SAP IBP Performance and Sizing
Customer Webinar 2019

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PUBLIC
Agenda

- **IBP Performance**
  - Performance monitoring
  - Packaging for Statistical Forecasting and Disaggregation Operator
  - New calculation scenario
  - Switch from Analytical View to Calculation View
  - Normalization of data model
  - Link collection for further information

- **IBP Sizing**
- **SAP Max Attention for IBP**
- **Q&A**
Performance Monitoring
System Monitoring directly in IBP Customer Systems

Available: System Monitoring

- Resource Consumption now per minute
- Excel Sessions Statistics
- Planning Object Statistics
- Time Series Statistics
- Job Scheduling Statistics

Future Direction

- Activity Monitor
  Showing jobs and frontend requests with details

This is the current state of planning and may be changed by SAP at any time.
Performance
Innovations delivered

• Packaging
  • Splitting the workload into smaller packages helps to optimize the consumption of system resources (e.g. memory), and to reduce the risk of locking issues.
  • Packaging was enabled for Statistical Forecasting, Disaggregation and Demand Sensing.
Packaging Details

Packaged Processing of Statistical Forecast
• For new systems since 1805
  • Processing is split into packages of max 10,000 planning objects
  • Packages are processed in parallel (max number of parallel tasks: 5).
  • Each processed package is committed separately
• For Demand Sensing, packaging can be requested via customer ticket.
• Planned: Packaging will be default for all systems from IBP 1905 onwards
  • This optimization is done internally, no need for change on customer side
  • Demand Sensing will also be covered by the Statistical Forecast framework and the packaging default from 1905
  • In case system specific changes were made in the past, the new default will be ignored for that system

Packaged Processing of Disaggregation operator
• For new systems since 1808
  • Processing will be split into up to 5 packages
  • Packages are built by time intervals and processed sequentially
  • Each processed package is committed separately.
• Planned: Packaging will be default for all systems from IBP 1905 onwards
• Documentation for Packaged Processing of DISAGG Operator
Packaging in Statistical Forecasting

Comparison

Result without Packaging
Memory is constantly increasing. Overall 280 GB memory is allocated. 2 algorithm executions consume about 50% CPUs. Besides this CPU utilization is low.

Result with max 5 packages executed in parallel:
Memory consumption is capped. Overall only 70 GB memory is allocated. Higher CPU utilization. Runtime significantly reduced.

280 GB

70 GB

Memory

CPU

1 Package
Packaged Execution
Packaging in Disaggregation Operator

Test Case:
Copy one key figure with 30 m records and disaggregate to 300 m records.

Result:
Packaged processing reduces peak memory usage significantly without increasing runtime.
Activation based on new calculation scenario

• The new calculation scenario generation was released to new customers in SAP IBP 1811
• From 1905 the enhanced activation will be rolled-out in waves to customers who initially used an older release of IBP than 1811.
• It improves the activation performance and brings additional consistency and robustness. Regarding query runtime performance in the Excel UI, it brings similar results with fewer outlier.
• It forms the basis of certain new features, such as simplified key figure calculations.
• More information will be included into the “What’s new” documentation for 1905

This is the current state of planning and may be changed by SAP at any time.
Switch from SAP HANA Analytical View to Calculation View

- The switch from SAP HANA Analytical View to Calculation View is a SAP IBP/ SAP HANA internal technical change.
- The switch to CV will improve performance of some queries, especially for interactive use cases.
- It will not impact the users except for the need for a one-time reactivation of the planning area.
- No change of any process or migration of data is needed.
- HANA Calculation View is the default for new customers since IBP 1811.
- Phased roll-out is planned over the next releases
- Customers interested to switch in 1905 can request to be considered.
- Further details – See note 2773629

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Performance
Innovations planned

• Normalization
  • Memory consumption will be reduced by usage of the refactored data model: Data will be stored on planning level instead of planning area.
  • New customers in 1908/1911 will use the normalized model as default.
  • Migration to the new normalized model is planned to start end of 2019.
Performance
Innovations planned

- **Asynchronous execution of snapshots in the planning engine**
  - This architectural change is planned with IBP 1908. We expect due to this change performance improvements for interactive use cases in the range of 10-15%.

- **With IBP 1908, 1911 & 2002 we plan in addition tailored Excel UI performance topics (PoC exists for all areas):**
  - **Micro- and Pre-Send:**
    - Data changes in Excel cells communicated and simulated right away into the backend, user interaction decides to use (click on simulate) or discard (refresh) changes
    - Simulation (save is an extended simulation) can be run parallel with some user interaction such as defining reason codes / comments
    - Partly update and formatting of the UI. Update and reformat only subset of data.
  - **Parallelization:** Parallelization starts already on the UI side for complex steps
    - Similar to Simulation/Save the checks and SQL Query preparation can be run
  - Allow asynchronous save, user can continue working on other data until save/simulation running and be informed when finished

This is the current state of planning and may be changed by SAP at any time.
Links to detailed information, recommendations and guidelines

SAP Notes

• 2211255 provides recommendation on Planning Area Configuration & Performance
• 2347105 Master Note for the Configuration of Sample Models

