

# SAP HANA Operation Expert Summit

## PLAN – Sizing

### A Teaser for Sizing SAP HANA Platform

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# Towards a Holistic Technical Deployment – Impact of Sizing

## Two Customer Examples (1/2)

### Proposal for technical system deployment to achieve the following goals:

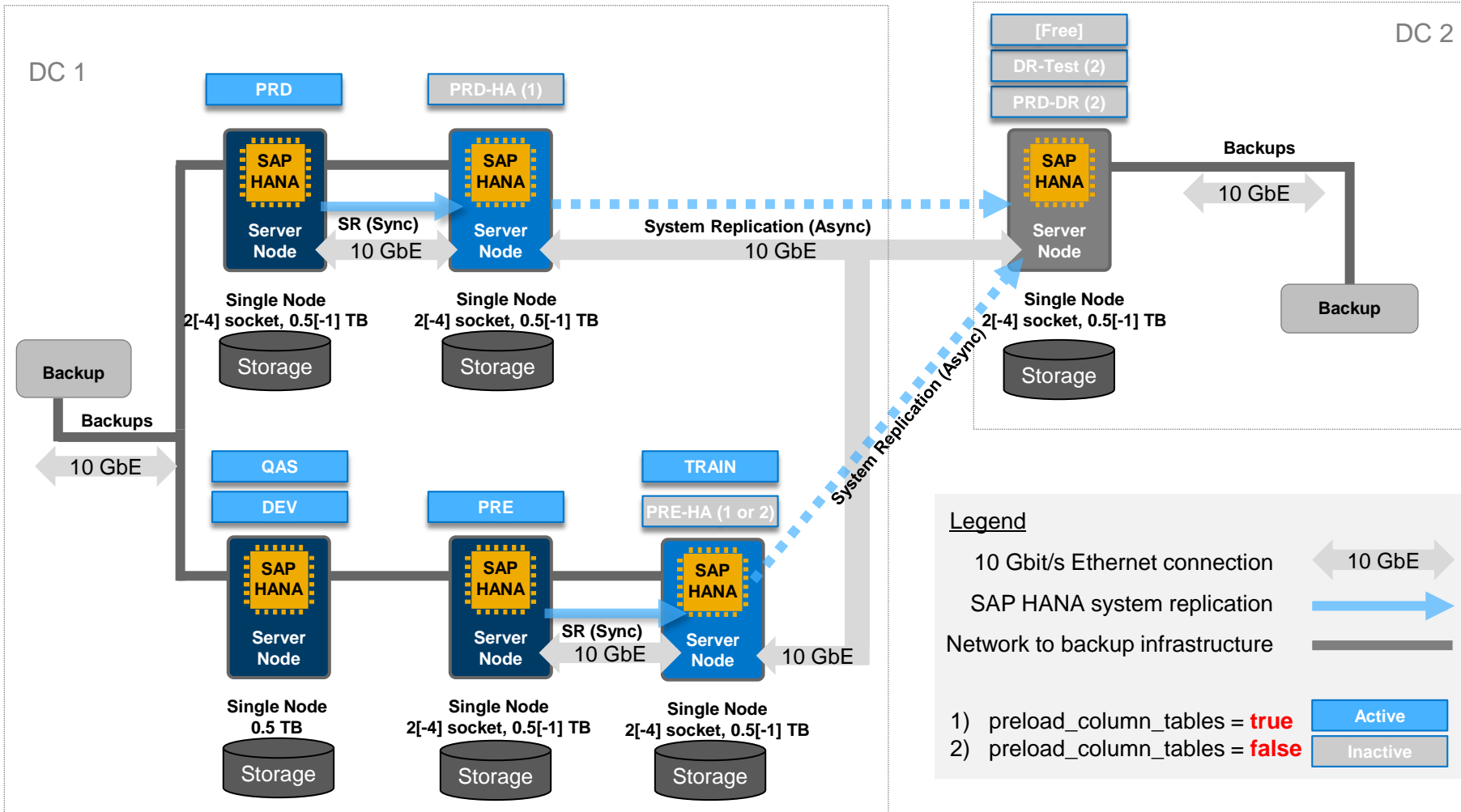
- Very good High Availability (HA) for SAP ERP, a medium HA for SAP BW/ SAP CRM/ SAP SCM
- Allow for load testing, have a play system, getting to know SAP HANA platform. This system can be re-used at a later point in time.
- Total TB deployed: 9.5-11 TB in total across 9 hosts

