

Live and growing

Just as traditional 'broadcast television' seems to be an area in decline as a source of high-quality work for camera crew, the world of 'live events' has stepped up as a great provider of interesting and often very challenging work, both for young camera operators just starting out and for the much more experienced. This is the first of three articles in this issue looking at the important growth area of 'corporate' work.

One company that has been honing this particular area of expertise for more than 35 years now is communications agency drp, who have produced innovative live corporate events around the world for a vast range of clients including Office Depot, Bechtel, Thomas Cook, Wickes and JCB. With a greater focus than ever on audience engagement, as well as the usual corporate expectations of return on investment, how do companies such as drp ensure high quality multi-camera experiences at these live events?

Live events – no two are the same

In a typical year (if such a thing exists!) drp will produce an average of 40 large-scale live events, as well as a whole range of smaller webcasts/video conferencing events. Each of these will have very specific needs in terms of live camera support. We will typically start the planning for most large events around 9 months before the delivery date. An initial project team, comprising the project director, production manager, video producer and video technical manager, will meet and

run through the initial creative ideas and highlight anything that needs particular support. The video team then provides a detailed proposal to ensure that the budget can be secured to enable us to realise the creative idea. The production manager will perform an initial site visit to identify potential camera positions and ensure that these will be suitable given the large amount of other equipment, such as projection, line array, lighting, set and, of course, audience seating.

Typical live conference camera setup

One of our events delivered last year, which was fairly typical, involved 12 cameras. Five of these were locked into the main system providing live camera to various screens. We tend to use Sony HXC camera channels (over triax/fibre) for all the wired cameras (normally two to four of them). These positions will have Canon HJ40x14B lenses on the 'main' cameras and HJ11ex4.3 wide angles on any jib or remote positions. The cameras are mixed and directed live by drp with typical engineering – similar to a broadcast operation. The programme mix (PGM) output and all ISOs are recorded for post-event use and archive. All the recording is handled by Blackmagic or AJA SSD recorders, normally in ProRes422HQ.

The other live cameras utilise licensed microwave radio links to enable the operators to move around safely in the audience. These are normally Sony PMW-500s or PDW-800s with Canon HJ11ex4.3 wide-angle lenses. These are balanced with the other cameras via a remote control panel (RCP) as one will normally be on a Steadicam rig and another handheld. It is always good to have assistants with these cameras, not only to help the operator, but also because the microwave links will require a battery change every 20 to 30 minutes.

A common theme in almost all live events is the desire to engage with the audience. These roving cameras are vital, allowing us to promote interactivity as well as to highlight award winners or other key delegates.

A good flexible rig is vital

Another set of cameras (usually two to four of these) with solo operators are tasked with collecting GVs and vox pops of the entire event – to provide the delegates' perspective. At the moment, we tend to favour either Canon C300s/C500s with a 24–105mm and/or 70–200mm lens for this, or perhaps a Sony FS7 if slow-motion shots are required. Our camera operators would ideally like to use fixed primes but the practicality of getting the shots required in a live environment, with no opportunity for a second take, means the flexibility of zooms is essential.

All the operators emphasise that a good rig is vital as almost all the footage will be handheld. We try to keep the rig as lightweight as possible as these live event sessions tend to be quite long, but we always have a top-light onboard these cameras as we can never be sure of the lighting conditions for the extra shots. For the vox pops, a producer will accompany each camera operator to direct the questions and ensure we can control the narrative through the clips we are recording.

All this footage is used in post-event cascade content, which is edited straight after the event in our offices in London and the Midlands, but it has more immediate use as well as it is edited on location at the event to produce a three-minute closing video and various vox pop edits focusing on different topics.

On-site edits

We will usually have two or three editors on location using an Avid multi-client workflow with a Unity/ISIS infrastructure. We have used up to four Avid suites, with editors and directors able to review all the rushes in real time and to share content as and when it comes back from the crews – all while the event is taking place. To provide content from the main stage, we add an extra suite that captures the main PGM mix of the live cameras and the editors can grab GVs or specific sound bites from this at any time during the event.

This workflow has proved to be very effective as we can show the producers/directors/camera ops examples of rushes prior to the filming, which allows us to bring the brief to life, ensuring a high level of consistency across the different camera teams.

Client involvement

On the shoot described, another three cameras were set up in a small makeshift studio space overlooking the exhibition area. A setup like this can be used to capture interviews with a senior team from the client and may be conducted by colleagues from within the business. All this output is used entirely in a post-event capacity. For this we might use Sony PMW-500s with Canon HJ22s with a Canon HJ11 on the wider shot, and perhaps a small track and dolly to provide a little movement. This setup would have a separate sound mixer, producer, director and assistants.

