

# Bringing New Work to the IETF

Thomas Narten

[narten@us.ibm.com](mailto:narten@us.ibm.com)

IETF 81

Quebec City, Quebec

July 24, 2011

# Goals of this Presentation

- Explain process for bringing work to the IETF
- Identify what kind of work to bring to the IETF
- Explain the formal process
  - But more importantly, also the “real” or informal process!
- Tips to maximize chances at success
- Pitfalls to avoid

# Overview

- High-Level IETF Organizational Structure
- IETF Culture
- IETF Deliverables
- IETF Work items/document types
- Avenues for publishing RFCs
- Deciding Whether and Where Within IETF
- New Work via a BOF

# IETF Overview (3 slides)

# High-Level IETF Organization

- Actual work done within WGs
  - WG charter outlines actual scope
    - Defines what is in scope
    - Also defines what is out-of-scope
    - Type and number of documents to be produced
  - WG chair(s) manage work, evaluate consensus, decide when work is ready for advancement
  - WG is primary place where individuals participate

# High-Level IETF Organization (cont.)

- WGs grouped into nine Areas
  - INT, SEC, TSV, RTG, RAI, etc.
  - Area Director(s) (ADs) oversee/manage WGs
  - <http://www.ietf.org/html.charters/wg-dir.html>
- IESG comprised of 17 ADs
  - Final approval of all documents
  - Approve WG charters (and hence new work)

# High-Level Work Process

- BOF introduces problem, proposes work items
- For new WG, develop charter
  - Discuss/iterate on mailing list
  - Formal IESG review/approval
  - Includes formal/public call for comments
- Document development
  - WG chair(s) decide when work is done
  - AD review and formal IETF Last Call (LC)
  - Final review and approval by IESG

# IETF Culture (6 slides)



# IETF Culture

- IETF culture is “different” than other SDOs
  - Focus is on best engineering solution (“engineering trumps politics”)
  - Company positions not appropriate
  - Meritocracy: some opinions carry more weight
- Pros
  - Often leads to better engineering solutions
- Cons
  - Harder for outsiders to understand/navigate
  - Last-minute technical objections can be blocking

# IETF is a Meritocracy

- Some voices more important than others
  - Be careful about confusing this with “more political”
  - Valid engineering arguments trump everything
- When senior/experienced voices raise issues, do not brush off or ignore concern
  - Not good enough to say “they are just one person”
  - Not good enough to say “I responded to that concern” (i.e., do others agree?)
  - Need to understand whether objectors speak for others (e.g., a “silent majority”)

# IETF Consensus

- IETF “consensus” really means:
  - Community believes that a solution adequately solves the problem at hand
  - No significant technical issues/objections
  - Community means entire IETF, *not* just WG
- Key principle: be clear on what problem needs solving
- “Problematical” Last Call discussions often include:
  - “solution doesn't address the meaningful problem”

# Importance of Socialization

- Bottom line: its all about obtaining consensus
  - Means: other people say “this work is OK and should go forward
- MUST engage key persons
  - Not enough to just post to a list (silence is rarely viewed as agreement/acceptance)
  - Talk to WG Chairs, ADs, IAB & IESG members, former members, etc. Get them to say:
    - “Yes, I support this”, or
    - “Here is what you still need to do”
  - ADs, WG Chairs, technical leaders have key rolls

# Where is the Internet-Draft?

- A common refrain is “where is your draft?”
  - IDs expected to provide sufficient detail/motivation so that a preliminary evaluation can be made
  - Mailing list postings don't provide sufficient detail, and are not easily referenced
  - Should provide background/context for a **general** reader (not just those already familiar with topic area)
- ID is necessary, but not sufficient
  - “Where is your draft?” can also be a brush off to make you “go away”

# Expanding Circle of Support

- Iterate between discussing and writing/clarifying
- Work on obtaining consensus one person at a time
- ID should incorporate/address concerns people raise
- Inability to get support signals a problem
- Goal is support from: individuals->WG->IETF->IESG

# IETF Work Items (n slides)

# What Kind of Work Does IETF Do? (RFC 3935)

- The mission of the IETF is to produce high quality, relevant technical and engineering documents that influence the way people design, use, and manage the Internet in such a way as to make the Internet work better.
- These documents include protocol standards, best current practices, and informational documents of various kinds.



