h'enterprise pim

Powerful performance for large ranges and complex processes
In the age of virtual ranges, the quality of information is extremely important. Product information is decisive for a purchase – this applies in both B2C business as well as in B2B business. Private customers search for information and compare offers online but often make the actual purchase in a shop. When it comes to a multichannel strategy it is important to supply all sales channels consistently and to display products attractively: webshops, publications, e-catalogs, marketplaces and shops. For example, SportScheck sells a pair of adidas trousers in their adidas brand shop, on sportscheck.de, on otto.de as cross-selling and on other platforms such as Amazon.

The complexity of handling product data is due to the combination of the following multipliers: language, sales region, target group, brand specifications and the platform. With every additional website that requires product data, Enterprise PIM gains more significance as a central supply entity. Enterprise PIM is a prerequisite for the successful management of numerous shops! Even those who use a long tail strategy with large ranges require reliable, fast and powerful systems. For both manufacturers and retailers, being quicker on the market means creating more turnover before the market is saturated. In light of this, the security and scalability of a PIM solution in the enterprise segment is a competitive advantage.

POWERFUL PERFORMANCE IS A CLEAR COMPETITIVE ADVANTAGE

» Save costs with fast and effective processes
» High level of scalability for your growth
» Strong, reliable performance
» Absolute security and stable processes

Led by the infrastructure specialists at the IBM Innovation Center, Heiler Software carried out the greatest performance test.

“We were convinced by the constant performance of the Heiler PIM suite – in large ranges, extensive data sets and in many applications within a large company”.

Thomas Schneider, Program Manager, IBM Innovation Center

Enterprise PIM stands for an integrated process of the entire Product Information Supply Chain. The Heiler Enterprise PIM platform covers this process completely and enables integration into third party systems.
INDICATORS FOR PIM PERFORMANCE

WHAT SHOULD A PRODUCT INFORMATION MANAGEMENT SYSTEM DO?

The requirements of some large international mail order companies should be used as a benchmark.

- For example, 20 million sellable items
- Over 100 attribute fields per data set
- Hundreds of users and working processes

Based on these requirements, representative load tests were carried out on the Heiler Enterprise PIM solution. The objectives of these load tests were to prove the scalability and performance with the defined quantity structure and also to define an optimal hardware size.

Essentially, processes were carried out that ran parallel to mass data management and, at the same time, import and export processes were carried out too. The technical details of all test scenarios can be found in the Appendix on page 8.

Results of the great performance test

The Enterprise PIM solution now displays constant response times over a long period of time for all processes. The corresponding infrastructure is the most important factor for depicting the required performance.

The diagram shows that the system’s reaction times remain the same. The output of the system’s data volume is also nearly linear up to the performance boundary of the infrastructure.

CONCLUSION
1. Constantly fast reaction speed lowers the company’s process costs
2. Large ranges and a variety of processes are easy to control

PROCESS MASS DATA QUICKLY & EASILY

With this test scenario the scalability and the stability of various application options were investigated. At the forefront of the investigation were increasing data volumes, an increasing number of users working simultaneously and processes running parallel to the mass data management.

SCENARIO:
- 5 different client scenarios: Attribute Maintenance (Scenario 1), Cumulative Attribute Acquisition (Scenario 2), Text Management (Scenario 3), Referencing (Scenario 4) and Publication Planning (Scenario 5).
- Parallel users: 25, 40 & 60

RESULTS:
- In all scenarios the data output is scaled linearly
- The CPU utilization of the application server therefore always remains under 40%
- When the I/O is less than 5MB/s the database server utilization is under 30%

The charts of the five test scenarios show the linear behavior of the server load. According to the processes and the amount of users, the corresponding hardware ensures consistent performance.
PARALLEL IMPORT & EXPORT PROCEDURES

Test environment number two goes a step further. In addition to the requirements from the first scenario many simultaneously-running import and export procedures are added. This is particularly useful for retailers who extend their ranges and acquire more suppliers as part of a long tail strategy or manufacturers who increasingly serve more channels with their multichannel strategy.

SCENARIO:

- 25, 40 and 50 parallel users
- A total of 9 processes (scenarios) running parallel
- 5 export procedures with up to 15,000 products and 6,900,000 items per file
- 4 import procedures with up to 50,000 products and 3,300,000 items per file

RESULTS:

- Additional import and export procedures do not influence the performance of the system
- The CPU utilization of the application server therefore always remains under 40%
- The database server utilization remains under 50% (Database disk I/O stays at 8 MB/sec with peaks up to 25MB/sec)
- Import jobs can use multi-core systems

SYSTEM ARCHITECTURE

Application server

Six-Core AMD Opteron 8432 x4 (24 Cores Total), 80 GB Ram, 1GB network adapter, Windows Server Professional x64 SP2

HPM 5.3.00.00 Development Build (Rev. 11150)
Remarks: this build contains Heiler PIM persistence layer optimizations.

