Abstract

This document provides a summary of previously identified problems with the Internet Engineering Task Force (IETF) process for developing standards and other specifications; and then identifies a set of goals to aim at, and guidelines that should be followed during any activity seeking to revise and update this process. It does not propose specific changes to the process, which should be the subject of future documents.
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1. Introduction

This document provides a summary of previously identified problems with the Internet Engineering Task Force (IETF) process for developing standards and other specifications (referred to as the IETF standards development process in this document); and then identifies a set of goals to aim at, and guidelines that should be followed during any activity seeking to revise and update this process. It also provides a reading list of the diverse material that currently defines and discusses the various parts of this process. It does not propose specific changes to the process, which should be the subject of future documents. It has been produced by a design team (the PESCI design team) selected by the IETF Chair and is submitted to the IETF community for discussion.

The IETF almost continually debates its own process and this is in many ways a healthy sign of its openness. However, the debate is often inconclusive. The goals and guidelines set out in this document represent an application of the IETF’s Principles on specification development and decision making appropriate to making changes to the IETF standards development process.

1.1. Guidelines and Goals

The IETF has previously come to the conclusion that the IETF standards development process suffers from a number of problems as summarized in Section 3. In defining an activity to improve the IETF standards development process, the activity needs to have a clear goal or goals in ameliorating some part of these problems. Besides the basic goal of process improvement, the activity should also aim at a number of general goals applicable to the way in which the improvement is defined and implemented. Because it is an IETF activity, the activity itself and its results should follow the general principles and policies which underlie the operation of the IETF. Although the IETF has a Mission Statement [RFC3935], the principles on which the IETF operates are mostly part of the unwritten lore of the organization, and the PESCI design team created a set of principles out of their collective experience of the way in which the IETF operates. This set has been used to inform the creation of a set of goals and guidelines applicable to any activity which seeks to improve the IETF standards development process: Section 4, which documents this set of goals and guidelines, provides the results of this work.

1.2. Principles, Policy, Process and Procedure

Before going on to discuss process problems and guidelines for change activities we should be clear about what we mean by "process", and
Principles
A set of statements that sets out how the IETF will approach its work and carry out its mission. Collectively they set the organization’s ethos. These include such things as requiring that development of documents and organizational matters are as far as possible open with “rough consensus and running code” as an operating principle. When the PESCI design team started work no such set of statements existed, and the team created a set based on their collective understanding of how the IETF functions. These statements are not incorporated in this document but may be published separately, possibly as part of a revision of the Tao of the Internet.

Policy
An agreement on what the IETF sets out to accomplish. At the highest level this is incorporated in the IETF Mission Statement [RFC3935]. This is refined in the "constitutions" (usually known as "charters" in the IETF) for the various component bodies which provide the organisation of the IETF (listed in Section 2), but these documents are not confined to policy matters. Overall IETF policy and the constitutions of the bodies are adopted by establishing strong IETF consensus.

Process
Descriptions of the methods and mechanisms by which the IETF works. These must be visible to all the IETF participants; core pieces of the existing process are contained in the IESG charter and the IAB charter together with the definition of the IETF Standards Track in [RFC2026]. Additions or modifications to IETF processes are verified by establishing an IETF (rough) consensus, but normally, the specification of the process should be developed under the aegis of the body or bodies that will oversee the operation of the process.

The process category covers area descriptions, large proportions of the material in RFC2026 and the mechanisms used to handle Intellectual Property Rights (IPR) disclosures [RFC3979], as well as (for instance) the IAB document on liaisons [RFC4053].

Procedures
The "nuts and bolts" of the execution of the process. The I-D tracker, the tools team work, the liaison statements document – even the IPR trust agreement – belong in this category.
Procedures are normally developed by the people doing the work, and documented and published as these bodies feel it appropriate.

1.3. About This Document

This document was produced by the PESCI design team selected by the IETF Chair and is published here as a record of discussion. PESCI stands for Process Evolution Committee of the IETF and is in the IETF’s naming tradition as a successor of the earlier POISSON working group. The membership of the design team is listed in the Acknowledgements and the original announcement of PESCI is given as an Appendix. PESCI had no special status in the IETF process; it was simply the group of people who produced this document under the leadership of the IETF Chair.

2. Background reading

The primary objective of the IETF process is to support the IETF Mission Statement, [RFC3935]. Readers should be familiar with that document.

The early phase of the current round of process discussions led to a problem statement [RFC3774]. A general overview of current and draft process documents can be found in [I-D.carpenter-procdoc-roadmap]. At the time of writing, two process related working groups exist: newtrk (New IETF Standards Track Discussion) and ipr (Intellectual Property Rights). Their charters, mailing lists, etc., may be found via http://www.ietf.org/html.charters/wg-dir.html#General%20Area.

