



**Western Digital®**

Case Study

# Beyond the SSD Hype: How a Media Streaming Superpower Leveraged HDDs to Increase Performance



## Challenge

Simultaneous demand for the latest videos, especially during prime viewing hours, was causing bottlenecks in data delivery, slower stream starts, and increased latency during peak usage.

## Solution

Replaced existing SSD-based storage systems with new Western Digital Ultrastar® Data Center HC590 hard drives to increase video streaming performance and provide cost-effective storage capacity.

## Key Results

With this shift, the company achieved:

- Improved video streaming performance during peak hours
- Lower total cost of ownership through a simplified infrastructure with fewer drives and systems
- Ability to scale in the future to match increased requirements

One of the world's largest media streaming companies, renowned for delivering HD and 4K content to millions of viewers globally, made a bold infrastructure shift: replacing SSDs with high-capacity HDDs in their core media servers. Contrary to conventional wisdom, this decision led to higher performance, lower costs, and greater scalability—all thanks to the nature of their workload.

## SSDs Were Hitting the Wall

The company had deployed SSDs across their media servers to optimize I/O performance. But as simultaneous demand skyrocketed, especially during prime viewing hours, SSDs struggled to maintain consistent throughput when delivering massive video files read sequentially by thousands of users at once. The results were bottlenecks in data delivery, slower stream starts, and increased latency during peak usage.

Despite SSDs offering low latency and fast access for scattered data, they couldn't keep up with the bulk streaming demands typical in media delivery environments.

## Looking for Sequential Throughput Muscle

After reviewing performance metrics and evaluating workload patterns, engineers identified the need to optimize these performance characteristics:

- Sustained sequential throughput: No less than 300MB/s per drive
- Parallel access performance: Ability to stream multiple file segments simultaneously
- Increased density: Store more data closer to the media servers without increasing data center footprint

The company believed that achieving these requirements would deliver smoother playback, quicker load times, and greater reliability, especially during streaming surges. Their Engineers looked at various solutions including replacing existing SSDs with new SSD technologies, such as NVMe, PCIe 5.0, 3D NAND, and even specialized SSDs with built-in computational storage capabilities, but these approaches ended up being much costlier and much more disruptive than desired.

## High-Performance Hard Drives to the Rescue

Western Digital presented the simplest, least disruptive, and least costly solution of all the various options considered. The idea was simple: replace the use of SSDs as the primary storage device on the media servers with high-performance high-capacity HDDs. The company selected Western Digital's latest HDD, the Ultrastar® Data Center HC590, one of the industry's highest capacity CMR hard drive with up to 26TB<sup>1</sup> of capacity.

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## Old-School Meets Cutting-Edge

One of the reasons the HC590 was selected is that it is based on the world's first 11-disk hard drive platform. These drives utilize 11 platters and 22 read/write heads, to enabling parallel streaming of large video files. This mechanical design might seem old-school, but it excels at delivering a sustained transfer rate<sup>2</sup> of up to 302MB/s.

Western Digital created the HC590 by leveraging field-proven hardware and firmware designs from generations of highly successful products and combining them with the latest innovative technologies. This unique combination ensures easy qualification, seamless integration and rapid adoption while maintaining superior dependability and reliability.

The higher storage density provided by 11 disks combined with Western Digital's exclusive energy-assisted perpendicular magnetic recording (ePMR) technology, which increase tracks-per-inch (TPI), allows data centers to maximize their storage efficiency.

## The Added Benefit of Lower Total Cost of Ownership

The shift to high-capacity HDDs also reduced TCO by cutting both hardware and maintenance costs. With greater storage per drive, the organization need fewer systems—saving on infrastructure and power. Unlike SSDs, which wear out faster and require frequent replacements, HDDs offer longer endurance and consistent performance for sequential workloads. That means less downtime, less upkeep, and a budget that stays under control.

## Streaming Smarter: The Aftermath of a Strategic Shift

In today's fast-evolving data storage landscape, speed alone doesn't define success. Performance is a multifaceted metric, shaped by workload type, scalability demands, and long-term operational efficiency. Choosing the "fastest" technology may seem like the obvious path, but it can lead to unnecessary complexity, mismatched capabilities, and bloated costs. True performance comes from aligning technology with purpose—and for this global streaming powerhouse, swapping SSDs for high-capacity HDDs wasn't just counterintuitive, it was transformative. By selecting the right tool for their sequential-heavy workloads, they unlocked smoother streaming, higher throughput, simplified infrastructure, and measurable reductions in total cost of ownership. It wasn't about keeping up—it was about getting ahead.

## Get Started

For more information on how Western Digital Ultrastar Data Center HC590 hard drives can enhance your data storage infrastructure and improve your business operations, please visit [www.westerndigital.com/solutions/data-center](http://www.westerndigital.com/solutions/data-center).



<sup>1</sup> One TB equals 1,000GB (one trillion bytes). Actual user capacity may be less due to operating environment.  
<sup>2</sup> Based on internal testing; performance may vary depending on host environment, drive capacity, logical block address (LBA), and other factors. The location of the max rate is at approximately 10% into the capacity of the HDD. One MB equals 1,000,000 bytes.