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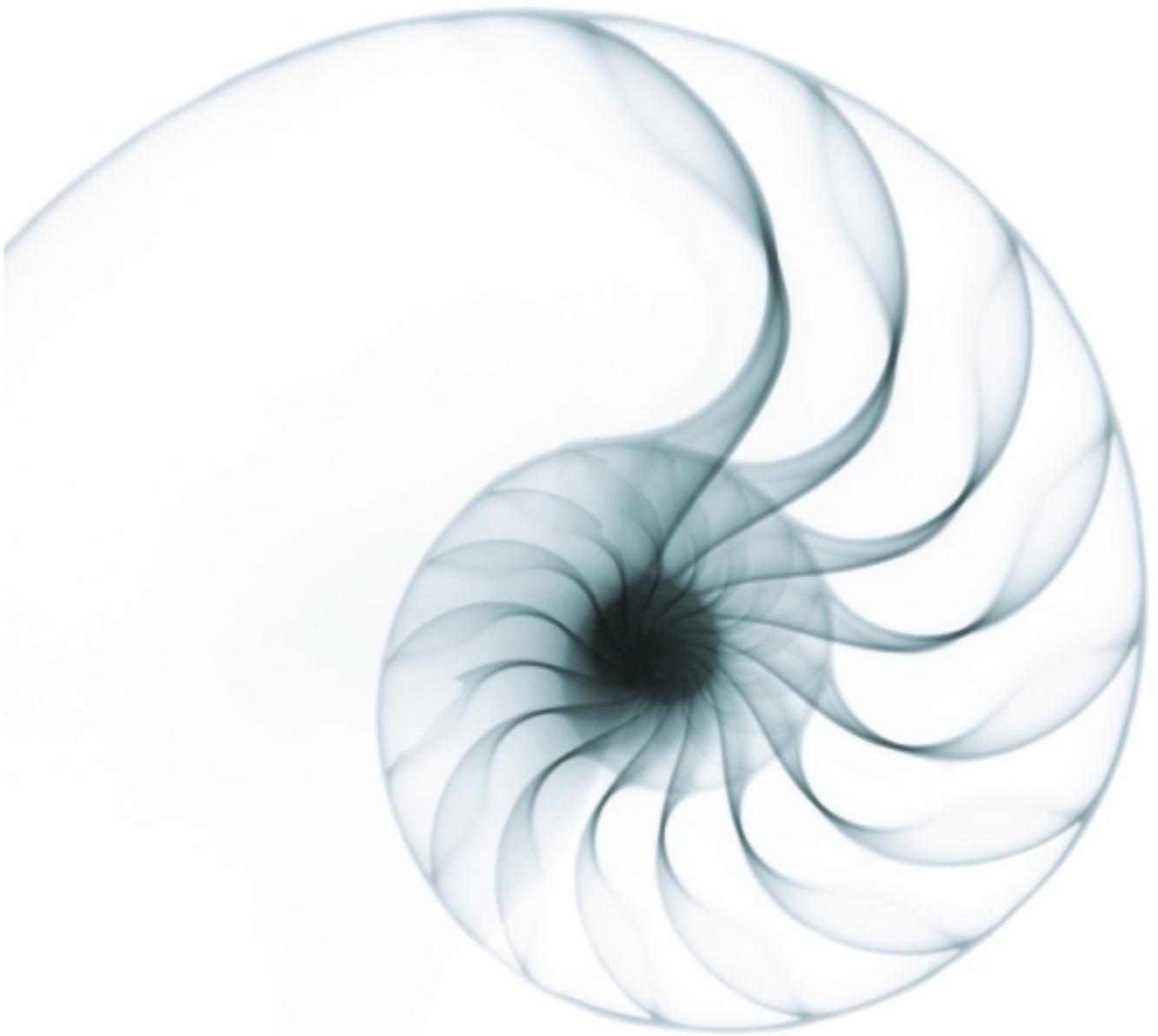


