

Why Choose LED wall for Virtual Production



NantStudios



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this ROE Visual blog

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visual effects supervisor for Star Trek

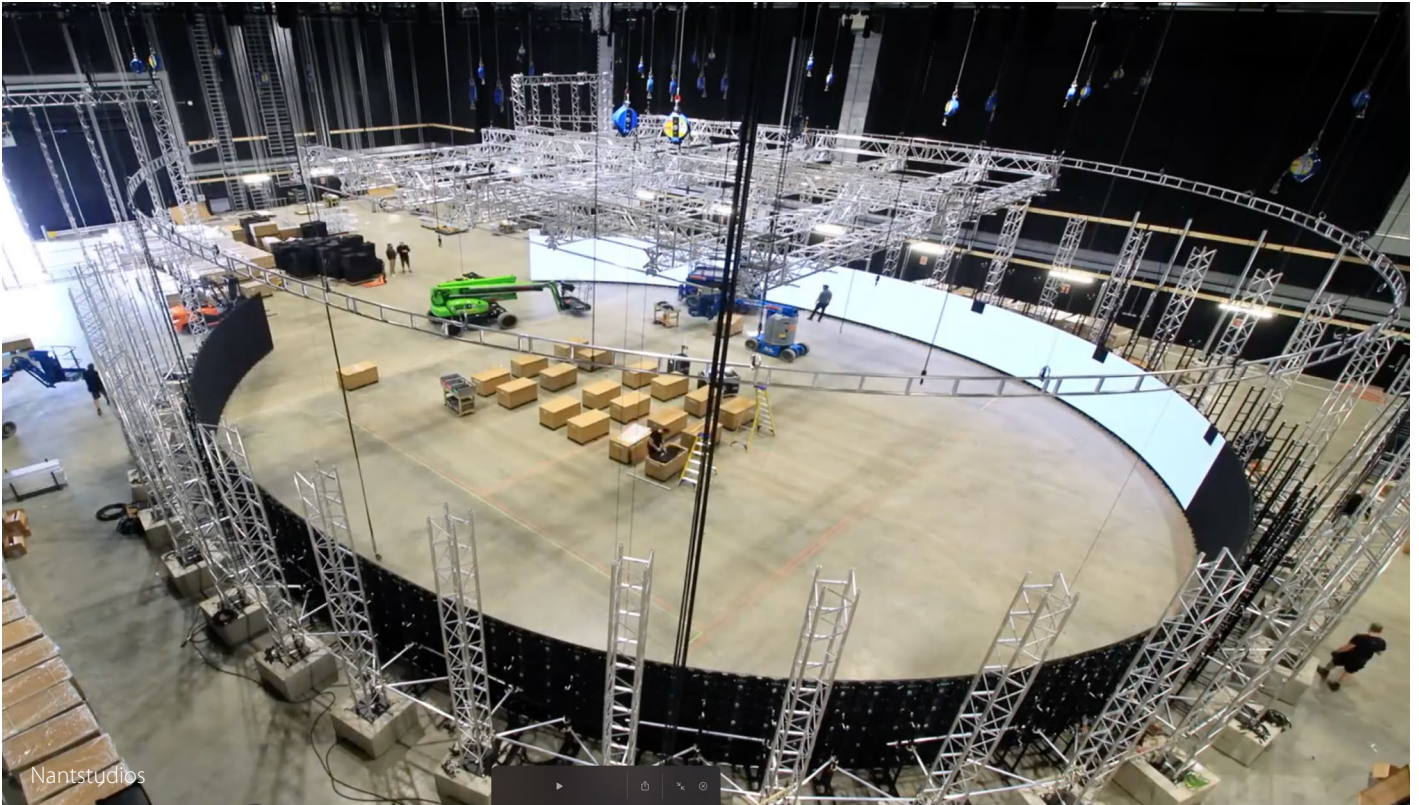
“In the COVID era, being able to shoot large scope locations without leaving the stage is a huge benefit. In many ways, getting something in camera on the day is just so much better than a green screen. One major difference is that production design and art department are much more involved in the process and getting assets to a place where they can be photographed instead of waiting until after the shoot.”

