



# HOW ARCHIVE STORAGE AFFECTS OPERATIONAL EFFICIENCY

UNLEASH YOUR MEDIA OPERATION'S EFFICIENCY & AGILITY

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# THE STATE OF MEDIA STORAGE

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The current landscape for media storage is complex. Companies in the increasingly competitive Media & Entertainment industry are searching ever more intensively for a competitive edge that will win audiences and increase revenues. Profitability is under pressure, and new ways of working are continuously being deployed to find an edge. In Media Technology, hot topics like “elasticity,” “scale-out,” and “evergreen” reflect the continuous need for operational efficiency and flexibility in the uncertain world of competing for audiences. At the same time, there is a lot for a Media Operation to be certain about based on known technology and consumer trends.

Media storage is a critical component of a media operation. It is always at the heart of Media Operations, from production and post-production, to broadcast playout and OTT VOD. Legacy systems dominate most operations, including tape storage and file-and-disk based storage systems, and they have served the industry well for many years. Public cloud systems have become popular in recent years, offering opex models and easily scalable outsourced storage systems. Object storage has emerged as a compelling long-term solution for the storage of growing content libraries, because it overcomes many negative aspects of both tape and file solutions.

Looking forward, the right solution for a media operation needs to take account of the “knowns” that can be addressed, while providing the flexible capability to manage any “unknowns.” This paper assesses the “knowns” and the trends that Media Operations can be reasonably certain of, and describes actions that can be taken to address them.

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# THE "KNOWNNS"

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## **LIBRARIES ARE LARGE.**

Today's Media & Entertainment content libraries are large. They start from several hundred terabytes and can easily be greater than 30 petabytes. These libraries are mostly held on tape in large robot systems, with smaller quantities mostly held on file- and disk-based systems. Based on current expansion in video production formats and rates of production, libraries are set to grow significantly.

## **AN ARCHIVE BY ANY OTHER NAME.**

In the Media & Entertainment industry, what most people call "archives" are not archives. They are very active content repositories, with terabytes of reads and writes per day. When the content is on tape, the robotic system remains highly active most of the day, writing new content onto tape, and restoring content from tape to disk for production, post-production, playout and VOD requirements. Because these robotic systems can become inundated with requests, and subsequent queuing for tape read/write devices can cause operational delays, a common occurrence is to have expensive "cache storage layers" for fast access, that protects the slow and prone to failure tape robot from urgent demands. These robotic environments, if they grow, are only going to be even busier in the future.

## **LAYERS OF MANAGEMENT.**

Media Operations have multiple systems that track where content resides. These can include a Production Asset Management (PAM) system for finishing content for publication, a Media Asset Management (MAM) system for finding and preparing content for distribution, and a separate Hierarchical Storage Management (HSM) system for tracking where the content is (primarily in a tape library). Viewed from an efficiency perspective, the extra HSM layer that indeed often replicates the capabilities of a MAM system, is a target for eradication. If efficiency is a business goal, systems have to be streamlined.

## **TAPE'S MASS MIGRATIONS.**

Tape is generally perceived as a low-cost option for storing little-used content. But it is also perceived as an operational liability for high-demand content. There are also operational workloads and costs to account for - as LTO formats have evolved, the industry norm has become one of continuous migration from one tape format to the next. Migration from one tape format to another uses the existing robotic and mechanical infrastructure, and during live operations this can make migration a slow and risky process. Therefore, it can also be an expensive process. Inevitably, as content libraries get larger, this migration process only becomes slower and riskier.

## **TAPE IS NOT LEAN.**

Media Operations have had to scale dramatically in recent years to support the plethora of distribution outlets that have grown up on the back of Web 2.0 and beyond. More and more MVPDs, vMVPDs, "skinny bundles", apps and broadcast channels around the world cater for the insatiable human demand for content. To keep up with demand, Media Operations teams have to plan ahead to

access the tape-based content they need when they need it, and to ensure capacity is available to prepare content for distribution deadlines. They plan ahead because legacy tape infrastructure isn't designed to provide content instantly and on-demand. In Lean methodology, this represents a form of unnecessary waste that an operation should remove. If content libraries grow in an environment that is not designed for unlimited on-demand access, more waste is the likely outcome.

