

Industry: Travel and transportation

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Crowley Maritime plots its course and lowers the boom on costs with Service Oriented Architecture

Solution from IBM and Ultramatics, Inc., leads to reduced application delivery time and costs, improved efficiency and productivity



Overview

The Challenge

To support business flexibility and agility; including:

- Address legacy application modernization
- Improve increasing integration complexity
- Reduce operating costs
- Increase profits and ROI of existing routes/platforms
- Implement a "sustainable" solution so that IT can more easily adapt to future business requirements

The Solution

IBM WebSphere Process Server V6, IBM WebSphere Message Broker for Multiplatform V5, IBM WebSphere MQ V5, IBM eServer zSeries 890 in a Service Oriented Architecture designed and implemented by Ultramatics, Inc.

The Benefit

- Application delivery time and costs reduced by half
- \$15,000 saving per integration interface; anticipated \$225,000 savings over previous practices
- Significant improvement in efficiency, productivity, business flexibility
- Errors and omissions reduced

A diversified organization employing almost 5,000 people, Crowley Maritime operates globally in a variety of businesses with a mantra of "Small Company Mentality, Big Company Efficiency." Founded by Tom Crowley in 1892, and run by his son Thomas B. Crowley and grandson Thomas R. Crowley, Jr. since, Crowley Maritime began with a single 18 ft. rowboat servicing ships and sailors in San Francisco Bay.

"This directly translates to \$225,000 in savings for Crowley over our previous practices. Not to mention the soft dollar implications on resource utilization, costs and efficiency as those resources can now focus their efforts on other fronts."

Jerry Dresch
Director of Application Services
Crowley Maritime Corporation

Delivering transformational results



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Participation in IBM PartnerWorld Industry Networks enabled Ultramatics to maintain perspective on Crowley requirements

Benefits

- \$15,000 saving per integration interface; anticipated \$225,000 savings over previous practices
- Application delivery time and costs were immediately cut in half
- Enterprise specific standards and effective SOA governance led to significant operational efficiencies and productivity improvements
- Errors and omissions reduced
- Creation and exposure of services called for by applications within SOA leveraged for every new application rollout
- Technology simplification, application modernization as a result of reusing legacy assets rather than replacement

Over the following century, while maintaining family control of the company, the Crowleys have grown and transformed the business into a major provider of maritime services ranging from tugs and barges to containerships, with operations from Central America and the Caribbean to Alaska's North Slope. Now nine years into the job of Chairman, President, and CEO, Thomas B. Crowley, Jr. has guided a carefully paced streamlining and repositioning of the company to meet the new challenges of its second century of operations. As Crowley Maritime has grown, it has accumulated business lines and strategies that needed reexamining and improvement in light of changing market conditions that have made 'return to core competencies' the new reality for many industries.

Crowley, with headquarters in Oakland, California, and primary logistics operations in Jacksonville, Florida, found the innovations it needed in a Services Oriented Architecture (SOA) solution designed and customized by IBM and Ultramatics, Inc., an IBM Premier Business Partner, headquartered in Tampa, Florida.

Ultramatics used IBM WebSphere® Message Broker for Multiplatform V5, IBM WebSphere MQ V5, IBM eServer™ zSeries® 890 in the solution, which formed the Advanced Enterprise Service Bus (ESB) and adapter framework at Crowley.

One early benefit was a reduction — by at least half — of the usual time and costs incurred in tying new, third-party applications into the Crowley core infrastructure, which included a legacy mainframe-based customer-information system. With a 30-year-old system that was heavily customized, this was no small achievement. Under previous practices, integration projects typically ate up about 300 work hours of people in the Crowley information technology group.

"We had a spider web of point to point connections, with custom-built application interfaces needed at both ends," said Jerry Dresch, Director of Application Services, at Crowley. Dresch explained: "Prior to the implementation of WebSphere Message Broker and our ESB, Crowley was heavily dependent on point to point integration."

The ESB is the IBM Advanced Enterprise Service Bus, a foundation for IBM's Service Oriented Architecture. The IBM Advanced ESB is a robust middleware solution that defines the backbone for corporate integration. It represents a combination of technologies that are responsible for connecting disparate application components without each application component having complete dependency on other application components (inclusive of programming language, platform, operating system, transport, etc.) The ESB becomes the intermediary between all component technologies, and introduces an information pipeline that acts like a kind of information superhighway for incoming and outgoing messages regardless of the applications that connect to it. An application component will plug into the ESB via its published interfaces and necessary adapters. Likewise, applications can be easily added or removed as business demands dictate without concern of complex integration requirements in a rigid environment.

Anticipated \$225,000 in savings

“Normally, it could take our team at least 300 hours to develop integration components for our systems and new applications,” Dresch said. “In the event that a change needed to be made, a long and tedious process had to occur. This first step in our SOA Strategy has led to a direct dollar savings of \$15,000 per integration interface, which are now implemented as reusable services.”

