Automatic Storage Management Complimentary to 3rd Party Storage Stack

Product Presentation

Oracle Corporation

ORACLE

The Problem

Local file systems – too slow

RAW – fast but complex

NAS/NFS – too slow, but easy to manage

Cluster FS/VM – expensive and slow, but easy to manage

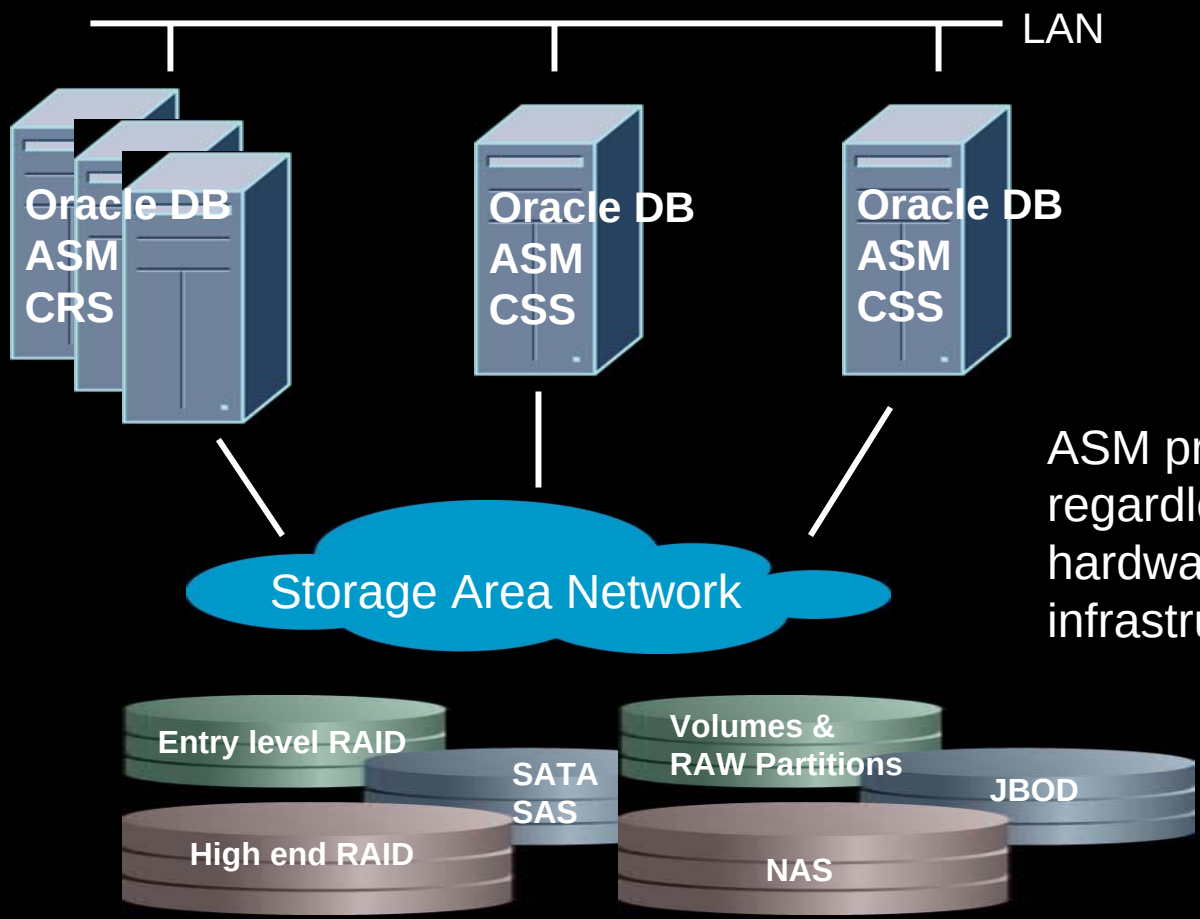
SAN FS – expensive, slow, complex but cross platform

Automatic Storage Management

A **Database File System** which provides cluster file system and volume manager capabilities that are integrated into the Oracle database 10g kernel at no additional cost

