SAP HANA on POWER Technology
- Status and Outlook -

Ralf Loi
IBM SAP Solution - Technical Support

IBM

IBM SAP International Competence Center
ISICC
... combining our strengths

Content

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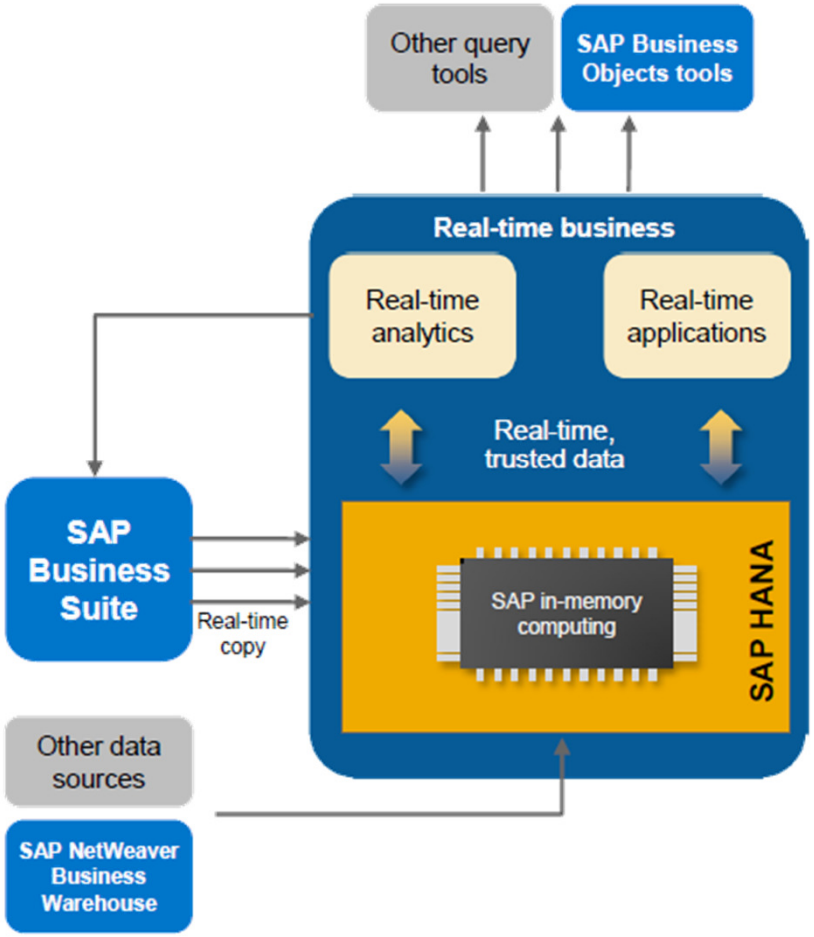
SAP HANA (High Performance Analytics Appliance)

- An in-memory Database
  - column oriented
  - compressed
  - most beneficial for OLAP read queries

- An „Appliance“ ???
  - available only on Linux/Intel servers today
  - standardized and certified solution stacks deployable on selected Intel based servers
  - TDI → tailored data-center integration
    re-use existing IT assets (storage)
  - HEC → HANA Enterprise Cloud
    subscription based cloud services

- A Platform
  - SAP Analytics and ERP applications
  - Non-SAP environments



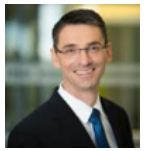
SAP HANA on IBM POWER

- SAP HANA on Power is targeting enterprise customers requiring an SAP HANA-based solution on IBM Power Systems servers

- IBM intention is not to offer it as an appliance, but in a flexible form combining the HANA license from SAP and IBM Power Systems servers, middleware and services.

Content

HoP (HANA on Power) History



- **2012-04** PoC started (SAP, HPI and IBM)
- 2012-08 HANA code compiled/linked (all available components built)
- 2012-10 Technical feasibility demonstrated for OLAP engine, (~300 changes)
- 2013-01 Vishal Sikka (SAP CTO) **announced** POWER Interest to press
- 2013-04 Linux on Power Proof-of-Concept Status Complete.
- 2013-08 SAP initiates Product Development Program for HANA on IBM Power technology
- 2013-12 HANA code optimized compiled/linked (HANA SPS08, SLES11SP2)
- 2014-02 IBM code checked in, full function testing commencing, Power 8 discussions
- **2014-03** Vishal Sikka (CTO SAP) and Steve Mills (IBM SVP) agreement to move forward
- 2014-06 SAP **announced** "Test and Evaluation Program"
- 2014-10 SAP **announced** "Ramp up Early Adopter"
- 2015-05 SAP **announced** HANA on Power
- 2015-08 HANA on Power is in GA

Going Forward Technology Roadmap as provided by SAP

Annuncio SAP di GA di HANA on Power

Announcing General Availability of SAP HANA on IBM Power Systems

Posted by Anil Saboo on August 21, 2015
Sr. Director, Business Development
More by this author ›

Tags: sap hana

– By Kyle Garman, Managing Director, Global Strategic Partners, SAP & Anil Saboo, Sr. Director, Global Strategic Partners, SAP

Today, we are very excited to announce the general availability for SAP HANA on IBM Power Systems. This represents an extension of one of the most successful partnerships in the IT industry, built on the long history of SAP and IBM bringing innovation to the enterprise.

With this release, SAP HANA on IBM Power Systems is supported for customers running SAP Business Warehouse on IBM Power Systems. This solution is available on SUSE Linux, for configurations initially scaling-up to 3TB. This is available within the Tailored Datacenter Integration (TDI) model, which will enable customers to leverage their existing investments in infrastructure.

"HANA requires a platform that can run massive transactional and analytical workloads on the same hardware, with a processor architecture that is designed to handle these types of workloads. It is of critical importance for customers to make the right infrastructure choice, one that can support the current and future system requirements for HANA applications …" – IDC: For the First Time, Architectural Choice for SAP Customers That Want to Move to HANA

Customer Benefits

The availability of SAP HANA on the IBM POWER8 system, is a testament to our commitment to offer customers choice, and is an evolutionary step in our journey to open up the platform. With this solution, enterprise customers can now realize the transformational benefits of SAP HANA running on IBM Power Systems:

https://blogs.saphana.com/2015/08/21/announcing-general-availability-of-sap-hana-on-ibm-power-systems/

