SAP HANA on IBM Power Systems
Leading SOLAR (SAP SOLution ARchitect) for IBM Infrastructure Solutions for SAP Applications
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.
SAP HANA on IBM Power Systems Ramp Up and GA for SAP BW on HANA

- **Operating System:**
  - SUSE Linux Enterprise Server 11 SP3 for IBM Power + Fixes for Power8 SMT8 (provided by IBM Lab Services)

- **Hardware:**
  - IBM Power 8 for production; IBM Power 7+ released only for development and test environments
  - Tailored Data Center Integration (TDI) preferred
  - No plans to support AIX / No scale-out at first release

- **Memory:**
  - Technical maximum of 4TB for Power7+ and 8TB for Power8 systems

- **SAP BW on HANA:**
  - At first release, only SAP Business Warehouse (BW) on HANA is supported
  - Type: Scale-up, Single node only
  - Required Software: BW Version 7.31 or higher

- **Key Data**
  - Target Release to customer: **31 March 2015**
  - Targeted Completion date Ramp-Up (GA date): **30 June 2015**

for details please see SAP Service Marketplace:
https://websmp105.sapag.de/~form/handler ?_0002672&_EVENT=DISPLAY&_IO=011000358700000012742&_0110003587000000129219&=501100035870000012742&_0110003587000000129219&=100035870000219234&=02523100000010187&
Traditional x86 HANA Stack  Plus HoP Adaptions

Business Applications

SAP HANA®

GPFS (scale-out filesystem)  POWER compliant

SUSE Linux Enterprise Server
(plan: RedHat Enterprise Linux)

HW Platform
(Server+Storage)

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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.
Lower HANA Migration Risk with POWER and mixed SAP Environment (one common infrastructure platform)
Conceptual solution with HANA on Power

**Applications**

- SAP HANA®

**High Availability**

- SAP HANA System Replication, SUSE HA Ext, RH HA Plugin¹, Symantec HA, Tivoli SA

**File System**

- GPFS, XFS
  - ITM
  - TSM
  - PowerVC

**Server Hardware**

- Any POWER®7+ or POWER®8
- Standalone or shared/PVM

**Storage Hardware**

- Customer choice

**Power Landscape example**

- ECC
- BW HA
- ECC App
- CRM
- BW QA
- CRM QA
- BW App

¹ Not currently supported with Linux on Power. Contact RedHat for product plans.

² GPFS is currently supported for Linux on Power by IBM. Contact SAP for plans for certification with HANA on Power.
New World record set by IBM Power E870 on SAP BW Enhanced Mixed Load Standard Application Benchmark with 2 Billion records

SAP BW Enhanced Mixed Load (BW-EML) Standard Application Benchmark Results, 2 billion initial record load on SAP Hana 1.0: Ad-hoc navigation step per hour/per core

Source: http://www.sap.com/benchmark

IBM E870
POWER8
4p/40c/320t

Dell PowerEdge R930
E7-8890 v3
4p/72c/144t

Dell PowerEdge R920
E7-4890 v2,
4p/60c/120t

HP DL580 Gen8
E7-4880 v2
4p/60c/120t

SAP BW Enhanced Mixed Load (BW-EML) Standard Application Benchmark Results, 2 billion initial record load on SAP Hana 1.0: Ad-hoc navigation step per hour/per core

Source: http://www.sap.com/benchmark

(1) IBM Power Enterprise System E870 on the SAP BW-Extended mixed load standard application benchmark running SAP NetWeaver 7.31 application; 4 processors / 40 cores / 320 threads, POWER8, 4.19GHz, 1024 GB memory, 192.750 adhoc navigation steps per hours on SUSE Linux Enterprise Server 11 and SAP Hana 1.0, Certification #: 2015024. Result valid as of June 1, 2015. Source: http://www.sap.com/benchmark

(2) Dell PowerEdge R930, on the SAP BW-Extended mixed load standard application benchmark running SAP Netweaver 7.31 application; 4 processors / 72 cores / 144 threads, Intel Xeon Processor E-7 8890 v3, 2.5 GHz; 1536 GB memory, 172.450 adhoc navigation steps per hours on SUSE Linux Enterprise Server 11 and SAP Hana 1.0, Certification #: 2015014

(3) Dell PowerEdge R920, on the SAP BW-Extended mixed load standard application benchmark running SAP Netweaver 7.31 application; 4 processors / 60 cores / 120 threads, Intel Xeon Processor E-7 4890 v2, 2.8 GHz; 1024 GB memory, 127.010 adhoc navigation steps per hours on SUSE Linux Enterprise Server 11 and SAP Hana 1.0, Certification #: 2014044

