Innovative software solutions
for data archiving &
metadata management
GRAU DATA

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

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

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

Protection against Ransomware

Blocky4Backup (Win)

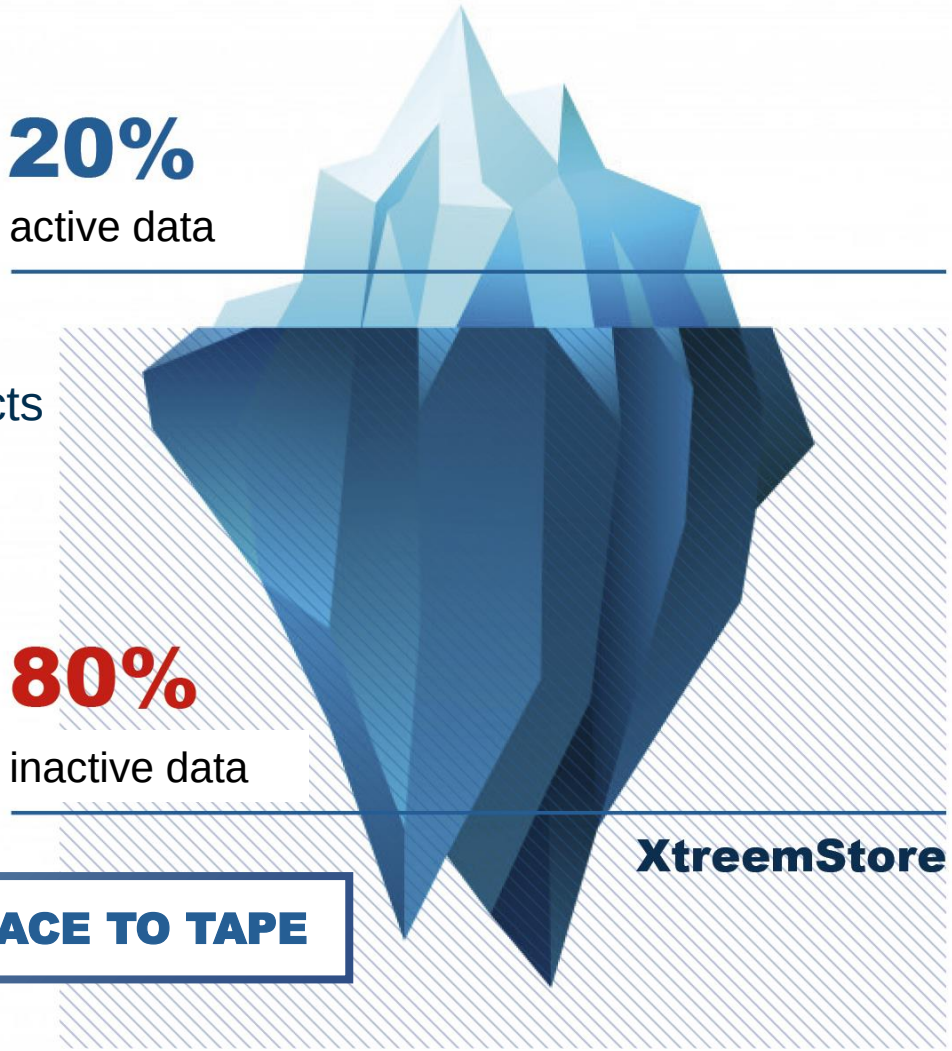
- Highest protection against ransomware thru WORM & fingerprinting technology
- Blocky for Veeam® and other applications
- Whitelisting, Centralised Mangemt. & Instant Copy

