Redefining SAP Applications With EMC and SAP HANA

Datacenter-Ready SAP HANA Solutions
HANA Revolutionizes Decision Making

"Let's be clear on HANA. HANA not only represents the intellectual renewal of SAP, it is now the platform for every single thing the SAP company will do going forward."

Bill McDermott, CEO, SAP
Sapphire Conference Keynote, May 2013*

Source: SAP Statement of Direction

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<td>Real-time on Big Data</td>
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<td>• Application transparency for OLTP + analytics</td>
<td>• Extend OLTP for extreme transactions</td>
<td>• Integrate OLTP + OLAP capabilities (SAP + Custom)</td>
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<td>• Tiered data for analytics</td>
<td>• Expand Big Data with in-memory capabilities</td>
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<td>• Optimized data movement choices</td>
<td>• Optimized movement and ability to ingest across all DI methods</td>
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* Source: CRN News
EMC is the Right Choice for SAP HANA

• EMC is the #1 enterprise storage platform for SAP*
• EMC leads in backup and recovery
• Co-developed the storage Block API with SAP
• EMC is an HPI founding member
• EMC IT runs SAP HANA

* Source: IDC Storage User Demand Study (Dec 2014)
SAP HANA™ Architecture

High-Performance Analytics Appliance

- Takes data from SAP or third-party supported sources
- Processes the data in memory
- Delivers the results from memory
- Provides control over rapidly expanding data volumes
- Fulfills the need for real-time decisions, the “Need for Speed”
Optimized For SAP HANA Solutions

SAP HANA Key Points

• Real-time data analysis with changing data value over time
• Strategic to driving new competitive advantage and revenue growth
• Platform for SAP ERP moving forward

Data Persistence: Automatic protection of SAP data on EMC VMAX or VNX

High Availability: SAP application-aware backup, recovery and data protection

Built For The Future: One infrastructure for integration of HANA to SAP Cloud
SAP HANA Consumption Models

HANA on SAP certified “appliances”
- Dedicated SAP HANA system in your data center from EMC with Cisco and VCE
- A full set of compute, network and storage options
- Pre-Certified and pre-tested
- Full vendor support

One
- 64 GB max memory
- No SLA
- No support
- Sandbox/POC
- Limited data ingest

One Premium
- Same as HANA One with dedicated support & defined SLA
- Annual subscription
- SAP source system data allowed

Cloud Application Services
- Ready-to-use application services on HANA cloud
- Consumption based charge

Tailored Datacenter Integration (TDI)
- SAP HANA on existing or new VMAX or VNX infrastructure
- EMC VMAX 10K, 20K, 40K, 1000K, 200K, 400K and VNX5400, 5600, 5800, 7600 and 8000 are SAP-Certified
- Certified in the field utilizing EMC recommendations to meet SAP KPIs

On Premise or Off Premise via EMC Service Provider

vCloud Hybrid Service
- Q3 2013
- Similar to HANA One Premium
- Based on VMware virtualization

One

One Premium

Cloud Application Services

HEC (Hana Enterprise Cloud)
- Any HANA based apps including prod
- HANA PaaS (Platform as a Service)
- Enterprise support
- SAP customer source data integration
SAP HANA Delivery Models

**SAP Certified HANA Appliance**

- Server, network and storage are SAP-certified together with scalability chosen by the server vendor
- SAP HANA software is installed by the server vendor
- The appliance is installed and supported by server vendor
- All infrastructure is dedicated to a single HANA system

**Advantages:**
- Simple: Fast deployment of defined configurations
- Single contact for support
- Configurations are pre-certified by SAP

**Tailored Datacenter Integration (TDI)**

- Storage is certified separately
- Choice of server vendor
- Customer integrates SAP-certified components onsite, and loads SAP HANA software
- Customer retains responsibility for validation and support of the configuration
- Infrastructure can be shared with non-HANA workloads.