Load Controller

Windows Server x64

Load agents

5 Agents deployed on 5 Windows XP PCs (1 agent per PC)

Database server

Six-Core AMD Opteron 8432 x4 (24 Cores Total), 120 GB RAM, 1GB network adapter, Windows Server Professional x64 SP2, SQL Server 2008
APPENDIX

Footnote 1
Scenario 1: Process Step Item Classification and Attribute Maintenance

Prerequisites: The products and the various items are in the system and are allocated to a structural system (maintenance structure) if not on the desired level. The PIM client is started, the user logged on and the default structure for the primary structure tree of the correct structural system (maintenance structure) is set.

Perspectives and Views:
Steps/Process:
1. Load maintenance structure
2. Wait 10 seconds
3. Move a product within the structural system from structure node A to structure node B
4. Wait 2 seconds
5. Activate attribute inheritance (Extend) on the structure node (determined above) on which the product was hung
6. Wait 7 seconds
7. Update the value of an attribute
8. Wait 7 seconds
9. Update the value of an attribute
10. Wait 7 seconds
11. Update the value of an attribute
12. Wait 10 seconds
13. Delete the attributes of the product
14. Wait 20 seconds
15. Move the product back to structure node A from structure node B

Quantity structure:

<table>
<thead>
<tr>
<th>Test/Job for quantity structure</th>
<th>Average number of competitive users</th>
<th>Maximum number of competitive users</th>
</tr>
</thead>
<tbody>
<tr>
<td>Text 1 (range A)</td>
<td>5</td>
<td>30</td>
</tr>
<tr>
<td>Text 2 (range B)</td>
<td>10</td>
<td>40</td>
</tr>
</tbody>
</table>

Scenario 2: Cumulative Attribute Acquisition

Prerequisites: The product has 10 attributes and 15 items allocated to it.

Perspectives and Views:
Steps/Process:
1. Load maintenance structure, attributes and items to a product
2. Wait 20 seconds
3. Carry out cumulative attribute acquisition for all attributes and all items of the product
4. Wait 5 seconds
5. Update cumulative value of an attribute for all attributes and all items of the product
6. Wait 5 seconds
7. Update cumulative value of an attribute for all attributes and all items of the product
8. Wait 5 seconds
9. Update cumulative value of an attribute for all attributes and all items of the product
10. Wait 10 seconds
11. Delete cumulative attributes

Quantity structure:

<table>
<thead>
<tr>
<th>Test/Job for quantity structure</th>
<th>Average number of competitive users</th>
<th>Maximum number of competitive users</th>
</tr>
</thead>
<tbody>
<tr>
<td>Text 1 (range A)</td>
<td>5</td>
<td>30</td>
</tr>
<tr>
<td>Text 2 (range B)</td>
<td>10</td>
<td>40</td>
</tr>
</tbody>
</table>

Scenario 3: Text Management

Prerequisites: Product hangs on a maintenance structure

Perspectives and Views:
Steps/Process:
1. Load maintenance structure
2. Wait 10 seconds
3. Update a text box (short text) on a product
4. Wait 45 seconds
5. Update a text box (long text) on a product
6. Wait 25 seconds
7. Update a text box (selling point 1) on a product
8. Wait 25 seconds
9. Update a text box (selling point 2) on a product
10. Wait 25 seconds
11. Update a text box (selling point 3) on a product
12. Wait 25 seconds
13. Update a text box (selling point 4) on a product
14. Wait 25 seconds
15. Update a text box (selling point 5) on a product

Quantity structure:

<table>
<thead>
<tr>
<th>Test/Job for quantity structure</th>
<th>Average number of competitive users</th>
<th>Maximum number of competitive users</th>
</tr>
</thead>
<tbody>
<tr>
<td>Text 1 (range A)</td>
<td>5</td>
<td>20</td>
</tr>
<tr>
<td>Text 2 (range B)</td>
<td>10</td>
<td>40</td>
</tr>
</tbody>
</table>

Footnote 2
Scenario 4: Referencing
Prerequisites: Two products one with 5 and the other with 15 items allocated.

Steps/Process:
1. Load maintenance structure and items for both products
2. Wait 10 seconds
3. Allocate 5 items to an additional item C
4. Wait 10 seconds
5. Allocate 5 items to another item B
6. Wait 10 seconds
7. Allocate 5 items to an additional item C
8. Wait 10 seconds
9. Delete the item reference from item A
10. Wait 10 seconds
11. Delete the item reference from item B
12. Wait 10 seconds
13. Delete the item reference from item C

Quantity structure:

<table>
<thead>
<tr>
<th>Test/Job for quantity structure</th>
<th>Average number of competitive users</th>
<th>Maximum number of competitive users</th>
</tr>
</thead>
<tbody>
<tr>
<td>Text 1 (range A)</td>
<td>10</td>
<td>25</td>
</tr>
<tr>
<td>Text 2 (range B)</td>
<td>40</td>
<td>70</td>
</tr>
</tbody>
</table>

Scenario 5: Publication Planning
Prerequisites: The product hangs on a maintenance structure, has ten attributes and 15 items allocated to it.