“As reuse of the SOA platform continues and these numbers hold true,” Dresch continued, “we will see this savings on at least 15 new integration interfaces over the next 24 months. This directly translates to \$225,000 in savings for Crowley over our previous practices. Not to mention the soft dollar implications on resource utilization, costs and efficiency as those resources can now focus their efforts on other fronts.”

More important for Crowley Maritime were the strategic benefits, which are part of the ongoing savings and increased operational efficiencies. Early results were seen in the first half of 2006, when a major business initiative at Crowley was launched. This major initiative, implementation of a transportation management system for inter-modal transportation, was purchased and launched in late 2005, effectively “plugging into” the adapter framework and the ESB that Ultramatics and Crowley had already brought into production earlier that year.

This particular inter-modal transportation management system automates the routing of Crowley cargo containers — several hundred per day — to dozens of terminals across North America. The application manages and improves operational efficiency of the intermodal portion of Crowley Maritime’s ocean shipping business. As the first true test of the ability of the Crowley Service Oriented Architecture to easily integrate with a substantial package, the adapter framework and Enterprise Service Bus performed above expectations and with unprecedented flexibility.

“Right away in Pennsauken (New Jersey),” said Ed Ramsey, manager of the Crowley Integration Team, “we were seeing efficiencies we had never seen before. The routes chosen were, on average, better, cheaper and faster,” he continued. “So we’re raising the quality of services we can provide. We’re increasing customer satisfaction. And we’re seeing fewer empty containers on the back-haul trips.”

Legacy Modernization as a direct benefit of Service Oriented Architecture

The Crowley/Ultramatics’ team has built at least 20 major interfaces for the Enterprise Service Bus by way of the adapter framework – including interfaces to equipment control systems, the legacy Accounts Receivable system, Customer/Vendor information system, and others. One major component of the success of these projects though was utilizing a proven methodology of ‘service enablement’ for several legacy systems/applications that continue to serve Crowley very well.

Key Components of the Crowley Maritime Solution

Software

- IBM WebSphere Message Broker for z/OS V5
- IBM WebSphere MQ V5
- Software Oriented Architecture designed and implemented by Ultramatics, Inc.

“It’s a sustainable architecture — not a solution to be implemented today for a benefit today. It allows this customer to build a really strategic core infrastructure — one they can keep building on.”

Sean Jensen,
Sales & Marketing Manager,
Ultramatics, Inc.

“Our ‘Best Practices’ message is one of Ultramatics’ strongest competitive advantages. Our core competencies are centered on the IBM WebSphere and Rational technologies because they are the most robust, most comprehensive and most reliable...but the ability to show new prospects that your firm can help them bypass some of the common pitfalls/mistakes that other have made is one of the strongest messages we can bring to the table.”

Saru Seshadri,
President & CEO,
Ultramatics, Inc.

“Having delivered SOA to several customers, Ultramatics worked closely with Crowley to describe and document SOA & Integration Best Practices as related to addressing items like legacy modernization,” said Sean Jensen, Sales and Marketing Manager for Ultramatics.

Ultramatics helped Crowley add years of life to several back end legacy systems/applications by creating “service enabled” adapters to older, heavily customized systems/applications. In effect, as new packages like the transportation management system (or any other new package) were implemented, they could be seamlessly integrated and thus communicate with every Crowley back end system. The methodical approach leads to significant “reuse” as portions of those same interfaces are leveraged for new packages.

“One of our biggest successes from my perspective,” Ed Ramsey adds, “is that our financial leaders love how easily we were able to leverage the interfaces we created for the legacy Accounts Receivable system. By way of service enablement, two additional operational systems can invoke the services on the legacy AR system as needed. Bringing the total to three financial systems using and reusing the same interface, these financial leaders were more easily able to view the core data that was so important to them. Ultramatics had alluded to benefits like this as a byproduct of the Service Oriented Architecture during our roadmap sessions, but the quick visibility of these benefits to the business was impressive.”

The ability to create services for legacy applications has subsequently added life to legacy applications that were not ready for replacement (due to years of heavy customization and unique abilities of that existing package). “The integration framework took care of it all.”

These benefits are expected to multiply during 2006 and 2007 as other key corporate processes — including financial systems, human resources, and business-to-business interactions — were brought into the integration framework.

‘Enterprise view’ wanted

The challenges that led Crowley to Ultramatics had been mounting for several years. Facing the reality that the Crowley business would be making several acquisitions of other businesses as well as establishing new partner relationships to fill gaps in services and operations (partnership with trucking companies, for example), Crowley sought expert guidance from Ultramatics in the area of “Integration Best Practices.”

The question of how to support each future integration requirement was growing urgent since Crowley already had three smaller lines of business whose information systems had not yet been integrated into the core business operations.

This complexity was even seen in accounts receivable, since many customers were buying services of different kinds from two or more of the Crowley business units. Each unit had developed its own style of tracking, pricing and servicing a specific customer — some literally paper- and pencil-based.

“Crowley felt that, in some cases, they were leaving money on the table and could improve profitability with some segments,” said Saru Seshadri, President and Chief Executive Officer, at Ultramatics.

