CMS Video Conferencing

requirements, current practices, initiatives and concerns

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With thanks for detailed feedback from many CMS users

John Harvey, David Stickland, Alick MacPherson, Daniel Engh, Quentin Ingram, Philippe Gras, Wolfgang Lange, Jim Freeman, Christophe Delaere, Michael Thomas, Francisco Yumiceva, Marco Dallavalle, Dave Newbold, Yetkin Yilmaz, Ian Fisk, Roberto Tenchini, James Letts, Andrea Giammanco, Douglas Wright, Leonard Spiegel, Dave Dykstra, Christopher S. Hill, Lee Lueking, Gunter Quast, Jim Alexander, Lutz Feld, Xavier Rouby, Vivek Sharma, Adam Everett, Anders Ryd, Henning Larsen, Simone Paoletti, Yves Sirois, Sergio Novaes, Martin Gruenewald, Ian Tomalin, Liz Sexton-Kennedy, Ken Bloom, Joseph Lykken, John Conway, Stephan Haensel, Luc Van Lancker, Martin Weber, Wesley Smith, Harvey Newman, Bob Brown, Wolfgang Wagner, Piero Giorgio Verdini, Monika Grothe, Jose Hernandez, Vasken Hagopian, Pablo Garcia Abia, Tom MacCauley

… and many others …

My role in CMS Video Conferencing

My responsibilities

- **CMS Centre Project Manager, responsible for**
  - Construction and equipping of the “CMS [operations] Centre”
  - Physical infrastructure of all CMS meeting rooms at CERN
    - in particular the current round of major refurbishment
- **Computing and Offline Resource Manager**
  - I get (some of) the bills

Caveats

- **I am not an expert in VC technology, nor even a “power user”**
- **I am CERN-centric (based 100% in Geneva)**
  - I do not (directly) experience the pain of remote participation

Therefore, the contents of this talk are based on

- **Ad-hoc discussions with, and complaints from, many users**
- **45 systematic responses to a questionnaire**

… the analysis is mine but I do not include my personal views

* 45 responses so far

CMS VC Questionnaire*

NATURE OF YOUR MEETINGS

1) Where are *you* located for most meetings?
2) What physical hardware do you use (if known)?
   (e.g. local PC, Polycom XXX, Tandberg YYY)
3) Who is involved in a typical meeting?
   (e.g. number of people, sites...)

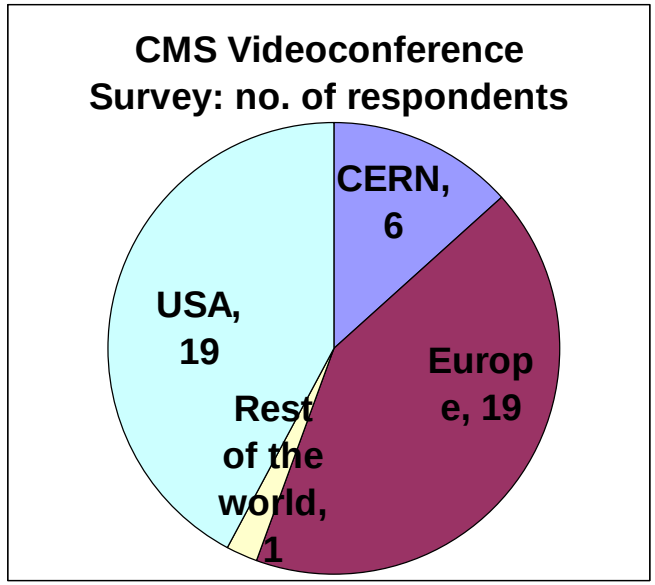
FEEDBACK ON SPECIFIC SYSTEMS

4) What are your good/bad experiences with CERN phone-conferencing systems, if any?
5) What are your good/bad experiences with VRVS, if any?
6) What are your good/bad experiences with EVO, if any?
7) What are your good/bad experiences with other systems (please specify which), if any?

FEEDBACK ON HOW TO IMPROVE THINGS

8) What are the most important things for you to have a successful distributed meeting?
9) What does not work well for you at the moment?
10) What are the most important things you would like to see improved?

