

Case Study:

Web Application Development



CDI develops custom, full software development life cycle web application.

Client Description:

A non-profit, religious organization.

Background:

Our client's belief is that every person is important and that families are meant to be both sacred and eternal, and therefore encourages all people to find their ancestors and preserve their family histories. To help in this great pursuit, our client has been actively gathering and preserving genealogical records worldwide for over 100 years.

Our client has learned that interest in family history is not limited by culture, ethnicity or religious faith. People around the world are innately and intensely interested in their family heritage. Because our client's family history efforts are funded by charitable donations, it freely offers its resources to anyone interested in finding their family's roots.

Business Issue:

Our client saw the internet as an important means of providing the world at large access to its ancestry and all supporting documentation that would assist in that quest. Establishing family history is integral to the mission of the organization and to deliver upon the mission, they needed to build a capable team that could leverage web technologies to build, test and implement its ancestry website search engine.

CDI Solution:

CDI was chosen for three functions, each of which was integral to the success of the project:

1. Database Design: The database design was accomplished collaboratively with the client. Our client's team undertook the data definition and analysis, CDI defined the data, schema and performance indexes and tablespaces for the Oracle tables. The database resided on multiple RS/6000 SP Wide PCI Nodes and housed data for Web page evaluation, resource files and collaboration

using Oracle, AIX, Inprise Visibroker (Corba C++ for AIX) and XLC libraries.

2. Search Engine Design & Build: CDI's most significant contribution was in the search component, addressing both submitted Web pages and genealogical data sources. The genealogical data sources included Ancestral File, International Genealogical Index and Family History Library Catalog.

There are three types of searches:

- *General handprint* - handprint search is across all genealogical data sources and submitted web pages
- *Keyword* - uses web pages and Source Guide.
- *Custom search* - specific to a particular genealogical data source.

An associated Browse component was created allowing users to browse through submitted web pages which had been sorted into 15 classes.

3. Application General Administration: Administration functions included User Registration (signing up, user-id and password maintenance), User Submission (offering historical documentation and web pages), Client Evaluation (allowing our client to evaluate user submissions), User Collaboration (where registered users collaborate together on genealogically related material through e-mail) and Administration.

CDI also provided Software Quality Assurance (SQA) functional testing to the website in its entirety. Performance and stress testing was carried out by our client using the Mercury suite of software testing tools. Though not directly responsible for performing such tests, CDI did have exposure to them in those areas where functional testing overlapped with performance and stress validation.

CDI approached SQA testing as follows:

- Wrote test cases that met the requirement specifications for the ancestry website User Interface.
- Performed testing on the ancestry website User Interface, both structured and ad hoc as necessary.
- Investigated, documented and tracked any software errors found during the testing of the ancestry website User Interface, as well as performed repeated regression testing.
- Managed the defect log to ensure any defects found were resolved.

To meet our client's requirement of an off-site solution with proximity to our client's Information System, CDI supported the development and testing effort from the Application Center in Phoenix and from the client's home location. At its peak, CDI staffed 58 IT resources.

An independent CDI SQA team was responsible for qualifying the product throughout the life cycle.

Results:

CDI built a development center in the home location of our client to meet their project requirements. Over a period of four years, CDI successfully provided the required database design, search engine design and build, Application General Administration and requested testing activities. CDI managed approximately two dozen web development projects to develop various components of the ancestry search website. Approximately 125 screens were functionally tested using multiple permutations of hardware, operating systems and browsers.

Technologies Used:

- Windows Server 2000
- IIS 5.0
- Microsoft Site Server 3.0
- Inprise Visibroker 4.5
- CORBA, JAVA and C++
- Active Perl 5.6.1
- Oracle 8.1.7 Client
- FHLC
- Web Content (ASP)
- AIX 4.3.3
- M80