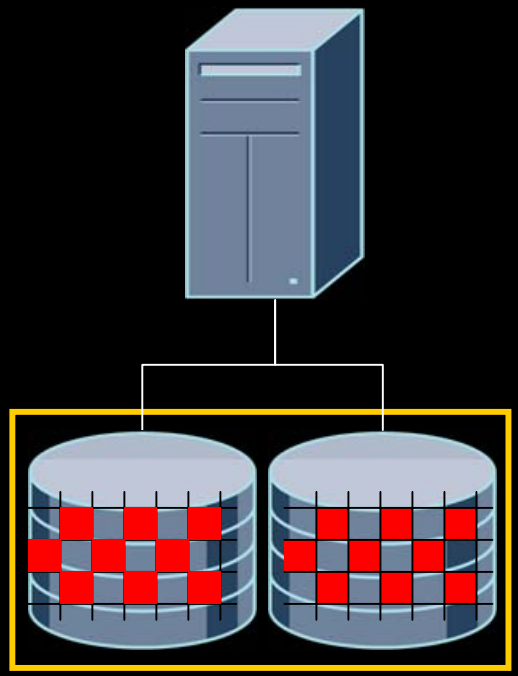
Reduce Cost and Complexity Without Compromising Performance or Availability

ASM Cluster Architecture



ASM provides value regardless of the type of hardware/software storage infrastructure

ASM Disk Group (File System)



