CONSOLIDATION BEST PRACTICES FOR YOUR ORACLE ENVIRONMENT

KEVIN CLOSSON, CHIEF PERFORMANCE ARCHITECT, XTREMIO
AGENDA

• Database & Application Challenges
• The XtremIO Solution
• Integrated Copy Data Management
• Self-Service Options for Databases
• Q&A
DATABASES AND APPLICATIONS TODAY

THE GROWTH CONTINUES

100+ Number of DBs in typical large organization

64% Organizations seeing increase in number of Oracle DBs

800 Hours to provision fully loaded database

22% Organizations pursuing Database as a Service Initiatives

Source: 2015 IOUG Survey on Database Manageability; Oracle surveys
DATABASE MANAGEMENT ACTIVITIES

TOP FIVE WEEKLY DBA ACTIVITIES

- Performance Tuning & Diagnosis: 48%
- Maintaining Uptime & Availability: 44%
- Applying Upgrades, Fixes & Patches: 40%
- Creating & Maintaining Copies Of Database Information: 37%
- Testing & Quality Assurance: 25%

Source: 2014 IT Resource Strategies Survey
ADDING NEW ORACLE DATABASES: TOP CHALLENGES

Source: 2014 Enterprise Platform Decisions Survey

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90%+ of data centers are mixed
Separate SLAs usually result in a siloed environment

Multiple silos of infrastructure

Multiple software versions

Multiple IT operational needs
(Performance, backup, data availability & protection)

Source: 2014 IT Resource Strategies Survey
STORAGE IS OFTEN THE BOTTLENECK
DATABASE MANAGEMENT GAP

80% Say DBA & Storage Administrator Collaboration Is Key To Organization

In-Depth Database Knowledge

In-Depth Storage Knowledge

Source: 2014 IT Resource Strategies Survey
WHAT IF YOU COULD SIMULTANEOUSLY...

Consolidate **everything**: dev, test, production, analytics

Meet DB performance SLAs

Simplify DB operations; deploy apps sooner

Reduce product & administrative costs

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EMC XTREMIO REDEFINES DATABASES
CONSOLIDATE EVERYTHING ON THE SAME INFRASTRUCTURE

Production databases
Development databases
Functional & performance testing
Analytics / OLAP
Oracle & SAP applications

All while maintaining performance & availability SLAs!
BAILLIE GIFFORD: DEV/TEST
CONSOLIDATION

GOAL

Accelerate the development cycle and time to business value

Investment Firm
BAILLIE GIFFORD: DEV/TEST CONSOLIDATION

Due to performance concerns each copy was a full clone of production data

Investment Firm

02 DAYS
32x DATA SIZE
30 DAYS Old
BAILLIE GIFFORD: DEV/TEST
CREATE SAVINGS AND AGILITY FOR THE CUSTOMER

After Copy

XtremIO saves tremendous amount of time, capacity and cost to the customer

<table>
<thead>
<tr>
<th>02</th>
<th>32x</th>
<th>30</th>
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<tbody>
<tr>
<td>DAYS OLD</td>
<td>DATA SIZE</td>
<td>DAYS</td>
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</table>

30’
ENTIRE TEST AND DEVELOPMENT IN MINUTES

1 + Δ
ONLY UNIQUE WRITES CONSUME CAPACITY

0
IMMEDIATE COPIES FROM PRODUCTION
DATA CENTER SCALE, ON-DEMAND SCALE-OUT

ENABLING MASSIVE CONSOLIDATION

150K mixed IOPS
250K read IOPS
<1ms Latency

From 2 – 16 N-way Active Controllers

5TB – over 1PB usable capacity

SCALE-OUT <1ms LATENCY RICH DATA SERVICES NO TUNING

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XTREMIO DATA SERVICES
ALWAYS-ON, INLINE, ZERO PENALTY

ALWAYS ON THIN PROVISIONING

INLINE DATA DEDUPLICATION

INLINE DATA COMPRESSION

INLINE DATA ENCRYPTION

FLASH OPTIMIZED DATA PROTECTION

WRITABLE COPIES

Up To 6:1 Database Reduction On Average
Just For Production Databases
COMPLEXITY IS NO LONGER NEEDED
SIMPLIFY ARCHITECTURE AND OPERATIONAL MANAGEMENT

