

Collaborative Research Events on the Web



User Requirements Report

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1 Introduction

This document presents the results of initial user requirements gathering within the project Collaborative Research Events on the Web (CREW). As stated in the project proposal the eliciting of the user requirements and needs is conducted together with the participating user groups, the Institute for Health Sciences (IHS), the Scientific Visualization and the Intute user groups within a user-driven approach. To this end three user days, one for each user group, have been held to ensure the incorporation of user requirements and determine use cases for the CREW application related to the specific research practices of each group.

After this introduction, the approach of eliciting the user requirements together with the three user groups (chapter 2) is described, followed by an outline of the actual workshop sessions, which took place between August and October 2007 in Manchester and Bristol (chapter 3, for agendas see Appendix A). Chapter 4 presents the results of the three user days on the basis of the analysed sessions, which are presented in full in Appendices B, C and D.

For further discussion and prioritising within the project highlights of the user requirements have also been posted on the CREW Wiki. This compacted version of the essentials can be found under Appendix E in this report.

2 Approach: A User Driven Process

1) Session Outline

Each user day lasted approximately four hours with participation from 4 to 8 users, the user evaluation expert, at least one developer and either the Project or Technical Manager. It consisted of an introduction to provide an overview and aims of the project together with a broad description of development plans and an interactive session to understand users' needs, specific requirements and likely usage scenarios. The intended outcomes of the day were for users' to understand what CREW is about and for the CREW team to understand what users really need and how they assess the results so far, so that in the process all views can be considered.

One important preparation for the user days and especially the overview part of what CREW envisioned have been the development and discussion of use cases and usage scenarios within the team, which also have been put up on the project's Wiki (see Appendix F).

2) The session included:

- Introduction on what CREW is about, the current state of development and what is possible and envisioned
- Introduction to user scenarios using broad, general terms. Very simple visual aids were used to support this e.g. in the following areas: Lifecycle (recording, capturing data, accessing the data), roles (delegate, conference organiser, presenter, annotator, editor), additional issues on replaying, searching, annotating etc. (see categories in chapter 4.2).
- Feedback from the users in focus group discussions including describing their scenarios, discussion on roles, use, functionality, usability, open discussion (questions for this part, a lot of open questions to elicit requirements, e.g. where might you want to access recordings?)
- Planned, but not needed: User writing up of scenarios to get input for the focus group session (depending on the number of people two focus groups) by presenting the written up ideas and discussing these, considering the overall topics mentioned above
- A questionnaire on legal, ethical and privacy issues (produced by Annamaria Carusi at the University of Oxford)

3) Methods and data collection

The methods used to elicit user feedback were focus group discussions on requirements and usage scenarios between developers and users.

The data collection consisted of notes and recordings (transcribed by the evaluator).

3 The User Day Workshops

The workshops were held on 2nd August (IHS user group), 31st August (Scientific Visualization user group) and the 4th October 2007 (Intute user group). The first two user days took place at the University of Manchester (recorded and analysed using Memetic) and the third at the University of Bristol (recorded and analysed using a digital audio recorder). The Scientific Visualization user day also made use of the AG in having two Bristol CREW members take part remotely. Four users from IHS and the Scientific Visualization user groups each and five users from Intute participated at the respective days. The CREW team was represented at each day by the project manager, the technical manager, two to three developers and the evaluator.

Additionally an overview of the newly funded RACE project was presented (two RACE team members took part) at the Bristol user day, because of some overlap in content and related user communities.

The agendas of the workshops as they happened can be found in Appendix A and have been built up after the approach described in chapter 2. On the first user day also a writing session was scheduled, but not used:

“Writing session: How would you use CREW in your work? What roles are important? What functionality do you need? Could you write up a scenario in which you would use CREW technologies and how? + presenting and discussing the written up ideas later on”

It turned out, that the discussion was extensive and lively enough to provide very useful results. Therefore it was decided to also exclude the former planned writing session from the following two user days.

Another difference between the first and the two following user days was the combination of the CREW presentation and users’ feedback focus group part, which enabled the users to interact earlier and more directly to the given information. However, also the first user day worked very well in acquiring feedback, but overall required more time and made the process of analysing longer, because the material coming from the focus group discussion was more unstructured.

4 Results: User Requirements

4.1 Analysed Material

The length of the recorded sessions in total for each user day are 1:41 hours for the first IHS user day (a bit shorter as at this user day the CREW presentation the user feedback round was done consecutively and not combined in one slot), 2:07 hours for the Scientific Visualization user day and 1:57 hours for the last user day with Intute. These sessions have been transcribed, amended by the notes taken during the workshops and then drawn-up as can be seen in Appendices B, C and D for each user day. In the next section (4.2) this information is further categorised to present the final findings of this report.

4.2 User Requirements

Summaries of the requirements and needs of the user groups are in the following three sections. The first section (4.2.1) describes the broader area in which each user group sees the need for support through CREW. The second section (4.2.2), the main part of this chapter, lists common user requirements. These categories depict the functionalities of CREW and are the framework for the development within the user driven process. General and miscellaneous requirements are presented. The third section (4.2.3) describes additional notable feedback given by the users which is specific to only a single user group. Full extensive notes of each user day can be found in the Appendices B, C and D. The single paragraphs are numbered consecutively from [01] to [52] through the three appendices and in the following in this chapter will be referenced when especially relevant by the respective number.

4.2.1 User Contexts

- 1) The IHS user group is interested in an integrated virtual learning environment [01] in two fields:
 - a) Using CREW as a VLE for students in Manchester, ideally integrated in a portal, to have students contribute remotely with presentation and in discussions in seminars. Furthermore the material could be used as a resource for future students [02].
 - b) Making IHS workshops in Manchester available to the institute members by recording and making them available asynchronously online. IHS members work in various networks with different topics with a size between 40-150 people and a steering group of 10-15 people each, are generally very busy and should only be able to access the material relevant to them [03, 04, 05, 06, 07, 08].
- 2) The Scientific Visualization user group is seeking support for event organisation (conferences and seminars) in terms of organising and especially recording, annotating and replaying talks, lectures and presentations in an integrated application with a proper interface, search facility and quality of recordings (currently Memetic is used to record e.g. a series of talks) [24, 30, 40].
- 3) The Intute user group is thinking about using the recording of conference or similar events as a service for academia incorporating and expanding their “fairly simple

database”, which links to event web pages [42]. As CREW is not a service itself and will not provide a national search service, the role of Intute in CREW was further discussed. If Intute is interested in the search and repository elements of CREW, we have to reconsider how relevant it is for CREW to record Intute events [44, 50]. In this area, two more concrete ideas were discussed:

- a) A good idea could be to record the Intute “Action Talks” to Oxford students on specific subjects. There is not very much material connected with these events to link to (and make searchable) and the talks address a restricted invited audience, but nevertheless these could be recorded and made available to the public [50].
- b) Also internal staff conferences could be a good event to record (but the subsequent event in November came too early for CREW to support) [50].