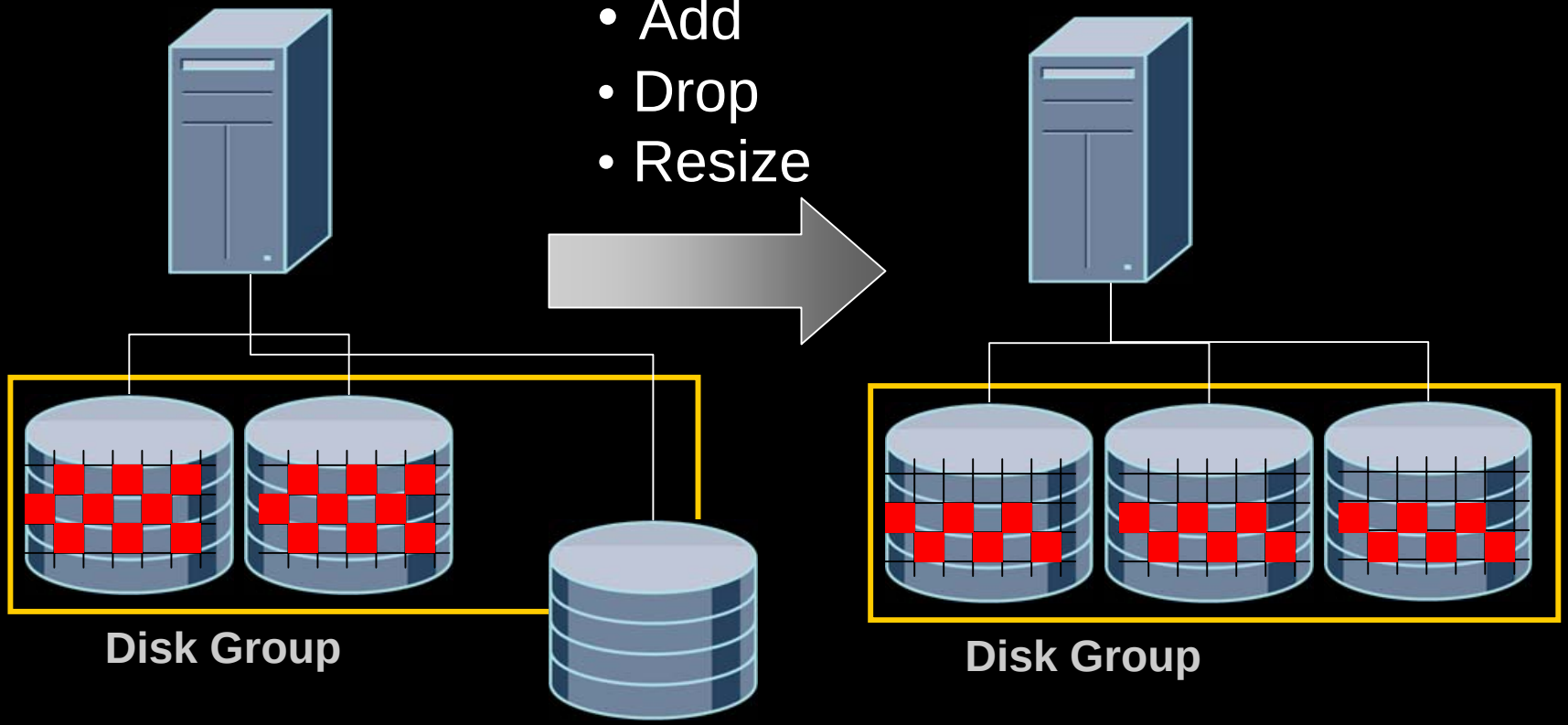
Disk Group

- Virtualizes Storage Entities
  - A pool of storage entities (disk, LUN, volume, partition, FS files) managed as a logical unit
  - No more moving files from point A to B – ever
- Auto Distributes Data Files
  - ASM spreads each Oracle file evenly across all disks in a disk group

