Case Study

# EURO2020 - a fresh approach to remote reporting

*MoovIT develops pioneering workflows for the European Football Championship in pandemic times*

*Everything was new - we were looking for solutions - and they worked.* This was how event organisers and technical service providers summed up their experiences at the end of an exciting EURO2020, a tournament which could only be held in summer 2021 due to the COVID-19 pandemic. The relief among these stakeholders was palpable, as the situation and circumstances could hardly have been more complex – all of which made spontaneity, creativity and flexibility an absolute must.
Jan Fröhling, project manager for EURO2020 at MoovIT, played a key role in the technical planning of reporting processes, and spent the duration of the tournament working with his team at the IBC in Amsterdam. In parallel, an additional MoovIT team was stationed at IMG in London to deliver post-production support.

## The challenge: planning

Even the production setup that had originally been planned for 2020 was highly ambitious: in total, 11 host countries across Europe – including Russia and Azerbaijan – needed to be integrated into the reporting network. The event organisers opted for a central IBC (international broadcast centre) in Amsterdam, where all data and images from the host venues, cities and countries would be brought together. The plan was to rely on established workflows and centrally manage the complex production process at the IBC; this would encompass live feeds, live streams, highlights packages, team profiles, host city profiles and more.

### *New challenges*

- Transmission from 11 host countries
- Avoidance of large groups
  -> no central editing teams
- Remote signal transmission
- Mobile Electronic News Gathering (ENG) requires mobile data contribution
- Mobile press conferences
- Automated green screen
- Decentralised review & approval

### *New solutions*

- Decentralised reporting of mobile teams
- Remote setup with 2 main sites:
  Amsterdam & London
- Screen transfer via Teradici CAS
- Mobile data transfer via Aspera, injection points and Aviwest transmitters
- Data storage with Aviwest StreamHubs
- Integration of AI-based tool Unscreen
- Remote use of MoovIT's RevApp

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It was felt that this would be the best way to ensure the reliability and quality of the coverage from each of the 11 host countries, while also meeting the technical and creative teams' needs for a highly complex production system. The IBC would provide finished video packages for international broadcasters to play out in their desired formats. There would be content for media channels and platforms such as TV, mobile and online formats, plus signage formats to display on fan screens in the stadiums, and material for other channels with corresponding packages.

## The challenge: the pandemic

Moving into spring 2021, however, the ongoing pandemic meant that new epidemiological distancing and hygiene rules came into force. These rules needed to be implemented at very short notice to allow EURO2020 – already postponed once – to take place at all. As large gatherings in enclosed environments were to be avoided, it became clear that the production operation would have to be decentralised. New solutions were needed that would meet the given technical requirements, and fast – with hardly any lead time for testing. It was once said that in football, "the round thing must go into the square thing", and in a figurative sense, the same challenge faced the technical planners of the European championships. A mammoth task lay ahead – and not only that, but the team's success had to be secured before a ball had even been kicked.

Most of the staff was working in post-production. IMG, the company commissioned by the event organisers for post-production, had a team of editors and cutters at its headquarters in Stockley Park near London, England. It therefore made sense to base post-production operations there and organise workflows on-site, in compliance with the social distancing rules.