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Can an **Open Source Database** Put
MultiValue
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Champions of MultiValue have long been vocal about the need to raise the profile of MultiValue technology. With the debut of OpenQM, Ladybridge Systems has taken steps to do just that; its ambitious goal is to create the world's fastest developing MultiValue database by releasing it as open source software. **PAGE 8**

24 HISTORY OF MULTIVALUE: 25TH ANNIVERSARY — SPECTRUM CELEBRATES 25 YEARS OF SHOWCASING THE MULTIVALUE INDUSTRY Spectrum 2006 marks 25 years of exhibitions and conferences centered on MultiValue technology, making it the longest continuously running computer trade show. This is the first in a series of articles that commemorates the show with flashbacks to significant events during its history. Maybe you'll remember many of them!



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[FROM THE **INSIDE**]

Jumping into the Fray Again



It's been almost 15 years since we at Spectrum did a definitive study on the status of the MultiValue industry, and I can't believe I'm saying this, but we're going to do it again.

There are several challenges in producing a meaningful study for our industry. First and foremost is the time and cost. We're willing to incur that part of the project, but we can't do the job without your help by participating in the study survey.

The second challenge is that, hard as it is to believe, some people fib. Even though as an independent publisher we promise on our mother's grave that we will only release overall statistics and never release individual survey respondents' input, there are still some people who will tell us things like they sold a gazillion seats when we know better, so there are some judgment calls to be made when tallying the results.

Thirdly, it is challenging to avoid counting the same activities several times. Is a vendor reporting sales that have already been counted by another respondent? It's tough to separate out only the added-value at each stage of the distribution channels. Then there are companies who have firm policies of not releasing performance information and herds of lawyers to make sure we don't get the information. I like that part, because it's our job to get the information anyway — and as good reporters, we will.

A good study also collects the right data to answer the hard questions. Is the MultiValue market growing or shrinking? That's the number one question. Are

consultants and VARs drifting away from MultiValue or getting more deeply involved? Is the MultiValue business portion of a company's sales growing, shrinking or staying the same as a percentage of its overall business? What are the future intentions of companies in the MultiValue market? What's their perception of the market? Is the industry gaining new customers or are they servicing existing customers? How many users have migrated away from MultiValue? Why? What applications are most successful in the MultiValue market? What size companies use MultiValue? What percentage of users are still green screen? What is the real size of the MultiValue market? These are but just a few questions to be answered.

And then, of course, the final challenge is — will we like the answers we get? Whether we do or not, information is power, and I think we need to know what the true MultiValue story is.

I will be releasing the results of this new study at the welcome presentation of the 25th anniversary Spectrum Show next March in Long Beach, Calif. This seems like an appropriate occasion, and it will give us the time we need to complete the task.

In the meantime, please visit www.multivalue.org and complete the study survey and as a thank you for helping us conduct this important research, every survey participant will receive a free copy of the study results.

There are two separate surveys — one for end users, and another for core providers, VARs, software houses and consultants.

Thank you all in advance for participating!

— GUS GIOBBI, CHAIRMAN, IDBMA, INC. —
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Revelation Software Ltd.
Northumberland House
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Phone: +44(0)208 912 1000
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Email: info@revsoft.co.uk
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Australia
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How to the Smart Way

(ARA) - Just 10 years ago, the best way to go about selling things you didn't need anymore was to either put on a garage sale, take out an ad in the classifieds or head on down to the pawn shop. Today, those options are still around, but not as popular as selling them on eBay.

Ever since coming on the scene in 1995, eBay has taken the world by storm. In 2004, the site generated \$34.2 billion dollars in sales. Only four national retailers — Wal-Mart, Home Depot, Target and Costco — ended the year with stronger numbers; and two of them are expected to fall behind eBay by the end of 2005.

So what's the draw? "There are a lot of them, but I'd have to say efficiency, price and convenience are the biggies," says Joseph Sinclair, author of "eBay the Smart Way: Selling, Buying and Profiting on the Web's #1 Auction Site."

