MUSIC OF THE

STAR WARS

IN CONCERT IS A NEW KIND OF ENTERTAINMENT

BY SHARON STANCAVAGE

A long time ago (2006) in a galaxy far, far away (well, okay, Los Angeles) a project began that would change the world of *Star Wars* fans. The germ of the idea: that the *Star Wars* saga, as recounted in six of the most popular films of all time, could somehow, some way, be presented to a live audience, tour the world, and be profitable.

The project was the property of Greg Perloff and Spencer Churchill, of Another Planet Entertainment, a San Francisco Bay Area concert production firm. Early on, they brought in the concert lighting designer Steve Cohen, who was intrigued by the idea of building a live event around George Lucas' outer-space films. There was only one problem, he recalls: "They really didn't have a concept of what the show would be."

Cohen, a creative man if ever there was one, had the solution. The last film in the *Star Wars* series, *The Revenge of the Sith*, had a companion DVD entitled *Star Wars: A Musical Journey*, featuring the music of John Williams. "I took it home, popped it into the DVD player, looked at it, and said, 'There's your show,'" Cohen says.

The concept of a live touring production featuring a full orchestra playing the music of *Star Wars* was a solid one, and Another Planet loved the idea. However, John Williams did not. "We did these pitches for him and they fell flat," says Cohen. "He didn't believe that we could pull this off."

The project was consigned to oblivion for about a year. Then Perloff and Churchill, still grappling with budget issues, came back to Cohen, naming him both creative and show director. It was a welcome development, he says: "For me, the more areas that I can control, the more I can monitor the budgets, the more I can spend money in places that I think need it, and the more I don't

All photos: James Petrusson

The logo, framed in lighting, kicks off the performance; note the metal screen surround.

have to reinterpret my ideas, to have someone else do them." After a final pitch, Williams came on board, and the project went forward.

Since this was a production celebrating *Star Wars*, featuring footage from all the films, Cohen says, "I needed a video display that was spectacular—I couldn't use projection, because it would limit me with lighting." The answer was an LED screen—but not just any old model. "It had to be an LED that was of the highest resolution possible, because we were getting hi-def material from Lucasfilm [the films' producer], and we needed the most natural display available. We also needed one that could tour effectively and set up efficiently."

Cohen turned to Danny O'Bryen, of the firm Screenworks NEP, who invested several million dollars in a 60'-wide-by-30'-high Daktronics 10mm screen—the largest touring LED screen in the world. "I saw this screen at LDI the year before," says Cohen. "It's [made of] magnesium—very thin, very lightweight; I have never seen a video display this clear." Indeed, when looking at it, one is hard-pressed to remember that it is an LED screen and not some kind of projection surface.

Since much of *Star Wars* happens in the vastness of space, Cohen naturally felt a spectacular environment was needed. "I wanted to make the stage feel bigger, and I wanted to make the video delivery system bigger—but I didn't have a lot of money to do it," he explains. Undaunted, he turned to one of his design trademarks: low-resolution LEDs. "I built a couple of panels of Soft-LED that went on either side of the screen, and also, in the interior of the lighting rig, which replicates the trapezoidal shape of two Imperial Star Destroyers [seen frequently in the films' battle scenes], I also used Soft-LEDs," he notes. In other words, there are two Mainlight Industries low-resolution video curtains on either side of the main screen and two above it.

Cohen called on his partner, Curtis Cox, to edit and program, via a Martin Maxedia media server, the video for the Soft-LEDs. He tapped Bryan Barancik to be associate lighting designer and Martin Maxxyz lighting console programmer, along with co-production designer/associate director Seth Jackson and video director/content manager Mark Haney. "We spent a good three or four days studying the movie clips with Steve," says Jackson. "We all kept our own notes of what we were doing and then combined them; we came out of the weekend with a moment-by-moment script."

One challenge Cohen and his team faced was how to get the 86-piece

live orchestra, headed by the conductor Dirk Brosse, to work in sync with the LED screen. The answer was streamers, a technology used in scoring films. "Streamers are the visual version of a metronome," explains Haney. They're a series of white, red, and green vertical bars moving across the screen, left to right, along with large flashing white dots. These visual cues indicate the beginning, ending, and tempo changes within a piece of music, the downbeats being identified by the flashing dots. The streamers for the show, which were created for each video segment by the editor Jeremy Stewart, working with members of John Williams' camp, are sent to a Dell monitor at the conductor's podium. "This is absolutely cut to the beat—there are over 200 cuts—and I would say 90% are on an upbeat or downbeat, so it's quite a daunting task for a conductor to stay in time," notes Cohen. It's also one of the first times that streamers have been used in a large arena tour.