*Write Once, Read Many

XtreemStore
Scalable Object Store Software for
Archive Medium Tape
GRAU DATA

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**

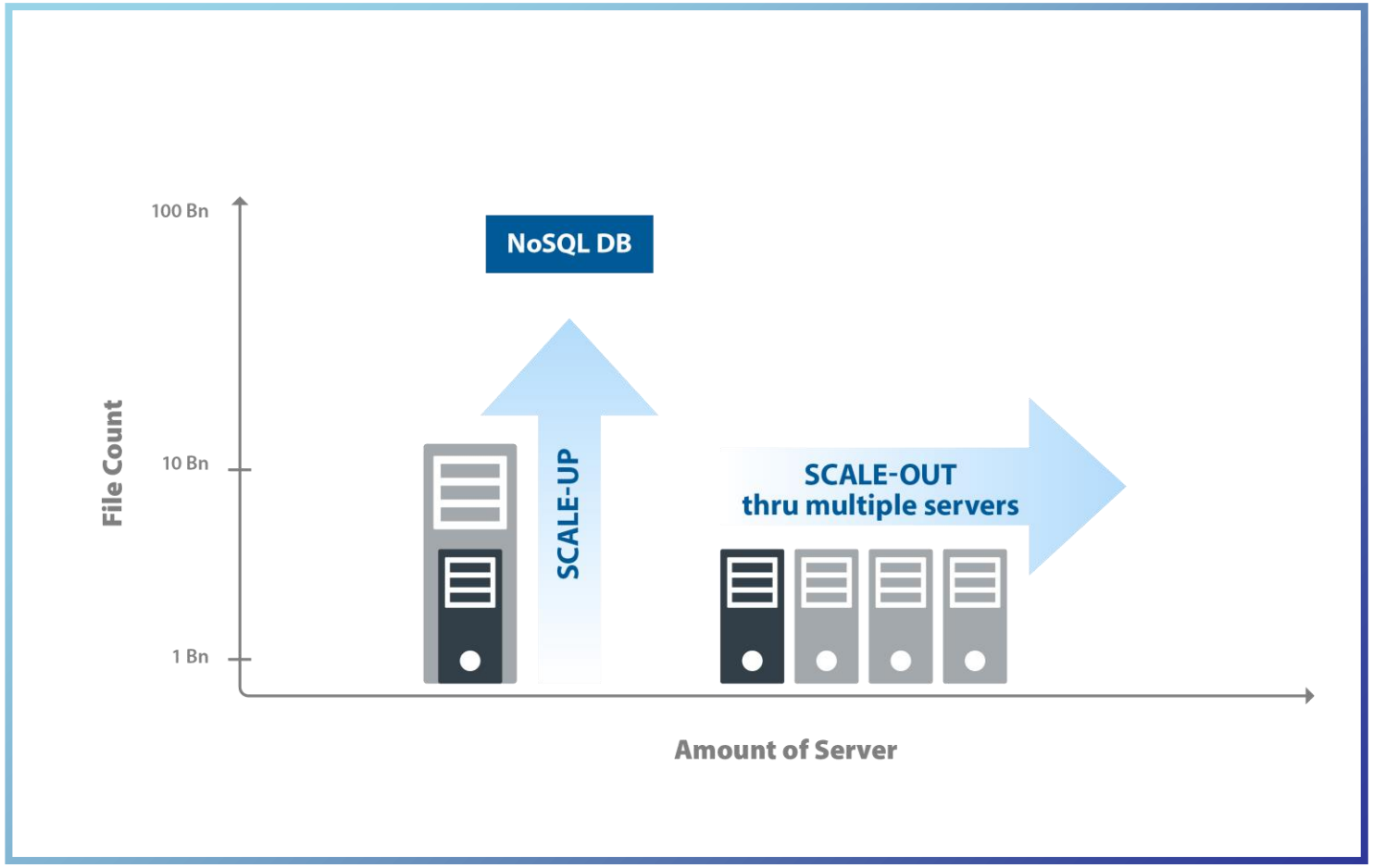
- **Large file spanning**

KEY FEATURES – 2