Steps/Process:
1. Load maintenance structure and target structure A
2. Wait 20 seconds
3. Copy a product from the maintenance structure into target structure A
4. Wait 20 seconds
5. Load another target structure B
6. Wait 20 seconds
7. Copy a product from the maintenance structure into target structure B
8. Wait 20 seconds
9. Delete the product from target structure A
10. Wait 3 seconds
11. Load target structure B
12. Wait 20 seconds
13. Delete the product from target structure B

Quantity structure:

<table>
<thead>
<tr>
<th>Test/Job for quantity structure</th>
<th>Average number of competitive users</th>
<th>Average number of items in file</th>
<th>Maximum number of items in file</th>
</tr>
</thead>
<tbody>
<tr>
<td>Text 1 (range A)</td>
<td>10</td>
<td>20</td>
<td>40</td>
</tr>
<tr>
<td>Text 1 (range B)</td>
<td>20</td>
<td>500</td>
<td>1000</td>
</tr>
<tr>
<td>Text 2 (range C)</td>
<td>1500</td>
<td>500</td>
<td>3000</td>
</tr>
</tbody>
</table>

Footnote 3
Prerequisites: A basically stocked product tree. A maintenance structure. 10 XML files in standard exchange format with a Heiler PIM server index per quantity structure. Import mapping for standard exchange format. Ten import jobs in the product tree with one file each are planned at 30 minute intervals during the test phase.

Steps/Process: Automatic
Mapping: All products on a fixed maintenance structure. Every item variation on one product.

Quantity structure:

<table>
<thead>
<tr>
<th>Test/Job for quantity structure</th>
<th>Average number of competitive users</th>
<th>Average number of items in file</th>
<th>Maximum number of items in file</th>
</tr>
</thead>
<tbody>
<tr>
<td>Text 1 (range A)</td>
<td>500</td>
<td>1500</td>
<td>3000</td>
</tr>
<tr>
<td>Text 2 (range B)</td>
<td>1500</td>
<td>500</td>
<td>3000</td>
</tr>
<tr>
<td>Text 3 (range C)</td>
<td>500</td>
<td>1500</td>
<td>3000</td>
</tr>
</tbody>
</table>
Acquiring supplier data
Prerequisites: An empty supplier catalogue. A maintenance structure. One CSV file on item level with the fields item number, short description of product, short description of item, selling price, size, color. Import mapping available.

Steps/Process:
1. Start import

Quantity structure:

<table>
<thead>
<tr>
<th>Test run/range for quantity structure</th>
<th>Average number of items in file</th>
<th>Maximum number of items in file</th>
</tr>
</thead>
<tbody>
<tr>
<td>Test run 1 (Range A)</td>
<td>1,168,118</td>
<td>3,346,000</td>
</tr>
</tbody>
</table>

Export print system
Prerequisites: A basically stocked product tree. A printing system that conforms to publication structure. 5,000 products with a total of 100,000 types of items allocated to the print system structure.

Three ranges defined by these items, range 1 with 20,000 items, range 2 with 60,000 items and range 3 with 100,000 items. Export format template for print system export.

5 export jobs are planned at 60 minute intervals during this test run.

Steps/Process:
Automatic. Print system database non-writable!

Quantity structure:

<table>
<thead>
<tr>
<th>Test run/range for quantity structure</th>
<th>Average number of items in file</th>
<th>Maximum number of items in file</th>
</tr>
</thead>
<tbody>
<tr>
<td>Test run 1 (Range A)</td>
<td>12,560</td>
<td>75,000</td>
</tr>
<tr>
<td>Test run 2 (Range B)</td>
<td>50,000</td>
<td>200,000</td>
</tr>
</tbody>
</table>

Export e-commerce system
Prerequisites: A basically stocked product tree. An e-commerce system that conforms to publication structure. 50,000 products with a total of 100,000 types of items allocated to the e-commerce system structure.

Two ranges defined by these items, range 1 with 100,000 items, range 2 with 1,000,000 items. Export format template for e-commerce system export.

Steps/Process:
Start export on back range 1. E-commerce system non-writable!

Quantity structure:

<table>
<thead>
<tr>
<th>Test run/range for quantity structure</th>
<th>Number of items in file</th>
</tr>
</thead>
<tbody>
<tr>
<td>Test run 1 (Range A)</td>
<td>4,964,316</td>
</tr>
</tbody>
</table>

More product videos and concrete application examples can be found at: http://tv.heiler.com
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