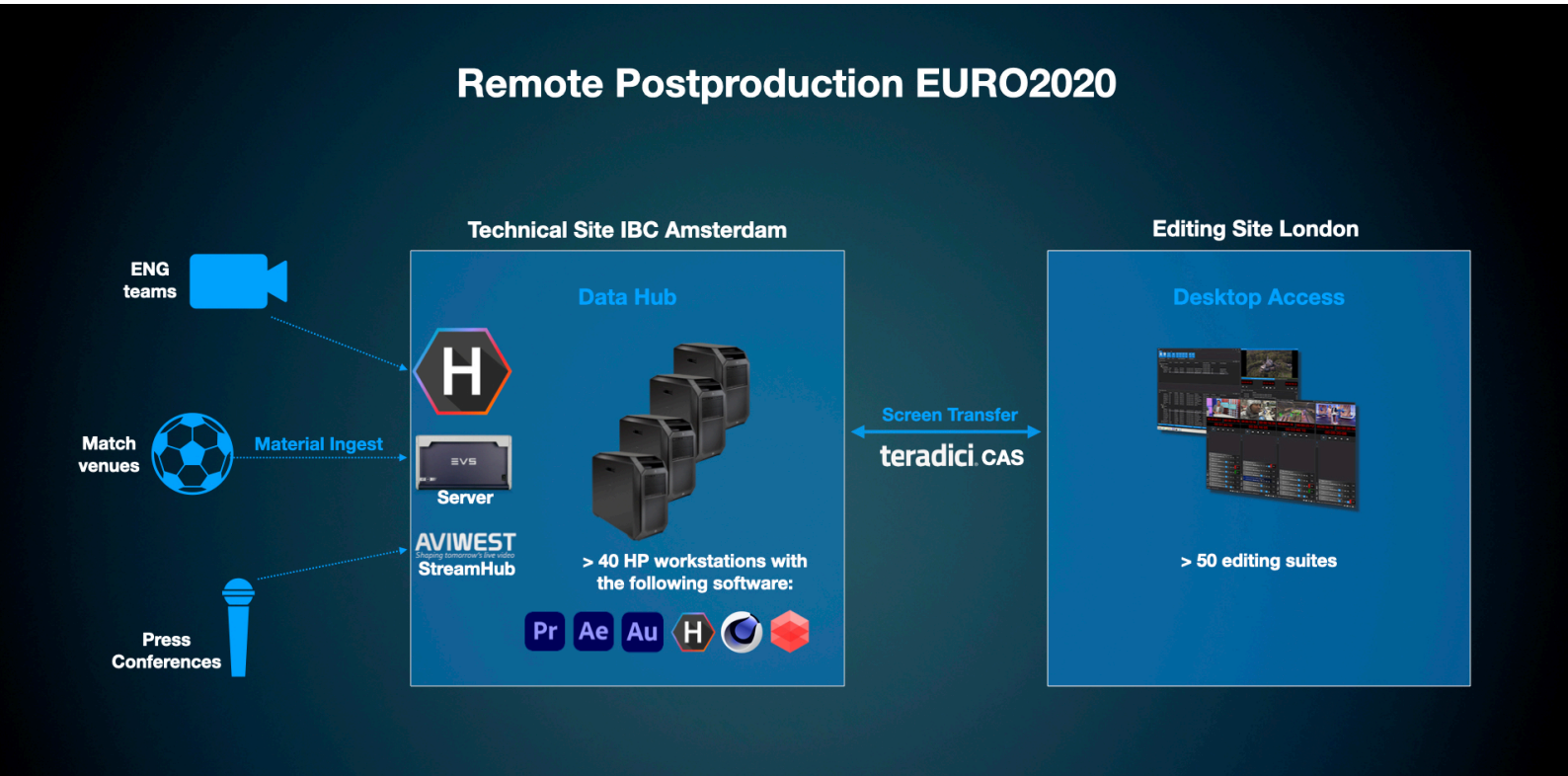
There were two potential concepts for technical integration:

1. The entire production process – including computers and media content – could be relocated to England so that post-production could take place 'on-premises'. OR
2. Alternatively, all computers would remain in Amsterdam in accordance with the originally planned production environment, and all editing and processing would take place remotely. In this scenario, the technical infrastructure – workstations, storage, content and so on – would be located within one 'unit' in Amsterdam. External editorial teams, such as the team in London, would be located within one 'unit' in Amsterdam. External editorial teams, such as the team in London, would then be able to access this infrastructure remotely.

After each concept had been examined and evaluated, the final decision was made to take the outsourcing approach with a remote setup – an absolute first for a major event of this size and scale.

## The challenge: remote setup

This was a brave choice, because many things needed to be planned for the very first time under considerable time pressure. It was decided to operate the core of the technology in Amsterdam, with only the interfaces required by the editing teams being transferred to England. Thin-client systems were shipped to London including monitors, audio equipment and Wacom tablets with remote access to the 'craft edits' stored at the IBC. The network infrastructure would be retained as originally planned, with all tools and integrations. It was hoped that users at the 40 editing workstations, across a total of 55 systems, wouldn't even notice that the actual computers were situated in Amsterdam, rather than on-site in England.



The most important connection for the remote setup was the dedicated fibre-optic line provided by the EBU, which ensured a static link between Amsterdam and London for the real-time transfer of media content.

The project planners turned to Canadian vendor Teradici for the necessary software support. Teradici delivered the central PC-over-IP tool for access to the computers. Amsterdam-based desktops were transmitted to England using the Teradici tool and presented in such a way that users felt as if they were physically sat at the computers in Amsterdam. In addition, Teradici also connected audio signals and monitoring, voiceover systems and peripheral devices such as Wacom tablets.

