Network Working Group
Internet-Draft
Intended status: Informational
Expires: July 8, 2012

P. Hoffman
VPN Consortium

January 5, 2012

Requirements for Remote Participation Services for the IETF
draft-ietf-genarea-rps-reqs-00

Abstract

The IETF has provided some tools for remote participation in its activities for many years, and some IETF participants have also used their own tools when they felt the need arise. The IETF now wishes to support enhanced remote participation that is as seamless as possible, approaching the quality of direct physical attendance for the various roles, including chair, presenter and simple attendee. Before deploying the new tools and services needed for this enhanced remote participation, the requirements for such tools and services must be defined. This document is meant to be that definition.

Status of this Memo

This Internet-Draft is submitted in full conformance with the provisions of BCP 78 and BCP 79.

Internet-Drafts are working documents of the Internet Engineering Task Force (IETF). Note that other groups may also distribute working documents as Internet-Drafts. The list of current Internet-Drafts is at http://datatracker.ietf.org/drafts/current/.

Internet-Drafts are draft documents valid for a maximum of six months and may be updated, replaced, or obsoleted by other documents at any time. It is inappropriate to use Internet-Drafts as reference material or to cite them other than as "work in progress."

This Internet-Draft will expire on July 8, 2012.

Table of Contents

1. Introduction

There are two types of participants at the three-times-a-year IETF meetings: those who are at the meeting in person ("local attendees") and those who are not at the meeting in person but participate by following the meeting online ("remote attendees"). In the past decade, the IETF has tried to make it easier for remote attendees to participate in its face-to-face meetings a meaningful fashion by providing supported and experimental online services.

At the same time, many IETF Working Groups (WGs) have started to have interim meetings that are scheduled between the regular IETF meetings; these are described (briefly) in [RFC2418]. Some of these interim meetings are face-to-face meetings with remote attendees, while other interim meetings only take place over the Internet or on the phone; the latter type of meeting is often called a "virtual interim".

The IETF's current remote participation system ("RPS") for the official three-times-a-year meetings ("regular IETF meetings") consists of a real-time audio stream carried over HTTP, textual instant messaging (IM) carried over Jabber, and ad-hoc tools that some WGs employ. For interim WG meetings, the IETF also provides access to Cisco's WebEx RPS. The IETF's leadership regularly uses telephone and Jabber and WebEx for the many meetings that happen between the IETF meetings.

The IETF wants to improve the tools provided in the RPS for many reasons.

- A better RPS would allow more people to participate in regular IETF meetings more effectively, hopefully leading to better WG outcomes such as faster progression of WG documents, more reviewers of WG documents, and more discussion of changes needed to those documents during the WG process. There are many people who are active in many WGs who rarely or never come to IETF meetings; good RPS tools could allow these people to contribute significantly during meetings like they do on the mailing lists.

- The improved RPS tools would also be used outside IETF meetings. They would be available to WGs for interim meetings, both to allow remote participation in face-to-face interims as well as to facilitate "virtual interims" where none of the participants are in the same location.

- The plenary sessions of IETF meetings currently only allow remote attendees to hear the speakers and read a real-time transcript. Improved RPS tools would allow remote attendees to see the

speakers and be able to comment at the mics like people in the room.

- The IETF leadership (the IAB, IESG, IAOC, and probably others) could use the new tools to help make their own meetings more effective.

1.1. About This Document

The purpose of this document is to develop the requirements and functional specifications for the IETF's RPS that enables enhanced remote participation in meeting sessions. The RPS described in this document might augment and/or replace the current set of IETF RPS tools. The intention is for the experience of remote attendees to rival those of local attendees.

This document is being produced at the request of the IAOC. The request for proposals that led to this document can be found at [RPS-RFP]. This document does not specify specific technologies or instantiations of tools. Instead, it is meant to be used as a guide for the IAOC to later contract the development and deployment of the tools described here.

Requirements in this document are numbered, such as "**Requirement 00-00**". In the IETF, there is an active (and never-ending) debate about what is a "requirement". In the context of this document, a requirement is something that must appear in one of the iterations of the eventual RPS in order to support the mission of enabling useful remote participation in meeting sessions.