Besides that an additional activity for Intute could lie in producing support materials on the use of CREW, as in a guide on how to run conferences with CREW. How Intute could help with their expertise has to be further explored in this context [47].

4.2.2 Common Requirements

1) General requirements

- **Portal environment**
It was seen as very suitable to build CREW within a portal environment, which leaves open the potential integration of already used tools, applications, functionalities and intranets as well as access models, authentication and authorisation issues [02, 05, 37, 42, 52].
- **Flash**
Using Flash as a standard is considered to be a good choice for recording, editing and replaying [17, for the Scientific Visualization users and Intute there was nothing mentioned to indicate otherwise].

2) Recording events

- **Portable recording** using either a preconfigured hardware box or only the CREW software on any laptop could be envisaged but was not decided on at this point [18, 32, 33, 49]. A proper guide to help the recording process is considered to be valuable [49]. Intute explicitly stressed the importance of good quality recordings [46].
- **For the storage of recordings** the following points are considered to be important [22, 23, 31, 43, 51]:
 - the recordings do not have to be stored on the same server as the metadata, but have to be easy linkable to make the content searchable (creating an archive)
 - the recordings can be stored on an institutional server as well as on a CREW server, but the server(s) have to be large and secure enough to have the data stored there for a long enough period of time (to be defined, e.g. five years) and always be accessible

- institutional policies which could apply have to be checked for storing and connected data protection issues - there may be different ways of doing this in the specific scenarios

3) Annotating recordings/events (semi-automated & manual)

- Functionality to annotate questions during or after the recording, entered onto the interface or via email would be nice. Semi-automated as well as manual annotation is seen as beneficial, so it would be reasonable to implement both [13, 15, 34, 42, 51].
- A discussion board or blog could be integrated or linked as a way of annotation [13, 15, 37]
- Event metadata is very important:
 - general metadata like keywords, e.g. date, author, title, which in part could be put in by the actual presenter within the relevant slides beforehand – but then this process should be very easy and quick to accomplish [19, 21, 28, 42, 43]
 - special metadata like abstracts, links to resources, Q&A, highlights of text etc. – legal, privacy and IPR issues may have to be taken into account here [19, 28, 29, 43]
- Linking to annotations within the recorded event, as in referencing a part of a recording and then jumping back to this part by clicking a link could be useful to all [19, 51].
- The question ‘who may enter annotations’ is important as it could lead to potential controversial entries. Therefore, access rights or mechanisms to moderate annotations before making them public might have to be considered [20, 35]. The idea of a “best of” of entered annotations, e.g. during conferences could be an interesting one for all [35].
- Buttons to enter annotations could make the process faster and easier (also see under ‘6) Replaying events’) [34, 38]
- Categories of annotations could be used [51].
- For the storage of metadata the same issues apply as for the storage of recordings [22, 23, 31, 43, 45, 51]

4) Editing recordings

- Editing recordings in terms of cutting the video and composing the output with choosing camera angles (different streams) is seen as an important functionality, especially considering the importance of legal and privacy issues [17, 18, 36, 37]. Intute has still to explore the usefulness of editing at a later stage in the project [51].

- Functionality to improve bad sound, filter background noise and brighten the picture could be imagined, but is not of high relevance [17, 36].
- Most importantly the interface has to be very usable and include an import-export function [17, 36].

5) Searching events

- A searchable database and repository is requested by all users [12, 23, 24, 28, 29, 43, 44, 46, 48, 51, 52].
- The requirements under ‘3) Annotating recordings/events’, especially ‘metadata’, are relevant here, as this is a prerequisite for searching.
- In recorded presentations the list of slide metadata/thumbnails could be made searchable [38].

6) Replaying events

- The layout of the interface examples is basically OK for every user group [13, 37, 38, 52], integrated within a portal environment. Additionally this could be enhanced with:
 - a discussion board or blog [13, 37]
 - a function to allow people add more questions within the interface online or via email, synchronously or asynchronously [13, 15, 34]
 - switching between the views of the interface is a valuable function and preferred to be done rather manually and realised as simple as possible [37]
 - having the slides as (automatically generated) thumbnails as these are easier to identify and often the titles are not particularly informative (if they are entered at all) [38]
 - buttons for annotation could be implemented to make this easier and faster, using about six or seven small and recognisable icons (also see under ‘3) Annotating recordings/events’) [34, 38].
 - forward/fast-forward and rewind/fast-rewind buttons may be useful [38]
- Furthermore users and developers will consider other layouts of the interface in the ongoing process [39, also applies to the other user groups].

7) Miscellaneous

- Access rights and authentication
An access rights model for confidential content and to take into account different roles, groups, seminars and networks combining the specific institutional intranet and a portal would be good to have, if possible with single sign-on [03, 04, 08, 09, 10, 12, 14, 42]. The Scientific Visualization users did not explicitly mention the topic.

- Tools, applications and services already in use that could potentially be integrated within CREW (as an application or in terms of functionality):
 - WebCT and Camtasia are used by the IHS students [12, 14].
 - IHS students use an integrated discussion board with an archive, but without a search function and not very user friendly [11, 12].
 - AtlasTI has been used by IHS for (semi-)automated tagging of important issues in text data – implementation is not considered to be an issue right now for CREW, but maybe in the future (like producing a trailer with highlighting subsets of the recording) [19].
 - The Scientific Visualization users (Eurographics) use a commercial conference organising software, whereas Eurographics UK use open source software; CREW have in mind the Open Conferencing System and will check whether this is suitable [24, 25].
 - Clips of SIGGRAPH talks can already be found in the ACM digital library, it could be important to be aware of how content has been presented so far [30].
 - Recordings are in some cases edited professionally, e.g. for SIGGRAPH conferences – also experts from the e-dance project might help on occasions [36].
 - Intute uses an internet resource catalogue, stored training tutorials and harvested repository metadata [45].
 - Camtasia and related software is used by Intute to record training and presentation materials [50].

