

## MMS Solutions uses WebSphere and a clever question handler to avoid redundant solutions (reinvestments)

Overview
<p>■ <b>Solution provider profile</b></p> <p><b>MMS Solutions</b></p> <ul style="list-style-type: none"> <li>▪ Headquarters: Waanrode, Belgium</li> <li>▪ Direct &amp; partner sales channels in several European countries</li> <li>▪ 16+ years as provider of IT solutions to the distribution industry</li> <li>▪ Large and small European clients</li> </ul> <p>■ <b>Challenge</b></p> <p><b>Extend solutions with a flexible GUI</b></p> <ul style="list-style-type: none"> <li>▪ 48 million lines of code</li> <li>▪ 8+ application component modules (originally supported by green screens)</li> <li>▪ Respond quickly to new technologies &amp; market demands; avoid reinvestments</li> </ul> <p><b>Needed</b></p> <ul style="list-style-type: none"> <li>▪ Graphical interfaces</li> <li>▪ Integrated Web applications</li> <li>▪ Web services</li> </ul> <p>■ <b>Solution</b></p> <ul style="list-style-type: none"> <li>▪ Render browser interfaces from DDS</li> <li>▪ Leverage ILE RPG back end</li> <li>▪ Utilize Java &amp; Web technologies</li> </ul> <p><b>Key components</b></p> <ul style="list-style-type: none"> <li>▪ SOA</li> <li>▪ Java Swing Set</li> <li>▪ Web services</li> <li>▪ Java remote method invocation (RMI)</li> <li>▪ Microsoft Windows Mobile &amp; browser interfaces</li> <li>▪ Barcode scanners, PDAs</li> <li>▪ IBM ILE RPG</li> <li>▪ IBM WebSphere BI Services</li> <li>▪ IBM WebSphere Application Server</li> <li>▪ JavaServer Pages, JavaBeans, &amp; servlets</li> </ul> <p>■ <b>Benefits to solution provider</b></p> <ul style="list-style-type: none"> <li>▪ Quick incorporation of new technology</li> <li>▪ Multiplatform implementations</li> <li>▪ Access to multiple types of databases</li> <li>▪ Integration with many platforms</li> <li>▪ Reuse of business &amp; database logic</li> <li>▪ Easier to deploy, train, &amp; support</li> <li>▪ Protected investment in skills and code</li> <li>▪ Develop new function quickly &amp; cost-effectively</li> <li>▪ Quick customization to a new industry by connecting to the new ERP</li> </ul> <p>■ <b>Benefits to MMS customers</b></p> <ul style="list-style-type: none"> <li>▪ No need to understand IT technology</li> <li>▪ Training is almost immediate</li> <li>▪ Multilingual</li> <li>▪ Highly stable, proven code base</li> </ul>

**A global interface and a service-oriented architecture model is born out of the necessity to find a single means of managing the confluence of many technologies.**

Like other IT consultants, MMS Solutions has weathered large challenges in the 16 years since it began delivering services in Belgium and other European countries. MMS has always been an IBM® Business Partner and bases its distribution industry solutions on the reliable IBM System i™ (System i5™, eServer™ i5, iSeries™, and AS/400®) platform. However, as the demand for greater integration between suppliers and retailers became a priority, the need to learn and support new technologies and environments became a steady drain on its programmer resources. According to Erwin Hanon, president and founder of MMS, “We were dealing with multiple data interchange formats, a plethora of ERP and database requirements, as well as a steady progression of new user interfaces. Each new client request caused us to have to redevelop a new solution. This required enormous breadth and depth of skills, which is a very expensive venture in this industry.”

### Avoiding redundant solutions

After six years of this perpetual redevelopment ritual, MMS began a four-year reengineering effort on its RPG code base. By 2000, the company had built a well-designed ERP application offering for the distribution industry, called MMS/400. This offering, which included optimized logis-

tics and functions for sophisticated just-in-time stock reordering and warehouse management, was concisely coded in RPG IV in the IBM Integrated Language Environment®.

However, Hanon and his team were compelled to take a more organized approach to solving what was clearly going to be a never-ending need for new interfaces into MMS/400. “To do nothing would prove the death of the company over the next many years,” says Hanon. “We had to get more efficient at delivering graphical, multiplatform, and multi-interface capabilities.” To conserve development costs and reduce deployment timeframes, this not-yet-designed universal interface technology must also preserve the company’s fundamental business logic.

