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Cosm Debuts DomeX: A 20-Meter LED Dome

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Cosm, the Dallas, TX-based parent company of **Evans & Sutherland**, **Spitz**, and **LiveLike VR**, has launched itself as a new provider of “end-to-end solutions for immersive experiences” with the opening of an Experience Center at the Salt Lake City, UT, headquarters of E&S. The facility features the first DomeX installation, a 66-foot (20-meter) direct-view 8K LED dome, powered by the latest version of the Digistar rendering engine. Construction on the center was completed in late 2020.

The DomeX demo installation is a vertically oriented partial dome with a field of view of 180 degrees laterally and 112 degrees vertically, about 70% of a full hemisphere. The system will also be available in a full 180-by-180 hemisphere in tilted or flat orientation, and in other sizes. The resolution is 8,192 pixels across 180 degrees, with a pixel pitch of 3.8 mm, for a total image size of 29.5 million pixels. It is capable of 120 fps, and can display stereo 3D at 60 fps per eye with active glasses. The system meets the Rec. 709 color gamut standard and 92% of the wider DCI-P3 standard. (A version capable of the full DCI-P3 gamut will be available.) The dome’s 7,970 LED modules are attached magnetically to the Spitz-designed framework and are perforated to allow passage of air and sound from the 30.4-channel surround sound system.

First announced by E&S in the spring of 2019, DomeX has the potential to revolutionize the immersive fulldome and GS experience by overcoming many of the disadvantages inherent in projecting images on a dome. These include low light levels and contrast, and projector place-

ments that can make projection lenses visible to the audience and allow viewers to cast shadows on the dome. DomeX will provide brightness levels of at least 500 nits, the equivalent of 145 foot-Lamberts, which is more than 35 times brighter than some of the brightest dome systems (4 fL), ten times brighter than the official standard for flat-screen digital cinema projection (14 fL), seven times brighter than flat-screen IMAX laser projection (22 fL), and almost five times brighter than flat-screen Dolby Cinema (31 fL).

(In our first report on DomeX in the May 2019 issue, E&S CEO **Kirk Johnson** said light output would be about 50 fL, but Cosm now says that “after additional engineering and testing, we have decided to utilize the full system capability that enables the system to achieve 150 fL.”)

Conventional projection onto a white dome surface inevitably creates cross reflectance that dramatically reduces image contrast far below the projectors’ nominal spec. Because LED panels have matte black surfaces, they will virtually eliminate cross reflectance. Furthermore, LEDs offer contrast that is characterized as “near infinite” because they emit no light at all when displaying black, whereas even the best projection systems emit a small amount of light at full black. LEDs thus provide an enormous range between the brightest whites and the darkest blacks.

The new company

As we reported previously (*see The Biz, March 2020*), E&S and its subsidiary Spitz were acquired last year by **Elevate Entertainment**, an affiliate of **Mirasol Capital, LLC**, “the private equity and venture arm of the Winn Family Office with a primary focus on real estate and technology-related

ventures.” Shortly thereafter, the company quietly acquired LiveLike VR, “a global leader in live immersive sports and entertainment production and distribution, and streaming architecture.” The new owner has used the intervening time to prepare its launch under the new name, Cosm.

Jeb Terry is president and CEO of Cosm, the managing director of Mirasol, and a former NFL football player. His resume also includes co-founding and heading StraightCast Media, a sports video service that was acquired by Fox Sports in 2015. Terry continued at the network for another three years before joining Mirasol in 2019.

In an interview with *LFX*, Terry stressed that E&S and Spitz will continue to operate and innovate in their core markets of planetariums, fulldomes, and giant screens, and will support new and existing customers in those segments. But the primary goal behind Cosm’s acquisition of the three companies is to expand their core technologies into new markets and applications.

Terry’s sports background, the acquisition of LiveLike, and the hiring of six former Fox Sports executives all give a clear indication of one of those markets. Since its founding in 2015, LiveLike has been capturing and distributing live pro sports events, such as American football, soccer, and Formula 1 racing, in VR format for top international broadcasters like Fox Sports, Canal+, and Sky Sports.

Another market Terry said has potential for expansion is one that E&S and Spitz have served for many years: theme parks and attractions. DomeX and other VR technologies clearly have many possible uses in those settings.

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With respect to bringing LiveLike into the mix, Terry believes that VR and dome systems are complementary: “The dome is the physical manifestation of the VR headset. Or vice versa.”

Another of Cosm’s goals will be to explore how Digistar, the real-time rendering engine that has powered E&S systems through seven generations over nearly three decades, might be used for more than planetarium shows. Terry mentioned other real-time rendering platforms such as Unity and Unreal Engine, which originated as video game creation tools and are now used by film and television producers to create virtual sets and provide real-time, on-set compositing for shows like *Disney’s The Mandalorian*.

The gaming connection suggests another potential market for the new company: eSports, professional video game competitions that attract millions of viewers online or (pre-Covid) in person at large arenas. Over the past decade eSports have become a multi-billion-dollar industry. (To be clear: Terry did not explicitly mention film production or eSports as

markets Cosm might explore; these are inferences *LFX* has drawn from his comments.)

New corporate structure

The former CEOs of E&S and Spitz, Kirk Johnson and **Jon Shaw**, respectively, now serve as executive vice presidents of Cosm and general managers of their respective divisions. The company’s chief marketing officer is **James Meredith**, formerly SVP of marketing at **Cinemark Theatres**; its COO is **Sheli Reynolds**, formerly EVP for technology in Fox’s digital consumer group. Including Terry, six other Cosm execs previously worked at Fox.

GS veteran **Mike Lutz**, who joined E&S as VP of new business development in 2018 after years at **Imax Corporation** and **MacGillivray Freeman Films**, continues at Cosm in that role. A Cosm spokesperson says that “Mike is engaged in the DomeX and LED technology in his business development role, to develop products of interest for, and continue the important relationships he has, in the [giant-screen] community.”



The 66-foot (20-meter) DomeX LED dome at Cosm’s Experience Center in Salt Lake City.

Cosm