Later versions of this document will differentiate between requirements that must be met by the first version of the RPS and requirements that must be met by future versions of the RPS. For example, a requirement for the first version of the RPS might be "chairs must be able to specify which remote attendee can speak next", whereas a requirement for a later version of the RPS might be "chairs must be able to perform many or all chair duties at a regular IETF meeting while participating remotely". [[[TODO: come up with a way to differentiate these two and start marking them as such.]]]

A functional specification is an approach to meeting one or more requirement. For example, a requirement might be "chairs must be able to specify which remote attendee can speak next" and a functions specification associated with that requirement might be "floor control can be done through a stand-alone application or web form". Functional specifications are not (currently) called out in this document.

The requirements covered in this document apply almost exclusively to tools and services that are used for remote participation in real-time meetings. The document does not cover the many other tools used by WGs for non-real-time communication such as mailing lists, issue trackers, document flow control systems, and so on. Many of the non-real-time tools are also being improved over time, but they are not the subject of this document.

This document is being discussed on the vmeet@ietf.org mailing list. See <https://www.ietf.org/mailman/listinfo/vmeet> for more information.

2. Scenarios Required to be Supported

The are many IETF-related activities that can be aided by remote participation tools. The scenarios in which the RPS described in this document is expected to be used are:

- WG sessions at regular IETF meetings -- A typical regular IETF meeting has about 150 sessions, with up to 8 of those sessions happening at the same time. A session might have between 20 and 200 local attendees in the room, and might have only a few or many dozens of remote attendees. WG sessions typically have one to three co-chairs at the front of the room and a series of individuals who come to the front to present; some presentations are made by small panels.

- Plenaries at regular IETF meetings -- There are usually two plenaries at a regular IETF meeting, with on-site attendance of about 700 local attendees and dozens of remote attendees. There are from 1 to 20 presenters; presentations may be made by multiple people.

- Face-to-face interim WG meetings -- Between regular IETF meetings, some WGs hold interim meetings where participants get together at a site (often a company's meeting room, but sometimes a meeting room rented at a hotel). At such meetings, there are between a handful and a few dozen local attendees and a similar number of remote attendees. Presentations are common.

- Virtual interim WG meetings -- Between regular IETF meetings, some WGs hold virtual interim meetings where there are no local attendees because there is no central meeting location. There are between a handful and a few dozen attendees. Presentations are common.

- IETF leadership meetings -- The IETF leadership (the IESG, IAOC, IAB, and probably others) have periodic virtual meetings, usually with presentations. These groups also meet at the regular IETF meetings, and sometimes have remote attendees at those meetings (such as members who cannot attend the IETF meeting or presenters who are not part of the leadership group).

[[[TODO: Count the number of f2f and virtual interims from the past few years.]]]

[[[TODO: Bar BoFs at regular IETF meetings are not listed above because they mostly happen in places where remote participation can't be scheduled. However, some of them do in fact happen in regular meeting rooms that might be able to use the RPS tools. Should they be included in this document?]]]

3. Interactions with Current RPS Tools Used by the IETF

Users' experience with the current IETF tools vary widely. Some participants think the tools are fine and are grateful that they exist. Other participants find them barely acceptable because they have used better tools in other environments. Often, local attendees mostly forget that the remote attendees are participating until one gets something said at the mic. Local attendees don't have a feeling for how many remote attendees are just listening like most of the local attendees.

The variety of current experiences can help inform the discussion of how to improve the tools. The requirements here are derived from the current tools; later sections derive requirements from needs that are not at all met by the current tools.

The IETF has years of experience with the two primary tools used at its regular meetings (Jabber for IM and streaming audio). This section discusses some of the reactions of users -- those in the meetings and those who have participated remotely -- to the current tools.

3.1. Technologies Currently Used at Regular IETF Meetings

There are three tools that are used by remote attendees for WG participation at regular IETF meetings: real-time audio, instant messaging, and slides.

For the past few years, the IETF has used audio streamed over HTTP over TCP. TCP is often buffered at many places between (and in) the origination in the IETF meeting venue and the users' computer. At

recent meetings, delays of around 30 seconds have been recorded, with minimum delays typically being five seconds. This delay is caused by buffering at the hop-by-hop ISPs and in the remote attendee's computer. At recent IETF meetings, remote attendance is almost always less than 10% of local attendance, and is often less than 5%. (There are more remote attendees when the IETF meeting is in the U.S.) Each stream is represented by an MP3 playlist (sometimes called an "m3u file").