To demonstrate the redundant development efforts that MMS sought to simplify, consider the following tasks:

- Print an address to a local printer.
- Display an address in a browser screen.
- Embed an address in a credit application.

In a traditional architecture, these tasks require the creation of three unique solutions, even though they each need identical information. But as you will see, a service-oriented architecture resolves this problem.

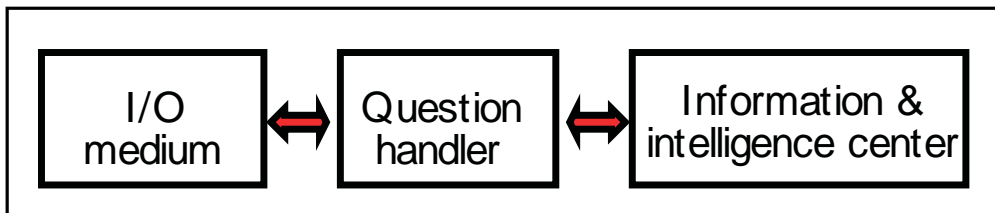


Figure 1: With MMS Gamma Global, each request has a global solution.

### A waiter serves up anything the client orders

The goal was that each new MMS customer would no longer mandate a customized application. Instead, additional functionality would be deployed through one global architecture.

MMS operates in a part of the world that is renowned for its culinary delights, which inspired Hanon to cook up an appropriate analogy to explain the recipe for the company's newly modernized applications.

Imagine that a customer in a restaurant places an order with the waiter. The waiter does not need to know how to prepare a drink or cook a meal. He merely delivers the customer's wishes to the entity (the bar or the kitchen) that does understand and can fulfill the request. Then, the waiter promptly delivers the prepared item back to the customer.

In this metaphor, the waiter's job is always the same, representing a single solution for every customer need. This is true in all types of restaurants around the world, whether the establishment serves Chinese, French, or Jamaican cuisine, and regardless of the languages used, the local culture, or the environment.

"The simplicity of this explanation is important," says Hanon. "MMS clients instantly understand how the system works. There are no technical terms to confuse them."

The implementation of this global-solution architecture has apparently proven equally as simple to use, as you will soon see.

### MMS Gamma Global service-oriented architecture

This redesigning project, which began in 2000, took four years and required that MMS programmers learn the IBM WebSphere® development environment and Java™ technologies. Hanon candidly shares that, even as other development shops were investigating Microsoft® Web development tools, his organization had already observed that support from IBM was steady and reliable. Coupled with MMS' breadth of RPG and ILE skills and understanding of the reliability and security benefits of the iSeries hardware, the decision to stay with the proven IBM midrange platform was almost automatic.

The resulting architecture, called MMS Gamma Global, works along the principles of a service-oriented architecture (SOA).

This means that they have created stand-alone functional components that can be wrapped as Web services, which can be used whenever there is a business requirement. The architecture gives them the capability of mixing and matching ready-to-reuse components to support the rapid assembly of new business processes. SOA also allows for the near instantaneous modification of existing processes as business dynamics shift. Equally important, SOA is an excellent architecture for

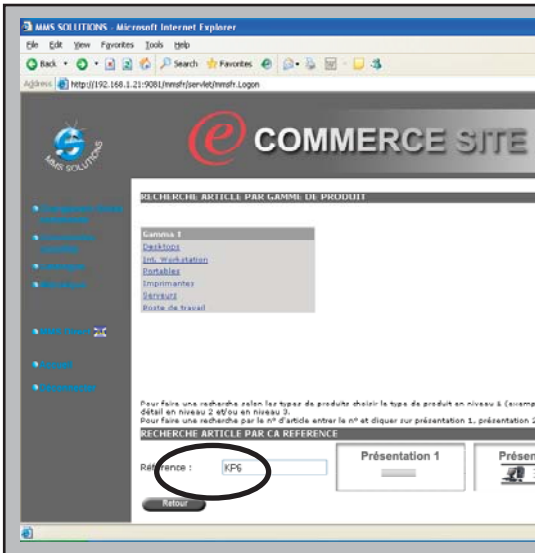
IT environments that need the flexibility to support multiple front-end interfaces and devices.

MMS has three parts: an information and intelligence center, a question handler, and an I/O medium. Any request made by an MMS solution utilizes these components.

