OPTIMIZING DBA EFFICIENCY:
CUSTOMER PERSPECTIVES ON EMC INFRASTRUCTURE FOR ORACLE AND SQL SERVER ENVIRONMENTS
This E-book will highlight how some great examples of customers who have successfully Redefined their Database Environments with EMC.
Introduction

REDEFINING THE DATABASE ENVIRONMENT

In a recent study, over 60% of DBAs stated that in order to fund new projects and innovation, they must find ways to reduce time and budget spent on ongoing database management today.

What few DBAs realize today is that storage, specifically EMC’s Infrastructure Solutions for database workloads, include a wealth of database integration capabilities which can maximize DBA productivity for their day jobs, without having to change anything in how they manage their database environments today.

EMC’s approach to database solutions always starts with understanding the database workloads. We have deep expertise in EMC to help optimize infrastructure based upon production OLTP, data warehouse or analytic environments, as well as test, development and quality assurance.

In this Ebook, you will learn how EMC helped these customers transform their database environments as they prepare for the Cloud era.

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Many DBAs are also looking at options for standardization of the entire database and IT infrastructure stack. But DBAs should be careful to ensure the standardized infrastructure they choose actually gives them the time savings they’re looking for to invest more energy in applications integration and driving business value. There are different ways to standardize your database infrastructure, so how do you choose the right path?

At EMC, our approach to standardized infrastructure is leveraging the VMware, Cisco & EMC Vblock Systems. Vblocks are designed to support not only multiple database types and versions, but also different workload types, including OLTP, Analytics, Test & Development.

With EMC Vblock Systems, DBAs retain all of the power and control they want and should have, but without the need to “turn the knobs” on hardware and worry about how internal infrastructure components are operated, managed, patched and maintained. In short, EMC believes in helping DBAs be the best DBA they can, at the center of the IT infrastructure landscape, without needing to become a “machine administrator” at the same time.

By standardizing on EMC Converged infrastructure, DBAs can optimize their database environments through:

- **Predictable performance**, which means the fastest response times at scale – through the use of EMC flash technologies
- **Database-as-a-service** including on-demand provisioning and copies – which can be used directly by DBAs
- **Optimized recovery time objectives and recovery point objectives** – leveraging combinations of backup & data protection tools directly controlled by DBAs

**Customer Stories:**

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Daktronics Drives Agile, Productive and Innovative Business

Overview

Daktronics is the industry leader in audio-visual signage systems including large-format LED video displays, message displays, scoreboards, digital billboards, and control systems in sport, business, and transportation applications. The company operates from its headquarters in Brookings, South Dakota with other facilities in Sioux Falls, SD; Redwood Falls, MN; Shanghai, China; and Belgium—with 50 regional offices around the world.

www.daktronics.com

“Virtualizing our Microsoft and Oracle environments using VMware with VMAX storage has delivered an extremely fast ROI by improving the quality of our data and empowering our users to make better decisions with business intelligence.”

Rich Simms
VICE PRESIDENT OF INFORMATION TECHNOLOGY

Equipping Users with Better Data — (PDF)

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Solutions
- EMC VMAX
- EMC VNX unified storage
- EMC Isilon scale-out NAS
- VCE Vblock

Applications
- Microsoft Office Suite, Microsoft SQL Server, Oracle

Challenges
- Storage and processing-intensive applications such as CAD systems required high-performing storage
- Critical applications and databases required maximum uptime
- Company needed to provide external customers with a centralized system to manage their Daktronics deployments

Results

NEAR 100% uptime for critical applications driving the business

ENABLED IT TO FOCUS on innovation by reducing the need to maintain physical resources

60% reduced IT costs via Software as a Service
Vollrath Enables 5-Star Efficiency with EMC Converged Infrastructure

Challenges
– Acquisitions overloading aging, failing infrastructure
– Critical applications and databases were siloed on separate infrastructure
– Lack of scalability limited ability to implement new digital business initiatives

Results
SCALE PERFORMANCE
& capacity as needed without slowing down production

SHIFTED IT’s FOCUS
from fire drills to more strategic business initiatives and innovation

CONSOLIDATION ALLOWS
entire enterprise to run on same platform

“XtremIO is also going to position us very well to move our JDE on to either a SQL load or an Oracle load back-end database so we can actually run the entire enterprise right off the Vblock saving us a substantial amount of money.”