The IETF long ago standardized on Jabber / XMPP ([RFC3920], [RFC3921], and others) for instant messaging used within the IETF. Jabber rooms (formally called "multi-user conferences" or "MUCs") exist for every WG, and those rooms are live all the time, not just during regular IETF meetings. There are also stable Jabber rooms for the plenaries and certain other activities. BoFs are usually assigned Jabber rooms before a regular meeting.

Presentation slides normally are stored either as PDFs or in one of Microsoft's formats for PowerPoint. They are projected on a local screen from someone's laptop computer.

3.2. Locating the Meeting Information

Finding information for the real-time audio, instant messaging, and slides for an upcoming or current regular meeting is complicated by that information being in many different locations on the IETF web site, and the fact that the relevant URLs can change before and even during the meeting. Further, a WG chair might copy the latest information and send it to the WG mailing list, but there can be later changes. Experienced remote attendees have gotten used to checking just before the meeting itself, but even that does not alway.

3.2.1. Audio

The URL for the audio stream for a WG or BoF meeting is based on the room that the meeting is in. The URLs are listed on "tools-style agenda" provided by the IETF Tools Team; for example, see the speaker-like icons at <http://tools.ietf.org/agenda/82/>. The audio streams are also announced on the general IETF mailing list (ietf@ietf.org) before each meeting.

A common complaint is that when a WG meeting moves to a different room, remote users need to know about the move so that they can use the proper URL to hear the audio stream. The room changes are often, but not always, announced on WG mailing lists; when they are not announced, there is no easy way for a remote attendee to find out which audio stream they should be listening to. Sometimes, room

changes happen just as a WG meeting is starting, making it nearly impossible for a remote attendee to know about the change in streams.

3.2.2. Instant Messaging

The Jabber rooms used by WGs and BoFs do not change between IETF meetings, so finding the right Jabber room is relatively easy. Some Jabber clients have odd interfaces for joining Jabber rooms, and this can cause some problems; even though participants can test their Jabber clients before a meeting, there still seems to be some who need help just before a WG meeting.

3.2.3. Slides

Slides are available from the meeting materials page. Many, but certainly not all, local and remote attendees know how to find the meeting materials page.

It has become fairly common for presenters to not have their presentations available for distribution until just before the WG meeting. Because materials are uploaded by the WG chairs, this often causes the beginning of WG meetings to be a dance involving presenters giving the chairs their slides, followed by chairs uploading the slides to the IETF site, followed by the chairs saying "the slides are there now".

3.3. Remotely Speaking at the Mic

In order for a remote attendee to speak at the mic, a local attendee must say it for them. In most WG and BoF meetings, this done by the remote attendee typing into the Jabber room for the meeting, and some local attendee going to the mic and repeating what was typed into the Jabber room.

This method of participation often works adequately, but there are many places where it fails. The following is a compendium of stories from recent IETF meetings where remotely speaking at the mic didn't work as well as it could have. The participants are Chris and Carl (WG co-chairs), Sam (volunteer Jabber scribe), Rachel and Robert (remote attendees), Pete (presenter), and Len and Lee (local attendees).

- Robert cannot understand what Pete is saying about slide 5, but Sam doesn't get Pete's attention until Pete is already on slide 7 and Pete doesn't want to go back.

- Rachel wants to say something, but Sam's Jabber client has crashed and no one else in the Jabber room knows why Sam isn't going to

the mic.

- Robert wants to say something, but Sam is already at the mic speaking for Rachel so Sam doesn't see Robert's message until he has gotten out of the mic line.

- Sam is speaking for Robert, and Rachel wants to comment on what Robert said. Unless Sam reads the message as he is walking back to his seat, Rachel doesn't get to speak.

- Robert wants to say something at the mic, but Sam is having an important side discussion with the AD.

- Sam is also the minutes taker, and is too busy at the moment catching up with the lively debate at the mic to relay a question from Rachel.

- Robert cannot understand what Pete is saying about slide 5, but Sam doesn't get Pete's attention until Pete is already on slide 7 and Pete doesn't want to go back.