CMS VC Questionnaire



45 people responded so far

NATURE OF YOUR MEETINGS

1) **Where are *you* located for most meetings?**
   - Good reflection of CMS demographics
     - except “rest of world”
2) **What physical hardware do you use (if known)?**
   - Offices: mostly local PC + phone. Some Polycom.
   - Meeting rooms: generally Polycom except Tandberg at CERN
3) **Who is involved in a typical meeting?**

Plenary meetings
- CERN auditorium with few 100 people
- Hundreds of remote participants
- Video/audio of speaker is broadcast
- Slides on web (CERN Indico system)
- Reality: hard for remote people to follow and interact with main room

Group meetings
- Typically 10-30 people at 5-10 sites
- (Usually) a physical room at CERN
- CERN phone conference or VRVS or EVO
- Slides on web (Indico)
- Everybody needs to participate equally

CMS VC Questionnaire

FEEDBACK ON SPECIFIC SYSTEMS

Note: I attempted to factor out well-known issues of bad audio of CERN rooms from the problems with tools and associated services

4) What are your good / bad experiences with CERN phone-conferencing systems, if any?

- Used by about 50% of respondents … rapidly increasing recently in CMS
- People are generally very happy – good audio and reliable

… but (obviously) lacks video and calls can be costly (region-dependent)

5) What are your good / bad experiences with VRVS, if any?

- Most widely-used system (90% of respondents commented on it)

… but consistently negative feedback (legacy system)

6) What are your good / bad experiences with EVO, if any?

- People are switching rather slowly from VRVS (inertia)
- First impressions: better audio than VRVS and more stable

…but still not as good quality or reliable as phone, ESNET or Webex

7) What are your good / bad experiences with other systems (please specify which), if any?

- Nothing used nearly as much as VRVS, EVO or phone
- ESNET, Webex: 100% ranked them as “good” or “very good”
- Skype and chat often mentioned as useful for few-person interactions

…but issues such as cost were not mentioned (we did not ask)

CMS VC Questionnaire

	Total replies	Very bad	bad	OK	Good	Very good
VRVS	39	11	13	11	3	1
EVO	27	2	7	10	4	4
CERN phone conferencing	23		1	4	11	7
ESNET	7				1	6
Webex	3				1	2

Classify responses re: tools to try and see the overall picture, as follows:

Very Good

- Excellent audio, always reliable, very easy to use

Good

- Good audio, systems usually work well

OK

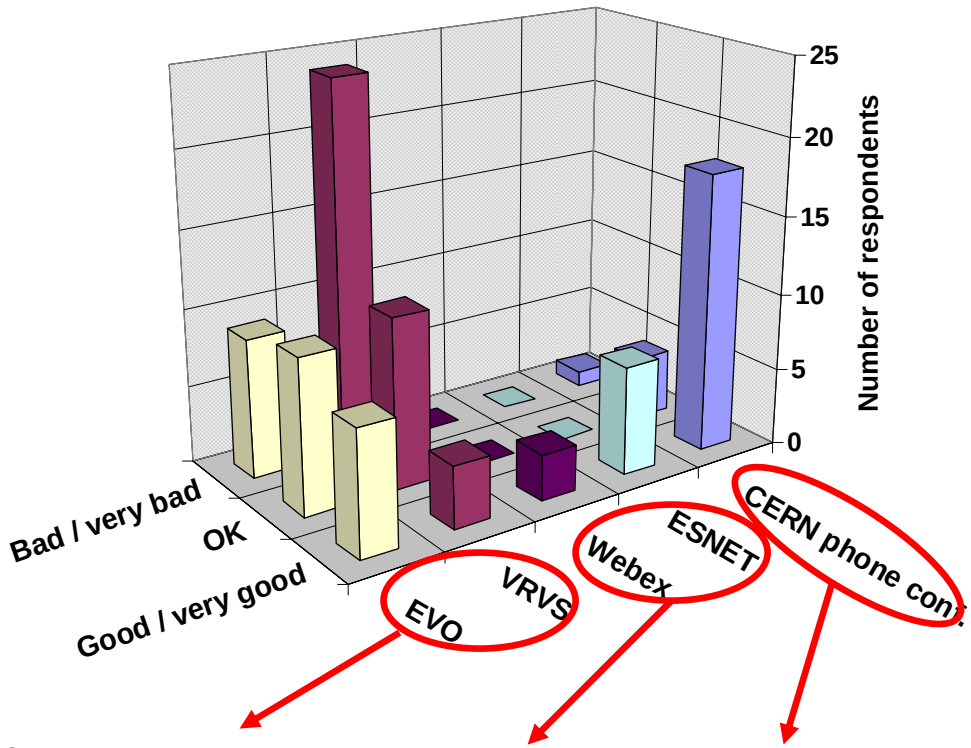
- Acceptable audio, some problems sometimes, usable, could be improved

Bad

- Poor audio, tools hard to use, frequent system failures, unpredictable

Very bad

- Audio unacceptable, system failures are the norm rather than the exception



Widely used but insufficient quality and reliability

Excellent but not prevalent

Widely used and high quality (but audio only)

Pareto analysis of CMS VC Questionnaire

FEEDBACK ON HOW TO IMPROVE THINGS

8) What are the most important things for you to have a successful distributed meeting?