# Standards Track Documents

- Recommended way to solve a particular problem
- Strong requirement of achieving interoperability
- Satisfies IETF requirements (e.g., w.r.t., congestion control, security, etc.)
- From RFC 2026:
  - “A Proposed Standard should have no known technical omissions with respect to the requirements placed upon it.”

# Informational Documents

- Background, architecture, frameworks, etc.
- Other protocol documents that
  - May not be the “recommended” way
  - May be proprietary
  - May have issues (but better to document, than ignore)
  - Document an existing, deployed approach
  - Document a starting point for a Standards Track solution
  - For the historical record

# BCP/Experimental Documents

- Best Current Practices (BCPs)
  - Operational recommendations (as opposed to protocol recommendations)
  - Policy documents (e.g., IETF processes)
- Experimental Documents
  - Protocols (but perhaps not fully “baked” or ready for widespread use)
  - A true experiment, in which intention is to learn
  - May service as basis for future standard

# RFC Publication Paths

- IETF Documents (formally approved by IESG)
  - Standards Track, BCP, produced by IETF WG, etc.
  - Non-WG document sponsored by AD
    - Individual document developed outside of WG
    - Individual document WG declined to formally adopt
  - Key point: document undergoes IETF review and obtains some degree of IETF consensus/blessing
    - Consensus may be weak (e.g., info/experimental rather than standards track)

# Non-IETF Documents (RFCs)

## RFC Editor Independent Submissions:

- Not blessed by IETF; Includes an IETF “disclaimer” (see RFC 4846):
- “This is a contribution to the RFC Series, independently of any other RFC stream. The RFC Editor has chosen to publish this document at its discretion and makes no statement about its value for implementation or deployment”
- IESG reviews for conflict with IETF work only
  - IESG can say “this needs to be an IETF document”

# Non-IETF Documents (RFCs)

## IRTF Submissions:

- Not blessed by IETF; Includes an IETF “disclaimer” (see RFC 4846):
- “This RFC represents the individual opinion(s) of one or more members of the Routing Research Group of the Internet Research Task Force (IRTF).”
- IESG reviews for conflict with IETF work only:
  - “to ensure ... not misused to circumvent the Internet Standards Process
  - IESG can say “this needs to be an IETF document”

# Is IETF Even the Right Place?

(3 slides)

# Is IETF is Right Place for Work?

- IETF only takes on work for which it has competence and expertise
  - Core competency is Transport and below.
  - Less so in Applications
  - Security cuts across all levels
  - Are other existing SDOs/consortia better positioned to take on the work?
  - Extension of an existing IETF technology?



# Is IETF is Right Place for Work? (cont.)

- Is there a critical mass of workers in IETF?
  - Do/will the experts actually come to IETF?
  - Are there enough “worker bees” to develop and review documents?
  - Enough interest outside of core proponents to ensure sufficient IETF review/consensus?
- Need for Management Support
  - Need *at least* one IESG supporter (more is better)
  - Need to address concerns of “skeptics”

# If In-Scope, Where within IETF?

- Do work (mostly) outside of IETF, but publish as IETF document (i.e., AD sponsored)
  - Can result in Informational or Standards Track
  - IETF simply verifies final result is acceptable, but not involved in doing the work.
- In conjunction with existing WGs
  - Not formally a WG activity, but WG reviews, provides comments and does not object to publication
  - Formally part of an existing WG (i.e., chartered item)

OK, so You Have Work to Bring...

# Steps to Success

- Develop problem statement
- Identify the key work deliverables
- Demonstrate critical mass of support
- Find the right venue for the work (demonstrate that IETF is that venue!)
- Demonstrate community consensus that IETF should do the proposed work
- Get formal agreement from IESG, etc.
  - Convince AD that WG will be successful!