- **Scalability**
  - NoSQL databases are designed to process billion 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**

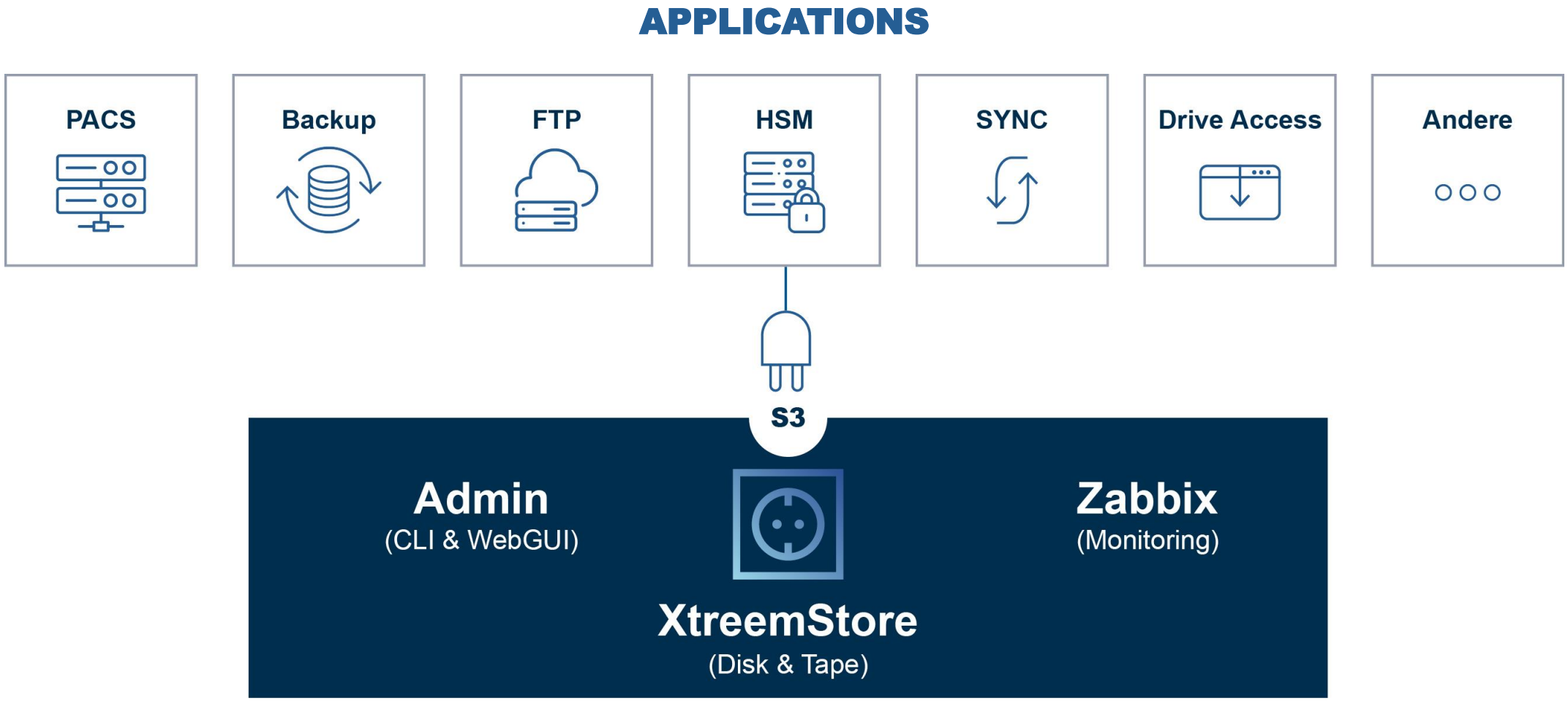
  Due to lowest TCO of tape, best cost/capacity ratio on the market.

