

## IP: Next Generation (IPng) White Paper Solicitation

### Status of this Memo

This memo provides information for the Internet community. This memo does not specify an Internet standard of any kind. Distribution of this memo is unlimited.

### Table of Contents

1.	Introduction . . . . .	1
2.	Document Review Process . . . . .	2
3.	Document Format Requirement . . . . .	2
4.	Outline for IPng Requirements and Concerns White Papers . .	3
5.	Engineering considerations . . . . .	3
6.	Security Considerations . . . . .	5
7.	Authors' Addresses . . . . .	5
	Appendix A - Formatting Rules (from RFC 1543) . . . . .	6

### 1. Introduction

The IP: next generation (IPng) area in the IETF is soliciting white papers on topics related to the IPng requirements and selection criteria.

All interested parties are invited to submit white papers detailing any specific requirements that they feel an IPng must fulfill or any factors that they feel might sway the IPng selection. An example of the former might be a submission by a representative of a utility company detailing the scaling and addressing features which would be required to service future inclusion of utility meters on the network. An example of the other case might be a paper outlining the potential effect on IPng of some sections of the future network connectivity being provided via wireless networks.

At this time, we are not accepting white papers that evaluate specific IPng proposals. This type of document will be accepted after the various proposal documents are deemed to be clear and complete.

All white papers will be reviewed in a process described below. As a result of these reviews, each white paper will receive the focused attention of the IPng directorate and the community. The white papers will be used as resource materials by the IPng Area working groups, the directorate, the external review board and the area directors, during the selection process.

The deadline for the submission of these white papers is February 1, 1994, though early submission is encouraged.

Submit white papers, general or topic questions, and so on, to [ipng-wp@harvard.edu](mailto:ipng-wp@harvard.edu).

## 2. Document Review Process

All submitted documents will first be reviewed for clarity by members of the IPng directorate and the external review board. This review may produce suggestions to the author on areas of the document where there may be some confusion as to the meaning. Authors are urged to consider any such suggestions as constructive and to reexamine their text in light of the suggestions.

A separate technical review will then be done of the white paper. This review will be conducted within the context of the document. That is, the review still will not make value judgments on the white papers, but will assess technical feasibility. This review may also produce suggestions to the author.

The document will be submitted as an Internet-Draft after these reviews have been completed and after whatever (if any) revisions that the author decides to make. After a suitable period of time these documents will be submitted as informational RFCs unless withdrawn by the author. These documents will comprise a part of the historical record of the IPng process.

## 3. Document Format Requirements

All white papers must follow the format requirements listed in [RFC 1543](#) and must not exceed 10 pages in length. (The relevant portion of [RFC 1543](#) is included in this document as [Appendix A](#).) They should not include the "status of memo" section; this will be added when the documents are posted as Internet Drafts. The reference version of the document must be in ASCII as is current practice with all RFCs. A PostScript version of the document may be submitted in addition to the ASCII version. (See [RFC 1543](#) for the formatting procedures to use with PostScript documents.)

#### 4. Outline for IPng Requirements and Concerns White Papers

This section details the white paper outline to be followed by someone who would like to express an opinion about the various factors involved in the IPng definition and selection process. Since these documents will be used as resource material by the various IPng working groups, the directorate, the external review board and the area directors, they should be well-focused and give specific references to data supporting their points.

Each white paper should begin with an executive summary of the important points of the document. This executive summary should not exceed 1/2 page in length.

The white paper should then address the issue or issues that the author feels should be understood during the IPng process. The total document should not exceed 10 pages in length. An author may submit more than one white paper if he or she feels that the level of detailed discussion on each topic warrants it.

#### 5. Engineering considerations

In past discussions the following issues have been raised as relevant to the IPng selection process. This list is in no particular order. Any or all of these issues may be addressed as well as any other topic that the author feels is germane, but do not exceed the 10 page limit, please.

5.1 Scaling - What is a reasonable estimate for the scale of the future data networking environment? The current common wisdom is that IPng should be able to deal with 10 to the 12th nodes.

