disguise xR

Five reasons why xR will take esports events to the next level

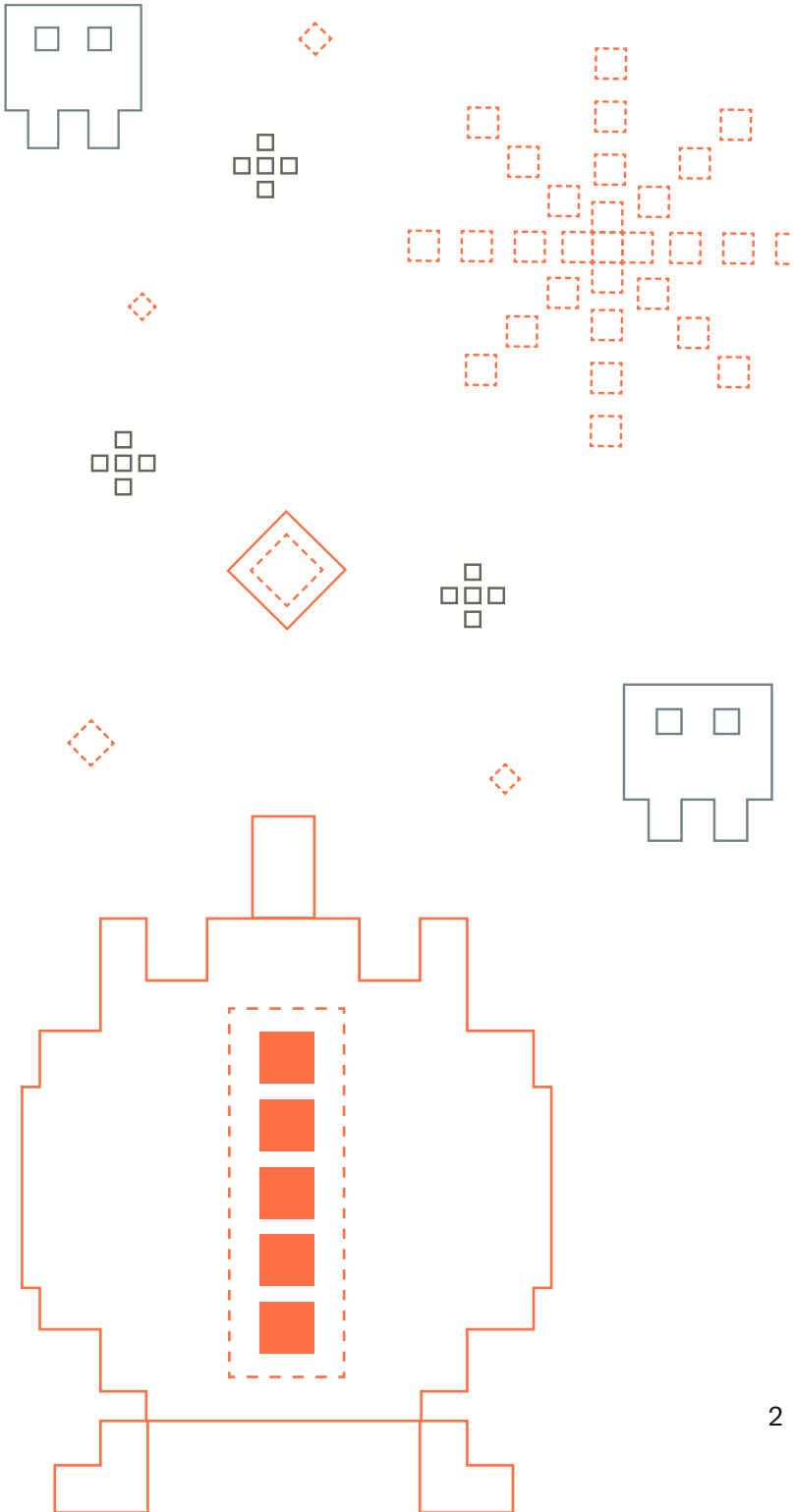
Your guide to how xR technology is giving esports the edge

Discover the disguise xR solution: disguise.one

What you'll learn

This ebook will explore the potential of xR technology to revolutionise esports broadcast and why now is the time for creative studios and technical producers to focus their attention on this emerging powerhouse of live production.