XTREEMSTORE ARCHITECTURE



- The software architecture combines vertical & horizontal scalability
- Efficient handling of billions of objects
- Petabyte / Exabyte of data on tape media

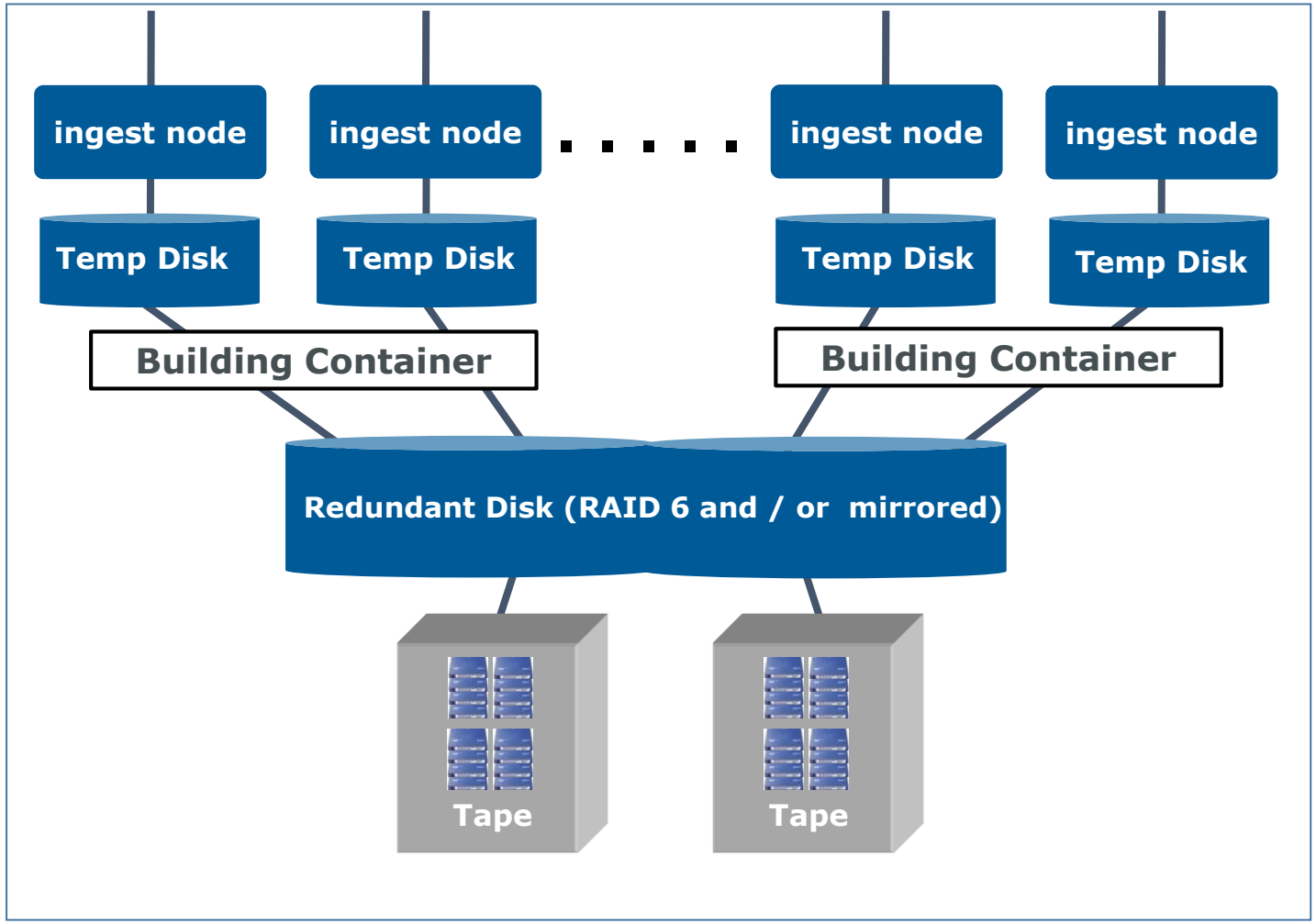
S3 AS STANDARD INTERFACE



CURRENT STATUS: S3 IMPLEMENTATION

	S3 FUNCTIONS IMPLEMENTED IN XTREEMSTORE
Create users	**YES**
Authentification (v2, v4)	**YES**
Create buckets	**YES**
List buckets	**YES**
Bucket info	**YES**
Upload objects	**YES**
Copy objects	**YES**
Object info, download (including range)	**YES**
List, browse objects	**YES**
Delete, multi delete objects	**YES**
Bucket and object ACL	**Static response**
Multipart upload	**YES**