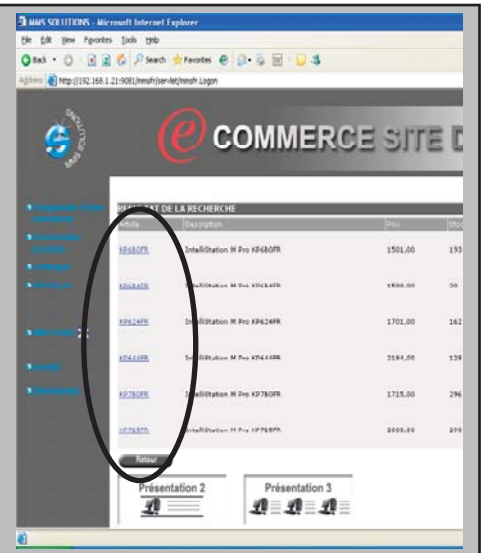
- The information and intelligence center (I & I center) is the most important part of this three-pronged global solution. It is typically the ERP or back-office system and contains enterprise data and business rules. All MMS solutions interact with the I & I center, which is filled with services (members such as Java objects, program calls, and SQL queries) that can respond to various questions or tasks. Each member knows where and how to access information (data), how to treat it, and how to answer requests.
- The job of the question handler is similar to that of a waiter. The client (the I/O medium) asks a question of the handler, which then analyzes and forwards the request for a service to a specific member in the I & I center. As just mentioned, the member then gathers the answer and provides it back to the service so that it is at the disposal of the question handler. The handler delivers the answer in the form expected by the I/O medium (according to its authorization and permissions) but does not know, or have any concern for, how the I/O medium will use the answer. The MMS question handler depends on parameters to accomplish its mission and does not go to the

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– Erwin Hanon, president, MMS Solutions



This e-commerce demo site was developed with MMS-Webeditor, a tool to design Web applications. This tool uses the MMS Gamma Global architecture. The query input and output medium is a browser screen. Behind the scenes, the question handler has sent a request to the MMS/400 ERP system to display all product codes that begin with KP6.



database directly. Instead, it goes to the service (the business logic that resides in the ERP), which in turn, goes to the database. In other words, the question handler does not need to have database expertise. This makes it easy for the handler to move between disparate database environments. In fact, because the handler was developed in Java, it can also execute on any server platform.

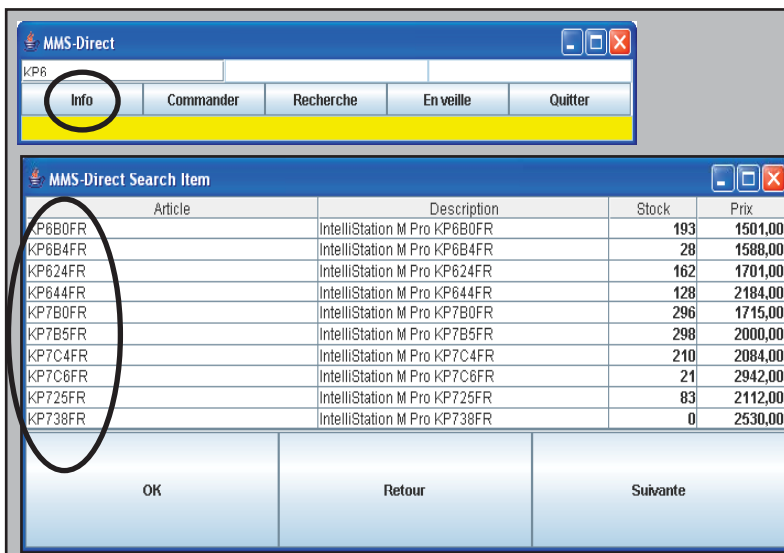
- The I/O medium presents the request to, and receives the answer back from, the question handler. After the answer is received, the I/O medium then does something with it, such as printing or displaying it in a browser or online form.

The three levels communicate with

each other independently; changes to any tier do not affect the other levels. For example, the services for complex pricing calculations reside in the I & I center where they can be altered, without requiring any changes to the question handler or the I/O medium. Similarly, if there is a need to enhance the I/O medium to present data on a new device (for example, a PDA or cell phone), the I & I center and the question handler do not need to be changed.

This three-pronged solution protects the enterprise's investment in its proven back-office solution. MMS Gamma Global also provides the flexibility for MMS to deliver cost-effective, rapidly implemented access and data sharing with new devices and users through the use of services. Hanon says, "MMS

Gamma Global helps enterprises by supporting their need to be resilient as the dynamics of their business environment change. To do this, we had to separate the business logic (intelligence) and the data knowledge (information) from the distribution and presentation logic." MMS utilized WebSphere Business Integration Server Express natively in the i5/OS® environment to interconnect the question handler and information and intelligence centers. Using this type of SOA middleware provided MMS with a flexible architecture that can be easily updated to support changing business requirements. For example, one of the specific WebSphere Business Integration Adapters MMS has incorporated so far is the SAP® Open Catalog Interface (OCI).