Preface (Markets development)

The recent expansion of virtual production into in-camera visual effects with real-time game engines like Unreal Engine and LED volumes has impacted Film, TV series, Broadcast and streaming production. Disney Plus's Star Wars streaming series, The Mandalorian, shot by Greig Fraser, ASC led the charge upon its release in November 2019. Following its successful example, several series is now in production and leveraging similar techniques.

LED in-camera virtual production is ideal both in general and due to the challenges posed by the COVID-19 pandemic and its attendant safety protocols. As chronicled in previous AC coverage, virtual production with its reduced crew and travel requirements and remote-capable equipment and workflows offers critical advantages to shows working under safety constraints. Because so much is possible in decentralized and remote environments, virtual production evolved far faster from 2020 until now.

When the health crisis finally abates, many of the benefits of virtual production and LED volumes will likely continue favoring TV and streaming projects. Capturing visual effects in-camera allows for more extraordinary shot design and coverage flexibility and shortened post-production versus the cost per shot/per frame of traditional visual effects. It also makes much more controlled shooting conditions possible than location work, such as holding on to a perfect sunset or an ideal cloud formation indefinitely.



What is an LED wall solution in virtual production?

At first, we should know what role the LED wall plays in virtual production. LED virtual production is what happens when a combination of technologies lets filmmakers replace their green screens with walls made up of LED panels. With the help of a game engine, these LED walls display real-time backdrops and visual effects, all directly on set.

The new virtual production stage and workflow allow filmmakers to capture a significant amount of complex visual effects shots in-camera using real-time game engine technology and surrounding LED screens. This approach enables dynamic photo-real digital landscapes and sets to be live while filming, dramatically reducing the need for greenscreen and producing the closest thing we have seen to a working 'Holo-deck' style of technology.

The technology is producing stunning visuals for the Disney+ The Mandalorian, ILM is making its new end-to-end virtual production solution, ILM StageCraft, available for filmmakers, agencies, and showrunners worldwide.



"Mandalorian" Shooting Scene



"1899" Studio Construction

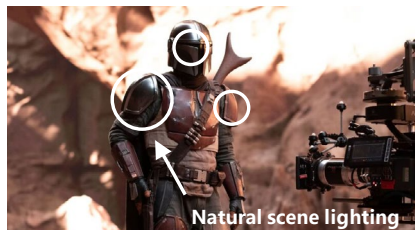
Advantages of LED wall solution

1. Replacing green screens, avoiding green spills issues

One of the disadvantages of green screens is the green spill problem and poor interactive lighting on the characters in the filmmaking. With LED wall lighting, the reflection is much more natural. At the same time, post-production teams will no longer have to spend time keying from green screens.



Traditional Green Screen Shooting, Green Light on the Object



LED Virtual Production, Close to Natural Light

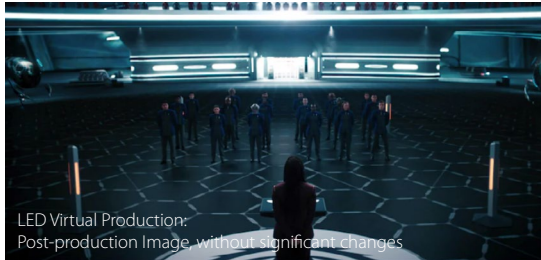
2. Get the control back

Directors and cinematographers will be able to see, modify and sign off on background locations and visual effects in pre-production (even doing virtual location scouts), so there are fewer re-shoots or iterations needed in post.

Actors can see the actual scenery, realize their position on the stage, and better adjust their performance. It avoids tiredness and special disorientation caused by a long-time watching green screens. They no longer have to visualize the final film with only a green screen for reference. Their eyelines will be more accurate when they look at Computer Generated (CG) elements.

4. More efficient workflow, less cost

LED wall virtual production transfers many roles from post-production to pre-production. Many VFX can be completed before finishing the photography. The artist can prepare the frame and visualize the scene before shooting. Although some animations may still be required after the main photography, many post-production corrections are reduced. The assets are cross-compatible and usable from previsualization through final outputs.