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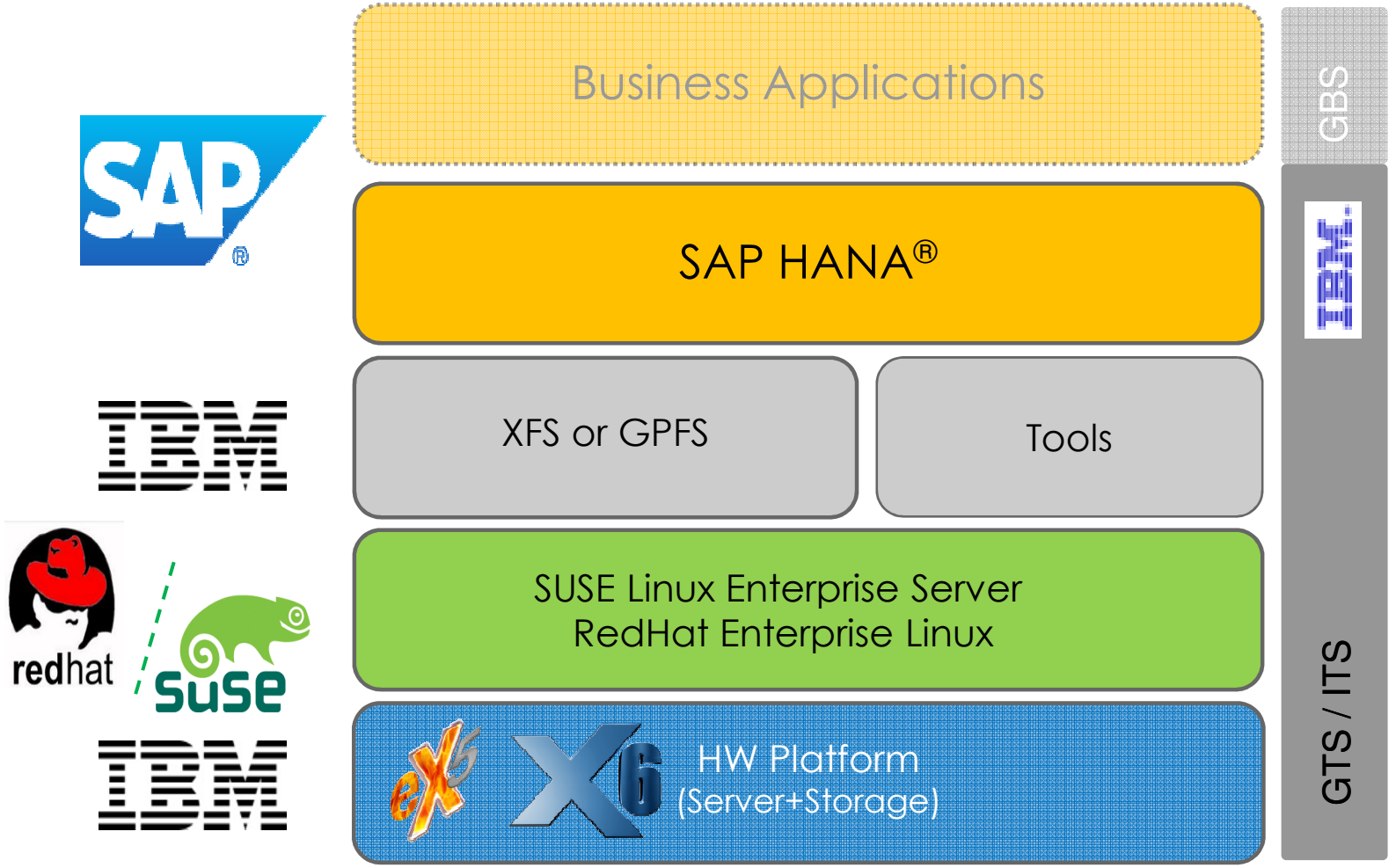
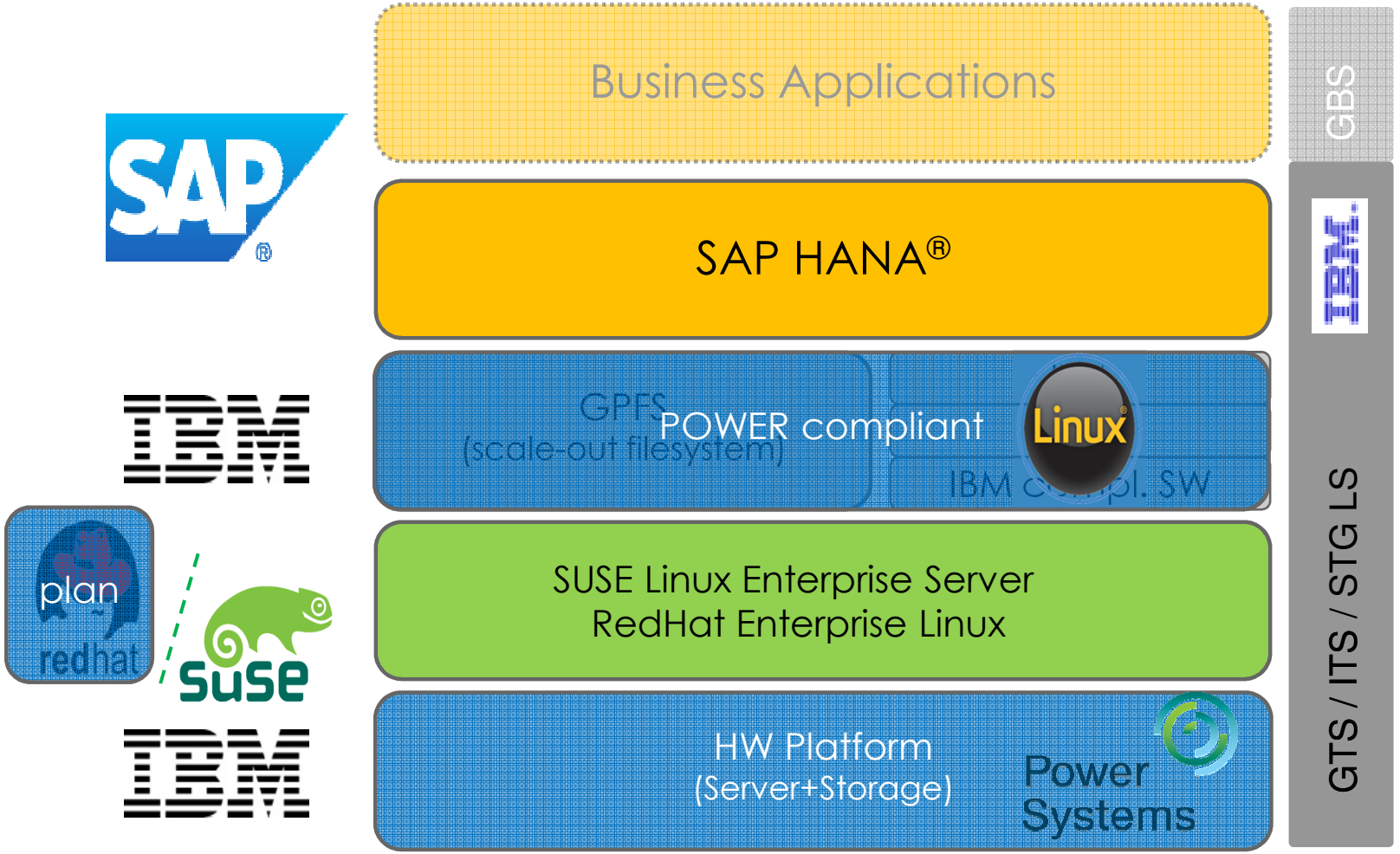
Traditional x86 HANA Stack



Traditional x86 HANA Stack Plus HoP Adaptions



Support for SAP HANA SPS 11

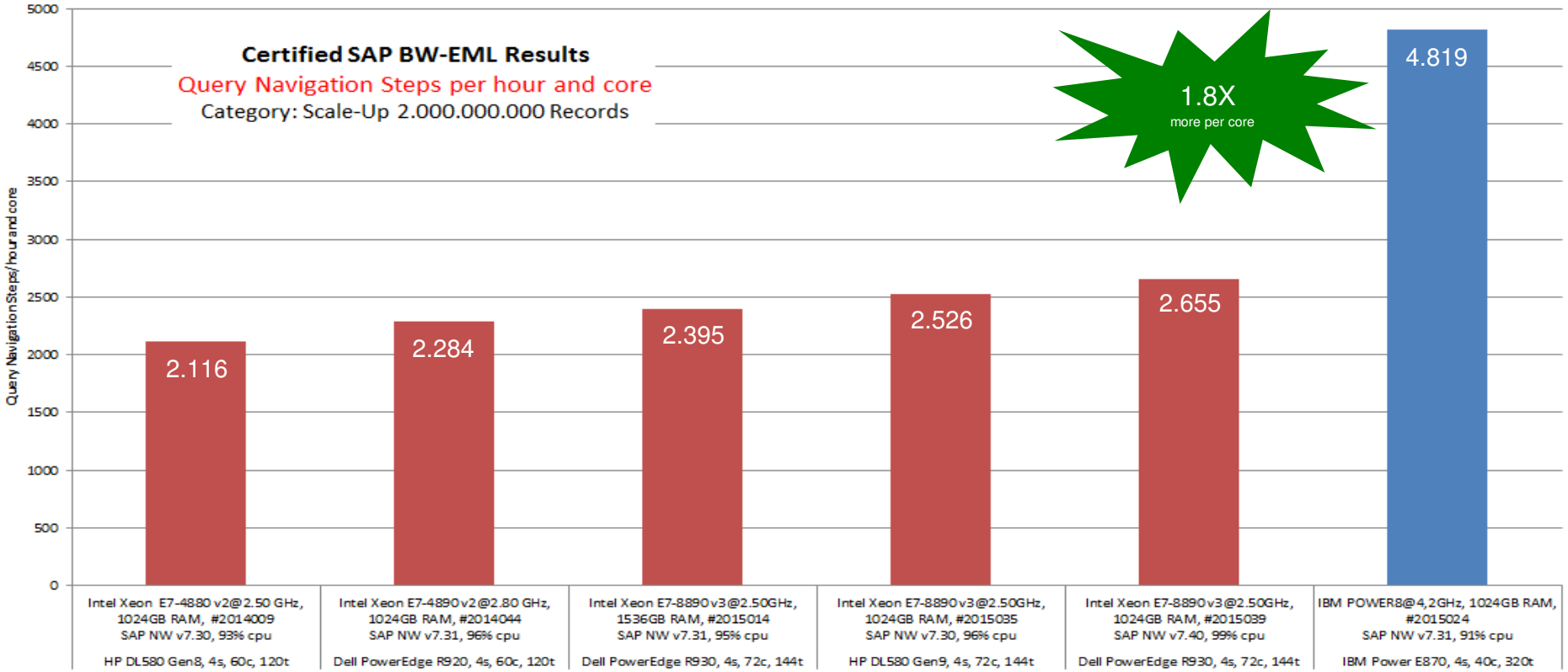
SAP HANA SPS 11

"With *SAP HANA version for IBM Power Systems architecture* SAP extended the support of already supported hardware platforms to also include the IBM Power Systems family. As of SAP HANA Platform SPS 11, SAP no longer distinguishes both versions."
(nota 2133369)

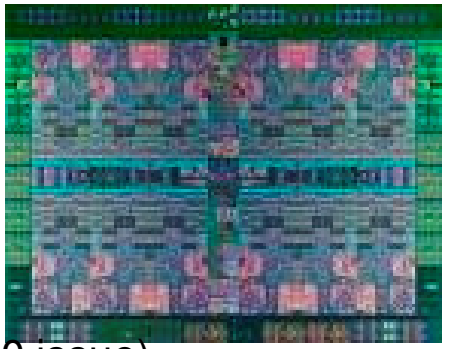
- Certified also for Power
- Same technological functionalities (e.g. Multitenant DB Container, Log Shipping for data replication, Predictive Analysis, Spatial etc.)

