

WHITE PAPER

Overcoming Petabyte- Scale Storage Challenges for **Media and Entertainment**



Table of Contents

Abstract.....	3
Introduction	4
InfiniBox®	4
Media Workflow and InfiniBox	5
InfiniBox Value Proposition.....	6
Summary	7

Abstract

Infinidat provides the difference you seek in a data storage solution for media and entertainment organizations. New demands have everyone in the industry feeling the impact of high latency storage and its impact on efficiently delivering speed to market on new and dense workload management. The Infinidat unified storage architecture enables the scale, performance and best overall TCO required to deliver an extreme competitive advantage to media and entertainment companies.

Introduction

The creation and distribution of entertainment content has undergone a substantial transformation over the last five years. Whereas content creation, provisioning, and distribution have historically been channelized, they are now likely to be single sourced. Internet and cloud-based workflow and delivery models play an increasing role in the delivery of digital content. Content creators are dealing with 4k and even 8k, highly complex video editing, compression, and encoding requirements. In addition, distributors need to provide content in multiple forms to support different devices, different streaming capabilities, and different languages, sometimes requiring as many as nine copies of the content to meet consumer demand. Traditional storage architectures are being stretched beyond their capabilities in terms of speed and scale.

Driving this is the fact that digital content has become a significant part of people’s lives. It is no longer limited to the average amount of television or film the typical American watches per day¹. Media consumption takes the forms of digital video, digital music, digital education, digital communication, digital gaming and more. With all this content, consumers want it available to them whenever and wherever they choose. If it is not provided to them with the right uninterrupted quality, they will choose to move on.

InfiniBox®

In order to meet the new demands for digital content including a higher threshold of performance with lower latency, greater capacities, smarter snapshots and extreme reliability, a new storage paradigm is required—one that provides massive scalability (without service interruptions), extreme density, high performance, and virtually zero downtime at a price point that pushes every other option off the table. This new paradigm exists, and it’s called InfiniBox® by Infinidat. Refer to the