John Sharp
IT MANAGER

Vollrath Uses EMC XtremIO and VCE Vblock for its Oracle and SQL Server environment

Solutions
– EMC VNX
– EMC XtremIO
– VCE Vblock

Applications
– Microsoft Office Suite,
– Microsoft SQL Server,
– Oracle

www.vollrath.com
EMC’s strategy today when it comes to database performance is to leverage flash in some form across every workload. EMC has a variety of storage platforms depending on the workload needs, mapping performance and latency together with data services.

HYBRID ARRAYS

The first approach for business-critical databases environments is the use of hybrid flash. EMC’s Hybrid Flash Arrays take advantage of automated tools like EMC FAST or EMC SLO and cost-effective use of flash at different layers of the database I/O path for optimized performance and reduced response times.

ALL FLASH ARRAYS

In addition to hybrid arrays, there's been a recent emergence of new all flash arrays, like EMC XtremIO. With EMC XtremIO, every DBA gets all flash, all the time, regardless of whether managing production, pre-production or test & development. This means you can run production OLTP, data warehousing, test & development or reporting all on the same platform, all with the same QoS. The result is predictable, low-latency performance for all database workloads and the ability to scale all-flash environments to petabyte-levels without capacity planning.
AAR Soars Toward the Cloud for Agility to Support Faster Business Growth

“Across the board, people report how much faster applications run and queries comes back. Now we handle 33 percent more daily transactions on the VMAX, which helps everyone get more done in a day.”

Jim Gross
VICE PRESIDENT OF IT OPERATIONS

Overview
AAR is a global aerospace solutions provider of supply chain management, logistics, and inventory support to customers in 110 countries. The company has received Aviation Week’s number one ranking in North America for airframe maintenance, repair, and operations.

www.aarcorp.com

Challenges
– Slowed expansion of business intelligence capabilities
– Stifled employee productivity

Results
$4K saved per month by eliminating tape backup
33% increase in daily transactions
17% reduction in monthly IT expenses
30% increase in storage capacity
REDUCED RPO from 1 DAY to 3 SEC

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Solutions
– EMC VMAX 10K with FAST VP
– EMC VNX unified storage
– EMC RecoverPoint
– EMC Avamar
– EMC Data Protection Advisor
– VMware vSphere

Applications
– Oracle E-Business Suite, Oracle Hyperion, Oracle Agile
– Microsoft Exchange, SQL Server, SharePoint

Increasing Database Efficiency at Scale – (PDF)
Click to learn more
Regent Consolidates Storage and Increases Application Performance

Overview

Regent is one of South Africa’s largest insurance companies and part of the Imperial family, a diversified multinational mobility group with activities that span motor vehicles and related operations across all modes of transport for people and freight, both locally and abroad. The company insures more than a quarter of the aircraft in South Africa, and is one of the top two commercial vehicle insurers in the country.

www.regent.co.za

“With VNX, IOPs is no longer a problem for us. Instead of complaints from internal users, we now only hear silence. Silence for us means that performance issues are no longer a problem.”

Smukesh Soma
IT SUPPORT MANAGER

Challenges

– Disparate storage infrastructure, resulting in low performance
– Tape-based backup, yielding backup times of seven days
– Inefficient manual storage tiering
– Lack of scalability and support for virtualized strategy

Results

REDUCED BATCHING TIME from 2 DAYS to 5 HRS

MINIMIZED BACKUP TIMES from 7 DAYS to 0

REDUCED NUMBER OF SERVERS from 96 to 5

Solutions

– VNX unified storage
– FAST Suite
– Total Protection Pack

Applications

– VMware vSphere
– Oracle
– Microsoft Exchange, SQL
– Citrix XenDesktop

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Callaway Golf Meets New Business Demands with EMX XtremIO