Initially, Haney used a Doremi Labs-based system to synchronize all the elements of the show, including the streamers. There were problems with the approach, however. "To build the show, the Doremi V1-UHDs were the perfect solution," he says. "I could start/stop easily, go to specific time codes instantly, and they chased to within two frames of video. But, in the straight playback of the show, we found that sometimes the playback would hesitate a little bit, then recover immediately. In other environments, that can be manageable. On a show driven by screen content, we needed perfection daily." The team approached Doremi, but, says, Haney, "Either they did not care, or thought the issue was manageable. To me, the video vendor, the production, and our clients, it was not acceptable."

Therefore, he adds, "At the encouragement of Danny O'Bryen, I looked at using the Green System." Provided by Gen2Media of Orlando, it works in tandem with four Apple X-Servers (two primary HD sources and two SD conductor element/streamer sources). "The X-Serves, as they are called, are triggered by Akai Abletons, which Ian McDaniel helped me find," says Haney. The latter, he adds, "are USB/MIDI-type devices that trigger the software in the X-Serves to play back simultaneously." With its multiple levels of redundancy, the system has proven to be reliable. "They're not as in sync as the Doremis, but they are in sync enough, they look fantastic, and they have been bulletproof," Haney adds.

The content for the Soft-LED curtains is contained on a Maxedia media sever that Jackson triggers through his Maxxyz lighting console. "We make sure the Maxedia signal gets into our video flight pack, that it's frame shook, and is run through scan conversion," explains Haney. This provides him with a wide palette: "Any of our display surfaces can have the main show playback content as on the Daktronics HD LED screen, the Maxedia content, or live images of the orchestra. On the low-res Mainlight curtains; it's about 20% of main screen content, or what we call global, which is everything on all display devices. It's probably about 40% Maxedia and about 40% live cameras."

The IMAG package, also provided by Screenworks, includes a Ross 3ME HD switcher, four Sony 1500 HD broadcast cameras, two Sony BR-700 HD POV cameras, and two Cam-Mate jibs. "I've always been a fan of using a jib in a live situation for IMAG, with a bigger or longer lens on it to get individual solos or tight shots that you normally wouldn't be able to get, even with a handheld," says Haney.

Building the starship

Meanwhile, Jackson was busy with the set, fabricated by All Access Staging and Products, of Torrance, California. "It's made up of fairly large pieces, to match the size of the LED wall," he says. "Then you have the monumental task of 86 people and their instruments, a 7' grand piano, an extraordinary amount of percussion, and a 40-voice choir that all have to sit on a stage somehow. There also has to be room for Anthony Daniels [the narrator, familiar to the fans as C-

Left: In addition to lasers, effects include fire and cryo jets. Right: Lighting and imagery work together to make vivid stage pictures.

3PO] to enter, exit, and walk around for his narration. And, oh yeah, it also has to look like something."

The set also has some design flourishes. "We built a screen surround, a massive piece of metal that is reminiscent of the cockpit window of the Millennium Falcon [Han Solo's spacecraft] and the architecture of [the planet] Naboo. The riser fascias are the interiors of the Star Destroyers, and the shape of the conductor's platform looks like something out of one of spaceships," Cohen reports. There are also custom-made practical lighting units on stage, featuring Elation Impressions, which provide a visual echo of the office of Emperor Palpatine, a villain who appears throughout the most recent trilogy of films.

Jackson was also charged with making Cohen's designs a practical reality, as well as handling the lighting during rehearsals when Cohen had other obligations. "I sat down for a day or two, right behind Steve and Bryan, and tried to wrap my head around how Steve programs and how he designs, to try to get the flow in my head," he says.

And, while Cohen has gone on to other projects, Jackson is the director on the road. "I meet with Anthony [McDaniel] every day to discuss the variables of the room with him, find out how his show was the night before, and that sort of thing," Jackson notes. "I'm also running the console, calling all the effects cues and the followspots," he reports.

Galactic sound

For a production featuring 86 musicians and a choir of 40 singers, the standard rock-'n'-roll sound approach wasn't necessarily the best. "We needed someone who could amplify the orchestra," says Cohen. "I also wanted to make sure it didn't sound like a bad electronic version of it." He tapped Fred Vogler, the principal sound designer at the Hollywood Bowl, for his ideas. "I said, 'I want to really set the bar for how much you can get out of an orchestra,'" Vogler explains. "You could see Steve's eyes light up—he totally connected with the whole concept and, to their credit, they really allowed a lot of latitude for design and components."