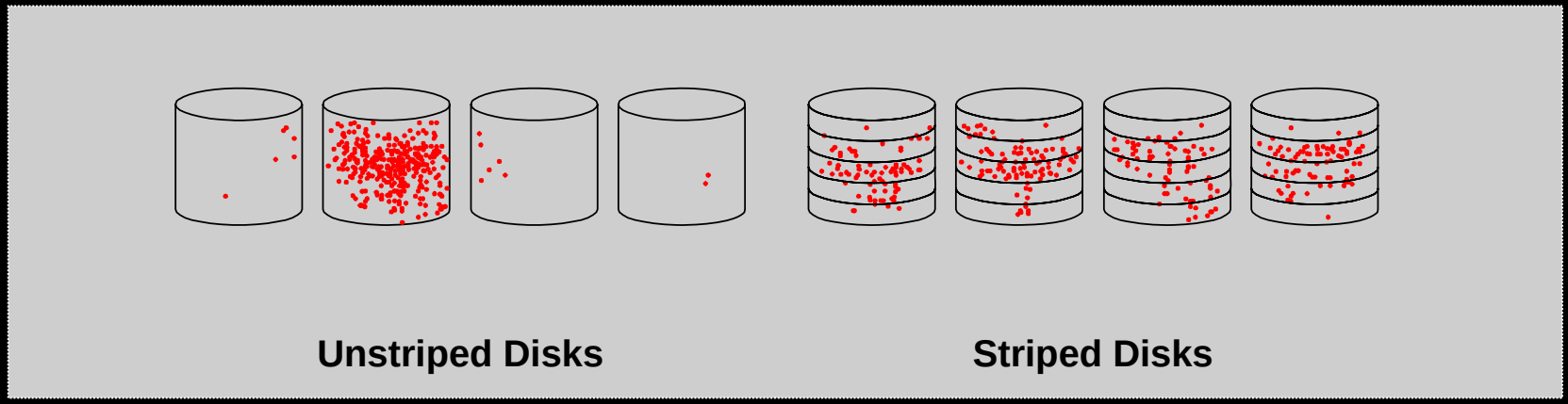
No more islands of volumes and LUNs

Dynamic Capacity Management

- Add
- Drop
- Resize

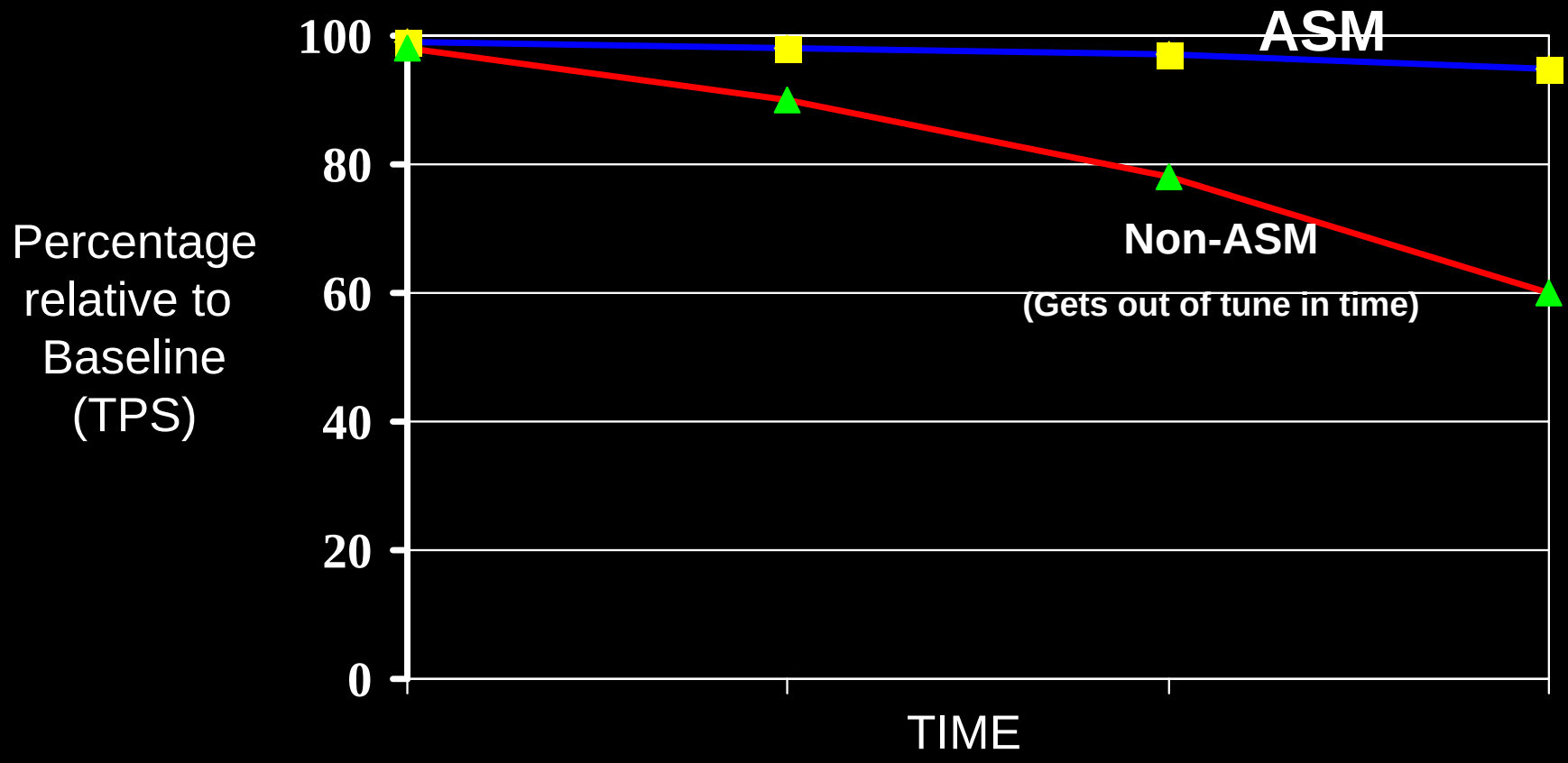


Auto Data Distribution



- Efficient relocation of data during rebalance
- No more hot spots - eliminate manual I/O tuning
- Optimal performance

No Performance Degradation Over Time



Automatic File Naming

ASM Leverages Oracle Managed Files (OMF)