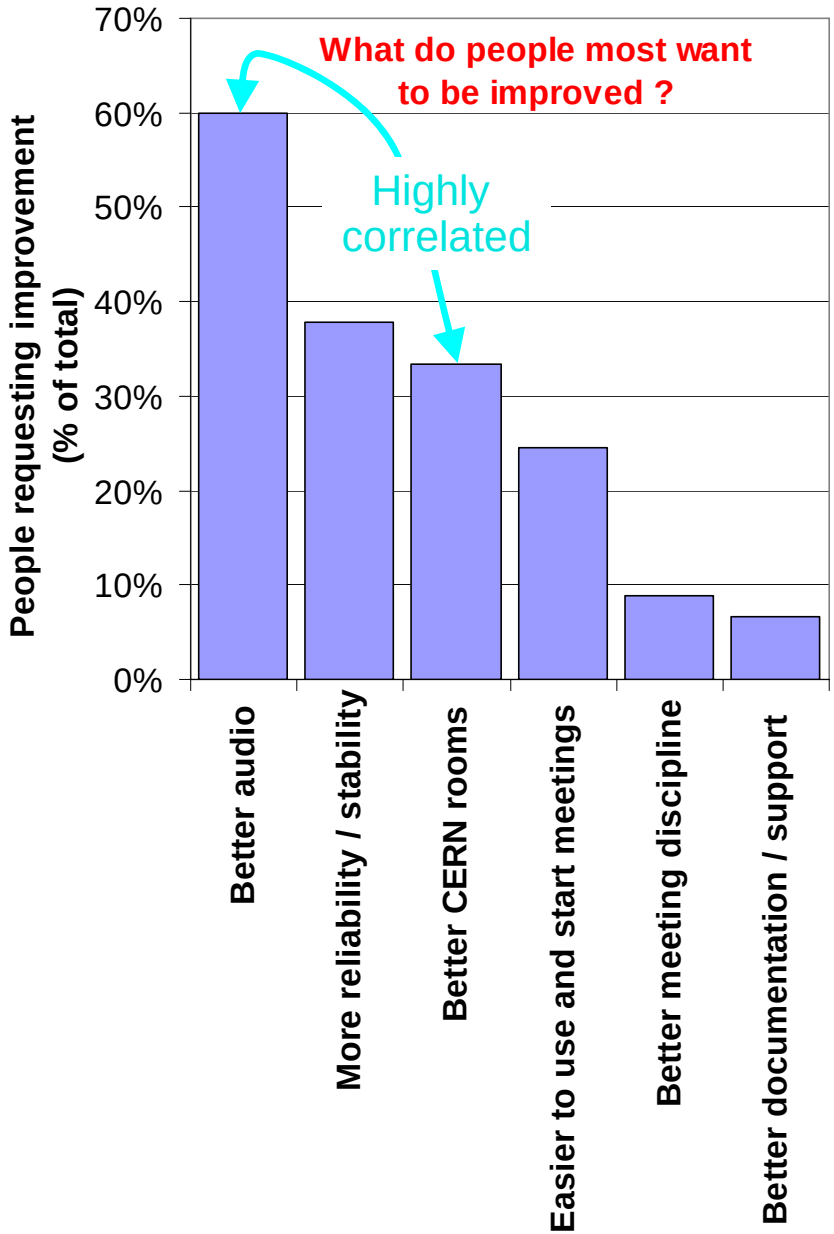
- Audio, stable system, discipline of people running meeting…
- Video barely mentioned

9) What does not work well for you at the moment?

- Audio, VRVS, CERN rooms…

10) What are the most important things you would like to see improved?