**Advantages:**
- ROI: use existing storage investment
- Low IT Impact: Use existing procedures
- Greater scalability
SAP High Performance Analytical Appliance

SAP HANA Appliance Infrastructure

- Flexible, multi-purpose, data-source agnostic, in-memory appliance.
- An integrated stack:
  - SAP in-memory database.
  - Cisco UCS scale-up or scale-out servers, or VCE Vblock Specialized System.
  - EMC VNX5400 scale-out storage.
- Configurations scalable up to 16 nodes.
Cisco-EMC and VCE-EMC HANA Appliances

SAP-certified HANA solutions include:

**Cisco Scale-Out Appliance**
- 1TB memory per node (server blade)
- EMC VNX5400 storage arrays
- Up to 16 nodes, plus failover

**VCE Vblock Specialized System**
- 1TB memory per node (server blade)
- EMC VNX5400 storage arrays
- Up to 10 nodes, plus failover

**Cisco Scale-Up Appliance**
- 2 and 6TB configurations
- EMC VNX5400 storage arrays
SAP HANA TDI Architecture
SAP HANA TDI on EMC Enterprise Storage

- Start with a certified SAP HANA server and network from preferred vendor.
- Utilize your installed EMC VMAX or VNX arrays, configured to EMC recommendations and sized to support the server capacity.
- Customers can leverage the existing skills of data center personnel by retaining proven technologies and procedures.
  - Reuse existing hardware components
  - Integrate with existing operational processes
SAP HANA on vCloud Suite

Supported with Production Workloads

• Run an SAP HANA VM in production on a virtualized server platform
• Multiple non-production SAP HANA VMs may be deployed on a single SAP HANA node
• Agility, hardware consolidation, ease of system provisioning and operation
• Lower your CAPEX and OPEX
SAP HANA on vCloud Suite
Leverage Standard Capabilities of VMware

Automated Operations Management
> Unify and manage SAP HANA with rest of virtual datacenter

Automated Resource Allocation
> Easily manage peak analytic workloads

Capacity Planning & Optimization
> Live migrate SAP HANA databases across hosts in minutes

Flexible SAP HANA Virtual Machines

Rapid Provisioning
> Deploy SAP HANA instances in hours

High Availability
> Automatically restart SAP HANA VMs to maximize uptime

Virtualization-Aware Security & Compliance
> Protect workloads; reduce downtime through rapid issue resolution
Virtualized SAP HANA in EMC

EMC IT’s decision drivers

- Overall IT strategy towards a virtual datacenter and Cloud operating model
  - Lower entry costs
  - Reduce operational tasks
  - Drive up datacenter infrastructure utilization rates
  - Provide mission-critical levels of data services
  - Leverage EMC Federation Innovations and prove them internally
Virtualized SAP HANA in EMC IT

Performance Benefits with BPC: 7+ times baseline improvement in batch and 400% after code tuning

- Batch process runtime reduction and user dialog response time decreased
- 7.7x improvement in batch
  - achieved with no tuning of:
    - infrastructure, VMware, HANA Database, the BPC ABAP code.
- Reduced OPEX and CAPEX
- Delivered 99.9% availability utilizing VMware HA

Source: EMC IT BPC In HANA Project
EMC Disaster Tolerance for SAP HANA

Full system replication, across applications

- Proven EMC Storage Replication Solutions
  - MirrorView for EMC VNX
  - SRDF for EMC VMAX
- Synchronous for Local or Metro
  - Recover Time Objective: <15 minutes
  - Recovery Point Objective: ~0 minutes
- Asynchronous option for remote sites
- Site A fails over to Site B, with a consistent copy of the data.
- Site B can be used for QAS/Dev, when not in production
Data Protection and Availability for SAP

Integrated Data Domain Backup & Recovery for SAP

- Reduce backup time by 90%
- Recover 30x faster
- 10-30x less storage
- 95% less LAN/WAN bandwidth
- Network-efficient DR replication
EMC DataDomain Boost for SAP HANA

• Source deduplication available straight from the SAP HANA Studio

• High-speed, Scalable Systems
  – Backup up to 248 TB in < 8 hours
  – Protect up to 100 PB of logical capacity in a single system

• Seamless Integration
  – Works with all SAP HANA configurations
  – Optimized and SAP Certified Integration

