

# SAP HANA Operation Expert Summit

## PLAN - Hardware Landscapes

Addi Brosig, SAP HANA Product Management

May 2014

The SAP logo is located in the bottom left corner of the slide. It consists of the letters 'SAP' in a bold, white, sans-serif font, set against a dark blue rectangular background. The background of the entire slide is a blue-toned image of a person's silhouette holding a magnifying glass over a globe, with a circuit board pattern overlaid on the scene.

# Disclaimer

---

This presentation outlines our general product direction and should not be relied on in making a purchase decision. This presentation is not subject to your license agreement or any other agreement with SAP.

SAP has no obligation to pursue any course of business outlined in this presentation or to develop or release any functionality mentioned in this presentation. This presentation and SAP's strategy and possible future developments are subject to change and may be changed by SAP at any time for any reason without notice.

This document is provided without a warranty of any kind, either express or implied, including but not limited to, the implied warranties of merchantability, fitness for a particular purpose, or non-infringement. SAP assumes no responsibility for errors or omissions in this document, except if such damages were caused by SAP intentionally or grossly negligent.

# Agenda

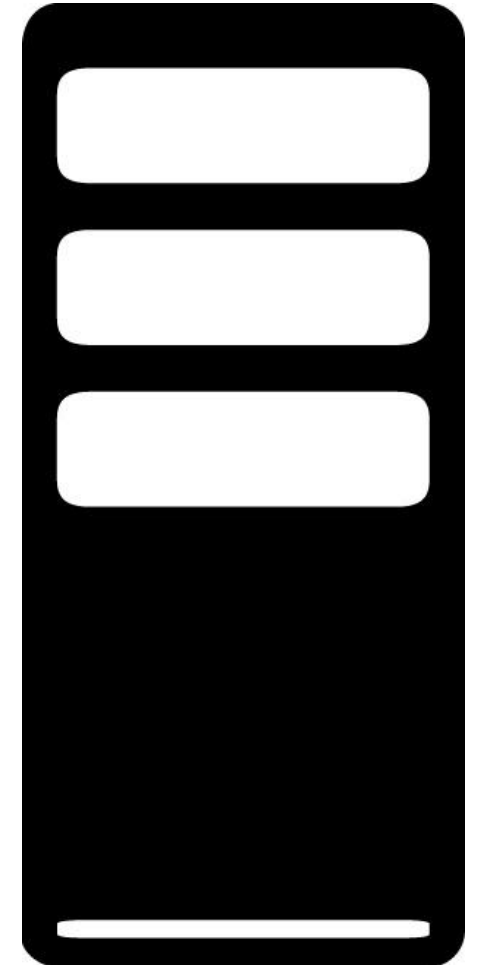
---

- SAP HANA hardware platform update
- SAP HANA tailored datacenter integration

# Hardware and Deployment Options

## Current SAP HANA Setup

Application	<ul style="list-style-type: none"><li>• Any</li></ul>
Database	<ul style="list-style-type: none"><li>• SAP HANA</li></ul>
Operation System	<ul style="list-style-type: none"><li>• SUSE/SLES Redhat</li></ul>
Virtualization	<ul style="list-style-type: none"><li>• VMware productive</li></ul>
Server	<ul style="list-style-type: none"><li>• CPU type: Intel E7 with up to 6 TB RAM</li></ul>
Network	<ul style="list-style-type: none"><li>• Client Zone/ Internal Zone/ Storage Zone</li></ul>
Storage	<ul style="list-style-type: none"><li>• Appliance delivery approach</li><li>• SAP HANA tailored data center integration</li></ul>