- Audio, stability/reliability, CERN rooms, ease of use of tools (especially for meeting start up)…
- Video barely mentioned



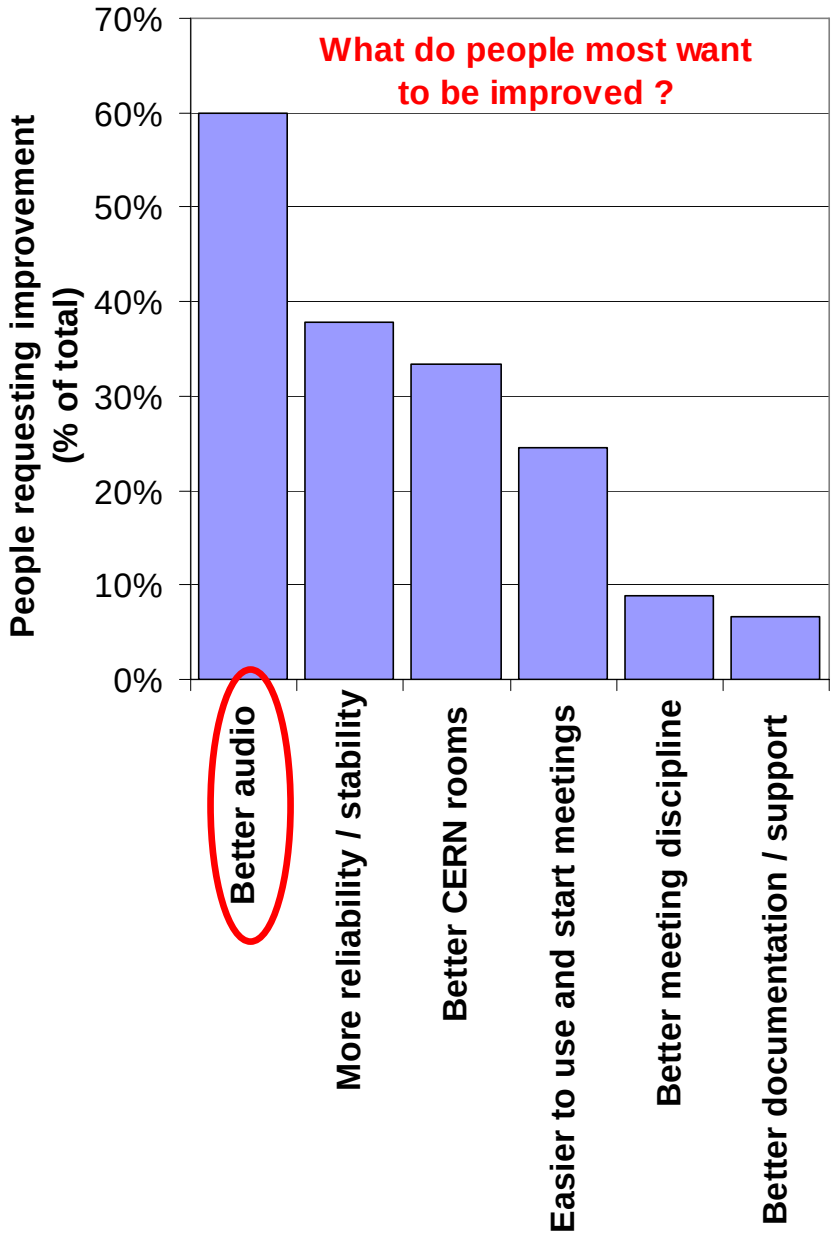
Responses to problems (1 of 3)

Need better audio

- **Improve meeting rooms (below)**
- **VRVS to EVO transition**
  - CMS migration is in progress

Ave. no. of meetings per month (for whole system)			
	VRVS	EVO	TOTAL
2006	1200	50	1250
2007	1000	800	1800

  - Several tutorials already held
  - Minimal VRVS support from Dec 07 (Dec CMS Week using EVO)
  - If all OK, VRVS will be "turned off" early 2008
- **Recommend headsets with good audio quality**
  - Stock them e.g. in CERN stores