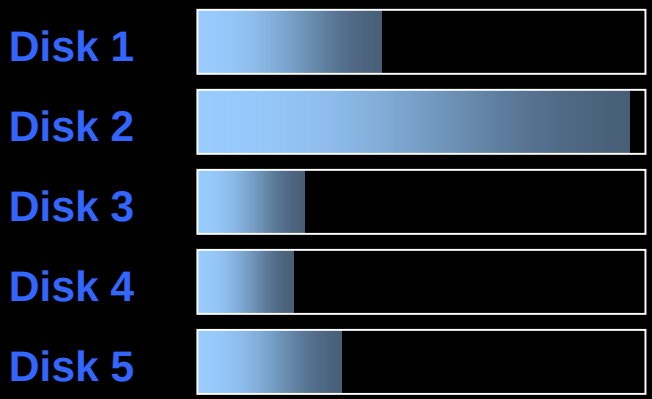
- Simplifies database administration
  - Specifies operation in terms of ‘objects’ vs ‘files’
  - Automates database file naming I.e. datafiles, redo logs, archive logs, recovery files, etc…
  - Reduces mistakes by admins specifying the wrong file name
  - Reduce wasted disk space consumed by obsolete files – Create and delete automatically

Improving Storage Utilization

Before ASM

Conventional wisdom

- Pre-allocate storage
- Difficult to add/remove storage
- Leave headroom to grow

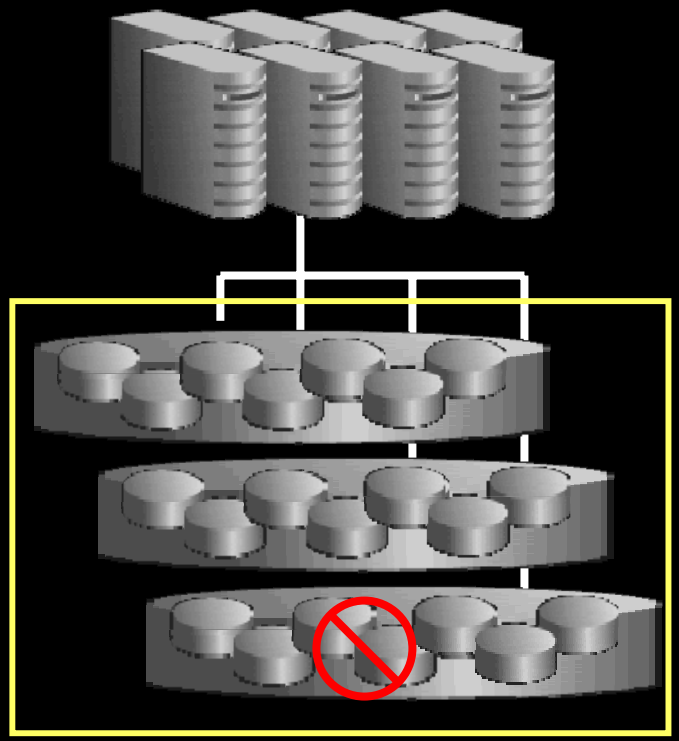


With ASM

Provisioning storage when you need it… and save money

- Allocate what you need
- Simple to add or remove when needed
- Save time and money

Intelligent Mirroring Options



ASM Disk Group

Flexible redundancy choices

- Efficient extent-based mirroring and striping
- 2-way or 3-way mirroring
- Can leverage external RAID protection

Empower low cost computing

Single Vendor Integration

- Bundled with Oracle database 10g
- Integrated and tested through Oracle's standard QA processes
- Single Install/Configuration through Oracle standard tools (OUI/DBCA)
- No finger pointing- Single vendor support
- No additional cost!

