Holding a Conference Online and Live due to Covid-19

Experiences and Lessons Learned from EDBT / ICDT 2020

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ABSTRACT

The joint EDBT/ICDT conference (International Conference on Extending Database Technology / International Conference on Database Theory) is a well established conference series on data management, with annual meetings in the second half of March that attract 250 to 300 delegates. Three weeks before EDBT/ICDT 2020 was planned to take place in Copenhagen, the rapidly developing Covid-19 pandemic led to the decision to cancel the face-to-face event. In the interest of the research community, it was decided to move the conference online while trying to preserve as much of the real-life experience as possible. As far as we know, we are one of the first conferences that moved to a fully synchronous online experience due to the COVID-19 outbreak. By fully synchronous, we mean that participants jointly listened to presentations, had live Q&A, and attended other live events associated with the conference. In this report, we share our decisions, experiences, and lessons learned.

1. INTRODUCTION

Three weeks before EDBT/ICDT 2020 was planned to take place in Copenhagen, the rapidly developing Covid-19 pandemic reached a state in which it became clear that the face-to-face event had to be canceled. We, the organizers, then decided to move the conference online while trying to preserve as much of the real-life experience as possible. Given the very short notice, we had to be pragmatic and could not prepare the online event as carefully as we would have done otherwise. In fact, we considered the whole thing an interesting experiment suggested by the circumstances, with potentially important lessons to be learned for the community and beyond. We were delighted to receive significant support for our decision from the attendees and keynote speakers and by the community spirit that developed in its course. The online event ran smoothly and was much more enjoyable and successful than we had expected. We received a lot of positive feedback, both informally and in the survey that we sent to our participants after the conference. The purpose of this document is to share our experience and the lessons learned, so that other conference organizers facing a similar situation can benefit from it.

Related Work. EDBT/ICDT 2020 was one of the first Computer Science conferences to shift to an online mode and the first Data Management conference to do so. Our experience was quickly shared with several other conferences that contacted us (among them SIGMOD/PODS 2020, ECAI 2020, and KR 2020). A pointer to our April 2020 *Communication of the ACM* blog article[1] has been included in the ACM Virtual Conferences Report.[2] The only report available when we published the CACM blog article was the report from ASPLOS 2020.[3] In contrast to ASPLOS, which was asynchronous (participants watching the online videos at any time), EDBT/ICDT 2020 was one of the first fully synchronous online conferences, which means: all sessions (keynotes, research sessions, demo sessions, short paper sessions, tutorials and receptions) were jointly attended by the participants at the same time and the schedule was similar to that of a face-to-face conference. This general setup has since also been used by other conferences, such as for instance VLDB 2020. In fact, many conferences have moved

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[1]https://cacm.acm.org/blogs/blog-cacm/244379-holding-a-conference-online-and-live-due-to-covid-19/fulltext
[2]https://docs.google.com/document/d/1XsGDOHzBhY9S-D4Smp2p9JgqdI0umZ0IZVi7Nhm0gYg/
[3]https://cacm.acm.org/blogs/blog-cacm/243882-the-asplos-2020-online-conference-experience/fulltext

online now and reports with useful guidance for different communities are becoming available. A list is maintained in the ACM Virtual Conferences Report.

2. DECISIONS

We go over a list of questions that other conference organizers are likely to face when considering a move online, share our decisions, describe how we implemented them in practice, and what we think about the outcome in retrospect.

Should the conference be synchronous (i.e., live) or asynchronous? We decided to run the event in a fully live mode to simulate a face-to-face event as much as possible. Participants jointly listened to presentations, had live Q&A, and attended other live events associated with the conference. This was achieved by combining the Zoom video conference software with the Slack communication platform. Sessions took place on the dates originally planned for the face-to-face event and we used one Zoom meeting for each of the planned sessions, with a password provided to delegates. Holding an online conference asynchronously, in contrast, could mean putting videos of the presentations online to be watched by participants at the time that fits them best and then having synchronous Q&A via Zoom. This mode was adapted, for example, by the joint 2020 editions of LICS and ICALP. Of course, one could also be fully asynchronous and also have Q&A in Slack or a similar tool that does not require participants to be online at the same time. This mode was used by ASPLOS 2020.

In retrospect, we are satisfied with choosing the synchronous approach: interaction and discussion are key features of conferences and although these cannot all be fully preserved online, we managed to preserve them to a reasonable extent. Indeed, interesting discussions emerged after many presentations and, to a lesser extent, also in Slack. With more time to prepare and better tool support, we believe that even more interaction can be fostered.