Vogler's approach has been honed over the years at the Hollywood Bowl. "Orchestral music requires a different level of sophistication," he says. "You're not just trying to blow loud sound. You're trying to create volume of sound, a larger wave front—not something that is punishing in sound pressure but something that immerses you," he explains.

Vogler adds that finding the right orchestra balance isn't easy in arena situations. "There aren't many reflective surfaces, and often what performers hear is energy bouncing around the house and coming back to them," he says. "They are often compromised in what they hear from instruments next to them, let alone instruments across the stage."

There's another piece missing in an arena: an orchestra shell. Vogler's solution is to use the Constellation system, an electro-acoustic shell from Meyer Sound. "We put a series of speakers around the sides, in the back and in the Star Destroyer trusses above the stage looking down," he says. Used in this manner, the Constellation essentially functions as a virtual monitor system, eliminating problems like monitor hot spots. "Now they're hearing things much like they would in a concert hall," he says. This is first time that the Constellation has been used in this manner. "We can control how much violin reflective energy there is, or how much woodwind, how much

Left: The conductor's podium. Right: A good view of the Soft-LED curtains, in contrast to the his-res Daktronics screen.

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brass, and we can cater it to the needs of the stage," he adds. The system consists of three Constellation mainframes, ten Meyer Sound M1D top speakers, eight UPJ-1P side speakers, and seven UPA-1P rear speakers.

The rest of the PA and monitor systems also consist of Meyer gear, says Vogler, noting that it was capable of dealing with the full sound of the orchestra and film sequences. He also wanted a company that could provide reliable support 24/7 and on weekends and holidays. "Meyer had a really strong network of support, and has completely held true," he comments. "If there was an issue or a concern, or we needed technical support, they have a lot of folks to jump in and help out."

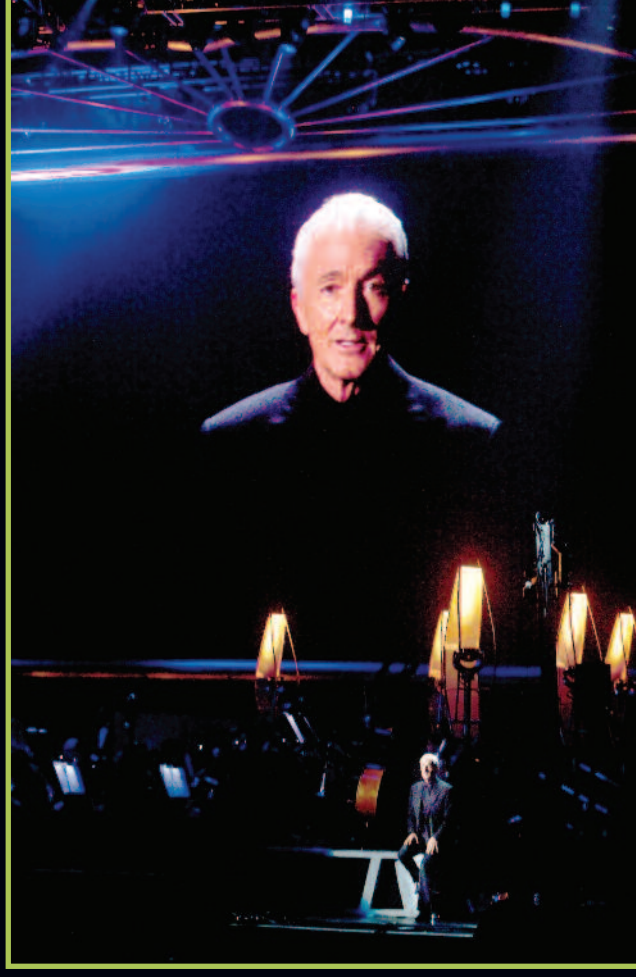
The flown portion of the rig consists of 17 Meyer MILO cabinets on each side, ten Milos in a center cluster, 16 MICAs on each side, and nine 700-HP subs. Front fill is provided by six Meyer M'elodies and six CQ-2s. Four M3D subs are placed on the floor. The surround/delay system consists of six Meyer UPQ-1Ps and six UPQ-2Ps. Loudspeaker processing is handled by a Meyer Galileo system, with a Meyer SIM 3 system used to analyze each venue. For orchestra monitoring and cueing, there are eight Meyer MM-4s and eight Aviom A-16II personal monitor mixers. Solotech, of Montréal, the tour's sound vendor, provided all the audio gear.