(4) HP DL580 Gen8, on the SAP BW-Extended mixed load standard application benchmark running SAP Netweaver 7.30 application; 4 processors / 60 cores / 120 threads, Intel Xeon Processor E-7 4880 v2, 2.5 GHz; 1024 GB memory, 126.980 adhoc navigation steps per hours on SUSE Linux Enterprise Server 11 and SAP Hana 1.0, Certification #: 2014009

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POWER8 vs. IvyBridge System Capacity

- Comparing newest POWER8 and x86 server generations for SAP
- Two-socket POWER8 systems are close to 4-socket IvyBridge systems

Top 20 SAPS/core Servers - Clearly Dominated by IBM Power Systems

ca. 5500 SAPS !!!

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 HANA Quicksizer [http://service.sap.com/sizing](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.
  At the moment we assume, that we need half the amount of cores compared to Intel based servers.

• **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
**Supported Configurations**

Any IBM Power Server with min. POWER7+ Processor Architecture

- HANA Partition
  - 64 GB
  - 2 Cores

Optional: other workload

Any IBM Power Server with min. POWER8 Processor Architecture

- HANA Partition
  - 128 GB
  - 4 Cores

Optional: other workload

Any IBM Power Server with min. POWER8 Processor Architecture

- HANA Partition
  - 2 TB Memory
  - 64 Cores

Optional: other workload

---

Sandbox and none production HANA installations

Floor configuration eligible to run production systems

Initial ceiling configuration eligible to run production systems (April/2015)

**Extension or exceptional core/memory ratios:**

SAP Notes 2133369 and 1903576

Other workload:

- Other workload

Select partition size within this range

Check SAP Note 2133369 for Updates
Impacts on HW Infrastructure moving towards SAP HANA

No Changes
- At frontends
- At application server infrastructure
  =>
- Re-use of available application servers
- Sizing of application servers remains valid

Changes
- New infrastructure mandatory to run SAP HANA
- Different sizing for HANA infrastructure
- Migration of database to SAP HANA required
  Partly necessary
  - Data model adoptions
  - Custom extensions

Any DB/
Any OS
HANA migration
HANA / Linux

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Example: Use Case@TAE: SAP BW on HANA, 1 TB HANA-DB-TDI-Server

Production System 8286-42A
1 x 8286-42A
1024 GB RAM
24cores@3.52 GHz

Linux

Recommended:
TDI certified
SAN Storage

S824 / PowerVM
Linux – 1024 GB / 24cores
SAP HANA DB

8Gb FC attachment

2x 2-port

2* 10 Gb-ET
4-ports

1Gb-ET
4-ports

15
Cache is Critical to Good Performance

Memory is slow relatively compared to cache

1 clock cycle

1-100 clock cycles

400-800 clock cycles

Core

Cache

Memory
## Cache, Core Speed and Memory Bandwidth

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

<table>
<thead>
<tr>
<th>Chip Family</th>
<th>Core Frequency (GHz)</th>
<th>L1 and L2 Cache per Core</th>
<th>Approximate Cache per Core (MB)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Intel EN E5-v2 (8+ core)</td>
<td>1.7 – 2.4</td>
<td>64 KB 256 KB</td>
<td>2.81</td>
</tr>
<tr>
<td>Intel EP E5-v3 (8+ core)</td>
<td>1.8 – 3.2</td>
<td>64 KB 256 KB</td>
<td>2.81</td>
</tr>
<tr>
<td>Intel E7-v2 (8+ core)</td>
<td>2.0 – 3.2</td>
<td>64 KB 256 KB</td>
<td>2.81</td>
</tr>
<tr>
<td>POWER8 (8+ core)</td>
<td>3.4 – 4.35</td>
<td>96 KB 512 KB</td>
<td>19.26</td>
</tr>
<tr>
<td>System z EC12</td>
<td>5.50</td>
<td>160 KB 2 MB</td>
<td>20.82</td>
</tr>
</tbody>
</table>

Source: IBM CPO
## Comparison to x86 systems -
Memory Bandwidth is another key differentiator for Power versus x86

