Web-based Solution Helps Death Care Service Provider Cut Costs, Scale Up

Overview

Country or Region: United States
Industry: Death care services

Customer Profile

SCI, a U.S.$2.3 billion death care services industry leader, operates through more than 1,600 funeral homes and cemeteries across North America. It seeks to improve customer service and profitability.

Business Situation

To improve profitability and customer service, SCI needed a Web-based solution. The existing thick-client system provided good functionality, but it had limited scalability.

Solution

SCI engaged IT consultancy Infosys to develop the solution. Infosys's proposal was to build an efficient, effective, and low-cost Web version of the existing product, mapping the requirements onto a Microsoft® ASP.NET-based Web application and lowering the total cost of ownership.

Benefits

- Annual IT savings of U.S.$4 million
- No major infrastructure upgrades
- Solution reduced installation and maintenance costs
- High-cost legacy systems retired
- POC ensured risk mitigation

"Migrating to an integrated .NET-based Web solution will result in an estimated IT savings of over U.S.$4 million per annum for SCI."

John Del Mixon, Managing Director, IT, SCI

SCI, a U.S.$2.3 billion death care services company, assists more than 630,000 families each year through a network of more than 1,600 funeral homes and cemeteries across North America. As a global leader in the industry, it seeks to improve customer service and profitability. With customers moving away from traditional death care services, the challenge is to protect margins in an increasingly price-sensitive market. This made SCI re-examine its IT needs. SCI liked its existing client/server solution, but it needed a Web-based solution. Infosys, a leading IT and consultancy company, created a Web solution based on Microsoft® ASP.NET. The project started with a small proof-of-concept phase to validate the Microsoft .NET architecture and solution, and culminated with a robust application being used by almost 1,600 SCI funeral homes and cemeteries in North America.

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Situation

SCI, a U.S.$2.3 billion death care services company, assists more than 630,000 families each year through a network of more than 1,600 funeral homes and cemeteries across North America.

As an industry leader, its challenge is to protect margins in an increasingly price-sensitive market where customers are moving away from traditional death care services. The imperative to improve profitability and customer service made SCI re-examine its IT needs.

SCI has several IT applications that support cemetery operations, funeral home operations, pre-need funerals funded by trust or insurance, and management reporting. It needed to integrate the features of all these applications into a single integrated Web application.

Its existing IT system, developed by Hanlon Management Information Systems (HMIS), was a thick-client PowerBuilder solution designed for the death care industry. A complex client/server solution with a rich user interface, the solution and its associated database schema have evolved over a decade. The functionality offered is extensive and met nearly all the requirements of SCI. However, the client/server architecture provided limited scalability, catering only to small clients at a few locations.

SCI engaged Infosys, a leading IT and consultancy company to develop a solution. Infosys's proposal was to build a Web-based version of the HMIS product. Given the complexity and richness of the existing user interface (UI), the challenge was to map the functional and non-functional requirements onto a Microsoft® ASP.NET–based application. A key aim was to achieve comparable performance in a severely bandwidth-constrained environment. The size

of the existing database of legacy applications was around 800 GB while the size of the new HMIS database was estimated between 300 and 600 GB.

Infosys first developed a proof-of-concept (POC) over a 20-week period starting in July 2002. The objective was to demonstrate the benefits of the solution and mitigate the technology risks involved in a complex migration project. The goals of the team for the POC were to:

- Provide an efficient, effective, and low-cost IT solution to the cemetery, funeral, and trust operations at SCI.
- Meet the stringent performance and scalability requirements under low bandwidth conditions.
- Develop a technical architecture at a low total cost of ownership (TCO) for a Web-based application that would eventually replace thick-client and first-generation Web applications.
- Show the benefits and business value of migrating to a "future state" IT configuration based on Microsoft .NET technologies.
- Generate a capacity planning document for hardware and software investment over the next few years.

Following the successful demonstration of the POC, Infosys used the learning to re-engineer the large PowerBuilder client/server application to a robust Microsoft .NET–based Web application.

Solution

During the POC phase, Infosys engaged Microsoft Services to participate in the architecture and design of a high-performance .NET application as well as to provide inputs on performance, tuning, and handling with very large databases.

"SCI was able to retire high-cost AS400 and UNIX legacy systems and hence will have

significant savings in the coming years," comments John Del Mixon, Managing Director of IT at SCI.

The POC covered 20 per cent of the functionality and 80 per cent of the non-functional complexity of the "future state" Web application.

The aim was to mitigate the risks involved in mapping client/server features to a Web-based solution. It involved building a set of infrastructure and common application blocks based on the design and development of best practices as recommended by MCS.

The approach for the POC included defining the following areas for the future state application.

Application Architecture
Design and develop a set of framework components and application blocks which implement all of the best practices for Microsoft .NET Framework languages, Microsoft ASP.NET, and Microsoft ADO.NET. This would ensure that all components and feature elements of the solution would meet the performance, scalability, security, reliability, and availability metrics of the application.

System Architecture
This involved defining the external interfaces the application would expose to integrate with partner and customer solutions. The POC demonstrated integration with third-party solutions such as Omniform and Documentum.

Infrastructure Architecture
This exercise was carried out to generate realistic hardware and software requirements. The POC was subjected to rigorous performance testing to tune the application to achieve high-performance application expectations. The output of the

performance testing was used for a capacity planning exercise. This exercise included the calculation of TCO for the "future state" application. SCI realized the benefits of developing a POC instead of waiting two years to see the full application in production. For the client, the whole program was a de-risking strategy.