# Hardware and Deployment Options

## SAP HANA bare metal / appliance offerings



### Single Server

2 CPU 128GB to 8 CPU 6TB

Single SAP HANA deployments for data marts or accelerators

Support for high availability and disaster recovery



### Scale Out Cluster

2 to n servers per cluster

Each server is either 4 CPU/ 1 TB or 8 CPU/ 2TB

Largest certified configuration: 56 servers

Largest tested configuration: 100+ servers

Support for high availability and disaster tolerance





# Intel® Xeon® Processor E7 Family

Significant Generational Improvements



	Intel® Xeon® processor E7-8800/4800/2800 product families (code name Westmere EX)	Intel® Xeon® processor E7-8800/4800/2800 v2 product families (code name Ivy Bridge EX)
Process Technology	32nm	22nm
Cores / Threads	Up to 10 / 20 per socket	Up to 15 / 30 per socket
L3 Cache Size	Up to 30M	Up to 37.5M
Memory Capacity	Up to 16 DIMMs per socket 32GB max DIMM Density Up to 2TB in 4S / Up to 4TB in 8S	Up to 24 DIMMs per socket 64GB max DIMM Density Up to 6TB in 4S / Up to 12TB in 8S
Max Memory Speed	Up to 1066MHz	Up to 1600MHz
I/O Bandwidth	Up to 72 lanes PCIe* 2.0 (dual IOH)	Up to 32 Integrated PCIe* 3.0 lanes per socket
Intel® QPI Bandwidth	Up to 4 x 6.4 GT/s per socket	Up to 3 x 8.0 GT/s per socket
RAS	Advanced	Previous Gen + eMCA Gen 1, MCA Recovery – Execution Path, MCA IO, PCI LER
Platform Technologies	Intel® Turbo Boost Technology, Intel® TXT, Intel® Dynamic Power, Intel® VT-x, Intel VT-d, Intel® I/OAT/CB3 Technology, Intel® Node Manager, TPM 1.2 and more	Previous Gen + Intel® Secure Key + Intel® OS Guard + Intel® Integrated I/O + Intel® Direct Data I/O + Node Manager 2.0 + Intel® AVX + APICv

Source: Intel Cooperation

# SAP HANA – Ivybridge EX reference systems



## SAP HANA data mart and SAP BW powered by SAP HANA optimized hardware configurations

Preconfigured system sizes



### System requirements for the listed system sizes:

- DIMM setting: homogenous symmetric assembly of DIMMs and maximum utilization of all available memory channels
- Supported CPU's are Ivybridge EX 2880, 4880, 8880, or Ivybridge EX 2890, 4890, 8890
- Storage requirements (the storage media itself needs to be protected from failures):
  - Log volume ½ of the RAM size for systems ≤ 256 GB RAM and min. ½ TB for systems ≥ 512GB
  - Data volume 3x RAM
  - HANA share 1x RAM

<b>Single node</b>	The number of cores are the minimal numbers!
<b>128GB RAM</b>	2x 15 cores Intel IVY CPU on 2 or 4 socket server system
<b>256GB RAM</b>	2x 15 cores Intel IVY CPU on 2 or 4 socket server system
<b>512GB RAM</b>	2x 15 cores Intel IVY CPU on 2 or 4 socket server system
<b>1.0TB RAM</b>	4x 15 cores Intel IVY CPU on 4 or 8 socket server system
<b>2.0TB RAM</b>	8x 15 cores Intel IVY CPU on 8 socket server system
<b>Scale Out</b>	Fully non-blocking network, up to 16 nodes through standard certification
<b>512GB, 1.0TB</b>	4x 15 cores Intel IVY CPU on 4 or 8 socket server system
<b>2.0 TB RAM</b>	8x 15 cores Intel IVY CPU on 8 socket server system

## SAP Business Suite powered by SAP HANA optimized hardware configurations

Preconfigured system sizes



### System requirements for the listed system sizes:

- DIMM setting: homogenous symmetric assembly of DIMMs and maximum utilization of all available memory channels
- Supported CPU's are Ivybridge EX 2880, 4880, 8880, or Ivybridge EX 2890, 4890, 8890
- Storage requirements (the storage media itself needs to be protected from failures):
  - Log volume ½ of the RAM size for systems ≤ 256 GB RAM and min. ½ TB for systems ≥ 512GB
  - Data volume 3x RAM
  - HANA share 1x RAM

<b>Single node</b>	The number of cores are the minimal numbers!
<b>128GB RAM</b>	2x 15 cores Intel IVY CPU on 2 or 4 socket server system
<b>256GB RAM</b>	2x 15 cores Intel IVY CPU on 2 or 4 socket server system
<b>512GB RAM</b>	2x 15 cores Intel IVY CPU on 2 or 4 socket server system
<b>1.0TB RAM</b>	4x 15 cores Intel IVY CPU on 4 or 8 socket server system
<b>2.0TB RAM</b>	4x 15 cores Intel IVY CPU on 4 or 8 socket server system
<b>4.0TB RAM</b>	8x 15 cores Intel IVY CPU on 8 socket server system
<b>6.0TB RAM</b>	8x 15 cores Intel IVY CPU on 8 socket server system
<b>Scale Out*</b>	Fully non-blocking network, up to 16 nodes through standard certification
<b>6.0 TB RAM</b>	8x 15 cores Intel IVY CPU on 8 socket server system

\* SAP Business Suite powered by SAP HANA scale out HW configuration only recommended if 6 TB sizing is exceeded.