IBM Power: SAP BW Benchmark World Record – 2B records

Benchmark status: February 2016



POWER8 Highlights



Announced 2013 at Hot Chips Conference

12 Cores per Socket/Chip

Significantly Strengthened Cores

- 8 threads per core (SMT8)
- Wider fetch / dispatch/issue of instructions (8 fetch / dispatch, 10 issue)
- Doubled highly utilized execution units

Larger Caches per core/region

- L1: 64K data "D" Cache, 32K instruction "I" Cache per core
- L2: 512K private per core
- L3: 8M per core (up to 96MB per chip)
- L4: external to the chip

2 Integrated Memory Controllers w/ Improved Latency & bandwidth

- ~ 25% memory latency improvement via on-chip fastpath interconnect
- 16MB mem cache / buffer chip

Integrated SMP Interconnect w/ improved "Flatness"

- 2-Hop fabric topology

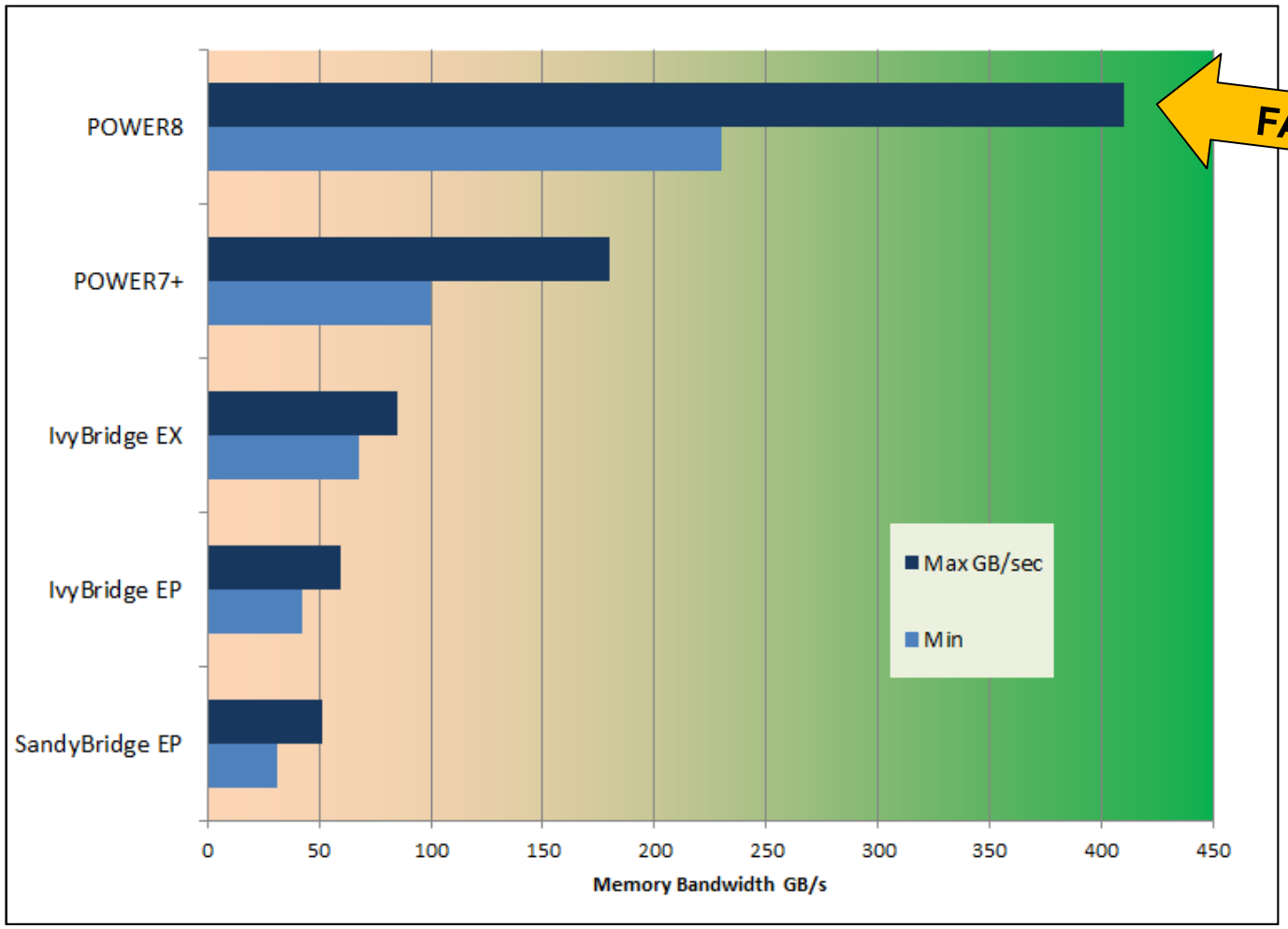
Integrated IO Subsystem

- On Chip PCIe Controller

Fine Grained Power Management

- On Chip Power Management Controller & Power gating

Faster Memory Bandwidth ideally fits demand of SAP (in-memory) applications



Power Systems
Open Innovation to Put Data to Work

Source: IBM CPO

Comparisons to Intel Systems

	Intel Sandy Bridge EP E5-26xx	Intel Ivy Bridge EP E5-26xx v2	Intel Ivy Bridge EX E7-88xx v2	POWER7+	POWER8
Clock rate range	1.8 - 3.6 GHz	1.7 - 3.7 GHz	1.9 - 3.4 GHz	3.1 - 4.4 GHz	3.0 - 4.1 GHz
SMT options	1, 2*	1, 2*	1, 2*	1, 2, 4	1, 2, 4, 8
HW threads/socket	16	24	30	32	96
L1 cache/core	32 KB	32 KB*	32 KB*	32 KB	64 KB
L2 cache/core	256 KB	256 KB	256 KB	256 KB	512 KB
L3 cache/core	2.5 MB	2.5 MB	2.5 MB	10 MB	8 MB
L4 cache/socket	0	0	0	0	128 MB
Memory Bandwidth	31.4 - 51.2 GB/s	42.6 - 59.7 GB/s	68 - 85** GB/s	100 - 180 GB/sec	230 - 410 GB/sec

* Intel calls this Hyper-Threading Technology (No HT and with HT)

*32KB running in "Non-RAS mode" Only 16KB in RAS mode

**85GB running in "Non-RAS mode" = dual-device error NOT supported

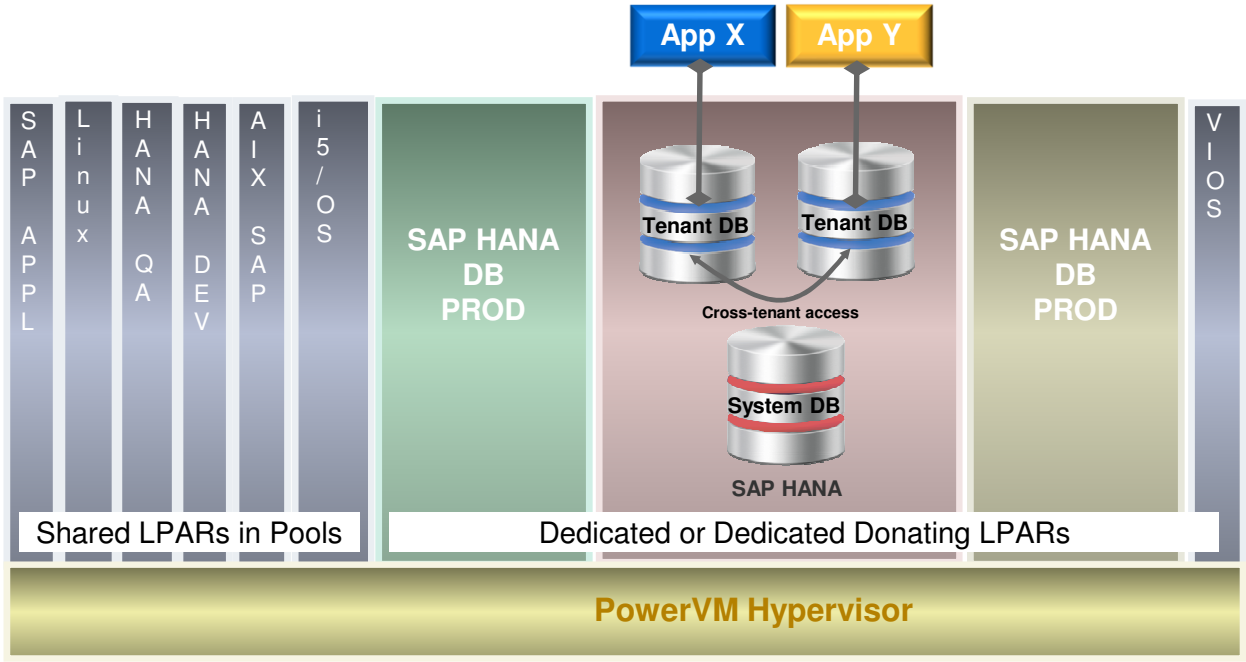
Power Systems RAS versus x86

	POWER	x86
Application/Partition RAS		
Live Partition Mobility	Yes	Yes
Live Application Mobility	Yes	Yes, support issues
Partition Availability priority	Yes	No
System RAS		
OS independent First Failure Data Capture	Yes	EX – MCA Recovery
Memory Keys (including OS exploitation)	Yes	No
Processor RAS		
Processor Instruction Retry	Yes	No
Alternate Processor Recovery	Yes	No
Dynamic Processor Deallocation	Yes	No
Dynamic Processor Sparing	Yes	No
Memory RAS		
Chipkill™	Yes	Yes, some vendors
Survives Double Memory Failures	Yes	Yes, optional
Selective Memory Mirroring	Yes	No
Redundant Memory	Yes	Yes
I/O RAS		
Extended Error Handling	Yes	No
I/O Adapter Isolation (PI-Bus and TCEs)	Yes	No