Sinclair discovered eBay in the company's early days at a convention he attended with one of his clients. Back then, he was a

Web site designer working on a project with a large collectibles dealer in the San Francisco Bay area. "I was so fascinated by the system, when I came back, I proposed writing a book about it," he says. He gained his expertise on eBay not only through research, but hands-on use.

Sinclair's book, "eBay the Smart Way," now in its fourth edition, starts out with an introduction to the basics, like how to navigate through the site and conduct searches, then goes into depth on topics of interest to the entire

eBay community. For sellers, there are chapters outlining what kinds of merchandise sells and how to conduct auctions, along with advice for taking and using photographs and writing promotional ads. For buyers, bidding strategies and what to do if merchandise is lost, damaged, defective or never gets shipped at all.

Since the book first debuted in 1999, he has shared his expertise with others on more than 100 radio shows. Here are some of the most interesting questions he has been asked:



Courtesy of ARA Content

Joseph Sinclair, author of "eBay the Smart Way: Selling, Buying and Profiting on the Web's #1 Auction Site"



I bought a kitchen table on eBay, but it arrived damaged. The seller doesn't return my emails or phone calls. What should I do?

ANSWER: If the damage occurred in shipment, make a claim against the insurer or the shipper. If the table was damaged before shipment, you may be out of luck. eBay probably won't do anything about it if you report it, as eBay does not get in the middle of disputes between buyers and sellers.

Informing the seller that you will leave negative feedback if he doesn't communicate with you might work to get an answer from him. But don't threaten to leave negative feedback if he doesn't replace the table. That looks like you're abusing the system to get your way in a dispute. If nothing works, you can leave negative feedback, and should, but that won't get the table fixed or replaced.



I've been thinking about selling some of things I've collected over the years on eBay rather than holding a yard sale. What does it take to sell on eBay, and are there any costs involved?

ANSWER: It's easy. You sign up at the eBay Web site to be a member by filling in an online form. You list your items to sell individually the same way, by filling in an online form. It doesn't cost

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Open

Can an Open Source Finally Put MultiValue

Champions for MultiValue have long been vocal about the need to raise the profile of MultiValue in the larger IT community and bring attention to the MultiValue database's assets. Various ways to go about it have been touted, but Ladybridge Systems, based in the U.K., has stepped off the beaten path and embarked on an ambitious goal—to create the world's fastest developing MultiValue database by releasing it as open source software.

OpenQM

Open Source Database Now on the Map?

With the introduction of Ladybridge Systems' OpenQM database, a MultiValue-based database is now in play in the expansive world of open source software. The availability of an open source MultiValue database exposes the merits of MultiValue to a whole new audience, which was one of the main goals of the people who are behind OpenQM.

Although OpenQM is relatively new to the world of open source software, the database itself has been around for more than 10 years. QM was originally developed around 1993 as an in-house tool and for use as an embedded database in application software developed by Ladybridge Systems. It was launched in its own right in mid-2001 as a low-cost database product initially aimed at the small office user, a market which the company felt was being ignored by bigger players, according to Martin Phillips, Ladybridge's technical director. An IBM reseller, the company has been a long-time member of the MultiValue community, specializing in UniVerse and UniData, developing and

delivering most of IBM's U.K. training for these products, and offering general consulting services, the company said.

In dealings with IBM clients who use UniVerse and UniData, and in contact with users of other MultiValue products, Ladybridge has frequently encountered situations in which users of a legacy application or an off-the-shelf product that does not require the advanced features of these databases are forced to migrate to an alternative, cheaper database solution, Phillips said. In the process, the benefits of the MultiValue data model are lost. The QM database fit the bill to meet the needs of these users.

The open source version was released in September 2004 after Ladybridge

was approached by Sam Anderson of EasyCo with the idea of making QM into an open source product. Ladybridge has since established a new dealership structure, making EasyCo its U.S. distributor.

