Friday, October 24, 2025, 2:00 PM, Lear Room

Benchmarking Virtual Mass Storage Systems

2025 OpenVMS Bootcamp
Portsmouth Sheraton
Portsmouth, New Hampshire USA

Robert Gezelter Software Consultant

Agenda –

- Benchmarking has never been simple

- Today's environment is more complex

- Avoiding surprise

- Controls are absolutely vital

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Agenda
Introduction
Mass Storage Physics
Benchmarks
BACKUP Save Sets
. . .

Introduction

- What do we really know?

- To benchmark, what must we understand?

- The importance of content?

- Controlled vs. uncontrolled variables

```
$ SHOW DEVICES DGA
Device                  Device          Error   Volume          Free    Trans   Mnt
 Name                   Status          Count    Label          Blocks  Count   Cnt
$1$DGA9:                Online             0
$1$DGA10:               Mounted            2    PAGE             83643      3    26
$1$DGA13:               Mounted            0    WORK1           192297     36    26
$1$DGA23:               Online             0
$1$DGA24:               Mounted            0    MONITORPLUS     776808     86    26
```
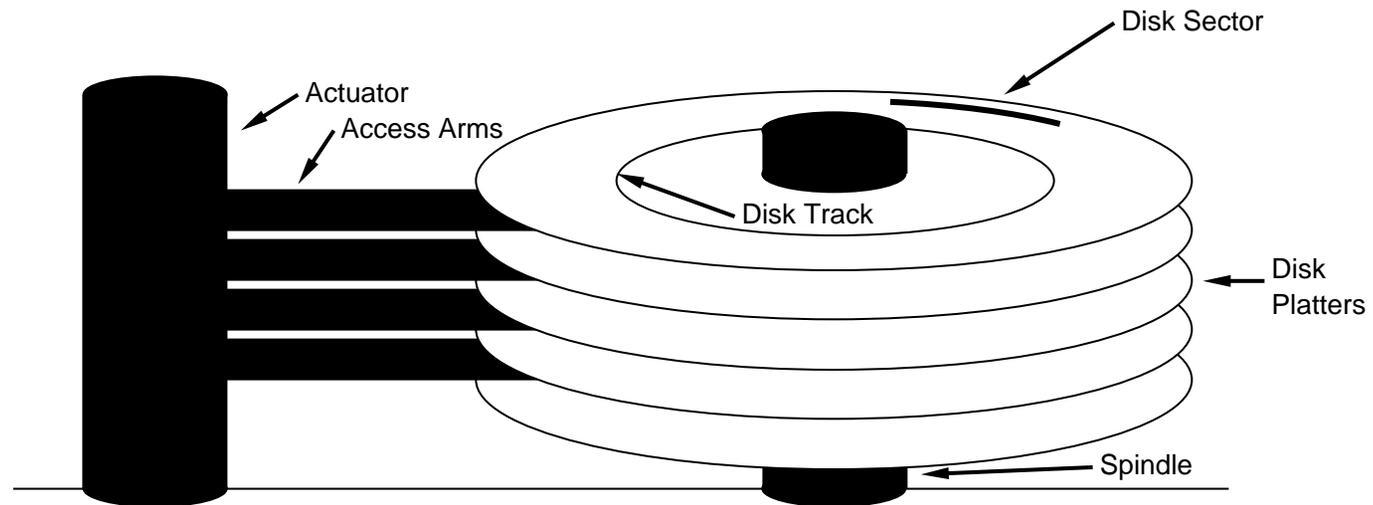
Benchmarking Virtual Mass Storage Systems

Classic Rotating Mass Storage

- Rotating media

- Moveable heads

- straightforward performance

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Modern Mass Storage

- Bulk LBA-addressable store

- Arbitrary physical realization

- Caches, solid state, rotating, compressed, dedup

- Potentially hierarchical

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Storage Levels

- OpenVMS cache

- Controller cache

- Drive cache

- Hierarchical Layers

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Benchmark Utility

- Space extendability

- Time extendability

- Understanding variation • Best, Worst, Typical

- Understand what externalities CAN happen

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Space Extendability

- Compression

- Volume space extensions – Real, Virtual

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Introduction
Space Extendability
Time Extendability

Time Extendability

- Ideal vs. reality

- A potential cliff at every level

- Resource Contention – Internal, External

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- Output Save Sets

- Compression

- Encryption

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Mass Storage Physics
Benchmarks
BACKUP Save Sets
Dependencies
Summary

Introduction
Command Line Options
Downtime Windows

BACKUP Save Sets – Command Line Options

- SET RMS/SEQUENTIAL/EXTEND_QUANTITY=65535

- /DATAFORMAT=COMPRESS/ZLIB=n

- Compress and Encrypt –
  BACKUP encrypts before Compressing

- ZIP and UNZIP to package for transmission

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Mass Storage Physics
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Command Line Options
Downtime Windows

Downtime Windows

- What is your downtime window?

- Compression takes time

- Consider Host-based Shadow Sets

- Database shutdown/Release DSAn/Database Start

- ZIP and UNZIP toi package for transmission

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. . .   **Configuration and Cross Traffic**
Mass Storage Physics   **Data Contents**
Benchmarks
BACKUP Save Sets
Dependencies
Summary

DKn is not the same as DKn

- OpenVMS instances riding on simulated/logical volumes

- Logical Volume settings

- Controllers

- SAN Configurations

- Cross-traffic – Drives, Controllers, SANs

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Benchmarks
BACKUP Save Sets
Dependencies
Summary

Configuration and Cross Traffic
Data Contents

Data Dependency

- Compression factor is data dependent

- Trading space for time – Compression

- Time and schedule windows

- Source of surprises!

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Summary

Summary

- The goal is to accurately estimate the future

- Learn and understand your environment

- Beware false scenarios

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Questions?

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Session Notes & Materials:
http://www.rlgsc.com/openvms-bootcamp/2025/index.html