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Digitally Optimising
Sports Event Delivery

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People love sports events

This year, sports fans across the globe are projected to spend over \$22bn in securing tickets, a figure that is expected to double by 2030. In the UK, more than 80m people attended a live sports event in 2023 and in the US over 100m attend matches in their big five sports – NFL, NBA, MLB, NHL and MLS - alone, each year.

People love to watch live sport on TV too, especially in the US, where nearly 160m – that's almost half the population – watch at least one live sports event each month. A global study by Alman Solon, which surveyed 17,000 consumers in 17 countries revealed that this trend extends worldwide with 70% of respondents watch sports at least monthly

With the world watching, sports events organisers are under immense pressure to deliver an experience that is safe, secure, convenient and enjoyable for fans in attendance and watching back home. There is a similar obligation to the players, media and other stakeholders participating in these events – each has a crucial role to play in delivering the overall experience and it is down to the organisers to ensure they provide framework and tools to do so.

From an operational standpoint, that means providing digital platforms and processes that are reliable, quick and easy to use, and which deliver the functionality that meets the needs of fans and other different stakeholder groups, as well as help the organisers achieve their business goals.

Technology and digital innovation have simultaneously driven up our expectations of sports events and given organisers the tools to exceed them. Over the coming pages we'll dive into what those expectations are, the operational challenges rights holders face in striving to meet them and the technological options they have in doing so, tapping into the technicalities our own experience working with different sports organisations and the solutions we have delivered for them.

What does optimising sports events delivery actually mean?

In the context of the experience organisers provide for fans in-venue and at home, it means making things quicker, more convenient and more reliable. It means offering more choice, more immersion and more personalisation.

For the organisers themselves, it means implementing operational processes more efficiently, using less resources. It means capturing more data and being able to better and more quickly analyse it to generate insights on fan behaviour. It means creating new ways to communicate and engage with fans and new opportunities to monetize this engagement.

How can they go about it?

A collaborative approach between developer and rights holder is vital. One that builds and adapts solutions to customer needs, but certain tech innovations have been foundational to enabling these collaborations to succeed.

The increasing sophistication and market penetration of mobile devices has run in parallel with expanded connectivity via growing global 5G coverage – up to 1.6bn subscriptions by Mid 20204 - and the construction of more state-of-the-art, wi-fi enabled stadia. Mobile use during sports is ubiquitous, whether you're sat in the stadium or on your sofa, providing a direct vehicle for organisers to deliver information and services and a convenient means for fans to get deeper into the experience.

If mobiles are the vehicles and 5G the petrol, then artificial intelligence has provided a nitro-powered, turbo charge to technology's ability to process, analyse and visualize data, enabling complex processes to be completed in real time and making personalisation at scale achievable.

To squeeze every last drop out of the car analogy, enhanced functionality is great as long as the car actually works. Reliability is the minimum expectation. Event organisers therefore need to ensure the platforms they provide are robust enough to cope with sharp spikes in user requests, making stability and scalability essential considerations when building solutions for sports events.

Putting on the game



Managing players

We may like to think that athletes compete for the thrill of victory and a passion to entertain fans but ultimately, it's their job to do so. Players have contractual agreements to play – whether salaried, performance related or involving other incentives or grants, players expect to get paid. Even Olympians – the last bastions of sport's Corinthian ideals – receive funding and financial performance bonuses.

Players' relationships with the teams and federations that expect them to perform need to be managed in terms of eligibility, availability, remuneration, cost and transfer value. They are both an asset and a cost, and digital platforms are used to better understand and monitor the financial impact of contractual obligations with players.

Working with a leading Premier League club, TEC developed a bespoke software solution for managing player contracts and modelling the financial impact of different scenarios. After time spent evaluating the club's financial and operational processes, TEC built a live rules engine that evaluated over 30 contract types of contract clause against player match data and other financial data resources to enable the club to forecast the complete economic impact of a player's transfer or contract renewal.

Managing the match

Whilst fundamental to the outcome, players are only part of the sport event equation, just as helping to manage their participation is only part of technology's impact on delivering a successful tournament or competition.

Creating a fair and balanced schedule of events is crucial and, with a myriad of factors to consider, technology has long been integral to achieving this. For example, the Premier League have relied on their "fixture computer" since the league's creation over 30 years ago. We are now seeing AI being used to manage fixture draws, as UEFA did with for this seasons new European competition formats and built out complex leagues scheduling as is seen with NFL schedule which uses AWS AI technology to evaluate 26,000 factors and over a quadrillion permutations when creating the fixture schedule each season.

Managing the Media & VIPs

The next operational challenge is managing the involvement of the other stakeholder groups that make up a sporting event. The media are a vital component, and it is clearly in the organisers' interests to facilitate coverage that ensures their events reach the widest possible audience.

