ITV Sport broadcasts the UEFA Euro 2020 in a hybrid xR studio set-up

For ITV Sport's coverage of the UEFA Euro 2020 championship, disguise Certified Solution Providers White Light relied on the disguise Extended Reality (xR) platform to deliver a hybrid extended reality and real-life studio space where the broadcaster could present the match coverage in real-time.

In this case study you will learn how White Light drew on their extensive background in broadcast and xR to design a robust solution for ITV Sport, powered by six disguise rx II and three vx 2 media servers.

At a glance

ITV Sport, White Light and disguise's collaboration dates back to 2016 for ITV's Formula E Studio. White Light designed a flexible, modular studio solution powered by disguise, which could be swiftly re-deployed for different shows. This collaboration has evolved over the following years, as the three worked together on many other broadcasts, including ITV's broadcast of the 2018 FIFA World Cup. The same year also marked White Light and disguise's unveiling of the world's first xR solution in the Future Zone of IBC 2018.

Three years later, building on the same concept, the boundaries of innovative studio technology were pushed even further after the development of disguise xR as a robust and reliable workflow for broadcast. For the UEFA Euro 2020 championship coverage, a **360° expansive virtual environment** was created for ITV. Real-life panoramic footage of London and live camera feeds from the stadiums were blended with photorealistic generative content developed in Unreal Engine. Augmented Reality (AR) graphics were added to create this ambitious hybrid broadcast.

The challenge

For UEFA Euro 2020, the original plan was to build the broadcast studio in central London with a breathtaking view down the Thames. When the Covid-19 pandemic led the tournament to be cancelled for a year, the team opted for a hybrid studio solution so they could be flexible with any outcome.

As a result, ITV Sport called upon White Light's Innovation & Media Solutions team and facilities provider, Arena, to design an innovative yet robust hybrid xR studio which, for the first time in history, **placed a real studio set inside a much larger virtual studio** without the challenges that come with using green screen.

Diving into the unknown didn't come without its challenges. The team was faced with seamlessly **integrating a real and virtual world within a live multi-camera studio setup**, **along with third-party AR graphics, during an entirely live broadcast**.

The solution

The team designed an end-to-end xR broadcast solution, integrating a 20m-wide curved LED wall, which formed the background of the real studio set in Maidstone in Kent, England, along with virtual set extensions, AR elements in the foreground, lighting, as well as camera tracking. The team ensured that the virtual world was perfectly stitched to the real set, creating an augmented extension powered by Unreal Engine's real-time graphics, which masked the rest of the Maidstone studio.

Before they stepped on site in Maidstone, the team worked with Set Designer Paul Sudlow, Kevin Cooney and his team from virtual set specialists Level, the Directors of Photography (DOPs), and the ITV Sport team, to design the virtual set look. Using the disguise previsualisation software, they were able to **remotely test various screen content and programme lighting** all the way from White Light's London office. disguise allowed White Light's operators on-site in Maidstone to **sequence, control and deliver a wide range of content into the hybrid set** – treating the real LED wall and virtual world as one unified, digital canvas.

The solution

The team could also paint live feeds from the vision mixer and EVS replays into any element of the set.

Other dynamic content feeds included 11k video loops of Central London views and live panoramic UHD feeds from the host broadcaster fed directly from the stadiums across Europe.

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“disguise’s RenderStream infrastructure gives us an uncompressed, high-quality live stream from Unreal Engine into disguise. With seamless integration into the broadcast media system, we can control the physical and virtual environments together in real-time, giving us slick, unified control of the whole hybrid studio.”

Andy Hook, Technical Solutions Director, White Light

The results

White Light deployed a fleet of six of the latest disguise rx II render nodes, along with three vx 2 media playback servers to produce a powerful, fully redundant and integrated media system to run the whole studio.

Working with the rx II real-time rendering nodes, White Light could **easily scale render power for the complex Unreal Engine real-time scenes by simply adding more render nodes** on a 25gb IP network. “We’re excited about the potential of disguise’s cluster rendering, which means we can easily scale render power for these complex virtual or hybrid projects by simply adding more render nodes on a 25gb IP backbone. This removes the performance bottlenecks we used to see on virtual set projects and means **creatives are no longer limited by hardware and only their imagination**” continues Hook.

The results

White Light also provided all the real studio lighting fixtures and worked closely with the team from Level as well as the DOPs to ensure integration between the real and virtual worlds. The team chose to develop a hybrid scheme for Maidstone Studios, allowing control of all lighting fixtures from a traditional console in both the real set and the virtual environment. The huge LED canvas gave the team a source of ambient light with real reflections of the London vista.

“This combined with the live, virtual lighting control we had at our disposal further blurred the lines between the real and virtual worlds allowing us to accurately match the changeable London weather conditions at all times of day in both worlds,” says DOP Chris Hollier.

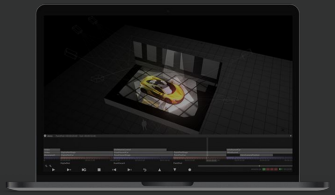
Success

ITV Sport's coverage of the UEFA Euro 2020 Championships achieved **27.6 million viewers** - the largest football audience on a single channel ever.

White Light, as early adopters of disguise, continue to stay on the cutting-edge of extended reality in broadcast, transporting presenters, crew and their audiences to any location in the world without ever getting on a plane. According to Hook, White Light's pioneering use of disguise in broadcast environments directly shaped their development journey with disguise, finding new ways to evolve the product, and create ground-breaking solutions that have not been made before.

disguise equipment used

Designer software



Designer is the ultimate software to visualise, design, and sequence projects at every stage, from concept all the way through to showtime.
Find out more.

vx 2

Building on the strength of the vx 4, the vx 2 gives you the freedom to build out your technical capacity depending on the size of your production.
Find out more.

rx II

rx II is our dedicated system for hosting content real-time render engines, unlocking 40% more graphics processing power than its predecessor.
Find out more.

In partnership with:

White Light Technical Solutions Director: Andy Hook
White Light Project Manager: Harry Greenfield
White Light Media Solutions Specialist: Alex Loftie
ITV Sport's Senior Director and Executive Producer for Major Events: Paul McNamara
ITV Sport's Technical Supervisor: Paul Bateman
Unreal Engine Content Production: Kevin Cooney & Team
Directors of Photography: Chris Hollier, Andy Cottey
Gaffer: Gafin Riley
Set Designer: Paul Sudlow
AR Graphics Providers: Alston Elliott
Onsite Broadcast Facilities Provider: Arena
Physical studio build: Monkey See Scenery
Studio facilities: Maidstone Studios

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Find out more about disguise:

info@disguise.one
+44 20 7234 9840