- Chris thought Carl was watching the Jabber room, but Carl was reading the draft that is being discussed.

- Chris and Carl start the meeting by asking for volunteers to take minutes and be Jabber scribe. They couldn't find a Jabber scribe, and it took a lot of begging to get someone to take minutes, so they figured that was the best they could do.

- Sam is also a presenter, and Robert has a question about Sam's presentation, but Sam is obviously not looking at the Jabber room at the time.

- Rachel asks a question through Sam, and Pete replies. Len, who is next in line at the mic, starts talking before Sam has a chance to see whether or not Rachel has a follow-up question.

- Robert makes a point about one of Pete's slides, and Pete responds "I don't think you're looking at the right slide" and continues with his presentation. Robert cannot reply in a timely fashion due to the lag in the audio channel.

- Pete starts his presentation by asking for questions to be held until the end. Robert has a question about slide 5, and is waiting until the end of the presentation to post the question in the Jabber room. After slide 7, Len jumps to the mic and vehemently disagrees with something that Pete said. Then Lee gets up to respond to Len, and the three of them go at it for a while,

with Lee getting up again after slide 10. The presentation ends and is over time, so Carl says "we need to move on", so Robert never gets to ask his question.

- Chris asks "are there any more questions" while Rachel is typing furiously, but she doesn't finish before Chris says "I don't see anyone, thanks Pete, the next speaker is...".

- Rachel comments on Pete's presentation though Sam. Sam doesn't understand what Rachel is asking, and Len goes to the mic to explain. However, Len gets his explanation of what Rachel said wrong and by the time Pete answers Len's interpretation, Rachel gives up.

- This is the first time Pete is presenting at an IETF meeting, and Robert has the first question, which is relayed through Sam. Pete stays silent, not responding the question. Robert can't see Pete's face to know if Pete is just not understanding what he asked, is too afraid to answer, is just angry, or something else.

- Pete says something incorrect in his presentation, and Len asks the folks in the Jabber room about it. Rachel figures out what Pete should have said, and others in the Jabber room agree. No one goes to the mic because Pete has left the topic, but only the people watching Jabber know that the presentation was wrong.

- Pete says something that the AD sitting at the front of the room (not near a mic) doesn't like, and the AD says a few sentences but doesn't go to the mic. The chairs try to repeat what the AD says, get it only approximately right, but the remote attendees do not hear what really was said and therefore cannot comment effectively.

- Sam only volunteered to be scribe because no one else would do it, and isn't sitting close to the mic, and gets tired of getting up and down all the time, and doesn't really agree with Robert on a particular issue, so Sam doesn't relay a request from Robert.

- [[[TODO: More here, of course.]]]

3.4. Chairs and Floor Control for Remote Attendees

Although the previous section may seem like it is a bit harsh on WG chairs, the current tools do not give them the kind of control over remote attendees that they have over local attendees. The chairs can tell what is happening at the mics, but have much less view into what is happening on Jabber, even if they are watching the Jabber room. Without as much view, they cannot assist the flow of the conversation

as well.

- Carl sees that the Jabber room has an active and useful back-channel discussion during Pete's provocative presentation. Pete finishes and asks for questions. Lee and Len and Lou and Lars rush to the mic line, and it takes Robert a few seconds to get his question into the Jabber room and for Sam to go to the mic. Carl tries to prioritize Sam forward in the line, but Len gets upset when he does.

- Rachel asks a question, but Sam is not going to the mic to relay it. In fact, Sam has pretty much stopped paying attention. Chris cannot do something about the situation without making Sam look bad.

- Pete has run over time, Robert asks what is supposed to be the last question, and Pete doesn't understand what Sam said. Carl cannot tell whether to wait for Robert to rephrase the question or whether Robert even heard Pete's response.

- [[[TODO: More here, of course.]]]

3.5. Remotely Presenting at Regular IETF Meetings

Some WGs have experimented with remote presented in recent years with quite mixed results. For some, it works fine: the remote presenter speaks, the chair moves the slides forward, and questions can be heard easily. For others, it is a mess: the local attendees can't hear the presenter very well, the presenter can't hear questions or there is a long delay, and it was not clear when the presenter was waiting for input or there was a lag in the sound.