See the following URLs for addition details: http://www-03.ibm.com/systems/migratetoibm/systems/power/availability.html
http://www-03.ibm.com/systems/migratetoibm/systems/power/virtualization.html

Power Systems Partitioning

- PowerVM certified with SAP HANA
- Can run full SAP stack (not only HANA)
- More than one HANA system per box
- Coexistence between all operating systems supported (AIX, Linux, IBM i)
- Only HANA Production LPAR with dedicated donating cores



Example: Power Systems E870 or E880

Content

HANA - Sizing

- HANA Sizing is SAP's responsibility.
- IBM did not produce sizing tools for System x HANA systems.
- SAP has published extensive guidelines and data on sizing HANA systems. Refer to:
  - http://scn.sap.com/community/hana-in-memory/blog/2013/01/17/sap-hana-sizing
  - http://www.saphana.com/docs/DOC-2114
  - https://cookbook.experiencesaphana.com/bw/deploying-bw-on-hana/preparation/plan-and-purchase-hana-system/

Sizing Considerations for Power Systems platforms

- **Memory Sizing:** Memory sizing method is similar to Memory Sizing for HANA on Intel.
  - For initial sizing use the SAP Quicksizer http://service.sap.com/sizing
  - For migration sizing you need to create a sizing report: Find more details here: https://websmp103.sap-ag.de/~sapidb/011000358700000319402014E
- **CPU Sizing:** The limiting factor is the memory sizing. SAP states a ratio of up to 50 GB per core for BW, and 96 GB per core for Business Suite (subject to change).
- **Storage Sizing:**
  - Following the TDI approach, individually tailored configurations
- **Read more:**
  - ISICC Forum: https://w3-connections.ibm.com/forums/html/topic?id=af72252f-4052-4bd0-8ac2-f81a6540b05f#4a911449-977a-4f7f-8bd4- 0335729472bd
  - SAP HANA on Power FAQ: https://w3-connections.ibm.com/files/app#/file/bd8ba57d-9a7d-4b43-a6bf-299d08e58412

HoP – What's supported (1/2)

SAP Business Warehouse

- SAP NetWeaver BW version 7.31 or higher
- Scale-Up and Scale-Out (multi-host) up to 16x 4.8TB nodes (> 76TB)
- SAP BPC 10.1 (in Controlled Availability)
- SAP BO BI 4.1
- SAP Hana Dynamic Tiering (SPS 11)

- **Production:**
  - POWER8, min 8 core/128 GB
  - Server S82X e E850:
    - ✓32 GB/core
    - ✓max 3 TB
  - Server E870 e E880
    - ✓50 GB/core
    - ✓max 96 core/4.8 TB
  - LPAR configurated as dedicated or dedicated donating

- **Non-Production:**
  - POWER8 or POWER7+, min 2 core
  - No fixed GB/core ratio
  - LPAR configured in the shared processor pool

HoP – What's supported (2/2)

SAP Suite on Hana (SoH)

- SAP ERP 6.0 EHP7
- SAP SRM 7.0 EHP3
- SAP CRM 7.0 EHP3
- SAP SCM 7.0 EHP4
- SAP CAR (Customer Activity Repository)

Add-On

- MII 15.1 (Manufacturing Integration and Intelligence)
- SFM 1.0 (SAP Fashion Management)
- SAP CAR (Customer Activity Repository)
- SAP GRC (Governance, Risk, Control)
- … and more

Not yet supported:

- S/4
- Bank Analyzer
- Industry Solutions

- **Production:**
  - POWER8, min 8 core/128 GB
  - For all servers:
    - ✓96 GB/core
    - ✓max 9 TB
  - LPAR configurated as dedicated or dedicated donating
- **Non-Production:**
  - POWER8 or POWER7+, min 2 core
  - No fixed GB/core ratio
  - LPAR configurated in shared processor pool

SAP Note 2218464-Supported products when running SAP HANA on IBM Power Systems

HoP – Power systems supported

Power 8 Model	Minimal cores per LPAR	Maximal cores per LPAR
S822	8	20
S822L	8	24
S824	8	24
S824L	8	24
E850	8	32
E870	8	80
E880	8	96

Hana on Power vs Hana on Intel Sizing comparison

- Il sizing di HANA è basato sulla memoria (memory driven)
- Il numero di core è determinato dal rapporto RAM/core stabilito da SAP

Confronto tra # core necessari su HoP e HoI a parità di RAM:

BW

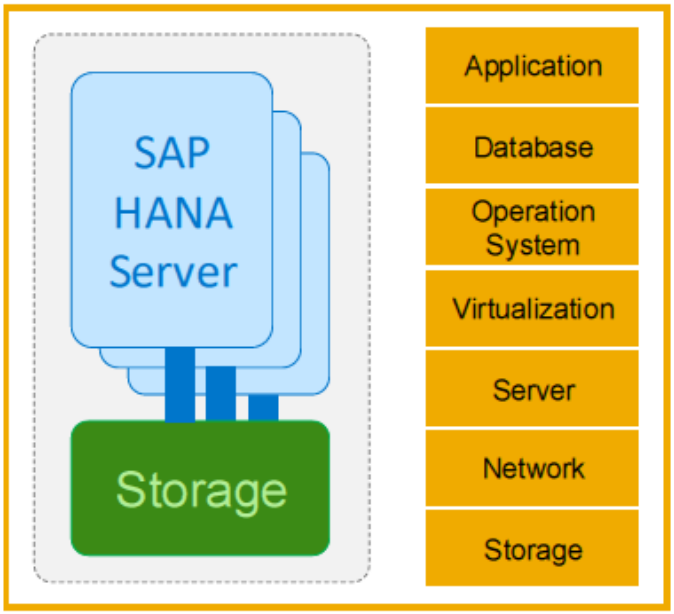
RAM	core Intel E7 v2/v3	Intel GB/core	50 GB/core P8 870/880	32 GB/core Power
128	30/36	3,6	8	8
256	30/36	7,1	8	8
512	30/36	14,2	10	16
1 TB	60/72	14,2	20	32
2 TB	72	28,4	40	-
3 TB	144	21,3	60	-
4 TB	144	28,4	80	-
4.8 TB	N.A.		96	-

Suite on Hana

RAM	core Intel E7 v2/v3	Intel GB/core	96 GB/core
128	30/36	3,6	8
256	30/36	7,1	8
512	30/36	14,2	8
768	30/36	21,3	8
1 TB	30/36	28,4	12
1,5 TB	30/36	42,7	16
2 TB	60/72	28,4	22
3 TB	60/72	42,7	32
4 TB	120/144	28,4	44
6 TB	120/144	42,7	64
8 TB	240/288	28,4	86
9 TB	N.A.		96