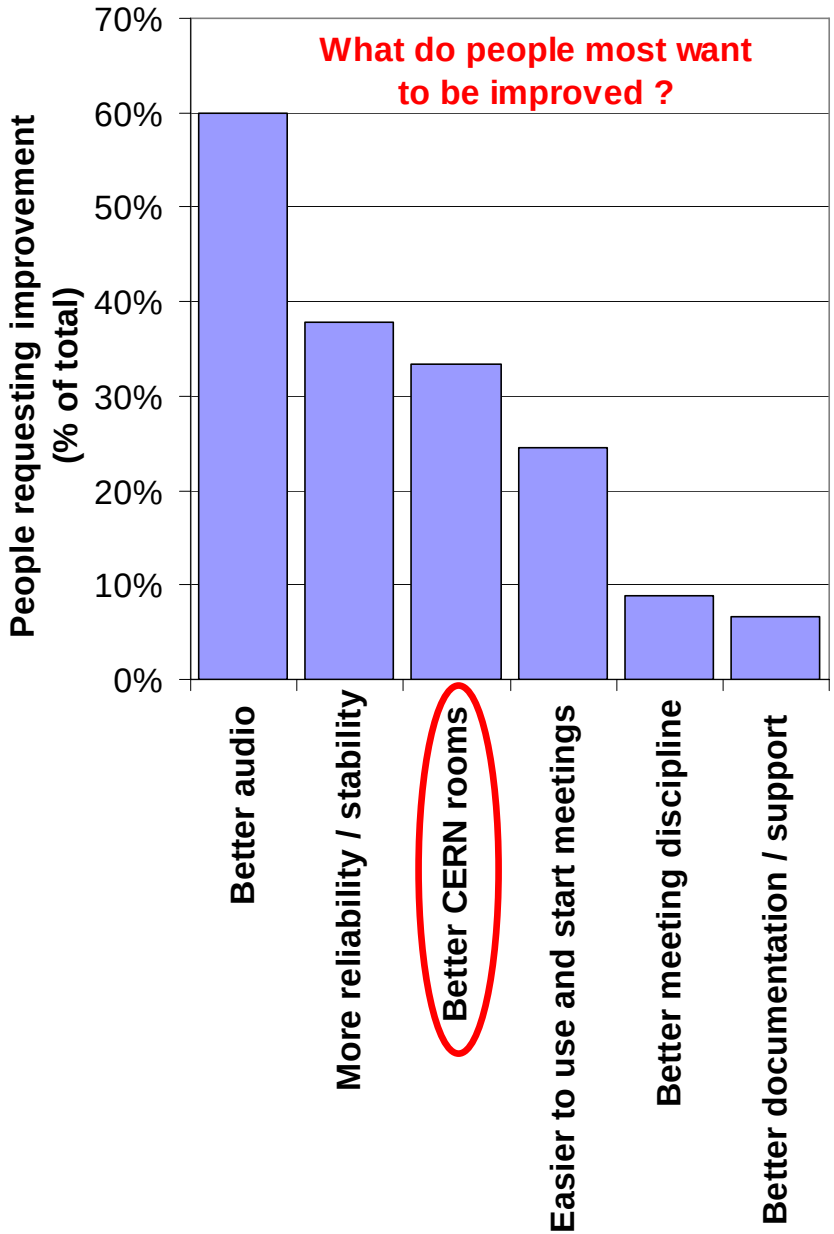
Responses to problems (1 of 3)

Need better CERN rooms

- **Bad audio is often caused by poor equipment and room acoustics**
  - Ageing inhomogeneous equipment
  - Hard to use and maintain

