

Representing Stakeholder Rights in Internet Protocols
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Abstract

This document proposes a set of guidelines for protocol designers to help balance concerns and conflicts between different stakeholders. It also requires the end user to be the highest priority stakeholder in application protocols.

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[1.](#) Introduction

The IETF is often reluctant to make decisions based upon human rights in our standards documents, for good reason. We are a technical body, not a political one, and we do not presume to impose our values onto the users of the Internet. Doing so would not be in the interest of the users that we aim to protect, because it would set a precedent that a technical body could do so. Furthermore, embedding such value judgements in our protocols would make fragmentation of the network - and therefore losing its embedded value as a whole - much more likely.

Another way to say this is in the words of Lawrence Lessig, who said [[CODELAW](#)]:

Ours is the age of cyberspace. It, too, has a regulator. This regulator, too, threatens liberty. But so obsessed are we with the idea that liberty means "freedom from government" that we don't even see the regulation in this new space. We therefore don't see the threat to liberty that this regulation presents.

This regulator is code--the software and hardware that make cyberspace as it is. This code, or architecture, sets the terms on which life in cyberspace is experienced. It determines how easy it is to protect privacy, or how easy it is to censor speech. It determines whether access to information is general or whether information is zoned. It affects who sees what, or what is monitored. In a host of ways that one cannot begin to see unless one begins to understand the nature of this code, the code of cyberspace regulates.

This is indeed a heavy responsibility.

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That said, it is increasingly difficult to avoid making ethical, societal and even legal judgements in protocol design, as the Internet has become pervasive in many societies.

A recurring theme in this area is balancing the rights of various stakeholders, such as (but not limited to) end users, network operators, equipment vendors, implementers, content owners, governments, employers, and parents.

This document proposes a set of guidelines regarding these "stakeholder rights" issues that protocol designers ought to consider as new protocols are created, as well as when existing protocols are extended and evolved.

In doing so, we seek to enable "the tussle" [[TUSSLE](#)]; that is, our protocols (and therefore the code that implements them) should not attempt to establish the law, as Lessig says, but instead aspire to serve as a level, well-defined playing field where society's back-and-forth over the Internet can take place.

1.1. Notational Conventions

The key words "MUST", "MUST NOT", "REQUIRED", "SHALL", "SHALL NOT", "SHOULD", "SHOULD NOT", "RECOMMENDED", "MAY", and "OPTIONAL" in this document are to be interpreted as described in [[RFC2119](#)].

2. Identifying Stakeholders

Protocols MUST document relevant primary stakeholders and their interrelationships.

For example, HTML does so using the priority of constituencies in the HTML Design Principles [[PRIORITY](#)]:

In case of conflict, consider users over authors over implementors over specifiers over theoretical purity. In other words costs or difficulties to the user should be given more weight than costs to authors; which in turn should be given more weight than costs to implementors; which should be given more weight than costs to authors of the spec itself, which should be given more weight than those proposing changes for theoretical reasons alone. Of course, it is preferred to make things better for multiple constituencies at once.

Note how the relative priority of stakeholders is explicit; this is intentional and encouraged. Some stakeholders - especially end users, for protocols where they are involved - can withdraw their support when their rights are not respected, leading to a failed

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effort. In other situations, while a stakeholder believes that their rights are fundamental, this may not be necessary for the successful deployment of the protocol, and therefore their rights are not proportionate to those who are.

Likewise, the responsibilities of, or expectations upon, stakeholders can vary greatly. For example, end users of Web browsers cannot be reasonably expected to make informed decisions about security, and therefore design decisions there are biased towards default security. When applicable, the expectations upon a stakeholder SHOULD be documented.

End-user-facing application protocols MUST prioritise their users higher than any other stakeholders.

Extensions to existing protocols MUST document how they interact with the extended protocol's stakeholders. If the extended protocol's stakeholders are not yet documented, the extension MAY estimate its impact, in coordination with that protocol's community and the IESG.

The burden of this documentation need not be high; if HTML can do it in a paragraph, so can most protocols. While it might be appropriate in a separate document (e.g., a requirements or use cases draft) or the protocol specification itself, documenting stakeholders in the WG charter has considerable benefits, since it clarifies their relationships up-front.

3. Erosion of Rights

Changes in the use, deployment patterns, legal context, or other factors of a protocol can bring pressure to re-balance the priorities and rights of existing stakeholders, or insert new ones (usually, when a protocol is either extended or evolved).

Such changes MUST NOT violate documented rights of existing stakeholders, or those reasonably assumed by existing stakeholders, without informed consent. Note that this may preclude the change completely, as it is often impossible to gain the informed consent of a large or diffuse group of stakeholders (e.g., end users).

For example, there has been increasing pressure to change HTTP [[RFC7230](#)] to make it more amenable to optimisation, filtering, and interposition of other value-added services, especially in the face of more pervasive encryption (denoted by HTTPS URIs). However, since HTTPS is already defined as a two-party protocol with end-to-end encryption, inserting a third party in any fashion would violate the rights of two existing stakeholders; end users and content

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publishers. Therefore, the HTTP Working Group has refused to consider such changes.

4. Intermediation and Non-Stakeholders

In protocol design, intermediation is often thought of as "those parties on the direct path between two people attempting to communicate"; e.g., middleboxes, proxies and so on.

When discussing stakeholder rights, this definition is expanded to include those parties that have the ability to prevent or control communication between two parties. This naturally includes middleboxes, but can also include third parties not directly on-path.

For example, HTTP has on-path intermediaries (proxies, gateways, etc.), but also off-path intermediaries, in the form of the DNS registrar, the DNS server, and also the Certificate Authority if TLS is in use. Certificate Transparency [[RFC6962](#)] potentially adds yet another intermediary to this protocol suite.

While there might be a good technical reason to interpose such an intermediary, it also introduces a new stakeholder, and thus needs to be done with due consideration of the impact on other stakeholders.

Therefore, such intermediation SHOULD NOT be accommodated without purpose in Internet protocols, and protocol revisions (including extensions) MUST carefully weigh when new levels of intermediation are added. When a stakeholder has a role as an intermediary (in this sense), it MUST be documented.

5. Promoting Stakeholders as "Winners"

Protocols often engender network effects. For example, e-mail is only useful when the parties you wish to communicate with also have e-mail; when more people have e-mail, its value is greatly increased.

However, network effects can also be captured by a single party, in a "winner take all" market. For example, if we mint a new communication protocol without providing a way for two independent users to identify each other and rendezvous, it creates a condition whereby a rendezvous service can create network effects and possibly "win" the market.

This is the antithesis of Internetworking, and SHOULD NOT be intentionally enabled, by commission or omission, by Internet protocols.

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Practically speaking, this means that protocols - especially application protocols - are required to accommodate what is commonly known as "federation".

6. IANA Considerations

This document does not require action by IANA.

7. Security Considerations

This document does not specify a protocol; however, applying its guidelines might affect security positively or negatively for various stakeholders.

8. References

8.1. Normative References

[RFC2119] Bradner, S., "Key words for use in RFCs to Indicate Requirement Levels", [BCP 14](#), [RFC 2119](#), March 1997.

8.2. Informative References

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[TUSSLE] Clark, D., Sollins, K., Wroclawski, J., and R. Braden, "Tussle in Cyberspace: Defining Tomorrow's Internet", 2002, <<http://groups.csail.mit.edu/ana/Publications/PubPDFs/Tussle2002.pdf>>.

Appendix A. Acknowledgements

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