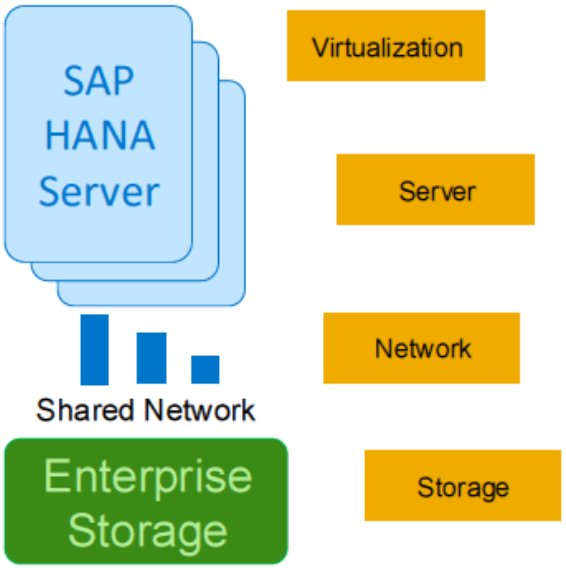
TDI – Tailored Datacenter Integration

Fast Implementation
Support fully provided by SAP



Appliance delivery approach

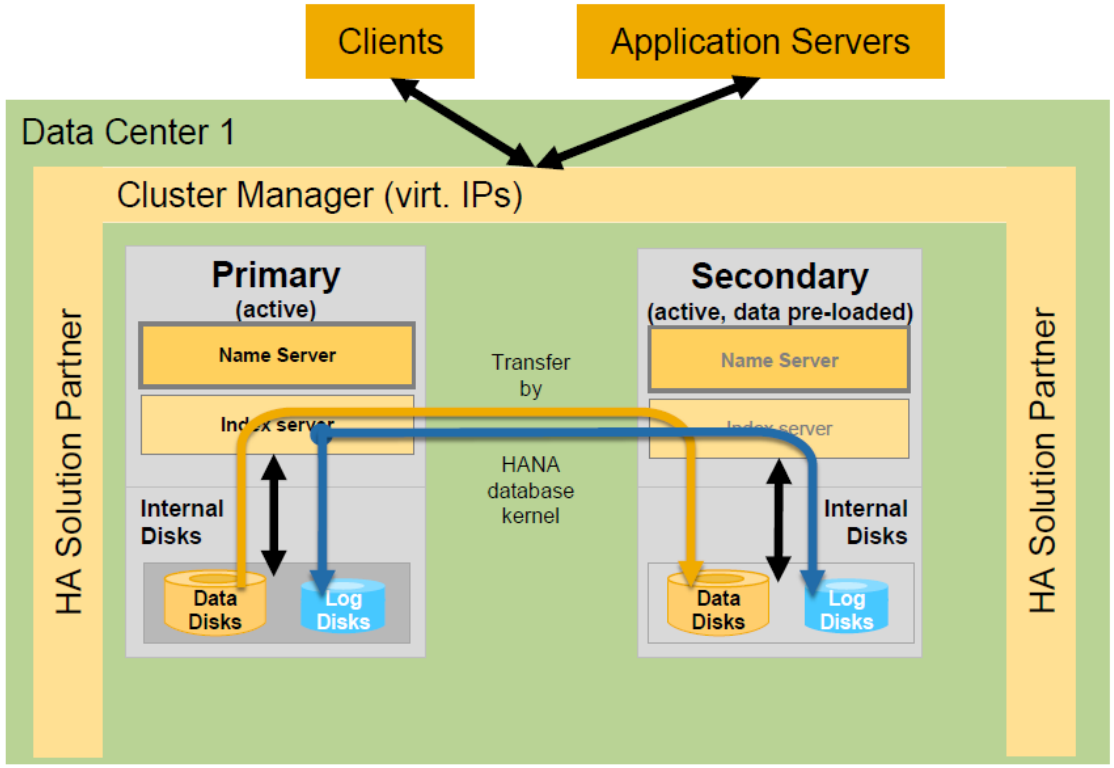
More Flexibility
Save IT budget and existing investment



SAP HANA tailored data center integration

Content

SAP HANA HA: System Replication – Performance Optimized



SAP HANA System Replication offers another alternative for local high availability

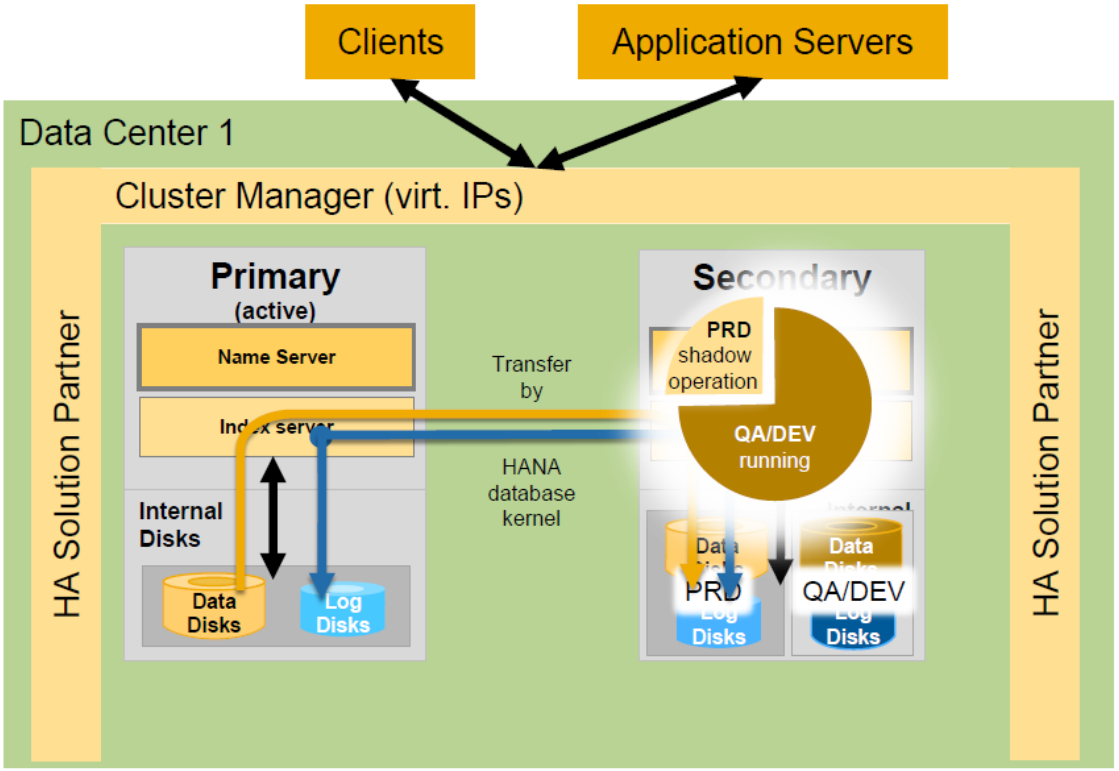
Database organizes the replication process

- Keeps a secondary (shadow) instance updated according to changes happening on primary
- Two flavors/options possible

Performance optimized option

- Secondary system completely used for the preparation of a possible take-over
- Resources are used for data pre-load on Secondary
- Take-overs and Performance Ramp are optimized

SAP HANA HA: System Replication – Cost Optimized

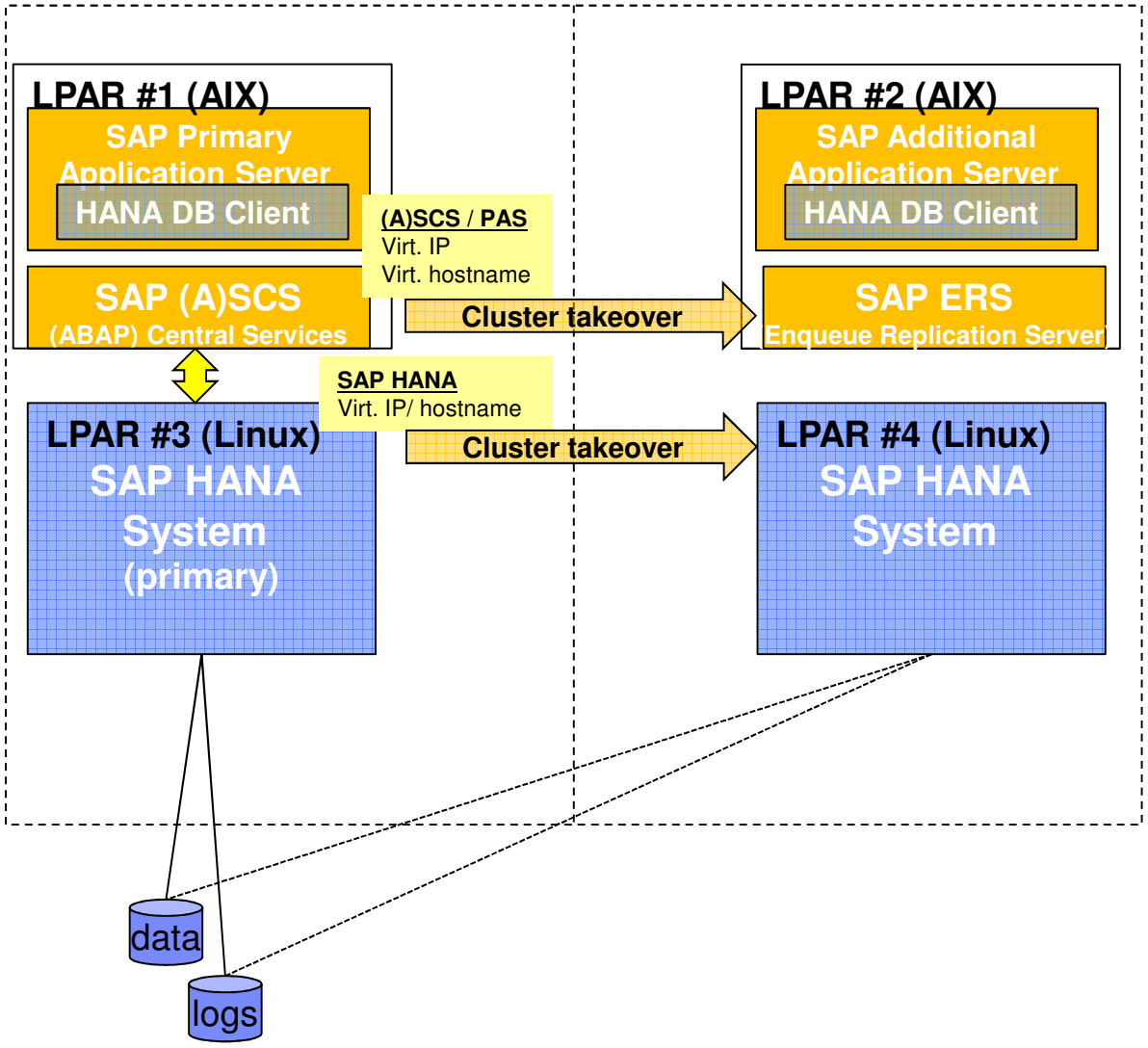


SAP HANA System Replication offers another alternative for local high availability