Deduplication eases the impact of SAP HANA full backups
EMC Protects The Entire SAP Environment

Centralized management with visibility for SAP Admins and DBA’s

Managing Mixed SAP Environments

- SAP HANA
  - Module for SAP

- SAP With Oracle
  - Module for SAP

- SAP With DB2 UDB
  - Module for Databases & Applications

- SAP With Microsoft SQL Server
  - Module for Microsoft
EMC’s Commitment to SAP Customers

1. Choice: Hybrid Cloud for SAP
   • Enable business innovation and services with highly responsive ITaaS for SAP

2. Accelerate Time To Value Of SAP Cloud, SAP HANA and Big Data
   • Store, Manage, Protect, Secure varying data temperatures

3. Optimize performance and reduce cost of maintaining SAP landscapes
   • Performance, data protection and business continuity
Getting Started With EMC Global Services And EMC’s Partner Ecosystem

Strategize • Advise • Architect • Implement • Manage • Support

Transformation

Automated Hybrid Cloud Infrastructure

Private

Public

verizon
accenture
CSC
Capgemini
Deloitte
Tata Consultancy Service
at&t
Additional Resources

EMC Proven Solutions
www.emc.com/sapsolutions or www.emc.com/virtualizingsap,
ECN Community – www.emc.com/everythingsap

EMC Global IT Lessons Learned
Learn From EMC’s Own Journey with Virtualized SAP HANA

Strategize With The SAP Solutions Practice At EMC
Customized Workshops And Design Recommendations

Technology Centers And Live Demos
EMC And SAP Technology Centers
(CA, Santa Clara, CA; Hopkinton, MA; Cork, Ireland)
SAP HANA in Retail

Sysco chooses Cisco/EMC HANA to Accelerate BW Reporting

Challenge
- Data growth 120 GB a month
- System Audit and Data Control
- Slow ETL process
- Issues with order fulfillment and order processing

Results
- Ability to upload 3 TB of data in 2 hours to HANA.
- Complete BW reporting in 20 minutes from 10 hours.
- Reduce Compliance Issues by 92%.
- Ordering process went up by 120%.

“EMC was with us every step of the way. They made the world of difference through out SAP HANA implementation & through out enhancing out business processing. Thanks to EMC for truly making a difference in our data.”

Jim Hope
Executive Vice President
Business Transformation

Good things come from Sysco®
SAP HANA in Manufacturing

Medtronic chooses Cisco/EMC HANA to Accelerate BW Reporting

Challenge
• Data growth 100 GB a month
• Slow reporting
• Slow ETL process
• Could not fulfill order fast from BW

Results
• Improved data load from 2 and ½ day to 1 hour & 20 minutes.
• Users with appropriate access to access the data.
• Improved insight through seamless analysis of data.
• Fulfill with FDA rules from one week to minutes.

“...A program to define and implement a Business Intelligence strategy at Medtronic. The strategy needed to encompass both the technical and process aspects; while meeting the business needs. EMC & Cisco provided exactly that vision.”

David Hannon
EMC Symmetrix VMAX3 for SAP HANA

Certified for SAP HANA Tailored Datacenter Integration

• Highest Scalability in a Single Array
  – Up to 104 SAP HANA nodes on a VMAX400K

• Replication, clone, snapshot and backup technologies currently under testing.

• For Physical and Virtual configs
EMC Symmetrix VMAX2 for SAP HANA
Certified for SAP HANA Tailored Datacenter Integration

- Investment protected.
- Scalable up to 12 nodes per engine.
- Integrates HANA proven synchronous Replication with SRDF/S
- HANA asynchronous replication with SRDF/A and SRDF/Star also available!
- TimeFinder can be used for backup, system clone/refresh
- For Physical and Virtual configs
EMC VNX for SAP HANA
Certified for SAP HANA Tailored Datacenter Integration

- Best Price / Performance in the market
- Unified block/file
- HANA storage connector: block only
- Replication addressed indirectly
- Usage for Physical or virtualized HANA Systems
- New VNX MCx models only!