



Case Study – National Trust Web Stabilisation Project

The National Trust is the premier organisation preserving historic buildings throughout England and Wales. MSM have a strategically important relationship with the IS Department and are seen as one of their key suppliers. We took over from an in house team and provide daily support for their entire website, written in Obtree/Livelink, C++ & ASP and running on Oracle. We have also rewritten significant subsystems on the website to modernise the technology, using C#, .NET & Oracle in a project worth £250,000. The website generates approximately half of their income (in the form of membership renewals) and therefore is business critical. We also support various other legacy back office software running on Windows in each property, mostly in Delphi and Oracle. Again we took over support & maintenance from an in house team after a health check.

Project Rationale

The National Trust first embarked on developing a public facing web presence in 1996. Until 2002 there was no strategic approach to development and control was extremely devolved. Regions, properties and departments could approach third parties to develop whatever applications they wanted in any format. There was no central plan or coherent control of what was published to the website.

In 2002, a central Web Team was created, but it was to be a number of years before the team could exercise any control over the site.

In August 2005, the website was re-launched in conjunction with a new content management system (CMS) – presenting a revised look and feel. Although introducing better control, many of the legacy applications were brought over ‘as is’ from the old website with no consideration of their functionality within the new architecture. Hence, various bespoke technologies were inherited with no consistent development language or environment. Ultimately, this led to an unstable website, which became difficult and costly to develop, maintain and support.

Devoid of any failover contingency position, during the last week of January 2007, the Trust’s website was unavailable on four separate occasions with outages of up to 3 hours during core business times. Statistically, the website had availability of only 80%. With online revenue equating to circa £6 million between Membership and Holiday Cottages alone, this posed a real risk to revenue collection as well as reputation. Furthermore, emerging ideas for eEngagement would be pushing the boundaries of web technology that could only be realised with a robust, scalable infrastructure at its foundation.

Some of the applications were not suitable for running on a reliable clustered or load balanced environment, preventing infrastructure upgrades or improvements.

The existing online payment process did not meet the stringent Payment Card Industry (PCI) regulations, and in July 2008 the National Trust would have had to cease accepting Maestro cards or risk heavy fines. In addition, the customer experience did not “feel” secure, the process was prone to error which resulted in lost revenue, did not follow security best practices and with increasing reports of card data losses from other organisations, the reputation of the Trust was at risk.

Solution

MSM were at the time providing support of the National Trust’s website and were asked to provide a solution to consolidate all the varying legacy applications into a single technology, with a single database to ensure the site became more stable and achieve four main objectives:

- Payment Card Industry (PCI) Compliance
- Protecting income by reducing online Membership failures
- Reputation
- Reducing lost opportunity costs.

MSM undertook a business analysis exercise to specify the redeveloped systems in great detail to aid the production of Use Cases for “as is” functionality; enhancements to the business process; and “nice to have” additions to the website.



The technology recommended by MSM was Microsoft's .NET to aid stability and productivity, and the technology is scalable, communicates across multiple applications and can be enhanced for future developments. Each of the legacy applications were redeveloped with their own solution in .NET and were designed using web forms that would communicate with the data layer. An administration tool was also written to retain the functionality of editing data in existing applications, with added security to maintain users' level of access and administration capabilities.

In regards to the database schemas these were combined for the applications and resulted in a single schema, which even though very large, was easier to use and easier to maintain than the individual databases plus helping to avoid duplications that existed across the multiple databases.

Overall the project stabilised the Trust's Internet environment and minimised downtime by:

- **Implementing a strategic technical solution.**
 - Introduction of a fully resilient web failover position.
 - The two ageing web servers were replaced, a third introduced and all upgraded to Windows Server 2003, IIS6 operating systems.
 - During the project, the building of a failover database was also brought in to scope using formal change management, providing a fully resilient database backend.
- **The architecture in place was the most appropriate for current and future use of web technology.**
- **Redeveloping the current applications to use robust, consistent and supportable technologies.**
 - All applications were developed in .NET
 - All data stored in Oracle 9i database
 - Overall the processes to support the site improved
- **Delivered applications which were compliant with accessibility legislation.**
- **Provided a secure and Payment Card Industry (PCI) compliant payment module.**

Project Outcomes and Benefits

MSM achieved the four objectives set out by the National Trust with the addition of a number of unforeseen benefits and successes that resulted from the stabilisation project. The website achieved PCI compliancy as the data for credit card transactions was made fully secure and met all the industry standards. The membership applications were more robust and more of them were fully automated, which helped to save time, reduce errors and improve the customer experience in the Membership department. It was also recorded post-project that more visitors were returning to the site and more positive customer experiences were reported. One of the main precursors to implementing the web stabilisation was to reduce lost opportunity costs which was achieved comprehensively as the site was made available for at least 99% uptime rather than only 80% of the time as recorded in November 2006.

Having achieved the successes outlined above the Trust also gained from a more robust and scalable web infrastructure than previously giving them a foundation for further eEngagement projects. All personal data was now managed securely and was stored only where necessary on properly secure hardware, mitigating Data Protection issues. An email storage mechanism was implemented to eliminate the risk of lost bookings and event data entered by staff automatically populated the website, which reduced the publishing time from over a week to within minutes. The business owners now had real-time control and management of data that was published on the site. As well as the failover database which was delivered, tested and invoked, the project also gave the whole of the IS department an increased understanding of web architecture and content management systems through knowledge retention and knowledge transfer from MSM's expert team.