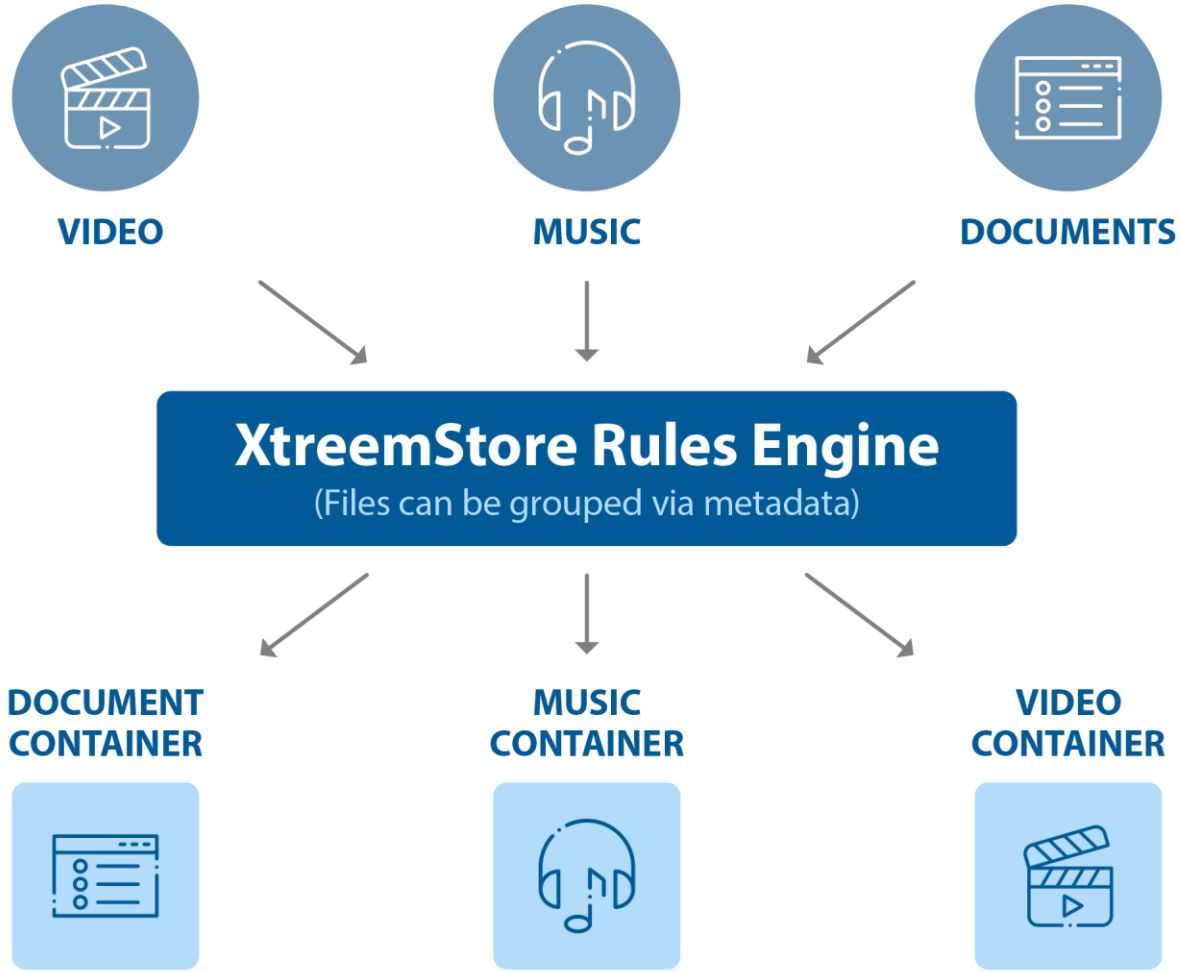
CONTAINERIZATION



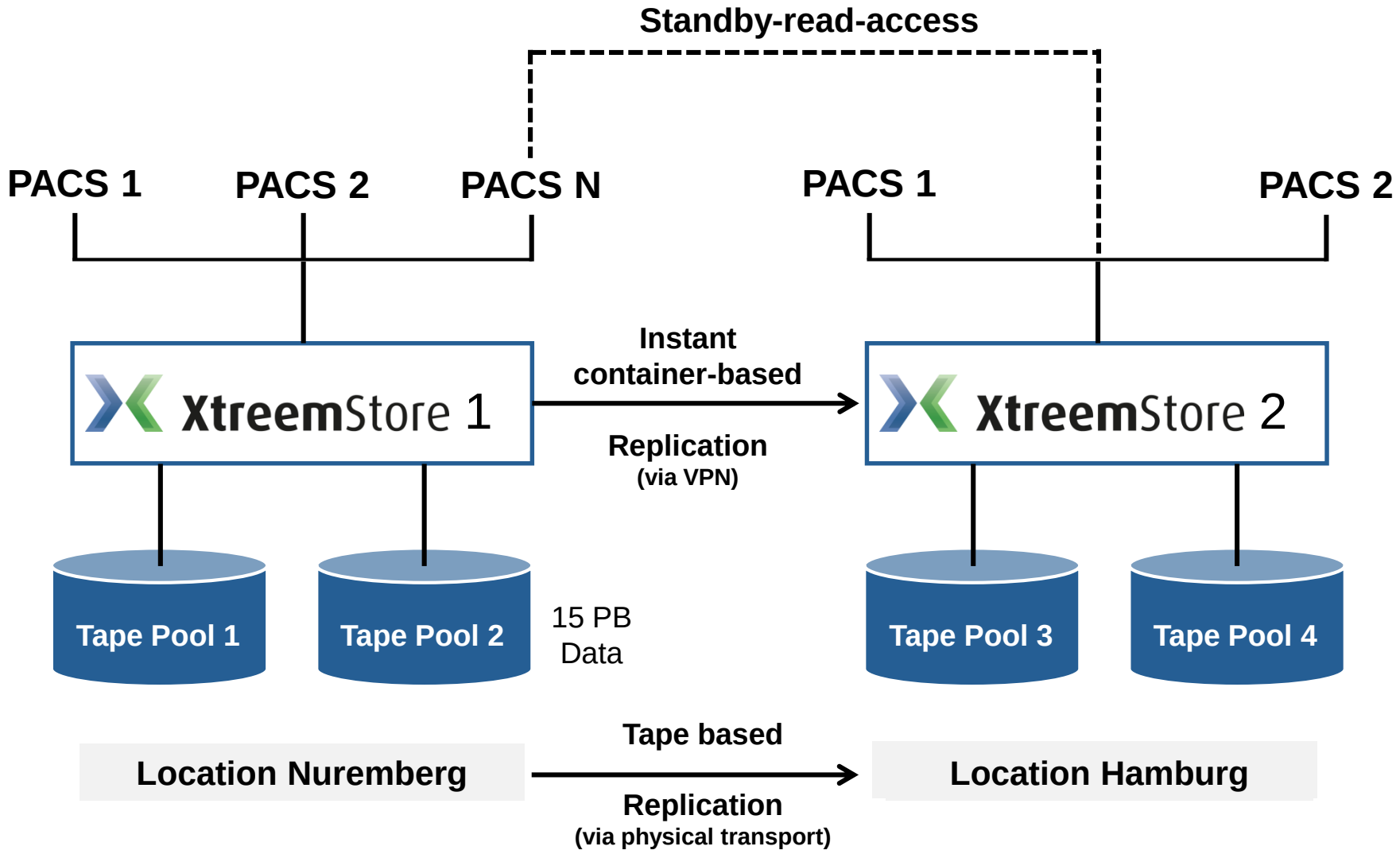
XtreemStore

- 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)