How do we deal with time differences? It seems difficult to deal with time differences when participants are evenly distributed around the globe. In fact, participants whose time zone is not synchronized with the conference schedule might feel significantly detached and handicapped. In EDBT/ICDT, however, the bulk of participants are from Europe, followed by North and South America, and Asia. To accommodate the relevant time zones, we opted for shorter days, about 5 to 6.5 hours, rather than the expected length (8-9 hours) in a face-to-face meeting. The days were centered around noon CET, which allowed attendees from other continents to attend most sessions without major hassles. For some talks, we

made adjustments to the schedule in order to let the speaker present live, e.g. from North America. For example, keynote talks took place at different times on different days as keynote speakers were from different time zones.

In the future, one could try to adapt the program even more carefully to speakers' time zones. In a Eurocentric conference such as EDBT/ICDT, centering around noon CET is a natural thing to do, but speakers from remote time zones could still not attend early and late sessions. This could be alleviated by having even shorter conference days, at the expense of stretching the conference over a longer time period. Apart from careful scheduling, an important support for participants from 'remote timezones' is to record all presentations and to promptly make them available for asychnronous viewing.

How long should sessions and presentations be? Research sessions generally spanned an hour with the net talk length for each paper being 10 and 12 minutes for EDBT and ICDT, respectively. In comparison, EDBT and ICDT allot 20 and 25 minutes for presentations in face-to-face conferences. The main reason for having shorter talks was that we expected longer online sessions to be very tiring for attendees. Another reason is that shorter talks help in achieving shorter conference days to deal with time zone issues as discussed above.

In retrospect, we were happy with the shorter presentations and the sessions didn't seem too long. This impression was confirmed by the participants in our survey (Section 3).

Should talks be recorded or given live? We opted for pre-recorded talks that we then streamed live from a central place with a high capacity internet connection. Our aim was to minimize the probability of technical problems that might result from participants having differing internet connection quality and not being sufficiently familiar with the Zoom software. Some presentations, including 2 keynotes and 1 tutorial were presented live. We suggested using Zoom to record videos, with the speaker visible, which also helped to get participants acquainted with Zoom. We considered using Microsoft CMT for video upload, but ended up using a simple sFTP solution as CMT has a file size limit of 100MB. We checked the quality of the videos beforehand. After the conference, we made the videos (for which we got the author's permission) publicly available on the proceedings web sites.

Our approach mostly worked well, with many good quality videos being submitted. On the one hand, pre-recording talks seemed to result in presentations that were well planned, to the point, and with almost no slips of the tongue.

Therefore, sessions are less likely to run over time. On the other hand, the talks tended to be more monotonous and less dynamic. Since EDBT/ICDT 2020 took place, many online conferences have decided to use prerecorded talks. Some others, such as KR 2020, have dared to mostly have live streamed presentations. While the number of hickups increased, also this model has been proved to be entirely feasible. There is thus no clear answer on whether live presentations or pre-recorded talks are to be preferred, since they both have advantages and disadvantages. Live presentations are usually better received and allow more interaction with the audience especially if the speaker decides to take questions at regular intervals. The latter cannot be easily done with pre-recorded videos unless they are divided into smaller chunks, which we highly recommend for longer talks.

Pre-recorded presentations on the other hand have the advantage that they can in principle be made available *before* the conference.[4] This gives delegates the opportunity to better prepare for the conference and have more productive discussions.

Independent of whether one wants to pre-record talks or not, we feel that making videos of the talks available after the conference is very valuable for the scientific community. This includes recordings of live presentations and the Q&A afterwards.

How can questions be managed? Zoom has two modes, the *meeting* mode and the *webinar* mode. In the beginning of the conference, we used the webinar mode. This mode has a text-based Q&A facility that allows participants to type their questions and to upvote questions asked by other participants. We then had the people with the most popular questions ask them face-to-face. Some participants asked questions in the Zoom chat, but this rendered the chat (which sometimes uses pop-ups) distracting during presentations. Especially when talks are very short, the smallest distraction can bring listeners off-track. We also generated one Slack channel per session, where question and discussion could continue "offline". Slack was a welcome technological addition, which speakers also used to post their slides after the talk.

The Q&A facility in Zoom is quite good in principle, but it is only available in webinar mode. For smaller, parallel sessions we preferred a more informal approach based on Zoom's meeting mode, which we switched to on the second day. In that mode, participants can see a list of the names of the other participants and they can activate their sound and video (but there is still a meeting host who can mute everyone, e.g. when a talk starts).

