



# eBusinessware solution opens floodgates to business for Commerce web sites

Technology obsolescence can be the biggest bottleneck if not the single largest factor leading to a slowdown of business in the ecommerce arena. More so, if business is centered on the use of web sites for the promotion and sales of products. One of eBusinessware clients not only faced the threat of fast approaching technology obsolescence, but also impending support problems arising from the wrong selection of the support vendor at a time when it was going up the growth curve.



The client counted on eBusinessware expertise not only to migrate the system to a new platform but also to implement Endeca (a searching optimization utility) on the website, to ensure lightening speed of responses for the website users. With the average time of request processing falling, eBusinessware solution led to enhanced number of visitors at the websites. However, that was not the end of the solution, for eBusinessware worked out for the client. In a continuing relationship, the development team was retained by the client to take the site functionality to the next level with ecommerce based shopping cart facility, credit card authorization, implementation of digital signatures, website redundancy back up plan etc.

Initially, the client had two e-commerce web sites to advertise and promote the sales of over 7000 products. These sites offered robust product selection and configuration, and once site visitors finalized purchase plans, follow up was done over the telephone. Through these sites, a customer could book and pay for the products, specify the delivery mode and receive them. The client's USP lay in its ability to customize the listed products in accordance with the customer's preferences.

For example, a customer could ask for his or her company's logo to be printed on the items purchased by him or her and this request for customization would be followed up with detailed specifications all prompted by the site itself. Once all requirements were specified and payment details finalized, the order was booked and executed. Thus, two sites, one primary and the other for customized print jobs catered to the client's business. In the course of association with eBusinessware, the client's site profile changed to incorporate top end features such as shopping carts, credit card authorization and digital signature.

Adding functionality to your ecommerce site? Contemplating a back-up plan? eBusinessware expertise ensures your features comply with state-of-the-art security measures

## Problem

Since the launch of the sites, growth had been rapid for the client but technology was increasingly becoming a constraint on this growth. And there were areas that required urgent attention and the client approached ebusinessware to-

### Achieve the stability of the sites' operations:

This meant identification and solution of the underlying problem of client's servers rebooting several times per week without the cause being identified.

### Combine sites:

The need of the hour was to effectively combine the two sites and enhance the performance of the combined site, both in terms of speed and functionality. The positioning of the site was also an important issue so as to enable the client to fulfill growth projections.

### Upgrade Search and navigation tool:

Migrate from the erstwhile ATG Dynamo to Endeca, a modern search and navigation tool.

### Upgrade to latest technology platform:

All this was to be accomplished by leveraging current technology standards and open source software where appropriate and incorporate the latest features to enhance functionality.

### Raise IT service levels and professionalism:

By now the Management wished to set up a professional IT function and was considering a blend of onshore and offshore IT resources, in clear departure from the earlier practice of hiring consultants.

## Solution

Right at the onset of the project, ebusinessware commenced with effective Business Analysis, which brought to the forefront the potential for improvement in existing functionality. The brainstorming sessions with the client provided the necessary authorization to the team to initiate development.

Treating the stability issue with priority, the team first stabilized the client's older site. Subsequently, a new site based on latest technology innovations was built. In the process, the ebusinessware project team worked with diverse operating systems and technologies.

Under the old set up the team worked on the Solaris Operating System with Java, Dynamo Application Server, Dynamo Personalization Server and the SQL Database. For the client's administration server, the team worked with ASP and Microsoft IIS.

Under the new set up, the team worked on the Linux Operating System with J2EE, IBoss Application Server (Tomcat Servlet engine), Apache webserver, SQL server and Endeca, a search and navigation tool.

## Scope

On demand was a system that would enable a user to request a sample of any product, simply by logging in and filling the request form specifying the Shipping method, Shipping account number (optional), future order quantity, event date and entire order date, color choice/comments, intended use of product, line of business, company policy details etc.

The ordering procedure would start on clicking "Order this Item" button and the order processing would start with product customization. Once the requisite information was gathered, it would be entered in the database and an email would be sent to the customer notifying him of a sales representative's follow-up visit regarding the order.

Imprinting specifics for the associated imprint web site would also have to be handled. Several email formats would also have to be

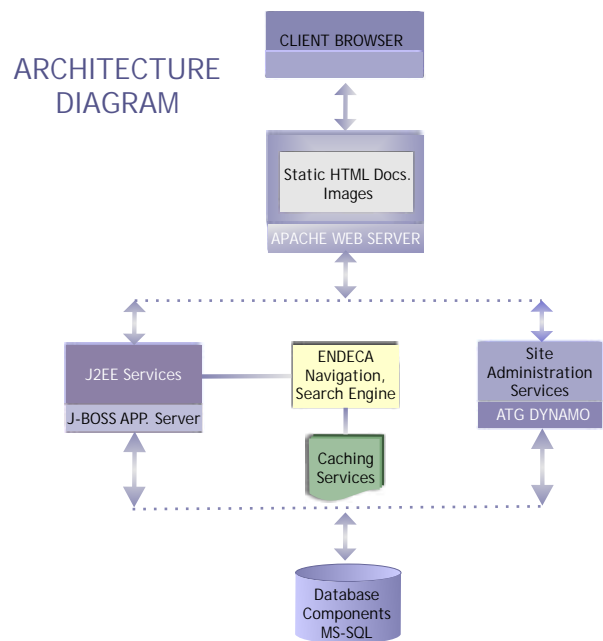
developed. HTML formatted emails would be sent out to users for New User Registration, Forgot password, Sample Requests and Online Orders.