SAP Notes for IBP Add-In for Excel

• 2153455 S&OP / IBP Excel Add-In: Planning View Performance Recommendations
• 2108186 S&OP / IBP Add-In for Microsoft Excel: Recommended Sizes for Planning Views
• 2686746 IBP Add-In for Microsoft Excel Best Practices and Performance Considerations
  • contains detailed document "Consulting Know-How and Best Practices – Performance Considerations"
Links to detailed information, recommendations and guidelines

Proactive Support Newsletter: SCM-IBP

- Subscribe via note 2445475
  See performance recommendation from December 2018 edition:
  - IBP Supply - Configuration and Performance Recommendations - KBA – 2559389
  - Recommendation for Data Lifecycle Management - KBA – 2728485
  - Attribute as KF configuration Recommendation - KBA - 2728509

SAP Help Portal

- Housekeeping - Data Lifecycle Management
- Packaged Processing of DISAGG Operator
IBP Sizing
General Sizing topics

Where to get the sizing spreadsheet: OSS Message 2423668
https://launchpad.support.sap.com/#/notes/2423668

Purpose of sizing?
- Directional guidance
- Potential need to purchasing extra memory

What exactly are we sizing?
- Data Storage
- Processing memory

Sizing spreadsheet will overstate the needed memory
- Safety factors
- Product/Location combination overstatement
- Data Density
What influences sizing?

Primary factors include:

- IBP modules
- Concurrent users
- Product \ Customer \ Loc Combinations
- Number of Key Figures at combination levels
- Key Figure Time granularity (ie, week vs daily)
- Data density

Planning points are simple math:

- Combinations X Time Periods = Planning Points
# When to do sizing

<table>
<thead>
<tr>
<th>Project phase</th>
<th>Reason/Goal</th>
<th>Tools</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sales cycle</td>
<td>Determine rough sizing for potential production server upgrade</td>
<td>Quicksizer spreadsheet</td>
</tr>
<tr>
<td>End of blueprint</td>
<td>Validate sizing based on actual design</td>
<td>Quicksizer spreadsheet</td>
</tr>
<tr>
<td>Performance testing</td>
<td>Validate actual memory usage, double check</td>
<td>OSS ticket to request SAP Cloud Operations monitoring</td>
</tr>
<tr>
<td>Rollout</td>
<td>Determine extra memory needed for new modules/business units</td>
<td>Quicksizer spreadsheet + actual memory usage (Cloud Ops Monitoring)</td>
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</table>
Tips/Tricks for Sizing

Use accurate counts in all areas for combinations:
- Look at actual counts in ECC (e.g. using sales orders or production orders)
- Information from current planning system (if existing)

Don’t double count key figures
- Demand key figures in Supply tab might already be in Demand tab
- Control Tower key figures not needed for Demand and Supply information

Consider adjusting combinations to account for history only key figures
- Especially in Demand for forecast or history only KF – Divide combinations

Start with Versions and Concurrent users at 1, then adjust after all other data is set

If adding modules/business units to an existing implementation, fill in sizing based on actual data in the system (including actual usage), then do a separate exercise for the new module/business.
Monitoring Memory and CPU Usage: System Monitoring App

- Resource Consumption KPIs per hour
- Job Scheduling Statistics
Strategy for Supporting Rollouts

New Region Example
- Use known memory usage from current system
- Estimate additional data for next rollout (e.g. additional product/location combinations)
- Memory is linear, so ratios can be used to estimate additional memory needed
- Compare to available memory

Additional functionality in IBP example
- Estimate additional planning areas, key figures and/or data
- Use sizing spreadsheet to estimate planning points and memory needed
- Compare to current system usage (remember that Excel will be higher than truly needed)
SAP Max Attention for IBP
Today and 5 years into the future

**SAP MaxAttention evolution to meet changing customer expectations**

- **On-site team** covering business and IT demands
- **One leadership** for all SAP Services with clear guidance and governance
- **Product coverage** – all solutions and all deployment scenarios
- **Scalable engagement** foundation
- **Scale your focus topics** during the phases of the engagement
- **Predictable commercials** for greater certainty of cost and value
### Extended portfolio, in easy-to-consume, cumulative levels of engagement

#### Focus topics

<table>
<thead>
<tr>
<th>Focus topics</th>
<th>Level of engagement</th>
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<tr>
<td>Innovation services</td>
<td>Kickstart innovation, Expand innovation, Operationalize innovation</td>
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<tr>
<td>Co-design</td>
<td>Value and design assessment, Design advisory, Edge design support</td>
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<tr>
<td>Architecture planning</td>
<td>Architecture review, Architecture transition planning, Architecture of high-end landscapes</td>
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<tr>
<td>Analytics and data management</td>
<td>Value discovery and roadmap, Accelerating data to insights, Next-generation scenarios</td>
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<tr>
<td>Implementation support</td>
<td>Plan the implementation, Business-ready, Business optimization</td>
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<tr>
<td>Cybersecurity and compliance</td>
<td>Transparency and mitigation, Continual improvement, Strategy and architecture</td>
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<tr>
<td>PaaS and DevOps</td>
<td>Rapid application development, Core extension development, Scale and manage developments</td>
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<tr>
<td>Safeguarding</td>
<td>Technical integrity and scalability, Functional and data integrity, High-end performance solutions</td>
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<td>End-to-end hybrid operations</td>
<td>Transparency and essential optimization, Continuous improvement of hybrid solutions, High-end operations of hybrid solutions</td>
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<tr>
<td>Accelerated support</td>
<td>Accelerated incident management (AIM), Extended AIM and service level agreements, Special purpose support</td>
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#### Baseline

