Re-hosting of their MRP application to Linux Redhat, Marposs not only achieved significant license and maintenance savings, but also homogenized their MRP & CAD/CAM environment whilst moving to a more open environment for further third party integrations.

In 2009, several efforts were made to re-host the ERP application onto open systems. The performance levels diminished as the tools used were not equipped to deal with the levels of customization built into the ERP application. The engagement of HTWC reaped different results.

“Inherent within our strategy was to re-host our ERP application to an open and standard system. We were confident HTWC could achieve our clearly specified performance requirements after a preliminary thorough benchmark”

Luca Simoncini, ITC Manager

PROJECT HIGHLIGHTS

| Marposs | Leading Global Supplier of Precision Metrology Equipment | HQ Bologna, Italy - 21 sales and service centers | www.marposs.com |

**Challenge**

- Highly customized, mission critical ERP system (e.g. sophisticated CICS exist routine for user error replicated in open environment)
- Heterogeneous nature of Mainframe environment – CICS, VSAM and DLI
- Online users in 23 countries plus extensive batch environment

**Solution**

- Migration of ERP applications to Linux Redhat
- Project development 12 months, testing 8 months
- Custom feature development and full integration with CONTROL M

**Customer Benefits**

- Achieved 80% annual cost reductions
- Homogenous infrastructure
- Greater integration of two key applications
- Performance improvements and more scalable systems
EXECUTIVE SUMMARY

Marposs is a leading global supplier of precision metrology equipment for improving productivity and reducing cost in manufacturing.

With 21 sales and service centers located in 23 countries in the world and a partner network covering an additional 10 regions, key to the success of Marposs is not only the high quality of products, but also a very lean yet highly available manufacture to order (MTO) operation. At the heart of this operation is a carefully customized Copics’ ERP application, consisting of production, inventory and logistics’ modules as well as peripheral administration modules. An integral part of their MTO operation, yet operating in a different IT environment, are several other key applications (WIP, CAD/CAM, accounting, etc…)

Over the course of several years, Marposs has examined possibilities to achieve greater integration of applications, and to reduce overall IT infrastructure costs.

In 2009 a project to re-host Copics was abandoned as it became clear that the system performance diminished to unacceptable levels, in some cases up to 100 times worse than previously. Upon analysis, it was determined that this could be traced back to the inability of the migration tools to orchestrate the highly customized ERP application with its new environment. Up stepped HTWC.

Running a lean business on a not so lean and fragmented environment, presented Marposs with both budgetary and operational challenges.

Operating worldwide, several hundred users accessed the online CICS environment by means of the CICS Web Interface. Supporting also a comprehensive Batch environment, it was essential to move for a greater integration of their applications as well as free up resources for subsequent package integration.

Key pre-requisites from the part of the client were:

• 100% preservation of Application value — the project was not to change the application, but to change its environment
• seamless integration and openness to modern software architectures that meet the requirements of flexibility, scalability, reliability and compatibility to standards
• the ability to scale applications quickly without having to resort to the cost of maintaining the mainframe platform in parallel
• Minimize re-training of IT Staff
• Users should not perceive any changes

“Where this project is part of a very clear strategy to cut operational infrastructural costs, we now see great potential by directly accessing relational data which were previously managed by DLI. Now we also can effectively step by step re-engineer applications and integrate third party functionality more easily”

Fabio del Duca, Organization and Application Developer Manager

SOLUTION

The solution was the result of close collaboration between HTWC and its Systems’ Integration partner, CDM Sistemi Informativi and the Customer.