The term OpenQM is used to refer to both the commercial QM database and the open source version, according to Ladybridge Systems. The commercial product is available for Windows, Linux and FreeBSD. The open source product is issued for Linux, but users are free to migrate it to other platforms so long as they stay within the terms of the General Public License, Phillips said.

Recalling the motivation behind the open source product, Phillips said, "Sam's view was that the MultiValue database world was doomed unless something could be done to fight back against the likes of MySQL, which has rapidly become one of the industry's leading databases and, because it is open source, is growing at an astounding pace. There is a very real possibility that, as those of us that work with MultiValue technology leave the industry, the new breed of developers starting their careers will have been indoctrinated in alternative systems, relegating the term 'MultiValue' to the historical archives along with other defunct database technologies."

Anderson said he had been observing certain negative trends in the MultiValue market over a number of years, and

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OpenQM

OpenQM

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wanted to take action. "I was looking for a solution that I describe as the 'Open MultiValue Initiative' at our Web site, EasyCo.com," he commented. "The initiative began from a very simple awareness...not only that the industry had been dying for 20 years, but that almost all the death and 'stillborn-ness' occurred among the smallest and youngest practitioners of the MultiValue art.

"Here, there were two problems. The first is that the small and the young, by and large, only have the capacity to sell small, relatively low-value systems. When ports and tools cost \$1,000 a user, as they commonly do, a lot of applications cannot be delivered. Similarly, a lot of people will not even begin to work with such expensive products when they can find other semi-substitutes for a tiny fraction of the cost.

"The other principal focus of the MultiValue initiative is the recognition that the fundamental advantage of MultiValue has been the labor saving and responsiveness of the approach. The advent of GUI technology neutered much of this advantage by grossly hiking the time-costs of developing the presentation layer of the solution. Thus, that half of the initiative focused on the encouragement of low-cost tools that would accelerate the development times of GUI-based applications."

Phillips said at first Ladybridge was wary of the open source idea for sev-



By focusing the talents of an enormous number of software writers from around the world, we hope to make OpenQM the world's fastest developing MultiValue database and, ultimately, the most used MultiValue database in the world in terms of number of separate installations.

- MARTIN PHILLIPS

technical director, Ladybridge Systems

eral reasons, a major one being the huge change in its business strategy and policy that its source code never be released. "Surely this step would effectively give away our business, leaving users free to take a copy of QM from the Internet and use it without any revenue to us," he said. "After considerable discussion, we have been brought around to the view that moving to open source is good for us and, perhaps more importantly, is good for the users. Intriguingly, it is of benefit to the whole MultiValue community, not just QM users, as it has the potential to reverse the trend predicted by Sam.

"Although the open source version is a great way to explore QM for free, we do not see it as a major source of real users as it is unlikely that a commercial organization would run its business on an unsupported product," Phillips said. "The open source version also potentially brings the talents of huge numbers of developers to the QM product. We are hopeful that as use grows, these developers will contribute new components to the mainstream commercial product in much the same way as other open source products have developed. We have already received a few such contributions."

Where Did QM Come From?

According to Phillips, QM came into existence quite by accident. Ladybridge was formed in 1992 by ex-Prime Computer employees. Phillips himself had been one of the two technical managers responsible for the design and development of the PI/open database, his first introduction to the power of the MultiValue model. When Prime decided it no longer needed his services in a massive cut-

back in the U.K. workforce, he acquired legal ownership of a set of migration tools that he had started developing in his last few months with the company. These tools formed the foundation of the initial product set for Ladybridge Systems and were used by many of Prime's largest customers.

From a project for a programming environment that could be used on PCs to develop applications for PI/open emerged a complete MultiValue database product that eventually became the environment for Ladybridge's business systems, effectively guaranteeing that development would continue. "Way back in 1993, QM ran on MS-DOS and Windows for Workgroups," Phillips said. "This was quite a challenge: limited memory space, a 16-bit programming environment and no

multitasking. The latter forced us to include our own time slicing system to allow use of phantom processing.