To achieve this, rights holders are increasingly creating bespoke digital platforms that help attending media get access to the content they need. For example, our company built a virtual media centre for The R&A, a fully responsive and reliable web platform that gave journalists remote access to all relevant content captured The Open Championship – over 10,000 images, videos and interview transcripts were downloaded its first year alone – along with important contextual information such as weather forecasts.

Attending dignitaries and VIPs are also an important consideration for organisers. From travel to ticketing, there are lots of different factors involved and lots of different sources of information to manage. Working with a leading sports federation, TEC built a VIP stakeholder solution that addressed this challenge for their flagship global tournament, by unifying multiple 3rd party sources of information via bespoke mobile and web platforms.

Getting technical

Improving stakeholder management

For the project, there were several important technical considerations. Should the app be cross-platform or native? What framework is best for the front end development and what approach is best for building the backend?

The decisions across these three areas are connected and depend on a variety of external factors. A cross-platform approach we chosen for the website, using the React-Native framework as it was faster to develop with and enabled tight project timelines to be met, whilst still supporting the complexity of UI required.

React framework was chosen for the website front end development over Angular, as provides it quicker & more lightweight solution.

It also meant that some of the code from the app development could be reused for the website.

Finally, with multiple 3rd party integrations needed that had to be able to scale independently, a microservices approach was chosen for the backend development so that separate APIs deployed independently for each service required.

Fans in-venue



Sports events need crowds

As COVID's dark days showed us, sports events need crowds from both a financial and experiential perspective. In their planning, organisers need to prioritise selling and allocating tickets and, over the past decade, technology has proven the catalyst for seismic changes in both processes. The advent of digital ticketing in sports, just over 15 years ago, introduced exciting new possibilities in terms of convenience and personalised engagement for fans, whilst also allowing event organisers to offer enhanced security, be more sustainable and reduce resource costs. The subsequent increase in adoption, that rapidly accelerated post pandemic, means sports events now largely – if not wholly – rely on digital ticketing solutions and fans expect to receive the benefits they offer.

When implementing a digital ticketing solution, rights holders have the choice of building their own bespoke solution or relying on one of the many high quality 3rd party solutions on the market, either directly or by integrating into their existing platforms. The decision will be shaped by budget and event requirements but, whatever they choose, if they are to successfully deliver the end-to-end benefits – both for fans and themselves – then implementing a single sign-on (SSO) to identify the user and connect the touch points in their experience is key.

By leveraging proven SSO technology through owned channels, rights holders can better understand the behaviour of fans while minimising costs. They can track activity from the moment of ticket purchase through to venue access, and participation with in-stadia activities like retail and sponsor activations, using the data to improve customer experience and tailor more personalised engagement opportunities.

Safe & secure

A key part of customer experience at any sports event is feeling safe and secure. Digital ticketing protects fans by dramatically reducing the risk of fraud and scanning technology on the gates not only speeds up access, but it's lets organisers ensure only those who should be attending are let in. Further innovations such as facial recognition software and advanced

surveillance systems help organisers to manage crowds and ensure a safer environment for fans.

Getting technical

Owning the digital ticketing experience

TEC helped the R&A overhaul their digital ticketing offering for The Open Championship, as part of a broader digital transformation centred on refreshing their different platforms and ensuring the fan experience was kept on own owned channels rather than diverting it to 3rd party sites.

For ticketing, they continued to work with Secutix due the inherent cost benefits, but a new interface was built on TheOpen.com allowing them to own the experience and capture data on customer behaviour.

For the interface, AWS Cognito was chosen as the SSO to link to the customer records on the ticket providers' platform due to its ease of management and scalability.

Fans at home



Meeting new expectations

Technology has revolutionized the ability of sports event organiser to manage and protect fans in attendance, and better understand and cater for their needs. It has also redefined how rights holders can serve the interests of the majority of who follow the action from a far. Traditionally this meant watching on TV at home, or in a bar, but increasingly the shift is towards mobile, either as the primary mode of consumption or a second screen solution.

Fans can engage with sport in a huge variety of ways. They can watch live streams on their phones with levels of latency and stability that compare to TV. Many prefer to enjoy clipped highlights and other short form content or communicate directly with teams and athletes via social media. Others engage through news content, fantasy games or betting platforms.

With so many options and so many channels to choose from, rights holders need to think carefully about the platforms they provide for fans and the experience they offer through them. Fans expect intuitive, user-friendly apps and mobile responsive websites that deliver exclusive content and benefits. There are, after all, a host of other platforms out there and if organisers are to capture fans attention (and data) and ensure they engage on their platforms, with their sponsors, they need to provide unrivalled digital functionality & experience.

