FOX SPORTS

Storage—Now at the Center of Live Action

open DRIVES

Fox Sports Streamlines Broadcast Operations with Next-Generation Enterprise Storage
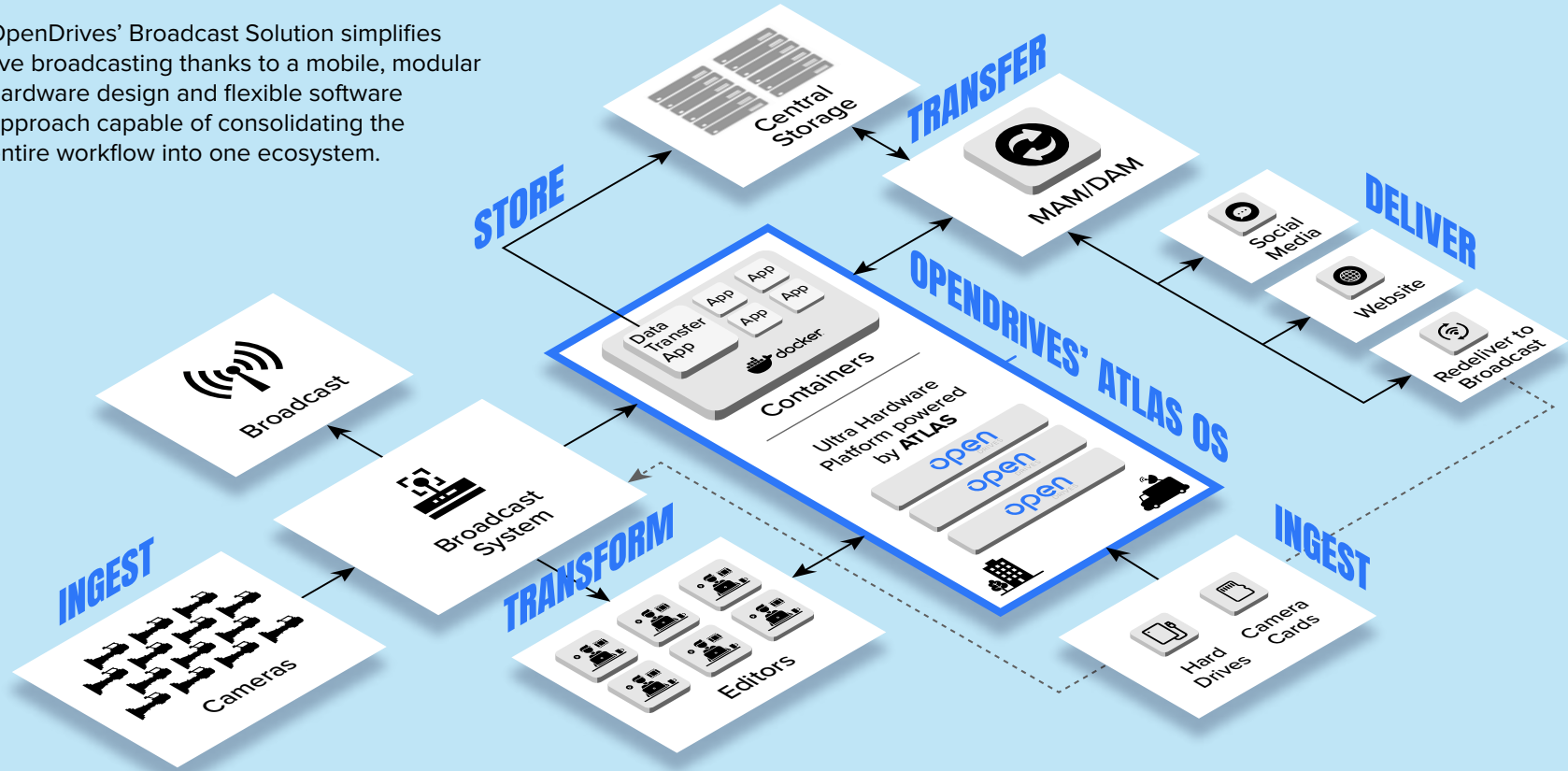
The Ability to Flex and Pivot

Broadcasting a major live sports event is no easy feat, considering how complex and fragmented the entire workflow is from pre-event to live ingest, live playout and production, to post. Operational mobility and flexibility are necessary to ensure that a live event goes without a hitch. Logistics to keep in mind include getting the right number of operational personnel and a fleet of broadcast trucks to the proper venues on time, determining the right configurations of necessary equipment to support those teams and ensure proper coverage, and then deploying a solid IT infrastructure to handle the anticipated volume of data generated throughout the broadcasted event. If only there was a simpler way, one that doesn't involve too much planning, additional time and cycles, and too many unknowns.

OPENDRIVES' BROADCAST SOLUTION (on-prem or mobile)

OpenDrives' Broadcast Solution simplifies live broadcasting thanks to a mobile, modular hardware design and flexible software approach capable of consolidating the entire workflow into one ecosystem.

