Innovative software solutions for data archiving & metadata management
CURRENT PRODUCT PORTFOLIO

Data Archiving

**XtreemStore**
- Scalable object storage software with S3 interface
- Lowest TCO through tape integration
- 0.5 PB–1000 PB+ as target market
- iRods certification

**WORM* Archiving**

**FileLock (Win)**
- Audit-proof archiving on standard disk systems (KPMG certificate)
- 0.1 – 100 TB+ as target market
- Dell Technologies WORM-Appliance available

Metadata Management

**Metadata-Hub**
- Find and unlock the true value of unstructured data
- Search, analyse, classify and aggregate data via metadata = first step towards KI

**Protection against Ransomware**

**Blocky4Backup (Win)**
- Highest protection against ransomware thru WORM & fingerprinting technology
- Blocky for Veeam® and other applications
- Whitelisting, Centralised Mangemt. & Instant Copy

*Write Once, Read Many*
XtreemStore

Scalable Object Store Software for Archive Medium Tape
EFFICIENT ARCHIVING OF INACTIVE DATA TO TAPE

- Significant growth of unstructured data
- Approx. 80% of data is not active ("cold data")
- Inactive data consume expensive storage with negative impacts on performance, backup/recovery and power consumption.
- Tape offers lowest total cost of ownership (TCO)

SOLUTION: XTREEMSTORE SOFTWARE WITH S3 INTERFACE TO TAPE
KEY FEATURES – 1

- Easy to deploy
  Standard AWS API (S3) implemented

- Hardware independent
  Server, Disk, LTO drives and tape libraries from any vendor

- Open Standard – no proprietary format
  TAR-Format on LTFS (tape)

- Container technology
  - Significant reduction of objects to be managed

- High availability
  - Multiple copies
  - Multiple servers incl. automatic failover
  - Object, container or tape based replication to other XtreemStore systems.

- User defined cache size for individual workflows

- Large file spanning
KEY FEATURES – 2

- **Scalability**
  - NoSQL databases are designed to process billions of objects at high speed
  - Software architecture allows adding multiple servers for HA and increased throughput.

- **Control & Monitoring**
  - REST-API as interface for 3rd party applications
  - Monitoring tool built in (ZABBIX)
  - WebUI & CLI

- **User / Application – Metadata Management**
  - Metadata defined grouping (collocation)
  - Metadata driven housekeeping
  - Queries on Metadata

- **Unbeatable cost**
  Due to lowest TCO of tape, best cost/capacity ratio on the market.
The software architecture combines vertical & horizontal scalability.

Efficient handling of billions of objects.

Petabyte / Exabyte of data on tape media.
S3 AS STANDARD INTERFACE

APPLICATIONS

PACS
Backup
FTP
HSM
SYNC
Drive Access
Andere

Admin
(CLI & WebGUI)

Zabbix
(Monitoring)

XtreemStore
(Disk & Tape)
## CURRENT STATUS: S3 IMPLEMENTATION

<table>
<thead>
<tr>
<th>S3 FUNCTIONS IMPLEMENTED IN XTREEMSTORE</th>
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<tbody>
<tr>
<td>Create users</td>
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<tr>
<td>Authentication (v2, v4)</td>
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<tr>
<td>Create buckets</td>
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<tr>
<td>List buckets</td>
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<tr>
<td>Bucket info</td>
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<td>Upload objects</td>
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<td>Object info, download (including range)</td>
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<td>List, browse objects</td>
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<td>Bucket and object ACL</td>
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<tr>
<td>Multipart upload</td>
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</table>
CONTAINERIZATION

- Containerization to speed up object handling of small objects & keep tape media in streaming mode
- Optimized handling of corresponding data (collocation)
DATA MANAGEMENT VIA METADATA (COLLOCATION)

XtreemStore Rules Engine
(Files can be grouped via metadata)
USE CASE: ARCHIVING OF MEDICAL DATA

PACS 1  PACS 2  PACS N

Standby-read-access

PACS 1  PACS 2

Instant container-based Replication (via VPN)

XtreemStore 1

Tape Pool 1  Tape Pool 2

Location Nuremberg

15 PB Data

Tape based Replication (via physical transport)

XtreemStore 2

Tape Pool 3  Tape Pool 4

Location Hamburg
ARCHIVE LAYER - EXAMPLE

Erfurt

- Object-store (Ceph Cluster)
- iRODS Archive
- ICAT DB

DNS Core

Thuringian State Library Jena

- UrMEL
- Content-broker DB
- Oracle HSM
- iRODS Archive
- ICAT DB

Ilmenau

- Object-store (Xtreem Store)
- iRODS Archive
- ICAT DB

DNS Core

Jena

- UrMEL:
  Universal Multimedia Electronic Library, based on MyCoRe
- DNS Core:
  DA-NRW Software Suite
- iRODS:
  integrated Rule-Oriented Data System

OpenVPN over privat Network
CERTIFICATION REPORT

ABSTRACT

What was tested: iRODS (integrated Rule-Oriented Data System) was tested together with the XtreemStore (S3 to tape object store).

Who made the tests: The company contac Datentechnik made the tests, with the support from GRAU DATA GmbH. Thanks to contac Datentechnik for their expertise and cooperation.
VEEAM BACKUP FOR MSP’S

1. Direct Connect via VPN

2. VEEAM Cloud Connect Gateway

Veeam Client Company A

Veeam Client Company B

Veeam Client Company C

WAN

SSL

SSL

SSL

Disk & Tape Pool

A

B

C

D
XTREEMSTORE WEBUI – 1
XTREEMSTORE WEBUI – 2
Coming product: Metadata-Hub

- Planned integration with iRods

Data Management applications → iRODS
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