5.2 Timescale - What are reasonable time estimates for the IPng selection, development and deployment process or what should the timeframe requirements be? This topic is being evaluated by the ALE working group and a copy of all white papers that express opinions about these topics will be forwarded to that group.

5.3 Transition and deployment - Transition from the current version to IPng will be a complex and difficult process. What are the issues that should be considered? The TACIT working group will be discussing these issues and a copy of all white papers that express opinions about these topics will be forwarded to that group.

5.4 Security - What level and type of security will be required in the future network environment? What features should be in an IPng to facilitate security?

- 5.5 Configuration, administration and operation - As networks get larger and more complex, the day to day operational aspects become ever more important. What should an IPng include or avoid in order to minimize the effect on the network operators?
- 5.6 Mobile hosts - How important is the proliferation of mobile hosts to the IPng selection process? To what extent should features be included in an IPng to assist in dealing with mobile hosts?
- 5.7 Flows and resource reservation - As the data networks begin to get used for an increasing number of time-critical processes, what are the requirements or concerns that affect how IPng should facilitate the use of resource reservations or flows?
- 5.8 Policy based routing - How important is policy based routing? If it is important, what types of policies will be used? What requirements do routing policies and potential future global architectures of the Internet bring to IPng? How do policy requirements interact with scaling?
- 5.9 Topological flexibility - What topology is anticipated for the Internet? Will the current general topology model continue? Is it acceptable (or even necessary) to place significant topological restrictions on interconnectivity of networks?
- 5.10 Applicability - What environment / marketplace do you see for the application of IPng? How much wider is it than the existing IP market?
- 5.11 Datagram service - Existing IP service is "best effort" and based on hop-by-hop routed datagrams. What requirements for this paradigm influence the IPng selection?
- 5.12 Accounting - How important a consideration should the ability to do accounting be in the selection of an IPng? What, if any, features should be included in an IPng to support accounting functions?
- 5.13 Support of communication media - IPv4 can be supported over most known types of communications media. How important is this same flexibility to an IPng?

5.14 Robustness and fault tolerance - To the extent that the Internet built from IPv4 has been highly fault tolerant, what are ways that IPng may avoid inadvertent decrease in the robustness (since some things may work despite flaws that we do not understand well). Comment on any other ways in which this requirement may affect the IPng.

5.15 Technology pull - Are there technologies that will pull the Internet in a way that should influence IPng? Can specific strategies be developed to encompass these?

5.16 Action items - suggested charges to the directorate, working groups or others to support the concerns or gather more information needed for a decision.

## 6. Security Considerations

This RFC raises no security issues, but does invite comment on the security requirements of IPng.

## 7. Authors' Addresses

Scott Bradner  
Harvard University  
10 Ware St.  
Cambridge, MA 02138

Phone: (617) 495-3864

EMail: sob@harvard.edu

Allison Mankin  
Naval Research Laboratory  
c/o Code 5591  
Washington D.C. 20375-5000

Phone: 202-404-7030

EMail: mankin@cmf.nrl.navy.mil

## Appendix A - Formatting Rules (from RFC 1543)

Note: there are a set of NROFF formatting macros for the following format. Please contact ipng-wp@harvard.edu if you would like to get a copy.

## 3a. ASCII Format Rules

The character codes are ASCII.

Each page must be limited to 58 lines followed by a form feed on a line by itself.

Each line must be limited to 72 characters followed by carriage return and line feed.

No overstriking (or underlining) is allowed.

These "height" and "width" constraints include any headers, footers, page numbers, or left side indenting.

Do not fill the text with extra spaces to provide a straight right margin.

Do not do hyphenation of words at the right margin.

Do not use footnotes. If such notes are necessary, put them at the end of a section, or at the end of the document.

Use single spaced text within a paragraph, and one blank line between paragraphs.

Note that the number of pages in a document and the page numbers on which various sections fall will likely change with reformatting. Thus cross references in the text by section number usually are easier to keep consistent than cross references by page number.