<table>
<thead>
<tr>
<th></th>
<th>Sandy Bridge EP E5-26xx</th>
<th>Ivy Bridge EP E5-26xx v2</th>
<th>Haswell EP E5-26xx v3</th>
<th>Ivy Bridge EX E7-88xx v2</th>
<th>POWER 7+</th>
<th>POWER8</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Clock rates</strong></td>
<td>1.8–3.6GHz</td>
<td>1.7-3.7GHz</td>
<td>1.7-3.7GHz</td>
<td>1.9-3.4 GHz</td>
<td>3.1-4.4 GHz</td>
<td>3.0-4.15 GHz</td>
</tr>
<tr>
<td><strong>SMT options</strong></td>
<td>1, 2*</td>
<td>1, 2*</td>
<td>1, 2*</td>
<td>1, 2*</td>
<td>1, 2, 4</td>
<td>1, 2, 4, 8</td>
</tr>
<tr>
<td><strong>Cores per socket</strong></td>
<td>8</td>
<td>12</td>
<td>18</td>
<td>15</td>
<td>8</td>
<td>12</td>
</tr>
<tr>
<td><strong>Max Threads / sock</strong></td>
<td>16</td>
<td>24</td>
<td>36</td>
<td>30</td>
<td>32</td>
<td>96</td>
</tr>
<tr>
<td><strong>Max L1 Cache</strong></td>
<td>32KB</td>
<td>32KB*</td>
<td>32KB*</td>
<td>32KB*</td>
<td>32KB</td>
<td>64KB</td>
</tr>
<tr>
<td><strong>Max L2 Cache</strong></td>
<td>256 KB</td>
<td>256 KB</td>
<td>256 KB</td>
<td>256 KB</td>
<td>256 KB</td>
<td>512 KB</td>
</tr>
<tr>
<td><strong>Max L3 Cache</strong></td>
<td>20 MB</td>
<td>30 MB</td>
<td>45 MB</td>
<td>37.5 MB</td>
<td>80 MB</td>
<td>96 MB</td>
</tr>
<tr>
<td><strong>Max L4 Cache</strong></td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>128 MB</td>
</tr>
<tr>
<td><strong>Memory Bandwidth</strong></td>
<td>31.4-51.2 GB/s</td>
<td>42.6-59.7 GB/s</td>
<td>51.2-68.3 GB/s</td>
<td>68-85** GB/s</td>
<td>100 – 180 GB/sec</td>
<td>230 - 410 GB/sec</td>
</tr>
<tr>
<td><strong>SAPS / Core (BS7UC)</strong></td>
<td>2660</td>
<td>3010</td>
<td>3750</td>
<td>2700</td>
<td>3650</td>
<td>5260</td>
</tr>
<tr>
<td></td>
<td>E5-2643, Quad Core, 3.3 GHz</td>
<td>E5-2643v2 Hex Core 3.5GHz</td>
<td>E5-2637v3, 3.5 GHz</td>
<td>Xeon E7-8893v2 Hex Core 3.4GHz</td>
<td>Power7+, 4.42GHz</td>
<td>Power8, 4.15 GHz</td>
</tr>
</tbody>
</table>
Memory and I/O Intensive Operations

Load time dependent on throughput of IOPS

All columns at initialization/HA

Extremely high memory demand

Response time of on-demand columns dependent on latency/throughput of IOPS

Selected columns at initialization/HA others on demand

I/O latency & throughput dependency

I/O latency dependency
SAP HANA Memory

- ~6GB
- ~RAW Business Data / compression factor
- ~same as data space
- ~2x effective data space

Source: SAP SE
HANA: No Insert (Insert Delta only)

„Normal“ operation

Merging Phase

Column Store

read

write

Delta Store

merge

Column Store 2

write

read

Delta Store

merge

Column Store

write

read

Delta Store 2
All data in-memory

Balanced System  Imbalanced System

Source: Teradata
Big Data – Multi Temperature Data Management in SAP BW

Overview

- **hot**
  - Data is read and/or written frequently
  - SAP HANA In-memory
  - No restrictions, all features available

- **warm**
  - Infrequent access
  - SAP HANA on disk, only loaded to memory when accessed
  - No restrictions, all features available

- **cold**
  - Sporadic access
  - Not stored in HANA; stored in Nearline Storage
  - Restricted to NLS capabilities

Providing lower TCO by optimized SAP HANA RAM management
Big Data – SAP HANA dynamic tiering for SAP BW
New with SAP BW 7.4 SP8 and SAP HANA SPS9

Warm store as dynamic extension to hot store and integral part of the HANA platform
- Reduced in-memory footprint
- Highly efficient compression and performance
- Unified Installation & Update Management
- One Backup & Recovery process