"As time went on, we moved forward to a 32-bit compiler on Windows 95 and discarded the original 16-bit engine and its pseudo-multiprocess architecture. Today, QM runs on all multitasking Windows platforms, Linux and FreeBSD. Although our clients typically run systems with between five and 20 users, our largest site has 100 users. We have demonstrated a 200-user version and see no reason why even larger systems should not be a practical proposition in a commercial environment."

What Is QM?

QM offers the basic core functionality of MultiValue databases—all of which

are derived from a common public domain specification—without the advanced features that are needed for complex corporate database systems. "Our main target markets are small office systems, applications run on laptop computers, and to be the underlying database in low-cost 'shrink-wrapped' solutions," Phillips said.

Because the technology is in the public domain, legal conflicts have not been an issue with the release of OpenQM. "Although QM shares many of the features of other MultiValue databases, the implementation is totally original," he said. "None of the source code was taken from any other products."

Prior to the 2001 launch as a database product, QM was developed in stages,

Continues on page 12

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OpenQM

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as Ladybridge discovered the need for features in its own use of the database, he said. Since then, development has been more intensive. "We are extremely responsive to user requests and issue updated versions very frequently."

Even with the introduction of the open source version in September 2004, the commercial version of QM will continue to exist. "It will be fully supported by our distributors, our dealers and ourselves exactly as it's always been," Phillips stated. "From the reseller's point of view, the potential for market growth can only be good news."

The open source version will be downloadable by anyone who wants to, initially for Linux only. Users will need to build the software before it can be used. They are free to modify it in any way they wish. But, as is standard with software released under the General Public License (GPL), it is supplied with absolutely no warranty and no support, according to Phillips.

"We expect commercial users to continue to purchase the supported version," he commented. "What OpenQM does is make the source code of the software available to software writers who want to use it as a basis for their own development. Under the terms of the GPL, they are free to distribute their new software but it must become open source."

"The most likely way in which developers will use the open source is to extend or modify the existing OpenQM product and, hopefully, contribute their changes for us to reintegrate into the standard source. Thus, OpenQM will grow to meet the needs of its users. With enough active developers, this growth could be very rapid."

QM's Target Market and Price Competitiveness

According to Phillips, QM appeals to any user who needs the core MultiValue database features at a sensible price, particularly "users with legacy applications who want to move away from more costly platforms." At the low end, Ladybridge Systems is working to make MultiValue systems available to the "enormous number of single user, embedded database applications that have been denied this technology in the past because of the high price tag attached to it," he said.

Once developers start to work with the publicly released source code and return their changes to Ladybridge for inclusion in the standard product, Phillips said they will expect to see OpenQM grow rapidly to meet all kinds of user needs.

Of the many MultiValue databases on the market, QM is probably the lowest priced at around \$120 per user with no mandatory support contracts and

free upgrades for one year, he said. The upgrade period can be extended to 10 years for a small surcharge. "Being low cost does not mean that we are lacking functionality," Phillips added. "QM is not aimed at large corporate databases and, hence, does not have some of the advanced features needed in such an environment, but it includes all the core functionality of other MultiValue products and is continuing to grow. The original release followed the general style of the Information-type databases such as Prime Information, PI/open, UniVerse, and UniData. We have steadily added new features to offer closer compatibility with the PICK-style databases such as D3 and Reality.

"Having said that, QM is not a clone of any other product and does not set out to offer a totally effort-free migration path. There are things that we do not support which may need small application changes. Conversely, we have included some really nice features that we believe to be unique. Users who have migrated applications have been very positive in their comments about our functionality and the reliability of QM."

The Open Source Impact

Ladybridge envisions that many positive effects will stem from releasing an open source version. In addition to allowing developers to work with the software and extend the existing OpenQM product, and in return, contribute their changes to Ladybridge to reintegrate back into the product, there's the educational aspect to consider. "We hope to penetrate the educational market so that developers entering the commercial world from colleges will have experienced the

benefits of the MultiValue data model and are much more likely to stay with it rather than going to the more restrictive world of fully normalized databases," Phillips said. "We are aware of at least one university that is using QM in its computer courses.

