Introduction into
Post Go-Live Sizings

SAP SE
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Introduction

Details and Examples on Production Sizing

Tools to Measure Resource Consumption

Sizing Verification
Sizing Goals in different phases of a customer project

1. Very early to plan hardware expenditures
2. A few months before live start to verify assumptions
   - Determine the overall performance requirements
3. During production stages to ensure operations and verify/adjust estimations made earlier. "Trigger events" include:
   - Upgrade database, operating system, SAP application
   - Reconfigure system landscape
   - Change business process
   - Rollouts: more users or other load
### Different Types of Sizing

#### Greenfield Sizing

<table>
<thead>
<tr>
<th>Hardware Budget Sizing</th>
<th>Advanced Sizing</th>
<th>Expert Sizing</th>
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<tr>
<td>Smaller companies</td>
<td>Medium to large companies</td>
<td>Large or complex projects</td>
</tr>
<tr>
<td>• Very simple algorithms</td>
<td>• Throughput estimates</td>
<td>• Additional guidelines</td>
</tr>
<tr>
<td>• Assumptions, likelihoods</td>
<td>• Questionnaires, formulas</td>
<td>• Custom calculations</td>
</tr>
<tr>
<td>• Level setting of project</td>
<td>• Usage of standard tools</td>
<td>• Analysis of custom coding</td>
</tr>
<tr>
<td>• Risk identification</td>
<td>• Focus on core business processes</td>
<td>• Custom sizing guidelines</td>
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#### Production Sizing

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Introduction – Sizing Approaches on Productive Data

Assumptions
- The system is properly tuned for optimal performance
- The focus is on net consumption of business processes on the hardware

Note: Resource consumption strongly depends on
- Business process: customizing, customer extensions
- Combination of hardware and software: configurations
- Recommendations refer to used resources, not allocated ones

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Sizing Verification
Production Sizings: General Procedure

Prerequisites
- The system is live
- The hardware and software are scalable
- Different goals
  - Re-Sizing: only add volume, no modified processes
  - Delta Sizing: add different functions
  - Upgrade sizing: only upgrade SAP software

Procedure
- Monitor CPU utilization, table growth, and memory use
  - Relate it to a meaningful business entity, such as the number of concurrent users or the number of active projects
- Different procedures according to goals
  - Re-sizing: Add the load coming in through the additional users and projects causing the same load structure
  - Delta sizing: Treat like a new sizing and add calculated load
  - Upgrade sizing: Determine additional requirements and add calculated load
- Judge whether your current hardware is sufficient, or whether you may need to buy new hardware
Example Re-Sizing

A company
- Has 50 subsidiaries
- Template-based approach
  - Most subsidiaries will have a very similar customizing

Phased rollout
- First, 5 subsidiaries go live
- Then the next 5-10 will follow suit, and so on

Consequence
- Initial sizing for first go-live
- Possibly perform expert sizing on non-template-like subsidiaries
- Sizing verification of first go-live
- Re-sizing based on production system data (45 subsidiaries)

Note: It is important that the business functions will remain the same
Example Delta Sizing

A company
- Has 50 subsidiaries live with SAP ERP
- Wants to add SAP CRM functions

Phased rollout
- First, 5 subsidiaries go live
- Then the next 5-10 will follow suit, and so on

Consequence
- Initial sizing for first go-live
- For example, Quick Sizer, additional guidelines
- Possibly perform expert sizing on non-template-like subsidiaries
- Sizing verification of first go-live
- Re-sizing based on production system data (45 subsidiaries)
Example Upgrade Sizing

A company
- Has 50 subsidiaries live with SAP ERP 6.0
- Wants to upgrade to SAP ERP 6.0 EhP7
- Also wants to upgrade DB release

Consequence
- Define scope of upgrade (SAP, DB, OS, HW)
- Analyze current utilization and growth
- Apply SAP upgrade notes
Distinguish the kind of upgrade

- SAP software
- Database, operating system
- Hardware in general
- Configuration and parameter settings may change
- Very often, in an upgrade project, also business processes may be modified (delta sizing)

Upgrading may also involve

- Re-design of configuration
- For example
  - If wait times on some work processes are long before the upgrade, they will surely take even longer after the upgrade. In this case you must define additional work processes.
  - The same applies to memory, additional memory requirements may require larger buffers
- See the service "GoingLive for Functional Upgrade" from SAP’s support organization
Straightforward Procedure for Upgrade Sizing

You have analyzed the current system resource consumption for

- Disk space
- CPU consumption
- Memory consumption

In a first step, use the SAP standard notes, which are based on weekly regression measurements of top 100 transactions