In meeting mode, we simply asked participants to switch on their camera and raise their hand to indicate that they want to ask a question, as in a real conference. We encouraged people to also switch on their camera after each talk even if they did not want to ask a question, the aim being to create a community feeling, which was quite successful. Many people also switched on their cameras at the beginning and end of each session. We still used webinar mode for larger audiences, such as the keynotes.

Retrospectively, we strongly prefer meeting mode and an informal approach to Q&A whenever the audience is of moderate size, say up to 50 participants. This brought much more interaction. Interestingly, quite intense discussions emerged after some talks, probably even more intense than in a face-to-face meeting. This might be due to the group feeling created by Zoom meeting mode when several people have switched on their camera, whereas in a face-to-face event, the few people who are interested in an in-depth discussion of a presentation might sit far apart from each other, with much less of a group feeling.

How can sessions be chaired? We started with only a Zoom host and no session chair. It turned out, however, that the single host is rather busy with running the session, playing the videos, and monitoring the chat. As the event went by, the technology was holding up, and internet connections seemed to be sufficiently stable, session chairs were introduced to manage discussions while a separate Zoom host was technically managing the Zoom session, and this was felt to be successful.

Can there be a social programme? The programme only had very short coffee breaks of 15 minutes, to make the conference days shorter. There was no joint activity during the coffee breaks apart from using the Slack channels. We held two "Bring your own beer" receptions, one on the opening evening of ICDT, and one on the opening evening of EDBT, where evening refers to the CET time zone. In the receptions, people arrived in an online session and were assigned at random to Zoom breakout groups, to allow smaller group interactions.

There obviously could not be a joint conference dinner. Applying a best-effort principle, we published recipes for home cooking on our web page that are relatively easy to make and that use ingredients that we believed would be available to most of our delegates, even in the early Covid-19 lockdown phase.

Retrospectively, we would suggest planning longer coffee breaks to make the conference days less exhausting. The receptions seemed to work well, given the circumstances, and this was also confirmed in our survey (Section 3). There might well be scope for having more sessions with

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[4]Given the deadline-driven nature of our research community, it will require extra organizational efforts to bring authors to finish the video and its publication paperwork early.

opportunities for extended, informal, interactions. It might be interesting to use other, technically more sophisticated tools for this, such as Online Town or Gather Town. The latter has been used by SIGMOD/PODS 2020 and VLDB 2020 for social events, such as parties during the conference or simply to foster networking and reproduce the hallway chat.

How should short/poster papers be handled? We decided to waive short advert videos, and use Slack for asynchronous discussions. We didn't have a clear idea how to run more interactive sessions that would simulate a poster session, so the short paper session turned into a collection of short videos (26 in all) back-to-back with no intermediate Q&A. The session was well attended, with over 50 people there throughout. However, it was hard work to sit through so many, diverse, videos, and the Slack channel was not especially busy.

Retrospectively, we would be tempted to simulate a poster session in a more realistic way to enable deeper interactions. One way of doing this could be to have each poster participant create their own Zoom meeting from within Slack such that participants can use Slack to easily switch between the rooms. Another option is to use Gather Town or a similar tool.

What should be the approach to demos? We adopted the conference model of videos of the demo in 15 minute slots. Each demo was a 10 minute video, with 5 minutes for questions. In retrospect, the videos were alright, but there wasn't the chance for extended discussions that are associated with demo sessions. Given that technology and internet connections were more stable than we expected, we would be tempted to try having each demo participant create their own Zoom meeting from within Slack such that participants can use Slack to easily switch between the rooms. Again, this more closely reflects the experience at a face-to-face demo session.

What should be the approach to keynotes and tutorials? Keynotes and tutorials were in 1-hour slots, some of them with gaps every 15 minutes for questions. A complete hour of presenting seemed rather long. Furthermore, in an online event everyone feels close to the presenter, so some people are more inclined to ask questions. As such, one may want to plan more discussion time.

Two keynotes used videos, two were presented live. Concerning tutorials, three of them used pre-recorded videos, one was presented live. The division of talks into parts was felt to have been a success for both keynotes and tutorials in order to let people chime in with questions.

What do we do if the meeting host has technical problems? Before the conference, we tested how the software platform reacts if the meeting host drops out (e.g. by losing the internet connection). In our case, we observed that the meeting can still continue, but the host's video freezes. In order to avoid major technical problems, we reached out to back-up hosts for each session, who received a crash course on how to handle the software platform about one week before the conference. We also wrote a general guide for session hosts on how to set up all the parameters to make the sessions work the way we wanted them to. This technical aspect of running a conference certainly requires some practice and we highly recommend thorough preparation.