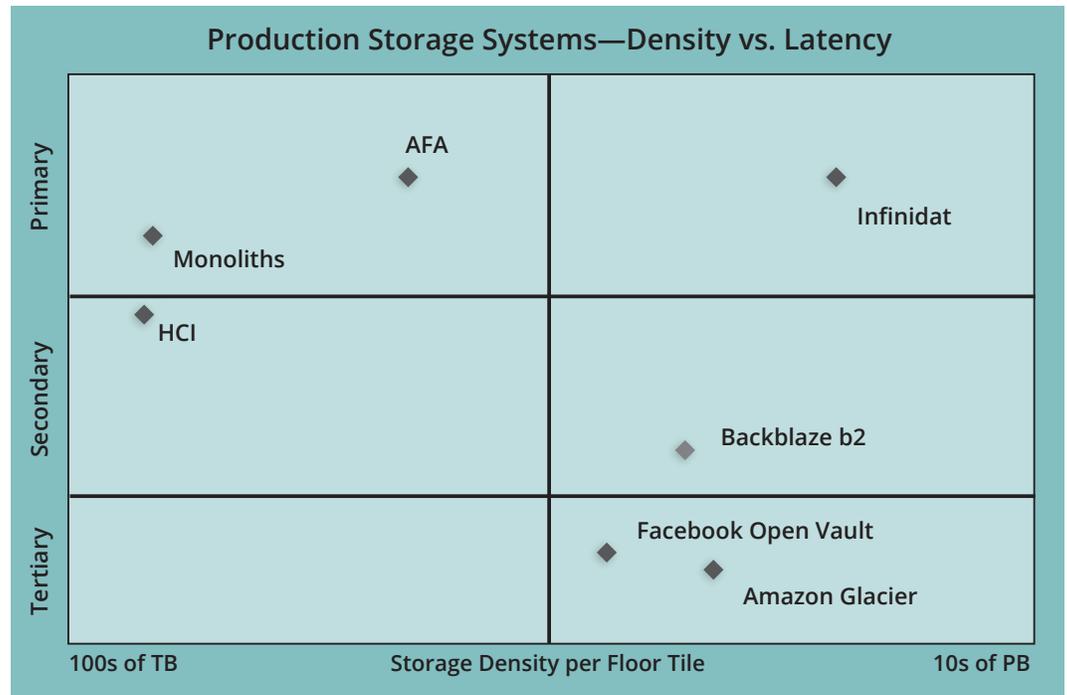
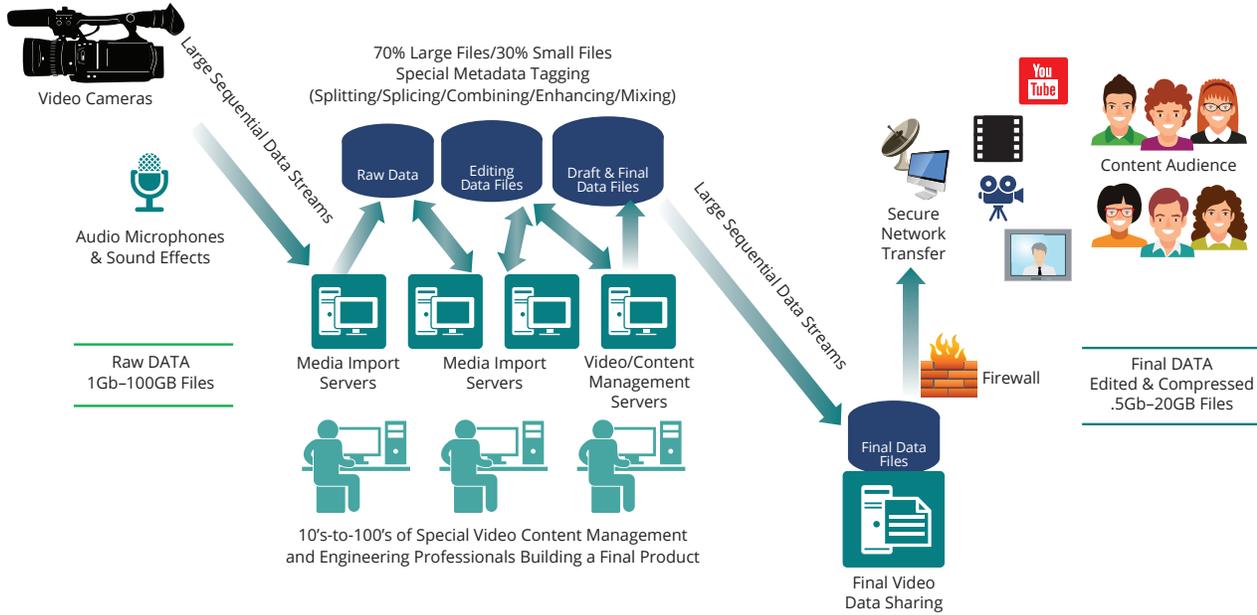


chart on this page. The X-axis represents storage density and the Y-axis represents latency. In the current taxonomy of storage, there are monolithic storage products, All-Flash products, hyper-converged infrastructure products, and archival products. These all occupy the spaces to the left and below the upper right area on the chart. Monolithic products provide decent performance in the form of low latency, but are not capable of delivering high density per floor tile. All-Flash products are known for very low latency and by sacrificing slightly in performance, typically beat the monolithic products in density by utilizing data reduction techniques. However, they are also the most cost-prohibitive option. Hyper-converged infrastructure products have higher latency than monolithic products while providing approximately the same density. Archival products occupy the lower right space—delivering massive density, but with high to very high latency. The upper right space is where InfiniBox enters the conversation. It is the lone occupant of this space today.

¹http://www.nytimes.com/2016/07/01/business/media/nielsen-survey-media-viewing.html?_r=0

