WHAT IS OBJECT STORAGE?

- Data organized in independent objects

- Flat hierarchy

- Direct access to objects via HTTP URL

- Each object has attached metadata

- On-premises or in the cloud

- Amazon released S3 in 2006

REST API

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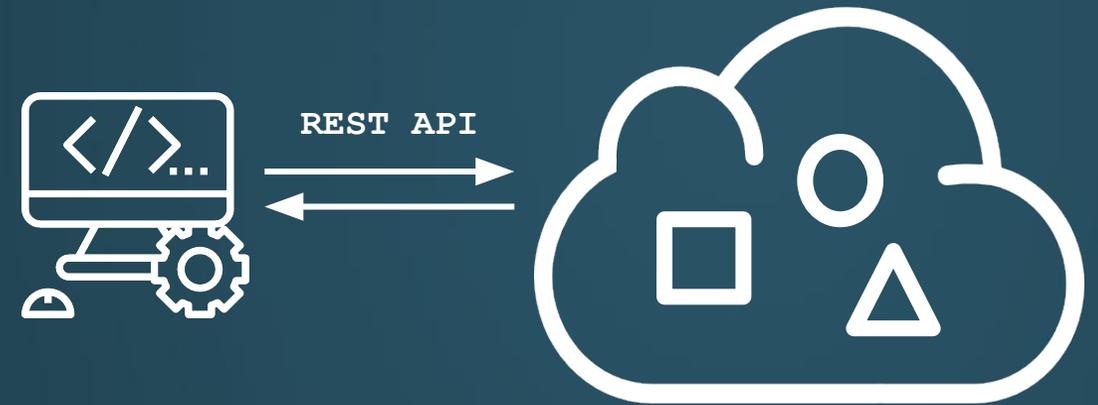
CHARACTERISTICS OF OBJECT STORAGE

Scalability   **Availability**   **Security**   **Performance**   **Low cost**

WHAT ANALYSTS SAY ABOUT OBJECT STORAGE

- Object storage well positioned to address rapid increase in data
- Common use cases
  - Backup and recovery
  - Data archiving
  - Disaster recovery
  - Big data analytics
  - Cloud-native application data

Capacity Growth by Data Type

Unstructured data will account for 80% of all data created in 2020

■ Total structured data created ■ Total unstructured data created
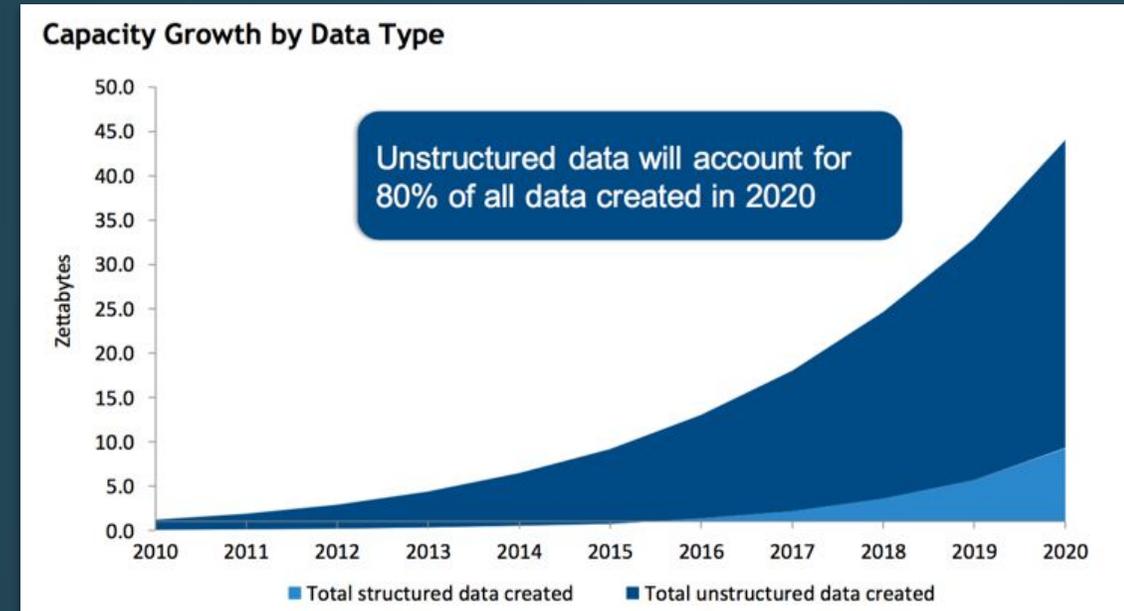
Read the full Gartner report

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WHO MAKES OBJECT STORAGE

* Very partial list

DELLEMC   IBM   NetApp®   HITACHI

Azure   aws   Google Cloud Platform   SCALITY

Hewlett Packard Enterprise   MINIO   redhat   openstack®

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USE CASES FOR MAINFRAME BACKUP, ARCHIVE AND RECOVERY

Creating additional recovery points

Shortening disaster recovery times

Keeping isolated secure backup copies

Using cold storage for archiving

Reducing tape overhead for backups

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CREATING ADDITIONAL RECOVERY POINTS