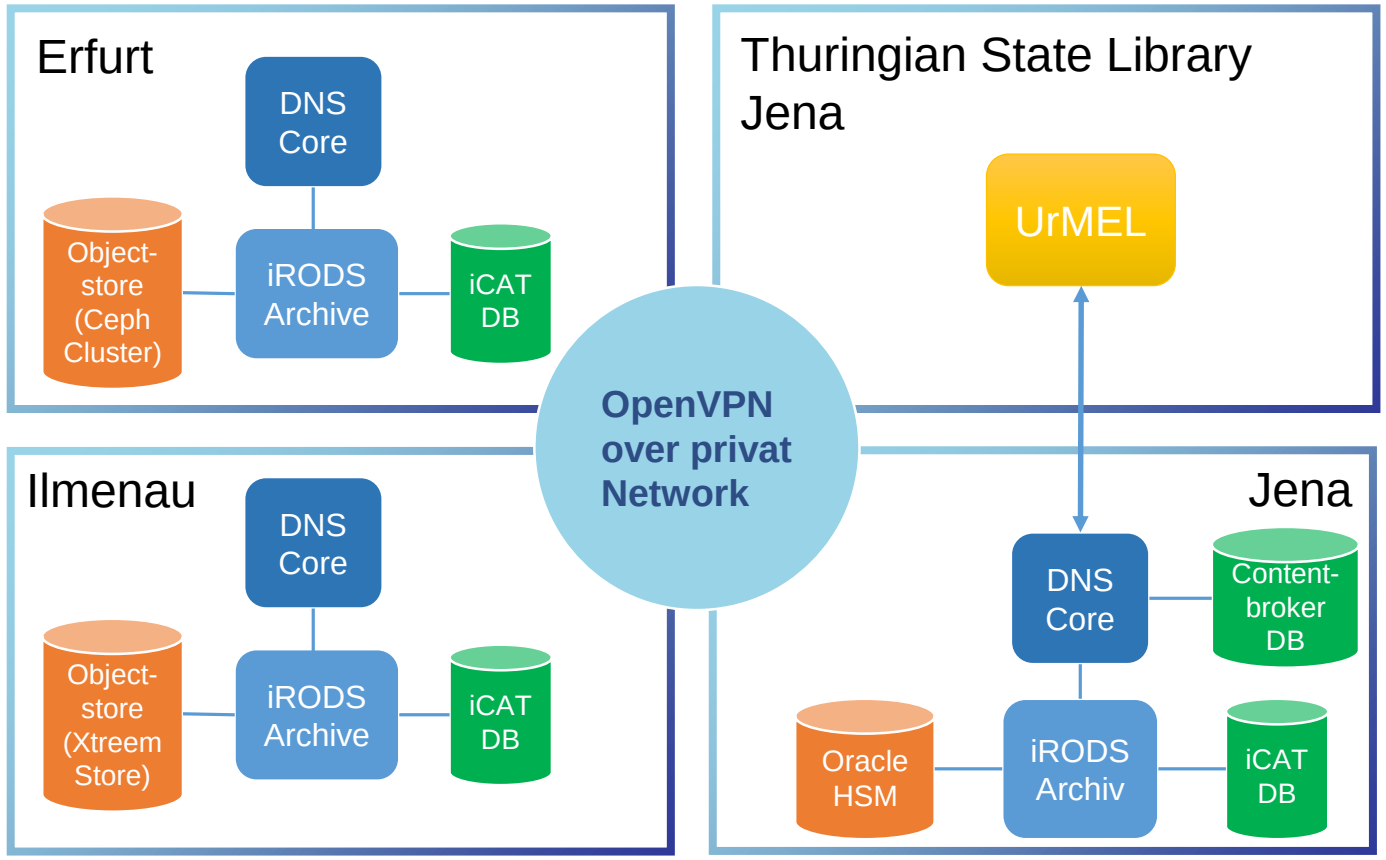
USE CASE: ARCHIVING OF MEDICAL DATA



ARCHIVE LAYER - EXAMPLE

CULDA archive
archive for cultural data

contac DATENTECHNIK



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

iRODS® CERTIFICATION WITH XTREEMSTORE

iRODS

GRAU DATA
YOUR DATA. YOUR CONTROL

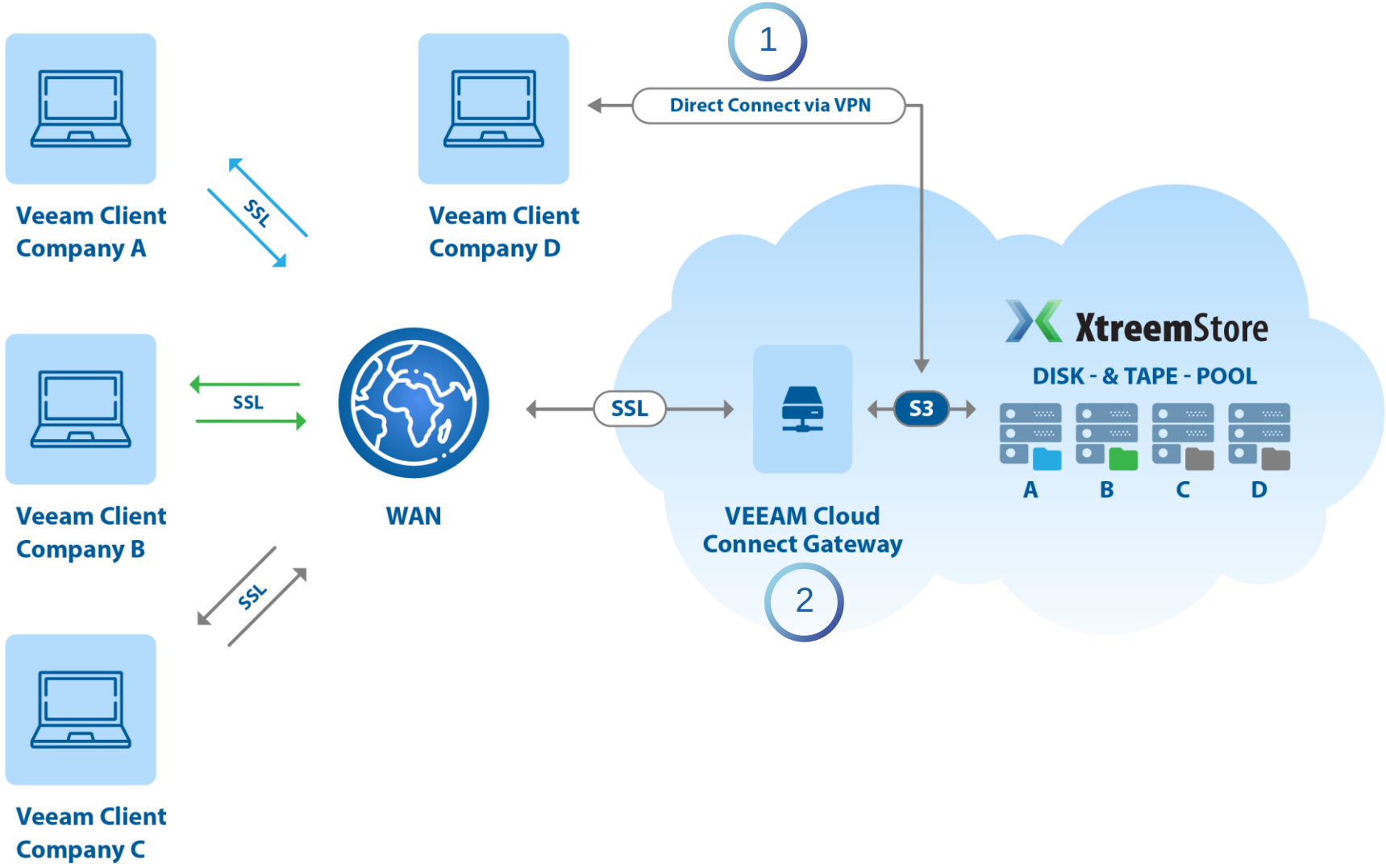
CERTIFICATION REPORT