- Why xR is changing the game for esports, from disguise CTO
- Introduction to esports
- Why everyone is talking about xR
- Five ways xR can level up esports events
- Case study: How HP used xR to immerse over 3 million live viewers in gameplay
- Key takeaways
- More xR case studies
- Next steps to supercharge your xR journey



xR is changing the game for esports

I remember the first time I played my first video game. We would gather at the arcade after school - the only place in town we could enjoy such entertainment - and spend all our pocket money trying to get the coveted top spot of the high score list.

Competitive gaming, or esports, has grown into a global phenomenon. It is the world's fastest growing global live entertainment sector with a viewership of almost 500 million and events that sell out arenas.

Esports audiences expect immersive live experiences – fuelled by the rise of real-time graphics and AR and VR in other live event sectors.

At disguise, we are working tirelessly with our user community and partners to build technology that enables brands and artists to connect with their audience in new and exciting ways.

A product of industry-wide collaboration and innovation, disguise xR seamlessly integrates with an array of technologies to deliver a truly unique and immersive visual experience for remote audiences.

We are only at the beginning of our revolutionary xR journey and we've already seen it change the game for esports, broadcast, live music and many other sectors. We cannot wait to show you what's next!

Ed Plowman
Chief Technology Officer at disguise

An industry overview

In 1980 Atari's Space Invaders Championship was the earliest large-scale video game competition attracting more than 10,000 participants across the United States. Three decades on, developments in broadcast and live event technology have turned esports into lucrative large-scale global events.

Esports is the fastest-growing global live entertainment sector in the world. As many as 495 million people engage with esports events every year, either by watching their favourite players or leagues online or by attending live tournaments to see these games played out in real life.

In the last two decades, the industry has evolved from a niche pastime into a global business with a total annual worth of over $1 billion. Today, esports is bigger than ever, growing its audience by 11% year on year, from 495 million in 2020 to a projected 557 million by 2021.

+$1 billion
= total annual worth of global esports market

China remains the biggest market for esports, hosting the largest audience (162 million) and revenues of $385 million in 2020 (35% of global total), followed by North America ($252 million) and Western Europe ($201 million).

Today, with more live events taking place virtually, developments in Augmented and Mixed Reality are make it possible to create immersive, remote esports viewing experiences for audiences at home, taking the esports appeal to new heights.

PUBG Global Invitational - Amsterdam 2018, Image: Nico Alsemgeest

What does xR really mean?

Extended Reality (xR) is a collective term in live production, combining Augmented (AR), Virtual (VR) and Mixed Reality (MR) elements to extend the reality we experience by either blending the virtual and "real" worlds or by creating a fully immersive experience.

Augmented Reality

AR is a widely used term to describe the addition of 3D generated content, composited over a live background view, providing the appearance of content sitting in (or augmenting) the real world.

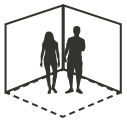
Mixed Reality

MR goes beyond composited AR, placing real-time rendered content on screens around and under actors and real objects, creating rich virtual environments that immerse the actors in the space.

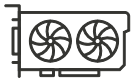
Virtual Reality

VR is the creation of simulated environments, placing the user inside these experiences. Instead of viewing a screen in front of them, users are immersed and able to simulate and preview the production environment from within the VR headset.

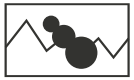
xR sits at the heart of three fast-moving technology trends, maximising on each to accelerate its spread into the future



Finer pitch LED screens, with versatility and longevity to future-proof your investment



Faster GPUs than ever before



Real-time content engines enabling designers to create groundbreaking new visuals

In an xR environment, computer generated graphics can be layered on top of the real world in-camera, allowing increased use of complex visual effects to create a fully immersive production extended beyond the constraints of a physical space.

Why is everyone talking about xR?