**HISTORIC COMPLEXITIES**

- Disk Type Selection
- RAID Protection Selection
- RAID Group or Storage Pool
- Striped or Concatenated Meta Devices
- Auto Tiering
- Array Caching
- Thick or Thin LUNs

XTREMIO

Create Volume of Required Size

DONE!
FLASH INCREASES LICENSE ROI
INCREASED CPU UTILIZATION REDUCING I/O WAITS

Source: XtremIO Customer Case Study

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THE COPY DATA MANAGEMENT PROBLEM
CRITICAL BUSINESS PROCESSES COMPROMISED

IDC: >60% data from copies

A $44B global expense!
THE COPY DATA MANAGEMENT PROBLEM

TYPICALLY EACH APPLICATION HAS 5-12 COPIES

Development & Operations

Full Copy
7-14 Days to refresh

PROD

Full Copy
7-14 Days to refresh

Analytics

6 DATABASE COPIES
1-2 WEEKS FOR BUSINESS PROCESS COPIES
30+ DAYS OLD STALE DATA
COPY DATA MANAGEMENT APPROACHES

...AND THE NEW **INTEGRATED CDM OPTION**

Current CDM options force trade-offs between Cost, Performance, Agility, and Scalability
XTREMIO INTEGRATED COPY DATA MANAGEMENT
WORKFLOW CONSOLIDATION AND SELF SERVICE

- Consistent Scale-Out Performance With Inline Data Services
- XtremIO Virtual Copies
- App Integration & orchestration
- App Self Service

MORE COPIES? WHY NOT?

Developments
Data Analytics
Data Protection
Operation
XTREMEIO VIRTUAL COPIES

Efficient In-Memory Copies

- No space reservation or moving blocks
- No metadata bloat, shared in-memory metadata
- Immediate creation with no impact on prod
- Thin provisioning, dedup, compression

100% Performance

- Same performance as prod
- Predictable performance on prod or copies
- No impact on prod when copies are created
- Optimal SLA
XVC VS. TRADITIONAL SNAPSHOTs

XtremIO vs. Vendor “A” DB Volumes, Steady State, IOPS Over Time

- **XtremIO**
  - No impact on copy creation
  - Consistent performance on prod and copy

- **Vendor A**
  - IOPs drop by 50% to **35K**
  - Spikes to **20ms latency**
APPLICATION AUTOMATION AND ORCHESTRATION

SINGLE-CLICK AUTOMATION

Provision Databases In Seconds
ON-DEMAND

Increase Efficiencies
Reduce Complexity

Unattended Automated
SCHEDULED

Centralized Management
Customizable For Databases
Alert Notification System

Prevention Of Sprawl
EXPIRE

Recover Storage Capacity

Increase Agility

ON-DEMAND

SCHEDULED

EXPIRE
APP SELF-SERVICE

EMPOWER APPLICATION, DATABASE, AND DEV OWNERS

Automation & Scripting

- REST API
- SMI-S
- Perl, Python, etc...