4.2.3 Other notable issues

1) IHS

- Preview feature and joining button
Allow the preview of certain information to a wider network or within a defined larger group of networks. If the information is found useful, a function to request joining the network via a button could be implemented [08].
- Notification
A notification function to remind people to add information to an event or to their own recorded slides under defined circumstances could be implemented [15].
- Video responses or contributions of students have been tried out before and maybe could be used with CREW [16].
- A server in Nursing probably could be used for storage [22]

2) Scientific Visualization users

- Organising events
An important issue for the scientific visualization users is to have a system which would support the reviewing process with reminders automatically sent out, highlights of best and worst papers and a scoring mechanism (e.g. average scores). Additionally a submission feature and a digital library using Dublin Core would be useful [24]. Also a signing up function is needed which is not provided so far [25]. The users would like to have one database for everything, but it is not sure if this is feasible for CREW, which focuses on the presentation side of things [27].
- The Eurographics server is hosted in Vienna and the Eurographics UK server in Bangor. There have been problems with not enough provided space in one of the subgroups, i.e. in that case a centralised server could be useful [31].

3) Intute

- Intute's subject areas of events should be mapped by CREW, reflecting their institutional subject hierarchy. The use of a PolicyGrid tool will be explored in that context [43].
- Having semi-automated annotations also for podcasts and existing videos would be interesting for Intute [51].
- The event filter category of 'organisation' is a crucial one for Intue, e.g. subsections of the British Sociological Association [51].
- Intute would be willing to set up a distributed server (otherwise than stated before [45]) within the CREW architecture in order to store recordings there, but CREW has to make these searchable [48].

Appendix A – User Day Agendas

The agendas of the three user days as they happened.

Agenda IHS user day: Thursday 2nd August 2007

12:00 – 12:45 Arrival: Lunch/Buffer

12:45 – 13:00 Welcome and brief introduction round

13:00 – 13:15 Brief presentation explaining what the project wants to do

13:15 – 14:00 Engaging the users: presentation of user scenarios of what the software will do, including visual images

14:00 – 14:30 User feedback round & focus group on presentations: “What do you think?”

14:30 – 14:45 Break: Tea & Coffee

14:45 – 16:15 Focus group continued, moderated with open questions;

16:15 – 16:30 Distribution of Annamaria Carusi’s ethical, legal & privacy issues questionnaire with brief introduction

16:30 Thank you and goodbye

Agenda Scientific Visualization user group user day: Friday 31st August 2007

09:30 – 10:00 Arrival: Coffee & Tea

10:00 – 10:15 Welcome and brief introduction round

10:15 – 10:45 Presentation explaining what the project wants to do

10:45 – 12:00 Engaging the users: presentation of user scenarios of what the software will do, including visual images + user feedback round/focus group on the slides: “What do you think?”

12:00 – 12:30 Break: Tea & Coffee & Sandwiches

12:30 – 13:30 Focus group continued, if needed moderated with open questions

13:30 – 13:45 Distribution of Annamaria Carusi’s ethical, legal & privacy issues questionnaire with brief introduction

13:45 Thank you and goodbye

Agenda for the Intute user day: Thursday 4th October 2007

09:00 – 09:30 Arrival: Coffee & Tea

09:30 – 09:45 Welcome and brief introduction round

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- 09:45 – 10:05 Presentation explaining what the CREW project wants to do
- 10:05 – 10:35 Presentation of the Repository of AG Collaborative Events (RACE) project and short question round
- 10:35 – 10:50 Coffee Break
- 10:50 – 11:50 Engaging the users: presentation of user scenarios of what the software will do, including visual images + user feedback round/focus group on the slides: “What do you think?”
- 11:50 – 12:00 Coffee Break
- 12:00 – 12:45 Focus group continued
- 12:45 – 13:00 Distribution of Annamaria Carusi’s ethical, legal & privacy issues questionnaire with brief introduction
- 13:00 Thank you!
- 13:00 – 13:45 Lunch at the staff canteen

Appendix B – Full User Day Notes: IHS User Group

Not only user requirements and needs, also ideas and responses of the developers are included in these notes.

[01] The IHS user group is interested in integrating virtual learning environments with questions for CREW:

- What is feasible to develop in this context?
- In which way is this possible considering authentication like Shibboleth?
- What is meant by integrating more precisely?
- In connection with VREs/VLEs, how could this look not only towards authentication, but more general?

[02] PhD students are giving presentations (**one important activity for IHS: VLE for students**), but are not in Manchester or the lecture room locally: At the moment this is done in an asynchronous way, but it would be better to be able to do this together with the campus based students in the future, enabling proper exchange between all students. Furthermore the material could then be used as a resource for future students and for this purpose would have to be deployed somewhere, e.g. in a VLE/VRE/portal.

➔ For CREW this is considered to be a very useful information at this point of the development in direction of using portals/portlets and in terms of a VLE integration scenario.

[03] A **second important activity** lies in having the **IHS workshops** available to the institute members afterwards through **recording** them (➔ supported IHS event). In this context it is important to take into account issues regarding access to the institute's intranet, as some members are NHS staff and therefore do not have the same access and login rights as the university staff.

[04] The interdisciplinary, thematically different existing networks do not have to be public, as their content usually is only of interest to their members. The people involved in the networks add value through their involvement, i.e. sharing expertise in adding content and benefiting from the content of others. Some content is considered as being confidential, depending on the network. Some people are in more than one network.

