



SIZING GUIDE | PUBLIC
SAP Marketing
2019-09-13

Sizing Guide

Content

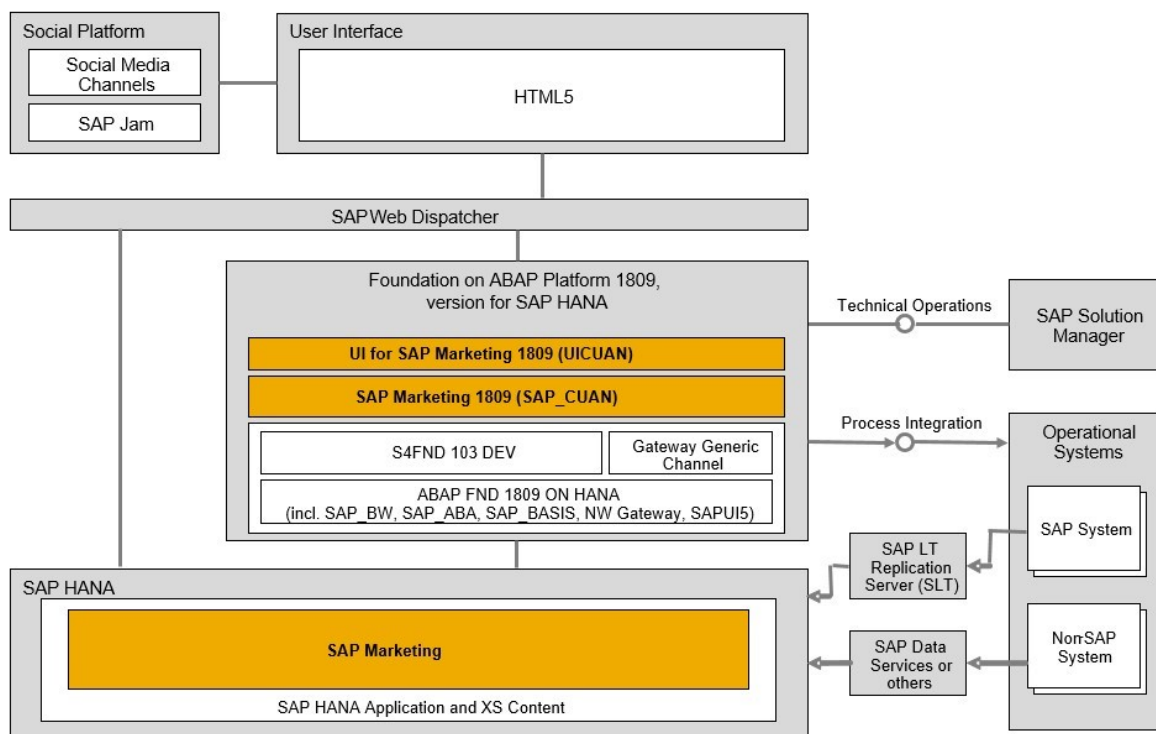
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1 Introduction

SAP Marketing provides a central entry point for all relevant information about a customer/consumer. This application enables sales persons such as sales managers or marketing managers to analyze revenue and margin results, as well as financial information, to invest the right resources in the right customers, products and channels. The application also allows for analyzing the customer relationships. It supports customer-focused business areas, such as marketing and sales, from strategy to execution.

For details regarding functionality, please checkout documentation: <https://help.sap.com/mkt-op>

Architecture of SAP Marketing



Factors that Influence the Performance

SAP Marketing benefits from SAP HANA features, such as high performance in the execution of analytical queries, thanks to optimal parallelization. The runtime of analytical queries is mainly influenced by the size of joined tables, such as Sales Orders, Invoices, Contact Persons, Addresses, Products, Conditions, Interactions or other tables with high volume.

Furthermore, if customers will create own model views for Segmentation, the model design will influence performance as well. To reach optimal performance for Segmentation, the query parallelization will be done on SAP HANA DB as well as on the backend ABAP Server. The backend parallelization is described in chapter "Configuring Segmentation" of the Installation Guide that can be found on the SAP Help Portal at <http://help.sap.com/mkt-op>.