Management Consoles

- AppSync
- Hypervisor Plug-ins
- App Plug-ins
- Web Portals
ICDM WILL TRANSFORM YOUR IT

HIGH IMPACT IN 4 KEY AREAS

- Accelerate Development
- Unlock Data Analytics
- Improve Operations
- Data Recovery

Consolidate Mixed tier-1 Non-Prod Workloads

Reduce
- Complexity
- Cost
- Overhead

Increase
- Agility
- Efficiency
- Productivity
ACCELERATE DEVELOPMENT & QA

BETTER QUALITY APPLICATIONS, FASTER AND CHEAPER

Old Software Development Timeline

Hardware & Software Preparation
Jan 1

Development & Testing
Feb 28

Test data preparation: up to 2 weeks per cycle

Deploy to Production
Oct 31

New Software Development Timeline with XVC

Hardware & Software Preparation
Jan 1

Development & Testing
Jan 31

Test data preparation: instantaneous

Deploy to Production
Jun 30

Typical time savings of 40% or more
UNLOCK DATA ANALYTICS

REAL-TIME DECISIONS TRANSFORM EVERY BUSINESS PROCESS

Financial Reporting

Inventory Mgmt.

Purchasing

Pricing Analysis

...and many more

No more stale data • No more siloed data • No more batch processing delays
IMPROVE DATA CENTER OPERATIONS
TEST APPLICATION CHANGES BEFORE THEY ENTER PRODUCTION

Production Realities

• Large number of application patches & configuration changes
• Limited testing resources
• Limited troubleshooting capability
• Short update windows

XtremIO Virtual Copies solution

• **Instantly available** test environments with fresh data
• **Resource-efficient** testing & troubleshooting
ENSURE DATA PROTECTION

PROTECT FROM LOGICAL DATA CORRUPTION BY CREATING SNAPSHOTS OVER SHORT INTERVALS

- Scheduling capabilities
- Space efficient
- Immediate creation and mapping of snapshots
- Fast restore from data corruption
- Fine Recover Point Objective (RPO)
CUSTOMER BEST PRACTICES

SCALABLE, HIGH-PERFORMANCE STORAGE WITH XTREMIO

CHALLENGE

• Accelerate core business SAP applications
• Exceed corporate SLA goals
• Transform SAP Test and Dev processes with self service system copies and production-like performance
• Enable more reporting and analytical ability

Solution

EMC XtremIO All-Flash Array
VNX2 5600
VPLEX, Data Domain
Oracle SPARC

Applications

SAP ECC, BW, APO/SCM, CRM
Oracle Databases
VMware for SAP Portal
CUSTOMER BEST PRACTICES
TRANSFORMATION OF IT WORKFLOW

RESULTS

16x
Landscape space reduction via snapshot savings and Compression

100%
All non-Prod SAP Landscapes run on XtremIO Snapshots of SAP PROD (excluding Dev)

75%
Faster self-service and fully automatic copies of production (now 2 copies!)

75%
Reduced time in provisioning a landscape (Long hand, non-automated, monthly system copies – QA, SBX) ½ Day vs. 2 Days

100%
Confidence in backups leveraging snap on snap
CUSTOMER BEST PRACTICES
CORE APPLICATION & JIT MANUFACTURING IMPACT

RESULTS

37% Improvement - SAP dialog average response times
up to 9X Faster batch processing and ETL run times
3X Reduction in wait time for business reports

1,500+ SAP users get better experience across all SAP modules (ECC, BW, APO/SCM, CRM)

70% Delivering improvements in planning & efficiency
Many! Saving on floor space at HQ, DR and co-location

Hours returned to developers and business users
SELF-SERVICE WITH ORACLE ENTERPRISE MANAGER
FREE XTREMIO PLUG-IN

- Manage & monitor the Oracle environment, including storage
- Automate tasks and assist on database administration
- Monitor XtremIO utilization, configuration, and performance
  - Throughput and IOPS
  - Response Time
- Set thresholds and notifications for key XtremIO health indicators
Don’t just take our word for it! Use SLOB to

- Create workloads for repeatable Oracle DB platform testing
- Compare storage and server platforms

www.xtremio.com/slob
## EMC: NUMBER #1 FOR ORACLE

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<th>Business Intelligence and Analytics</th>
<th>Home Directories</th>
<th>Microsoft Exchange</th>
<th>Microsoft SharePoint</th>
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