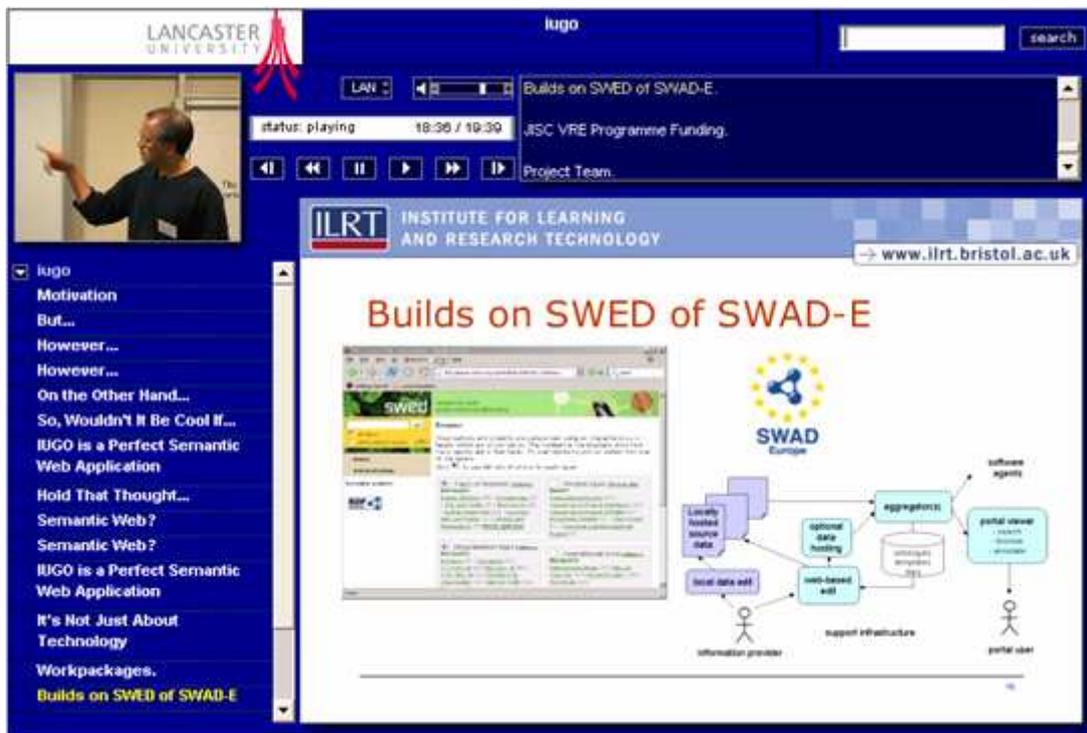
[05] Regarding importing the playback function in an IHS portal/VLE, the idea of giving the network members one login and personalised access rights is seen as “maybe over-engineering things”: A lot of people are juniors and do not feed in very much, but generally this could also depend on the network, as different networks on different topics have different affordances and policies. The size of the networks range between 40 to 150 people in total, with two roles of membership. There is a difference between the normal network group members and the steering group members (each network has a steering group of 10-15 people). Not everyone in a network can see everything, i.e. steering group members may have more access rights and also a higher sensibility towards confidential content.

[06] Every network member is considered to be very busy, meaning that there is no sharing between the networks necessary, because “if they were interested they

would have been involved in the other network already.” Hence it is probably a good idea to keep networks open in case where suitable.

- [07] As dedicating time to IHS workshops or similar events in general is a big problem for many people working at clinics recording these events is a very important issue. Sometimes people are prevented from attending in the last minute and then would like to see it afterwards.
- [08] The IHS itself is part of the school as a bigger network and some people from the school could also be interested in coming to events, although it is stated that the recordings address special groups who come and register to watch this content – and e.g. at a Manchester workshop there is no interest at all in people coming from other regions than the North-West (“it is about NW things”). The networks are all located in Manchester or are NW related, therefore all activities to record take place in Manchester. On the other hand it is fact that the steering group probably has members e.g. only from Manchester while in the network there are also people from other places (“networks are fuzzy”). But additionally, normally everyone who asks to participate in a network is allowed to do so, in which case local information will not necessarily stay local.
→ In this context a mechanism/model could make sense incorporating a function to request a certain part of the information, which then could be allowed via e.g. a button. The person getting the information then could decide if joining the network makes sense.
- [09] In the student scenario there are also different sorts of seminars and it may well be, that the students do not want to have people from the outside in their sessions.
- [10] → For CREW the scenarios do not make much difference, as a certain level of authentication has to be established in any case. The further advantage to use a portal/VRE/VLE is to have a security model in place, also being able to address role-based access or membership if needed.
- [11] Students have a discussion board and are considered to know each other, therefore a kind of moderation (in case of “nasty” comments) does not seem to be very crucial at this point.
- [12] For the VLE/portal for students on the technical side it is considered to be important to have one login (“mashup”), i.e. having one interface in terms of not having to go to different tools/logins while working. Currently WebCT is used and videos are provided using Camtasia, making best use of easy adaptable technology, embedded with one login. An integrated discussion board and an archive list exist, but there is no search function available so far. All in all this is not very user friendly. → “What we want is what we’ve got, but we want it far better!”
- [13] The layout of the shown example (see picture “CREW interface example”) how a CREW interface to record, play and annotate could look like, in principle was appreciated. Interesting features to have in this included the integration of a discussion board, a function to let people add questions within the interface (probably combined with an online mode during the presentations where it is additionally possible to check for questions) and/or an email functionality to send

out/in questions directly. → Again for CREW the basic functionality for such features and for a security model already can be envisioned with portlets in a portal environment.



CREW interface example

- [14] One important issue brought up is if it would be feasible to use or enhance WebCT within such a portal environment. WebCT (a new version of Blackboard is/ or has been coming up) is important for IHS and it is currently already used as a mashup. → This should make it possible to integrate or link this with a portal environment within CREW, especially as there are solutions to link this with the university portal, which should resolve any issues on authentication and in general.
- [15] The functionality to ask questions during IHS workshops (and also concerning student events) is further scrutinised in the discussion: As there often is a limited time for questions a feature to add additional questions later would be beneficial. This could be realised in continuing the Q&A session right after the presentation on screen or setting up something like a blog for further asynchronous discussion. But as people are very busy, one opinion is, that while often even the following up off the important last slide does not happen and probably also blogs are too time consuming, people need to get reminded to do something via email, i.e. a “good old-fashioned” listserv is used. People usually send stuff to the same contact person and this person then sends it out.
- [16] Another idea is the use of video responses.
This was rudimentary tested in using the Macromedia communication server (but not fully implemented) to create little flash objects for people to record

themselves and then linking this via RSS to Flux.

In a different approach students should use PowerPoint, audio and webcams to record themselves and do a presentation that way. Actually the recorded audio and the slides (video has not been done yet) have been put up on WebCT also using the integrated discussion board. But it also was mentioned that PowerPoint has not been ideal for the audio.