At a recent meeting that had a remote presenter, a WG had a video camera set up at the chairs' desk pointed towards the audience so that the presenter could see who was a the mic; this was considered to be a great help and a lot friendlier because the presenter could address the people at the mic by name. They also had the presenter's head projected on the screen in the room, which led to a lot of jokes and discussion of whether seeing the remote presenter caused people to pay more attention.

Remote presenters have commented how difficult it is to set up their systems, particularly because they are not sure whether their setup is working until the moment they are supposed to be presenting. Even then, the first few minutes of the presentation has a feeling of "is this really working?".

[[[TODO: More discussion about experiences with remote presenters.

Include more discussion of where it went well.]]]

3.6. Experiences with Remote Participation in Virtual Interim Meetings

Because few WGs have virtual interim meetings, there is less experience with the tools that are commonly used for them. The IETF has had free use of WebEx for a few years, and some WGs have used different tools for audio participation. For example, some virtual interims are held using Skype, others with TeamSpeak, and so on.

So far, the experience with virtual interim meetings has been reasonably good, and some people say that it is better than for remote attendees at regular IETF meetings because everyone has the same problems with getting the group's attention.

One of the often-debated aspects of virtual interim meetings is what time to have them in order to make them available to all participants. That topic is (thankfully) not covered in this document.

[[[TODO: More discussion about experiences with virtual interims. Focus on differences between the all-in-one systems like WebEx and the cobble-together systems where there is an audio feed with no floor control plus pre-distributed slideware.]]]

4. Requirements for Supporting Remote Participation in Face-to-Face Meetings

This section covers the functional specification for effective remote participation in meetings where some members are in a face-to-face meeting, such as the regular IETF meetings an interim WG meetings that are held in a meeting room. Some of the requirements in this section overlap with those in Section 5, but many are unique to meetings that have a significant physical presence.

There is an assumption in this section that the meeting chairs will continue to control the flow of the discussion. That is, if a presenter is speaking and a remote attendee wants to ask a question, the request to do so goes to the chair, not to the presenter.

Recordings of the events of the meetings are valuable for remote attendees who are not able to hear everything in real time. This is reflected in many requirements below.

Requirement 00-01: The specifications shall rely solely upon IETF and other open standards for all communications and interactions. (This requirement comes from [RPS-RFP].)

Requirement 00-02: All tools in the RPS must be able to be run on the widest possible array of computers. This means that they must be able to be run as an application, from any modern web browser, or from the command line of all of (at least) MacOS version 10.6 or later, Windows 7 or later, and any common Linux distribution produced in 2010 or later.

[[[TODO: Do we need to include IOS and Android platforms in that list?]]]

4.1. Technologies

4.1.1. Audio

A few requirements come from the IETF's current use of audio in meetings. Meeting rooms have many mics: one or two for the chairs, one for the presenter, and at least one for other local attendees to ask questions. Plenaries have many more mics, both at the front of the room and in the audience.

Note that the requirements here assume a very large change in the way that remote participation will happen. Instead of a remote attendee typing something into the Jabber room that someone will repeat at a mic in the room, remote attendees will use their own mics to speak to the meeting.

Requirement 00-03: Remote attendees need to be able to hear what is said by local attendees and chairs at any mic in the meeting.

Requirement 00-04: Remote attendees must be able to speak directly to a meeting without going through a local attendee, and have their speaking be heard by local attendees. (Note that the ability to speak is controlled by the chair; see Section 4.2.2.) [[[TODO: is there a requirement that remote attendees who speak be registered as in Requirement 00-30 and Requirement 00-31?]]]

A common complaint with the current RPS is that the streaming audio can take more than 10 seconds (and sometimes as much as 30 seconds) to reach the remote attendee. This causes many of the problems listed in Section 3.3. **Requirement 00-05**: Audio going to and from remote attendees must be delivered in as close to real-time as is practically possible. **Requirement 00-06**: Audible echo must be damped or eliminated by the tools.

IETF meetings happen in venues such as hotels and conference centers, most of which have their own audio setups. The IETF Secretariat contracts with those venues for the use of some or all of their audio system. **Requirement 00-07**: The audio system used by the RPS must

be able to integrate with systems commonly used in the venues used for IETF meetings.

