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BIG SCREEN BRIGHTNESS AND CLARITY: GETTING UP-CLOSE AND PERSONAL

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Big Screen Brightness and Clarity: Getting Up-Close and Personal

New high-resolution LED video wall technology that allows close-up viewing can now be used for retail, command and control, and other display applications.

BY JIM BEAUGEZ

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From the towering, brilliant monoliths in Times Square to attention-commanding casino glitz to digital signage that curves its way into the nooks around airport baggage carousels, the opportunities for communicating through digital video are staggering.

But no longer are integrators and clients bound to viewing distances of a dozen feet or more. The technology that enables those impressive video displays is already evolving beyond long-range viewing displays, achieving mind-blowing heights of detail and clarity now at distances only a few feet away. This opens up LED video displays to applications such as retail, command and control, and other traditional uses currently served by a number of display technologies that include plasma, LCD, and now LED technologies, which together make up a $2 billion display market that is growing at a healthy 15 percent clip annually, according to Intel.

With so many options, where do you begin? Starting at the end result—the application and type of media to be used—will lead you to the technology that's right for the installation.

A View to a Thrill

It's one thing to wow sports stadium spectators with giant video screens that are viewed from a distance of 150 feet. But creating those engaging experiences for customers walking down the aisle in a supermarket changes the game entirely.

A survey of the market currently using and seeking high-resolution displays reveals a vast range of public and private spaces, encompassing a number of commercial and government video applications. From Fortune 500 companies to civic municipalities, the opportunities are ready for integrators to explore.

Retail sales make up more than a quarter of the U.S. economy, and the spaces that retail inhabits are increasingly vertical in nature, often targeting specific demographics.

This presents an opportunity for AV installers to help retailers engage customers through visual experiences that set a mood, or generate new revenue streams, such as digital out-of-home (DOOH) advertising.

But close-up viewing of high-resolution video isn't limited to public areas like shops and malls. Private spaces are also highly targetable for applications of incredibly detailed wall displays.

Command and control centers represent a large segment of customers for these products. Businesses such as gas and energy companies have mission-critical operations where every pixel counts—especially in a crisis situation. How they receive, view, and process vital information can make the difference between averting disaster and succumbing to it.

In crisis situations, command and control quickly becomes the most important asset of any business or organization, including government. In its fiscal year 2016 budget, the U.S. Department of Homeland Security names "Unity of Effort" as a key reform, with the directive to "re-orient and bolster command and control" functions. These reforms are a focal point of its $41.2 billion proposed appropriation.

Check Your Tech

So how close is up-close for these new video walls? It's all in the details. A key factor is resolution, which is measured differently depending on the technology.

Plasma and LCD screens are measured in screen resolution, such as the standard high-definition of 1080p, while LED screens are measured by pixel pitch, or the distance between individual LEDs that make up the overall picture. For example, an LED screen with a 6mm pixel pitch has an optimal viewing distance of 18 feet, while a 2.5mm pixel pitch cuts that distance to just a few feet.

While high-resolution video wall displays come in a variety of technology formats, the differences aren't trivial. What you choose can steer plenty of variables: picture and build quality, warranty, longevity of parts, and more, all of which affect your client's happiness and your positive reference.

Plasma displays are valued for their progressive

illumination and wide angle for off-axis viewing. But they're also susceptible to burn-in and known to reproduce dark tones, such as black, poorly. They also have a relatively short life span of 60,000 hours compared to other technologies on the market, and consume more than twice the power of other displays, while emitting brightness in the hundreds of nits.

LCD displays, however, consume just half as much energy as plasma displays, with an average brightness closer to 1,000 nits and a similar lifespan of 50-60,000 hours. They also suffer from many of the same issues, such as rear-panel access, which makes servicing LCD screens troublesome.

Both plasma and LCD displays are limited in size, so creating large walls for up-close viewing requires stacking or tiling individual displays, leaving bezel or seam gaps between them. Even with so-called "bezel-free" displays, there is a visual breakup of the media, and it can be a challenge to maintain uniform color calibration among all of the screens. A third technology is LED screens, which are also commonly tiled in large-scale video walls but aren't limited in scaling in the same way as plasma and LCD screens.

LED displays exceed other video wall display technologies in virtually every area, including off-axis viewing. While LED screens are modular, they can be completely seamless and used to create enormous custom screens with no breakup in the media. With up to 100,000 hours of use, they offer a longer life cycle, and achieve brightness up to 1,200 nits.

Now that pixel pitches are tighter than ever, LED screens bring remarkable clarity and resolution that enhances up-close viewing experiences.

What to Ask

Now that you know the benefits and limitations of the major video wall formats, what else do you need to find out before settling on the right display for your application?

Internal research is just as important as external research in selecting among the technology options. Key questions that integrators and end users should ask manufacturers when purchasing high-resolution wall displays should address how the user will apply the product.

What content will you display on the screen? Will you use large or small text and fonts, or moving graphics and images? The intricacies of your media will affect the medium, and the higher the resolution the better for up-close viewing of the most minute details.

A plasma or LCD video wall could offer more benefits for displaying database-driven technologies, such as spreadsheets in a boardroom, while LEDs excel with high-motion, high-contrast, brand storytelling.

Physical space is another consideration. Is it bright, dark, or both depending on the usage? How much ambient light will interfere with the display? You'll want to err on the side of caution and specify the system that meets all potential needs with a high level of brightness. How will the display's audience view media? Off-axis viewing is a key consideration, since only a small portion of the audience can be positioned front and center.

You'll also want to get the skinny on manufacturer warranty and support, as well as ease of service. Front-accessible displays are the easiest and quickest to service, and the longer the warranty the better. Also consider the location of your manufacturer in relation to your own operation. A company that manufactures in the U.S., for example, can typically address the needs of a customer based in the U.S. more quickly than a company that manufactures elsewhere, closing the logistics gap in your favor.

It's time to bring the next generation of high-resolution wall displays into focus and begin capturing the most thrilling clients and installations.

The NanoSlim Engage Solution

The latest option to enter the high end of the up-close, high-resolution display market is the NanoSlim Engage from the NanoLumens technology family. The NanoSlim Engage distills all of the technology NanoLumens has developed—such as ultra-slim, lightweight, bezel-free screens that can be scaled to any size—with a startlingly sharp up-close display, thanks to its premium 2.5mm pixel pitch.

With a seamless, modular display capable of brightness up to 1,200 nits, the NanoSlim Engage is ahead of the class across the spectrum, from being the most premium display to its easily front- or rear-serviceable, ultra-thin screen to its energy-efficient LED design, all backed by a six-year, zero-failure warranty. Manufacturing and support are also located in the continental U.S.

About NanoLumens

Headquartered in Norcross, GA, NanoLumens (www.NanoLumens.com) creates engaging, cost-effective, space-efficient, eco-friendly visual solutions that turn every client's dream into a Visual Reality. Serving leading Fortune 500 clients on five continents, NanoLumens' patent portfolio strategically positions it to meet the complete visualization needs of customers in the broadcast, casino, control room, DOOH/transit, financial, higher education, hospitality, REIT/property, retail, and stadium/arena markets, with immersive, custom-specific NanoCurve™, NanoSlim™, NanoSlim™ Engage, and NanoWrap™-based solutions in any desired size, shape, or curvature. All NanoLumens solutions are designed and made in the United States of America and come backed by the industry's only Six-Year, Zero Failure Warranty.