- [17] Considering editing the recordings the first reaction referred to a potential functionality to improve bad sound/background noise or a too dark picture. This could be done in downloading a file, editing it and uploading it again, using Camtasia and Flash (convert on the fly back to .flv, but the recompression=quality could be an issue). → As the idea of CREW is to use Flash anyway, which suits with the IHS use of Flash (Flash has worked) this could be explored further.
→ One participant points out the importance of an easy usable tool/interface: “I am a competent user”, but “do it as simply as possible”.
- [18] It is added that the initial idea of CREW towards editing was a) content editing (“cutting the joke out”, as legal and ethical issues matter in this context too) and b) using the different streams for different camera angles to choose. A participant brings in the thought of having a 360 degree camera to film the venue in that way, which is a question of the camera and not CREW itself. Other thoughts are about the difference of recording in an AG setting or portable on a laptop, i.e. it would be good to be able to “interact and present” with and without AG.
- [19] The next topic is about doing annotations and what IHS could imagine to do in this context, e.g. manually tagging the sessions with keywords, or tagging the slides itself?
It is stated that metadata like keywords e.g. on the methodology for the workshops and seminars is necessary. The question if transcriptions would make sense arises and AtlasTI is given as an example for tagging important issues within a text/interview etc. (→ to implement this for CREW may be an issue in the future, but not right now). Coming out of this is the thought of having a feature to highlight subsets of the audio/video recording and/or slides and use that elsewhere (maybe as a kind of trailer), i.e. let people back-reference on the content itself (e.g. in publications) and have the output as a published piece of work itself (link excerpts of the text/publication to each slide, click on a keyword and jump to the respective part of the recording: “Exactly!”). People in this way could be taken back to the presentation from within the publication, like an online journal paper (“these are my favourites from the presentations”). This also could be used for interviews, tagging and linking important bits and summarising issues, which would be useful for research “as a next step”. Transparency is considered to be no “delicate issue”, if it is about public events.
- [20] Another issue in the context of annotations is the question, who would do the taggings/annotations and if controversial areas could be highlighted. This is seen as a complex issue probably evoking the need to have annotations checked before making them publicly available.

- [21] To make the process of tagging easier, a suggestion is to let the actual presenter already put in annotations (links, comments etc.) in their slides into the note part of PowerPoint, which then could be tagged/key-worded properly later – but this would have to be easily done and may not take much time to be feasible. It is added, that for a proper conference with papers there are always abstracts and keywords requested, so this idea should not be too unusual.
- [22] The next topic is about archiving: Where should recordings be stored, are there storage issues for IHS?
A server exists in nursing which is not used, probably the university is in charge hosting it, but this could be a feasible solution.
- [23] There are no procedures on how long something will be stored, so far everything is stored. One idea could be to store a high quality version of each file as a backup. At the same time the archive in the future should be a searchable database/online archive. It has to be checked further what the university policy in this context is. After e.g. five years the content could be checked on what is still interesting. To this end a remote storage with a time limit could be used and stuff which should be kept could then still be moved somewhere else.

Appendix C – Full User Day Notes: Scientific Visualization User Group

Not only user requirements and needs, also ideas and responses of the developers are included in these notes.

[24] Event organisation: If the conference software is more complex than something we can do in CREW, the idea is to take open source software and modify that to make it compatible (especially in terms of metadata). → Eurographics have a commercial conference organising software, whereas Eurographics UK use a sort of open source version, where you have to provide the authors with a free ticket to your conference – and it is not clear if it is totally open source. The focus of this latter software lies on the reviewing process, the backend is designed for the submission process, i.e. reminders are sent out automatically, averages on scores and highlights of best/worst papers are given. In terms of functionality it would be good for the scientific users to have a system for reviews/reviewers, a submission feature and a digital library, because this would contain Dublin Core descriptors/metadata to make items searchable. Another important thing already included in the current systems is a scoring mechanism for the papers coming back from the reviewers, which is considered to be “pretty”.
→ CREW so far had in mind a system called “open conferencing systems”

[25] But the above described sort of open source software (used by Eurographics UK) is not used for people signing up for the conference, here a separate tool is needed, which shows that at the moment things are very disconnected (there are commercial systems on the market, which do everything). → For CREW it would be good to check what this “open conferencing systems” can do.

[26] It is stated that the worst case scenario for the users would be, if after the CREW development an open source conference system would come along and would be far better, resulting in no uptake from other people besides the three user groups (“basically then I ditch CREW, because it does not work..”) – therefore the user recommends CREW should be flexible and open and not restrained to the pilot studies/user groups alone.

[27] The important point for CREW from the developer’s view is to be able to extract data in the first place. The users would like to have only one database for everything (submission, review, register), but there seems to be “no answer for that”. On the other hand the developers in CREW focus on the presentation end of things, i.e. registering is also important but not seen as too crucial for CREW at the moment.

[28] Another thing CREW will do is supporting a simple event (simple event data entries) and the questions for the users will be, what sort of information they would need in this context (which data entries? All displayed on a webpage?). The users looked up a new possible repository (for the new project RACE) to have searchable data of video data and to get a feeling of what standards are important (again there are already exist some commercial systems which can do this).

For CREW the metadata along the line of the event is important, i.e. more initial

things like author, time etc.

In connection with metadata the users took a look at the London Charta with its nine standards (3D and video) of presenting data in terms of quality etc. Two kinds of data seem to be especially important, which also applies to CREW: 1) metadata (author etc.) and 2) power data (=interpretation: abstracts, multiple abstracts of different people).

- [29] Looking at power data, in the new technology the users basically need having all the papers in a digital library, which can be problematic, because of copyrights preventing a lot of papers being stored – but at least links to those should be implemented to use them in presentation and make them searchable.
- [30] For recording at main conferences the users do not plan to record all the seminars, but the keynotes are considered to be important (here also legal issues have to be addressed; in this context a user hints at SIGGRAPH clips already in the ACM digital library) to become useful summaries for the community in the future – and maybe in the future people might even like to have the whole conference recorded.
- [31] The next topic concerns the location where to store the data (the metadata and data which would be entered for events) and what data should be displayed on the web, if there already is an existing website, what the existing practices are currently and if a CREW server is needed. Eurographics is hosted in Vienna and the UK Chapter on a server in Bangor. In one of the subgroups there have been problems with too less space the provider offered, which means that in this case (or for some smaller groups) a centralised server would be useful. The developers inquired if there would be a particular place which would be better, or if it would be favourable to store it in a CREW database. On the other hand they made clear, that the only thing they would have to know would be where that server is located and then CREW should be able to link and access it. → The users responded, that this would be something to bear in mind, but basically depended on the event. → In the end it became clear that there will be different ways of doing this, none problematic.
- [32] CREW plans to have two ways of recording events, one via the AG and one with a box doing it mobile, whereas the interface shall be the same. In both cases it would be good to know, where the actual recording data will be stored (on a multi-server or single-server model). Important for the users here was having high speed discs, a good place for the server, as well as having all this as a service where people can use this whenever they want (national service). In the end also this matter will be decided later.
- [33] As mentioned above, it will be possible to record a event as it occurs in two ways: 1) via connecting a laptop to a box with the box doing the recording, which means additional hardware and costs are necessary, but no performance issues will appear. 2) via using the software (like screen streamer) on a laptop through the AG, which means no additional costs and hardware, but probable performance losses. For the users both models seem to be feasible and this also will be decided later.

