### Guidelines for Working Groups on Intellectual Property Issues
#### draft-ietf-ipr-wg-guidelines-00

Status of this Memo

Copyright Notice

Abstract

   This memo lays out a conceptual framework and rules of thumb useful
   for working groups dealing with IPR issues.  It documents specific
   examples of how IPR issues have been dealt with in the IETF.

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## 1. Introduction

This memo lays out a conceptual framework and rules of thumb for
working groups dealing with IPR issues.  The goal is to achieve a
balance between the needs of IPR holders and the implementers of the
Internet which is appropriate to current times.  As part of trying to
distill out principles for dealing with IPR in IETF working groups,
it provides case studies of treatments of IPR issues that have
already been worked out.  In other words, it documents the running
code of the IETF process.

This memo does not describe IPR procedures for document authors or
IPR asserters.  Those are covered in two other memos coming out of
the IPR working group, on IPR in the IETF [5] and submitters' rights
[6].  Rather, this memo is for working groups that are trying to
decide what to do about IPR-protected technology contributions.

## 2. The Problem

Traditionally the IETF has tried to avoid technologies which were
"protected" through IPR assertions.  However, compromises have been
made since before the IETF was born.  The "common knowledge" of the
IETF, that IPR-protected technology was anathema, has never dealt
with the fact that the Internet has run on IPR-protected technologies
from the beginning.  Nowadays the majority of the useful technologies
brought to the IETF have some sort of IPR assertion associated with
them.

It will always be better for the Internet to develop standards based
on technology which can be used without concern about selective or
costly licensing.  However, increasingly, choosing a technology which
is not protected by IPR over an alternative that is may produce a
weaker Internet.  Sometimes there simply isn't any technology in an
area that is not IPR-protected.  It is not always the wrong choice to
select IPR-protected technology, if the choice is made knowingly,
after considering the alternatives and taking the IPR issues into
account.

The IETF is not a membership organization.  Other standards making
bodies may have membership agreements that member organizations must
sign and adhere to in order to participate.  Membership agreements
may include strict procedures for dealing with IPR, or perhaps a
requirement that technology must be licensed royalty-free.  This is
not possible in the IETF.

Even if the IETF had membership agreements, they would be difficult
to formulate in a way that covered IPR problems, because the IETF's
work includes technology from other sources and because the IETF

collaborates with organizations that work with different approaches
to intellectual property.  The IETF can encounter four different IPR
situations, at almost any time during the life of a document:

o  A draft submitter notes its IPR claim regarding the contents of
   the draft.

o  An IETF participant asserts that the contents of a draft is
   covered by their own IPR.

o  IPR is noted, by the author of a draft or by a different IETF
   participant, that is claimed by an organization that does not
   participate in the IETF at all.

o  An organization that does not participate in the IETF, but that
   monitors its activities, discovers that a draft intersects that
   organization's established or pending intellectual property
   claims.  It may come forward right away, or wait and let the IETF
   work progress.

The IETF does not have detailed rules for each situation.  The IETF
does not force IPR-related behavior on anyone.  It only sets criteria
for a technology document becoming an Internet standard.  Working
groups have essentially only one rule they can invoke -- about
individuals not participating in activities related to a technology
if they do not disclose known IPR.  Other than that a working group
only has recommendations and requests.

Since every case is unique, and there are close to no general rules,
working groups need a great deal of freedom in dealing with IPR
issues.  However, some amount of consistency is important so that
both contributors and users of eventual standards can know what to
expect.

## 3. The Approach

The organizing principle of this memo is to give working groups as
much information as possible to make informed decisions, and then
step out of the way.  The other IPR working group memos (see the IPR
Working Group charter page [1]) lay out what needs to be done once a
particular piece of technology is selected as a working group draft.
That doesn't help when a working group is trying to decide whether to
select a technology or not in the first place.  Thus this third memo.
We want to build a conceptual framework, a new set of "common
knowledge", to make it easier for working groups to deal with
intellectual property issues.

To do so, we first present "case studies" in Section 4 -- real events

that have happened in recent years, and how different working groups
dealt with them -- plus notes on possible lessons to be learned.  In
Section 5, we expand on these lessons to be learned and try to
extract general principles.

