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CASE STUDY: A HYBRID 10-CAMERA RED 4K AND EFP HD PRODUCTION—*JOURNEY: LIVE FROM MANILA**

Advice: Think outside the (matte) box!

Steve Gibby, director of photography



Figure 19.1a Journey live from Manila. (Courtesy Pam Gibby/www.cut4.tv.)

I was jazzed to learn about this production because of the show's hybrid nature: 10 Red cameras on the rock band Journey in Manila in the Philippines. It may be the most exciting case study of this book, because it exemplifies great craftsmanship executed with passion and a bit of risk-taking in order to ratchet the entire industry up a notch.

A great big mash-up, the Journey/Manila show combined Red 4k with 720p HD-SDI video, traditional video lenses with cine

*Portions of this chapter have been reprinted from Red's "Journey" to Manila. Used with permission by Steve Gibby. The following case study has been condensed to fit into the printed version of this book. For the full in-depth case study, see the companion DVD included with this book or download from www.MasteringMulticam.com.

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Doi: 10.1016/B978-0-240-81176-5.00019-8

and SLR lenses, was directed for live IMAG and a feature-length edited concert, and employed crew members from around the world. And now, thanks to the team's generous communication with me, this study can help to clear the way for future Red 4K-EFP hybrid productions to evolve.

Steve Gibby: *For the challenge-driven, this was Nirvana—because we were on the leading edge of changes in a converging industry between the EFP world, the former film world, and the still photography world. We had to use technology from all three in order to pull off what we were trying to do.*



Figure 19.1b Executive producer Dan Barnett making a crew announcement from the stage. (Courtesy Pam Gibby/ www.cut4.tv.)

Dan Barnett, executive producer of Wizard Entertainment and producer of the Journey/Manila concert and film, has decades of experience working as a concert promoter with the biggest names in show business. He has a passion for video and a keen eye for creativity and integrating talent and technology for a seamless production. After analyzing Red 4K camera technology with DP and Red owner Champe Barton, Barnett determined that he could get the best quality resolution and logistical flexibility by going with a hybrid EFP-Red 4K multicam production.

Champe Barton, owner HD Suite, Inc.: *Shooting Red gave us not only the opportunity to capture in 4k RAW, it also gave us the ability to ISO ten cameras. We shifted the critical decision making for edits, color, and overall look to the post process, where we have the luxury of more time.*

Dan Barnett: *Basically, with Red you get a higher-quality production at a more affordable price and you're delivering 4k resolution. The final*

edit of this show would be able to go theatrical or to IMAX, based on the resolution.

When the basic equipment decisions had been made, Barnett set out to assemble an amazing crew, starting with veteran director/editor Eli Tishberg. Tishberg comes from the editing world and directs for the edit (when there is one) but also does a live cut.

Eli Tishberg: I firmly believe that a multicam show should be directed with a live line cut and not just 10 cameras being watched on 10 monitors. I find that the camera operators are reacting both to the music and to me talking in their ear, and they can hear where I'm going, what I'm doing, my pace—and they match their moves to that.



Figure 19.2 Eli Tishberg, Dan Barnett, Oli Laperal, Jr. and Steve Gibby in an impromptu preproduction meeting. (Courtesy Pam Gibby/www.cut4.tv.)

The show also had not one but two directors of photography: Steve Gibby and Champe Barton.

Steve Gibby: There were two DPs because there was such a massive amount of coordination and tech to wade through in order to integrate what is essentially a digital cinema camera system with modified equipment into a traditional, EFP-style production. We had to balance out which lenses to use, which techniques, which shoulder rigs, what frame rates, everything down the line—it was just a lot of work. So we double-teamed it. It was great to work with another DP; two really good and experienced minds are better than one when you have a lot of problems to solve.



Figure 19.3a Shooting Journey from both sides of the pit. (Courtesy Pam Gibby/www.cut4.tv.)

The rest of the crew was brought in from all over the United States and merged with the local Manila crew, which was overseen by Oli Laperal, Jr., of RSVP Films.