Comprehensive refurbishment plan for 10 CMS rooms at CERN

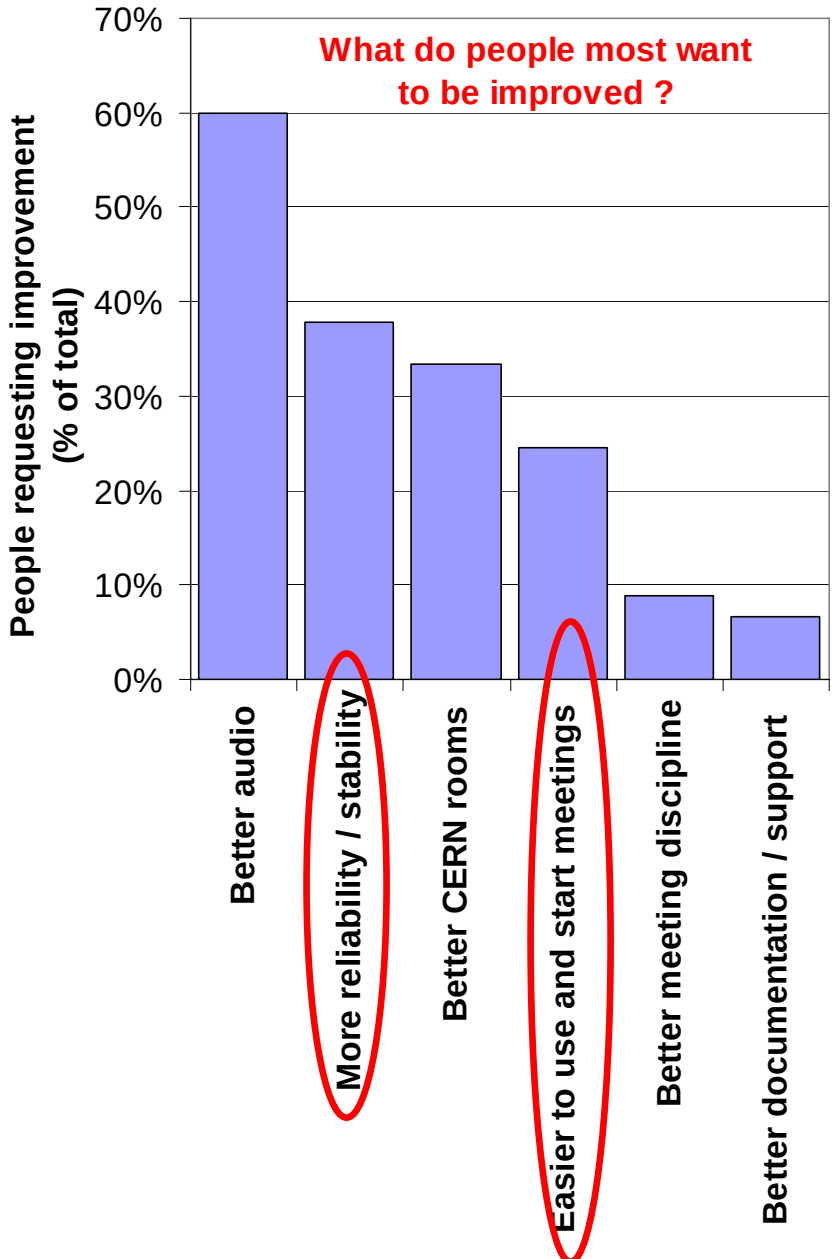
- **Cost up to ~ 500 kSF incl. acoustics**
- **Prototype room done (40/RB-10)**
  - New Tandberg + good microphones
  - Acoustics - carpet, curtains
  - Audio quality now much better
- **Meeting rooms (20-60 people)**
  - Building 40 (RA-10, 2A-01, 5A-01) to be upgraded same as 40/RB-10
  - Ditto for CMS Centre (B 354, 6, 8)
- **Auditoria (120 people)**
  - Will upgrade two B40 auditoria with Tandberg (one soon, one later)
  - Company to measure / simulate room to recommend acoustic measures
  - May equip AB auditorium



Responses to problems (2 of 3)

Need more reliability / stability

- **Homogeneous infrastructure in CERN rooms**
- **Service providers must focus on making systems ~100% reliable**
  - This is part of the reason many people are switching to phone-conferencing
  - Consider limiting the functionality until ~100% reliable and easy to use
    - Only then turn on extra features
- **Need easier to use systems, especially for starting meetings**
  - Simplify user interfaces
  - Ensure good default settings
  - Restrict access to expert settings
  - Strongly support “Goldfarb Green Button” coming soon in Indico
    - One-click to launch meeting



