ObjectMatrix

BT TV

Update: 8 years of running A Digital Content
Governance Platform For Video On Demand

The Original Customer Challenge

The British Telecom 'BT TV' platform provides video on demand (VOD) to its broadband customers across the UK. Content that is ingested from many varied delivery networks is required to be protected and available to be transcoded into any number of formats for future delivery to end customers.

Originally the VOD content was only protected in a large LTO tape robot making access to the material slow and cumbersome. BT required a solution that could provide instant access to the content it needs to protect and re-purpose whilst requiring little or no administrative management.

Amongst the other requirements to be fulfilled were:

- ■ Must integrate with existing technologies and future workflows
- ■ Must provide economic and operational benefit to the business
- ■ Must be secure from accidental or malicious deletion

- ■ Must be scalable with no down time or management effort
- ■ Must be future proof from hardware obsolescence
- ■ Must be non-proprietary in hardware and file formats

After ruling out the continued use of an LTO product on the basis of speed and management overhead, the MatrixStore private cloud platform from Object Matrix was selected as the best solution.
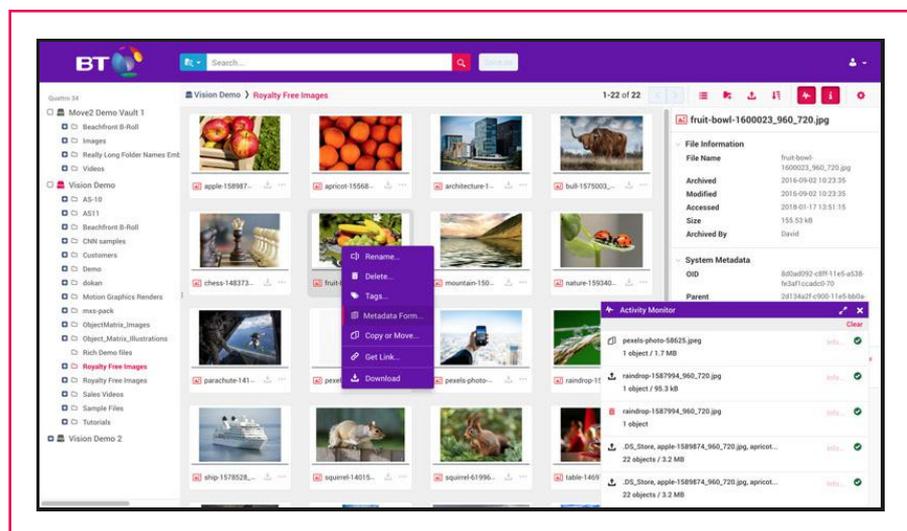
The Solution and Workflow

MatrixStore acts as a highly secure private cloud platform providing on premises content protection and business continuity capability at a second location. MatrixStore complements the high performance storage and provides guaranteed access to clips as and when required. All access to the those clips is audited with details of those audits available to be downloaded and processed using applications from Object Matrix or built in-house.

The existing MAM solution manages the ingest of high-resolution content into MatrixStore for long term protection. That content is then transcoded and also protected in a MatrixStore vault for future delivery via playout servers or a multitude of other platforms.

BT TV has a Vision

In 2017 BT added the Object Matrix Vision browser to its infrastructure allowing it to search for, browse and play back clips from the entire catalogue should the incumbent MAM not be available. The proxy generation to browse and playback clips from within the Vision interface is provided by Glookast.
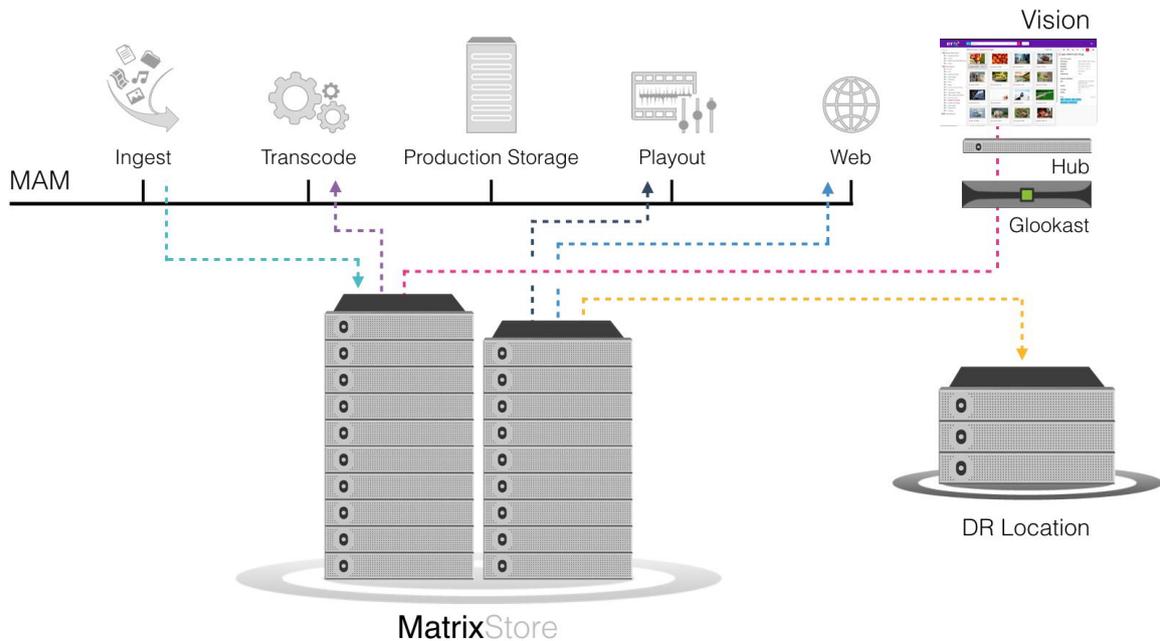