ABSTRACT

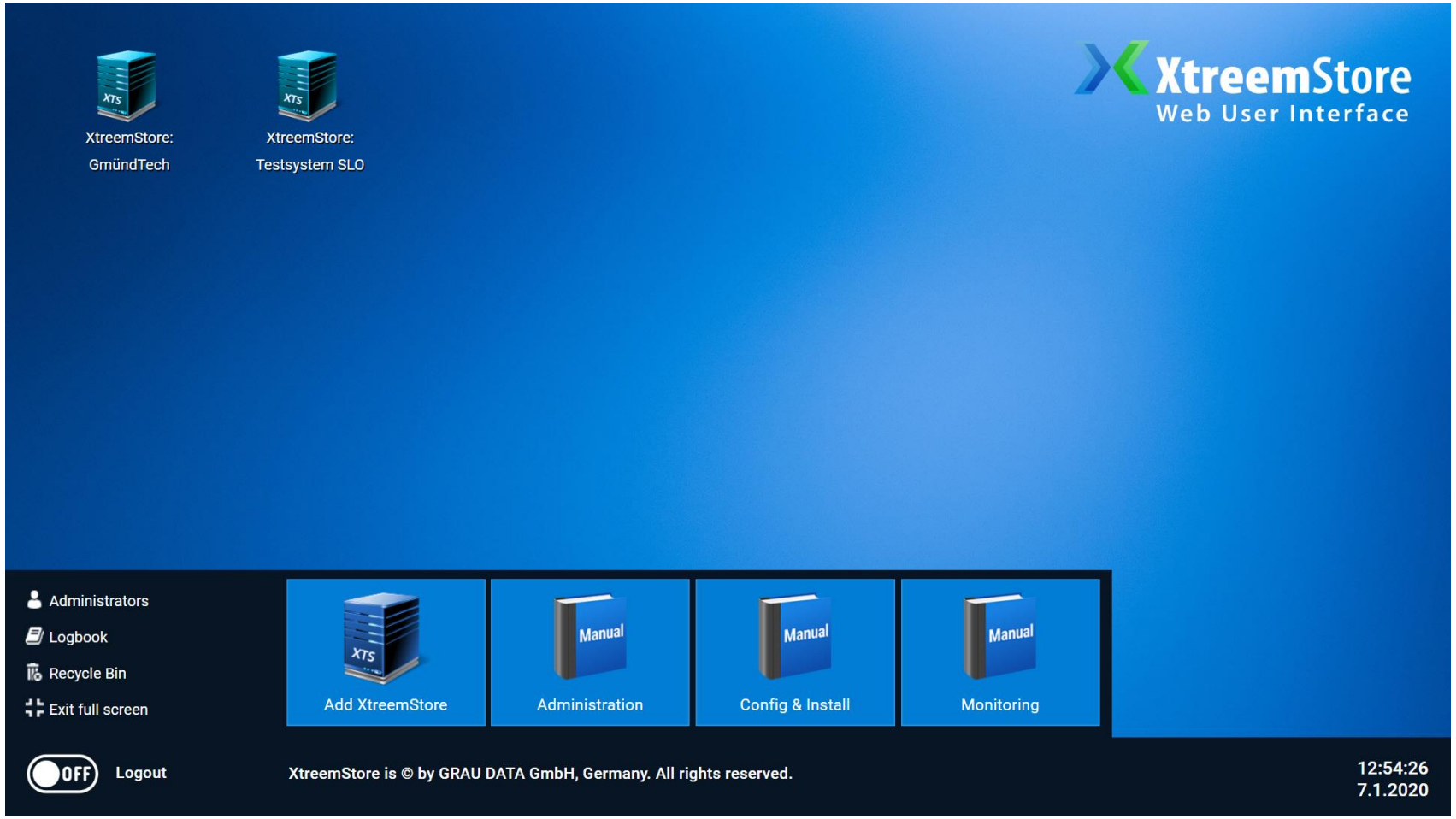
What was tested:	iRODS (integrated Rule-Oriented Data System) was tested together with the XtreemStore (S3 to tape object store).
Who made the tests:	The company contac Datentechnik made the tests, with the support from GRAU DATA GmbH. Thanks to contac Datentechnik for their expertise and cooperation.