The organisations involved in the IETF standards process are discussed in [RFC2028]. Information about the constitutions, purposes, and policy of the main IETF bodies involved in these processes can be found in:

- The Internet Architecture Board (IAB) Charter [RFC2850]
- The Internet Engineering Steering Group (IESG) Charter [RFC3710]
- The Nominating and Recall Committee (NOMCOM) [RFC3777]
- Request For Comments (RFC) Editor: See the RFC Editor web pages including RFC Editor Purpose description (http://www.rfc-editor.org/DOCUMENTS/purpose.html) and some procedures in [RFC3932]
- The memorandum of understanding under which the Internet Assigned Numbers Authority (IANA) operates is in [RFC2860]; the processes and procedures as they affect IETF relationships to IANA are currently under discussion and will be the subject of the "techspec" BOF in November 2005 (see Section 3).
The mission of the Internet Research Task Force (IRTF) is described on its web page (http://www.irtf.org/), and the policies and procedures for the IRTF are in [RFC2014]. Liaisons with external bodies are conducted through the IAB (see [RFC4052] and [RFC4053]).

In the last two years or so, a major effort has been made to update the IETF's administrative structure, creating the IAOC, the IETF Administrative Support Activity (IASA), and appointing the IETF Administrative Director (IAD) (see [RFC4071] for details of these bodies). This should not be confused with process change, although its goal is to improve support for the process. Additionally, the former and present IETF Chairs, and the IESG have taken steps to improve procedures and their transparency. The Tools team and the Education team are busy, many improvements have been made in details of IESG document processing and shepherding, and the IESG has made a number of efforts to improve the transparency of its discussions. Such efforts are valuable, but orthogonal to process change as such. However, they are part of the response to the problem statement [RFC3774].

3. Short problem analysis

The PESCI team reviewed earlier [RFC3774] and recent discussion of IETF process problems. This generated the following list of problems that seem to affect the development of standards and other specifications (following the remit of the design team described in Section 1) and that appear to be potentially soluble.

1. Timeliness of IETF output
2. Lack of clarity about authority and delegation
3. Variable quality of output from WGs
   * At least 30% of drafts attract IESG "DISCUSS" comments even after IETF Last Call.
   * Unsolved issue of adequate cross-area review earlier in the process.
4. IESG overload, which leads to subsidiary problems
   * bottleneck effect
   * too little steering
   * perception issues and them/us mentality
   * burnout
   * potential lack of candidates
5. Lack of a "career path" for IESG members - "dropped in, overworked and chopped off"
   * there is no form of apprenticeship for Area Directors (ADs)
4. Goals and Guidelines for IETF Process Change Activities

This section lists specific goals and guidelines for any activity seeking to change the IETF standards development process. An effort has been made to write these very briefly and in self-explanatory words. Many existing documents, including [RFC3774] and those cited in [I-D.carpenter-procdoc-roadmap], have been consulted, as well as recent mailing list discussions and private communications. An intermediate output was a set of IETF Principles that is not reproduced here but may be published separately.
4.1. Goals

Any activity which seeks to change the IETF standards development process needs to have a well-defined aim of ameliorating some part of the problems set out in Section 3 or identified subsequently. The activity should also aim to satisfy a number of goals identified here that should allow the changes to provide maximum improvement with minimum disruption.

When designing new processes, it should be borne in mind that process changes that require major structural changes within the IETF may have wide-scale impact on the operation of the IETF: evolutionary change may be more effective than revolutionary change.

G1. Ameliorate a well-defined part of the process problem space.
G2. Preserve those parts of the process that work reasonably well today, unless they block other necessary changes.
G3. Make changes that seem certain to improve those parts of the process that work less well.
G4. Avoid changes that would require unrealistic resources or behaviours.
G5. Protect the continuity of ongoing IETF work.
G6. As far as possible, minimize simultaneous changes that may interfere with each other.
G7. Avoid "thrashing" by repeated changes in the same area.
G8. Try to explicitly estimate the impact of changes before making them, and try to measure whether the expectations were met after making the change.
G9. Acknowledge that some refinement of the initial proposals may be needed after trials. To this end try to work expeditiously to provide a nearly right solution that delivers most of the gains rather than refining the solutions endlessly before any implementation (in line with the IETF’s usual way of developing standards).

4.2. Guidelines for Process Change Activities

Any activity for developing, approving and implementing changes to IETF standards development process needs to operate in line with the general principles of the IETF. This section presents a number of guidelines developed from these principles that should apply to any such activity. They deal with how any proposed changes to the IETF processes for developing standards and other specifications should be developed and authorized by the IETF community. These guidelines appear to be broadly in line with our current process for development activities, and similar principles should be true of any future process.
P1. Changes to the IETF process must themselves be agreed by an open process approved by the IETF community.
P2. The process for developing and agreeing these changed processes must itself be the subject of IETF rough consensus.
P3. The development process must incorporate taking advice from * the IESG, the IAB, the IAOC, and the Working Group chairs
   * legal advisors
P4. When the proposed changes have been fully documented, "buy-in" or more formal assent to the changed processes needs to be obtained as follows:
   * Any negative comments from the Working Group chairs must be seriously considered.
   * Formal consent must be obtained from the IESG, the IAB, and the IAOC.
   * Acceptance must be obtained from the ISOC board.
P5. The development and authorisation of the changed processes must ensure that the IESG is not required itself to develop the new processes.

