FAST LTA

Customer Case Study | Silent Bricks | Virtual Tape Library

How DLR accelerated satellite data retrieval while maintaining its archive across two storage technologies

The German Satellite Data Archive used two tape technologies to preserve Earth observation data over the long term. When one of these technologies was no longer being developed, DLR needed to find a second storage solution. Three Silent Brick systems were deployed for selected data across two locations; the team observed shorter waiting times when retrieving archived data.

An archive fot future research

The German Aerospace Center (DLR) manages satellite data through its Earth Observation Center, allowing researchers to analyse it again in the future. Such datasets can, for example, help study changes in glaciers over several decades. In 2020, the German Satellite Data Archive contained approximately 20 PB. Data arrived from receiving stations worldwide, was first transferred to a disk cache and then copied to different technologies and locations.

One of the tape technologies in use was no longer being developed by its manufacturer. For DLR, this was more than a replacement issue: the archive wanted to maintain the distribution of copies and provide faster access to data for certain ongoing missions. According to IT Manager Stephan Schropp, fast, random access was becoming increasingly important for future applications. The team also expected growth of up to 10 PB per year due to ongoing and new missions; at the time, this was a forecast, not a measured result.

The experience?

“Compared to the previous solution, we observed significantly shorter waiting times when reading data from the archive.”

Stephan Schropp, IT Manager D-SDA at DLR



Photos: DLR, February 2020

COMEX

A new approach within the existing archiving software

Following a recommendation from system integrator NAVUM, DLR selected the Silent Brick System from FAST LTA. In this configuration, the Bricks operate as a virtual tape library, allowing the organisation's existing hierarchical archive management system to continue functioning without major software changes. At the same time, the hard drives provided faster access to selected archived data than the previous tape-based approach. Inactive Bricks could be switched off to reduce energy consumption.

In January 2019, the first three systems were installed at the Oberpfaffenhofen and Neustrelitz locations without interrupting production. The deployment covered selected data within the much larger archive; the original case study does not describe a complete migration of all 20 PB.

Less waiting when retrieving data

After implementation, Schropp reported significantly shorter waiting times when retrieving archived data compared to the previous solution. According to him, DLR could also eliminate the need for an additional high-speed disk copy that had previously been necessary for the data concerned. The three systems operated reliably and required little attention from the team, according to his account.

DLR therefore maintained a second storage technology alongside tape for this data, with a more straightforward way to access information that researchers need to retrieve again. Further expansion into a larger VTL archive was mentioned in the source as a future plan and was not a result of this initial implementation.