The data connection obviously needed to be fully secure and reliable. As the connection used a dedicated fibre-optic cable via a ring network, sufficient redundancy was always available if any faults occurred. A constant latency of only a few milliseconds per round-trip ensured that workflows ran seamlessly.

## The challenge: data and project management

Connections to the technical infrastructure in Amsterdam followed the familiar pattern from previous European football championships. At the heart of the setup were EVS systems with central storage, the EVS IPDirector video content database, and EVS automation via Xsquare for orchestration. MoovIT's Helmut4 project management software was 'docked' onto this system to manage the finished content packages based on predefined criteria.

The entire Helmut4 toolset was deployed with all its components, including its project management, data administration, data sorting and file transfer capabilities. This ultimately meant that all aspects of project management were automated, including ingest/outgest. Helmut4 was the connecting element that intervened in and automated all processes, managing and securing the entire post-production workflow.

The central editing program in use was Adobe Premiere Pro, with an integrated EVS IPLink panel. IPLink accessed the IPDirector database, which lists content and makes it searchable. Editors could use the panel to import content from the media asset management (MAM) system into their projects. This content could take the form of growing or completed files which had been added to the system by the ENG crews. The editors could then cut these files and export them via Helmut. A variety of export profiles were configured in Helmut for assigning to the various teams; these included match promos, match highlights, digital content/social media, and host city profiles. Different teams could work with different templates and export profiles, depending on which content needed to be sent where and with which additional information.

In line with this automated workflow, the transfer points for further processing of content were contacted automatically. For example, hi-res content could be seamlessly checked into the MAM system together with corresponding metadata. At the same time, there were numerous export and transfer scenarios where content had to be transferred to specific folders or formats, such as square or vertical formats for Instagram. Connections to other platforms and for data transfers to London were also managed and executed fully automatically, in accordance with previously defined criteria.

With its diverse components, Helmut4 served as the central control unit for video project management in this complex environment. As Jan Fröhling emphasises, Helmut4 was not deployed here as a 'customized product'; in fact, it is a standard solution that proved capable of meeting the entirely new requirements of EURO2020, as it has done with numerous major projects in the past. Here, Helmut4's strengths were particularly evident when it came to designing remote operational workflows.

***Project partners***

**EVS**: Central storage, IPDirector database for video content, automation with Xsquare for data organisation

**Adobe**: Premiere Pro as the central editing program

**Synology**: Two storage systems for archiving and production

**HP**: Editing workstations and Helmut render servers

**Apple**: 60 MacBooks Pro

**Wacom**: Graphic Tablets

**Teradici**: Signal transmission for remote production

**NewTec**: NDI plug-in and Kiloview for converting data into video signals within the remote workflow

**Red Giant**: Plug-ins for 70 editors for adjusting colours, filters, transitions, font generators, etc.

**IMG**: Production service provider, acting on behalf of the host broadcaster

**Aviwest**: Mobile transmission systems for mobile data, also in combination with WLAN and stationary network

## The challenge: transmitting signals in remote operations

Typically, video signals created in Premiere on an IBC desktop in Amsterdam would be transferred via cable to the editor's monitor for visual inspection. But in this remote setup, the sheer distances involved meant that a different approach was required. The solution consisted of an NDI plug-in developed by NewTek and integrated into Premiere. This plug-in transmitted video signals from Amsterdam to London via the network tunnel, before making them available for review on the editor's monitor. The plug-in generated an NDI signal that was transmitted across the network to England, where decoders from Kiloview received the NDI data streams and converted them into classic video signals. This monitoring was fundamental to the entire remote workflow.

## The challenge: supporting ENG teams with reporting duties

Live and mobile reporting during the tournament needed to cover the 11 stadiums, numerous training grounds, the host cities and countries, and the supporting sponsors. Each country had several ENG teams – all reporting on the participating nations, their training camps, the host nations and their people, while sharing facts and figures and capturing the overall atmosphere of the event.

MoovIT packed approximately 60 backpack kits to equip the ENG teams in each broadcast nation with the necessary technology. Even delivering these packs entailed an enormous logistical effort. Each team – consisting of editors, camera operators and media managers – received a backpack containing a MacBook Pro with peripherals, storage media, power adapter kits, hard drives and more. Premiere Pro and Helmut were pre-installed on all computers, ensuring reporting teams had all the software they needed.

This allowed them to produce rough cuts or edits which could then be transferred to the IBC with central metadata profiles and any additional descriptive information. The teams didn't need to worry about assigning files correctly, as Helmut automatically managed this for them.

