

Sports Coverage

in the time of **COVID**

Changing Up the Playbook

It took a major pandemic to create a fairly seismic shift in the way sports are played, which also affects how games are covered. In more normal times, broadcasting and redistributing footage of sporting events wouldn't necessitate a lot of rethinking. What we used to take for granted until very recently - ensuring adequate staffing of coverage by sending the full complement of required technical and creative personnel onsite to a packed stadium or other venue - is now hampered. Like the sporting events themselves, so much is being changed up and reinvented to adapt to these unexpected societal conditions in 2020.

The problem stems from recent regulations. In response to the COVID virus, local and state governments in most cases prohibit large gatherings of people, especially at sporting events. But the games must go on! Most certainly the viewing public wants and needs them to, so international broadcasters are stepping in to provide the much-anticipated coverage for spectators. In some ways, broadcast coverage is less affected by the prohibition, but some adaptations in processes and workflow are necessary to accommodate less people onsite to provide coverage. Obviously, this is where technology comes to the forefront to create efficiencies in those adaptations.

Tournament Scope

At a high-visibility grand slam tennis tournament taking place in the US, late summer of 2020, a combination of high-performance technology and broadcast workflow adaptations ensures the best possible outcome for broadcast coverage of the event.

Over half a dozen large, international broadcast organizations now depend on a steady stream of content in order to produce a multitude of productions showcasing every second of the tournament, along with commentary and retrospective programs analyzing every match along the way. This all adds up to 17 inbound feeds of content spanning 16 hours per day, including court feeds, press conference feeds, and other program feeds. All of this content needs to be rapidly ingested, edited, and redistributed to guarantee that all client organizations are able to produce their shows effectively. And all of this must happen under incredibly tight timelines, with little or no margin for error.

Several technology vendors have combined their expertise and technologies to make it all happen. Veritone is a technology company that specializes in implementing artificial intelligence and AI-based workflows into many industries, including media, entertainment, and sports broadcast. They are the

organization directly responsible for the archives of the US Tennis Association (USTA), which governs the sport of tennis in the United States. Veritone's platform is Digital Media Hub, which is an intelligent digital asset management solution serving as the destination for international broadcasters needing tennis coverage and from which organizations can select content.

THUMBWAR is a Los Angeles based consultative group of creative-minded technical personnel with deep experience in production, broadcast, and technology integration, who is also an OpenDrives reseller. They're Veritone's trusted partner whose role is to architect, deploy, and manage the backend infrastructure for the current tournament coverage. Their responsibilities and scope include everything from the network to the storage, to the EVS IPDirector solution. And as a preferred storage partner to THUMBWAR, OpenDrives has provided two Summit enterprise storage systems to ensure ultra-high-performance on the

storage backend of the infrastructure. THUMBWAR and OpenDrives collaborated on the ways in which the storage infrastructure supporting this endeavor could overcome some of the logistical challenges mentioned earlier while creating workflow efficiencies - all without sacrificing performance.

Meet OpenDrives

OpenDrives is a vendor of ultra-high-performance storage solutions with deep experience and corporate and enterprise roots in the media and entertainment industry. OpenDrives leverages the unique expertise of their engineers and software developers - many of whom have production and post-production experience as creatives themselves - to provide hardware and software that outperforms in any workflow,

under any conditions. With key partnerships with talented organizations such as THUMBWAR, OpenDrives pushes the boundaries of performance to help organizations outperform and gain a competitive advantage in their own markets.