- [34] Making annotations is another function CREW will support and usually annotations have to be made manually, but slides can be annotated semi-automatically (but will have to be checked afterwards). The users would like to have the choice of doing annotations during the recording as well as afterwards. The level of detail therefore again depends on the nature of the event and the context: will it be just Q&A, how much time will it take (afterwards it takes usually a lot of time doing this), who will do the annotations etc. A small meeting (like a project meeting) could probably easily be annotated during the event, whereas in a larger meeting (conference/talk) people might like to pay attention and do it later. In general this may also depend on how important the event will be and how much people are expected to watch it later. Also a marker could be feasible saying question/answer to just click it and add more detail later. Even better would it be to have maybe six or seven small icons to simply click on for meta-categories to annotate (slide change, Q&A, panel discussion, website/link, project info, etc.). The icons should be easy to recognise and use and it should not be too much of them.
- [35] Another important issue would be, who and how many people will get access to the annotations, and in this context, for whom have the annotations been done (just for myself (private) or for everyone (public) or for groups?) There could be multiple people annotating the recording and the private, public or group annotations could be treated like bookmarks. Another idea could be doing this live during a conference and letting people annotate during a talk and then tag their contributions as a “best of”, or just interesting (regarding websites, relevant remarks, literature etc.) – to differentiate public and private could be important as “interesting for myself” does not have to mean “interesting for everyone.”
→ As control apparently is very important considering access to annotations and content within annotations the easiest way to think about it for CREW seems to be to have every entry private when it is created and later on it can be decided – by the owner or administrator – if it should be made public or accessible for a certain group. Another feature would be to anonymise all annotations for a conference event, with the organisers later deciding under which policy they will make them public, as long as they are not negative/offending.
- [36] Regarding a function to edit the audio and video recordings there are no special requirements (like brightening the picture or erasing background noise – if feasible) for CREW to implement right now, other than a general export import function for recordings. In that way recordings can be edited externally if necessary (proper editing is very time consuming), as in case of SIGGRAPH conferences, which DVDs are usually edited professionally. Also experts in the e-Dance project might help with complicated things in this context.
- [37] Searching across many different data sources is another core function of CREW, integrating wikis and blogs (in a portal) linked to annotations connected to the presentation. Coming from this point the discussion quickly focuses on the representation of such features within the CREW interface, meaning, which different views are needed, what position on the screen should the speaker and slides windows have etc. → Regarding switching the views the users prefer to basically be able to do this manually rather than automatically (switching

between speaker and audience besides having slides and navigation elements displayed). It is considered to be important to keep such as simple as possible.

- [38] The Bob Stone talk example showed during the session was basically seen as a good model as it represents exactly the situation which also applies to events of the scientific users:
- Usually people do not present in a agile way, thereby running around as in some conference talks.
 - The quality of the slides is seen as good enough.
 - It would be good to have a list of the slides as thumbnails rather than only titles to choose from, as people do not always title their slides properly and with a little picture it is easier to identify particular slides. This list should be generated automatically.
 - The list, combined with the mentioned buttons to annotate, then should also be made searchable within a list of events on a higher level.
 - After a brief discussion it was decided that the given functionality and controls on the shown page would be sufficient right now, but that forward/fast forward and rewind/fast rewind buttons maybe an improvement “good to have in case”.
 - Other points discussed very briefly, but without further implications at this point circled about the transition of slides (technically) and about if it would be feasible to let users edit buttons.
- [39] Furthermore users and developers will additionally consider other layouts of the interface in the ongoing process.
- [40] A collaboration partner of the scientific users in NY is said to be very interested in having high quality video, but it is not totally clear if this refers to the resolution as such or the reduction of artefacts. The users in the workshop could imagine that the most important thing would be to have a larger AG image of the video in proper quality – but bandwidth could be a problem in achieving this.
- [41] The last point refers to the general issue of making interfaces accessible for disabled (blind) users, which could be an very interesting thing in the future in using conference information and annotations represented in different ways to this end.

Appendix D – Full User Day Notes: Intute User Group

Not only user requirements and needs, also ideas and responses of the developers are included in these notes.

[42] Intute thinks of using the recording of conference events as a service for academia. That way they would like to expand the “fairly simple database” linking to the conference/event webpages, providing basic information like organiser, dates etc., which they run currently. At the moment Intute has to enter all the data themselves, in the future they would like the users doing this.

[43] Regarding simple event data the place of storing the data is considered to be flexible, e.g. by using a central repository to which other data can be linked and annotated. In general the question of preservation of data is an essential one. Also functionalities of user registration, authentication and role based access are important. Subject categories for events should be mapped (e.g. base keywords, other categories) reflecting the Intute subject hierarchy. In this context the PolicyGrid natural language tool (“What You See Is What You Meant”) might help simplifying data entries, the CREW developers will have a look at its usefulness.

[44] It became obvious in the meeting that the concrete aims of the collaboration between the CREW project and Intute had to be discussed further. Intute could imagine having a kind of distributed service concerning the recordings as mentioned before and having CREW developed some simple national search service. At the same time it has to be kept in mind that the outcome of CREW will be open source software and not a service itself.

[45] Currently Intute is not hosting a real repository or own services, but use an internet resource catalogue, store training tutorials and harvest repository metadata. This in the end means that Intute does not favour hosting AG recordings on an own server (maybe “post project” a permanent repository could get feasible) and merely would link to those files. A prerequisite for this is to provide them with the respective information (links/metadata). It was seen as good idea to trail some recording of events (“recording stuff, tying things out”, maybe at the Research Methods Festival) to find out about how to proceed with this (addressed to Intute users: “here is the link how to do it, where to store data”).

[46] The important issues for Intute in the three areas of having

- a) a national service,
- b) a repository and
- c) recordings

are good quality of the material available on websites and tutorials how to use other internet resources. Therefore recording of events is very valuable including the feature to browse these events, i.e. browsing the general content.

[47] An idea which came up was to create support materials as an output, i.e. to “produce a nice guide to people running conferences with CREW”. This also would illustrate to JISC what can be done and where the benefits lie. An

additional question in this context is how Intute could help with their expertise in creating such a guide.

[48] A distributed Intute server could be set up within the CREW architecture for their users. For Intute it would be fine to store recordings there, but the task to make these searchable is seen as an overhead better accomplished by CREW.