4K Capture Plus IMAG

Event programs like this one have traditionally been shot using 2/3-inch HD camera systems. Though the end product would be HDTV, Blu-ray, and DVD, Journey's band members and the production team wanted to future-proof the acquisition format by taking it up to the next resolution level: 4k RAW, or what's known as format 4k HD. When processed correctly, 4k down-samples beautifully to color-saturated 1080p. With its high quality and low

cost, Red One was the logical camera to use. Red shoots in 4k, 3k, and 2k, and can be used with cine lenses, 35-mm still lenses, or B4 2/3-inch lenses (2k only).

The production featured a fusion of cine-style techniques executed with the Red cameras, along with multicamera television-style production techniques.

The Red drive will hold 3 hours of 4k HD footage, so the team could get it all on a drive, no problem. To simplify production further, they kept two backup drives while recording in the camera, as opposed to external decks. But the cameras still had to be wired for audio, video, communications, timecode, and so on, and these signals were all on different connectors. There was still all the same signal distribution to the router, switchers, and monitors. Red batteries last about an hour and a half. However, there is a drawback:



Figure 19.3b The Red One camera. (Courtesy www.red.com.)

Steve Gibby: *We'd send a PA around to each camera when they were getting a little low on battery and we'd plug in with a battery belt and hot-swap it real quick.*

All cameras were set to shoot 4k HD. Because the band members were going to move around a lot, they used a frame rate of 29.97 fps and a shutter speed of 1/100th second. Timecode was jam-synced to all cameras. Each camera was hard-lined to the control room via HD-SDI, which was live-switched throughout the concert for audience viewing on the huge IMAG screen above the stage.

Director Eli Tishberg was calling the live show for the line cut, as well as calling the cameras' coverage for the edit and the IMAG to ensure there were no conflicts or interference.

Eli: *It's interesting that it ended up with three handhelds on stage, a small jib on stage over the keyboard player, a 40-foot-long jib arm in the audience, a dolly camera, two wide cameras, and a camera up in one of the lighting towers. The tenth was a lock-off camera behind the drummer. The dolly rode on 60 feet of track in front of the mix position—in the back, behind the crowd. Not in the pit. I generally don't like dollies in the pit.*

The camera operators used the handheld cameras EFP-style with Nikon lenses and Mantis shoulder mounts and viewfinders. The external zoom motors they had for the Nikon lenses didn't work quite right on the shoulder-held rig cameras, so the camera operators performed all lens functions manually—definitely a challenge, but the Red image is RAW and has a lot of latitude in post, and no camera shaders were necessary.



Figure 19.4 Dolly setup from house right. (Courtesy Pam Gibby/www.cut4.tv.)



Figure 19.5 Wide shot from crane. (Courtesy Wizard Entertainment/Dan Barnett.)

Ground Control: Fly Packs and Trucks Versus Red

Going with Red instead of rolling a truck or a full fly pack actually saved money. It's considerably less expensive to shoot in Red than to shoot in HD cam. Observes Dan Barnett:

If you rent 10 Red cameras, which means you have drives on the cameras, you've just saved \$3,000 in tape stock.

With Red cameras, the control room can focus more on quality control. You still hard-line back to the control room and set up a large monitor with your 8 or 10 cameras on it, so you can see the imagery of each and ensure the settings are accurate, but you're not doing any recording in there; the footage is actually being recorded right on the camera.

And there are even more savings—in post:

In post, you take your drive and download directly onto another large drive, and when you're done with this digital transfer, which is bit-for-bit perfect, you have all your media on this second drive and you're ready to edit. You don't have to pay anyone to roll tape and digitize and it looks so much better.

Switching and Monitoring

Each Red camera acquired footage to its own drive in isolation from all the other cameras. But the team members also had the 720p outputs from their cameras going into a switcher, and a monitor wall, so the director could call a “traditional” live show. Everyone involved could see immediately from the line cut how the show looked.

Mike Knowles, from Orlando, Florida, engineered the fly-pack portion of the show.

Mike: I had all 10 cameras hard-lined via HD-SDI 720p back to the control room through reclocking DAs to two switchers: the line cut and the IMAG.

The eight input Panasonic HS400 switchers have a built-in multiviewer.