- Leverage existing MF snapshot technologies (e.g. Flashcopy), then copy the snapshot object storage

- Moving snapshots fast enough enables a CDP-like solution

- Lower cost and scalability of object storage enables keeping multiple additional copies

- Does not require additional DASD capacity to keep snapshot copies

- Ability to restore a data set, volume or an application

Snapshots

Fast data transfer

Restore functions

MODEL 9

KEEPING ISOLATED SECURE BACKUP COPIES

- Leverage existing MF snapshot technologies (e.g. Flashcopy), then copy the snapshot object storage
- Rely on the advanced MF encryption capabilities to protect data in transit and at rest
- Write data to WORM-certified storage, so it cannot be modified
- Keep data on isolated storage platform, requiring other type of credentials
- Perform stand-alone restore in case your MF has been compromised

Snapshots

Encryption, WORM

Restore functions

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SHORTENING DISASTER RECOVERY TIMES

- Create "vault" backup copies at a remote site

- Write to object storage over TCP/IP, no distance limitation

- Data accessible from any recovery site over TCP/IP

- Stand-alone restore capabilities

Data transfer
over TCP/IP

Access data
from any site

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USING COLD STORAGE FOR ARCHIVING

- Different types of data require different SLAs

- Migrate/Archive directly to object storage enables a hardware-agnostic archive solution

- Use for long term archive without tape media and tape drive dependencies

- Cloud providers offer attractive cold storage options

- Integrate with existing system interfaces (catalog, etc.)

Migrate
data sets

Store data on
low-cost cold
storage

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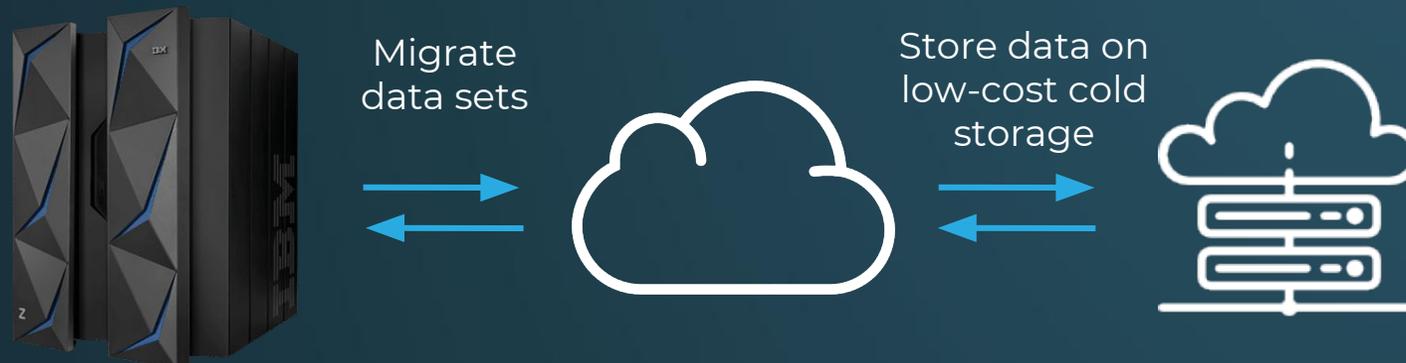
REDUCING TAPE OVERHEAD FOR BACKUPS

- Backup and migrate data sets directly to object storage on-premises or in the cloud, instead of tapes

- High performance as object storage is optimized for streaming workloads

- Read and write data in parallel not sequentially

- Save CPU resources by eliminating tape recycle/reclaim/merge processes

- No need for tape management software

Primary space management

Backup, migrate

Restore, recall

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MODEL9 CLOUD DATA MANAGEMENT FOR z/OS

- Standard mainframe archive, recall, backup and recovery operations

- Support any storage connected over TCP/IP: object storage, NAS, SAN

- Data movement offloaded to zIIPs

- Internally use DFDSS as data mover

- Fully supports existing SMS policy (MC, SG)