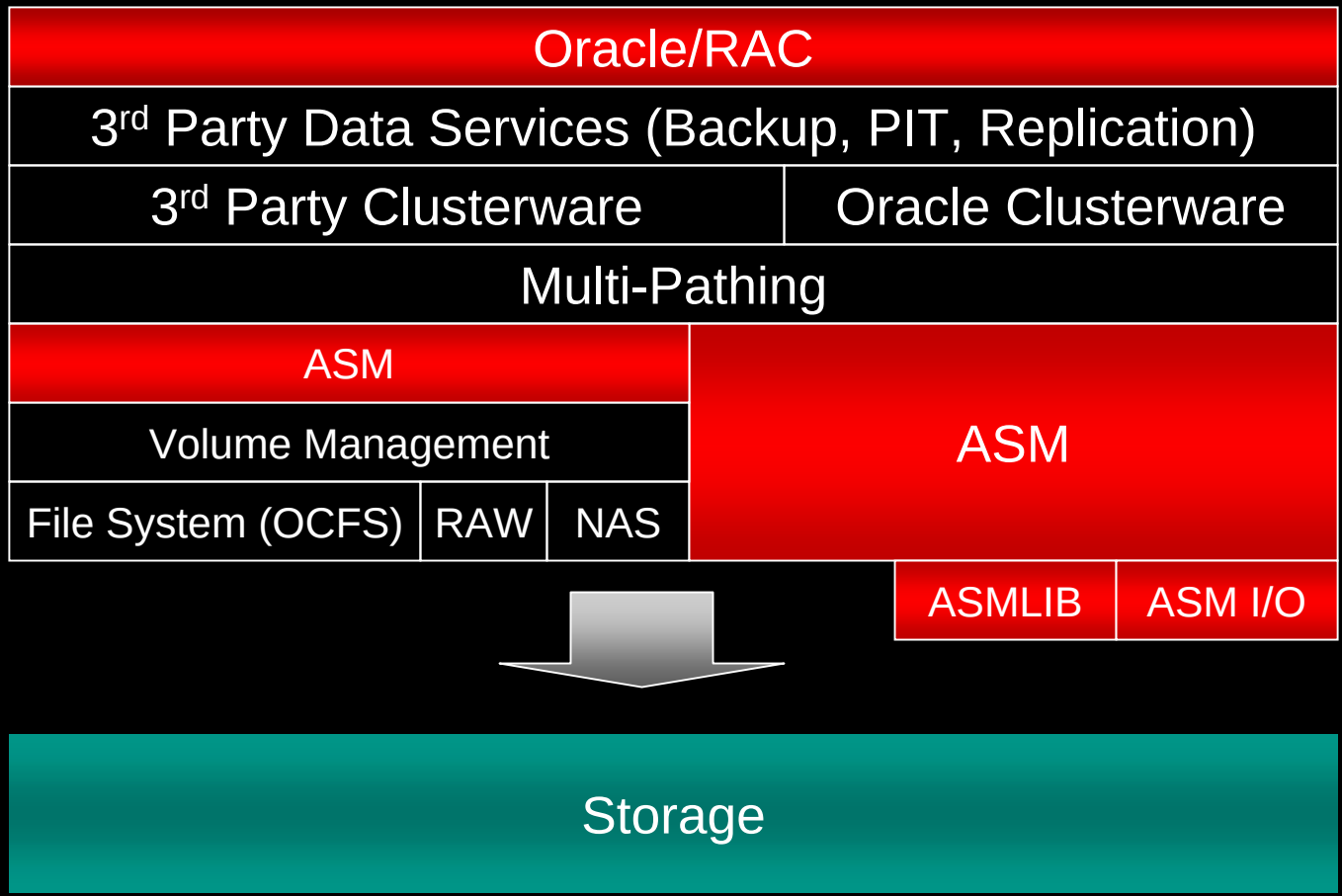
Simplify & Automate → Increase Utilization → Predictable SLAs

Save $$$

Significantly Reduces Total Cost of Ownership

TCO Categories	Cost Overhead ASM	Cost Overhead Non-ASM
Cluster file system	Free	
Cluster VM	Free	
Over provisioning (storage utilization)		
Management Overhead		
Support Fees	Included w/DB	
Downtime		

Software Stack



Lower Cost and Complexity Without Compromising Performance or Availability

- **Simplify and Automate Database Storage management**
  - Fraction of the time is needed to manage database files
- **Increase Storage Utilization and Agility**
  - Eliminate over provisioning and maximize storage resource utilization with more flexibility
- **Predictably Deliver on Service Level Agreements**
  - Never get out of tune delivering high performance similar to RAW - sustained over time
  - Uncompromised availability empowering low cost storage deployment reliably

QUESTIONS
ANSWERS