Mike Knowles: There's an output that gives you a preview program and then the multiviewer eight inputs all in one; you can either route it out to a VJ output or an HD-SDI output or the DVI output. I had a 32-inch plasma in front of each switcher, and I gave them their preview program and the eight inputs.



Figure 19.6 Multiviewer output from Panasonic HS400 switcher. (Courtesy Oli Laperal, Jr.)

Sync

An hour before the show started, the techs locked a Lockett box and took it around from camera to camera to jam-sync free-run time-of-day timecode. They toyed with the idea of hardwiring TC and genlock, but they decided against it.

Steve Gibby: This was like a non-hard-line EFP shoot, except we were hard-line for intercom and HD-SDI out to the IMAG big screen.

Mike Knowles: The idea was that we'd hardwire the cameras that we could, but obviously the handhelds would be tough to hardwire. Next time, I'll definitely hardwire everything.

The Jib Shot

One more big standout on this show was Dave Hilmer, a Los Angeles-based 43-year veteran crane operator with nine Emmys to his name. Hilmer shoots most of the big awards shows, from the Grammys to the Academy Awards; he also does jibs and cranes for music, big-duty shots with the 40-foot crane.



Figure 19.7 Reverse angle from stage showing the crane in the background. (Courtesy Pam Gibby/www.cut4.tv.)

Dave Hilmer: *I was called to do a jib, and as it turned out they were able to supply us with a crane with a Toma head on it. Basically, the camera mounts out on the end of a 40-foot arm, and the cameraman operates from a tripod with a monitor and a zoom and focus. So I'm back on the ground, looking in a monitor and panning and tilting and zooming and focusing, and it's all done remotely and transmitted up to the camera.*

Recording on Red

With direct-to-disk recording and no tape backup, producers are sometimes apprehensive about losing valuable footage. In this show, there were many angles as backup but no drives went down, so the team had no problems whatsoever. The Red cameras performed flawlessly.



Figure 19.8 Recording 4K directly to hard drives onboard the Red camera. (Courtesy Pam Gibby/www.cut4.tv.)

Even with tape-based shows, the reality is that you're going to have a tape change at some point anyway. By contrast, tape changes weren't necessary in this case. Each camera had two extra backup drives.

Dan Barnett: *We made sure that we had new drives. We tested them the night before and verified they were recording properly. The unique thing about these drives is they go two and a half hours at 4k—so the entire show lives on one drive. Plus, we have production insurance.*

On some TV shows, insurance bonds require backing everything up to LTO drives or special setups to guarantee that the footage is archivable. After the concert, a designated team spends the next 18 hours recording drives to backups and prepping for edit.

Working in Manila

A key element to any production is capable, on-location support and dependable equipment rentals. The Manila support was top-drawer.

Mike Knowles: *One of the big concerns for this particular show was that overnight freight to the Philippines isn't cheap, so we had to try to keep things as light as possible. I took only exactly what I needed plus a couple of spares.*



Figure 19.9 The Manila crew with Oli Laperal, Jr. (Courtesy Pam Gibby/ www.cut4.tv .)

Oli Laperal, Jr: *I proposed a redundant system, so that it would be fail-safe. In other words: if we're in the middle of a concert and we have a BNC HD-SDI fail, or somebody trips over the cable and it fails, provided there's a double redundant system, then it's just a matter of unplugging a BNC and plugging it in and with luck we're on in about a few seconds, rather than running around among 50 people to try to find out where the cables are.*

Shooting for the Edit

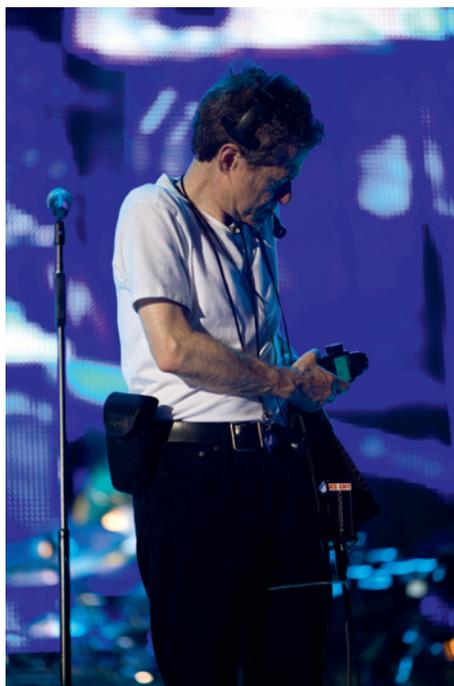
It's really important for camera operators to shoot for the edit in a situation like this, where everything is being recorded and it's all going to editing. They need to have in mind what they're going to need in post. So they have to listen to the director and also hear the AD telling them what's coming up, like the end of songs.