This pop-up query was written with MMS-Direct, a tool developed using Java Swing GUI components that run consistently on any operating system that supports the Java virtual machine (JVM). MMS-Direct also accesses MMS Gamma Global to use Web services or RMI to connect to the ERP system through the question handler. The output displayed back to the user is also in the form of a pop-up screen. Behind the scenes, the question handler sends a request to the MMS/400 ERP system to display all product codes that begin with KP6, yet the presentation medium varies.

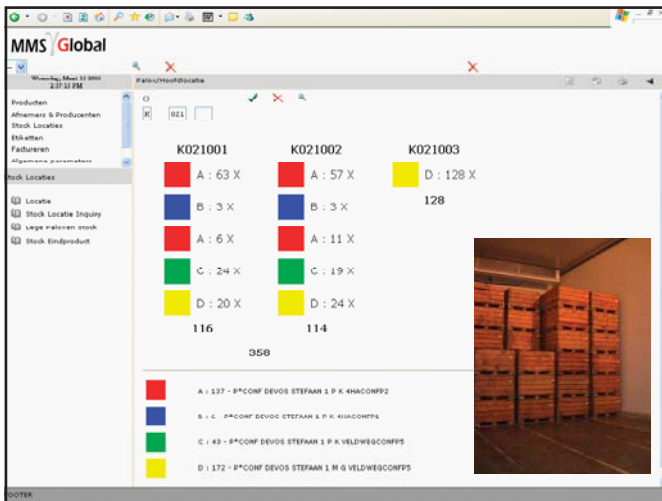


Figure 2: Devosort's MMS Gamma Global solution transcends language barriers.

### Harvesting beta feedback

In January of 2005, when MMS was beginning to commercialize its single global solution (MMS Gamma Global), Hanon explains that he got an urgent request from Devosort, a large harvester and distributor of pears and apples in Belgium. This family-owned produce supplier was interested in the MMS FAV/400 commercial system for the vegetable, fruit, flower, and plant sector (perishables). With 16 fulltime employees and a much larger seasonal work force for harvesting, Devosort's only move toward automation had been a PC (running Microsoft Windows and Excel). No one in the company wanted to learn anything about computers, but they needed relief from the enormous manual effort of tracking size and quality characteristics, as well as origination data for each unit of produce they sold. In 2004, complying with this government mandate caused one family member to work virtually day and night, even beyond the harvesting season.

Hanon thought Devosort's challenge was ripe for the picking; it was an opportunity to test all elements of the MMS Gamma Global product, including the use of handheld PDAs, barcodes, wireless connectivity, and ease of use. Many of Devosort's harvesters do not speak or read French, Dutch, or German. Therefore, the interface needed to be so simple to understand that it transcended the

language barrier by depending on intuitive, icon-driven functions.

However, MMS Gamma Global was not yet integrated with any commercial product. FAV/400 would have to be working in concert with MMS Gamma Global in only a few short months. This would be the company's first integration test. Hanon wondered if this timeframe would

be long enough. Would there be unforeseen glitches in the Gamma Global logic? Would it truly be simple enough for uneducated workers to learn quickly and use accurately? Would a company without a mature understanding of the logistics and discipline required to depend on a computer for its most fundamental paperwork be able to handle the transition in one quickly implemented step?

Hanon brags, "The harvest is done. MMS Gamma Global was an excellent tool; we delivered it on schedule with performance as anticipated. In fact," he continued with a smile, "apparently, the reliability and steady availability of the IBM eServer i5 model 520, coupled with the smooth-running MMS software have performed so solidly, that when we recently took a group of IBMers out to see the installation, the Devosort owner did not even know where the i5 520 was located." Nonetheless, Pieter Devos, a senior manager with Devosort was quick to explain, "Our business has been expanding so quickly that we could no longer manually oversee errors made in stocks, accountancy, and traceability. With MMS Gamma Global technology, we now run our company in a much more controlled and simplified way. These days, errors are rare and we have become a leading company in regard to product traceability."



### For more information

Contact your IBM sales representative, or MMS Solutions ([mms-solutions.be](http://mms-solutions.be)), or visit IBM at: [ibm.com/server](http://ibm.com/server)

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