5. Next Steps

The remit of the PESCI design team did not extend to determining what IETF standards development process activities should be undertaken. However the team encourages members of the community to produce proposals for such activities in line with the above goals and guidelines.

6. Security Considerations

This document has no direct impact on the security of the Internet. However, a smooth and efficient IETF process is necessary to deal rapidly with emerging security threats. Also, a badly designed process may be subject to social denial of service attacks that could damage both the IETF and indirectly the Internet itself. We should also note that the change process (and the evaluation of potential change) is itself vulnerable to social DoS.

7. IANA Considerations

This document does not require action by the IANA. However, IANA activities do form part of the IETF process and process changes may affect IANA.
8. Acknowledgements

The members of the PESCI team at the time this document was written were:

   Harald Alvestrand
   Scott Brim
   Brian Carpenter
   Elwyn Davies
   Adrian Farrel
   Michael Richardson

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9. Informative References


Appendix A. PESCI Announcement

To: IETF Announcement list <ietf-announce@ietf.org>
From: IETF Chair <chair@ietf.org>
Date: Fri, 16 Sep 2005 11:21:18 -0400
Subject: IETF Process Evolution

There has been quite a bit of community discussion of IETF process change in recent months. Obviously, process changes must obtain rough consensus in the IETF and follow the procedures in place (principally RFC 2026 today). However, past experience has shown that general discussion of IETF process change on the main IETF list, or in a normal working group, rapidly tends towards divergent opinions with consensus being extremely hard and slow to establish. On the other hand, we have experience that discussion of simply formulated principles and of consistent process proposals can be constructive and convergent.

This note describes a method of starting the next phase of IETF process change, possibly including updating the change process itself.
As IETF Chair, I intend to lead a short term design team, to be known as PESCI (Process Evolution Study Committee of the IETF).

I will request PESCI to
- review recent discussions on IETF process changes
- identify a concise set of goals and principles for process change
- publish these for comment and seek IETF debate and rough consensus

The target is to have a draft of goals and principles by IETF64.

The next steps will depend on the agreed goals and principles after this debate. It is very likely that we will need a process that will generate a consistent set of proposals and a sequence for implementing them, with target dates. It is also likely that the first proposal will be a new process for process change. And it’s a given that open discussion and rough consensus, in accordance with IETF principles, will be required.

A non-binding proposal for the next steps is appended to this message.

Given the short time until the next IETF, the team will have to start very soon and work quite intensively. If you would like to volunteer for the PESCI team or nominate someone to serve on it, please send me email immediately. I want to create the team within a week.

Brian Carpenter
IETF Chair

N.B. The open discussion list will be pesci-discuss@ietf.org, but it hasn’t yet been created at the time of sending this message.

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Possible next steps after the PESCI goals and principles are agreed:

- decide whether to renew the PESCI design team (assumed below) or use an alternative discussion forum
- consider various process change proposals from any source
- reach a team consensus on a consistent set of proposals and a sequence for implementing them, with target dates. All proposals must embed the principle of rough IETF consensus and must provide an appeal mechanism.
- one of the proposals, likely the first, may be a proposal for a new process for process change
- post the proposals as Internet-Drafts intended for publication as BCPs
- seek IETF-wide rough consensus on these drafts
- legal considerations, IASA financial considerations, and considerations of practicality raised by current or past Area Directors, WG Chairs and the like will be given special consideration. If IETF consensus appears to be for a proposal which is legally, financially or practically unacceptable, PESCI will need to convince the community to change its mind.

To enable this, as relevant, the ADs, IAB members, and IAOC members including the IAD will be asked to provide personal input specifically on the feasibility of implementing the proposed process changes as they affect their specific roles.

- forward proposals for approval as BCPs* and acceptance by the ISOC Board. Until such time as the new process for process change has been approved, the proposals will be submitted directly to the General Area Director and the approval body will be the IESG. However, the IESG members’ principal chance to comment on and influence the proposals is prior to their forwarding for approval.

*An alternative would be to use the mechanism described in RFC 3933, if consensus was weak. In particular, this can be used to experiment with the practicality of ideas.

Additional conditions for PESCI’s work

- a subsidiary goal is to end up with a clearly defined and interlocked set of process documents, rather than a patchwork of updates to existing documents

- PESCI will provide an open mailing list where discussion with the community will be encouraged. It will issue regular (monthly?) progress reports and generally operate as transparently as possible. Discussion in IETF plenary sessions is also expected.

- nothing in this proposal prevents ongoing operational improvements within the current process.
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