# SAP HANA certified Ivy Bridge based solutions portfolio

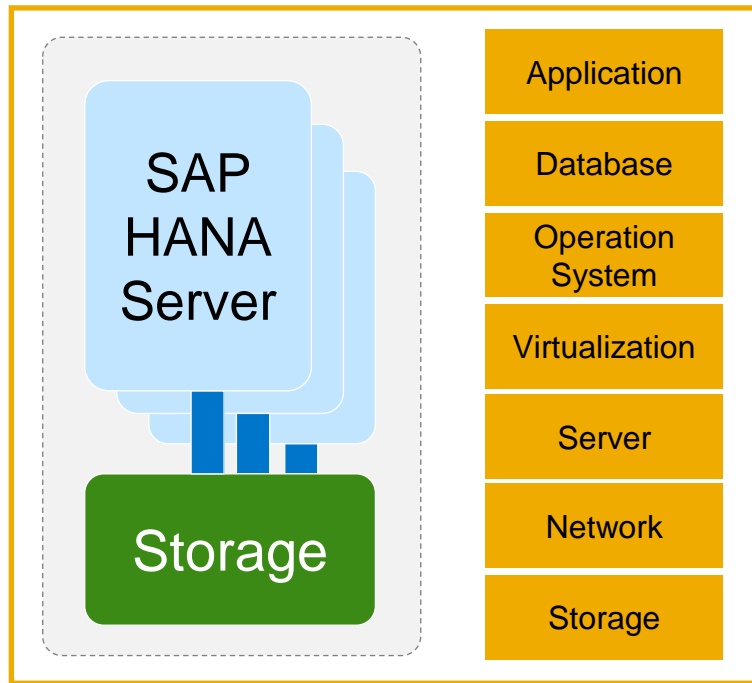
	IBM	HP	Fujitsu	Cisco	Dell	Hitachi	NEC	Huawei	VCE
Single Node 2 socket				Planned April		Planned June	Planned May		n.a.
Single Node 4 socket				Planned April		Planned June	Planned May		n.a.
Single Node 8 socket	*	Planned Sept.		n.a.	n.a.	Planned June	n.a.	?	n.a.
Scale out 4 socket			Planned April	Planned May	Planned June	Planned Q3	?		Planned June
Scale out 8 socket	Planned April*	Planned Q1 2015	Planned June	n.a.	n.a.	Planned Q3	n.a.	?	n.a.

\* Planned GA date from IBM June 2014

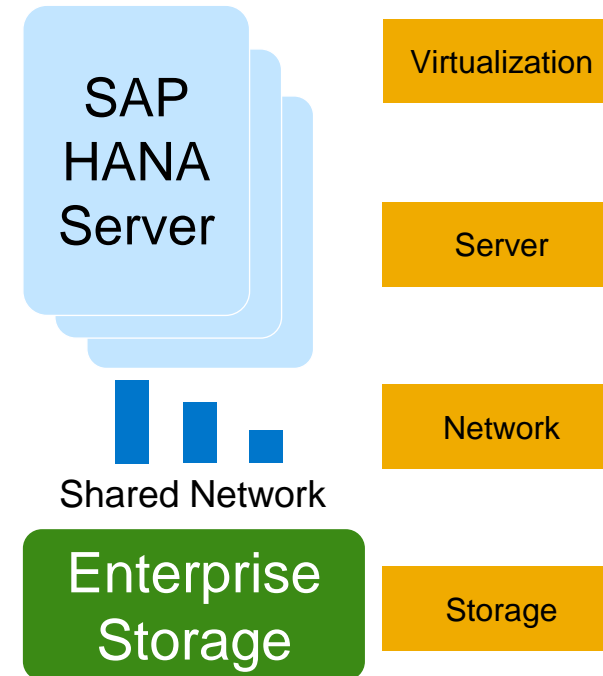
# Hardware and Deployment Options

## SAP HANA Tailored Data Center Integration

Compared to the appliance delivery approach, SAP HANA tailored data center integration is an additional more open and flexible approach to serve your needs regarding the integration of SAP HANA in the data center.