Can be set for Write Optimized DSOs and DataSources as extended table property
- Data load processes and queries are processed within the warm store
- Transparent for all operations, no change for BW processes required
- Conversion to move existing data to warm store
POWERS Coherently Attached Processor Interface (CAPI) Overview

Typical I/O Model Flow

- **DD Call**
- **Copy or Pin Source Data**
- **MMIO Notify Accelerator**
- **Acceleration**
- **Poll / Int Completion**
- **Copy or Unpin Result Data**
- **Return from DD Completion**

Flow with a Coherent Model

- **Shared Mem. Notify Accelerator**
- **Acceleration**
- **Shared Memory Completion**

Advantages of Coherently Attached Over I/O Attachment

- Virtual Addressing & Data Caching (significant latency reduction)
- Easier, Natural Programming Model (avoid application restructuring)
- Enables Apps Not Possible on I/O (Pointer chasing, shared mem semaphores, …)
Possible Example: CAPI Attached Flash Optimization

Eliminates 97% of instruction path
Saves 10 Cores per 1M IOPs
Enabling the Art of the Possible on POWER8

CAPI enables I/O devices to operate on memory in the same way that general purpose processors can operate on memory.

- 4X Smaller footprint
- 8X Improvement
- 10X Bandwidth Increase
- 7X Reduced Latency
- 12X Less space & Energy

POWER8 Data Clusters
Java Acceleration on GPU
RDMA & I/O
CAPI Flash
SAP HANA, Version for IBM Power Systems
Product roadmap overview – key themes and capabilities

Support for single node, scale up SAP Business Warehouse (>= 7.3.1)
- ramp-up, max 64 cores / 2TB
- Power8 (Prod); Power7+ (non-Prod)
- SLES11 SP3 (with SMT8 patch)
- SLES11 SP4 (full Power8 support)
- XFS file system support
- Virtualization support
- PowerVM 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/H-A-DR
- Enterprise RAS and system integrations
- Support for H-A-DR via SAP HANA System Replication

Support for single node, scale up SAP Business Suite, S/4HANA
- SAP Business Warehouse scale-out
- Support 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/H-A-DR
- Enhanced Operations & Management capabilities
- Continued enhancements for on-premise / off-premise hybrid operations and management
- Enhanced Cloud support

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/H-A-DR
- Continued enhancements for Operations & Management capabilities for on-premise, Cloud

Today

Planned Innovations

Future Direction

This is the current state of planning and may be changed by SAP at any time.
High Availability – Disaster Recovery

Business Continuity

High Availability per Data Center

1. SAP HANA Host Auto-Failover (Scale-Out with Standby)
2. SAP HANA System Replication
   - Performance Optimized
   - Cost Optimized

Disaster recovery between Data Centers

3. SAP HANA Storage Replication
4. SAP HANA System Replication
   - Performance Optimized
   - Cost Optimized
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 Set-Up

LPAR #1 (AIX)
- SAP Primary Application Server
- HANA DB Client
- SAP (A)SCS (ABAP) Central Services

LPAR #2 (AIX)
- SAP Additional Application Server
- HANA DB Client
- SAP ERS Enqueue Replication Server

LPAR #3 (Linux)
- SAP HANA System (primary)
- SAP HANA System Replication

LPAR #4 (Linux)
- SAP HANA System
- Full Sync
- Syncmem

Cluster takeover

Tier 1
- data
- logs

Tier 2
- data
- logs

(A)SCS / PAS
Virt. IP
Virt. hostname

SAP HANA
Virt. IP/hostname

SAP HANA System Replication
SAP HANA Persistence:  
In-Memory Data Is Regularly Saved to Disk

- **Data:**
  - SQL data and undo log information
  - Additional HANA information, such as modeling data
  - Kept in-memory to ensure maximum performance
  - Write process is asynchronously

- **Log:**
  - Information about data changes (redo log)
  - Directly saved to persistent storage when transaction is committed (synchronous)
  - Cyclical overwrite (only after backup)

- **Savepoint:**
  - Changed data and undo log is written from memory to persistent storage
  - Automatic
  - At least every 5 minutes (customizable)
SAP HANA Persistence:
In-Memory Data Is Regularly Saved to Disk

1. Savepoints
2. Redo Log written to persistent storage (committed transactions)
3. Most recent log entries from log area
4. Crash
SAP HANA Backup / Restore / Recovery

1. Data backups (external backup destination)
2. Log backups (closed log segments; external backup destination)
3. Most recent log entries from log area
4. Crash

Tim e
Backup Solutions for HANA

• IBM Tivoli Storage Manager – Data Protection for SAP HANA
  Fully automated backup and restore using SAP hdbbackint interface.
  All backup and restore operations are controlled thru SAP HANA.
  Backing up data is streamed to the Tivoli Storage Manager without having to back up to disk first.