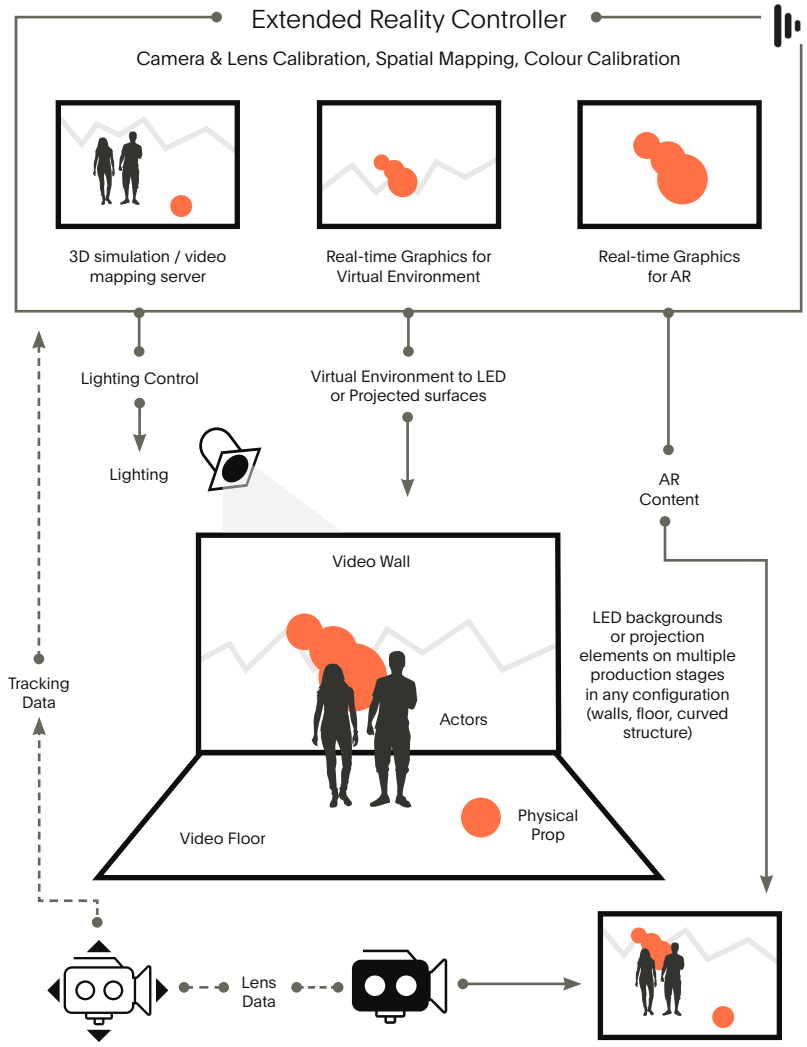
The disguise xR production workflow helps deliver inspiring Extended Reality experiences in film, broadcast, live music, education, corporate events and esports. By combining LED, real-time content and camera tracking our xR workflow seamlessly extends the physical space into a virtual world.

In an xR workflow, computer generated graphics are completely run in real-time, and scenes instantly react to the movements of tracked cameras. This allows people on camera to visually interact with their environment, adding a new layer of engagement that lends realism to the performance. The content is powered by industry-leading disguise media servers to deliver a truly unique visual experience.

