



New Media

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Infonautics, Diginexus put XML in action

by Ric Kolenda

In my last column, I attempted an overview of eXtensible Markup Language (XML). Since then I could probably write a completely new and updated summary. I'm realizing that this task is a bit like that of creating a star map minutes after the Big Bang. The universe which is XML is expanding rapidly as developers and software manufacturers create new Document Type Definitions (DTDs) and ways to use them. Two areas that are jumping quickly on the XML bandwagon are intelligent search agents and financial transactions.

Two local companies who are helping to push XML into practical uses are Infonautics Corporation (NASDAQ: INFO) (www.infonautics.com) of Wayne and Diginexus Corporation, LLC (www.diginexus.com) of Philadelphia. They also demonstrate two very different types of companies and development environments. Infonautics is a 7 year-old, publicly-traded company with over 160 employees. Contrast this with Diginexus, founded in 1997 and currently a tad over 30 employees and growing.

Infonautics' Sleuths: WDDX does the job

Infonautics, which began as a spin-off from data management company Telebase in 1992, has been through its share of ups and downs. As one of the first new media startups to go public, the company looked very promising.

Its Electric Library® service (www.elibrary.com) was the first reference service of its type on the Internet, and today is one of the fastest growing electronic reference products for schools and libraries, serving more than 15,000 institutions in all 50 states. Electric Library is also one of the largest paid subscription sites on the Web with more than 85,000 paying subscribers.

In spite of those successes, the company faced financial trouble which saw its stock prices fall steadily from its IPO in April 1996. The stock price peaked at \$14 shortly after the offering, but was dipping below \$2 in the fall of 1998 when two announcements turned things around. First came the launch of Company Sleuth® (www.companysleuth.com) in October, followed by the announcement of an agreement with the Associated Press to create an Internet news archive the next month. Since these events, and the launch of two more iSleuth® sites, the stock has been battling back to around \$6 a share as of September 1.

Company Sleuth allows users to receive a daily e-mail report detailing the business activities, financial moves and Internet dealings selected companies. Currently, Company Sleuth tracks U.S.-based, publicly traded companies and plans to track private companies soon. PC Magazine named Company Sleuth one of the Top 100 Web Sites in April 1999. Job Sleuth® (www.job sleuth.com) is a free Internet search tool for job seekers, which also generates daily e-mail updates. Sports Sleuth® (www.sportssleuth.com) is the newest service from

Infonautics, and as you might expect, it tracks information on users favorite sports teams. Sports Sleuth has grown to over 250,000 users in its first six months.

With the success of these products, it's no wonder why Infonautics wants to create even more for a variety of niche markets. And that brings us to XML. According to Infonautics Vice President and Chief Technical Officer Ram Mohan, two early decisions were critical in making the Sleuths a success. First they chose to standardize on Allaire Cold Fusion for front-end development, and then to use Allaire's Web Distributed Data eXchange (WDDX) Document Type Definition (DTD) to convert standard data information into something Cold Fusion could format.

It was hard to keep Mohan in his chair as he expounded the virtues of XML. Cold Fusion and WDDX has dramatically accelerated development times, and each new development project is completed sooner than the last, according to Mohan. He went on to say that Company Sleuth took 5 people 6 weeks, or 30 person-weeks, to develop; pretty darn quick for a development project of that scope. Sports Sleuth, a more extensive project, only took four people nine weeks.

So what accounts for such rapid development times? When I discussed this with Mohan and two members of his development team, Arturo Perez and Mike Puscar, several things were suggested:

- XML makes it easier to do co-branding, because it is easy to change the way data is displayed.
- With XML the data can be stored in a standard, agnostic format.
- XML allows modules to be built and re-used on other projects. They are using 20-30 DTDs, which can be used across many projects.
- Using Cold Fusion as Style Sheet and Parser allows user personalization to be stored on the front-end.

In speaking with Mohan and his team, I definitely got a sense that this was not just a cool technology, but one which would allow them to quickly and efficiently expand a now-proven business model to other markets.

Diginexus and OFX: the importance of standards

Diginexus' story is a bit like that of some other young entrepreneurs who now own half the world. Students at Penn when they started doing some basic HTML work for employee benefits consultants The Hay Group, co-founders Matthew Grove and Ari Kushner got an opportunity to bid on a new project for the groups London office. Thinking they stood to make a healthy profit on the project, they nevertheless so far underbid the competitors that they were told they wouldn't get it -- the price was just too good to be true. Still determined to prove themselves, the pair returned to Philadelphia on Friday and by Monday they presented a completed project to Hay Group execs with a guarantee that it would work. Needless to say the client reconsidered.