"At the same time, our low cost should make QM very attractive to application developers who want to embed a powerful database in their product without pricing themselves out of the market. We offer very significant discounts for high volume, single-user systems, which makes QM highly attractive for shrink-wrapped solutions."

Shown at the Spectrum 2005 trade show this past March, OpenQM has clearly struck a chord in the MultiValue community. "We had established a solid user base before the dealership changes in 2004," Phillips said. "Since

then, the increase in interest has been astounding. We currently have a large number of software development companies actively moving applications to QM from other platforms. We are working closely with these developers to ensure that the product has the features that they need."

Ladybridge has also established relationships with companies offering various advanced development tools, such as the AccuTerm terminal emulator which is now bundled in as part of the QM package.

Looking to the future, the possibilities seem limitless. The OpenQM idea has

already taken root and captured the interest of many MultiValue users looking for an alternative. And Ladybridge is continuing its forward momentum, actively considering a Macintosh implementation, making OpenQM the only MultiValue database available on that platform. Phillips also mentions the inevitability of Unix versions of OpenQM in the near future.

To facilitate the movement to OpenQM, Ladybridge has established the OpenQM user community to allow users of the open source product to discuss development and usage and will soon set up a similar community discussion

For more information, visit www.ladybridge.com or www.openqm.com.

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Collaboration, critical information at crucial times, using corporate data to discern business trends—these are just some of the capabilities that businesses need to compete in an economy that grows more competitive every day. Business Intelligence (BI) is the fast-growing field of software that delivers these abilities to managers' desktops. Business Intelligence, a phrase coined in 1996 by research group Gartner Inc., is defined as "the conversion of raw data into information and from information into business knowledge." It's the technology that transforms large quantities of raw transaction data derived from day-to-day operations into information that can be used by managers and decision-makers to help run their businesses more efficiently and effectively, with more insight.

Quantum VS myViewpoint marks the entry of Via Systems Inc. into the exploding Business Intelligence market. What prompted this international leader in connectivity products for the MultiValue marketplace to jump into the BI fray? "We identified an increasing need for companies to

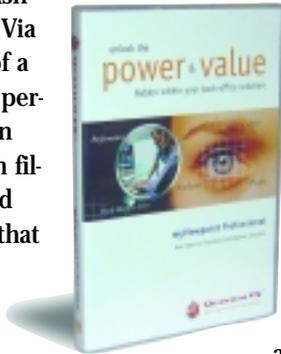
monitor their Business Intelligence and make informed tactical decisions," Laura Hatfield, U.S. Operations Manager, told *Spectrum* magazine. "Based on that need, Via Systems introduced Quantum VS myViewpoint, the ultimate low-cost, feature-rich, graphical Business Intelligence solution."

At-a-Glance: Quantum myViewpoint's Features

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- Easily summarize data with subtotals and grand totals, using a combination of row totals, column totals and cube totals
- Back up queries or share them with others, using backup and restore

Source: *Quantum VS myViewpoint Business Intelligence White Paper*

Quantum VS myViewpoint is designed as a pro-active Business Intelligence and Decision Support solution, incorporating the power of “push technology.” According to Via Systems, it is comprised of a powerful set of tools that permits any raw data stored in the back-office application filing system to be presented on the desktop in a form that executives and senior managers are able to use for effective decision making, performance monitoring/managing and organizational control activities.



It addresses the growing need for consistent, personalized, fact-based Business Intelligence by presenting data in a form that can be easily understood by the manager and is relevant to key business performance metrics that are individualized for that particular manager. “myViewpoint enables managers at their ‘desktop’ to

define what Business Intelligence they wish to monitor and which parameters to set (Key Performance Indicators),” Hatfield commented. “You can receive BI that is automatically compared against your warning parameters, and where BI falls outside your parameters, a traffic light signaling mechanism automatically highlights and alerts you to offending metrics!