The type and version of the web browser that will be used influences the performance too. SAP is not authorized to provide recommendation for 3rd-party software and hardware, such as web browsers or mobile devices. Due to dynamic changes in the performance qualities of web browser and continuous evolution of mobile devices - new releases, performance fixes for old releases and so on, consider to perform an evaluation of browsers and devices in the Customer environment.

2 Document History

The following table provides an overview of the most important document changes.

Document History

Date	Description
2018-09-24	Initial version for Sizing Guide 1809

We'd really like to know what you think of the quality, structure or content of this guide. Please send your feedback to us at <mailto:feedback4sapmarketing@sap.com>.

3 Sizing Fundamentals and Terminology

SAP provides general sizing information on <http://www.sap.com/sizing>. For the purpose of this guide, we assume that you are familiar with sizing fundamentals. This section explains the most important sizing terms, as these terms are used extensively in this document.

Sizing

Sizing means determining the hardware requirements of an SAP application, such as network bandwidth, physical memory, CPU processing power, and I/O capacity. The size of the hardware and database is influenced by both business aspects and technological aspects. This means that the number of users using the various application components and the data load they put on the server must be taken into account.

Benchmarking

Sizing information can be determined using SAP Standard Application Benchmarks (<http://www.sap.com/benchmark>). Released for technology partners, benchmarks provide basic sizing recommendations to customers by placing a substantial load upon a system during the testing of new hardware, system software components, and relational database management systems (RDBMS). All performance data relevant to the system, user, and business applications are monitored during a benchmark run and can be used to compare platforms.

SAPS

The SAP Application Performance Standard (SAPS) is a hardware-independent unit that describes the performance of a system configuration in the SAP environment. It is derived from the Sales and Distribution (SD) Benchmark, where 100 SAPS is defined as the computing power to handle 2,000 fully business processed order line items per hour. (For more information about SAPS, see <http://www.sap.com/benchmark> → Measuring in SAPS).

Initial Sizing

Initial sizing refers to the sizing approach that provides statements about platform-independent requirements of the hardware resources necessary for representative, standard delivery SAP applications. The initial sizing guidelines assume optimal system parameter settings, standard business scenarios, and so on

Expert Sizing

This term refers to a sizing exercise where customer-specific data is being analyzed and used to put more detail on the sizing result. The main objective is to determine the resource consumption of customized content and applications (not SAP standard delivery) by comprehensive measurements. More information can be found under [Expert Sizing and Methods of Sizing Validation](#).

Configuration and System Landscaping

Hardware resource and optimal system configuration greatly depend on the requirements of the customer-specific project. This includes the implementation of distribution, security, and high availability solutions by different approaches using various third-party tools. In the case of high availability through redundant resources, for example, the final resource requirements must be adjusted accordingly.

4 Initial Sizing for SAP Marketing

Assumptions

The typical data volumes in a customer system are classified in categories XS (Xtra Small Volume), S (Small Volume), M (Medium Volume), L (Large Volume) and XL (Xtra Large Volume) - see definitions below.

SAP ERP Data

ERP Database Table	XS	S	M	L	XL
Corporate Accounts (KNA1)	< 100.000	100.000- 500.000	500.000- 1.000.000	1.000.000- 5.000.000	>5.000.000
Corporate Accounts, Sales Data (KNNV)	< 100.000	100.000- 500.000	500.000- 1.000.000	1.000.000- 5.000.000	>5.000.000
Addresses Corporate Accounts (ADRC)	< 100.000	100.000- 500.000	500.000- 1.000.000	1.000.000- 5.000.000	>5.000.000
Sales Orders, Header Data (VBAK)	<2.000.000	2.000.000- 5.000.000	5.000.000- 10.000.000	10.000.000- 50.000.000	>50.000.000
Sales Orders, Item Data (VBAP)	<8.000.000	8.000.000- 20.000.000	20.000.000- 40.000.000	40.000.000- 200.000.000	>200.000.000
Billing Documents, Header Data (VBRK)	<2.000.000	2.000.000- 5.000.000	5.000.000- 10.000.000	10.000.000- 50.000.000	>50.000.000
Billing Documents, Item Data (VBRP)	<8.000.000	8.000.000- 20.000.000	20.000.000- 40.000.000	40.000.000- 200.000.000	>200.000.000
Sales Orders, Business Data (VBKD)	<8.000.000	8.000.000- 20.000.000	20.000.000- 40.000.000	40.000.000- 200.000.000	>200.000.000