Diginexus has come a long way since then. Grove and Kushner have done more projects for The Hay Group, as well as clients such as NovaCare Employee Services and Telebank, one of a few new Internet-based banks. They have grown from 10 to over 30 employees in 1999, and are expanding into incubation partnerships with related companies. These partnerships usually combine the company, outside venture capital, and what Grove calls venture technology -- Diginexus develops technology in exchange for equity instead of cash. The company is unabashedly Microsoft-centric, and does most development using Active Server Pages (ASP), SQL Server, Java Application Servers and C++. But it is the work they did for Telebank using XML -- more specifically Open Financial eXchange (OFX) -- that we will look at in this article.

Online banking is just beginning to come under serious scrutiny as more institutions are offering more services to Internet customers. I suspect that may be one of the reasons why the Diginexus team chose to use OFX standards in implementing Telebank's co-branded online banking service for Yahoo!, Finance.

Unlike Infonautics, rapid development time was not a factor. It definitely took longer using OFX than in development environments with which we were more comfortable, said Grove. So why take the extra time to learn and use XML and OFX?

One benefit of using OFX, according to Grove, is the ability to easily create similar interfaces for other services such as Intuit Quicken, or Microsoft Money. Another benefit is support; using standards-based coding makes transitions between developers and even companies much easier to manage. But I wonder if the biggest reason for using an established standard by created my major financial software players (CheckFree, Intuit, and

Microsoft) is what we don't know. Using a set of standards for representing financial data allows maximum flexibility in developing future applications, including those of which we have yet to conceive.

So these are just two examples of how XML can be put to practical use. Look for more in the future as we start seeing examples of other types of DTDs for multimedia applications, e-commerce transactions, etc. The possibilities really are innumerable.

Short Glossary of XML Terms

Term	Definition
CSS	Cascading Style Sheets define style characteristics in a DOM. Cascading refers to the fact that styles can have hierarchies, with lower styles overriding those higher in the hierarchy.
DHTML	Dynamic Hypertext Markup Language is basically HTML plus DOMs, CSSs and scripting languages like JavaScript and VBScript.
DOM	Document Object Model is an interface that defines the mechanisms for accessing data in a document. This allows programmers to create dynamic content with standardized tags. Currently the DOMs used by MSIE and Netscape are proprietary, but both will be standardized with the next releases.
DTD	Document Type Definition. An SGML document type, e.g., HTML is a DTD.
HTML	HyperText Markup Language. Ok, smarty, you know what HTML is, but it is important to note where it is in the scheme of things. HTML is an SGML DTD with pre-defined tags. XML allows programmers to create other DTDs which can be parsed by a browser.
OFX	Open Financial Exchange , created by CheckFree, Intuit and Microsoft in early 1997, is a unified specification for the electronic exchange of financial data between financial institutions, business and consumers via the Internet.
RDF	Resource Description Format is a data-modeling language using XML syntax. RDF is a way of describing and accessing data, especially valuable for sites which include rapidly changing data. <i>Aurora</i> is Netscape's RDF implementation.
SGML	Standard Generalized Markup Language is the granddaddy of all structured document languages. XML and HTML are both based on SGML.
SMIL	Synchronized Multimedia Integration Language is an XML application which allows programmers to synchronize multimedia elements as they are served to browsers.
URI	Universal Resource Identifier , the XML equivalent of the Universal Resource Locator (URL).
WDDX	Web Distributed Data eXchange. Allaire, creators of popular development application ColdFusion, developed WDDX as a mechanism for exchanging complex data structures between application environments such as JavaScript, ColdFusion, Perl, ASP/COM and Java.
XLinks & XPointers	Also referred to as XML Linking Language (XLL), <i>XPointers</i> work hand-in-hand with <i>XLinks</i> . XPointer points to data, while XLink describes the relationship of that data with other data.
XML	eXtensible Markup Language
XML Schema	Also XML-Data , Microsoft's suggested replacement for DTD.
XSL	XML Style (or Stylesheet) Language

Online XML Resources

- XML.com (www.xml.com)
- 20 Questions on XML (builder.cnet.com/Authoring/Xml20)
- Webmonkey (www.hotwired.com/webmonkey/xml/)
- Cafe con Leche (metalab.unc.edu/xml/)
- Project Cool (www.projectcool.com/developer/xmlz)
- Microsoft (msdn.microsoft.com/xml/c-frame.htm#/xml/default.asp)

- Netsape XML Resources (<http://developer.netscape.com/tech/metadata/metadata.html>)
- Allaire WDDX FAQ, Resources and Websites (www.allaire.com/handlers/index.cfm?ID=5624&Method=full)
- OFX Resources (www.ofx.net/ofx/default.asp)

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