- Lead technical quality manager
- Architecture point of view
- Improvement analysis and roadmap services

#### SAP MaxAttention Engagement Foundation

- EA ▪ Lead technical quality manager
- EA ▪ Architecture point of view
- EA ▪ Improvement analysis and roadmap services
- EA ▪ Value and design assessment
- EA ▪ Design advisory
- EA ▪ Edge design support
- EA ▪ Architecture review
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- EA ▪ Extended AIM and service level agreements
- EA ▪ Special purpose support

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Customer Example: Assessment

SCM(DP) Vs. SAP IBP(Demand)

100% of the SCM(DP) functionality is available in SAP IBP

SCM(SNP) Vs. SAP IBP(R&S)

Approximately 85% of the SCM(CTM) functionality is available in SAP IBP 1902. Based on co-innovation and SAP IBP Roadmap all the functionalities will be available by **SAP IBP 1908.
### Migration into SAP IBP footprint – High level plan

#### Phase 1A
- Technical Foundation and Architecture
- Mid to Long Term Planning: Gross Demand
- Analytics and Dashboard

SAP IBP - Demand, IBP – Supply Chain Control Tower

#### Phase 1B
- Additional Gross Demand elements
- Net Demand for an Entity
- Analytics and Dashboard

SAP IBP - Demand, IBP – Supply Chain Control Tower, IBP Sales & Operation Planning

#### Phase 1C
- Stock Elements at RDC \ Others
- Sources of Supply Global\Regional\Local Contracts
- Bill of Materials

SAP IBP - Demand, IBP – Supply Chain Control Tower, IBP Sales & Operation Planning

#### Phase 2
- Other Demand Functionalities
- Re-Alignment
- Phase In\Phase Out
- Like Modelling
- Inventory Optimization / safety stock calculation

SAP IBP - Demand, IBP – Supply Chain Control Tower, IBP Sales & Operation Planning, IBP - Inventory

#### Phase 3
- Mid-term\Short Term Operations Planning
- Potential Optimizer Functionality with execution of STR\PRs

SAP IBP - Demand, IBP – Supply Chain Control Tower, IBP Sales & Operation Planning, IBP – Inventory, IBP - Response & Supply
Assessment based on SAP IBP 1808 release

- Total number of requirements 209

REQUIREMENTS MAPPING WITH SAP IBP MODULES

- IBP S&OP, 24, 11%
- IBP-Demand, 16, 8%
- IBP-SCCT, 23, 11%
- IBP-R&S, 20, 10%
- IBP-Inventory, 3, 1%
- Integration, 57, 27%
- IBP Framework, 42, 20%
- NA, 18, 9%
- Gaps, 6, 3%
Deployment

Requirement:

• Customer AAA would like to use Pull / Push-Pull based deployment.

• Certain DCs pull the stock from the plant. However since plant does not have storage the remaining stock needs to be pushed to a central DC.

Findings / Recommendation:

• Currently IBP deployment can support pull / fairshare based deployment. The Push based deployment can be achieved through appropriate modeling and copy operators.

• Enhancements to deployment are in roadmap including the push deployment, enhanced fairshare and the deployment optimizer which shall fulfill the rebalancing requirement.

• As a workaround, it is possible to fulfill the push-pull behavior using copy operator with some additional modeling in IBP.
Step 1
Runtime percentage distribution

Example: Performance Optimization
Sample SAP Notes

- Refer to SAP Note 2153455 - S&OP / IBP Excel Add-In: Planning View Performance Recommendations
- Global parameter MAX_IMPORT_ROWS is set in IBP
  - Parameter MAX_IMPORT_ROWS is not considered after IBP 1611
  - Review SAP Note 2515758 - IBP: Availability of MAX_IMPORT_ROWS Global Configuration

<table>
<thead>
<tr>
<th>INTEGRATION</th>
<th>MAX_IMPORT_ROWS</th>
<th>200000</th>
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- Global parameter MAX_DIM_MEMBERS is set to higher than the recommended default
  - Review SAP Note 2211255 - SAP IBP Planning Area Configuration & Performance Recommendations

| PLAN_VIEW | MAX_DIM_MEMBERS | 150000 |
Details of Test Results – Save one value for KF “Integrated Incr Adj” at Everyday DP-> Everyday DP tab

Overview

Expensive sql:

Example: Volume Test optimization

1. Save adjustment
2. Delete and save
3. New parameter – Save adj
4. New parameter – Delete and save
Thank you.

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