**4. Case Studies**

The best way to know what works is to look at past attempts at
dealing with IPR.  The following are selected as cases from which
general lessons might be extracted.

**4.1 IPS WG (IP Storage)**

The IPS Working Group evaluated technology developed outside of the
working group, "secure remote password" (SRP, RFC2945 [4]).  At the
time, there was one known IPR assertion, and the proposed licensing
terms were apparently reasonable.  SRP had become a proposed standard
without going through any working group, so IETF participants may
have been less likely to notice it in order to make statements about
IPR.  In any case, two more possible IPR claims were uncovered after
the IPS working group had already decided to make SRP required.  One
of the possible IPR holders did not make a strong IPR assertion
itself, and did not want to take the time to determine whether it
actually had a claim, though it acknowledged it might have a claim.
Also, in both cases it was difficult to obtain information on
possible licensing terms, even though words like reasonable and non-
discriminatory were used in IPR statements, and rumors of what they
might be did like not sound good.  The working group participants
took the assertions, potential and otherwise, very seriously, and
decided not to use SRP after all, even though they had already chosen
it based on other criteria.

Lessons:

o  IPR assertions may appear at any time in the standards process.

o  Take impreciseness seriously.  Attempt to get clarification on
   both IPR claims and licensing terms.


**4.2 PEM and PKI issues**

PEM (Privacy-Enhanced Mail) wanted to use public key technology.  In
the mid-90s, the basic principles of public key infrastructure had
been patented for years.  The patent holder had shown a tendency to
actively enforce its rights, and to prefer software sales to
licensing.  This was seen as a significant potential issue, one which
could possibly interfere with the easy development of the Internet.

   However, there was no alternative technology that came close to its
   capabilities.  Adopting an alternative would have damaged the
   Internet's health and flexibility even more than adopting a
   technology with IPR assertions.  The case was so compelling that the
   working group participants decided to move forward on standardizing
   it and even requiring it.

   One factor which was noted was that the patents were mature, and
   would expire within a few years.  That meant that although the impact
   might be significant to start with, it would not be in the long run.
   This lowered the perceived risk of using the IPR-protected
   technology.

   Lessons:

   o  IPR is just one issue in deciding whether to adopt a technology.

   o  IPR is not an all or nothing issue.  There are different types and
      levels of IPR protection.

   o  The IPR's lifecycle phase can be a consideration.


**[4.3](#) CDI WG (Content Distribution Internetworking)**

   The CDI Working Group laid out an overall architecture and found that
   a number of included technologies had IPR claims associated with
   them, based on work done before the working group was started.  The
   working group participants decided there was little chance of
   producing alternative technologies which were as useful and which did
   not run up against these IPR assertions.  As usual, there was no good
   way to evaluate assertions and possible licensing terms until after
   the technology had been completely specified (at the earliest).

   Working group participants generally thought they had a good idea
   what to expect from each other, and that the ultimate benefits of
   using the technologies outweighed the IPR issues.  The working group
   participants decided not to consider IPR as an issue at all in
   determining which technologies to adopt.

   Lessons:

   o  Past experience can be used as a significant factor in evaluating
      the possible impact of IPR.

**4.4 VRRP (Virtual Router Redundancy Protocol)**

The working group was standardizing VRRP based on a protocol
developed outside the IETF.  The IPR holder supported that protocol
and stated that it would license its IPR for that protocol if it
became the standard, but not for the similar protocol the working
group was developing.  The working group participants decided to go
ahead and standardize its protocol anyway.  The IPR holder has only
asserted its patent when someone else asserted a patent against it.
There is no evidence that the working group participants actually
thought about the implications of the IPR when it went ahead with its
choice of protocol.

Lessons:

o  IPR assertions should never be disregarded without good cause.
   Due diligence should be done to understand the consequences of
   each assertion.