Overcoming All the Challenges

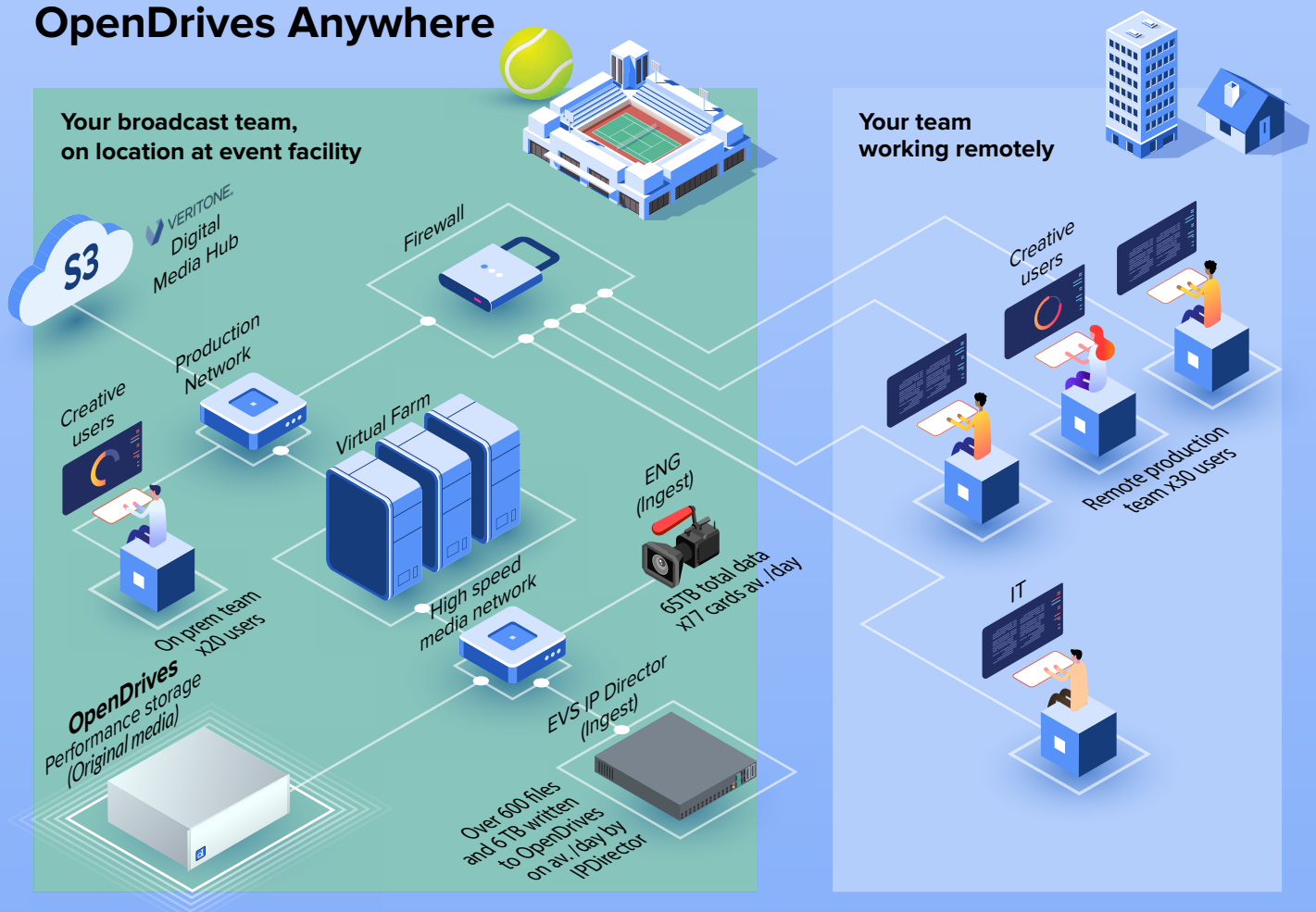
The biggest challenge to overcome for this year's tournament was clearly the inability for all required personnel to be physically present at the event. The workaround THUMBWAR implemented was to deploy a means of remote access so that editors and other creatives could manipulate and then distribute digital content without any degradation in performance and throughput. To do this, THUMBWAR leveraged the capability of OpenDrives storage solutions to support remote users using

virtual-machine instances to work with content on workstations co-located with the storage infrastructure. This architecture and procedural workflow, known as **OpenDrives Anywhere**, facilitated remote workers without disrupting the overall workflow.

So what does the overarching content workflow look like for this professional tournament? All inbound content feeds are ingested using EVS' Ingest Scheduler and IPDirector. This data goes to the OpenDrives storage solution, which consists of the two Summit systems referenced earlier. OpenDrives Summit is a versatile and powerful hybrid NVMe and HDD storage solution providing superior cache management and NVMe acceleration designed to optimize high-throughput workflows like this one. When necessary, a

Figure 1. Leveraging OpenDrives native capabilities, called OpenDrives Anywhere, THUMBWAR enables remote editors and creatives to work with content feeds from the various tennis matches without being co-located on the premises.