Later requirements included enhancement of functionality to add ecommerce based shopping cart facility, credit card authorization implementation of digital signatures as secure offering.

## Technology

Application Architecture: The core part of system architecture was built on a robust J2EE platform. To develop the web-based services, the ebusinessware team selected Struts 1.2 framework, which is considered to be the de-facto standard to ensure implementation of Model-View-Controller architecture. The design goals for the team included:

- ◆ Loose coupling between various components.
- ◆ Seamless interfaces with 3rd party API's [Endeca Java API, Perl scripts]
- ◆ Configurable resources
- ◆ Secure communication with other enterprise applications
- ◆ Complexities like flow of information from one system to another is completely hidden from end user



The features of the system included:

- ◆ Quick response time of around 3-4 seconds
- ◆ Seamless integration of existing and new hybrid enterprise applications without compromising performance.
- ◆ Improved user experience
- ◆ Google search customization

The strategies employed by the team:

- ◆ Caching of static data, with ability for periodic updates
- ◆ Application ported on Linux servers
- ◆ Web cluster for load balancing and fail-over mechanism.
- ◆ DB Connection Pools.

- ◆ Request for Static HTML pages and Images is serviced by document server thus reducing the network traffic

## User Acceptance

The testing plan in this project was centered on a development server set up at ebusinessware facility through which the project team demonstrated all functionality to the client before making changes on the production server.

## Approach

The existing website was implemented as an application running on the ATG Dynamo application server with MS SQL Server as the back-end database, old technology with difficult-to-maintain legacy code. The team focused on redesigning the site to take advantage of the newer J2EE technology.

Functional Requirements, including links at Home page, My Account, Products, Service, Education, Support, About Us, Login/ Register / Logout, Quick Search etc were provided. Information for existing users attributes such as Login information would be processed while the new users' information would have to be added. Attributes pertaining to collection of information e.g., Business information, number of promotional purchases per year, number of employees, ways of using logo products etc., and confirmation attributes for newsletters, special product offers, printed catalogs etc., were processed.

Effective searching with Endeca was ensured, to bring up products belonging to the criterion selected. Search results were displayed on the website page. Static pages About Us, Service, Education etc and a Help/Support Page, were also supported. Other functionality included Quick Search by Keywords and Price Range, Theme/ Use (a quick link to the Products) Industry (a quick link to the Products), Brand (a quick link to the Products) etc.

## Stages of development:

There were two stages of development in the project.

Phase I-or the Transition Phase which included:

- ◆ Address stability/performance issues
- ◆ Initiation of migration from ATG Dynamo
- ◆ Evaluation of open source alternatives to Endeca

Phase II-Steady State:

- ◆ Maintenance and continuing improvements to site
- ◆ Integration of Endeca
- ◆ Ability to add to team to meet deadlines on specific deliverables

## Team

The ebusinessware project team comprised onshore and offshore members from the Java domain. While the Onshore team included a Technical Lead, the dedicated Offshore team comprised two developers. It was also decided that the composition of the team would change over time to provide the right blend of cost effectiveness and skill. In order to minimize dependency on client teams, one of ebusinessware's New York-based developers was located at the client site to ensure smooth transfer of client process knowledge, current technology, and future technology vision details to the offshore development team. Another team member with ATG Dynamo expertise, from ebusinessware's offshore facility was also involved in the knowledge transfer at this stage. A total of three members initiated the development exercise with UniRAD, the in-house process methodology ensuring that the team worked together in a coordinated way that was as transparent as the client desired.

The team ensured that all Documentation Norms pertaining to Project Development, Status Reporting and User Documents were followed as the culture in the organization made it mandatory to provide the client with well-documented solutions. To minimize risks, the ebusinessware team was always on schedule in terms of status reporting throughout the project development phase. A summary report was sent to the stakeholders at the end of each week detailing progress against the work plan. The project core team, involving representatives of ebusinessware and the client held monthly review meetings to manage the process, review the software and agree and communicate any modifications to the work plan.

## Training

An onsite training session for Endeca, the search and navigation tool used in the development of the web site was attended by two of the senior most project members.