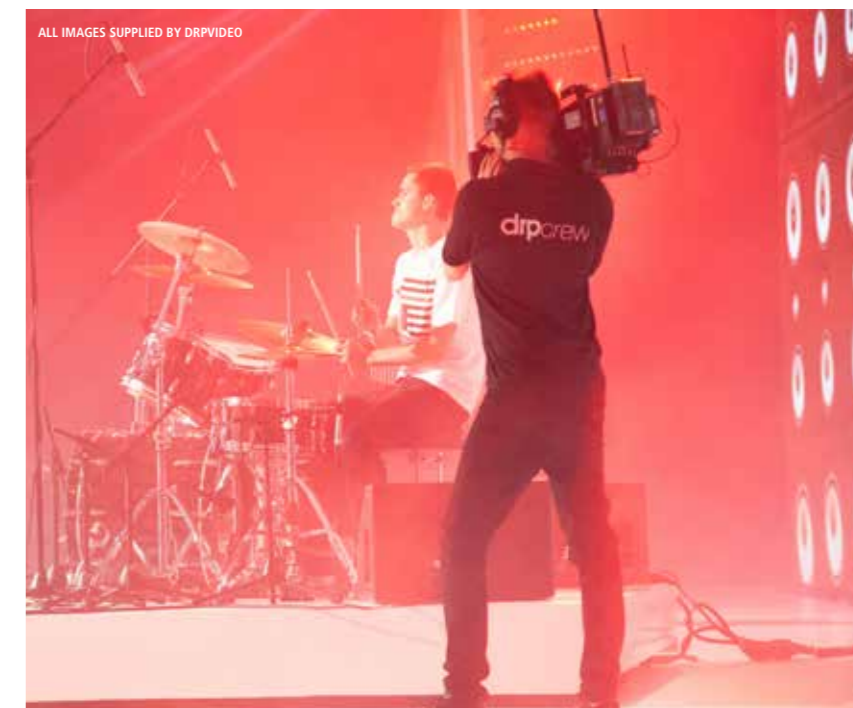
Extra cameras

We have used a variety of other cameras and rigs on similar events but practicality is always a key consideration on live

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Capturing footage at a live event can always be challenging. The tight turn around and no opportunity for retakes keeps me on my toes but it's always rewarding seeing my efforts on the big screen.

drp camera operator



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events. For example, we have significantly reduced the use of jibs and cranes due to advances in projection technology that now enable very large multi-HD projection areas to be used. These look fantastic and have a real impact but they do require a large throw from the projectors meaning that jibs or cranes simply get in the way.



Mini-cameras are always great for extra cutaways and it is common for us to use several GoPros attached to various points of the set as well as anything that will be flown into or out of the show. When it comes to doing this live, we have used cameras like the Sony HXR-MC1P to capture different angles on fixed position performers (such as drummers) or fixed props that have some movement. These angles can be very effective when used as separate outputs to different screens or parts of the main screens along with the main camera mixes. Audiences these days tend to be more accustomed to looking at multiple screens simultaneously. We have also had a lot of success using Panasonic AW-HE100 hothead cameras. These are very easy to set up and provide good quality HD images. They are not quite up to the quality of the main camera channels but recently we have used the newer AW-HE120, which offers a superior zoom lens and a better quality image. The one challenge is getting the colour balance to match the main cameras as the RCP doesn't provide as much control over gain, iris and white balance.

Live event challenges

As with anything, there are challenges. The main one is simply that these are *live* events; there are no opportunities for a pause or a second take – and what has been rehearsed is likely to change at any moment.

The quality of the lighting can vary, depending on the budgetary and practical limitations of what can be rigged. Communication between the video team and the lighting director prior to the event, and then during rehearsals,

is really the only way to ensure that the overall look is working for both the live audience and the cameras. We normally provide a monitor to the lighting team so that they can see how the shots are looking and tweak things throughout the rehearsals.

With modern technology allowing us to project into any area on a set or empty space of any size and ratio, there is an expectation that we will be able to provide live shots that work appropriately within almost any ratio. The current trend is to show slide content or supporting video as well as live camera on the same screen at the same time to add more impact to the messages. On one recent event, due to multiple screens and different configurations throughout the day, five different framing options were used. As with the lighting, it just underscores the need for a full rehearsal with all the camera operators and the director to allow everyone to block out the day and minimise any issues or surprises.

Web streaming and video conferencing

We have recently seen an increase in the number of events with a smaller physical audience, but augmented with a much larger virtual audience. These now regularly feature anything from 5 to 25 locations around the world participating in the event, either in real time via video conferencing facilities, Skype or similar, or by viewing a web stream and submitting questions via the web interface or SMS.

For these events, the scale of the live event production is greatly reduced but the camera setup is still quite large as the live vision mix becomes key to the success of the event, with these cameras effectively providing the full experience for those taking part in the remote locations. In terms of



cameras we still mainly use the Sony camera channels with a full vision mix but in addition will add full graphics sources, VT playback and feeds from the other locations to provide a full PGM mix. We have even added in augmented reality items to these events as it is most effective when the primary audience is viewing remotely.

When on a reduced budget, we have happily been able to produce these events using multiple PMW-200s/500s/800s. This puts more work onto the camera operators who are then responsible for their own iris and balance, but with enough time to sort this out in rehearsal the results can look very good.



The key with any event that will be sent to an audience via a web stream or video conferencing is to keep the image quality as high as possible – this ensures it still looks good once it has been compressed by the encoding technology.

The future

Given current trends towards user-generated content and experiential sessions, it will not be long before we are adding to our current setup with 360-degree camera rigs, as well as technology that allows us to capture live audio and video clips streamed from delegates' mobile devices for use within the live sessions. Resolution is always a key factor though as the screens continue to grow in size and projection technology improves, allowing multiple projectors to work seamlessly together. It is likely we will see a requirement to use a full 4K workflow within the next few months.

Fact File



drp is an integrated, full-service communications agency, designing and producing communications solutions globally. The company works with a wide range of clients to effectively communicate to internal and external audiences, all through award-winning film and video, events, print, design, digital, exhibition and creative solutions.

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