There were three transfer methods to choose from:

1. Using Aspera as a browser plug-in;
2. Using an EBU box that was available as a transfer system in the stadiums and training grounds and connected to the server in Amsterdam;
3. Mobile transfer via Aviwest transmitters – compact, practical units with 8 LTE modems to transfer video over mobile data networks.

This ensured the maximum possible flexibility for file transfers – no matter which environment and conditions the reporters were working in.

## The challenge: mobile press conferences

'MDM-1' (Match Day Minus One) press conferences are an essential part of European Championship coverage. Teams and squads face the media on the day before each of their games to discuss the latest hot topics and their pre-match preparations. Typically, these press conferences take place at fixed locations close to the stadiums, with many journalists in attendance. However, with COVID-19 restrictions in force, this concept was not viable in many countries. Neither the press conference locations nor the infrastructure could be planned with any certainty. This created a need for a flexible, professional mobile solution for the organisation of press conferences.

The planning team found their answer in collaboration with Aviwest. Using the Aviwest Pro 380, video signals were encoded in H265 10-bit and transferred to the IBC via mobile and/or fixed-line internet connections. The system was able to use stationary network cables, WLAN or mobile 4G data simultaneously and bundle the bandwidths for the transmission of video feeds. Live signals would arrive on the receiving server at the IBC, ready for further processing.

The entire setup was operated by the event organiser, supported by Aviwest, and planned, evaluated and integrated by the MoovIT team.

## The challenge: automated green screen

A popular part of football match coverage is to introduce the players, accompanied by up-to-date images and information. Combining images with themed backgrounds using green-screen technology is nothing new.

However, MoovIT's software developers have further evolved this concept. During EURO2020, they unveiled a system that can automatically remove video backgrounds – developed with the integration of the Unscreen engine (Unscreen.com). Raw material was stored in After Effects templates at the IBC and transferred via API to the Unscreen engine. The AI-based engine then analysed the footage to determine where a person was situated within the image content (instead of generating a pixel-based mask, as was previously common practice), before extracting the person from the image based on the calculated data. The result would then be integrated back into the template project, where the image content could be scaled and positioned before being sent for further processing. This innovation made it significantly easier for editing teams to extract players from images. The graphic designers utilised this new technology for player profiles, but also to more easily implement new effects in social media communications.

## The challenge: review and approval

The remote working conditions under which EURO2020 took place provided the ideal environment to manage the entire review and approval process in the cloud. When reviewing the content of clips, the editors in London communicated largely automatically using MoovIT's RevApp tool in the MoovIT cloud. Since RevApp was fully integrated into the post-production infrastructure via Helmut4, clips could be assigned to the relevant editors for review directly from the Premiere timeline. Each editor was notified via a link and could respond regardless of their location and platform. The existing standard internet infrastructure was fully sufficient for this task.

## MoovIT - a key player

The coverage of EURO2020 is a success story built on innovation. Ultimately, none of the associated technical challenges were even noticed by viewers across the globe – a testament to the outstanding work and achievements of the team's technical partners.

In this scenario, MoovIT took on the role of 'playmaker'. MoovIT's team played a crucial role in the planning, evaluation and integration of the workflows. Jan Fröhling and his colleagues helped to integrate the partner systems, supported on-site processes with teams at the IBC in Amsterdam and at partner company IMG in London, and carried out troubleshooting where needed. As a result, approximately 6,000 clips containing around 17TB of data were exported from Premiere. This equates to around 180 hours of relevant video content that was generated during the four-week tournament.

By combining standardised software management tools with solutions that could be flexibly tailored to the needs of the situation, MoovIT's software development specialists managed to create numerous innovations in an extremely short space of time. Once again, these innovations can provide the foundation for future-ready workflows – and not just in the field of sports coverage.

About MoovIT

MoovIT is the video and IT service provider for broadcast and industry.
The company, based in Cologne's Schanzenviertel, specialises in the development and support of workflows around post-production, news and archiving at the interface of video and IT. MoovIT is the professional partner when it comes to optimisation and automation in video project management. Especially for collaborative video editing in large production environments such as sports coverage, new software solutions are continuously being developed that adapt perfectly to customers' workflows. MoovIT also offers innovative tools for web-based video personalisation, localisation and regionalisation. Its customers include broadcasters, production houses, sports broadcasters, agencies and industrial companies.
For them, MoovIT realises the WORKFLOW IN FLOW.