**4.5 Secure Shell (SecSH)**

This was primarily a trademark issue, not a patent issue, since the
patent issue had been worked out outside of the IETF.  The holder of
a trademark wanted the IETF to stop using "SSH" in the names and text
of its proposed standards.  The working group participants thought
through the details of the claims, and possible implications and
risks, and decided to go ahead and continue using the names as they
are now.  This issue is still being worked through.

Lessons:

o  Working group participants can evaluate IPR assertions not only
   for their possible validity, but also for the risk of misjudging
   that validity.  The impact of honoring the IPR claim may be major
   or minor.


**4.6 IDN (Internationalized Domain Name)**

The IDN working group dealt with a number of IPR assertions.  Several
were made which did not overlap with the technology -- the IPR
asserters said the patents were being announced just in case the
working group decided to go that way.  In one case, even though a
patent was announced as purely defensive, the working group
participants investigated the claims themselves.  They concluded that
it did not overlap.

In one case, an IPR claimer asserted that the working group's
documents, and in fact the IETF as a whole, were infringing on its
rights.  Individual working group participants consulted with their
legal advisers, concluded that the claims would not overlap the
working group's developing technology, and decided to ignore the
claims.  This was reflected in the direction the group as a whole
decided to take.

In another case, patent claims were asserted that appeared to be
derived from WG discussion and impact, rather than vice versa (or
independent discovery).  The claimants were known to be following the
WG's work when the ideas were proposed, and their patent filing was
considerably subsequent to that time.

In 2000 the IDN working group discovered a patent that some
participants thought might apply to one of their main drafts.  If it
did, it could affect their work profoundly -- to the extent that some
suggested that if they could not work out reasonable licensing terms
with the IPR holder they might just disband.  As a group and
individually, participants corresponded with IPR holder in order to
get an explicit statement of licensing terms, preferably royalty-
free.  By doing so they gained a better understanding of just which
WG activities were seen as infringing on the patent, and at least
some understanding of the IPR holder's intentions and philosophy.
Since the patent holder seemed to have an interest in using the
patent for profit, the group discussed the issues on its mailing
list.  They overtly talked about how they could change their proposed
technology to avoid having to contest the patent, and the extent to
which the patent might be countered by claims of prior art.
Meanwhile, individually they were talking to their legal advisors.
Gradually, a collective opinion formed that the working group
documents did not infringe on the patent.  Since then, the patent has
been ignored.  However, they are keeping a watchful eye out for
continuation patents which might have already been submitted.

Lessons:

o  It's sometimes beneficial to push IPR claimants to find out what
   they think their claims cover and what their licensing terms are.

o  Possibilities of prior art should be considered.

o  It's all right, and sometimes beneficial, to discuss IPR claims
   and gather information about possible prior art on the group list
   (but remember that neither the IETF nor any working group takes a
   stand on such claims as a body, and the group is not the best
   place to get legal advice).

   o

5. **General Principles**

   Given the case studies above, here are a few principles that working
   groups can start with in dealing with IPR.  Of course every working
   group needs to follow its own consensus, and actual treatments will
   vary as much as they have in the past.

5.1 **Types of IPR**

   A primer on the different types of IPR would be large, unreliable,
   and redundant with other Working Group documents [2][5][6].  For
   informal exploration, see those documents and other relevant sources
   on the web.  Readers with more serious concerns should consult their
   legal advisors.  In the United States, briefly:

   o  Trademarks indicate the sources of goods.  Servicemarks indicate
      the sources of services.  They protect the use of particular marks
      or similar marks.

   o  Copyrights protect the expressions of ideas (not the ideas
      themselves), in almost any form, and allow "fair use".  Copyrights
      expire but they can be renewed.

   o  Patents protect "inventions".  They expire (utility patents expire
      after 20 years), but follow-on patents can cover similar
      technologies and can have nearly the same implications for use in
      the Internet as the original patents.


5.2 **When to think about IPR**

   This memo does not describe IPR procedures for document authors or
   IPR asserters.  Rather, this memo is for working groups that are
   trying to decide what to do about IPR-protected technology
   contributions.  A working group as a whole (as opposed to individual
   contributors or IPR holders) needs to think about IPR issues:

   o  when examining a technology, and deciding whether to initiate work
      on it.

   o  when deciding whether to adopt a draft as a working group
      document.

   o  when choosing between two or more working group drafts that use
      different technologies.

o  when deciding whether to depend on a technology developed outside
   the working group.

o  when comparing different kinds of IPR protection.