Discover the disguise xR solution

www.disguise.one/en/xr/the-solution/

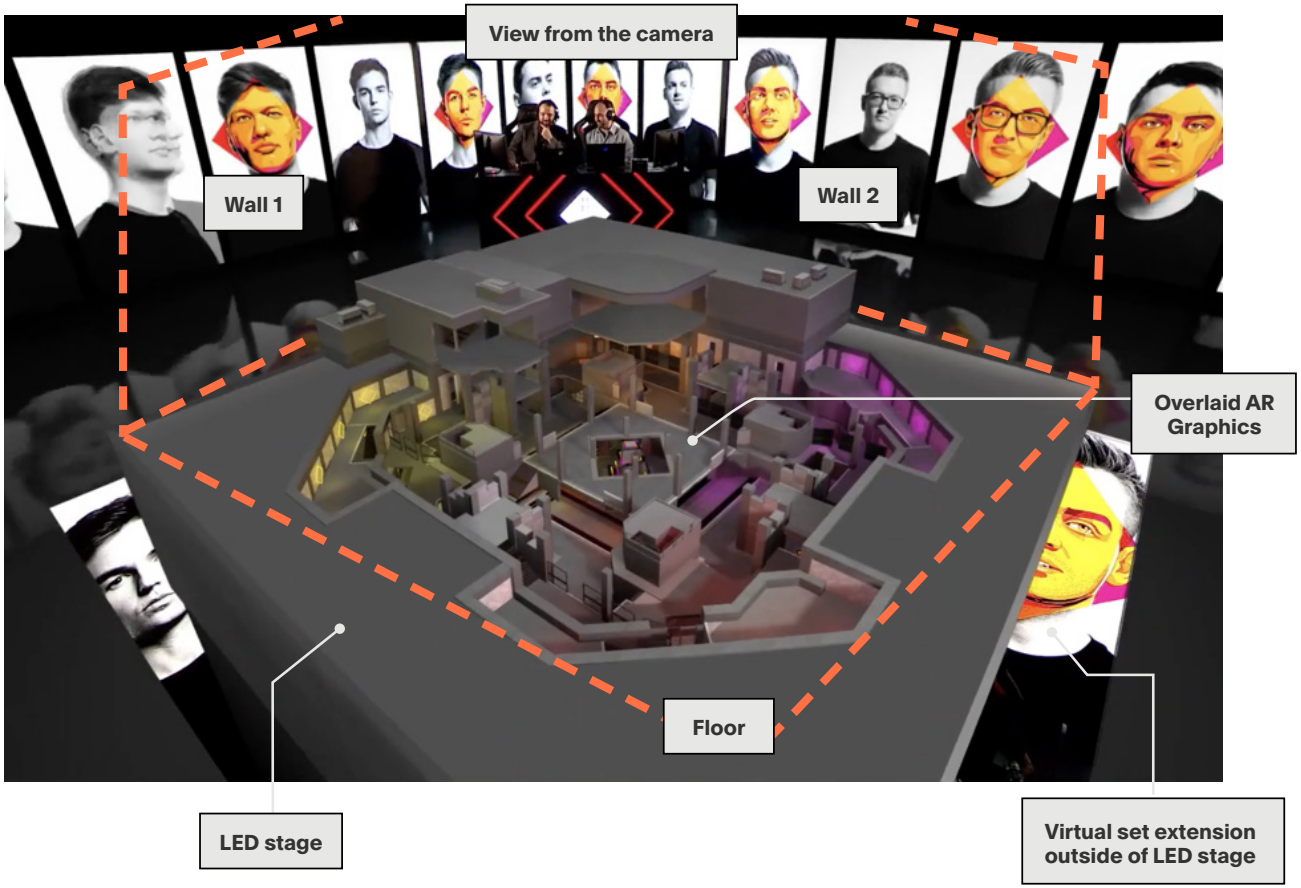
xR setup and components



The xR live action stage for HP Omen Challenge

What xR can bring to live production

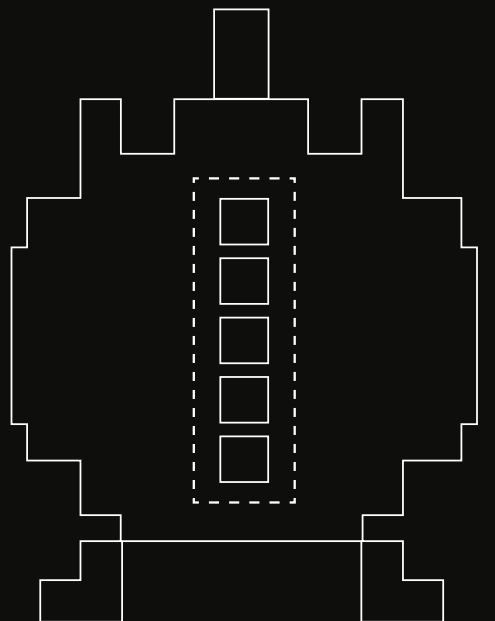
disguise xR has enabled a virtual extension of the LED set where the presenters of the 2019 HP OMEN Challenge tournament sat. It also enabled an AR reconstruction of the game map laid over the LED floor, so viewers could see presenters step into the game on screen and offer a more accurate and immersive commentary.



Five ways xR can level up esports events

As the future of live events is turning increasingly to the virtual realm, xR is enabling creative studios and technical producers to future proof their skills for the new era of live production.

Next, we're going to explore five ways xR can level up esports events:



Level 1 Engage a tech-savvy audience like never before

A young and digitally-native audience, console and PC gamers are early adopters of high-resolution displays and high-bitrate videos and **expect the latest in visual tech developments in-game**. Their expectations are the same when watching esports events. Audiences also need to see the action as it unravels so low latency and a clear, uncompressed view are paramount.

Esports producers need to create coverage that is dynamic and attention grabbing while under the real-time pressures of a tournament. xR allows them to add **a new level of audience engagement** to the production that was previously unheard of.

Traditionally, esports tournaments are played out on a flat screen, capturing only what the players would see from their characters' vantage point. With disguise xR, viewers can see an **AR reconstruction of the game map** on screen, in the centre of the LED stage and capture details they normally wouldn't be able to without actually playing the game.

xR unlocks the potential for entirely new experiences broadcast via existing channels. Viewers don't need to adopt consumer technologies like VR headsets to enjoy them. xR transports them into the game and allows them to **follow players from any perspective** as they progress.

Level 2 Immerse your players in the game

xR provides an superior solution to green screens and helps talent with no media training feel more at ease on set. LED screens display the action in real time letting them **interact more naturally** with the details of the scene they are immersed in, rather than act off a blank green screen as in a typical VFX studio.