Results

40% acceleration in daily SAP reporting
60% improvement in overall storage efficiency

Overview

Founded in 1982 as a boutique manufacturer of high-quality wedges and putters, Callaway Golf has grown into the world’s largest maker of premium, performance golf products. Under the Callaway and Odyssey brands, Callaway manufactures and markets golf clubs and golf balls, and sells golf apparel, footwear, and accessories in more than 110 countries worldwide.

www.callawaygolf.com

Gaining Realtime Business Intelligence – (PDF)

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Challenges

– Sluggish industry growth demanded increased emphasis on product innovation and cost control
– Long running data loads and batch reports
– Complexity refreshing systems and data

“Our SQL DBAs are happy because they don’t get bogged down in performance tuning. The databases just soar.”

Jerry Dunn
UNIX & STORAGE ADMIN

Solutions

– EMC XtremIO
– EMC Data Domain
– VMware vSphere

Applications

– Microsoft SQL Server
– Oracle
– SAP

DECREASED TIME DBAs SPENT on database performance tuning
REDUCED EMAIL INDEXING from DAYS to less than 2 HRS
CMA Accelerates Medical Analytics on Oracle RAC with XtremIO

Results
- 75% faster storage configuration time
- 80% footprint reduction in SPACE/POWER/COOLING

“Using XtremIO we are able to engineer our Oracle RAC systems to be faster, more scalable, and handle more concurrent users, while at the same time requiring only 20% of the previous footprint in our data center.”

Brian Dougherty
CHIEF DATA WAREHOUSE ARCHITECT

Challenges
- Extreme performance (6 GB/s large block random workload)
- Complex setup/tuning
- High user concurrency & fast response time needed

EMC helps CMA Deliver Fast, Responsive Analytics

www.cma.com

Solutions
- XtremIO All-Flash Array

Applications
- Largest Medicaid analytics database (Oracle RAC) in US

~1.9 GB/s bandwidth per X-Brick at <1ms latency
One of the top challenges DBAs face is simplifying database cloning and repurposing. It’s common for DBAs to clone 6-20 copies of a production database to be used for functions such as Test/Dev, Quality and Analytics.

However, copying production databases bears a significant cost, both in terms of added storage requirements and processing time.

Creating full copies of production databases for provisioning remains a tedious exercise, one that many cost-conscious IT departments cannot afford. The increased I/O during the copy operation generally requires a maintenance window, which limits the frequency at which refreshes can occur. Furthermore, the simple act of copying the production database files to create a staging donor – from which to create snapshots – was both significantly time-consuming and detrimental to performance.

With XtremIO, on the other hand, copying data for test and development is free, because data is never actually copied. Instead, the volumes are simply snapshotted. Unlike traditional snapshots on other arrays, XtremIO Virtual Copies are totally in-memory, with 100% space-efficiency for both metadata and user data. XtremIO Virtual Copies apply a clean-sheet approach specifically for flash, leveraging inline data reduction capabilities to only ever write unique changed blocks. As a result, all snapshots, parents and children, have full performance, are created in-memory in milliseconds, and there is no performance degradation and capacity impact regardless of how many snaps you create.
Baillie Gifford Delivers Scale for New Initiatives with XtremIO

Overview

Baillie Gifford is an investment management firm which prides itself on looking after its clients’ interests above anything else. That means looking for investment opportunities which will benefit its clients’ portfolios and meet clients’ needs at all hours of the day.

www.bailliegifford.com

“Some daily crunch business processing times struggling to update by opening hours.
– Challenge for Development/Test scale, performance

Results

25 FULL DATABASE COPIES on 39TB consolidated down to only 1.5TB using XtremIO Virtual Copies

50% business process time improvement

30% faster dev cycles

Automated process of providing database copies to developers

Solutions

– EMC XtremIO
– EMC VPLEX Metro
– EMC ViPR
– EMC RecoverPoint

Applications

– Oracle
– VDI

“We’ve made life simpler for our DBAs because XtremIO does most of the heavy lifting. We’re moving towards delivering on-demand resources for the development community.”

