

e-Commerce Applications Evolution and Trends

By Eden Watt

The continuous changes and advances with Information Technology are enough to make your head swim. Imagine a version of Woody Allen's "Sleeper" featuring an IT professional. He'd only have to be cryogenically frozen for about 10 years to be totally out of touch with the latest technologies. Web based systems, B2C, B2B, 2 way XML, eCRM, Wireless and Pervasive Computing, Java (Applets, Beans and Servlets?), Firewalls... the poor guy wouldn't know what hit him!

We've Come a Long Way

Just think about the application evolution before the internet age hit us. Back when host centric business systems were the standard, relational data modeling and structured techniques for application design held our attention. Setting up EDI software to communicate via VAN's was high tech. The big topic of discussion back then was about tools that could assist us in designing systems better, faster, and with more maintainability. As Windows took over the desktop marketplace, we enhanced our business applications using event driven programming languages, middleware, emulation/screen scraping interfaces, and other techniques so that they became more powerful and user friendly with both graphical user interfaces and integration with desktop packages.

For a couple of years all the debates and presentations centered around client/server, fat client versus thin client, two tiered versus three tiered and so on. During this time, enhanced query and reporting tools, and buzzwords like OLAP, EIS, and DSS had industry focus and these have continued to play an



important part in our applications' delivery strategy. When Lotus Notes hit the big time, collaboration and workflow apps added a new dimension to the functionality we could offer our users in their business application processing. And, of course, object orientation has also been a big factor in evolving both programming and design practices.

Emergence of Internet Applications

And just when we had this all figured out, the internet took center stage and forced us to rethink everything. It's not that the new web technologies replaced all this other stuff. We still had to deal with our core business applications, our client/server enabled functions and desktop apps, our EIS and collaboration modules. But, with the new capabilities of distributed systems and web-enabled applications, now we could cater to a whole slew of additional users – trading partners and end customers! And the application interfaces for these new

groups of users would need to have specialized access, functionality, and ease of use beyond our internal systems.

The first stage of the internet revolution saw companies scrambling to establish a web presence. This involved basic HTML and JavaScript development of company brochure-ware for publishing on the internet, enhanced by visual design. In many cases, marketing departments were able to accomplish this simple step without heavy IT involvement, particularly if the site was hosted by a third party.

As our world moved into ecommerce, the requirement to integrate a web interface with our back end business processing systems has continued to grow. In the early days, simple form entry and inquiry applications over our databases, available on the web, were the ultimate. Now, if a company does not have an online, full-scale order processing and order inquiry web interface for their core customer base then they are falling behind the times.

B2C, B2B, eCRM

If an order site is geared towards consumers and provides an easy shopping cart interface for customers to purchase products and pay via credit cards, we call this a B2C (Business to Consumer) site. More commonly, we need sites that are specifically geared towards our organization's customer base and business partners, not to the general consumer. B2B (Business to Business) sites typically offer more powerful and information rich functionality where a customer will sign on using a userid and password. Once signed on, a typical B2B site will allow a customer to be able to view his purchase and A/R history, review open orders and shipment status, and place new orders via online product catalog searching. Some B2B sites can provide more specialized functionality – in fact, the extension of and integration with any business processing system is possible.

In order to develop and deploy a typical B2C or B2B site as described above, there are a variety of platforms, as well as, software tools and technologies that can be used. With regards to hardware, the easiest solution to deploy and manage, will involve e-commerce applications that are closely integrated with core business applications. For this audience, I assume that means that you will be able to provide the most powerful solutions for your organization, if you focus your e-commerce efforts using iSeries (= AS/400!).

As both our in-house and our e-commerce applications have grown more sophisticated, another "movement" that has grown in popularity and industry focus is CRM (Customer Relationship Management) and it's internet offspring – eCRM (Electronic Customer Relationship Management). CRM dictates that staying competitive and driving business in today's world requires enhanced customer services and information management. Enriched data capture and process, with respect to the customer, can be accomplished via advanced technology and application offerings. eCRM techniques are being used to enhance the customer's

experience on many B2C and B2B sites. Typical examples of eCRM functionality include personalization and content management based on knowledge of the customer and the customer's past buying behaviours.

e-Marketplaces

But providing e-commerce B2C storefronts and B2B applications, even with special eCRM capabilities, are just the beginning. Now, with the latest innovations in marketplace sites, 2 way XML, and wireless technologies advancing so quickly, everything is evolving again and we have to stay poised and ready to meet the next challenges.