Requirement 00-08: Recordings of the audio for all meetings must be kept for distribution after IETF meetings. **Requirement 00-09**: Users must be able to easily find the audio recording of a particular WG or BoF session at a particular meeting.

4.1.2. Video

The RFP that preceded the current document, [RPS-RFP], discusses video as a requirement. The IETF has experimented with one-way and two-way video at some meetings in the past few years. Remote attendees have said that seeing people in the meetings gave them better understanding of the meeting; at a recent meeting, a remote presenter was able to see the people in line at the mic and was better able to interact with them. [[[TODO: determine how much of this is needed for effective participation.]]]

Requirement 00-10: Remote attendees need to be able to see the presenter at a meeting. **Requirement 00-11**: Remote attendees need to be able to see local attendees at any mic in the meeting. [[[TODO: Is there a requirement that the remote attendees see the slides over video?]]]

Requirement 00-12: Remote attendees who are speaking over the audio must be visible to the local attendees.

Requirement 00-13: Video going to and from remote attendees must be delivered in as close to real-time as is practically possible.

[[[TODO: Is there a requirement that IETF video integrate with the venue video, if any?]]]

[[[TODO: If video is provided, is there a requirement that it be archived and accessible?]]]

4.1.3. Instant Messaging

As noted earlier, while the current tool's Jabber room is a good way to get questions to the mic, it also becomes a second communications channel that only a few people in the room are participating in. This document does not address how to prevent that problem (or whether it really is much of a problem).

Requirement 00-14: The instant messaging system must allow anyone to see all messages in the WG's or BoF's room. **Requirement 00-15**: The instant messaging system must allow any registered user (even

those registered anonymously) to post messages in the WG's or BoF's room.

Requirement 00-16: Transcripts of the instant messaging for all meetings must be kept for distribution after IETF meetings. **Requirement 00-17**: Users must be able to easily find the instant messaging transcripts of a particular WG or BoF session at a particular meeting.

Requirement 00-18: The instant messaging channel needs to be useful for humming, which is the common IETF method of assessing support.

[[[TODO: Should there be multiple rooms for a meeting? There were many requests for a separate "speak into the mic" room, but that is not needed if the requirements in Section 4.1.1 are met. Is there a need for other rooms?]]]

[[[TODO: Should non-registered people be allowed to read the IM traffic in real time, given that anyone can register anonymously? Should people registered anonymously be allowed to post in IM rooms?]]]

4.1.4. Slide Presentations

Requirement 00-19: The input format for slide presentations must be either PDF or PowerPoint. [[[TODO: Is there a requirement to support other formats?]]]

Requirement 00-20: Presenters must be able to update their slides up to just before their presentation, if such update is allowed by the chairs. **Requirement 00-21**: Chairs must be able to approve or disapprove of any slide submission or updates, with the default being that all submissions are allowed.

Requirement 00-22: It needs to be clear to the remote attendees which set of slides is being currently shown.

[[[TODO: Is there are requirement that remote attendees see the slides as the people in the room? Or, is it sufficient to keep it as it is now where remote attendees must download them and speakers must say which slide they are on? If the slides will be visible to remote attendees as they are presented, there will be a requirement that the presenter can go back and forth in the slide deck.]]]

[[[TODO: If the slides will be visible to remote attendees as they are presented, is there a requirement that presenters be able to use the equivalent of a laser pointer?]]]

[[[TODO: Is there a requirement that animation in PowerPoint be supported, or just static slides?]]]

4.1.5. Shared Document Editing

In some WG meetings, there is an attempt to edit a document with input from the local attendees. This is typically done for proposed charter changes, but can also be for a WG document as well. This is usually unsuccessful, given the amount of text and the size of what can be displayed on the screen. In recent meetings, shared document editing has been used for editing charters and for taking minutes of meetings.

Requirement 00-23: It must be easy to start a new shared document and to import existing text into a shared document.

Requirement 00-24: Shared real-time editing of text-only documents must be supported. This system must allow at least three people to have write access and hundreds of people to have read access to any particular document.

Requirement 00-25: Remote attendees can be either the writers or the readers.

Requirement 00-26: Those with read access need to see the edits made by those with write access within less that five seconds after each edit.