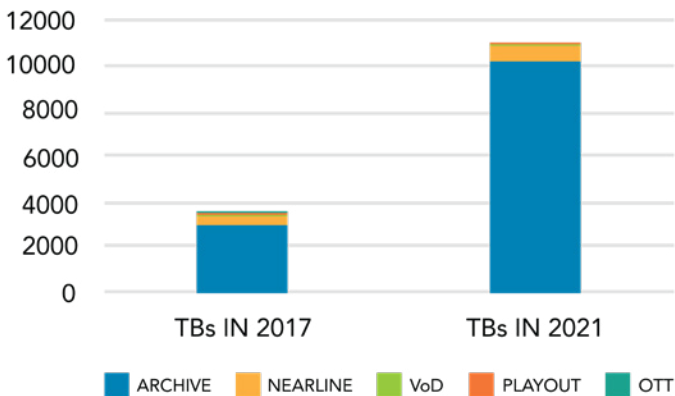
**ON-DEMAND IS IN-DEMAND.**

On top of traditional broadcast requirements, Subscription Video on Demand is growing fast. Netflix already has over 100 million subscribers globally - five times as many customers as the world's largest Cable TV operators. Content providers need to keep up with demand, and making content available to audiences is the perennial challenge. Broadcasters have large back catalogues of content that could potentially be monetized if they were more readily available to stream on-demand to an IP-connected device. Monetizing content is always the goal, and the winners in this space will have both the best content and the most accessible content.

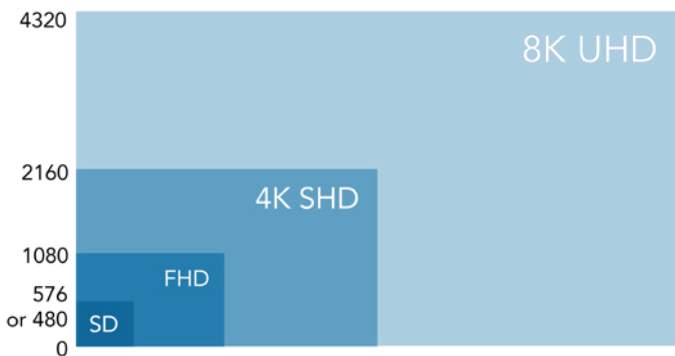
“CONTENT PROVIDERS NEED TO KEEP UP WITH DEMAND, AND MAKING CONTENT AVAILABLE TO AUDIENCES IS THE PERENNIAL CHALLENGE.”

# THE TRENDS

TBs OF STORAGE-TYPICAL GROWTH SCENARIO (2017-2021)



Source: Concurrent primary research of broadcast market



On top of the “knowns” of today, there are also some obvious trends to watch that are based on human nature and expected technology developments. They will have inevitable, significant impacts on media organizations.

## CONTENT GENERATION IS ACCELERATING.

More people are creating more content for more outlets. Demand is increasing due to general population growth, improvements in global disposable income, technology improvements, to name a few key points. These reasons for growth are likely to remain constant over time.

## CONTENT LIBRARIES ARE GROWING FAST.

Most media companies producing content today in HD and/or 4K formats expect their content libraries to swell by 2x to 3x in the next 4-5 years, simply through normal production and archiving practices.

## CONTENT FORMATS ARE GROWING IN SIZE.

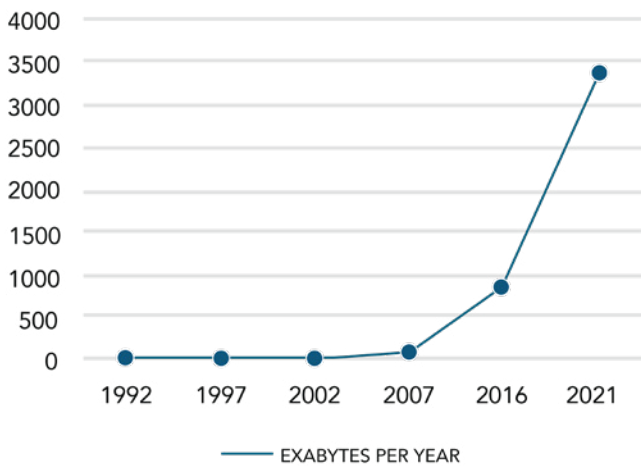
UHD and VR are gaining traction as production formats because they are more appealing to viewers and offer greater flexibility for the content distributor. 8K is already available as a production format. Unquestionably, format sizes will continue growing in the future for additional consumer value-add.

## SVOD KEEPS GROWING.

We are only at the beginning of SVOD services, and the giant Netflix only accounts for less than 1.5% of the world’s population. The demand for easy-to-consume video is established, and there is no reason not to expect more demand. Winners in the Media & Entertainment industry will monetize content better than their competition and customer experience and quality of content delivery will separate winners from losers.