Firstly, many larger "customers" and "partners" do not want to go to numerous different supplier web sites to place their orders. Their procurement needs involve the ability to easily search and find products from all of their suppliers and place orders simultaneously. When they

do this, they will expect to have access to the latest pricing, availability, and delivery information from the supplier. Ideally, the purchaser will electronically generate PO's and send them to the appropriate suppliers. The supplier would need to automatically receive these PO's, flow them through their order processing systems, and send order confirmation and shipping status information to their customer.

There are various innovations in internet applications and technology that are allowing us to move into this next stage. A "Marketplace Site" is a general term for a web site which provides services for a variety of businesses. A typical example of a marketplace site would be "plumber central" – a web site for all types of plumbing supplies from a variety of companies.

Suppliers would pay a fee, and possibly a commission, to Plumber Central for selling their goods on the site. Plumber Central would probably provide free membership to their plumbing

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→ marketplace to buyers (plumbers, contractors, etc.) Transactions between the marketplace site and the supplier's system would ideally be sent using a 2 way XML implementation.

Another innovation in e-commerce is procurement or "buy-side" software, like Ariba, for larger corporations to manage their purchasing with live interaction with all of their suppliers, using XML. Using an Ariba catalog, cXML transactions would be sent to suppliers to request pricing, availability, PO's, and so on.

Online credit card processing is taking a similar technological step. Rather than installing credit card software and setting up communication links to process immediate credit card transactions, some companies (like BCE Emergis in Canada) are offering the capability to send preformatted transactions over the internet without the need to install any software on your host system.

Wireless

IBM calls it Pervasive Computing. When we get to the point where we are all walking around with our handheld devices and can do voice communications, email, and web surfing with full access to our line of business applications from wherever we are, this will certainly further affect the way we do business.


And we are moving in that direction very quickly. By 2002, it is anticipated that wireless data services at speeds of around 2

Mbps will be available – and I've heard predictions that there will be 18 million users in that timeframe. Today, deployment of wireless web applications are a reality but, for travelers, the service can be spotty and it is fairly slow.

There a variety of devices on the market that can be made internet ready. Devices running Palm OS are the most popular with over 70% of the world PDA market. These devices have a variety of browsers available, including AvantGo and Go.Web. Pocket PC's, which run Windows CE, are now available with colour screens and handheld versions of Word, Excel, and Internet Explorer.

A number of emerging technologies and standards boards will continue to revolutionize this industry. The following are some examples:

- **BlueTooth** is a specification for short range wireless transmissions which will enable various devices, such as laptops, phones, PDA's, and even appliances to communicate at 2.4 GHz frequencies.
- **Wireless Fidelity (WiFi)** is a specification monitored by WECA which provides a standard for the interoperability of various devices using IEEE 802.11b wireless LAN. If WiFi is successful, you may be able to tap your wireless laptop into wireless LAN's wherever you go.
- **Telematics** is a term used to refer to information systems for cars. Functionality that may be available from your car dashboard over the next few years may include: Global Positioning Systems, wireless services like roadside assistance, in-car computing like voice recognition apps, and deployment of wireless web applications (like your business applications).

The world is changing – and in no industry is it changing more rapidly than in Information Technology. To effectively manage a corporate IT environment today, you not only need to understand your company's business and corporate goals and possess knowledge of your corporate business applications infrastructure – you must also keep up with all the rapidly evolving and changing technologies. This is essential so that your organization can provide the appropriate level of service for your sales force, your trading partners, and ultimately your customers. 

Eden Watt is the Services Director for LANSA, Inc. where she manages a large staff of very talented consultants on assignments across North America. She has been involved in the management and design of some interesting e-business projects.

Eden has written columns for a number of industry publications and is a regular speaker at the COMMON User Group, the LANSA User Conferences, and occasionally at AS/400 User Group Meetings.

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