Using the disguise xR workflow, it is possible to create the illusion that **talent on stage is standing in the game world for a broadcast audience**. When tournament players are being interviewed after a match, xR enables them to stand in the LED space and watch replays of the game in real-time. With the help of camera tracking technology and the game engine rendering into both the LED and virtual worlds, the players can see themselves in the game, following their character and pointing and reacting to what they could see on the screen.

Also casters can stand or move around the LED stage, while the disguise xR workflow will make it look like they are fully immersed within the world of the game. AR layers in the workflow can also allow talent to **interact with foreground 3D objects** – creating exciting, dimensional experiences for the viewers.

Level 3 Create boundless virtual worlds from a small studio space

xR can help create vast worlds on screen from the smallest studio spaces. With the help of its set extension properties it's possible to create dramatic, far-reaching depth of field effect. Creators can also achieve a full 360 view of the 3D world as the camera rotates. Users can expand the scope and scale of wide shots far and **beyond the physical limitations of the set**.

The simplest xR studio setups combine just two LED panels with camera tracking, to generate **boundless virtual worlds on camera** that viewers at home can immerse themselves in.. Inside these virtual environments, the camera perceives amazing depth, parallax and vanishing points – just as in real life. This is a result of 3D content rendered in real time from the perspective of the camera. As the camera is tracked, it is rendered from the moving camera perspectives putting the viewer into an experience that feels real. It's this trick that that fools the camera into believing that it is looking into a 3D environment.

Creatives can also bring to life compelling new visual experiences from small studio spaces, while tournament organisers can **save money on set size and location** without compromising the scale of broadcast.

Level 4

Switch seamlessly and instantly between content on screen

In a live broadcast scenario, time on set is limited and the shooting is often done days in advance allowing enough time in post production to deliver the final footage. With an esports tournament, **all filming needs to be done in real-time**. Producers have to be able to switch, live, between real-world players and the actual game on screen, moving seamlessly between different resolutions and frame rates without an obvious switch in quality.

xR can support a wide range of dynamic environments — from photo-realistic spaces to all manner of abstract and highly imaginative scenes. People on screen can be **teleported from one environment to another** without physically moving from the confines of the stage. When replaying scenes from a game, producers can change the backdrop on the LED screens at the touch of a button. This power transports those on stage to different parts of the game instantly.

As all content playing off the LED screens is real-time generated, xR lets the production team to see the content as it unfolds and **make more creative visual decisions in real-time**.

Level 5 With disguise, connect any system

At the heart of the xR environment sits the disguise xR workflow. Our pioneering pre-visualisation software and video mapping servers receive content from real-time game engines and map it onto the LED surface of the xR stage.

More than a tool to simply power up and deliver the show on the day, disguise comes into play much earlier in the production pipeline. All programming, testing and sequencing can be done **ahead of the live date**. Without physical access to the stage, allowing time for troubleshooting on site.

The workflow is **fully integrated with third party systems** (lighting, tracking, automation) which can be controlled from the disguise software. It's also game engine agnostic, supporting industry-leading generative content engines Unreal Engine and Notch, unlocking collaborative opportunities across both.

Born out of a pioneering new technology to deliver show-stopping live visuals for concert touring, disguise has been **trusted by the world's leading brands and artists** for over 20 years. With media servers built to last, disguise hardware is unrivalled when it comes to power and durability, catering to projects from worldwide tours and brand launch events to the most cutting edge live and virtual productions.

Case study: How HP used xR to immerse over 3 million live viewers in gameplay

The Challenge

Live programming is essential for esports events but action in the game is too fast and complex for production teams to trigger visuals and control all equipment in real-time. Technology must move as fast as the players in-game.

The Production Goal

For HP's 2019 **OMEN Challenge Tournament**, London-based creative agency AKQA envisaged a world-first mixed reality esports broadcast and game analysis platform that was as advanced and eye-popping as the sport itself. Offering a battle arena with a unique and immersive stage and content, the event aimed to put the Counter-Strike: Global Offensive competitors and commentators into the game, dissecting moves and explaining strategies.

XR Studios Technical Director, Scott Millar, along with Pixel Artworks creative studio were brought on board to fulfil the ambitious creative brief, making it the first esports event powered by xR. The team chose disguise xR to deliver the production because of its unique ability to place presenters and casters into the actual game world to engage with it, blurring the lines between gameplay and reality.