Some of the main tasks involved in the project were:

Business Re-Engineering
Since the existing application was a tightly coupled two-tier application, one of the biggest challenges was to extract business rules from the existing PowerBuilder application quickly. There was no readily available methodology or tools to extract them, so this had to be done manually.

New Product Integration
The POC had to integrate with Documentum, Crystal Reports, and Omniform. Documentum integration was used for managing the image documentation. Omniform converted all paper forms, such as certificates, into electronic form templates and then stored them in the database. The stored template forms are used for the mass generation of forms. Crystal Reports was used for report generation. Reports in the existing client/server application were very complex, running into tens of thousands of rows and 30–60 columns. This functionality had to be mapped to relatively simpler reports on the browser without losing the functionality provided by the existing application.

Effective Feature Mapping
Another challenge on this project was to deal with the "resistance to change" of rich UI features that were client/server specific in legacy applications. Most screens had tightly-bound data controls, tabs, multiple grids, and pop-up windows. The team had to re-engineer a lot of screens in the application to fit the

browser-based UI. The team built multiple prototypes and carried out performance and stress tests to show the impact of each choice. This enabled the SCI to make decisions based on the implications and limitations of the Web application.

Customization

One of the main features of the existing application was support for on-the-fly customization and personalization of the screens through context-based menus and clicks. The team had to come up with an innovative technique to support this feature in the browser by switching to the customization mode pages.

High-Performance Application Expectations

SCI was very particular about the performance and feasibility of the Web application in a low-bandwidth dial-up environment. The team designing the POC demonstrated due diligence to meet this challenge by building stringently reviewed and tested application blocks and using best practices from the start. Best practice checklists were produced to make sure that the code of each component was carefully designed and developed to meet performance expectations. Infosys and Microsoft Services spent four weeks running performance and stress tests, and analyzing and tuning the application to meet requirements. The results of the performance tests were used for hardware and infrastructure capacity planning.

Database Optimization

Another requirement of the project was to ensure that the application could scale to handle a database larger than 1 Terabyte in size. With the help of the Microsoft SQL Server™ product team, the company used best practices for tuning Very Large Databases (VLDB). The schema of the existing database had evolved over a decade,

so one of the constraints of the project was not to alter the schema, as the impact on the application would be significant. The team was limited to tuning queries, indexes, and stored procedures. Using best practices, it was able to tune the query execution times by multiple factors.

After the successful execution of the 20-week POC in Nov 2002, Infosys successfully executed a full-application migration from PowerBuilder to the .NET-based Web application. Infosys also helped SCI with the migration of data from legacy applications. The application was rolled out in phases to SCI field locations. The first rollout happened in June 2003 and the final one in Aug 2004.

Benefits

IT savings

"It is estimated that migrating to an integrated .NET-based Web solution will result in IT savings of over U.S.$ 4 million per annum," says Del Mixon. Deployment of the new application did not entail a huge one-time infrastructure upgrade across the sites because the application has been tuned for optimal performance in low-bandwidth networks.

Lower costs

Since the solution is Web-based, it reduced considerably the costs involved in installation and maintenance of the application. This was a key factor for the client, as SCI had an installed base of over 1,600 sites and is expected to rapidly grow over the coming years. "We were able to retire high-cost AS400 and UNIX legacy systems and hence will have significant savings in the coming years," affirms Del Mixon.

Risk Mitigation

SCI foresaw the risks involved in migrating a decade-old solution to a new technology, topped with a paradigm shift from

client/server architecture to a Web-based architecture. The execution of the POC helped to ensure key functional requirements such as UI, customization, and personalization, and it helped the company meet non-functional requirements such as performance, scalability, security, and reliability.

About Infosys

Infosys, a world leader in consulting and information technology services, partners with Global 2000 companies to provide business consulting, systems integration, application development, and product engineering services. Through these services, Infosys enables its clients to fully employ technology for business transformation. Clients leverage Infosys's Global Delivery Model to achieve higher quality, rapid time-to-market and cost-effective solutions. Infosys has over 36,000 employees in over 30 offices worldwide.

About Infosys-Microsoft Alliance

Infosys is a Microsoft Global Systems Integration Partner. Infosys's strategic alliance with Microsoft brings together the innovative technologies of Microsoft and the integrated services delivery capabilities of Infosys to deliver tangible business value to customers. Steve Ballmer commenting on the relationship: "Microsoft and Infosys share a commitment to helping customers use technology to improve every area of their business, from process excellence to connecting with customers to responding effectively to the competitive landscape. Microsoft's long-term focus on delivering an integrated, manageable, and reliable platform, combined with Infosys's unique delivery model and deep consulting skills, is designed to help customers succeed and grow through increased efficiency, cost savings, and business value."

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Microsoft .NET

Microsoft .NET is software that connects people, information, systems, and devices through the use of Web services. Web services are a combination of protocols that enable computers to work together by exchanging messages. Web services are based on the standard protocols of XML, SOAP, and WSDL, which allow them to interoperate across platforms and pro-gramming languages.

.NET is integrated across Microsoft products and services, providing the ability to quickly build, deploy, manage, and use connected, secure solutions with Web services. These solutions provide agile business integration and the promise of information anytime, anywhere, on any device.

For more information about Microsoft .NET and Web services, please visit these Web sites:
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Document published October, 2005

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