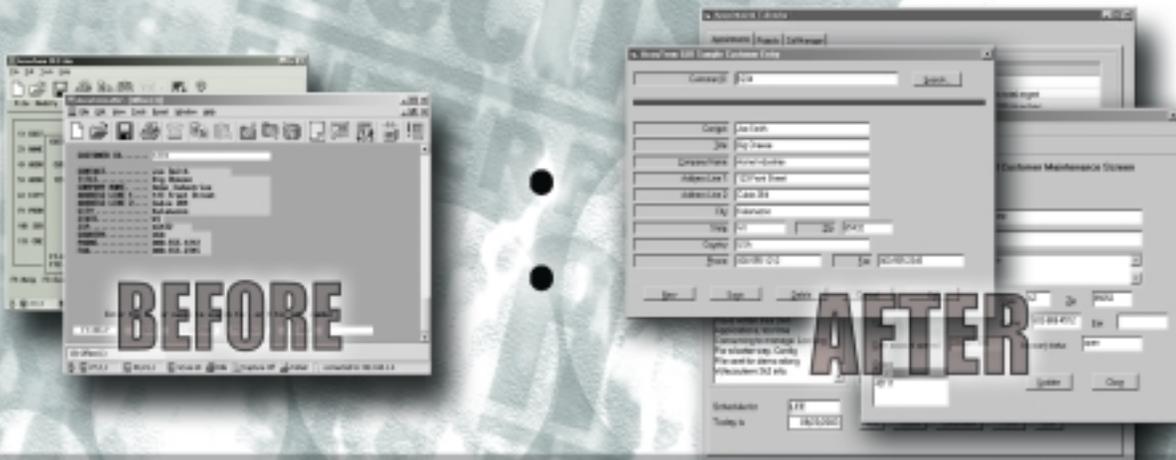
“It provides instant impact and powerful visual analysis with an easy-to-read dashboard, comprising gauges, thermometers, pie charts, graphs, etc. myViewpoint enables you to point and click through your linked queries, drilling down to offending transaction groups or individual transactions. It quickly identifies changes and trends in business performance metrics with red and green Trend Analysis arrows and portrays your BI in a variety of graphical formats.”

Users can also share their Business Intelligence with other myViewpoint users, and export to other personal productivity tools such as Excel and XML. Branch managers, departmental managers, sales managers, buyers and other individuals who need to keep their finger on the “pulse” of the business can all share the same Business Intelligence, keeping them in sync. For example, in a multi-branch operation, you can summarize your refined Business Intelligence in your focused “Daily Branch Business Close” and have a “picture” of your top line business performance and profitability delivered every day based on the actual business conducted that day (Source: *Quantum VS myViewpoint Business Intelligence White Paper*).

Copies of myViewpoint (Standard Edition), strategically placed throughout a business, are referred to as “desktops,” as defined by their role in the business, such as “Sales Director’s” Desktop, the

Continues on page 47

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RFID

Privacy & Security

RFID privacy and security is a topic that is generating a lot of debate. Due to the potential that RFID brings to the supply chain, it also brings an equal level of privacy and security issues.

There are really two different aspects of privacy and security: the consumer side and the enterprise side.

Solutions for each of these sides are still evolving, but I figured I'd try to address at least the ones you may already be considering and maybe bring up some that you haven't thought of.

RFID Laws

Out of all the publications that I've read and studied, I have yet to find any laws specific to RFID. This includes other countries besides the U.S. In many cases, RFID privacy is covered under existing privacy laws that deal with bar codes and other tracking systems.

I know of at least two states that were looking at enacting more laws specific to RFID to help protect the consumer from retailers and/or criminal elements. Each time, the laws have died somewhere in the process, but I would expect more states and possibly the federal government to continue to look at placing restrictions on what RFID tags can actually be used for and how that information can be used.

Consumer Privacy and Security Concerns

Unauthorized Reading of Tags

One question that consumers and privacy groups have brought up is: Can someone read the RFID tags in your home? Basically, can someone sit in

their car outside your house and read all the items you have in your kitchen cabinets?