# The Key Step: Problem Statement

- Be clear: what is “broken” that needs fixing?
  - What actual problem does customer/end user have?
  - Why are existing solutions inadequate?
  - Is another protocol (or extension) really needed?
  - Don't confuse “solution” with “problem statement”
- What documents are needed?
  - How many, what type?
- 80% of the difficulty in engaging the IETF:
  - Lack of clarity/consensus on what the problem is

# Decide How Best to do the Work

- Can work be done within an existing WG? (start here!)
  - Formally
  - Informally
- Outside of formal WG?
  - May be insufficient IETF interest for formal adoption
  - This can be a perfectly OK way to do work!
- Create a new WG
  - Most effort (both formally and informally)

# Identifying an Appropriate WG

- May be obvious, if work is an off-shoot of existing IETF work
- Consult the online WG charters
  - But, not always current or 100% accurate
  - Informal discussions with WG chairs often helpful
- Ask a WG directly
- Area mailing lists (e.g., int-area, saag, etc.)
  - Good place to ask “where should I do this?” or “Is anyone else interested in this topic?”

# Bringing Work to an Existing WG

- Coordinate with chairs
  - WG may have special rules governing acceptance of new IDs
  - May not be accepting any new work items
- Consult WG charter
  - Charters often out-of-date, so only a rough guide
  - Ask the chairs and/or WG to be sure
- Never assume that just because you have posted to the list, that the WG actually supports your proposal



# When To Bring into IETF

- Timing of when to bring work to IETF is tricky and varies
- Often better to flesh out some of the details before coming to the IETF
  - Need sufficient detail to focus discussion
  - But don't expect rubber stamp of a complete proposal...
- IPR Considerations
  - Must accept the IPR rules from the start
- IETF will have full change control

# Types of BOF

- One-shot, no WG intended
  - Information only (present on some timely topic)
- One-shot, WG not expected immediately
  - Work needed, unclear where/how to do it, want community discussion on best path forward
  - BOF provides more visibility than presentation in existing WG or area meeting
- Clear desire to form WG
  - Focused on demonstrating consensus to form a new WG (clear charter, problem statement, etc.)

OK, So You Think You Need a New  
WG...

# Formal Steps for WG Creation

- IESG approves proposed WG charter
  - Charter posted to IETF list for comment
  - IAB provides “advice” on proposed work
  - IESG approves during telechat
  - an AD sponsor/champion required
- Note: BOF is not a requirement!
  - In practice, BOFs usually precede WG formation
  - BOFs are a tool to demonstrate community support for charter/effort
  - BOFs are a means to an end, not the end itself

# Step 1: Forming a WG

- The real work starts long before the BOF
- Form “design team” to develop problem statement, identify work items
  - Within existing WG?
  - Within an area, but in between multiple WGs?
  - If no existing WG, is effort big enough for new WG?
  - Produce Internet-Draft(s)
    - Focus on problem statement
    - Solutions (in rough outline form) helpful, but can also be a distraction

# Step 2: Socialize Proposed Work

- Determine what Areas and WGs work relates to
- Query appropriate mailing lists
- Talk to ADs
  - Important to talk early and often (about scope, related work, etc.)
  - At same time, don't burden AD with too much work
- Talk to WG chairs, other current or former leaders (IESG, IAB, etc.)
  - WG chairs of related work can provide guidance
  - Engage people with IETF experience

# Step 3: Go Public (formally)

- Create a public mailing list
- Send out public “call for participation”
  - Target area lists, related WG lists, IETF list, etc.
  - Intent is to invite those who have interest
  - Add entry to BOF WIKI
    - <http://tools.ietf.org/bof>
- Bar BOF may be appropriate somewhere during Step 3 or 4...

# Step 4: Real Public Discussion

- Discussion on public mailing list
  - Problem statement, proposed work items, etc.
- Show critical mass of support for effort
  - Need sufficient public support
  - Need to flush out “this is a bad idea” early
- Need to give others a chance to participate and possibly write their own Internet-Drafts
- Best to focus on identifying agreement, and where there is lack of agreement



# Step 5: Formal BOF Request

- Submit formal request, per
  - <http://www.ietf.org/instructions/MTG-SLOTS.html>
  - <http://www.ietf.org/ietf/1bof-procedures.txt>
  - (Requires formal agenda to be approved)
- AD MUST approve request
  - AD should (by now) have information to respond
  - Omitting steps 1-4 likely to mean answer of “no”