Requirement 00-27: It must be easy to change the permissions for who gets write access to a document during an editing session.

[[[TODO: Is this also needed for non-text documents? If so, in what formats?]]]

4.2. Tools

4.2.1. Requirements for Remote Participation

Requirement 00-28: Remote attendees must be able to easily find all the material they need to effectively participate, including links to audio, video, instant messaging, slides, and so on. This material must be available well before the time of the meeting.

Requirement 00-29: A remote attendee who comes to a meeting late needs to be able to tell what is happening in the meeting. In specific, there needs to be an indication that the meeting has not started, when the meeting is happening (even if there is silence on the mics), and when the meeting is over.

With the current tools, it is common in the current IETF RPS for people reading from the Jabber room to not know who is requesting that something be said at the mic. There is no such confusion in the room of local attendees because everyone has a name badge. The current tools also do not let remote attendees do the equivalent of "signing the blue sheets".

Requirement 00-30: The RPS must have a system where a remote attendee can register their name and have that name be used in the instant messaging system. This must be able to be done once for an entire regular IETF meeting, but the attendee needs to be able to indicate which WG sessions they are participating in. **Requirement 00-31**: A remote attendee who doesn't want to identified should be able to register with an anonymized name.

Requirement 00-32: Remote attendees must be able to test the remote participation setup before a regular meeting. There must be a constantly-running audio (and possibly video) stream for at least a week before the meeting begins that users can connect to. This test setup must also run throughout the meeting so that last-minute joiners can test their systems.

Requirement 00-33: Remote attendees must be able to easily contact the IETF Secretariat if they find problems with any of the RPS tools, and to get fairly rapid response. **Requirement 00-34**: Similarly, local attendees must be able to easily contact the IETF Secretariat if there are RPS problems in the meeting rooms.

Regular IETF meetings are more than just a group of WG meetings. Remote attendees may want to participate in the other parts of a regular meeting as well. **Requirement 00-35**: The RPS tools must be available for lunch meetings scheduled by the IETF Secretariat, such as for the Security Directorate and Working Group Chairs lunches. **Requirement 00-36**: The IETF Secretariat should attempt to make the RPS tools available outside of the regular meeting rooms during a meeting. For example, if a "bar BoF" is "scheduled" to be in the same venue as the IETF meeting, the IETF Secretariat should attempt to have some or all of the RPS tools available for that meeting.

4.2.2. Floor Control for Chairs

Newcomers to regular IETF meetings often expect the floor control in WG meetings to be fairly straight-forward. By Tuesday, they might be shaking their heads, wondering why some people cut into the mic lines, why some people get up to the mics after the chair has closed the line, why some people ignore presenters' requests to hold questions to the end, and so on. Mixing remote attendees into this social structure will be a daunting task, but one that has been dealt

with in many remote participation systems.

It is not yet clear how the set of remote attendees would be treated. Some tools have each remote attendee being considered separately, while others pool all remote attendees into one group. This affects the chair knowing and being able to act on the order that remote attendees ask to speak.

Requirement 00-37: Remote attendees must have an easy and standardized way of requesting the attention of the chair when the remote attendee wants to speak. The remote attendee must also be able to easily cancel an attention request. (Note that Requirement 00-29 implies that someone is watching the request queue, something that does not happen consistently with the current tools.)

Requirement 00-38: A remote attendee's request for attention must be able to include an optional short text string. This allows, for example, a remote attendee to indicate that they are asking a question of the presenter or answering a question that someone else asked at the mic.

Requirement 00-39: Remote attendee's requests must be part of the floor control tool, not in the instant messaging system.

Requirement 00-40: The chair must be able to see all requests from remote attendees to speak at any time during the entire meeting (not just during presentations) in the floor control system.

Requirement 00-41: The floor control system must allow a chair to easily turn off and on an individual's ability to speak over the audio at any time.

Requirement 00-42: The floor control system must allow a chair to easily mute all remote attendees.

Requirement 00-43: The floor control system must allow a chair to easily allow all remote attendees to speak without requesting permission; that is, the chair must be easily able to turn on all remote attendees mics at once.

Requirement 00-44: The floor control system for the chair must be able to be run by at least two users at the same time. This allows, for example, a chair to leave the room or to become a presenter without having to do a handoff of the floor control capability.