ERP Database Table	XS	S	M	L	XL
Sales Document Flow (VBFA)	<8.000.000	8.000.000- 20.000.000	20.000.000- 80.000.000	80.000.000- 400.000.000	>400.000.000
Conditions, PricingData (KONV)	<10.000.000	10.000.000- 40.000.000	40.000.000- 200.000.000	200.000.000- 1.000.000.000	>1.000.000.000

Data Management Data

SCI Database Tables	XS	S	M	L	XL
Contacts/Corporate Accounts	<150.000	150.000- 500.000	500.000- 1.500.000	1.500.000- 15.000.000	>15.000.000
Social Post Tags	<400.000	400.000- 800.000	800.000- 2.000.000	2.000.000- 10.000.000	>10.000.000
Interactions	<600.000	600.000- 5.000.000	5.000.000- 10.000.000	10.000.000- 100.000.000	>100.000.000

SAP CRM Data

SAP CRM Database Table	XS	S	M	L	XL
Business Partner (BUT000)	<1.000.000	1.000.000- 2.000.000	2.000.000- 5.000.000	5.000.000- 25.000.000	>25.000.000
Address Number (BUT021_FS)	<1.000.000	1.000.000- 2.000.000	2.000.000- 5.000.000	5.000.000- 25.000.000	>25.000.000
Addresses (ADRC)	<1.000.000	1.000.000- 2.000.000	2.000.000- 5.000.000	5.000.000- 25.000.000	>25.000.000
Partner Roles (BUT100)	<2.000.000	2.000.000- 5.000.000	5.000.000- 10.000.000	10.000.000- 50.000.000	>50.000.000
Activities (CRMD_DHR_ACTIV)	<4.000.000	4.000.000- 10.000.000	10.000.000- 50.000.000	50.000.000- 250.000.000	>250.000.000

SAP CRM Data- base Table	XS	S	M	L	XL
Leads (CRMD_DHR_LEA D)	<2.000.000	2.000.000- 5.000.000	5.000.000- 25.000.000	25.000.000- 125.000.000	>125.000.000
Opportunity Header (CRMD_DHR_HEA DOPP)	<2.000.000	2.000.000- 5.000.000	5.000.000- 25.000.000	25.000.000- 125.000.000	>125.000.000
Opportunity Item (CRMD_DHR_ITE MOPP)	<2.000.000	2.000.000- 5.000.000	5.000.000- 25.000.000	25.000.000- 125.000.000	>125.000.000
Sales Order Header (CRMD_DHR_HSL SORD)	<2.000.000	2.000.000- 5.000.000	5.000.000- 25.000.000	25.000.000- 125.000.000	>125.000.000
Sales Order Item (CRMD_DHR_ISL- SORD)	<2.000.000	2.000.000- 5.000.000	5.000.000- 25.000.000	25.000.000- 125.000.000	>125.000.000
Products (COMM_PRSHTEX T)	<500.000	500.000- 2.000.000	2.000.000- 10.000.000	10.000.000- 50.000.000	>50.000.000

Sizing Guideline for SAP Marketing

Application Server Sizing

CPU Sizing for Application Server

The "number of scenarios per hour" is calculated out of the target response time, the average think time, the 8 scenario dialog steps and the number of concurrent users.

SAP recommends a minimum 800 SAPS hardware capacity for SAP ABAP Server to guarantee good response times. This is sufficient to handle up to 20 concurrent users with a good distribution of UI navigations, i.e. no resonance effects, such as for example all users do a click at the very same moment. These numbers are valid for the SAP Marketing applications ((please see specific application server sizing when using the Campaign Content functionality below) and must to be added to the requirements of all other components running on the same server (that is SAP NetWeaver plus additional Addons.).