At each of these times, the working group should solicit disclosure
of IPR assertions and licensing terms.  A working group's job will be
a lot easier if IPR details are discovered early, but it should
realize that IPR assertions may appear at any time.  An IPR holder
which does not participate in the IETF may choose to wait, while the
relevant technology is being discussed and evaluated, perhaps
modifying its claims during this time.

**5.3 IPR as a Technology Evaluation Factor**

How do you weigh IPR assertions against other issues when deciding
whether to adopt a technology?

The ultimate goal of the IETF is to promote the overall health,
robustness, flexibility and utility of the Internet infrastructure.
We base architectural decisions on our long-term extrapolations of
requirements, by thinking in these terms.  When considering a
particular technology, we compare it with other technologies not just
for its elegance of design in and of itself, but also for how it fits
in the bigger picture.  This is done at multiple levels.  It is
examined for how it fits into the overall design of the working
group's output, how it fits into the particular Internet
infrastructure area, how it fits with work going on in other areas,
and how it fits in the long view of the Internet architecture.

Similarly, when evaluating a technology, working group participants
consider IPR claims on it (including possible copyright issues with
text describing it).  The issue is not whether a particular piece of
technology is IPR-protected -- we use IPR-protected technology every
minute.  The question is how much the IPR protection will limit the
technology's usefulness in building a robust, highly useful Internet.
Thus, the only significant questions are: is the IPR claim relevant,
and if so what are the terms under which the technology can be used?
When technology is free from IPR protection the answer is easy.  When
it is IPR-protected, some terms make the IPR issues insignificant
compared to the engineering issues.  Other terms can make a
technology unusable even if it is perfect otherwise.

The problem with IPR as a technology evaluation factor is that it is
unlikely that a working group, as an entity, can ever claim to have
reached consensus on most IPR issues.  The IETF as a whole, and a
working group as a whole, takes no stance on the validity of any IPR
claim.  It would be inappropriate for a working group chair to

declare that consensus had been reached that, for example, a
company's patent was invalid.  Individual participants will need to
use whatever legal advice resources they have access to to form their
own individual opinions, but discussions about the validity of IPR
should not take place under the auspices of the working group.

## 5.4 Patents versus Pending Patents

The IETF does not (cannot) expect IPR asserters to tell a working
group specifically how they think a particular patent applies.  If a
patent has already been granted, the IETF can reasonably expect
disclosure of the patent number, which will allow working group
participants to explore details of the claims.  If a patent has not
yet been granted, significantly less information is available.  In
most countries patent applications are published 18 months after they
are filed, but in the USA that can be avoided if the applicant does
not also file outside the USA.  Details of pending patent claims can
be modified at any time by the claim submitter before the patent is
granted.  It is not known before then what rights will actually be
granted.  Finally, rights can be contested in court, and nothing is
final until the courts decide.  All the IETF can expect regarding a
pending patent is disclosure that it exists and possibly some
statement about licensing terms.

## 5.5 Applicability: It's Hard to Prove a Negative

Working group participants need to make their own decisions about
what level of confidence they need as to whether IPR is applicable.
However, perfect knowledge is not a worthwhile goal.

In general, a working group should strive to find out about all IPR
claims related to technologies it is considering, and at least the
general facts about licensing terms for each case -- for example
whether the terms will be "reasonable and non-discriminatory".
Working group participants should also investigate possibilities of
prior art which would counter the IPR claims.  However, even if the
working group participants do exhaustive searches, both externally
and internally to their employers, it is impossible to prove that a
particular technology is not covered by a particular IPR claim, let
alone proving that it is not covered by any IPR claim.  Anything a
working group adopts may, in the future, turn out to be IPR-
protected, although the IPR assertion may not be discovered until
years later.  Claims are open to interpretation even after rights are
granted.  Drafts can be very fluid, even up to the time of last call,
and IPR issues may unknowingly be taken on at any time.  Absolute
certainty about IPR claims is extremely rare.