[49] The recording of events could be done in two ways in CREW: a) recording via a stand alone box (with all hardware included which would cost about £500) or b) recording via a laptop with a network connection and the software (with no additional costs). In this context Intute stresses the importance of being “handheld through the recording process”, i.e. to have a learning process how to do a recording. This should be tried out first before making further decisions.

[50] Furthermore the project could be used to produce online training materials.

→ Intute is more interested in the output than in the actual event and the demand for training events has dropped. So one idea to make use of CREW would be to record an event with the aim of using it as a research resource.

→ Another idea would be to provide training to a national audience in having Intute staff talks about different Intute services, making them available online in the UK. For CREW this is seen as not the primary theme of the project but still could be ok to do as a different use case than expected. It has to be checked if there still is mutual benefit in doing this: There would be no benefit in just reproducing what Camtasia can do anyway with the important live event character of the process missing. So maybe the recording of a training day itself could be worthwhile. The **role of Intute in CREW** therefore could be more one of a disseminator. As Intute is interested in the search and repository part, it has to be thought of if and how the event bit will still fit, i.e. how CREW can be used for Intute considering events.

a) A good idea could be to record the Intute “Action Talks” to Oxford students on specific subjects. There is not very much material connected with these events to link to (and making it searchable) and the talks address a restricted kind of invited audience, but nevertheless these could be recorded and be made available to the public.

b) Internal staff conferences could be a good event to record (but the next one in November comes too early to do this).

[51] The following issues have been discussed short and concisely in the last part of the presentation of what CREW can do:

– Annotating recordings: In CREW it is thought of using annotations as markers to find or be able to jump to certain points in a recording or to annotate content in form of comments or weblinks. The idea coming up here was having categories of annotations to use. Having automated annotations was seen as valuable if it works and is feasible to develop. To apply this also to podcasts and/or existing videos would probably be doable for CREW, but it has to be seen, if it is sensible to do this within the project in the end.

– The usefulness of being able to edit recordings is something for Intute to explore at a later stage of the project.

– The functionality of searching for events is seen as applying probably more to the centralised metadata model.

– Regarding event filters the category of organisation would be a crucial one for

Intute, e.g. the subsections of the British Sociological Association.

– The important finding from showing Iugo was that it is fine to have metadata stored on another server than the other content.

[52] At the end of the meeting a demo of the replay events client of the supported IHS event was shown in combination with Iugo screenshots of the search functionality. The feedback to this was very positive and the application was considered to be “very useful” and “pretty cool”. There was the “impression, that this will have an effect on research events” or even will be “changing research practice”, and also that “more and more people might get used to virtual events”.

Appendix E – Highlights of the user requirements posted on the project's Wiki

User Requirements

This page highlights the essential user requirements elicited from the three User Days held between August and October 2007 with our user groups (IHS, Scientific Visualization User Group, Intute). The results are also available in a full user requirements report.

The intention is to discuss and prioritise the requirements towards the further development in CREW.

Common Requirements

1) General requirements

There seems to be a general agreement (and the development is already building on this) towards implementing CREW

- within a portal environment (using portlets),
- using Flash as a standard.

2) Recording events

- portable recording using (no favour to one of the solutions at this point)
 - i. a preconfigured hardware box
 - ii. CREW software on any laptop
- a guide to help to the recording process
- good quality recordings
- storage of recordings
 - i. not on same server as metadata
 - ii. server maybe institutional or CREW, but secure, accessible and sustainable (period of time for storing data)
 - iii. easy linkable
 - iv. made searchable
 - v. institutional politics have to be checked (data protection etc. - maybe different ways of doing this for each user group)

3) Annotating recordings/events

- integrated discussion board or blog
- annotate questions during or after the recording
 - i. via interface
 - ii. via email

- semi-automated as well as manual annotation is seen as beneficial (implement both!?)
- simple event metadata, like keywords, e.g. date, author, title
 - i. could be put in by the actual presenter within the relevant slides beforehand
 - ii. entering process should be very easy and quick to accomplish
- special metadata, like abstracts, links to resources, Q&A, highlights of text (check legal, privacy and IPR)
- linking from the outside to annotations within the recorded event, i.e. being able to reference to a point in a recording (from a paper etc.) and jump back to it
- access rights or mechanisms to moderate annotations
- "best of" of entered annotations, e.g. during conferences
- buttons to enter annotations could make the process faster and easier
- categories of annotations could be used
- storage of metadata
 - i. not on same server as metadata
 - ii. server maybe institutional or CREW, but secure, accessible and sustainable (period of time for storing data)
 - iii. easy linkable
 - iv. made searchable
 - v. institutional politics have to be checked (data protection etc. - maybe different ways of doing this for each user group)

4) Editing recordings

- cutting the video/presentation
- composing the output with different angles/streams
- interface has to be very/easy usable
- import-export function
- functionality to improve bad sound, filter background noise and brighten the picture: not of high relevance

5) Searching events

- searchable database/repository
- in recorded presentations the list of slide metadata/thumbnails could be made searchable
- requirements under metadata (see 3) above) are a prerequisite

6) Replaying events

- examples for the layout of the interface are considered to be a good basis (CREW prototype is a good start; furthermore users and developers will consider other layouts of the interface in the ongoing process)

- integrated discussion board or blog
- a function to allow people add more questions within the interface
 - i. online and in general synchronously
 - ii. via email and in general asynchronously
- switching between the views of the interface
 - i. rather manually
 - ii. simple to use
- having a list of the slides as thumbnails (automatically generated)
- buttons for annotation could be implemented, using about six or seven small and recognisable icons
- forward/fast-forward and rewind/fast-rewind buttons

7) Miscellaneous

- Access rights and authentication
 - i. integration in existing environments/networks/intranets
 - ii. roles
 - iii. single sign-on
 - iv. other mechanisms for confidential content
- Tools, applications and services already in use
 - i. WebCT
 - ii. Camtasia
 - iii. discussion board inclusive archive (non-searchable)
 - iv. AtlasTI
 - v. (commercial) conference organising software (CREW: Open Conferencing System)
 - vi. internet resource catalogue
 - vii. stored clips (presentations, tutorials, ..)
 - viii. external editing by professionals (e.g. e-dance project)

Other notable issues

1) IHS

- information preview feature
- group joining button
- notification function (to add information to own slides or to an event)
- implementing video responses/contributions from students
- using a server in Nursing for storage?

