Network Working Group                                      S. Bradner
Request for Comments: 1550                         Harvard University
Category: Informational                                     A. Mankin
                                                                  NRL
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            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

   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.

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

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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.