For the front-of-house sound console (handled on the road by Steve Colby, sound engineer for the Boston Pops, who has worked extensively with John Williams), Vogler chose the Studer Vista 5SR. "That thing is a horse; it has all sorts of power and potential," he notes. A digital console, the Vista 5SR features full 5.1 surround-sound capability, Studer's Vistonics user interface, and a compact design. "We have 120 inputs in the thing and another 40 or so outputs, and we're able to accommodate that in a console that is 6' wide and 3' or 4' deep," he notes. "There's a warmth, a musicality [to the console], and I think all that translates nicely for the arena acoustic ensemble show." On the road, Colby also has a TC M6000, Lexicon PCM 96, Fostex DV824, and 360 Systems Instant Replay as outboard gear.

The last piece of the audio puzzle is the microphones, and Vogler has 120 of them. For the orchestra, he relies on a combination of both close and ambient units. "With orchestral music, if you go too close or too deep on the instrument, it tends to sound unnatural, and an unnatural sound amplified really loudly is not going to be pleasant," he says.

Here he relies on three microphone brands. "I usually use more studio condenser microphones; this time, they're a combination of DPA, Schoeps, and Sennheiser," he reports. Over the conductor, there are four DPA 4028s, which are wide cardioid pattern units. "On the wide left/right, which are about 14' off dead center right next to the first line of performers, are two Sennheiser MKH-800s," he adds.

For the individual instruments, Vogler has "DPA for strings, and Schoeps and [beyerdynamic] M 160s for woodwinds," he explains. The rest of the package includes 56 DPA 4061s, eight Neumann KM 184s, eight Shure SM57s, one Shure Beta 52 and two Sennheiser e825Ss. Anthony Daniels is on a DPA 4061 headset lavalier with a Sennheiser wireless pack.



Anthony Daniels, the voice of C-3PO, narrates the show.

Light sabers

Cohen's lighting rig, provided by Upstaging of DeKalb, Illinois, includes 42 Coemar Infinity Wash XLs, 28 Martin MAC 2000 Performances, 24 Martin Mac III Profiles, 16 Philips Vari*Lite VL3500 Wash FX units, nine VL3500 Profiles, ten Robe Colorspot 2500 ATs, eight Robe Colorspot 1200 ATs, six Zap Technology LittleBig units (located on the floor upstage), ten i-Pix BB7 LED units, 60 custom blue landing lights, four 48-channel Leprecon racks, one 48-channel ETC Sensor dimmer rack, and one 24-channel Sensor rack, and lots of Upstaging's HUD truss. Also include are five Base Hazers from Hasebase, two Le Maitre G150 foggers, and five Martin AFI DMX fans.

The color palette is, of course, tied to the images on the screen. “When that screen goes red, that stage goes red, and when you’re in outer space, you’re in dark blue,” explains Cohen. There are bold, intense greens in the “Sanctuary Moon” segment, while the cantina scene in “An Unlikely Alliance” is filled with ambers, purples, and greens. “To a great degree, it’s monochromatic,” he adds. “It has to be—you have an orchestra on screen all the time, so you have to be aware make those exposures look good,” he adds.

The last—but perhaps, for the audience, most exciting—element consists of the special effects, provided by Howard Ungerleider, senior effects designer and co-owner of Production Design International Inc., of Markham, Ontario. “It’s *Star Wars*, so you’ve got to have lasers,” Jackson says with a smile.

And lasers there are—seven of them, to be exact—five active plus two for backup. “We have some in the air, some on the ground, and some in the audience,” says Ungerleider. “That’s how we get the three-dimensional effects: People from all angles can see them and feel like they’re right inside of them.”

Originally, Ungerleider planned on using both green and red lasers, but the massive Daktronics screen proved to be an obstacle. “When you’re dealing with so much light and video, you want to make sure you can actually see the effect; once you start using certain colors in front of that video wall, they all go away,” he notes. The solution was two 60W Yag laser systems, as well as some diode pulsed solid-state lasers, controlled by Pangolin Laser Systems software and programmed by Scott Wilson.

Other effects include flames and cryo, provided through PDI’s industry partner, Hi-Tech FX, of Fort Madison, Iowa. During the section titled “A Hero Falls,” there are cryo cannons, as well as flame jets so intense one can feel them as far as the front of house. “After you see Lord Vader rise, the cryo cannons go off, and the blackout happens; it’s pretty amazing,” Ungerleider reports. The image of Darth Vader on screen with the cryo cannons in the floor is one of the biggest “wow” moments of the show.

Overall, the key to the effects was blending them seamlessly into the show. “Steve wanted to tie the audience together with the effects,” Ungerleider says. “Consequently, Steve and Seth blended them really well with the visuals.”

Star Wars in Concert wrapped up the first American leg of the tour in December. The tour will be opening in Europe in March, and is expected to return to the U.S. later this year.