- No additional database to maintain

9 Address Space

RACF	zIIP
CATALOG	ZEDC
SMS	Crypto Express
DFDSS	OSA

DASD

Object Storage Protocol

S3 Storage Proxy

Cloud Storage

On Premise Object Storage

On-premise NAS SAN

Management server
Linux or z/Linux
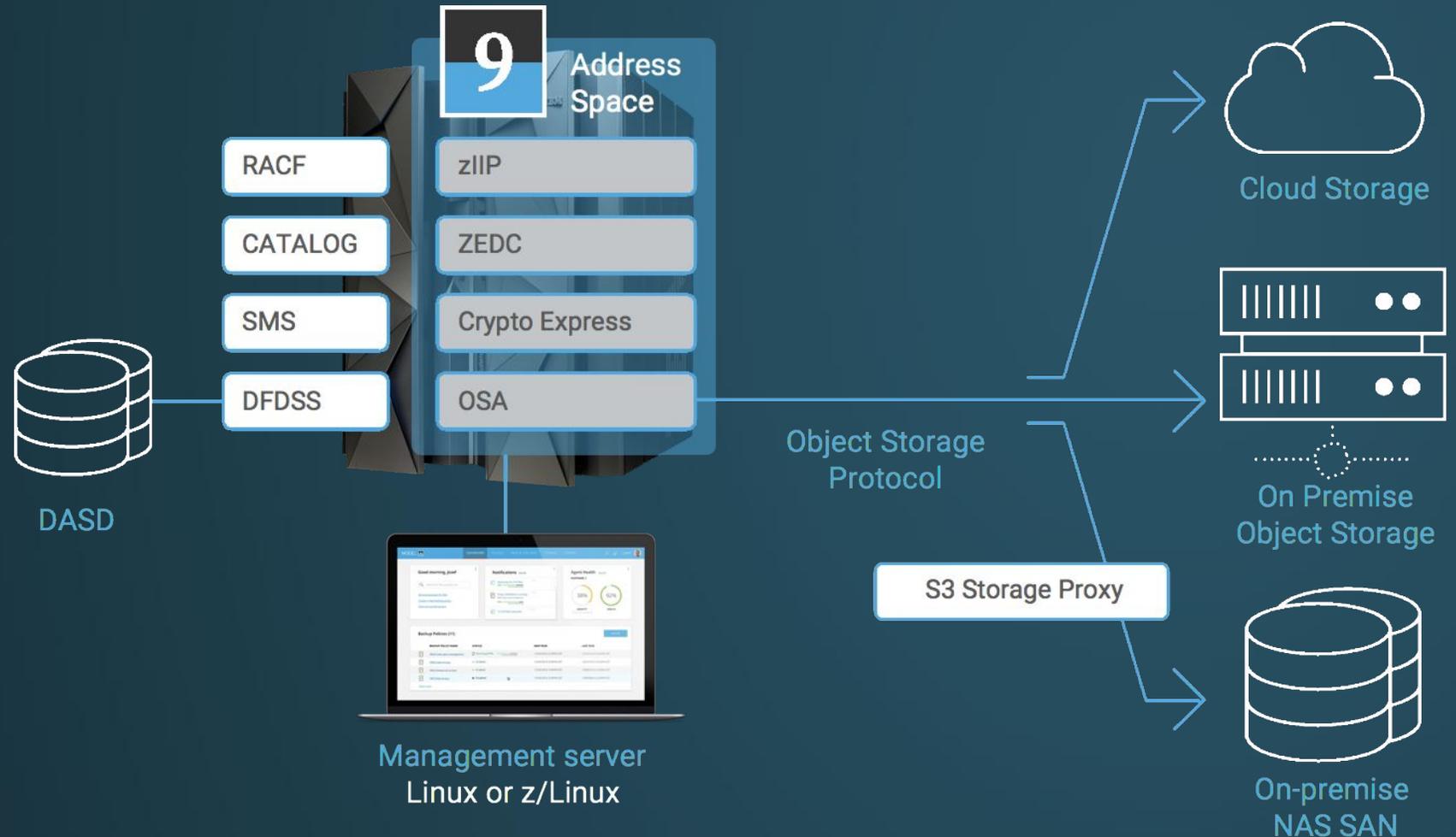
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MODEL9 UNIQUE FEATURES

- MF data management that runs on zIIPs

- Backup, restore, archive, recall directly to/from object storage

- Support any DASD and any object storage

- Use standard format - restore anywhere, no lock-in

- Runs side-by-side existing data management products

- Fast data transfer, with MF-first deduplication technology

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KEY TAKEAWAYS

- Object storage offers everything you'd expect from enterprise storage, and more!

- Opportunity to modernize secondary storage and reduce tape overhead

- A new economic model for MF secondary storage

- Direct connectivity to object storage help reduce hardware dependencies and lock-in

- Tape and object storage can cohabitate

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THANK YOU!

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Please submit your feedback online at:
http://conferences.gse.org.uk/2018/feedback/DI

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ABSTRACT

Industry analysts and storage vendors all agree that using object storage as part of your company's archive and backup strategy can improve recovery, simplify daily operations and reduce storage costs. But in the mainframe world, object storage is still not widely in use.

Mainframe customers can use object storage, either on-premises or in the cloud, in multiple ways, from co-existing with current archive, backup and recovery solutions to a complete replacement of virtual tapes. In this session we will describe how object storage can fit in the current mainframe storage architecture and present common use cases for leveraging the benefits of cloud object storage.

Our talk will cover:
- Creating additional recovery points
- Shortening disaster recovery times
- Using cold storage for long term archiving
- Creating highly secured backup copies to protect from cyber threats
- Reducing the overhead of tape-based archive and backup

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