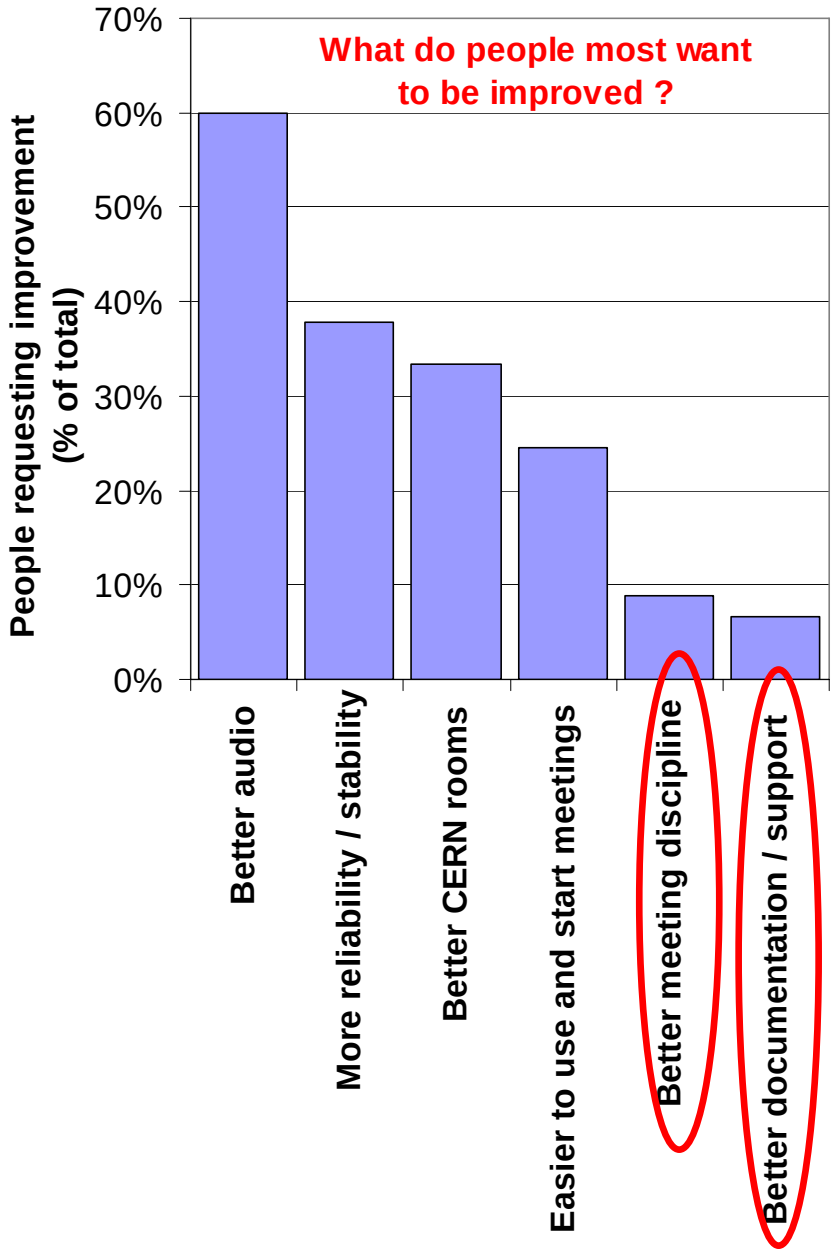
Responses to problems (3 of 3)

Need better meeting discipline / chair persons

- How to teach old dogs new tricks?
- Can the tools help here somehow?
  - E.g. “raised hand” from remote person

Need better documentation / support

- Request is symptomatic of high incidence of problems
- Better to fix the root causes
  - Personal view: a stable system and clear user interface should not need (much) documentation
- Factor support cost and loss of efficiency of participants into total cost of ownership



Some (personal) comments

Although video-conferencing is vital to CMS, users have been suffering a lot from low-quality, inefficient and failing meetings

- **The problem is intrinsically difficult and chronically under-funded**
- **CERN infrastructure and tools / services are not (yet) adequate**

Service providers should focus on providing a robust basic service

- **Switch off "advanced" functionality until we have ~100% reliability**

We should not set our ultimate sights too low e.g.

- **CMS analysis will require effective (and large) interactive meetings**
  - Not just listening to a distant speaker go through slides
- **I personally think video adds a lot (cf. audio-only meetings)**

CMS operations centres need "tele-presence"

- **Control room, CMS Centre (CERN), LHC@FNAL … etc.**
- **Talk face-to-face through the "window" (screens) to remote people**
  - A good ultimate aim for all meetings (but get the basics right first)

Priorities for action

Complete the migration to EVO from VRVS

- **Ensure EVO has adequate audio quality**
  - Temporarily fall back on phone conferencing if EVO falls short
- **Understand EVO support and development model, evaluate other options**
  - Help from this review

Upgrade CERN meeting rooms to use professional equipment

- **Then re-evaluate audio quality and overall of user experience**

Ensure VC systems are ~100% reliable and easy to use

- **First make basic (audio-) conferencing work reliably**
  - Simplify the interfaces, suppress or fix unreliable features
  - Allow fancy functionality only once stability is guaranteed

Optimistic final comment:

- **I am firmly convinced that we can significantly improve the scope, quality and reliability of CMS videoconferencing before the LHC turns on**