CPU Sizing for Application Server

Up to ... Concurrent Users	Up to ... Scenarios per Hour	ABAP Server SAPS with Small Data Volume	ABAP Server SAPS with Medium Data Volume	ABAP Server SAPS with Large Data Volume
20	1000	800	800	800
50	2500	800	800	1400
100	5000	1400	1600	2400
> 100	Contact SAP			

Campaign Automation delivered with release 1508

With the Campaign Content functionality it is possible to send Emails/SMS to a group of Contacts that are assigned to Campaigns. The send mechanism is realized using the application server and therefore the load can be much higher than for other SAP Marketing applications depending on the number of Contacts of a single Campaign.

We calculate with a standard package size of 100 and 10 work processes in parallel (result: 1000 Emails/SMS send out in parallel).

The following table will show different cases for average sizes:

10 KB □ estimated average size of an SMS

50 KB □ estimated average size of an Email

100 KB □ estimated average size of a bigger Email, e.g. a Newsletter

CPU Sizing for Campaign Automation

Throughput	ABAP Server SAPS for average SMS size of 10 KB	ABAP Server SAPS for average Email size of 50 KB	ABAP Server SAPS for average Email size of 100 KB
10.000/h	85	250	800
100.000/h	850	2.500	8.000
1.000.000/h	8.500	25.000	80.000

Product Recommendation delivered with release 1511

In case of SAP Product Recommendation Intelligence it is safe to assume that the complexity of a model does not influence the resource requirements of the Application Server.

SAP recommends a minimum of 1200 SAPS per Core hardware capacity for the SAP ABAP Server to guarantee reasonable response times.

This capacity is sufficient to handle up to 500 concurrent users (or 120.000 recommendations per hour) with a good distribution of those requests over time, i.e. no significant peaks. With higher number of users and recommendations per hour, apply ratio and calculate the required SAPS. For example, with 1000 concurrent users (or 240.000 recommendations per hour), CPU capacity of 2400 SAPS would be sufficient.

Offer Recommendation delivered with release 1602

In case of SAP Offer Recommendation Intelligence, the complexity of a model depends on the number of steps in the model and the number of rules per step. The more rules the model comprises, the more resources are required. The numbers shown in table 9 are based on a one-step scenario with 5 rules.

Memory Sizing fo Application Server

The memory requirements are only for the concurrent users which execute the SAP Marketing scenarios, and come on top of the memory which is required for initializations such as program buffers, shared memory and so on of ABAP server or required for applications which run on the same system in parallel. The minimum ABAP Memory requirements are addressed in the Installation Guide of ABAP Server.

Memory Sizing Application Server

Concurrent Users	ABAP Server Memory (MB)
20	400
50	1000
100	2000
> 100	Contact SAP

SAP HANA Sizing

Scale-Up vs. Scale-Out

SAP HANA is offered in a number of ways - in the form of an on-premise appliance, delivered in a number of different configurations and "sizes" by certified hardware partners or by using the tailored data center integration model, and as part of a cloud-based service. This creates different system design options with respect to scale-up and scale-out variations.

To maximize performance and throughput, SAP recommends that you scale-up as far as possible (acquire the configuration with the highest processor and memory specification for the application workload). Do not use scale-out today!

Dedicated hardware should be preferred over virtualized SAP HANA installations when CPU performance is of high importance.

CPU Sizing for SAP HANA

As this document is valid for all SAP Marketing applications, it will provide average calculations. Our different applications will have different requirements regarding CPU usage.

Segmentation in specific, is a highly parallelized application that will have much more requirements with respect to CPU than e.g. the Target Group. As for Segmentation, a lot of parameters will influence the workload on SAP HANA:

- Number of modeled data sources (number of Views that are processed with one segmentation profile)
- Number of exposed attributes
- Modeling approach of the data sources (SAP recommends the usage of graphical CalcViews)
- Number of end users working in parallel
- Complexity of the segmentation model
 - Number of segments per model
 - Depth of segmentation tree

- Usage of expensive segmentation operations (e.g. Exclude operations, random split groups, "By Reference Object" operations (very expensive))
- Necessity to recalculate entire segmentation models (very expensive)
- Complexity of the executed SQL queries in general
- Data volume (size of segmentation population)

When using Segmentation, SAP recommends a minimum hardware of 54.400 SAPS to guarantee good performance for simple models. Depending on the complexity it could be much more.

i Note

Please use the Excel Template, located on the page, to calculate the CPU consumption when using Segmentation (worksheet "CPU Sizing when using Segmentation").