BROADCAST WORKFLOW

INGEST	TRANSFORM	DELIVERABLES	DATA TRANSFER
• Live cameras	• Edit	• Near live	• MAM/DAM
• Game footage	• Transcode	• Sizzle reels	• High-speed transfer
• Camera cards	• Graphics	• Video on demand	• Redeliver to broadcast
• External drives		• Deep dive pieces	• Social media
• Broadcast transmission			• Digital platforms

The Need for Simplicity and Consolidation

Due to increased consumer demand for live content over the past two years, broadcasters are constantly challenged with how to quickly and accurately deliver the excitement of a live event to every viewer on every screen, improve and enhance the entire digital consumer experience, and effectively plan and future-proof operations. For Fox Sports, it just made sense to explore how various cutting-edge technologies could be used together to create the perfect mobile broadcast solution, one that could support a consistent world-class viewer experiences and be used for years to come, especially in the road leading up to Qatar 2022, one of Fox Sports' biggest events.

With large remote workforces on the rise, Fox Sports also needed to find an easier and more productive way for everyone to work together. How could multiple editors and creatives work efficiently from various locations, let alone on a live production, while delivering to multiple households and locations worldwide? They needed a solution that solved for challenges in connectivity, throughput, and latency to guarantee the highest quality of content in 4K, 6K, and even 8K formats.

Another key requirement for Fox Sports was finding ways to consolidate. They needed increased mobility through the elimination of unnecessary hardware, software, and processes, and more powerful solutions in smaller form factors. They also wanted one overall solution that would conform to open standards, while still contributing to the high threshold of performance that live broadcast necessitates.

Why OpenDrives

Depending on the type of professional sports event Fox Sports broadcasts, onsite requirements for staff and equipment can shift from minimal to massive, the latter especially if the event centers around a playoff or championship match or competition. With Qatar 2022 and one of the largest American football events around the corner, Fox Sports was depending on OpenDrives to solve their most pressing challenge: reducing complexity without sacrificing performance. Their existing storage solution was meant for workhorse duties within a data center, not for mobility. It was heavy, required a lot of mobile broadcast truck space, and demanded intense manual efforts to deploy. It also struggled to keep up with evolving codex requirements, and storage disks were frequently failing. Fox Sports needed a portable, flexible solution that also increased overall speed and performance.

Fortunately, OpenDrives re-architected the next generation of our Ultra hardware platform, powered by our Atlas software, around the design principles of simplicity, flexibility, and scalability. OpenDrives incorporates simplicity through centralized management, an intuitive user interface, and the ability to streamline data-intensive workflows. For flexibility, OpenDrives takes a more modular approach, enabling the separation of compute and capacity storage functions, supporting different types of storage media (HDD, flash, or hybrid), and reducing the overall footprint of hardware from a 4U to a 2U form factor. Lastly, we achieve scalability through NVMe support in a scale-up external PCIe architecture rather than a constraining NVMe-over-Fabric design.

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> **Consolidating hardware and software systems becomes increasingly crucial... This has put tremendous demand on data transfer to ensure Fox Sports continues to deliver the best viewer experience possible—OpenDrives' efficient, flexible software and hardware solutions have proven critical to helping Fox Sports achieve this.**
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> **– Kevin Callahan**
> VP of Field Operations and Engineering at Fox Sports

"The OpenDrives Ultra hardware platform was designed for customers like Fox Sports to provide shared enterprise storage systems with both scale-up and scale-out capabilities to match the individual complexities and performance demands for live broadcast with a much smaller form factor."
–Sean Lee, CSO/COO at OpenDrives

From Bespoke to Standard Customization
The biggest issue was going from a "bespoke" model of equipment configurations to a more efficient "standardized" one. For each event, Fox Sports were forced to guess at the amount of equipment to send along. Nothing was standardized. They were constantly recreating the wheel from scratch.

What they really needed was modularized equipment and configurations so that a standard unit could support various kinds of event types and sizes. Scaling up to support larger events would still mean increasing the number of units, but the basic building blocks of those units—including requisite storage—and the way in which they were configured and deployed would remain the same. OpenDrives calls this desired modularity "the Lego approach" because withith Lego blocks, you can create any number of different structures with the same number of blocks. In Fox Sports' case, they are now able to use the same OpenDrives equipment and build "custom" configurations according to the scale of every event. In addition, containerization enables Fox Sports to run

their most commonly used applications directly on OpenDrives' Atlas software, effectively consolidating everything into one workflow without impacting performance.

With OpenDrives, Fox Sports can now enjoy more predictable resource and capacity planning for an event, a more mobile and simple setup, and shorter deployment time, reducing a week's worth of setup to a matter of hours. Fox Sports validated all of this throughout 2021, but all eyes are now on Qatar in 2022, which is anticipated to be one of the largest events in live broadcasting history. Fox Sports will be running over 90 simultaneous camera feeds all shot in HDR, covering four matches per day across eight stadiums that are geographically distanced by 75 kilometers.

The Role Storage Plays in the IT Evolution
Fox Sports' situation and requirements are indicative of a larger evolution playing out in the IT ecosystem. Monolithic hardware platforms no longer have a place in the new software-led world of today. Software now fulfills a key role in solving for complexity, streamlining operations, and helping to shrink the overall footprint when possible. OpenDrives' storage solutions serve as the centerpiece within a larger data ecosystem, providing software-driven innovation for Fox Sports and other leading broadcasters.

Want to learn more? Watch our OpenDrives and Fox Sports keynote discussion here.

> **The 2022 FIFA World Cup Qatar is going to be our biggest effort yet. We're talking 80 different live feeds at a minimum of 1080p at 50p HDR, not to mention UHD. The amount of content gets bigger and bigger. We have feeds coming in at Doha and editors over 8,000 miles away in LA producing, editing, and compositing graphics.**
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> — **Kevin Callahan**
> VP of Field Operations and Engineering at Fox Sports