System	ERP	BW	CRM	SCM	Comment
<b>PRD</b>	2 TB	1 TB	.5 TB	.5 TB	
<b>HA/DR</b>	2 TB	1 TB	1-2 TB		<ul style="list-style-type: none"> <li>• Because SAP ERP is large and critical, have separate, real HA. <b>RTO* &lt; 1 hour</b> (automated failover in the future)</li> <li>• The 3 smaller systems run against one server using MCOS* <b>RTO* = 1-2 hours</b> (manual failover, shutdown and re-start)</li> </ul>
<b>QAS</b>		1 TB			<ul style="list-style-type: none"> <li>• 4 systems on one host using MCOS*. <b>Note: impact on storage sizing!</b></li> <li>• Different permutations possible: Either have all QAS and DEV together or share ERP+SCM QAS/DEV and BW+CRM QAS/DEV.</li> <li>• Important: PERF should be used for load testing. Can be re-used, once implementations are more mature. E.g. for CRM system or failover.</li> </ul>
<b>DEV</b>		.5-1 TB			
<b>PERF</b> <small>(temporary, can be re-assigned)</small>		1-2 TB			

\* HA = High Availability; DR = Disaster Recovery; RTO = Recovery Time Objective; RPO = Recovery Point Objective; MCOS = Multiple Components One System

# Towards a Holistic Technical Deployment – Impact of Sizing

## Two Customer Examples (2/2)



### Proposal for data center layout for one system to achieve the following goals:

- Very good HA and DR to a data center more than 300 KM away
- View to scale hardware for future growth

# Sizing for SAP HANA database is Simple and Rather Straight Forward

Starting Point	Sizing for SAP BW powered by SAP HANA	Sizing for SAP Business Suite powered by SAP HANA
Greenfield / new implementation	Quick Sizer questionnaire for SAP BW powered by SAP HANA	Quick Sizer questionnaires plus additional formula
Migration	Sizing report for SAP BW powered by SAP HANA	Sizing report for SAP Business Suite powered by SAP HANA
Documentation in SAP Notes	1736976 <a href="#">Sizing Report for BW on HANA</a>	1872170 <a href="#">Suite on HANA memory sizing</a> 1793345 <a href="#">Sizing for SAP Suite on HANA</a>

## General assumptions and preconditions

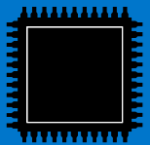
- Memory is the main driver
- There is sufficient CPU capacity
- Storage requirements are derived from Memory

# Additional Sizing Steps for a More Detailed Sizing per KPI



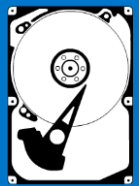
## Memory

- Use the report result to determine the best hardware options.
- Assess the sizing report results for largest contributors to row store and column store
- Perform Data Volume Management (DVM) “quick win” assessment



## CPU

- Check if the planned hardware capacity will be sufficient to handle the workload (in a single node, this ranges from ~70,000 SAPS in a 2-socket machine to ~260,000 SAPS in an 8-socket machine).
- Note that because of its platform and parallelization capabilities SAP HANA will consume more resource at peak times



## Disk Size Disk I/O

- Storage is either part of the appliance or, if you use your own Enterprise storage, there is a simple formula to calculate the volumes for data, log and backup.
- I/O is checked for the appliance and in case of Enterprise storage, SAP provides a check tool



## Network Load

- SAP provides recommendations for inter-node network in case of scale-out, as well as recommendations for the client network, the application server network and the backup and storage network.
- The network bandwidth between data center influences the times for high availability and disaster recovery