• SEP sesam for SAP HANA
  Available on request

Beta in 6/2015
GA in 9/2015
Libelle Business Shadow – Dashboard View
High Availability Solutions
Automate takeover in SAP HANA system replication setups

• IBM System Automation for Multiplatforms
  – New automation policy for HANA
  – Beta available on IBM developerWorks
    ibm.com/developerworks/community/groups/service/html/communityview?communityUuid=5b16a65c-5410-4b4e-b8b2-5c69053183bd

• SUSE Linux HA
  – SAPHanaSR resource agent
    On Power Linux available with SLES 11 SP4
    scn.sap.com/docs/DOC-56278
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/
IBM POWER Enablement with SLES for SAP Applications 11 SP4

- In July 2015 SUSE plans to release SLES for SAP Applications 11 SP4
  - full support for IBM POWER8 (SMT8) and all SAP HANA use cases
  - Will be priced the same as on x86-64
- Existing customers should move to SLES for SAP Applications 11 SP4 as soon as possible (may have to wait until HANA SPS11)
- SAP HANA on POWER customers (now Ramp-Up, later GA) use the regular SLES11 SP3 with a kernel patch
  - default SLES11 SP3 does not fully exploit the POWER8 CPU
  - For details see SAP Note 2055470 - HANA on POWER Planning and Installation Specifics
- SLES for SAP Applications 11 SP4 on POWER feature set
  - No ClamAV (as this is SAP NetWeaver specific)
  - Service Pack Overlap Support (SP4 is last Service Pack, no overlap required)
  - SAP Installation Wizard (not required for SAP HANA on POWER)
- The PTF kernel will be supported by SUSE until January 2016 and is available through:
  https://ptf.suse.com/1b9f32af03429575e3dbc3d3d6a7e55/sles11-sp3/7881/ppc64/20150122/

Source: SUSE, 04/14
Data Center Readiness – Tools

Candidates for enablement in 2015 and beyond:

- TSM Backup (Backint Integration)
- IBM System Automation for Multiplatforms
- Pacemaker
- Steeleye
- IBM Platform Cluster Manager (PCM)
- GPFS ESS
- Ganglia
- Tivoli Monitoring
- Nagios
- Any SAN attached Storage
- etc.
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 HANA on IBM Power Systems - An Enterprise Solution

Not an Appliance
- An SAP HANA Software and IBM Enterprise Power Systems offering focused on supporting Enterprise infrastructure customers
- Implemented as a Tailored Data Center Integration like (“TDI like”) offering
- Sample IBM configurations available from IBM
- All POWER8 systems targeting production level support, POWER7+ only for non-production

Delivery
- Hardware ordered and fulfilled through IBM direct and Business Partner order processing channels
- SAP software ordered and fulfilled through SAP account team or SAP VARs

Implementation and other Services
- Plan, install, configure through STG Lab Services (Service Units per Catalog)
- Support, manage, operate, monitor, SPOC via IBM GTS/TSS and SAP Services (AGS)
- HANA Migration Services delivered by IBM GBS Migration Factory, SAP Consulting and other CSIs
- Business implementation services delivered via IBM GBS, SAP Consulting and other CSIs
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. TDI like 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 memory increments possible

• Leverage POWER performance and scalability for SAP Business Suite
  1. Significant Power SMT throughput advantages versus Intel x86 (approx. 2,0x +)
  2. Value: fewer cores, fewer footprints, lower energy and space and lower operating costs
  3. in-box co-existence with established SAP landscape using AIX, IBM i

• Price performance
Planned HANA on POWER Technical Manuals

• Planning Guide
  – ready for 2014 TEA and 2015 Ramp-Up phase
  – features Process/Support/Service guidance

• IBM Supplemental HoP Implementation Guide
  – Being created now
  – Planned final version for HoP GA

• Administration/Troubleshooting Guide
  – Future plan
  – Includes best practices from customer production sites

www.ibm.com/support/techdocs/atsmastr.nsf/WebIndex/WP102502
Time for questions …
Let's run in-memory databases smarter.
Jochen Ziegler
Leading SOLAR
(SAP Infrastructure SOLution ARchitect)

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