Collin Lennox
HEAD OF TECHNOLOGY AND SERVICE DELIVERY

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Virtual Databases
On-Demand 
(PDF)

Click to learn more

www.bailliegifford.com
Connections Education

Manages Massive Growth with XtremIO

Overview
Connections Education, part of the global learning company Pearson, is an accredited provider of high-quality, highly accountable virtual education solutions for students in grades K-12. The company is committed to expanding quality education through technology and helping students achieve both academic and personal success. EMC XtremIO plays a key role in making this possible.

www.connectionseducation.com

“With our previous storage system, snapshots took literally the entire day of someone sitting and running the jobs step by step; and it would sometimes be successful, and sometimes not. It’s changed to virtually no time at all with XtremIO. Moving forward, this capability will allow us to scale appropriately.”

Steve Meerdter
DIRECTOR OF SYSTEMS ADMINISTRATION

Results

- 10:1 snapshot ratio with inline deduplication
- I/O LATENCY DROPPED from tens of hundreds of milliseconds per operation to virtually zero
- NON-PRODUCTION DATABASES
Can now be refreshed immediately using XtremIO’s instantaneous zero-copy volume cloning

Challenges

- Maintain optimal protection and high availability during peak loads for all mission-critical systems
- Deliver exponential scale for new business opportunities

Solutions

- EMC VNX
- XtremIO All-Flash Array

Applications

- Microsoft SQL Server

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Managing backup and recovery is a fundamental requirement for many DBAs we talk to, where they use Oracle Recover Manager (RMAN) or Microsoft Systems Center to perform the backup and recovery process.

In many customers today we see them using a combination of backup to disk and backup to tape, often involving downtime during the process, or length periods of placing the database in hot backup mode which can impact performance. For many customers particularly those with larger databases, this creates a challenge with meeting backup and restore windows. This can also impact long term storage costs as databases grow more disk and, or tape are required.

To help streamline this process EMC is working with our partners Oracle & Microsoft who jointly engineered a solution using EMC Data Domain and DD Boost.

This simplifies backup and recovery management for DBAs since they no longer have to rely on backup administrators to perform backup and recovery operations for them. EMC Data Domain and DD Boost software provides client-side deduplication for databases.

EMC Data Domain contains a unique Data Invulnerability Architecture that is built into every Data Domain system to provide the industry’s best defense against data integrity issues. Inline write and read verification, continuous fault detection, and self-healing ensure that backup data is accurately stored, available, and recoverable throughout its lifecycle on a Data Domain system.

Customer Stories:
Brown University Empowers DBA with EMC Data Domain

“Our DBAs are now responsible for their own environment and don’t have to look to a Storage Administrator to help them expedite the data recoveries. The DBAs have control of their backups and they’re very happy with that.”

Nancy Magers
ASSOCIATE IT DIRECTOR

www.brown.edu

Challenges
– Legacy tape infrastructure impacting backup, recovery and disaster recovery
– Need to deliver more simplicity and control to Oracle DBAs

Results
25X reduction in backup storage infrastructure required
3X longer retention periods for backup data

Solutions
– EMC Data Domain
– EMC VMAX

Applications
– Oracle
– Microsoft SQL Server and Windows

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Teach for America Achieves Operational Transformation with EMC

Challenges
- Remote branch office data growing by 50 percent annually and currently at 4TB
- Data growth resulting in long backup times, scalability issues, and skyrocketing backup costs
- Tape backup of VMware environment resulted in long backup times and issues with reliability and scalability

Results
- DECREASED STORAGE COSTS via deduplication rates of up to 12:1
- EXTENDED DISK DATA RETENTION from 1 WEEK to 1 MONTH
- ENABLED RECOVERY in a few MINUTES instead of a FULL DAY
- REDUCED FULL BACKUP TIMES from DAYS to HOURS

“Data Domain was a real game changer. Before, we kept one engineer busy full time juggling backup jobs. Now, that engineer spends most of the time developing applications that contribute to our organization’s educational mission.”

