2055470 - HANA on POWER Planning and Installation Specifics - Central Note

Version	55	Type	SAP Note
Language	English	Master Language	English
Priority	Correction with high priority	Category	Consulting
Release Status	Released for Customer	Released On	12.07.2016
Component	HAN-LM-INS (SAP HANA Installation)		

Please find the original document at https://launchpad.support.sap.com/#/notes/2055470

Symptom

You plan or want to install SAP HANA on IBM Power Servers.

Other Terms

HANA on POWER, plan, install, central note, IBM, Linux, Hana-on-Power

Reason and Prerequisites

Plan and implement SAP HANA on IBM Power Servers.

Release specifics, minimum server requirements, documentation updates

Solution

Table of Contents:

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Requirements for SAP HANA on IBM Power Server

SAP HANA on POWER follows the Tailored Datacenter Integration (TDI Phase 4) approach.
1) The server selection is done based on a SAP sizing and an IBM hardware mapping. Currently the report attached to SAP note 1736976 does not deliver up to date information regarding SAP HANA on IBM Power in section 'MINIMUM SIZING RECOMMENDATION - CURRENT'. In particular the value of 'Phys. memory per node' might not be correct. Please ignore this value and the recommended value of 'Number of Nodes' until further notice. You must utilize nodes, such that

- Each node has a maximum RAM size below or equal to the maximum RAM allowed per LPAR. Please refer to SAP note 2188482 for details.
- The sum of total RAM of the nodes participating is equal or bigger than the value of 'Memory Requirement (Minimum Total)' from the sizing report.

2) Verify the stack using the SAP Hardware Configuration Check Tool (HWCCT, SAP Note 1943937).

Detailed IBM Documentation can be found on IBM Techdocs in the "SAP HANA on IBM Power Systems and IBM System Storage - Guides" (http://www.ibm.com/support/techdocs/atsmastr.nsf/WebIndex/WP102502).

IBM Power Server

- For production POWER8^{TM} Servers listed in SAP Note 2188482 must be used.
- HANA production partitions must be configured to run in dedicated or dedicated donating mode (workload remains with same CPUs).
- The partitions can be set up either in full partition mode or using the POWER LPAR technology provided by the PowerVM Hypervisor (SAP Note 2230704).
- DIMMs must be populated equally among nodes (uniform topology).

Restrictions for HANA Scale-out

- If an application allows scale-out of HANA, the number of nodes in a cluster solution is limited to 16 for SAP HANA on IBM Power.

Infrastructure and Virtualizationrequirements for production

- SAP generally recommends 10Gb connectivity between all components involved. 10Gbps connectivity is a requirement only for HANA scale-out systems. For more details please check the HANA Master Guide or the SCN article at http://scn.sap.com/docs/DOC-63221.
- External and internal disks can be used as long as they fulfill the requirements set by the HWCCT tool. See SAP Note 1943937 for details.
- Please see SAP Note 2230704 for details on the requirements with regards to LPAR configuration

Linux Operating System

SAP HANA on Power is supported on SLES 11 SP4. For details on how to configure SLES to run SAP HANA, please see SAP Note 2235581.

In addition, please install the service and productivity tools for Power available at https://www-304.ibm.com/webapp/set2/sas/f/lopdiags/suselinux/hmcmanaged/sles11.html (powerpc_utils)

Storage and Filesystems for HANA Data and Log areas:

Productions systems may utilize xfs and gpfs file systems, with the following pre-requisites:

- xfs needs to have multipathing enabled.
- xfs is supported for internal and SAN attached storage.
- gpfs is supported only with external storage systems attached via NAS.
- gpfs FPO (File Placement Optimizer) is not supported.

In all cases only SAP HANA TDI certified storage may be used.

In all cases storage must fulfill the requirements set by the HWCCT tool. See SAP Note 1943937 for details.