## UniRAD

Apart from the able leaders, the guiding force in the entire team's development efforts all through was UniRAD, ebusinessware's solution implementation methodology. UniRAD documentation requirement as integral part of the ebusinessware Center of Excellence was never compromised in spite of very challenging and severe deadline demands on the team. UniRAD Specified Quality Standards were adhered to by the team throughout the project life cycle. At the end of each of the stages, the entire team would dedicate itself to analyze and track down any open defects in a very careful and diligent way. This exercise helped the team to identify many of the defects before they could even hit the system at any of the later stages.

## Challenge

Engaged for a short duration, the project from the ecommerce domain presented several challenges. The biggest among them was the implementation of Endeca, a brand new technology. Achieving stability of the website, which encountered problems from several technology issues and outdated technology, was no less challenging. Later, the team shifted the entire system to a new server and new technology. Multiple operating systems were used in the achieving stability and developing the new web site.

## Innovation

The team effectively handled the integration issues by innovating on the generic knowledge imparted by the navigation tool company Endeca.

## Result

Stability issues of the old web site were addressed within the first four months of the project cycle. Subsequently, the team, embarked on the development of the new site. The new site replaced the old one in the following quarter.

Based on client server architecture, the notable part in the project was the level of integration issues solved by the team. This was noteworthy primarily because the team based all its knowledge extension on the generic information provided during the Endeca training session. Another important aspect was the perfect knowledge transfer from the members attending the Endeca session to the rest of the team members. This resulted in better use of the search and navigation tool by the whole team and minimized any key person dependency.

The biggest security imparted to the client's business was achieved by architecting the Website redundancy back up plan that now secures them against any system failure that would earlier have cause indelible damage to their business.

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Knowledge Partner



# ebusinessware Company Profile

## BACKGROUND

ebusinessware is a global technology and business services firm offering innovative solutions to a varied customer base. Founded in 1999, ebusinessware is headquartered in New York City. In addition to our presence in the US, we have established operations in India, Singapore and UK.

## OBJECTIVE

Our primary goal is to provide the highest quality technology and business process outsourcing services while tightly managing project costs and reducing overall project risk.

## SERVICE OFFERINGS

- Custom application development and integration
- Production support
- Application architecture and design
- Quality assurance and testing
- Re-engineering and migration services
- Reverse engineering and UML documentation
- Legacy application web enablement
- Financial data management services
- Knowledge process outsourcing (KPO)
- Helpdesk support
- Staff supplementation services

## EXPERTISE

Our technology professionals have deep subject matter understanding in areas that are critical to our clients' business. Our process focus ensures efficient communication between our teams and our clients' teams, resulting in high quality, cost-effective and timely implementations. We are market driven, and have the necessary technology and business skills to make our customers succeed.

## TECHNICAL SKILLS

- Java and J2EE on UNIX / Windows
- .Net Platform
- XML based solutions (FinXML/FPML)
- EAI/ETL Tools
- Data Warehousing/Mining/KDD tools/BIApplication
- Server Deployment (Websphere/Weblogic)
- Security tools
- Legacy system maintenance
- Testing tools (Mercury, eTest, Rational Robot)
- UML modeling tools (Enterprise architect, Rational)
- Open source tools
- IBM Mainframe and COBOL expertise
- RDBMS (Oracle, Sybase, MySQL, SQL Server etc.)
- Middleware
- CRM products

## BUSINESS SKILLS

- Market & Credit risk management, Reporting, Mapping, Measurement and Modeling
- Credit derivatives, Trading and Straight through processing
- FX and Fixed income derivatives and Global trading systems
- Hedge funds and Prime brokerage
- Electronic trade management and Order routing
- Portfolio reconciliation services
- Institutional and Private client Asset and Wealth management
- Managed accounts, Money managements, and Securities lending
- Portfolio measurement and Performance solutions
- Fixed and Variable annuities business
- Sales CRM, Data warehousing and Business intelligence
- Credit and Reference data counterparty
- Strategy Management

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"We help our clients to save money, enhance quality and lower the risk of IT projects."

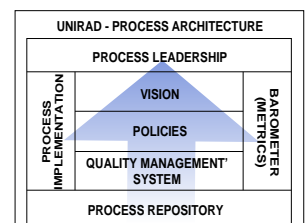
## OUR VALUE PROPOSITION

Our combination of in-depth industry expertise coupled with an ability to rapidly scale on and off-shore development, analyst and business processing teams on short notice helps our clients to get their projects done on time and within budget. Our technical professionals are experienced in a broad range of technologies ranging from legacy systems to cutting edge technology, enabling us to succeed in a wide variety of challenging assignments. Our business processing professionals are experienced in specific areas of data management and transaction processing, reducing learning curves and increasing productivity.

## IMPLEMENTATION METHODOLOGY

ebusinessware technology architects have developed the UniRAD methodology framework for undertaking even the most complex collaborative project development assignments. UniRAD formalizes a quality management system practiced at the organizational level, such that progression of those best practices to all projects is natural, automatic and smooth for its workforce.

UniRAD derives the best process components from the popular Rational Unified Process project methodology and the Rapid Application Development approach, providing a structured and delivery focused project approach.



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NASSCOM, STPI and BEP



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