Integral solution for Web conferencing event management

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ABSTRACT

Nowadays video and web conferencing systems have become effective tools for communication and collaboration inside organizations. However, although these systems have evolved and now provide very nice features (e.g. sharing multimedia and documents), they are still too focused on the moment the meeting takes place. The existing systems provide very few facilities to organize the meeting and they do not take advantage of the possibilities the generated content offers once the meeting is finished. In this paper, we analyze the life cycle of a web conference and how existing systems monitor these conferences. Finally we present our solution, based on our know-how in videoconference management and our experience with these existing systems.

KEYWORDS

Collaborative applications, conference life-cycle, video conference, web conference.

1. INTRODUCTION

The enlarged diffusion of information and communication technologies has allowed production processes to become more agile and increase their efficiency. In this context, collaboration services like video and web conferencing are capable of solving most problems of communication, especially those between the different participants in a working environment, e.g. a research project or a department in a company. Some external factors influencing this rise of video and web conferencing are, among others, the oil prices, a growing concern for the environment, and especially the international economic crisis that we are still suffering, which has led companies to strong corporate budget cuts. As a result, video and web conferencing systems (WCSs) appear to be the preferred solution to exorbitant time and travel costs. Internally, web technologies like flash (Waldron, R. 2006) or html5 (HTML5, 2010) offer new possibilities.

However, as some access barriers disappear, other obstacles still remain, such as the ease of use. Many popular Web 2.0 tools offer video and web conference features, but they focus on the video conference

service itself, not addressing other important phases of the videoconference. These tools should also include pre and post conference features, like agenda scheduling, participant notifications and results management – such as sharing the documents and the recordings of the meeting.

2. ANALYSIS OF THE LIFE CYCLE OF A VIDEOCONFERENCE EVENT

There are many software and hardware products that allow us to organize virtual meetings, but almost all of them focus just on the moment the meeting takes place.
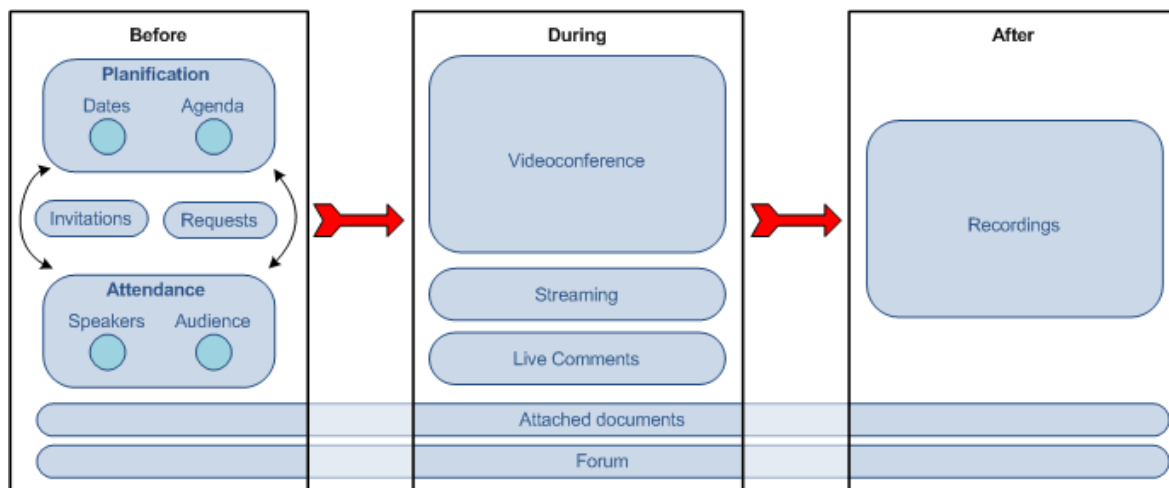

Fig.1. Diagram of the relationships among resources within the conference lifecycle.

Besides the conference itself, there are two other relevant moments that we need to take into account: before and after the event.

A. Before the event: planning and attendance

In this first phase of the event lifecycle, the conference organizers have two missions: first, they must introduce the conference in the application and define the agenda (dates, sessions, speakers...). Second, they must invite people to the event.

B. During the event: participation

In this stage, participants can discuss, see each other and collaborate, although some of them may be interested just on listening to the speaker. For that reason, we have defined two ways of interaction:
   • *Active participation*. Users join their video and audio to the virtual meeting using a video conferencing service. They are part of the discussion.
   • *Passive participation or anonymity*. Users want to follow the conference, but just as members of the audience, being anonymous.

C. After the event: sharing and managing content

All the information of the conference is stored: the agenda, the uploaded documents, the videos of the different sessions, the live comments... every piece of data that was generated during the meeting. Users who were not able to attend to the conference, now they have a second chance to know what was said; and for those who did attend, it will be interesting to review part of the material.

3. COMPARISON OF EXISTING WEB CONFERENCING TOOLS

We have studied and tested some of the most popular tools for video and web conferencing. We have reviewed how they cover the lifecycle of a conference that we have defined in the previous section.