Requirement 00-45: The users who can use the floor control system in a particular meeting must be authenticated using simple passwords.

Requirement 00-46: The IETF Secretariat must be easily able to set up the individuals allowed to use the floor control system for a particular meeting and to change the settings at any time, including during the meeting.

4.2.3. Transcription

Requirement 00-47: Transmitting real-time transcription to remote attendees must be supported. The lag in transmission must be less than five seconds.

4.2.4. Polling

Requirement 00-48: A system for polling meeting participants, including remote attendees at the same time, must be provided. It must be easy to set up a simple poll, and it must be easy for all participants to find the poll and participate.

4.3. Use by IETF Leadership

The requirements for bodies like the IESG and IAB to use the RPS during regular IETF meetings are similar to those of most WGs. The main difference is that they need a way to limit who can participate remotely. **Requirement 00-49**: Remote access to meetings must be able to be set on a room-by-room basis. **Requirement 00-50**: The IETF Secretariat must be able to limit participants in restricted meetings using a simple authentication mechanism.

4.4. Plenaries

At recent IETF meetings, there has been very little input from remote attendees even when there is a lot in the room, but that may be due to the current setup, not lack of interest.

[[[TODO: Are there any requirements that are special to plenaries that are not covered above? Are there requirements not listed above that mostly come from plenaries that would also apply to very large WGs?]]]

5. Requirements for Supporting All-Remote Meetings

The requirements for meetings that are all remote (that is, with no local attendees) are mostly a subset of the requirements for remote participation in a face-to-face meeting. This section highlights the differences from Section 4.

All-remote meetings will not use the IETF's current streaming audio;

instead, they use systems such as WebEx, gtalk, TeamSpeak, and so on. They will most likely use the same audio system that is used to transmit and receive remote attendees' voice in face-to-face meetings.

Video for all-remote meetings may be more important that for face-to-face meetings. [[[TODO: Determine if this is true and, if so, the additional requirements for all the remote attendees.]]]

Nearly all current remote participation systems have some way for changing slides to be presented to all remote attendees. [[[TODO: Is this a requirement for the IETF RPS?]]]

Attendance at virtual interim meetings is supposed to be taken, but this is sometimes ignored. A system that is probably at least somewhat different than that in Section 4.2.1 may be needed for collecting attendance at virtual interim meetings.

[[[TODO: What are the requirements for registering? Virtual interim meetings are generally considered to have a very different feeling than regular IETF meetings; does this affect the idea of registration?]]]

[[[TODO: Are there different floor control issues for all-remote meetings?]]]

6. IANA Considerations

None. [[...and thus this section can be removed before publication as an RFC...]]

7. Security Considerations

People who participate remotely in face-to-face IETF meetings might expect the same level of privacy as they have when they participate directly in those meetings. Some of the proposed tools might cause it to be easier to know which WGs a remote attendee was following. When RPS tools are deployed, the IETF should describe the privacy implications of using such a tool to the users so they can decide whether or not to use the tools.

The eventual RPS tools will have some user authentication that will associate people with actions. For example, a remote user might need to authenticate to the system in order to give a presentation or speak during a session. The credentials needed for this authentication will need to be managed in a secure fashion, both by

the system and by the people who are being identified.

8. Acknowledgements

Many of the ideas in this document were contributed by members of the IETF community based on their experiences during recent IETF meetings.

Some of the text in this document originated in the request for proposals that was issued by the IAOC that led to this document.

9. Informative References

[RFC2418] Bradner, S., "IETF Working Group Guidelines and Procedures", BCP 25, RFC 2418, September 1998.

[RFC3920] Saint-Andre, P., Ed., "Extensible Messaging and Presence Protocol (XMPP): Core", RFC 3920, October 2004.

[RFC3921] Saint-Andre, P., Ed., "Extensible Messaging and Presence Protocol (XMPP): Instant Messaging and Presence", RFC 3921, October 2004.

[RPS-RFP] IAOC, "Request for Proposals for Requirements Development for Remote Participation Services", 2011, <http://iaoc.ietf.org/documents/RPS-Specifications-RFP-2011-10-19.pdf>.

Author's Address

Paul Hoffman
VPN Consortium

Email: paul.hoffman@vpnc.org