# Step 6: Preparing for the BOF

- Use mailing list to refine areas of agreement & disagreement
- Biggest reason BOFs fail: lack of consensus
  - Be smart: address issues **before** the BOF
  - Where there is no consensus, prepare **neutral** summary of differing opinions/views
  - Anticipate the questions that will be raised; address them head on

# Step 7: Finalize Proposed Charter

- Iterate on and produce revised charter
  - Address (to degree possible) all outstanding issues
  - Better to ***not*** have people raise issues during BOF that could have been addressed prior to BOF
- Key question for BOF:
  - Is there support to form a WG “with this exact charter”?
  - Presumably, you want the answer to be yes

# Step 8: Questions for the BOF

- Often, a number of questions will be asked
  - e.g., is there support to form a WG?
- Wording is critical
  - Better to work out questions to ask in advance
  - Good to have questions vetted by others in advance
  - Possibly even on the mailing list!
- Golden rule: avoid surprises during BOF

# Step 9: IETF Week

- Organize a meeting with all presenters
  - If nothing else, have them meet each other!
- If there are disagreements, attempt to work them out
  - BOFs work better when key players are in sync than in open disagreement
- Go over presentations
  - Ensure they are relevant to the key goals of BOF

# Step 10: Attend IETF Tutorials

- Consider attending Sunday tutorial
  - Working Group Chair training
  - WG Leadership training

# Step 11: The BOF itself

- Keep eye on the “eight ball”
  - Keep discussions focused on the goals of BOF
  - Cut off discussions that are rat-holing or distracting
  - This goes doubly for presentations (e.g., solutions)
- Assume many in the room have not followed work on mailing list
  - Review the history (in summary)
  - Review the areas of agreement
  - Anticipate the likely questions, and cover them in presentations

# Construct Realistic Time Line

- Starting with an IETF meeting, work backwards:
  - Consult Secretariat “Important meeting dates”
  - IESG/IAB imposes BOF deadline some 2 months before meeting
  - Public mailing list discussion takes 1-2 months
  - Early socialization takes another 1-2 months
  - Time is now to be working toward BOF at next meeting!



# Common Pitfalls

- Waiting too long to get started
  - Plan for at least 3-4 months
- Too much attention focussed on solutions, not enough on defining problem
  - Solutions often become magnets for unproductive discussions (i.e., ratholes)
  - Solutions come **after** the WG is formed
    - But it may be necessary to demonstrate solution is possible or
    - To outline an overall solution direction/architecture

# Common Pitfalls (cont.)

- Asking the wrong question during a BOF
  - You may not get the answer you want
  - Goal of questions is to highlight understanding and agreement
- Poorly advertised in advance
- Giving BOF time for “wrong” presentations
  - Presentations need to be relevant (keep eye on “eight ball”)
  - don't automatically give agenda time to all who ask

# Common Pitfalls (cont.)

- Poor time management during BOF itself
  - Allowing presenters to go over their time limits
    - BOF organizers are advised to review presentations in advance
  - Insufficient time for the critical presentations
    - Discussion should focus on areas where there is a lack of agreement
  - Insufficient time for discussion about “next steps”

# References

- BOF WIKI
  - <http://www1.tools.ietf.org/bof/trac/wiki>
- RFC 5434: “Considerations for Having a Successful Birds-of-a-Feather (BOF) Session”
- RFC 2026: “The Internet Standards Process -- Revision 3”
- RFC 2418: “IETF Working Group Guidelines and Procedures

# Feedback on Session?

- The EDU Team is responsible for IETF educational programs like this one
  - Intended to improve the effectiveness of IETF leaders and participants
- Send questions/comments to [narten@us.ibm.com](mailto:narten@us.ibm.com) or [edu-team@ietf.org](mailto:edu-team@ietf.org)

Questions?

# Realistic Time Lines

- Very hard to make things happen “fast”
- While you may be able to do things quickly, you can't make others work quickly
  - Everyone is busy, especially “key people”
  - Need to plan sufficient time for others to review/comment.
  - Formal requirements (like IESG approval) may involve Last Calls or other formal steps that cannot be rushed
  - Build realistic timeline by working backwards from goal