Dave Hilmer: *At the beginning of a number, I would always be wide and push in to at least a waist-shot of the performer; then I would come back and refocus to wait for a chorus, let's say. Then I'd start on the chorus so that in editing there would be a move there for them.*

This is the mindset of great camera operators: they are always considerate of where the other cameras are and how the footage might fit together in post.

Lighting

Figure 19.10 Jeff Ravitz gets a light meter reading on stage. (Courtesy Pam Gibby.)



If you're using Red cameras and the type of lensing the Journey/Manila team used, you need a very hot light on stage throughout the show. Two LDs were responsible for this: Jeff Ravitz, from Visual Terrain, who oversaw TV and audience lighting, and Kevin Christopher, Journey's LD, who adapted the live show.

Jeff Ravitz may be one of the best TV LDs in the world. The last project he did prior to Journey in the Philippines was Bruce Springsteen's halftime show for the Super Bowl.

Jeff Ravitz: As planned and practiced on rehearsal night [for Journey/Manila], we were able to light the stage area to an average off 5.6, thus providing plenty of light for Red One to get very good images.

Moreover, TV lighting is different from theatrical stage lighting. Sometimes the two schools clash, but when they're tweaked to work together, the results make the difference between a good show and a great show. In Manila, for instance, there was a tour lighting designer whom Journey had hired and who travels with the band. Journey's LD designs the band's own lighting systems and personally operates the console to create that special live vibe every band needs.

Jeff Ravitz: I come in more or less as a consultant. Somebody who then has to say, "Well, your show is great but it needs this, this, and this to be viable for television." And I make some of those decisions based on my own set of aesthetics and I make some of them in conjunction with the producer and director, who tell me what they want to see, and that's ultimately what drives the project.

The camera team was using some fairly long lenses in order to get front-of-house portrait-type close-ups, and those lenses are considerably slower than the sports lenses you can put on broadcast cameras. Accordingly, they need approximately *six times* the amount of light that a show like this typically requires.

Jeff Ravitz: We were told that we needed 130 foot-candles for this show and the weak link was our key light: our main front key light, which came from follow spots on towers 140 feet away from the stage. They were just way underpowered for what we needed, which required us to double and triple up to get a number of lights. So we did find ourselves running into some very, very serious issues with Red, and that was probably the main