A Best Practices Guide on how to configure SAP HANA TDI certified IBM Storage Systems can be found at: http://www-03.ibm.com/support/techdocs/atsmastr.nsf/WebIndex/WP102347

A Best Practices Guide on how to configure the IBM Elastic Storage Server (ESS) for the gpfs case can be found at: http://www-03.ibm.com/support/techdocs/atsmastr.nsf/WebIndex/WP102644

Tuning and Settings:

Apply SAP Note 2240716 with the following power specific considerations:

- For SUSE SLES 11 ignore transparent huge pages and c-state information. These two have different technologies on IBM Power Servers.

SAP Note 1944799 mostly applies for HANA on Power deployments. This note reflects the experience gathered over years for the Intel Appliances. Please be aware of following:

- Upgrade of a SUSE SLES Service Pack:
  The allowed SUSE Service Packs for a specific SAP HANA SPS are initially documented in this note; the documentation will move into the SAP PAM. The SAP PAM supersedes this note.
- Install updates in the same SUSE SLES SP level:
  There are different SAP Notes listing additional packages to be installed on top. Always pick the highest documented version as a minimum level (higher versions are fine unless explicitly excluded).
- Please reflect the limitations in the context of SAP HANA Operations, OS and Power capabilities.
- If any doubts occur or incompatible statements are found, please open an SAP Incident.

Non-Production relaxations of the requirements for SAP HANA on IBM Power Servers:

- Allowed are all POWER8^{TM} and POWER7+^{TM} based servers.
- There are no restrictions with regards to the maximum memory per core in the non-production HANA LPARs.
- The minimum core count per HANA LPAR is 2. For HANA LPARs running in a shared processor pool environment this means, that the minimal entitlement of cores is 2.
- HANA LPARS can be run in a dedicated or dedicated donating mode or in a shared processor pool.
- For HANA LPARS running in a shared processor pool the following applies:
  - A performance penalty should be expected as workload can move between CPUs.
  - HANA production LPARS are not allowed in a shared processor pool.
  - A shared processor pool may also run other workload than SAP HANA non production LPARS.
- Storage size for SAP HANA data may be limited to 1 times the size of the memory available per HANA LPAR (see the Storage Whitepaper attached to Note 1900823 for recommendations for production systems). As a consequence the overall storage size for HANA data and log may be limited to 2 times the size of the memory allocated per HANA LPAR.
- Besides xfs also NFS, GPFS and ext3 filesystems are supported.
- Standard Network Components are admitted.

This document refers to

SAP Note/KBA	Title
2235581	SAP HANA: Supported Operating Systems
2230704	SAP HANA on IBM Power Systems with multiple - LPARs per physical host
2227464	SAP HANA Platform SPS 11 Release Note
2188482	SAP HANA on IBM Power Systems: Allowed Hardware

2161344	HWCCT patch note
1944799	SAP HANA Guidelines for SLES Operating System Installation
1943937	Hardware Configuration Check Tool - Central Note
1900823	SAP HANA Storage Connector API
1666670	SAP BW powered by SAP HANA - Landscape Deployment Planning

This document is referenced by

SAP Note/KBA	Title
2227464	SAP HANA Platform SPS 11 Release Note
2188482	SAP HANA on IBM Power Systems: Allowed Hardware
2133369	SAP HANA on IBM Power Systems: Central Release Note for SPS 09 and SPS 10
2235581	SAP HANA: Supported Operating Systems
1944799	SAP HANA Guidelines for SLES Operating System Installation
2230704	SAP HANA on IBM Power Systems with multiple - LPARs per physical host
2227464	SAP-HANA-Plattform SPS 11: Release-Informationen
2188482	SAP HANA auf IBM Power Systems: zulässige Hardware
2235581	SAP HANA: Unterstützte Betriebssysteme
1944799	SAP-HANA-Richtlinien für SLES-Betriebssysteminstallation
2230704	SAP HANA auf IBM Power Systems mit mehreren LPARs pro physischem Host

Attachments

File Name	File Size	Mime Type
installation-messages-PTF_kernel.txt	6	text/plain