However, the level of confidence needed to consider IPR when

evaluating a technology is often not hard to get to.  There are cases
where risk is high (e.g.  where licensing terms may be onerous) and
thus a high level of confidence about applicability is needed, but
history shows that most of the time "rough" confidence is good
enough.  In any case, perfect confidence is usually impossible.

**5.6 No Universal License Terms**

Licensing terms vary continuously across a range from prohibitive to
no license at all.  In general there are four classes of situation
which will be encountered.

o  No license - licenses per se are not available.  Local
   regulations, if any, apply.

o  Public domain - the technology is explicitly made available to
   all, without any IPR claims.

o  General "free" license - the technology is made available free of
   charge.  There may be terms which specify conditions for use of
   the technology, for example regarding redistribution.  There is a
   form of this license which invokes "reciprocity", in which the
   technology may be used as long as the licensee allows the IPR
   holder to use the licensee's technology in the same area under
   comparable terms.  A requirement for general reciprocity is also
   possible, under which the technology is made available as long as
   the licensee does not enforce any IPR claims against the licenser.

o  "Reasonable and non-discriminatory" (RAND) terms - the license is
   granted based on some terms which may include reciprocity.  The
   terms can vary tremendously.  Even when IPR assertions do use
   words such as "reasonable", "fair", and "non-discriminatory",
   working groups should keep in mind that these words have no
   objective legal definition, at least not in this context.

Many IPR holders do not like to publish explicit, specific terms
under which they will issue licenses.  They may use standard terms
for many licensees, but they prefer to negotiate terms for some.
Therefore, do not expect any IPR claim to lay out detailed blanket
terms for licensing.

Vaguer terms are not necessarily better or worse than more specific
terms.  If an IPR assertion lists only vague terms, that doesn't mean
the terms that will be offered in individual licenses will be any
worse than those offered in an IPR assertion that makes very specific
statements.  Obviously, if an IPR claimant refuses to suggest any
terms at all, the working group is going to have trouble evaluating
the future utility of the technology.

Recall that words such as "reasonable", "fair", and "non-
discriminatory" have no objective legal or financial definition.
Also, IPR holders have occasionally asserted that there were already
sufficient licenses for a particular technology to meet "reasonable"
multisource and competitiveness requirements and, hence, that
refusing to grant any licenses to new applicants was both fair and
nondiscriminatory.  The best way to find out what an IPR holder
really means by those terms is to ask, explicitly.  It also helps to
gather knowledge about licenses actually issued, for that technology
or for others, and about other experiences with the IPR holder.

Despite the fact that IPR holders often don't like to publish
explicit terms, there are levels of vagueness, and individuals and
even working groups can sometimes successfully push an IPR holder
toward less vagueness.  The employers of IETF participants all know
that that IETF prefers explicit terms, and do feel pressure to
produce them.

If working group participants are dissatisfied with the confidence
level they can obtain directly about licensing terms for a particular
technology, they can possibly extrapolate from history.  As part of
the standards process as described in RFC2026 [2], in order for
licensed technology to become a draft standard, at least two
independent licenses need to have been issued.  If the IPR holder for
the technology the working group is considering has licensed other
technology in the past, there is a record of the sorts of terms they
are willing to grant, at least in those two specific cases.  This
sort of thing is weak but if everything counts, it may be some
indication.

## 6. Security Considerations

This memo relates to IETF process, not any particular technology.
There are security considerations when adopting any technology,
whether IPR-protected or not.  A working group should take those
security considerations into account as one part of evaluating the
technology, just as IPR is one part, but they are not issues of
security with IPR procedures.

There may be security issues with procedures for dealing with IPR,
but they are not technical.  They have more to do with
unintentionally revealing corporate intellectual property through
human activity than risking anything when using a protocol.

References (Non-Normative)

[1]  IETF, "IPR Working Group web page", 2002, <http://www.ietf.org/
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   [4]   Wu, T., "The SRP Authentication and Key Exchange System", RFC
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   [6]   Bradner, S., "IETF Rights in Submissions", draft-bradner-
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