EDF Energy

Digital Preservation Platform For Inspection Data
The Customer Challenge

The inspection Group within EDF Energy Generation is responsible for collecting data when outages occur at any of the nuclear power plants owned by EDF Energy. The inspection data collected is wide ranging but the content that presents the most challenges to the team is the hours of file based video footage captured on site. The incumbent solution for management of video footage was manually intensive. Therefore, the initial objective was to automate the capture of the information where possible as well as making the assets more secure and less vulnerable to user and hardware failures. The secondary objective was to provide the ability to share the content with the appropriate and authorised personnel over the corporate network. The issues they faced included:

- Recording, protecting and logging the content on several remote sites was largely a manual and paper based exercise
- Locating data within a large library of media and formats was time consuming and not always successful
- Migration the data from format to format was both timely and error prone
- Having the data in a static format on a shelf meant the data was not readily available to be analysed or reviewed
- Complexity in protecting content in accordance with internal company policies
- Sharing content with the wider business was slow and laborious

The first phase of the projects was to capture and preserve the video content and associated metadata. After ruling out the continued use of the offline line media technologies such as DVD, Blu-Ray and LTO the team at EDF Energy decided to implement MatrixStore, the object based digital preservation platform from Object Matrix. The second phase of the project required low resolution copies of the assets to be shared across the corporate network for review, analysis and training purposes. For that, EDF Energy turned to Object Matrix technology partner Cantemo who provides scalable media asset management solutions that have been tightly integrated with the MatrixStore digital preservation platform.

Phase 1 - The Solution and Workflow

The key challenge was capturing the video and metadata information at each location and centralising the content in the main office of the Inspection Group. The storage requirements at the nuclear site was not large in terms of capacity but required a portable solution and a means for capturing the all important metadata. To satisfy these requirements Object Matrix provided its MatrixStore Mini product that provided 3 terabytes of dual copy protected capacity delivered in a custom built portable rack. To capture the metadata Object Matrix developed its now very popular ‘forms’ interface. The forms interface allows users of the Object Matrix DropSpot application to define custom metadata entry forms when content is being ingested. Once the data has been captured the MatrixStore Mini nodes are transported to the central location where the data is effortlessly migrated to the central MatrixStore cluster.

1. Video content and metadata effortlessly protected in a MatrixStore Mini, a portable object based digital preservation platform.
2. The content captured from the eight satellite locations is merged into the central 120 terabyte MatrixStore enterprise cluster for analysis and review.
Phase 2 - Sharing the content

Part of the Object Matrix philosophy is based on workflows being incremental. Solve your main problem first then build upon that solid base. EDF Energy firstly needed to secure their content and metadata, the second phase was to enable authorised personnel across the business to access the content on demand through standard web browsers. For this element Object Matrix recommended the impressive Portal solution from Cantemo. Cantemo Portal is built upon the Vidspine media asset management backbone which is in turn integrated tightly at API level with MatrixStore clustered storage. This tight integration between the MAM and storage layer brought several benefits:

- Automated ingest and indexing of existing media in the MatrixStore cluster
- Inspection content can be shared across multiple sites on demand
- Ability to distribute content in multiple formats
- Reduced storage management effort over traditional storage solutions

The solution has been integrated and supported by UK based NMR, a leading post-production and broadcast systems integrator.

Effortless and Proven Digital Preservation

Object Matrix sells MatrixStore into heavily regulated industries such as banks (Deutsche Bank, Nomura Bank, BNP Paribas), Parliaments (French Public Senate) and telecommunications companies (BT). In these organisations there is an increasing focus on complying with internal compliance requirements around data protection authenticity and access. In these industries governance, authenticity and audit trails are required throughout the lifetime of the content form capture to archive. Those demanding requirements are increasingly being sought in many organisations that capture, process and protect video content and are features of MatrixStore that helped EDF Energy to make their decision.

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<thead>
<tr>
<th>Preservation Requirement</th>
<th>MatrixStore Solution</th>
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<tbody>
<tr>
<td>Policy based detention of data</td>
<td>Policy ensures data cannot be deleted before a retention period dictates</td>
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<td>Audit logs and log files</td>
<td>Configurable audit log can tracks all operations (administrative &amp; data)</td>
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<td>WORM</td>
<td>Data stored as fixed content cannot be modified</td>
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<td></td>
<td>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</td>
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<tr>
<td>Security and Privacy</td>
<td>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</td>
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<tr>
<td>Accessibility</td>
<td>Time to first byte is sub-second, even under heavy load</td>
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<td>Searchability</td>
<td>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</td>
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<td>Disaster recovery</td>
<td>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 4 disk simultaneously would need to irrevocably fail before data is at risk</td>
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<td>Different regulations need to be handled</td>
<td>Since each object stored can be given its own policy, the same MatrixStore can be used to handle many differing regulations</td>
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<td>Ever growing storage capacity is required</td>
<td>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</td>
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Customer Configuration

- 5 MatrixStore Mini Clusters
- 120 Terabyte MatrixStore Enterprise Cluster

Workflow Overview

- DropSpot custom form interface
- Full MAM & MatrixStore API