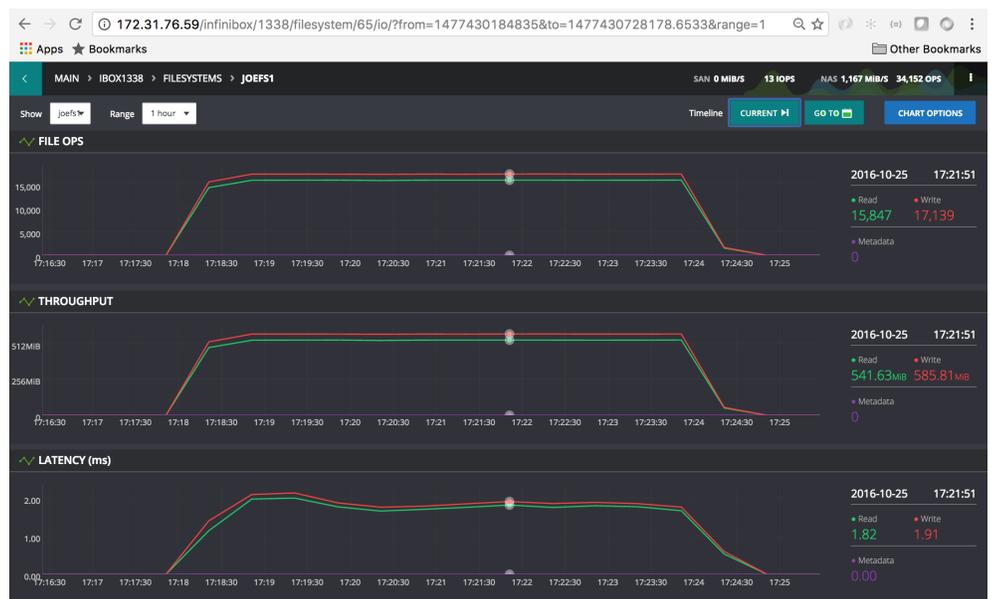
Based on a fully abstracted set of software-driven storage functions, InfiniBox provides the performance of All-Flash storage arrays (over 1M IOPS and 12.5 GB/s), the reliability of monolithic, mainframe class arrays seven nines (99.99999%) uptime, and the density per floor tile and low power draw of archival storage (multiple petabytes of uncompressed data per 42-inch rack at less than 4W/TB). In addition, by decoupling storage performance, reliability and functionality from the underlying media, Infinidat enables the rapid adoption of the latest and most cost-effective hardware, allowing the delivery of this new storage paradigm at an extremely disruptive price per terabyte.



Media Workflow and InfiniBox

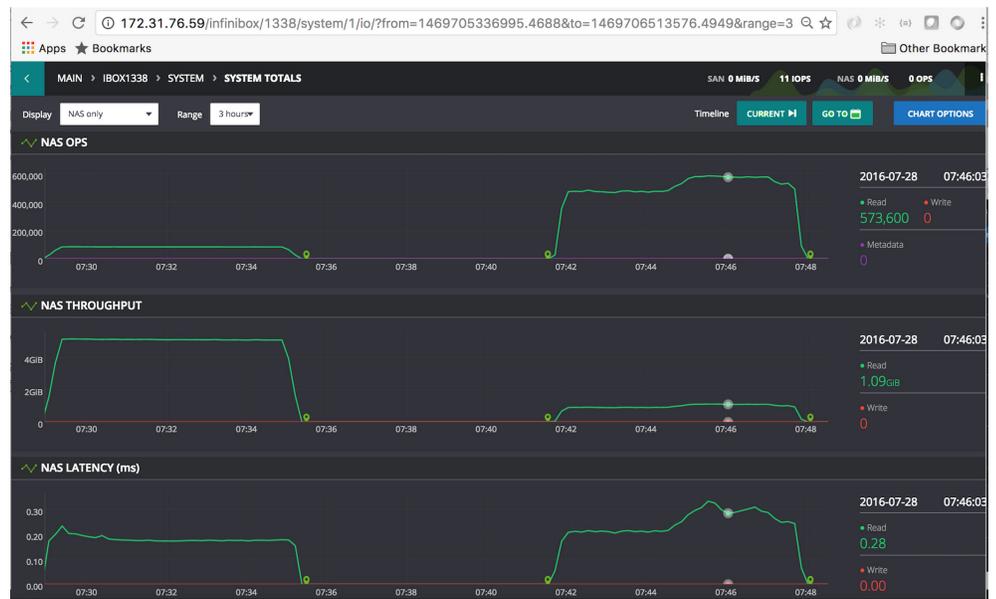
A single editing workstation needs the ability to drive faster workloads and content editors working together need to compete for performance demands without restrictions or time-consuming service bottlenecks.

A single workstation with sound applications that can manage workloads with multiple threads and multiple streams (not uncommon today), should be able to drive network bandwidth reading and writing data. The chart to the right shows a single workstation doing just that, with InfiniBox storage (please note the Read and Write Latencies while doing it).