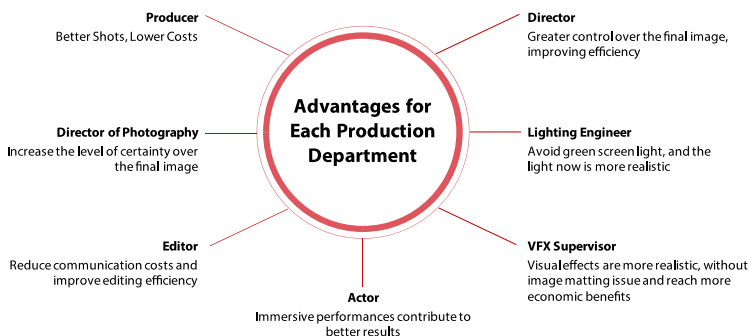
Therefore, the new method completely changes the workflow. Shooting can be reduced by about 50%, and the overall progress becomes shorter. Finally, it will greatly reduce the total cost and time-consuming of film production.

With this technology, crew members can directly view the feeds from multiple cameras. This improves collaboration efficiency and brings many new ideas. And it also makes remote collaboration easier for the partner from any place in the world.

Avoiding budget creep in posts with increased levels of collaboration is an added benefit of virtual production. Because the imagery is created in a malleable real-time engine instead of being baked into more traditional modeling and animation pipelines, completed takes can continue to be refined and updated in post without losing excessive time or money.

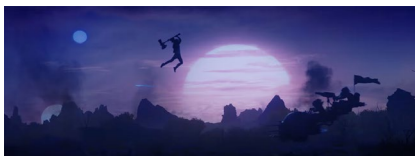
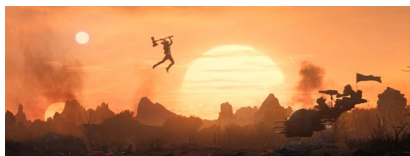
Zach Alexander
 Founder and COO of Lux Machina
“ Every hour of pre-production is worth two hours of production.”

Advantages for Each Production Department



3. Perfect lighting environment, better visual performance

Correct lighting is essential to make the right digital environment for photography. The digital LED wall features dimming the lighting accurately and provides proper highlights and reflections to the actors. It is easy for the cinematographer to take advantage of their expertise to get perfect real-world lighting from the surrounding LED screens in the scene to suit all the needs.



Scenes can be arbitrarily created and fine-tuned

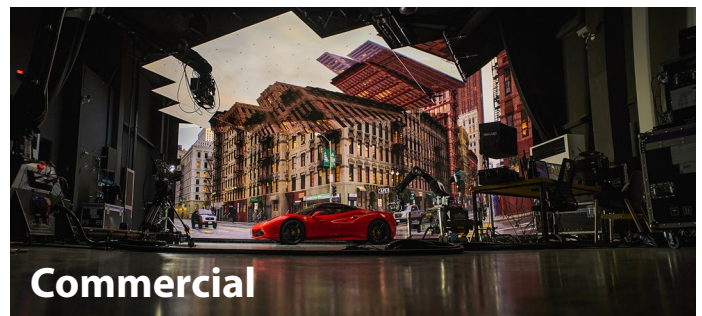
Where LED walls can be used

As the virtual production workflows have evolved, so as the technology, tools and equipment like Unreal Engine, disguise, and LED panels, more high-profile virtual productions have been completed. The markets go more extensive, and so does the talent pool. It will grow more rapidly as more education facilities roll out graduates from their newly introduced virtual production courses.

The LED wall can be used in the film industry and in other applications, like media, advertisement, retail, sports, training, remote work, etc. Many smaller production companies and studios have started exploring the technology. As the technology keeps improving and the asset libraries keep growing, the speed benefits and cost savings to clients are going to be too hard to resist.

The exciting new era of cutting-edge filmmaking techniques is upon us, one of the LED screens, in-camera VFX, and real-time performance capture. No longer exclusively the preserve of Hollywood studios, this technology is now accessible to all creators.

Applications:



Reference:

The virtual production field guide volume 1 and volume 2—Noah, Kadner
Art-of-led-wall-virtual-production-part-one-lessons-from-the-mandalorian—fx guide
The Virtual Production Field Guide: a new resource for filmmakers—Miles Perkins
Virtual Production Accelerates in TV—Noah Kadner
Virtual production expands what's possible for TV commercials—Unreal Engine