The result of this review is presented on Table 1. As we can see on this table, none of these tools fully cover the life cycle of a conference. All of them are especially focused on the phase when the conference actually happens. They have very nice features to be used during the meeting, such as desktop and document sharing, audio and video communication, a text-chat, and many others that are summarized in other comparatives such as Robin Good's official guide to web conferencing and live presentation tools (Good, R. 2005), Web conferencing comparison by Vyew (Vyew, 2010), and Best Video Conferencing Tools That Anyone Can Use - Sharewood Guide (De Rossi, N. 2008).

TABLE 1. COMPARISON OF EXISTING WEB CONFERENCING TOOLS

		DimDim	Webex	Yugma	Adobe Connect	Vyew	GoTo Meeting	Zoho	MS LiveMeeting
Before the meeting	Plan/book	✓	✓	✓	✓	✓	✓	✓	✓
	Program	text	text					text	
	Confirm attendance						✓**		✓
	Invite	✓	✓	✓	✓	✓	✓	✓	✓
During the meeting	Participation	✓	✓	✓	✓	✓	✓	✓	✓
	Live streaming			✓		✓		✓	
	Shared desktop	✓	✓	✓	✓	✓	✓	✓	✓
	Video and audio	✓	✓	✓	✓	✓	✓ Only audio		✓
After the meeting	Shared documents				✓	✓	Only reports		✓
	Shared recordings		✓*	✓*	✓		✓**		Personal copies

* It allows saving the recording of the meeting in your file system
** Only in one of the products (GoToMeeting, GoToWebinar, GoToTraining)

Nevertheless, the main lacks of these tools lie in the phases before and after the meeting. On one hand, before the meeting, every tool allow to schedule a meeting and invite participants, but only MS LiveMeeting and GoToWebinar, allow to confirm their attendance. In addition, no agenda or program feature is available in any of these conferencing tools; users must resign and use a text field in the best case (Webex, Zoho and Dimdim).

On the other hand, in the post-meeting phase, the documents used during the event and the recordings should be stored, just in case someone missed the meeting and wants to see it or make a review. Webex, Yugma, GotoTraining and MS LiveMeeting allow users to record a conference and store a copy into their file system. However, they do not provide a way of sharing it with the rest of participants, e.g. publishing those videos on the web for those users that could be interested. Only Adobe Connect covers this feature.

Finally, something similar happens with the documents shared in the meeting. Adobe Connect, Vyew and MS LiveMeeting let the user access those files once the meeting has ended, but most of the tools do not keep an archive of the meetings that have taken place.

4. VIRTUAL CONFERENCE CENTER

The web application that we have designed and implemented is called Virtual Conference Centre (VCC) (VCC, 2011). It has been developed by the Universidad Politécnica de Madrid (UPM) in the context of the GLOBAL project (GLOBAL project. 2009), a research project supported by the European Commission's

seventh framework program. Currently it is deployed in production under the address http://www.globalplaza.org.

The VCC is made up by two main modules, the Virtual Conference Center Core (VC3) and the Conference Manager (CM). The VC3 is the framework that includes all the functionality to be used through the life cycle of the conference except for the videoconference itself. It is developed in Ruby on Rails, and provides a web interface where the agendas are created, users are invited or notified and a repository to share the documents. This module might be used in a standalone way for non-virtual (face-to-face) meetings.

The second module in the VCC is called the Conference Manager (CM). It has been developed in Java, and it is responsible for booking and managing the videoconference, the streaming and the recordings. This is a generic and independent module, so it can be used in other products to provide this functionality. For example, it is also used in a Moodle plugin (currently in development) for learning purposes.

When we create an "Agenda Entry" in the web interface, the core requests the creation of a "Session" resource in the CM, in order to book the necessary resources for the "Session". The CM books all the resources needed. Finally, it responds with the URI of the corresponding "Session" resource for the "Agenda Entry". The CM also provides the following resources:

- *Participation*: using a flash widget for participating online.
- *Streaming*: a RTMP flow of the session.
- *Recording*: the video of the session, for future consumption.

When the time of the session comes, the CM starts the appropriate servers for the session, the flash and the SIP gateways, if needed. It also starts a VNC server for the desktop sharing and finally, it returns all this information to the VCC Core, which will show it to the users.

Finally, the VCC also provides some other features that enhance collaboration and give the application a friendly look and feel, such as a chat tool (used as a back channel together with the participation service), a wall of comments, a search engine (for the users to find what they are looking for), user profiles and logos.

5. CONCLUSION

The lifecycle of a conference is divided in three phases. We have studied how web conference tools should cover that cycle. People's behavior at the moment of organizing a physical meeting should be adapted to online conferences. The virtual aspect should be exploited, so we can store all that generated data and record the meeting for future reviews.

We have designed the VCC to cover the aspects present in the three phases of a conference lifecycle. It has been developed in two independent modules, making it more flexible. The VC3 provides a REST API, so any other videoconference system supporting this API can be used. Also, the CM can be used by other web applications, e.g. in the Moodle plugin case.

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