Crowley management wanted, first of all, a single enterprise view of its business processes and revenue flows. Managers wanted to view metrics for transaction monitoring (like a business dashboard) as well as wanting operating lines to interact in real time with a unified customer-information database. Equally important, they wanted any new business application that the company might want to adopt to be easily integrated into the core infrastructure.

Dresch said each point-to-point link between a new application and the core infrastructure “had to be built laboriously in-house. Reliability and manageability were becoming really difficult. Data transfers with some of the third-party applications were increasingly prone to failure. We never knew what we were getting into when the business decided it wanted to install a new application. We did know we couldn’t keep living like that.”

That was the situation when, in early 2004, Crowley engaged the consultants at Ultramatics for advice. Ultramatics specializes in business-process integration and service-oriented architectures. The Ultramatics team spent most of the rest of 2004 working side-by-side with Crowley management and the in-house technology group, studying the company’s history and what it was trying to do strategically going forward. “They became a trusted advisor to our business,” said Dresch.

Positioning itself as a “go-to” partner in the transportation industry, Ultramatics approached Crowley from the position of “Best Practices” in their vertical market. Having delivered at other transportation industry customers, Ultramatics spent the education time needed for Crowley to understand the strategic importance of implementing a “sustainable” and robust solution, one that would answer their current pains around point to point integration, but also be positioned for future, unexpected desires from the Crowley business.

The upshot was the implementation, starting in 2005 and continuing into 2006, of the Crowley SOA solution. IBM middleware was the foundation. Saru Seshadri, President of Ultramatics adds, “Our ‘Best Practices’ message is one of Ultramatics’ strongest competitive advantages. Our core competencies are centered on the IBM WebSphere and Rational technologies because they are the most robust, most comprehensive and most reliable - but the ability to show new prospects that your firm can help them bypass some of the common pitfalls/mistakes that other have made is one of the strongest messages we can bring to the table.” Seshadri adds, “we quaintly call this our “battle scars” when talking with new customers about SOA strategies and the need for an iterative approach to Service Oriented Architecture. It simply cannot be a ‘Big Bang’ approach, or you lose some of the governance and strategic value that SOA delivers to an enterprise.”

How SOA works

Sean Jensen, sales and marketing manager, for Ultramatics, explained that the magic of SOA is that it supports the reusability of components and provides easy access to those components when needed – on demand.”

Jensen said the combination of IBM WebSphere MQ and the Message Broker were the “heart” of the SOA at Crowley. “SOA serves as the central medium, doing the required translations and conversions, and tracking down reusable components wherever they may reside, instantly, automatically, and supplying them to wherever they may be needed,” Jensen said. “That eliminated all the massive tweaking that had to be done at the application level previously.”

“It makes for a very flexible and strategic infrastructure that serves as the linchpin for everything else that they do,” Jensen continued. “It’s a sustainable architecture — not a solution to be implemented today for a benefit today. It allows Crowley Maritime to build a really strategic core infrastructure — one they can keep building on.”

Ultramatics, IBM PartnerWorld®, and SOA Specialty

When Ultramatics opened its doors in 2001, “we found immediate, mutual benefits in working with IBM,” said Seshadri. Ultramatics became an IBM Premier Business Partner in 2003. “And now we’re in many IBM programs. Recognized and certified as an IBM Business Partner as “SOA Specialty” certified, Ultramatics participates in IBM programs such as vertical-industry workshops and co-marketing projects that are tightly integrated to the Ultramatics business vision and increasing the core competencies.

With SOA Solution Galleries in Tampa, Florida, and Chennai, India, Ultramatics delivers vertical domain solutions in the areas of Healthcare, Transportation, Banking, and Telecom. In 2006, Ultramatics was recognized by IBM with the "Beacon Award" nomination for excellence in solution delivery.

Ultramatics participates in IBM PartnerWorld Industry Networks, which offers a rich set of incremental industry-tailored resources to all PartnerWorld members who want to build their vertical market capabilities and attract potential customers in the markets they serve worldwide. Whether a company focuses on one or more industries — or serves small, medium or large companies — IBM has the technology and resources to help members more effectively meet their clients' needs.

Ultramatics is an "optimized" member of the travel and transportation industry, which means it has developed further specialization by optimizing its applications with IBM on demand technologies, achieving success with its own on demand solutions and meeting other criteria.

Other networks are automotive, banking, education and learning, electronics, energy and utilities, fabrication and assembly, financial markets, healthcare and life sciences, insurance, media and entertainment, retail, telecommunications and wholesale.

Seshadri said Ultramatics used the network benefits "various ways over the past year to solidify our position at Crowley. The program helped us maintain a strategic perspective on Crowley requirements from a vertical industry perspective." The vertical industry perspective is important to Ultramatics. It focuses on the vertical markets of transportation, healthcare, telecommunications and banking. Ultramatics' offerings are branded as UltraStart Business Solutions and include IBM software, integration services and skill transfer.

For more information

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*Regarding an iterative approach
to Service Oriented Architecture:*

***"It simply cannot be a
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