Assumptions for CPU sizing when using Segmentation

Parameter	Size S 54400 SAPS	Size M 68000 SAPS	Size L 136000 SAPS	Size XL 204000 SAPS	Size XXL 272000 SAPS
Number of parallel Users	1-2	3-5	6-10	11-19	>19
Datasources	1	2	3-5	6-10	>10
Attributes per Profile	1-10	11-20	21-40	41-80	>80
Base Population (in millions)	<0,5	0,5-2	>2-10	>10-30	>30
Complexity of the segmentation model (1 = less complexity, 5 = very high complexity)	1	2	3	4	5
Number of expensive Operations	1	2	3	4	>4

Nonetheless it is necessary during the implementation project to check performance regarding to the implemented segmentation models and the user behavior on how they will work with the system.

Before deciding on the final sizing of the productive system, it is recommended to first implement the business scenarios, views and models on a comparable data volume in a test environment and carefully monitor performance of the entire system!

Assumptions for CPU sizing when using Product Recommendation

Up to ... Concurrent Users	HANA SAPS with "one-step recommendation"	HANA SAPS with "two-steps recommendation"
10 (or up to 2.500 recommendations per hour)	1.700	1.700
100 (or up to 25.000 recommendations per hour)	15.300	22.100
1000 (or up to 250.000 recommendations per hour)	73.100	107.100
2000 (or up to 500.000 recommendations per hour)	146.200	212.500

Assumptions for CPU and memory sizing when using Offer Recommendation

Up to ... Concurrent Users	HANA SAPS with "one-step recommendation"	HANA memory [MB] with "one-step recommendation"
10 (or up to 2.500 recommendations per hour)	6.800	100
100 (or up to 25.000 recommendations per hour)	47.600	300
1000 (or up to 250.000 recommendations per hour)	464.100	3.000

The above numbers are based on a one-step recommendation scenario with 5 rules.

For other Marketing applications, SAP recommends a minimum SAP HANA hardware of 26.000 SAPS to guarantee good response times for all features benefitting from parallelization with some excuses.

This is sufficient to handle up to 20 concurrent users with a good distribution of UI navigations with any data volume; they are also sufficient to handle up to 100 concurrent users with small data volume.

The SAP HANA CPU requirements are provided for those dialog steps of SAP Marketing scenarios which cause a high parallel load on SAP HANA.

CPU Sizing SAP HANA

Up to ... Concurrent Users	HANA SAPS with Small Data Volume	HANA SAPS with Medium Data Volume	HANA SAPS with Large Data Volume
20	26.000	26.000	26.000
50	26.000	35.000	50.000
100	26.000	50.000	85.000
>100	Contact SAP		

Memory Sizing for SAP HANA

Memory is a fundamental resource of the SAP HANA database! The total amount of memory used by SAP HANA is referred to as used memory. It includes program code and stack, all data and system tables and the memory required to temporary computations.

You always have to consider, that the physical memory of a SAP HANA DB will not be completely usable by the applications. The OS system (10% of available memory) as well as the SAP HANA code stack (50 GB) will block memory. Furthermore, only half of the left memory must be blocked by application tables.

Please check details in the SAP HANA administration guide: http://help.sap.com/hana/sap_hana_administration_guide_en.pdf

The following example based on a medium size SAP HANA DB with 512 GB memory will show the available memory for the application tables:

Total physical memory	~10% blocked for OS	Blocked for Codestack	Half of left memory
512 GB	- 51 GB	- 50 GB	- 205 GB
Calculated Memory of the SAP HANA DB	= 461 GB	= 411 GB	□ 206 GB (available for application tables)

Depending on the application, the memory consumption will be influenced on replicated ERP/CRM database tables or those database tables the SAP Marketing applications will use internally. A complete list of tables and the expected memory consumption can be found in chapter 6 Appendix.

i Note

The Sizing template, located on the page, will help to calculate expected memory for SAP Marketing applications! There're 2 alternatives offered. Memory calculation based on number of contacts and memory calculation based on absolute values. In addition, worksheets for product recommendation experts and detailed sales transaction related sizing are available as well. Please use the specific worksheets and answer the questions!