2) Scientific Visualization users

- support for organising events (conferences)
 - i. support reviewing process with automatic reminders

- ii. scoring mechanism (average scores)
- iii. highlights of best (and worst..!?) paper
- iv. submission feature
- v. digital library using Dublin Core
- vi. signing-up function
- vii. integration in one database (may not be feasible for CREW)
- a centralised server could be useful (problems with too little disc space in one of the subgroups; Eurographics server hosted in Vienna; Eurographics UK server hosted in Bangor)

3) Intute

- mapping of Intute's event subject areas (reflecting their institutional subject hierarchy)
- use of "Policy Grid" tool WYSIWYM (to explore; link to [demo](#))
- semi-automated annotations also for podcasts and existing videos
- "organisation" as essential event filter category
- distributed server could be set up by Intute within CREW architecture to store recordings (check)

Appendix F – Use Cases and Usage Scenarios put up on the project’s Wiki

Use Cases

- Administrator
 - Needs to set up portlet and provide sensible defaults for users
 - Needs to add users to usergroups
- Event organizer
 - Want to make sure that event organization tool interfaces to portlet event database
 - Want to make sure recording of talks is organized
- Event administrator
 - Want to make sure portlet event database is updated
- Event program committee member (paper reviewer)
 - Want to find out the standard of papers from previous events
 - Want to find out if there have been talks to this specific topic already
- Conference speaker
 - Want to find out more about previous events
 - Want to know level and size of a conference
 - Find out if there are similar topics at a conference
 - Has to give a talk at the same as some other interesting talk is happening
- Conference attendee
 - Has heard an interesting talk and tries to find other papers/talks from this speaker
 - Has heard an interesting talk and gives colleagues a reference to the recording/paper
 - Went to one parallel session but was also interested in another talk at the same time
- Event recorder
 - Has to record every talk and has to provide meta-data
- Interested outsider
 - Someone is interested in a special event, topic, or speaker and tries to find information/talks

CREW Usage Scenarios

The following are examples of uses in CREW:

Conference Organisation and Recording

In this scenario, a conference organiser uses CREW to organise a conference. All details of the event are available, including metadata about the presentations to be

given. CREW is then used to record each presentation. At the start of the session, the user operating the recorder selects the appropriate presentation from a list downloaded from the server. The operator then simply selects the record button and the recording is made. When the operator clicks on the stop button, the recorded data is uploaded to the server and the Research Events Application is informed that there is now a multimedia recording of the event. The next time a user accesses the REA and looks that this presentation, they are given the option to replay the recording.

Recording without Prior Organisation

In this scenario, just before the presentation is to take place, the decision is made to record it. The user enters the required information to make the recording and any additional metadata and then presses the record button. During the recording, the user can edit the metadata. When the user presses the stop button, they are given the option of finalising the metadata and then this is uploaded to the server, along with the recorded data. The next time that a user accesses the REA, the presentation appears as a new event, with all the associated metadata, and the user is given the option to replay the recording.

Web Login and Download/Replay of a session via Browser

Someone could not attend a meeting and wants to download/replay the session afterwards using a browser. The user goes to the web portal/website and logs on to the secured internal area of the site. Then she enters the 'recorded sessions' page and selects the meeting identifiable by name, date and description (metadata). There are links to download or replay the file. It is downloadable as avi-movie or replayable with Flash or Windows Media Video. The user downloads the file to her laptop to watch it later. Then she logs out or simply closes the browser. She watches the file later with a Media Player.

Annotating/editing offline and uploading the session file

A user wants to add some remarks to an AG session he participated in. The file was made accessible after the meeting for the participants and he has already downloaded it in a common playable media format. As he is offline now he opens the file with the annotating tool and begins to annotate it and to amend two existing annotations. After he is finished he saves the file with the changes and closes the annotation tool. The next time he is online he browses to the web portal/website, logs on and clicks the folder icon with his session. He selects the file by ticking a box and in a pull-down menu he selects 'upload new annotated version'. He is shown a mask to enter information, i.e. choosing the local file and entering additional or changing given metadata. Then he clicks the 'upload' button and the new file is uploaded (synchronised?) and versioned with the next version number. The older version(s) is still there and can be accessed by clicking on the version history icon.

--> alternative one: the file can also be edited

--> alternative two: the file is not uploaded/downloaded via browser but via the annotating/editing tool itself

Searching and Replaying of an AG lecture

After having attended a lecture of a scientist at a conference, a user is interested in finding other lectures, publications and information about this scientist. The user browses to google and enters the relevant name and/or the conference. Under the first hits she finds the CREW portal and because of the meaningful description goes to it. On the CREW portal she finds a scalable search function and searches for the name of the scientist with the keyword lecture. She gets a sortable list, sorts it after date and clicks the most recent lecture entry, which also shows a streaming media symbol. The entry is shown with more metadata and the information, that the lecture can be seen or heard via streaming media. As she does not need the picture, she decides not to start the video/audio file but the only-audio file. A new page or window opens with controls to stop, pause and play and she plays the file and listens to it. Afterwards she closes this window and goes back to the CREW site to also use the search to easily find publications of the scientist which she downloads.

Editing an AG file to FLASH (see also interface .ppt)

The user wants to convert an AG file into FLASH media. Using the AG-to-Flash tool he opens an AG session file. The window shows the recorded AG session with all its videos, a Power Point presentation and the Screen Streamer control. He chooses 'Select stream(s)' and clicks on the presentation window and then selects one of the videos. The windows are marked with #1 and #2 and the border is highlighted, both in red. Using 'FLASH single' from the same 'Edit' pull down menu as before the AG session window becomes smaller and gets into the background while the FLASH recording window opens showing the first selected AG window #1. Beneath the window 'Stop', 'Pause' and 'Record' buttons appear. By clicking the 'Record' button or choosing 'Record FLASH' from the 'File' pull down menu the conversion into FLASH media begins. By clicking the 'Pause' button and then selecting 'FLASH split' the recording window now shows the two AG session windows #1 and #2 chosen before. The 'Record' button adds this new view to the previous recording. Because he wants to complete the recording by showing the discussion of the session after the presentation he clicks pause, goes to 'Select stream(s)' again. The AG session comes to the foreground again and he un-clicks the presentation, selecting a second video. Clicking record again (if necessary by using the 'View' pull down menu) the conversion continues again, this time adding two videos in the split screen. By clicking 'Stop' a 'Save as..' dialog opens, the users types in the file name and saves his recording as FLASH media file.

--> additionally: playing the AG streams and stopping/pausing them at a certain point, beginning the process of converting FLASH from this point;