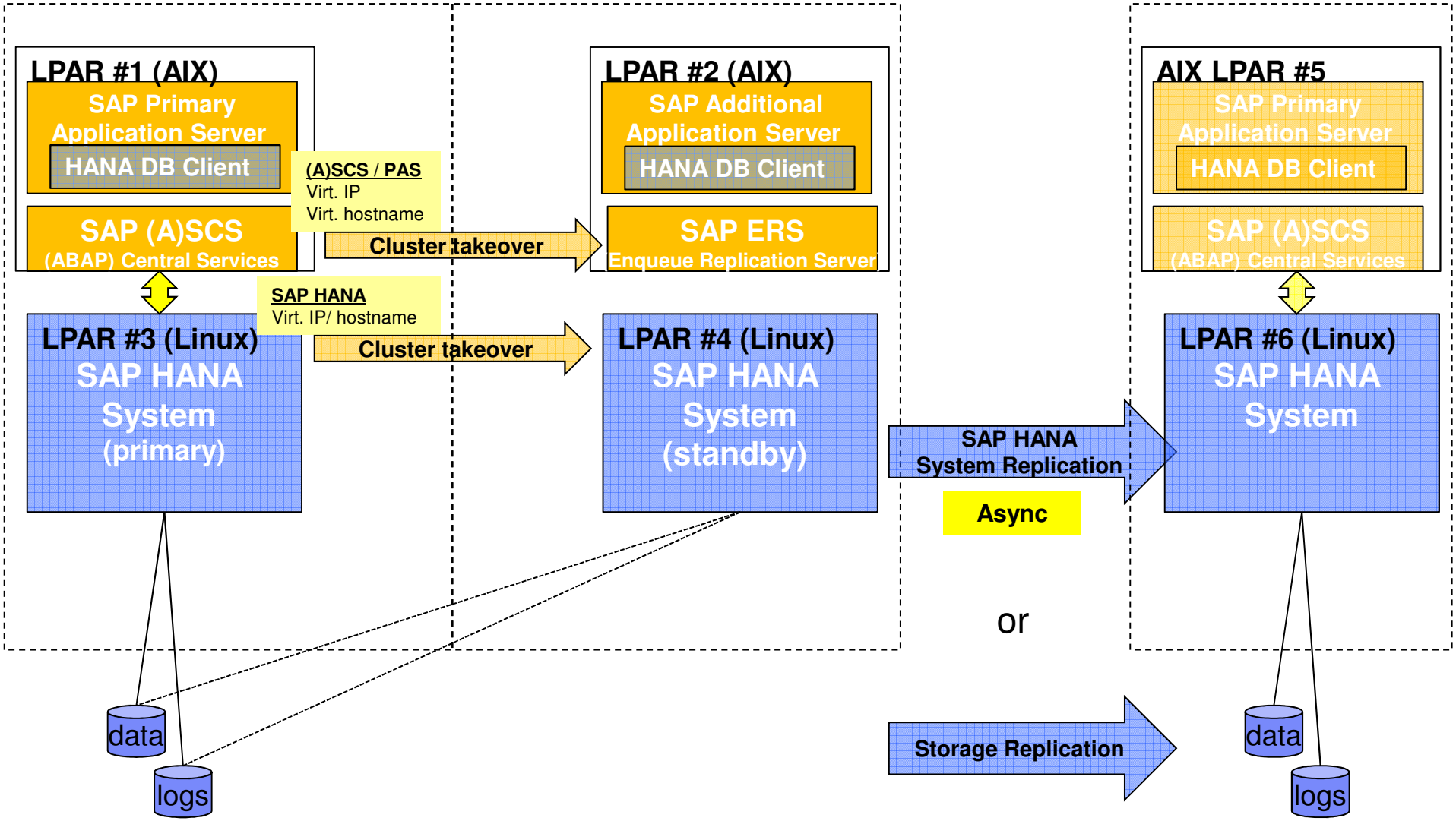
Cost optimized option

- Allows operating non-prod systems on Secondary
- Secondary HW reused for non-prod
- Resources freed (no data pre-load) to be offered to one or more non-prod installations
- During take-over the non-prod operation has to be ended
- Take-over performance similar to a cold start-up of SAP HANA

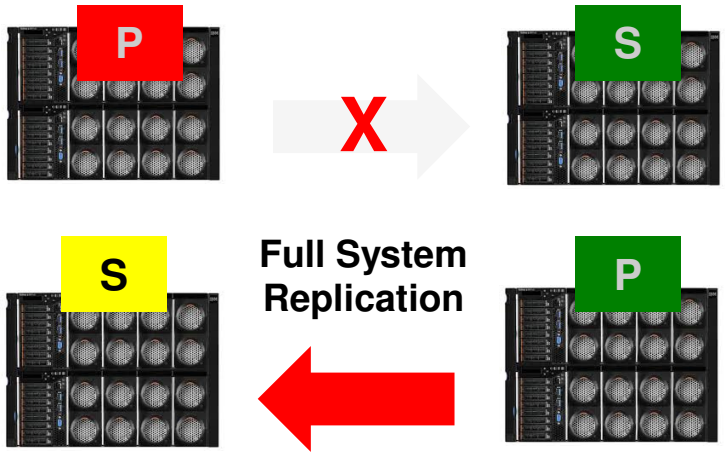
High Availability w/o System Replication



High Availability and Disaster Recovery Set-Up

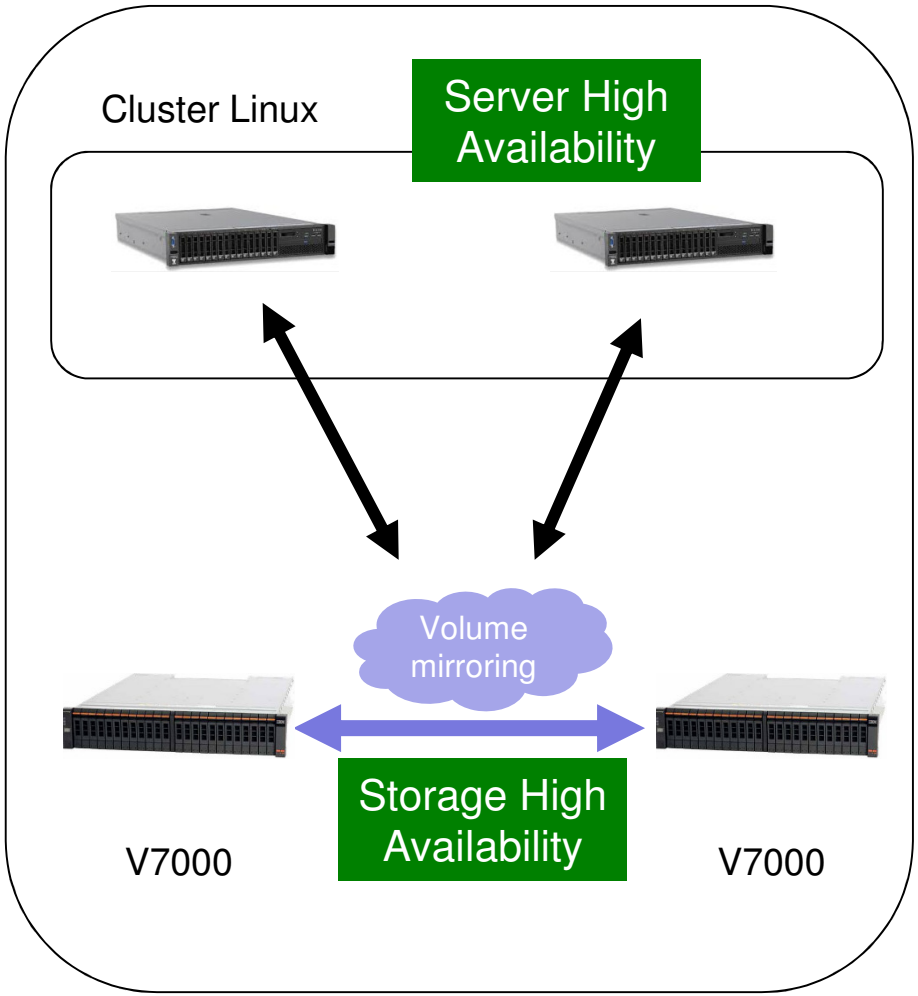


System Replication vs Storage Replication



Even though automatic failover can be considered as an option, automatic failback should be inhibited: failback can be performed only when data on primary appliance have been re-aligned from secondary one.