Next, we look at multiple workstations managing similar workloads on the InfiniBox storage at the same time—in this case, managing aggressive counts of small file edits. (Note the High NFS Operations/Sec and the extremely low latency).

InfiniBox is able to deliver large and small file workloads with extremely efficient access to data, extremely high performance, low latency and unrivaled reliability.



InfiniBox Value Proposition

InfiniBox delivers extreme performance and reliability because we have taken a completely different approach to serving IO and managing data in persistent media. Virtually everything InfiniBox does innovates over legacy systems, and is purposefully designed to deliver better performance, better reliability, ease-of-use and the lowest transferrable cost from a TCO perspective than any of our competitors—with all-inclusive pricing that guarantees that as new, improved features are added, clients get them at no additional cost.

The InfiniBox addresses the needs of today's media and entertainment businesses far beyond legacy File and Block storage systems:

- ▶ It is built from the ground up as a multi-protocol architecture. Unlike other unified storage solutions, the InfiniBox can incorporate File, Block, iSCSI, FICON, and any other protocols as first-level peers—which means that all the benefits of performance, reliability, management, and feature functionality are identical between each peer.
- ▶ InfiniBox allows compression on a per volume/file system basis. In order to achieve even modest scale, most storage platforms prohibit turning off data reduction (even though it may impact performance on their systems). In contrast, data streams that do not benefit from compression may be written to the InfiniBox without undergoing storage side compression. And, for those work streams that benefit from storage side compression, InfiniBox handles them with virtually no impact on performance.
- ▶ Media and entertainment companies serve a client base that is highly sensitive to content flow. But media failure at the storage layer is a fact of life for all vendors' products. The question is, "How does the storage architecture mitigate this impact (i.e., frame drop), for the consumer of digital streams?" The InfiniBox has a zero-impact media rebuild architecture. It can rebuild a double drive failure in a fully populated InfiniBox with no impact on the rate of data flow to and from the system. The InfiniBox is designed for seven nines uptime—unmatched reliability for companies that depend on data integrity, availability, and performance to meet their business goals.
- ▶ Even with multiple petabytes of effective storage capacity in a 42-inch rack, InfiniBox has the simplest, most integration-friendly storage management interface in the industry. The management API makes it easy to incorporate into existing tools and processes—provisioning and managing hundreds of petabytes of capacity is done with ease with a single IT engineer. InfiniBox makes content creation and distribution workflow painless for the organization.

- ▶ InfiniBox has patents on the most advanced, innovative, high-performance storage features available, including:
 - ▶ Non-locking, snapshot architecture that allows snapshots to be taken and used with zero performance impact
 - ▶ Replication between sites at the storage layer with as little as a 4-second interval, again, with zero performance impact and a very stingy bandwidth profile
 - ▶ Non-disruptive code load and hot swap upgrade/replacement
 - ▶ Thin provisioning and compression built into the architecture to enable media and entertainment companies to expand their businesses
 - ▶ Performance logs of existing workloads, modeling them in InfiniBox to provide service level assurance
- ▶ Finally, the InfiniBox provides all of this performance, reliability, ease-of-use and feature/functionality while drawing less than 4W/TB of power under peak load. It is the absolute leader in sustainable storage technology available today.

InfiniBox is installed in Global 500 companies around the world supporting a wide variety of applications and use cases. Client references are available upon request.

Summary

Infinidat provides enterprise-proven storage at a disruptive price point that is tailor-made for the media and entertainment sector. No longer will you have to choose between storage architectures for price/performance and workload reasons. Through its patented Infinidat storage software architecture, Infinidat employs commodity hardware to deliver highly-efficient, multi-petabyte capacity in a single rack. The InfiniBox solution also delivers mainframe-class reliability with an unprecedented seven nines availability and over 1M IOPS of performance at 12.5 GB/s and sub-microsecond latency. Automated provisioning, management, and application integration provide a system that is incredibly efficient and easy to use. Infinidat is changing the paradigm of enterprise storage while reducing operational overhead, complexity and cost.

Whether you are transcoding, rendering, collaborating, publishing, or distributing digital content, Infinidat's InfiniBox should be at the core of your business.