contac
DATENTECHNIK

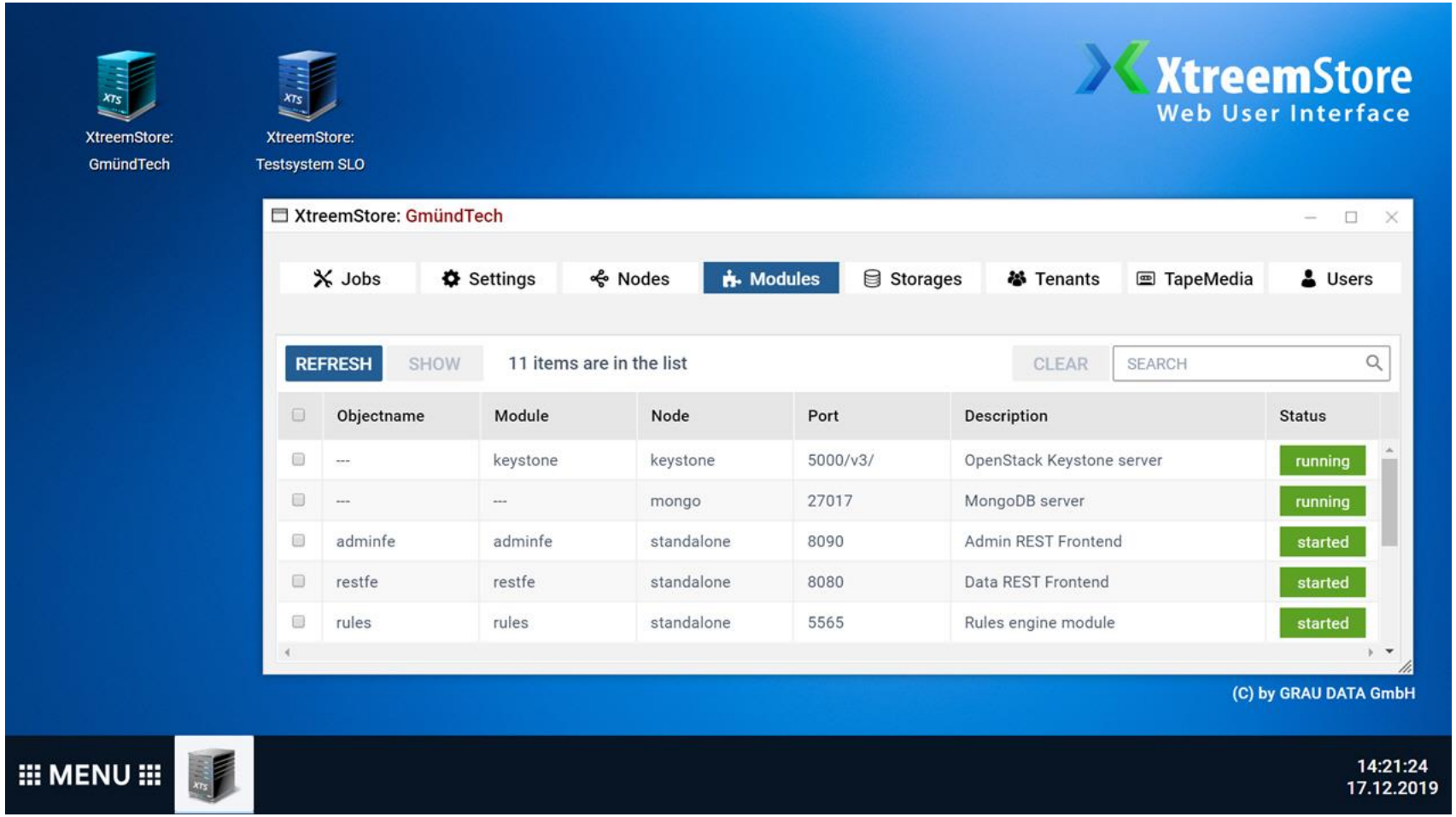
VEEAM BACKUP FOR MSP'S



XTREEMSTORE WEBUI – 1



XTREEMSTORE WEBUI – 2



Coming product: Metadata-Hub

- Planned integration with iRods

CONTACT PERSONS AT GRAU DATA:

CHRISTIAN WOLF

Product Management

Christian.Wolf@graudata.com

Phone: +49 7171 187-208

HARRY WEIK

Head of Sales & Marketing

Harry.Weik@graudata.com

Phone: +49 7171 187-240

www.graudata.com

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