The Solution

The disguise workflow combines real and virtual world elements in one system, removing the need for additional production equipment. As such, the technical requirements only included:

- Two LED-powered xR stages, featuring real-time graphics for the casters, presenter and gamers to interact with
- AR effects triggered by live game data
- Controllable replays of key moments in a 3D environment
- Pre-rendered video to be played back to live audience

Case study: Results

The team leveraged the disguise production workflow and Notch generative content engine to respond to live gameplay updates and create responsive graphics in real-time. **disguise xR was introduced to further immerse audiences into the game**. Featuring AR game elements and an LED background, it allowed the hosts to present the show from within the map and deliver Mixed Reality replays of every move.

Working closely with Valve, the developer of Counter-Strike: Global Offensive, Scott's team created a virtual studio and set which, through camera, gave the impression a real person was in the game. This was achieved by using xR to enlarge and overlay content in-camera while using MR to track the real-broadcast camera world, including camera tracking, to align live broadcast cameras with the digital cameras in the game.

> **"We chose disguise xR to deliver the production because of its unique ability to place presenters and casters into the actual game world."**
>
> Scott Millar, Technical Director, XR Studios

HP OMEN Challenge project credits

Event organiser	AQKA
Technical director	Scott Millar, XR Studios
Production design	Pixel Artworks
Live broadcast	Flux Broadcast
Notch programmers	Marco Martignone & Lewis Kyle-White
LED & disguise server suppliers	80six
disguise servers and operators	GrayMatter Video
Images	Joe Okpako

Discover our latest case studies for more applications of xR

disguise delivers xR experiences for the world's leading artists, brands and production houses. From enterprise businesses to pop icons, disguise is trusted to boost awareness and engagement, drive demand and grow loyalty.

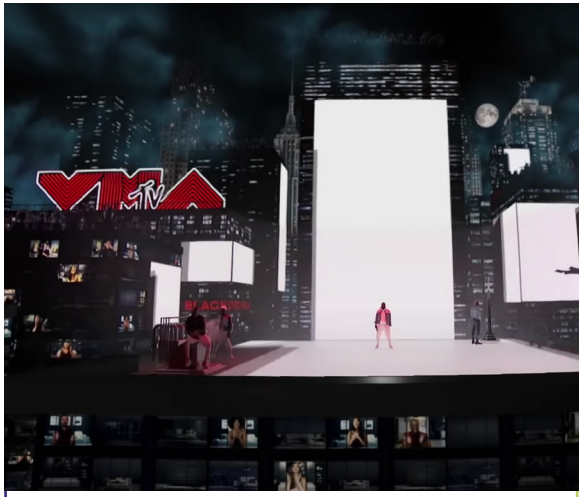
Find out about other successful applications of disguise xR in the case studies below:

Katy Perry on the American Idol Finale 2020

Studio: XR Studios
Use case: Live music & broadcast

SAP 'Sapphire Now' Virtual Conference

Studio: SAP, Live Legends, Purple
Use case: Corporate conference



MTV Video Music Awards 2020

Studio: XR Studios
Use case: Global awards show & broadcast

Your xR key takeaways, 11 reasons now is the time for xR in esports

Extended Reality (xR) combines Augmented, Virtual and Mixed Reality elements to deliver a fully immersive experience.

xR is opening up a whole new world of opportunities to deliver compelling stories.

xR has already revolutionised production in film, broadcast, live music, education, corporate events and esports.

xR allows producers to add a new level of audience engagement to the production.

xR provides a safe, controlled environment at minimal cost and human resource.

xR provides an immersive environment, requiring minimum training for talent to interact with it.

A small studio can appear endless with set extension.

xR is engaging and interesting for both talent and viewers.

xR technology provides a limitless canvas in your space, to extend your set beyond the physical bounds of your stage.

xR allows you to capture your presenters best performance because they can interact with the content around them.

There are experts in the market you can trust to get you started on your xR esports journey.

Supercharge your xR journey with disguise

→ **Discover more xR content like this**

→ **Book a demo with a technical solution specialist**

→ **Get started with disguise, download your Designer license - free for a limited time**

About disguise

The disguise technology platform enables creative and technical professionals to imagine, create and deliver spectacular live visual experiences at the highest level.

Stages globally are running disguise xR and the solution has already powered breath-taking remote immersive productions for music artists such as Katy Perry, Black Eyed Peas and Ellie Goulding, enterprise businesses like SAP, educational institutions like the University of Michigan, broadcast TV shows like MTV Video Music Awards and America's Got Talent, commercial brands like Asahi and Under Armour and many other virtual experiences in more than 20 countries.