**Appliance delivery approach**



**SAP HANA tailored data center integration**

# Hardware and Deployment Options

## Server, CPU and more

### Important Information:

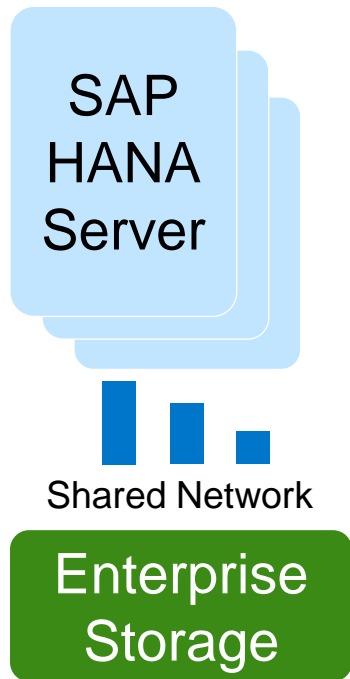
- **Supported server** - Only servers listed in the [SAP HANA Product Availability Matrix](#) or on [SCN Page](#) are supported.
- **SAP HANA tailored data center integration:**
  - No local disks and no flash cards are required.
  - Additional Fibre Channel adapters for a boot from storage-area network are allowed.
- **Outlook new shared network:**
  - Seamless integration in existing network landscapes

Application
Database
Operation System
Virtualization
Server
Network
Storage

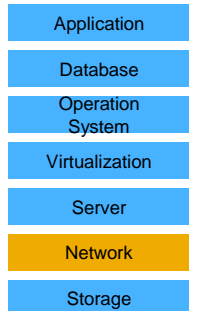
# Hardware and Deployment Options

## SAP HANA Tailored Data Center Integration – Enterprise Network

In the framework of SAP HANA tailored data center integration, we plan to open more and more component layers for SAP HANA.



- **Pilot Customer Program:**
- We started a pilot customer program for **SAP HANA tailored data center integration for enterprise network** for a limited number of customers in December, 2013.
- **General Information** - Check out the [blog post](#), the [SAP HANA Master Guide, chapter 2 "The SAP HANA Network"](#) and the [SAP HANA Security Guide, chapter 4](#).
- Please contact:  
[sap\\_hana\\_tailored\\_data\\_center\\_integration@sap.com](mailto:sap_hana_tailored_data_center_integration@sap.com).







# Thank you!

Contact information:

Addi Brosig  
SAP HANA Product Management

# © 2014 SAP AG or an SAP affiliate company. All rights reserved.

---

No part of this publication may be reproduced or transmitted in any form or for any purpose without the express permission of SAP AG or an SAP affiliate company.

SAP and other SAP products and services mentioned herein as well as their respective logos are trademarks or registered trademarks of SAP AG (or an SAP affiliate company) in Germany and other countries. Please see <http://global12.sap.com/corporate-en/legal/copyright/index.epx> for additional trademark information and notices.

Some software products marketed by SAP AG and its distributors contain proprietary software components of other software vendors.

National product specifications may vary.

These materials are provided by SAP AG or an SAP affiliate company for informational purposes only, without representation or warranty of any kind, and SAP AG or its affiliated companies shall not be liable for errors or omissions with respect to the materials. The only warranties for SAP AG or SAP affiliate company products and services are those that are set forth in the express warranty statements accompanying such products and services, if any. Nothing herein should be construed as constituting an additional warranty.

In particular, SAP AG or its affiliated companies have no obligation to pursue any course of business outlined in this document or any related presentation, or to develop or release any functionality mentioned therein. This document, or any related presentation, and SAP AG's or its affiliated companies' strategy and possible future developments, products, and/or platform directions and functionality are all subject to change and may be changed by SAP AG or its affiliated companies at any time for any reason without notice. The information in this document is not a commitment, promise, or legal obligation to deliver any material, code, or functionality. All forward-looking statements are subject to various risks and uncertainties that could cause actual results to differ materially from expectations. Readers are cautioned not to place undue reliance on these forward-looking statements, which speak only as of their dates, and they should not be relied upon in making purchasing decisions.