## CONTINUED INTERNET TRAFFIC GROWTH, DOMINATED BY VIDEO



Source: 2017 Cisco forecast

### MOBILE ZETTA-OTT.

Cisco has forecast that OTT Content Distribution is expected to grow 3-4x by 2021, and will represent 80% of the total 3.4 Zettabytes of internet traffic. This is driven by content consumption on mobile devices, larger content formats and more network bandwidth. And based on people's desire for the next best thing, why would the 2021-2025 forecast look any different?

### OTT EVERYWHERE, NOW.

Consumers are increasingly impatient for the content they want to watch. Media Operations need to find more efficiencies to keep up with demand and supply video quickly and seamlessly. Files are getting bigger and content libraries are getting bigger. This all points to the need for a storage and delivery system that won't buckle under the pressure.

### METADATA FIRST.

The value of content is being defined more and more by metadata, that enables content to be easily found. Much effort is being put into creating metadata, so metadata field extensibility is key, but what about protecting metadata? Storage systems need to be able to support huge amounts of metadata and store it securely. As more content is produced and competition for audiences gets more intense, metadata could make all the difference - creating it and protecting it are business critical.

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# FUTURE REALITIES FOR MEDIA OPERATIONS

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Media Operations of the future that work with content on tape-based and file-based storage systems will have to deal with several disadvantages. The bottom line is that content needs to be easily and quickly available for an always-on, on-demand world. Legacy infrastructure needs to be upgraded to make content more easily accessible.

There are three inevitable realities that Media Operations have to face:

## **BETTER ACCESSIBILITY.**

Content must be easily accessible for both consumers and Media Operations. Accessible content, meaning easy to search and fast to access, will characterize the industry winners. To achieve this, content needs to be fully metadata-tagged, always available, and secured at-rest & in-flight. The winners in the Media & Entertainment industry will achieve this first.

## **NEED FOR AGILITY.**

As content libraries grow, and demand for content grows, and content distribution volumes grow, Media Operations have to keep up. Operational agility is paramount, and must be enabled by the right technical infrastructure. If agility is not enabled, Media Operations will have to be agile in spite of their technology platform. The winners in the Media & Entertainment industry won't have to overcome this self-created internal obstacle.

## **MIGRATION COMPLEXITY.**

Content and demand growth on legacy infrastructure creates a scary future reality - if content migration to new platforms is already costly, time-consuming and operationally risky - which it generally is based on today's scale - then waiting will just make the situation worse. If now isn't a good time to move from legacy infrastructure to modern infrastructure, will there be a better time in the coming years?



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# WHAT CAN YOU DO?

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Object storage has all the characteristics required to help you face the future realities of the Media & Entertainment industry. Object storage is defined by its ability to store and protect both data and metadata, leverage COTS hardware to meet all requirements for content access, and scale-out continuously to avoid service-affecting migrations. Exactly what Media Operations need.

Storage strategies must take full account of the long-term plan for content growth. Given this expected growth of content libraries, and the ever-increasing challenge of migrating that content to a new home, it makes sense to begin your data migration to Object storage as soon as possible.

Once your Media Operation has been unleashed from inflexible, limiting and inefficient legacy storage infrastructure, opportunities open up to dramatically improve your agility and capitalize on the growing consumer and operational demand. Get ready, you're going to be in demand!

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# THE CONCURRENT SOLUTION

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Concurrent has two decades of media storage experience and now leads the industry in responding to the trends in media content growth. Concurrent's Aquari Storage is a best-in-class, modern, object storage solution, optimized for video applications and designed to support the media industry transition to petabyte-level, multi-workload, mission-critical video applications.

## CONCURRENT STORAGE SOLUTION BRIEFS

- [Broadcast Media Operations Storage Platform](#)
- [Archive Storage](#)
- [MAM Storage & Transcode](#)
- [Service Provider Media Storage Platform](#)

## CONCURRENT SOLUTIONS FOR MEDIA BUSINESSES

- [For Content Creators and Broadcasters](#)
- [For Cable Operators and MVPDs](#)

TO LEARN MORE ABOUT HOW CONCURRENT CAN HELP YOU TRANSITION YOUR MEDIA ARCHIVES FROM TAPE TO OBJECT STORAGE, PLEASE VISIT [WWW.CONCURRENT.COM](http://WWW.CONCURRENT.COM) FOR MORE INFORMATION OR CALL +1.877.978.7363