System Replication vs Storage Replication



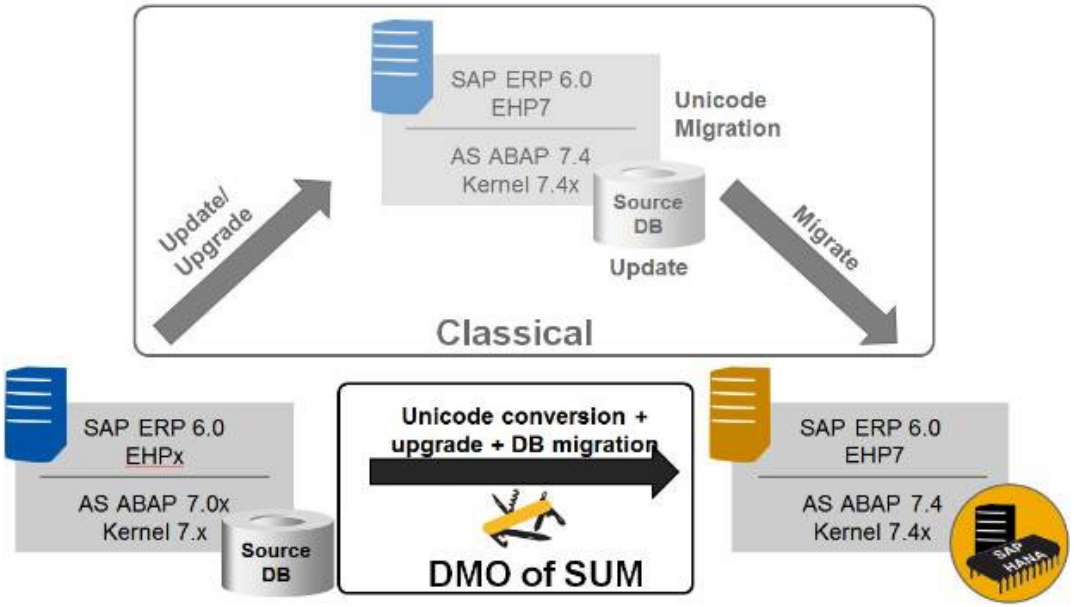
- HA for "server" based on SUSE clustering
- HA for "data" based on storage Metro Mirror
- Server failover (and failback) does not affect data
- Storage box failure does not affect server

SUSE Linux cluster:

- Active / Passive
- Automatic Failover is possible
- Standard automation agents for HANA do not support storage replication
- Customization of a "standard" automation agent required via ad hoc scripts

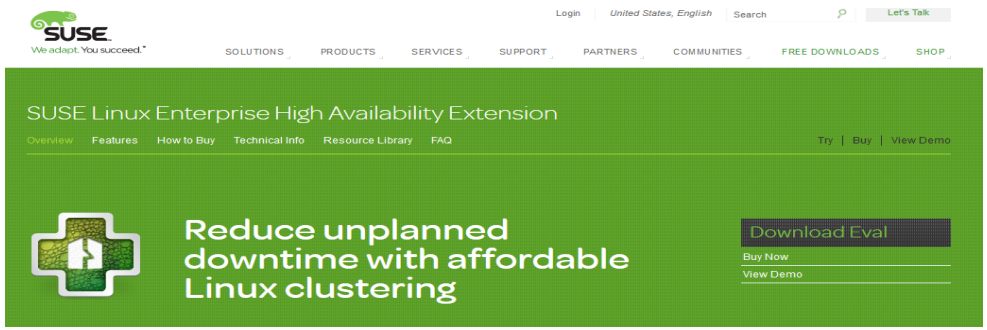
Migration to HANA on POWER

- SAP heterogeneous system copy procedures apply
- Standard migrations using Software Provisioning Manager (SWPM) and customer R3load exports
- Software Upgrade Manager with Database Migration Option (SUM/DMO)
  - can be used to combine a release upgrade and the heterogeneous database migration to a new target system

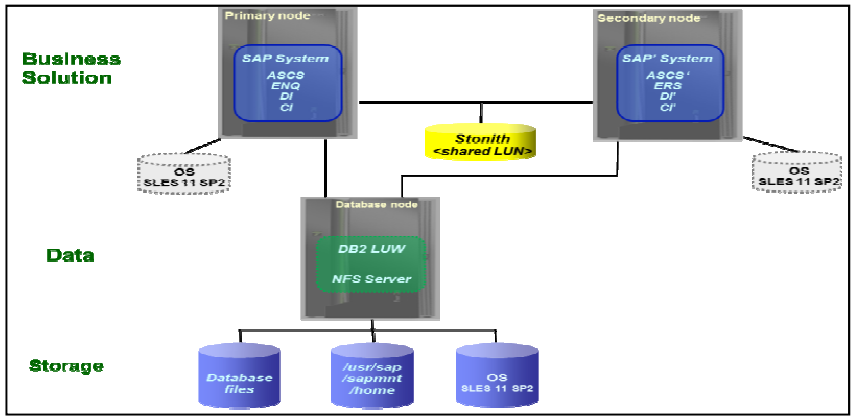


SAP High Availability on Linux on Power
- Certification of SUSE HA Cluster

- Official SAP HA Interface Certification for SUSE HA Cluster on IBM Linux on Power
- Technical Validation successfully completed
- Joint effort of SUSE & IBM
- Support published on http://scn.sap.com/docs/DOC-31701
- SAP note 1763512



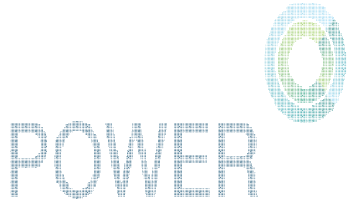
Source: https://www.suse.com/products/highavailability/



Content

SAP HANA on IBM POWER – Expected Customer Value

- **Intended for mission critical 7 x 24 Enterprise customer operations**
  1. Not an Appliance; Infrastructure Integration
  2. Highest Reliable, Available, Serviceable (RAS) in the market
  3. On-Demand Capacity
  4. Can be integrated into and tailored to a Power customer's environment (>=P7+ support), on Power8 servers in production, on Power7+ for non-prod environments



- **Protect existing customer investments**
  1. Unique PowerVM advantages: Virtualization out of the Box
  2. HANA Tailored Datacenter approach ➔ re-use existing IT assets and operational patterns
  3. Create LPAR from existing, instead of purchasing a dedicated appliance
  4. More granular and flexible CPU (Core) and memory increments possible
  5. in-box co-existence with established SAP landscape using AIX, IBM i

HoP is Aligned to HANA Standards

- From a coding and software manufacturing angle IBM Power Systems and Linux on POWER distributions are a mainstream HANA development platform with comparable SAP solution support as Intel platforms.

- As such, we adhere to and comply with identical HANA system KPI requirements, tools and processes defined by SAP SE:
  - SAP HANA Quicksizer and SAP DB sizing tools
  - SAP application and sizing related documentation
  - SAP tools like QuickSizer, Hardware Configuration Check Tool (HWCCT) etc.

- Customer defect support and services offerings follow established SAP and IBM processes and organizations
  - can leverage the new SAP HANA „single point of contact“ strategy with end-to-end support from IBM.

Content

First HoP Reference Customer

TUM – Technical University of Munich

Enables Education

Inexpensive services

Enhances reputation

Image: Copyright TUM photo agency

Solution components

Hardware

- IBM® Power® S822
- IBM XIV® Storage System

Applications

- SAP HANA

Software

- SUSE Linux Enterprise Server

"We chose IBM Power Systems for SAP HANA because we feel that it gives us enough performance, power and flexibility to fulfill our customer needs, and is also very cost-effective."

— Helmut Krcmar, Professor of Information Systems at TUM and Academic Director of the SAP University Competence Center

First MSP/CSP to acquire Power for a TDI implementation

POWER8 & V7000 WIN!

Industry: IT Solutions Provider

Winning Solution:
2 x E870 Power Systems
40-Core, 3TB Memory
each with 42TB of V7000 storage

Competition: x86

About CTAC:
CTAC is an ICT Solution Provider developing and implementing industry-tailored solutions for their customers' business processes in a variety of markets. The comprehensive industry-specific solutions for retail, wholesale, real estate and charity, among others, were developed in collaboration with customers, based on standard software from market leaders such as SAP, Microsoft and other well-known technology suppliers.

CTAC has been complementing industry-specific composed solutions with a full service package, ranging from business consultancy to managed services, and software development to innovative services such as mobility, in-memory computing and cloud for over 20 years. Headquartered in Hertogenbosch, in the Netherlands, CTAC also operates in Belgium and France. http://www.ctac.nl/

Background and business needs:
CTAC offers a range of solutions based on SAP software through their cloud hosting environment. Before the announcement of HANA TDI (Tailored Datacenter Integration), CTAC could only offer static x86 appliances. Thus, they explored the option of building a SAP TDI environment for SAP HANA workloads. In order to host this environment, CTAC was looking for a cost effective platform to deliver the requested performance, scalability and availability.