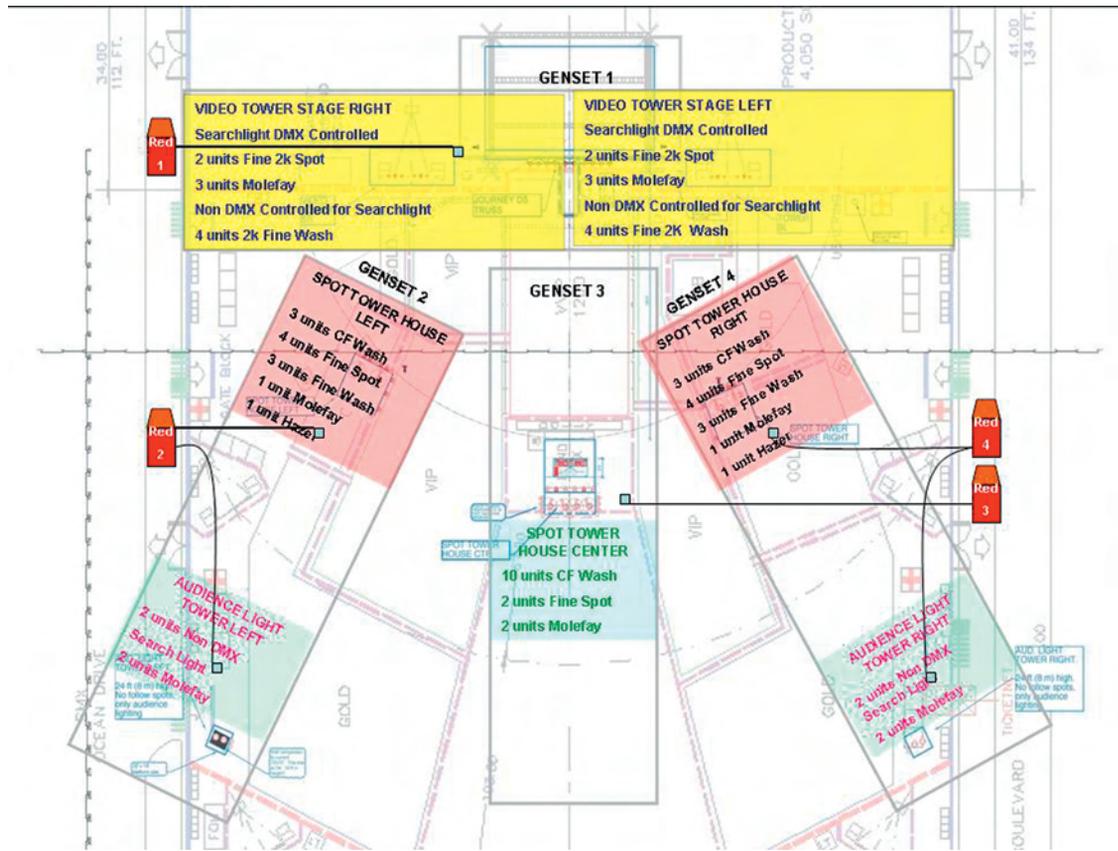


Figure 19.11 Diagram of lighting tower locations, camera positions, and instruments used. (Courtesy Jeff Ravitz/www.visualterrain.net.)

thing. Red had no problem with any of the color—the rock ‘n’ roll color you ordinarily see—and it had no trouble with any other issue, except sheer intensity.

Working along a steep learning curve, the crew gradually improved the output of the follow spots and used the lens extenders less and less.

Editing

After the show, two backup drives were made and sent back to the United States with separate people to ensure delivery.

Eli Tishberg switched from director to editor and Champe switched roles from DP to post supervisor. He had all of the native R3D files transcoded to ProRez 422 and had all the ISOs loaded into Final Cut Pro and synced up. Multiclips were made, and the whole project was sent to New York for editing by Eli Tishberg.

Eli Tishberg: *The footage looked great. I directed the show live, which enabled me to get the pacing down. I get a better show that way because the cameras are reacting to me and know there's a drum solo coming up or whatever.*

For Tishberg's first pass, he cut in real time using the start-stop method for picking shots from the 10 cameras. Then he would ride that camera until he felt motivated to switch.

Eli Tishberg: *I basically would do it in four or five song segments. So I'd do the songs and then I'd start a new sequence about every 15 to 20 minutes of program time. As I would do each chunk, I would put it aside for a day or two and I would make a Blu-ray disk to watch on my regular TV.*

The cutting proved to be straight ahead, allowing the true spirit of the band to shine through. No tricky cuts but some digital camera moves were added.

With a locked picture, the project was sent back to Champe Barton and Dan Barnett where they onlined and color-corrected from the 4K native files.

The Wrap

In short, integrating a digital cinema camera like Red One into what has traditionally been an EFP camera production posed a lot of technical and operational challenges—but the Journey/Manila crew accepted those challenges with excellent and encouraging results. Red can and will continue to be used widely in hybrid productions, in the name of better-quality footage and final cuts. The Journey/Manila team put many of the techniques particular to hybrid productions to the test, helping to enhance Red's potential benefits to the world of multicam.



Figure 19.13 The crew wraps one of the most uniquely designed 10-camera Red shows. (Courtesy Pam Gibby/www.cut4.tv.)