**Example**

- Current monthly disk growth = 200 GB
  - Note + 5%: 200 GB * 1.05 = 210 GB growth
- Current avg. CPU utilization = 54% DB, 48% App server
  - Note + 5%:
    - DB 54 * 1.05 = 56.7%
    - App 48 * 1.05 = 50.4% App server
- Current memory used = 16.4 GB
  - Note: +15% : 16.4 * 1.15 = 18.9 GB
Upgrading Over Different Releases

In the standard case, simply apply several SAP Notes
Example SAP ERP: SAP Notes 323263, 517085, 752532, 778774, 901070

To upgrade from release A to release C

- Procedure: Add the notes on resource requirements
- Base release A → release B → release C

Example: The SAP Notes say

- A → B +10%
- B → C + 5%

Calculate:

- Utilization * 1.1 * 1.05 → utilization * 1.16

Note: Ranges do not constitute a maximum
Conclusion for Sizing on Production System Data

Data

If you need to extend hardware

- CPU extension of application servers can be done through
  - Additional application servers
  - Additional CPUs
  - Faster CPUs
- Additionally, consider OS-dependent factors
- Pay attention to disk I/O
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Tools to Measure Resource Consumption

Sizing Verification
How to Monitor Current Resource Utilization

Available monitors

- Disk Analysis  
  DB02, DB monitor of hardware vendor 
  – (DB Performance Tables & Indexes)
- CPU Analysis  
  ST06, ST03N, STAD, ST03G 
  – (Workload Analysis, Statistical Records, Global System Workload Analysis)
- User Analysis  
  STAD, ST03G 
  – (Application Monitor, Statistical Records)
- Memory Analysis  
  SM04, STAD 
  – (User List, Statistical Records)
- Front-End Network Load  
  STAD, ST03N, ST03G 
  – (Statistical Records, Workload Analysis)

As a rule, 20% of the processes cause 80% of the load

- Analyze  
  – Growth rate of 20 largest tables 
  – Average and peak CPU load 
  – Average and peak memory utilization
Determining CPU / Memory Utilization – ST06

Check
- Number of CPUs/cores
- CPU utilization
  - Current and historic
  - Detail Analysis Menu
- Available and free memory
Determining Disk Growth – DB02 (1/2)

- Total available disk size
- Free space
Determining Disk Growth (2/2)

Check
- Monthly growth
- Drill-down to top 20 tables
Determine HANA Memory and Disk (SAP Note 1872170) Requirements

Report /SDF/HDB_SIZING
- Described in SAP Note 1872170 – Suite on HANA sizing report

Scope
- Runs on SAP NetWeaver systems based on SAP HANA
- Not suitable for BW (Refer to SAP Note 2296290 - New Sizing Report for BW/4HANA)

Functionality
- Estimates the maximum memory and disk consumption of the database
- Additional functionality needs to be sized with the HANA Quick Sizer (Delta Sizing)
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Sizing Verification
New set of **SAP EarlyWatch® Alert** Applications in the cloud

**SAP EarlyWatch Alert Workspace:**

The central landing page which gives a comprehensive overview on your system landscape regarding stability, configuration, hardware utilization and performance.

Drill-downs into KPI time series for a long time range are provided, e.g. database growth, SAP HANA CPU and memory utilization and response times.

launchpad.support.sap.com
SAP EarlyWatch Alert - Cloud Applications

Landscape Overview

- Identify largest systems
- Find top alerts
- SAP Fiori Overview Page

Task list per customer

- Solve alerts in whole landscape
- Get automatic recommendations
- Powered by HANA Text Search

Dashboard per System

- Identify bottlenecks
- Find critical trends in KPIs
- Embedded analytics via CDS views
Integration into Solution Manager on-premise

Independent on SolMan release in EWA report:

Service Summary

This EarlyWatch Alert session detected issues that could potentially affect your system. Take corrective action as soon as possible.

Note: Go to SAP EarlyWatch Alert Workspace in SAP ONE Support Launchpad to gain an overview of your SAP HANA system landscape and the results of EarlyWatch Alert reports; for details, see SAP Note 2920319.

Alert Overview

⚠️ We found more than 50 ABAP dumps in your system.
⚠️ Standard users have default password.
⚠️ Secure password policy is not sufficiently enforced.
⚠️ A high number of users has critical authorizations.

SolMan 7.2 SP07:

SAP EarlyWatch Alert Workspace

ONE Support Cloud
Standard Scenarios for Production Sizings – a Mixture of Different Approaches

- **Quick Sizer Project**
  - + Load Increase in %
  - + Upgrade Increase in %

- **Current Workload**
  - Increase in %

- **+ Quick Sizer Project**
  - + Load Increase in %

- **Current Workload**
  - Increase in %

- **+ Quick Sizer Project**
  - + Upgrade Increase in %

- **Current Workload**
  - Increase in %

- **Greenfield Sizing**
  - Upgrade or load increase

- **Upgrade or load increase**

- **New functions or load increase**

- **Upgrade & new functions**

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Thank You!

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