Solution:
CTAC decided to build the new SAP HANA TDI cloud based on a solution running IBM Power Systems and Storwize V7000 storage to meet their requirements. They will host virtualized SAP HANA environments running SUSE Linux on IBM Power E870 Systems. Storage requirements for SAP HANA TDI will be delivered by IBM V7000 systems using a combination of SSD and SAS disk drives. Management tooling include IBM PowerVC and Spectrum Virtualize to efficiently run and monitor the environment. For the initial set-up CTAC acquired two 40-Core, 3TB Memory E870 Power Systems each with 42TB of V7000 storage.

Reference Video: https://www.youtube.com/watch?v=QuLS6y3QGeo

First HANA on POWER Winback from x86

POWER8 WIN!

Industry: Retail

Winning Solution:
1x POWER8 S822L, 20Cores, 512 GB RAM
3 x POWER8 S824, 24 Cores, 768 GB RAM
SAP Solution Manager and SAP SLT

Competition: Lenovo (x86 based SAP HANA Appliance)

About Hamm Reno Group:
Hamm Reno Group is the largest shoe retailer in Europe with more than 750 stores and is represented in 20 countries. Hamm Reno Group has both top brands as well as a wide assortment of fashionable footwear for the whole family in its portfolio.
http://www.hr-group.de/

Background and business needs:
Hamm Reno Group has been a long time IBM Power customer running traditional SAP workload on Power. As early as 2012, they installed SAP HANA on two IBM X5 SAP HANA appliances. When their SAP HANA appliances lease was expiring in November 2015 they started looking for a new solution. As they were informed of SAP HANA on IBM Power Systems in March 2015, and the upcoming Ramp Up program for SAP HANA on Power Systems, they became highly interested in this offering. The IBM team seized the opportunity to integrate and migrate their SAP Business Warehouse (BW) SAP HANA installation based on x86 Lenovo to IBM POWER8 which is the main platform for Hamm Reno Group's SAP workload.
The solution addressed Hamm Reno Group's concerns on the lack of flexibility and virtualization with SAP HANA on the current platform.

Solution:
- 1 x S822L Power Server for production SAP HANA instance (SAP HANA DB: 320 GB, 10 cores)
- 1 x S824 Power Server fully virtualized for Test and Development SAP HANA (256 GB) + additional SAP workload (ERP, HCM, SRM)
- Existing V5000 with HDD and SSD integrated with POWER8 servers for data and logs
- SUSE Linux SLES 11 SP3 and TSM for ERP backup solution.

Hamm Reno Group is the first customer to use TSM for ERP on LoP

Benefits of the solution for Hamm Reno Group:
- Virtualized SAP HANA workload providing both flexibility and scalability while optimizing system utilization and reducing infrastructure and related costs.
- Homogeneous POWER8 infrastructure for complete SAP landscape

Hamm Reno reference online @ http://ibm.co/1WwiS9z

HANA on POWER Case Study

NTT DATA, Inc. – Delivers on the promise of real-time business with the SAP HANA on IBM Power Systems solution

Cuts total cost of ownership
(TCO) and shortens innovation cycles with a rapidly deployed solution supporting infrastructure standardization

Dramatically reduces
query execution times, in some instances to just a few seconds

Delivers significantly faster
load and activation performance, helping support next-generation analytics apps

Solution components
Software
- SAP HANA on IBM® Power Systems™

Systems
- IBM Power Systems running SUSE Linux Enterprise Server

IBM Business Partner
- SAP AG

The transformation: To help businesses become more real-time, data-driven enterprises, IBM Premier Business Partner NTT DATA, Inc. sought to simplify adoption of the SAP HANA in-memory database management system. It teamed with IBM to successfully test and evaluate the SAP HANA on IBM® Power Systems™ offering, available in the cloud or on premises.

"We believe the platform can fundamentally transform the HANA adoption journey for our customers."
—Vipin Singh, global vice president, SAP Technology Practice

NTT DATA

POP03755-USEN-01

More details

SAP Product Road Map - SAP HANA®, Version for IBM®Power Systems

SAP HANA, Version for IBM Power Systems

Product road map overview – key themes and capabilities

Today

Support for single node, scale up SAP Business Warehouse (>= 7.3.1)

ramp-up, max 96 cores / 3TB

Power8 (Prod); Power7+ (non-Prod)

SLES11 SP3 (with SMT8 patch)

SLES11 SP4 (full Power8 support)

XFS file system support

Virtualization support
- Power VM dedicated LPARs only

Delivered via SAP HANA TDI Phase 4
- Support for TDI phases 1 & 2
- Both, internal and external storage configurations supported

Hardware & system enhancements
- Optimized for Power 8 CPU architecture

Operations/Admin/HA-DR
- Enterprise RAS and system integrations
- Support for HA-DR via SAP HANA System Replication

Planned Innovations

Support for single node, scale up SAP Business Suite, S/4HANA

SAP Business Warehouse scale-out

Suport for other SAP HANA platform application scenarios (e.g. BOBJ)

Extended scalability for scale-up scenarios

Support for SAP HANA multi-tenant database containers

Enhanced support for SAP HANA platform options (e.g. DT, SDA)

GPFS support

Enhanced virtualization support
- Power VM dynamic LPARs

Operations/Admin/HA-DR
- Enhanced Operations & Management capabilities
- Continued enhancements for on-premise / off-premise hybrid operations and management
- Enhanced Cloud support

Future Direction

Full support for SAP HANA platform options

Extended scalability for scale-out scenarios

Hardware & system enhancements
- POWER Coherent Accelerator Processor Interface (CAPI) enablement
- Advanced system optimization (Toolchain, compilers)

RHEL 7 enablement

SLES 12, little endian enablement

Enhanced virtualization support
- Power KVM support
- Continued enhancements for Power VM support, e.g. shared pool partitions

Operations/Admin/HA-DR
- Continued enhancements for Operations & Management capabilities for on-premise, Cloud

This is the current state of planning and may be changed by SAP at any time.

HANA on Power – Documentazione

Documentazione IBM

- Planning Guide
- Supplemental Installation Guide

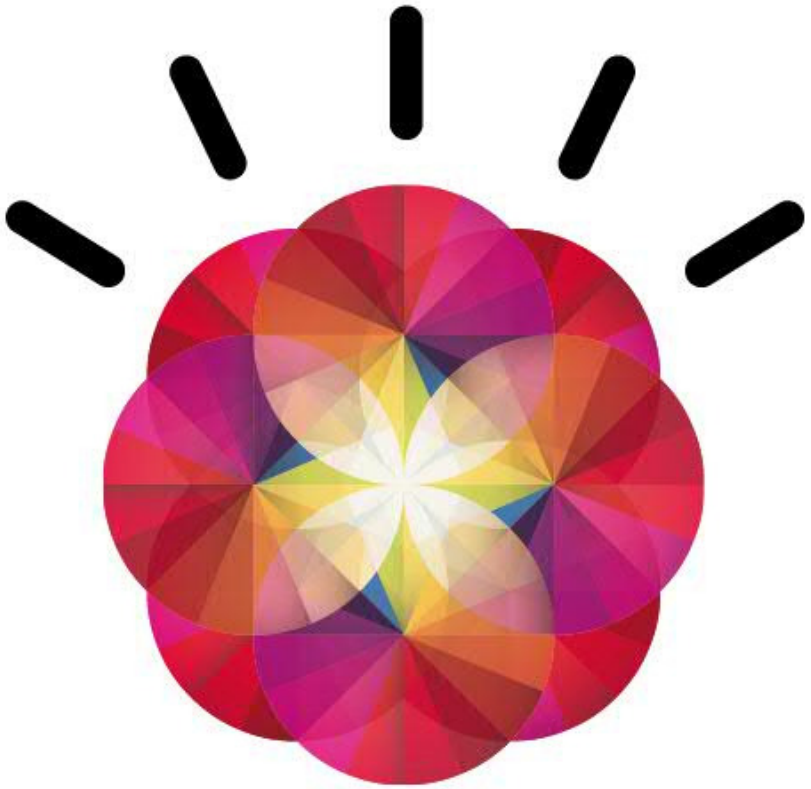
www.ibm.com/support/techdocs/atsmastr.nsf/WebIndex/WP102502

Note SAP

2055470 SAP Hana on Power planning and installation specifics – Central Note
2133369 SAP Hana on Power Central Release Note
2218464 Supported products when running SAP HANA on IBM Power Systems
2227464 SAP HANA Platform SPS 11 Release Note
2230704 SAP HANA on IBM Power Systems with multiple - LPARs per physical host
2188482 SAP Hana on Power allowed hardware

Documento IDC

For the First Time, Architectural Choice for SAP Customers That Want to Move to HANA



Let's run in-memory databases smarter.