# Examples for Sizing Report Results Excerpts

## Example for SAP BW powered by SAP HANA report result

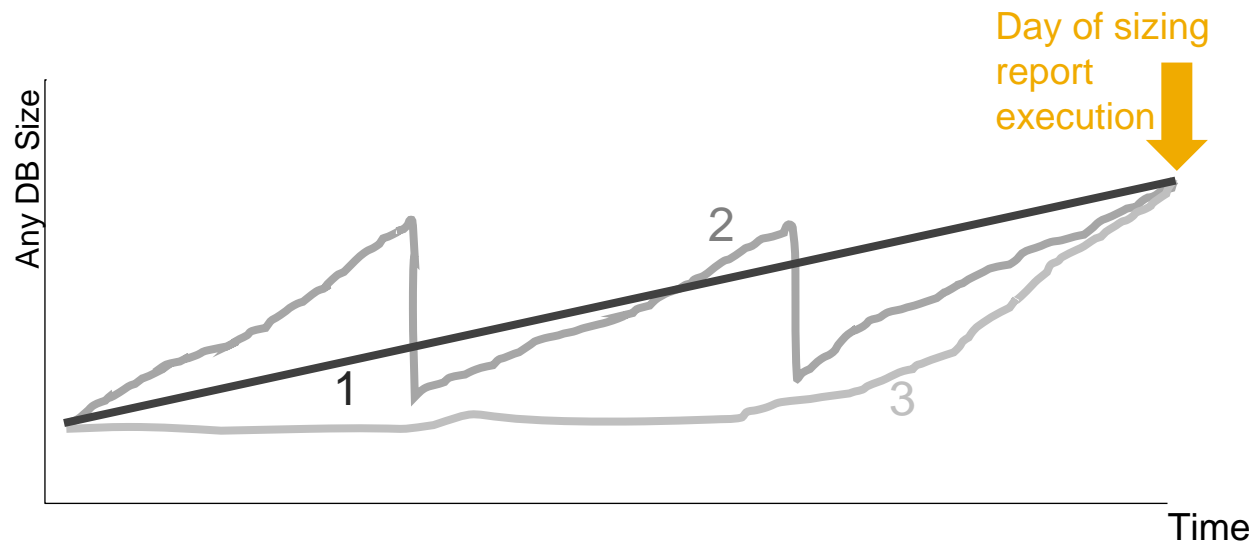
	Phys. memory per node:	512 GB	1024 GB
Memory Requirement (Minimum Total):		4315 GB	4115 GB
Disk Space Requirement - data (Minimum Total):		4315 GB	4115 GB
Disk Space Requirement - logs (Minimum Total):		4315 GB	4115 GB
Number of Nodes incl. master (Minimum Total):		9	5
NOTE:			
- Please carefully read documentation attached to SAP NOTE 1736976 for a detailed description of the sizing procedure and its results!			
- Disk space requirement calculation no longer includes space for backups dumps, etc. This space has to be provided on additional disk volumes. The guidance for sizing these additional requirements is described within the documentation attached to SAP Note 1736976.			
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SIZING DETAILS			
=====			
(For 512 GB node)	data [GB]	total [GB] incl. tmp.	
MASTER:			
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Row Store	106	206	
Master Column Store	73	146	
Caches / Services	50	50	
TOTAL (MASTER)	229	402	
SLAVES:			
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Slave Column Store	1757	3513	
Caches / Services	400	400	
TOTAL (SLAVES)	2157	3913	
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TOTAL (All Servers)	2386	4315	

## Example for SAP Business Suite powered by SAP HANA report result

HANA MEMORY COMPONENTS	ESTIMATED SIZE IN HANA
Column Store tables in MB:	467522.0
of which is LOB:	415223.4
Column Store keys in MB:	118119.2
including:	
- Primary keys:	96208.4
- Row ID:	21196.1
- Udiv:	541.7
- Secondary unique keys:	173.0
Row Store tables in MB:	27230.4
of which is LOB:	12632.7
Row Store primary keys in MB:	5213.9
Row Store secondary keys in MB:	8808.5
Memory requirement for column store data in MB:	585641.2
Memory requirement for row store data in MB:	41252.8
Total memory requirement for the data in MB:	626894.0
Total memory requirement for the data in GB:	612.2
Fixed size for code, stack and other services in GB:	50.0
Based on the selected table(s), the maximum anticipated memory requirement (data, work space and fixed size) in GB is:	1274.4

# Still More Food for Thought

## Past Growth Profile → Anticipated Growth Profile?



1. Steady profile indicating organic growth, maybe with regular housekeeping, maybe not. Is the one most people have in their minds.
2. The saw-tooth profile of companies that perhaps perform housekeeping and data archiving at regular intervals.
3. The dynamic profile can be caused by a complete lack of housekeeping, archiving or deletion, or is can mean go-lives of business units.

How to do a sizing without a sizing report?

## How to plan for growth?

How to use the Quick Sizer?

How to avoid “byte-sizing” in case of hardware boundaries?

How to plan beyond migration, i.e. for a different kind of usage? E.g. SAP HANA Live?

How to size non-production systems?

What is generally better, scale-up or scale-out?



# Sizing Information and Service Offering

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## SAP HANA Sizing Tool and Notes on the Service Marketplace

<http://service.sap.com/quicksizing>

<http://service.sap.com/notes>

- [1736976 Sizing Report for BW on HANA](#)
- [1872170 Suite on HANA memory sizing](#)
- [1793345 Sizing for SAP Suite on HANA](#)

## SAP AGS IT Planning offering for MaxAttention customers

<http://wiki.scn.sap.com/wiki/display/ITP/IT+Planning>



# Thank you

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