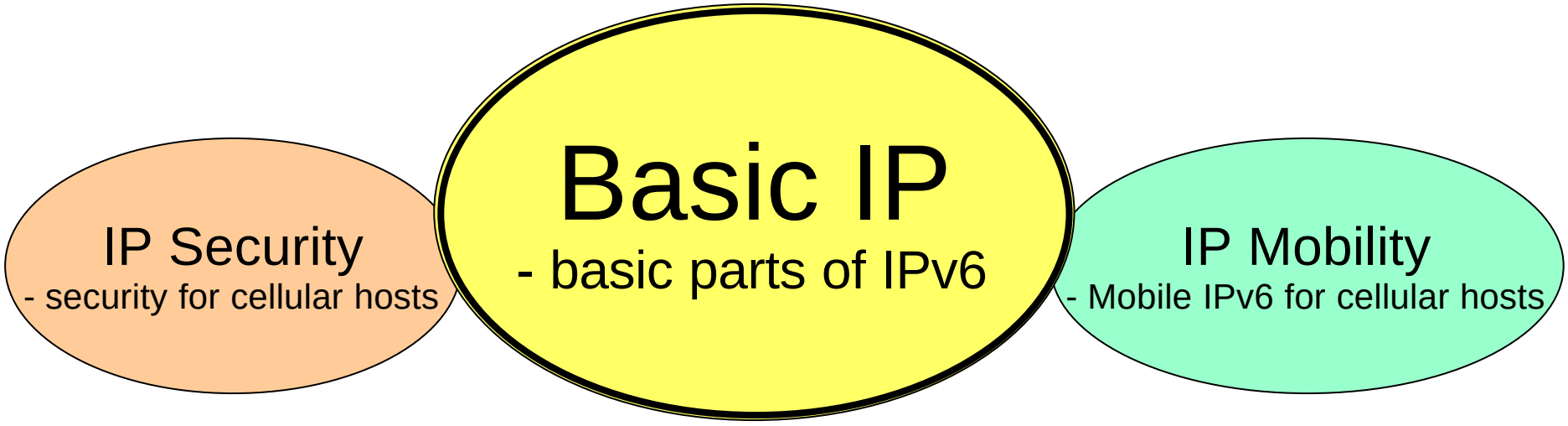
- Operators are currently deploying / piloting 3G networks.
- Expectation that 3G terminals will start to come to the market in 2002 - the support for IPv6 is also expected shortly.
- The 3GPP Release 5 specification deadline is June 2002, implementations will follow.
- Putting IPv6 on cellular hosts is somewhat more complicated than an average Operating System.
  - The cellular host software typically has no or very low upgradeability.

History of IPv6 in 3GPP specifications

- IPv6 was introduced as an option starting in 3GPP Release 97 for GSM / GPRS specifications.
- A wider support for IPv6 started with 3GPP Release 99.
- IPv6 is specified as the **ONLY** IP version supported in Release 5 for IP Multimedia Subsystem (IMS).
- 3GPP Release 99 and Release 4 specifications are frozen and have been used as the basis for this work.
- Any changes (which effect this work) to current IPv6 or 3GPP specifications will be considered as they occur.

Format of the draft:
Three functionality groups

- The draft defines three functionality groups:
  - *Basic IP* includes essential basic parts of IPv6.
  - *IP Security* contains IP Security (IPsec) details for cellular hosts.
  - *IP Mobility* contains IP Mobility (MIPv6) details for cellular hosts.
- The “minimum IPv6 functionality” is defined by Basic IP group.



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Summary

- “IPv6 for 2G and 3G Cellular Hosts" Internet-Draft contains clearly defined IPv6 functionality set for 3GPP mobile terminals.
- The cellular host IPv6 Informational document is specified in the IETF IPv6 Working Group and used as a reference in 3GPP 23.221 specification.
- Authors of the draft want to promote rapid adoption of IPv6 in the mobile terminals (and networks) and ensure a smooth deployment.

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More information

- “Cellular Host IPv6” draft <draft-ietf-ipv6-cellular-host-01.txt>
  www.ietf.org/internet-drafts/draft-ietf-ipv6-cellular-host-01.txt
- Any questions / comments on the Internet-Draft can be sent directly to the authors or IETF IPv6 wg mailing list
  ipng@sunroof.eng.sun.com