Considering future Data Growth

You need to anticipate the year-on-year growth of your current data volume.

🔗 Example

If you expect a 10% volume growth for the next 3 years, you will have to multiply the calculated HDB memory by factor 1.33. The data growth for the next 3 years will also be considered in the mentioned template.

5 Co-Deployment of SAP Customer Relation Management (CRM) and SAP Marketing on the same SAP HANA DB

In case of co-deployment of SAP Marketing and SAP CRM on same SAP HANA DB, the sizing is a combination of SAP Marketing sizing and SAP CRM sizing.

Usually the concurrent users would work either with SAP CRM functionality or with SAP Marketing functionality, i.e. the same user cannot work on both SAP CRM and SAP Marketing at the very same moment. For this reason, to avoid oversizing, the sizing for SAP CRM should be done for the average % of concurrent users which execute SAP CRM functions, and the sizing for SAP Marketing should be done for the average % of the concurrent users which execute SAP Marketing functions. Then, for Application Server, add the sizing results from SAP Marketing and SAP CRM. Same applies for the CPU sizing for SAP HANA, that is, add the sizing results from SAP Marketing and SAP CRM.

Memory Sizing for SAP HANA: since in the co-deployment-scenario, SAP Marketing will directly access the SAP CRM-data without replication, only the replicated data from SAP ERP and the local SAP Marketing data need to be added to the memory sizing from SAP CRM.

For more details regarding hardware see: <http://www.sap.com/solutions/technology/in-memory-computing-platform/hana/overview/platform/partners.epx>

6 Comments and Feedback

Both are very welcome! Please, address your questions to OSS component under the appropriate subcomponent of CA-MKT-CEI.

7 Appendix

Memory Sizing for SAP Marketing Tables

Application	Detail of Application	Number of Entities	Expected Memory in MB
Corporate Accounts/ Contacts	Corporate Accounts(tables: CUAND_CE_IC_ROOT + ref- erences: CUAND_CE_IC_FCET, CUAND_CE_IC_ATTH, CUAND_CE_IC_REL, CUAND_CE_IC_TM, CUAND_CE_IC_MA, CUAND_CE_IC_FT_D)	100000	150
	Contact Persons (table: see Corporate Accounts)	100000	150
Campaign Execution	Targeted Audience per Cam- paign (table: CUAN_D_TG_MEMBER)	100000	10
	Emails send to Contact Per- sons (table: CUAND_CE_IC_FCET)	100000	12
WebSite Integration	Web interactions send to SAP Marketing (table: CUAND_CE_IC_FCET)	100000	32
Sales Integration (ERP, CRM, C4C,POS, eCommerce, oth- ers)	Interaction of Business Documents send to SAP Marketing (tables: CUAND_CE_IA_RT, CUAND_CE_IA_PROD, CUAND_CE_IA_INTR)	100000	75
Commerce Integration (ex- cept sales transaction)	Commerce interactions send to SAP Marketing (table: CUAND_CE_IA_RT, CUAND_CE_IC_FCET)	100000	120



Application	Detail of Application	Number of Entities	Expected Memory in MB
Social Integration	Postings retrieved from social network send to SAP Marketing (table: CUAND_CE_IA_RT , CUAND_CE_IA_INTR, CUAND_CE_IA_TAG)	100000	140
Relationship Monitor/ Stratification/ Margin Decomposition	Accounts replicated from ERP system (table: KNA1)	100000	3
	Invoices replicated from ERP system (table: VBRK)	100000	10
Marketing Recommendation	Generated association rules (table: PRECO_D_LEAD_SET, PRECO_D_RST_SET)	100000	8
	Generated top-n recommendations (table: PRECO_D_TOPN)	100000	100
	Customers with existing transactions (table: PRECO_D_CFUI_REC)	100000	5
	Rule Artefact (table: PRECO_D_RLARTFCT)	100000	7
CMO Dashboard	Imported Data for Analytics	100000	5

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