3. ATTENDEE FEEDBACK SURVEY

We ran a feedback survey after the conference, which was answered by 114 participants (over 42% of the registered participants). Due to space constraints, we cannot include the results of the survey here, but they are available in the full version of our report [Bonifati et al. 2020].

An important take-away for us as organizers was that, although the participants found the online experience indeed somewhat less than the physical experience, it was better than they expected from a virtual conference. Furthermore, we need to keep in mind that this edition was planned and organized in just three weeks, without any external guidelines. There is room for improvement.

Another important take-away was in terms of CO_2 reduction of conferences. There was more support from the community than we anticipated in favor of virtualizing (or partly virtualizing) conferences to reduce CO_2 emissions. In particular, the broader research community was very supportive of hybrid (both physical and virtual) conferences in order to reduce CO_2 footprint (72% of respondents). Over 50% of the respondents supported the idea of alternating physical and virtual conferences to reduce CO_2 emission.

4. CONCLUSIONS AND ADVICE FOR FUTURE EVENTS

First-time organization of an online conference is a complicated matter, especially under tight time constraints. In our case, a great effort of coordination was needed and a task force (formed by the people co-authoring this report) made the executive decisions and carried out the required work. On the other hand, once the executive decisions have been made, the organizational amount of work is reasonable. We therefore encourage other conferences to try out the transition to an on-line mode in the short term. In the medium to long term, on-line and/or hybrid conferences may help the community reduce its

CO2 footprint.

With a long-standing experience and within a large time window, things can be arranged more carefully. For instance, one could think about the following issues:

- Carefully choosing the underlying technological platforms on which the conference has to be hosted. People are aware of security issues around Zoom but there is no available equivalent open-source tool that can host the same number of participants. Since a high number of participants is needed for plenary sessions, hopefully such open-source tools will be available in the long run. Dedicated platforms for scientific conferences are urgently needed in that respect.

- Several sessions that require tighter interactions, such as poster and demonstration sessions, need to be planned carefully. For instance, for demonstrations and posters, one could rely on the breakout rooms in Zoom to let people gather around a demo booth or a poster (with a limited number of participants). If the poster or the demonstrated tool can be shared with the participants beforehand, the sessions can be also prepared in advance and be more fluent and interactive. Other sophisticated solutions, such as virtual reality and avatar-based video and chat tools, may be needed in the long run. These tools would help reproducing the physical interactions needed for poster and demo sessions along with the serendipity of meeting people with similar interests at these sessions. Tools like Online Town or Gather Town already take steps in the right direction, but still need to improve to be able to achieve the same level of effectiveness as the real-life experience of a demo or poster session. For instance, physically walking through a room with poster or demo stands gives visitors a very time-efficient overview of the material being presented, which is not yet being matched by virtual tools.

- Networking would greatly benefit from having dedicated online sessions that are scheduled alongside the normal scientific sessions of the conference. Networking is truly the pitfall of an online event and this is especially deleterious for the junior members of our community. An idea would be to prepare networking well in advance and to pin interesting topics or discussions with colleagues of other universities and research teams (a sort of Pinterest specialized for scientific conferences).

Finally, we are pleased to share our experience at online EDBT/ICDT 2020 and eager to learn more about virtual scientific events in the near future. During the climate change session, which has been hosted by the conference this year, we had a lively and stimulating discussion about adopting CO2 plans for conferences. One of the options there is to allow alternate virtual and in-person events or hybrid (simultaneously virtual and in-person) events and thus contribute to reducing the environmental footprint of scientific conferences. Our on-line survey gives us two hopeful signs. First, there is a significant support of the community for going on-line in order to reduce CO2 footprint, and second, attendees clearly found this year's conference better than what they expected a virtual conference to be like.

In the spirit of moving open science and open access forward, the videos of the conference talks have been made accessible directly from the proceedings.[5]

5. REFERENCES

[Bonifati et al. 2020] Angela Bonifati, Giovanna Guerrini, Carsten Lutz, Wim Martens, Lara Mazilu, Norman W. Paton, Marcos Antonio Vaz Salles, Marc H. Scholl, and Yongluan Zhou. 2020. Holding a Conference Online and Live due to COVID-19. *CoRR* abs/2004.07668 (2020).

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[5]The EDBT 2020 proceedings are available at https://openproceedings.org/html/pages/2020_edbt.html and the ICDT 2020 proceedings at https://www.dagstuhl.de/dagpub/978-3-95977-139-9