THUMBWAR and OpenDrives Anywhere



Vantage cluster provides transcoding services. From an end-user creator perspective, 7 Premier stations consisting of 4 editors and 3 media manager all access the content concurrently residing in OpenDrives storage. In addition, about 38 IPDirector browsers are also accessing near-line content on the OpenDrives solution, too.

To accommodate this workflow, THUMBWAR in essence created a machine room to serve as the centralized content hub. For seamless integration with each of the international broadcasting clients, THUMBWAR then deployed a network switch dedicated to each organization accessing content from OpenDrives and IPDirector. Some organizations then copy content from OpenDrives storage to their own infrastructure, while others are working directly with the content on OpenDrives. In some instances the OpenDrives storage solution is transparent to the client organization. In any case, the real efficiency is the elimination of many tiers of storage down to an outperforming centralized storage solution. "The great part about using OpenDrives is that we don't have to orchestrate all these different setup scenarios across multiple tiers of storage," said Brian Carr, THUMBWAR Founding Partner.

Another challenge arising from this remote-access situation had been to make the architecture and content transfer as secure as possible. THUMBWAR felt that security measures could be dramatically improved from previous years, so that's exactly what they did with the 2020 tournament. By implementing Active Directory onsite, with which OpenDrives storage seamlessly operates, each user is now distinct with specific permissions granted centrally. On top of that, users can be added securely without changes at the storage level. "We designed an equipment stack that would typically live in a data center, but consolidated it and brought it to a parking lot", said Trevor Carlson, VP of Engineering at THUMBWAR, "and then implemented enterprise-level security for organizational access." The reason

for this enhanced security is two-fold, Carlson pointed out. "More than anything, we are aware of our responsibility as a technology vendor to keep all content and the entire infrastructure as secure as we can, but also to honor the trust put into us by each of our clients."

As other challenges come up, even during the tournament, THUMBWAR and OpenDrives were confident in working through them together. OpenDrives has always put a premium on customer support that goes above and beyond what is required. OpenDrives has a support philosophy of fixing the problem for the customer, regardless of whether it stems from the storage solution or something else. No matter where the issue lies, OpenDrives' technical professionals are always ready to troubleshoot and eliminate it to get customers up and running quickly. THUMBWAR acknowledges this readiness, too. "We enjoy the fact that OpenDrives has an active and engaged support staff. That's a definite advantage," Carr said.

Outcome and Summary

One of the obvious outcomes and primary efficiencies that OpenDrives brings to the table relates to consolidation. Because OpenDrives storage solutions are such high-performance systems, THUMBWAR has a much easier storage infrastructure to deploy and manage because it's all contained within a single storage tier. In addition, with OpenDrives Anywhere capabilities, which were actually developed prior to the current pandemic but are now incredibly relevant to nearly all enterprises in the era of COVID, THUMBWAR can adjust to the reality that many professionals need to get their jobs done but can't do so while being co-located at the event. Creatives can now work remotely without performance degradation due to storage limitations, and the OpenDrives storage solution can scale to accommodate any amount of users and content.



THUMBWAR's expectations for OpenDrives

The main goal that THUMBWAR had in implementing OpenDrives' high-performance storage was to reduce the infrastructure complexity and consolidate all storage onto a single tier. Because virtually everything that THUMBWAR does is storage-based, it's the one area within the overall infrastructure that can literally bring things to a halt. It's a known bottleneck they knew they had to address.

As Trevor Carlson, VP of Engineering at THUMBWAR, puts it, "We've found limitations with all of our previous storage vendors that we weren't able to optimize. It often led to an edge-case scenario where we were pushing the storage to the limits, which led to workflows that weren't always ideal." Being able to depend on OpenDrives for ultra-fast throughput and rock-solid stability, THUMBWAR can really reduce any friction related to content storage which underpins their workflows. "The reliability and throughput of OpenDrives is what we've really come to expect," Carlson said. "That's what we've experienced previously from OpenDrives, and that's what we know we'll be getting again at this event."

"Supporting a grand slam tennis tournament is challenging in general because of the duration and the sheer amount of data that gets created onsite. And then, this year COVID adds another layer of complexity on top of it because nearly everyone has to be remote. Being able to consolidate all content onto OpenDrives reliably was really one of the big wins in the story this year."

Brian Carr,
THUMBWAR Founding Partner