Contact Us Without Delay

Contact us to find out how Object Matrix can help you and your organisation to resolve your storage challenges:

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BT TV VoD Topology

MAM — Ingest · Transcode · Production Storage · Playout · Web

Vision · Hub · Glookast

MatrixStore

DR Location

The Solution

BT now has over 1.8 petabytes of MatrixStore object storage that has grown seamlessly over the last 8 years with little or no management effort. There are currently 19 MatrixStore nodes in the primary cluster and 3 MatrixStore nodes in the disaster recovery location. MatrixStore vault technology ensures BT TV has complete control over the data protection policies based on the importance of the data.

In 2008 BT TV installed an initial MatrixStore cluster consisting of eight 48TB nodes which, over time, grew to over 50 nodes. When the original nodes become over 6 years old they are decommissioned and replaced by fewer, denser nodes. That decommissioning process involved no down time whilst the data on the older nodes migrates automatically to the newer hardware. This seamless experience of migrating to new generations of hardware was the complete opposite of the experience of migrating to newer formats in the old LTO archive.

Out of the box MatrixStore provides:

- Highly secure vaults instantly and constantly protecting content based on defined policies
- Guaranteed data authenticity and sovereignty coupled with ongoing automated data verification and repair
- Standard file protocols for transformation workflows and an open API for integration with existing and future file based workflows
- A scalable solution that requires little or no management enabling the addition of future storage technologies as and when they become available
- Compatible in any NLE workflow allowing content to be browsed directly from the private cloud platform
- Migration in place: content moves automatically to newer storage technology as and when legacy hardware is decommissioned

A History of Future Proof Upgrades

Facts from the 8 years of operation:

- Original private cloud platform : 8 nodes
- Highest number of nodes : 50 (primary cluster)
- Generations of hardware: 10 (at one point 8 generations existed in the same cluster)
- Nodes decommissioned: 37 (Replaced with 10 nodes providing more capacity, taking less space and power)
- Applications used: MatrixStore API, Vision, MXFS, DropSpot
- MatrixStore is operational 8760 hours in the year
  - Hours spent managing the solution: 15 hours per year

*During this **8 year** period BT TV experienced an uptime of **99.99%** even including scheduled upgrades and outages.*

Customer Perspective

MatrixStore has allowed BT to deliver a number of high profile projects with some very challenging timescales and will continue to support the delivery phases of any new or associated projects. The simplicity and efficiency allows high volume Master restoring to enable new or extended file formatting ensuring related deadlines are achieved.

In addition, the media volumes required to support BT TVs Video On Demand offering has increased significantly in the last 2-3 years and we would have been unable to support the numbers if expansion to the estate had not been so easy to manage. The addition of the "Vision" tool has been a great choice and allowed greater operational control and file management.

The system support team, when required, have provided a full and comprehensive service ensuring operational downtime is minimal. Our growing estate allows the flexibility and reliability BT TV requires to ensure the media is readily available, easy to manage and consistently reliable.

Peter Harvey, Head Of Operations, Content Media Operations, BT TV

Effortless and Proven Digital Preservation

Object Matrix sells MatrixStore into heavily regulated industries such as banks (Deutsche Bank, Nomura Bank, UBS etc) and utility companies (EDF) where there is an increasing focus on complying with internal and external compliance requirements around data protection authenticity and access. In these industries governance, authenticity and audit trails are required throughout the lifetime of the content from capture to archive. These exact requirements are increasingly being sought in media organisations with file based workflows and are some of the features of MatrixStore that helped BT to make their decision.

Preservation Requirement	MatrixStore Solution
Policy based retention of data	Policy ensures data cannot be deleted before a retention period dictate.
Audit logs and log files	Configurable audit log can tracks all operations (administrative & data).
WORM	Data stored as fixed content cannot be modified.
Authenticity	Digest calculated when the data is stored acts as a guarantee that the data is bitwise exactly the same when it is read back as when it was originally stored. Periodic validation of the content also ensures this remains the case.
Security and Privacy	Full network security is employed to stop replay, sniffing, data modification and other tracks. User access rights can be set only giving access to authorised personnel.
Accessibility	Time to first byte is sub-second, even under heavy load.
Searchability	Built-in database can support many searches per second across 100's of millions of database entries. Data entered into the store can be entered with 100's of keywords to enable web style search of unstructured data.
Disaster recovery	Covered on two levels: by replication to a separate cluster and/or by generation of tapes. Data is stored on a single cluster such that 5 disk simultaneously would need to irrevocably fail before data is at risk.
Different regulations need to be handled	Since each object stored can be given its own policy, the same MatrixStore can be used to handle many differing regulations.
Ever growing storage capacity is required	Extra storage capacity can be added easily via plug and play. It is possible to add best of breed storage technology to the existing storage pool as and when it becomes available providing future proof ability to scale.
Future Proof	Any qualified storage can be added to an existing cluster. When older hardware is decommissioned the content automatically migrates, in place, to the newer platforms.

Object Matrix Ltd

To learn more about MatrixStore, please visit
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