We enabled The R&A to do just this, by building an enhanced scoring engine for TheOpen.com. Speed here was key with fans expecting score updates in as close to real time as possible but having the scalability to cope with the differing volumes of requests as the tournament progressed.

Getting technical

Integrating real time scoring

To achieve these objectives, a serverless approach was taken. This automatically adjusted the underlying infrastructure based on user traffic, limiting the actions required – and therefore speeding up the process - by only scaling the API functions needed, without the need for manual intervention.

Azure Functions was chosen as the serverless solution and used in conjunction with Azure Cache for Redis and Azure Service Bus as the messaging broker to maximise speed, durability and scalability.

Stability is key

Content and functionality will draw fans in, but a platform's performance is vital for retaining their engagement. Rights holders need platforms that combine functionality with stability. One's that can seamlessly, and cost effectively, scale with the fluctuations in traffic, without impacting load times.

TEC were commissioned by European Athletics to redevelop their website, which they relied on as their primary digital platform to engage all stakeholders across desktop and mobile devices. The site required modernization and improved usability to better serve its diverse audience of athletes, fans, and officials. Primary project goals included increasing user engagement, optimizing the mobile experience, and addressing issues with usability and performance.

Getting technical

Improving platform performance

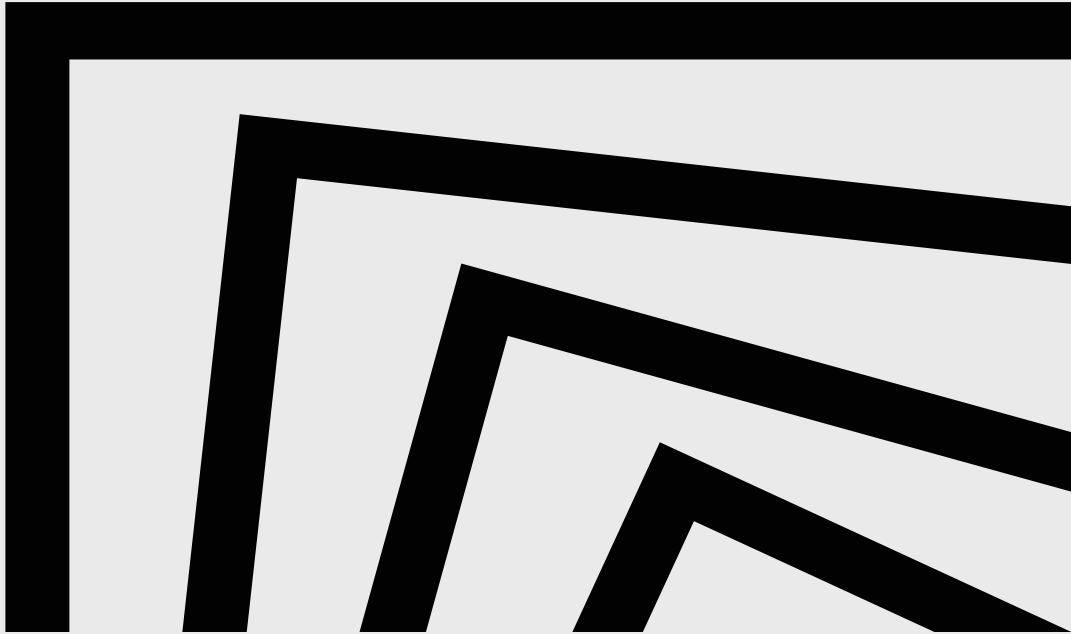
To achieve European Athletics' website goals TEC took a mobile first approach, using a cloud based infrastructure to optimise speed, reliability and scalability while reducing costs and resource requirements. They worked with the existing CMS (Directus) – a client requirement -and managed data integrations with World Athletics, along with streaming solutions from Eurovision Sport and multiple other providers, integrated via the JW Player platform. To improve performance a middleware layer was created was creating middleware layer between applications and front end, adopting a server-side approach to ensure that the last cached data would still be displayed in the event that there was a problem with the 3rd party integrations.

In summary

Digital platforms are vital tools for sports event organisers whether they're managing engagement with players, media, dignitaries or fans.

By leveraging enhanced mobile technologies and digital innovations like AI, rights holders can better understand and manage the participation of their athletes while also making the experience for media, dignitaries and fans more convenient, more personalised and more immersive.

The digital platforms they create need to be fast, intuitive and they need to offer exclusive functionality to draw stakeholders in, but they also need to be highly scalable to cope with huge fluctuations in usage that come with sports events. They need to be able to integrate with 3rd party providers, whose proven services in areas such as ticketing and streaming offer organisers the most cost effective option to deliver key services. Perhaps most importantly, they need to be reliable, ensuring that performance can be maintained regardless of integration issues or traffic levels.



Whatever your digital challenge, we are happy to discuss how we can help

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