Hardware - The proposed architecture, a Client / Server Tier 3, with a DB server, application server and the client level formed by the existing PCs.
- 1 AP server with 2 Intel 7500 series eight-core, 64 GB of RAM, Red Hat Enterprise Linux OS
- DB server with 2 Intel 5700 series quad-core, 64 GB of RAM, Red Hat Enterprise Linux OS
- Dedicated online storage, with two controllers with 1 GB of cache and an array (or Disk Group) consisting of 48 FC 15k drives
- SAN infrastructure, through a pair of 4 Gbps Brocade FD

**BEFORE**

![Virtualization with servers and storage]

**AFTER**

![SAN infrastructure with servers and storage]

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**Re-hosting**

Now we have the new hardware, re-hosting is what is required to get the applications there. The scope encapsulated the following artifacts:

<table>
<thead>
<tr>
<th>Source Environment</th>
<th>Solution</th>
</tr>
</thead>
<tbody>
<tr>
<td>z/OS</td>
<td>2 CPU Intel Eight-core serie 7500, 64 Gb di RAM, S.O. Red Hat Enterprise Linux</td>
</tr>
<tr>
<td>CICS</td>
<td>XIMS Gateway</td>
</tr>
<tr>
<td>DB2 – 1900 Tables</td>
<td>Oracle</td>
</tr>
<tr>
<td>IMS DB – 60 DBDS</td>
<td>H2R DLI – Oracle Gateway from HTWC</td>
</tr>
<tr>
<td>Sequential files</td>
<td>V2R Gateway – Converted VSAM data Gateway of HTWC</td>
</tr>
<tr>
<td>CVI</td>
<td>CW</td>
</tr>
<tr>
<td>BMS Maps</td>
<td>XSDF: System maintenance of the BMS map / SDF</td>
</tr>
<tr>
<td>2300 Online COBOL Programmes (Online &amp; Batch)</td>
<td>Microfocus Server for COBOL</td>
</tr>
<tr>
<td>5 Assembler Programmes</td>
<td>HTWC XEBE integrated with Control-M</td>
</tr>
<tr>
<td>1800 JCLs</td>
<td></td>
</tr>
</tbody>
</table>

**Online:** The online environment entailed usage of relational (DB2) and DLI data. Using its Hierarchical to relational tool (H2R) HTWC migrated these data into the target Oracle database. Corresponding application gateways were automatically generated to allow the applications to function unchanged

**Batch:** The batch JCLs were converted to UNIX shell run by the HTWC batch emulation XEBE integrated with Control-M scheduler
**REHOSTING PROJECT**

**Application Assessment**
Deep analysis of applications in order to draft a common solution blueprint. Using the HTWC ICON assessment suite, it was possible to conduct a detailed project plan and risk mitigation plan. In addition, we could confirm the adherence to the client’s requirement.

**Proof of Concept**
Representative client programs were re-hosted to the test environment where meticulous tests were carried out. Particular attention was given to the performance issues previously encountered – these were now alleviated.

**Set Code parameters**
Initial parameter setting so application can be orchestrated in the new environment.

**Create Test Environment**
With all hardware and software needed and before migrating the data to oracle environment.

**Legacy Code Conversion, and system testing.**
A full evaluation of the system performance was carried out, and pre-defined KPIs of 50000 transactions per hour were realized.

**Function Testing**
On the side of the client. As there were no code changes, this was kept to a minimum.

**Implementation of peripheral processes**
And devices (printing, communications, etc.).

**Code and data correction**
Key for a successful and trouble free go-live.

**Subsequent performance tuning**

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**THE RESULTS**

- Significant reduction of costs associated with Mainframe environment.
- Easier and more cost effective of future integration options - (eg Java, with tools such as JBuilder, Web Application Server technology).
- Lower fees for integration of desired applications in open environment as against Mainframe environment.
- Improved scope for gradual application modernization in open environment with a goal to improve staff productivity.
- Better overall performances.

"Key to a successful IT is its alignment to corporate strategy. At Marposs, we place a huge emphasis on this, and manage to overcome the traditional conflicts of interest. This was one project which really aligns the Corporate strategy with IT activities, and has been received throughout our organization as a resounding success both financially and in terms of IT agility."

Piero Pedretti, CIO

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**We are HTWC**

- Absolute market leader in mainframe re-hosting and migration.
- 97% of migration fully automated.
- Over 30 years experience.
- Truly global and all sectors.

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