Thomas Licciardello
VP OF TECHNOLOGY OPERATIONS

Solutions
- EMC Data Domain
- EMC Data Domain Boost
- EMC Avamar
- EMC NetWorker

Applications
- Oracle, IBM DB2, Informatica
- Microsoft Exchange, Microsoft SQL Server

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Many database customers we talk to today use a combination of local clustering and remote replication technologies for database availability and data protection.

For example, Oracle RAC or Microsoft Cluster Services are running the same database across multiple servers at the same time. The database also includes native remote replication software. However these features make only limited, read only use of standby infrastructure.

Most importantly, the database software technologies are designed to protect only the database itself and many IT organizations want to establish data protection across their various databases and applications with consistent service levels.

EMC enables database customers to move to a more automated and proactive protection model including active-active availability over distance.

Only EMC RecoverPoint allows database customers to establish a local and remote data protection strategy to meet any RPO and RTO service level requirement. DBAs can use the continuous data protection and continuous remote replication of RecoverPoint to recover multiple databases and the applications to any point in time in just minutes.

This maximizes DBA productivity in recovering their Oracle environments from logical corruptions, human error or physical outages.

Only EMC VPLEX allows DBA to run database environments over metropolitan area distances in an active-active stretch cluster configuration with low latency. This provides customers with zero-touch recovery of database and application environments should an outage occur. Users can access the database in multiple locations at the same time, improving productivity and ROI on remote site infrastructure.

Most importantly, only EMC enables database federated data protection and availability across their numerous Oracle & SQL Server databases.

Customer Stories:
Garanti Technology

Increases Data Availability by 100 Percent

“We are replicating more than one hundred terabytes of critical SQL, Oracle, and VMware data. With RecoverPoint, now we have less than two seconds RPO.”

Onur Dingin
STORAGE ADMINISTRATOR

Achieving Zero Downtime and a Less-Than-Two-Second RPO.

Challenges

– Critical Oracle-driven banking data was experiencing unacceptable downtime and lacked necessary high availability
– Lack of centralized data recovery capability resulted in unacceptable RPOs. Past data was being overwritten and lost

Results

ZERO DOWNTIME for vital Oracle applications and data with introduction of federated solution and Oracle stretched clustering

LATENCY LEVELS REDUCED to < 1 MILLISECOND for critical applications

RPO IMPROVEMENT to less than 2 seconds

50% performance improvement

Solutions

– EMC VMAX enterprise storage
– EMC VPLEX Metro
– EMC RecoverPoint
– VMware vSphere

Applications

– Oracle RAC
– Microsoft SQL Server
– Sybase

www.garantitechnology.com

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www.garantitechnology.com
Public Pension Agency of Saudi Arabia

Removes Downtime

Overview

Headquartered in the Saudi Arabian capital of Riyadh, the Public Pension Agency (PPA) of the Kingdom of Saudi Arabia manages all retirement programs for both civil and military pensioners. The PPA employs around 1,000 workers with approximately 700 employees connected concurrently to the main data center. Pensioners connect directly to the PPA via a web-based customer portal.

www.pension.gov.sa/sites/en

“Active-active is working fine and in operation, enabling applications to run simultaneously on two different data centers. EMC VPLEX has helped us reduce downtime and maintenance, and enabled us to virtualize our environment.”

Faraj Al-Juaid
IT OPERATIONS MANAGER

Active-Active Data Availability — (PDF)

Click to learn more

Challenges

– Single data center and end-of-life storage produced an unacceptable risk to data
– High maintenance costs

Results

52TB of storage consolidated onto EMC VNX

ACTIVE-ACTIVE NON-STOP operations across data centers

1st GULF REGION COMPANY to deploy active-active Oracle RAC

Solutions

– EMC VNX
– EMC VPLEX Metro
– EMC RecoverPoint
– EMC Data Domain
– VMware

Applications

– Oracle
– Microsoft SQL Server, Microsoft Exchange

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If you are interested in learning more you can find solutions, blogs, videos and other great content on the community.

www.emc.com/dbasociety

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