This question has a yes/no answer. Even though the possibility exists, in order for someone to build a reader to do this, the power output would be so high that the popcorn would start popping in your cupboard. Now if you invite someone into your own home, and they have a reader on them, that is a different story.

Even if someone does successfully read all your groceries, they will only get a string of EPC numbers, and maybe some additional stored information if there is "onboard" memory. Without a database to query each EPC number against, this doesn't do them much good. This may become a problem when and if a global database is created for EPC numbers, but at this time, that process has not been formalized.

More than likely, the "look in the window" approach would be easier and more likely for a criminal to use than building or using an RFID reader.

The next thing that consumers can do to protect themselves from this is to "kill" the tag. Every RFID tag has a built in "kill" function. Once the tag has been killed, it becomes dead circuitry and cannot be reactivated. I would expect most retail stores will start providing kiosks that allow users to kill the tags, or the registers will kill the tags when an item is sold.

Can a Tag Be Reactivated?

This really goes back to the "kill" function. Once the tag is killed, it's basically trash. It cannot be reused or reactivated.

Tracking Consumer Purchasing

This concern comes up often, and to be honest, I don't truly understand why it's an issue anymore. The ques-

tion is: Will RFID allow companies to track what consumers buy?

For those of you in the retail and manufacturing software market, you're probably scratching your head with a look on your face like "don't we already do that?"

I don't see RFID making it any easier or harder to track buying trends. Since an EPC number is basically an electronic UPC code, or inventory number, it wouldn't really change any of our existing "trend tracking" software. In order to track trends to a specific customer, you still need to know who the customer is that's using a club card, member card, and/or credit card.

So again, I'm a bit puzzled about why this would be a concern.

Will Tags Be Hidden in Products

This is a valid concern for consumers. If the consumer doesn't know there are RFID tags in their merchandise, then they don't know that they're leaking information.

I know, I know, I just said the information that comes from an RFID tag will likely be meaningless to people, but it is still information. Here is an example of what I mean:

Say you just bought something at the jewelry store and it has an RFID tag in it, which you didn't know about. You walk out the door and right by a criminal sitting in a car in the parking lot with an RFID reader. They can read the EPC code from the item you just purchased. With the combined knowledge of where you bought something and an EPC number (inventory number) of what you just bought, they then can walk into the store and find out what you bought by just finding the item that has a similar EPC number.

Most retail stores will start providing kiosks that allow users to kill the tags, or the registers will kill the tags when an item is sold.

So as you can see, hidden tags (even accidentally hidden) are a concern that you as a retailer or manufacturer should be aware of and try to address. EPC Global Inc., which is the registration and standards organization controlling EPC numbers, requires people to place an EPC logo on their packaging.

Business Privacy and Security Concerns

Unauthorized Tag Killing

I talked about the consumer having the ability to kill their tags after purchase, but as a retailer, how do you keep a thief or a disgruntled employee or customer from walking in the store with a handheld "killer" and destroying all the tags you have on your shelf?

If you haven't already thought of this, I bet I just got your attention. This was a concern I had for a long time until I finally found an answer. The kill function is password protected.

All Class 0, 1, and Gen 2 tags have an encryption code that must match the tag before the kill function will do its job. The drawback to this is that Class 1 tags use an 8-bit password, which only has 256 unique combinations. It wouldn't take much programming to loop through that many combos if someone really wanted to.

Class 0 tags use a 24-bit password, which is better than Class 1 tags, but not as good as Gen 2 tags.

Gen 2 tags, which have been finalized and are in production this year, have a 32-bit password. This provides four billion combinations, which makes it much harder to crack than Class 0 or Class 1 tags.

Data Leaks

When you are using RFID tags, you have the potential of "leaking" your inventory levels or other information to anyone with a RFID reader. To be honest, there is not much you can do about this.

If you are in the retail industry, you probably already have competitors sending people into your stores to do

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Raining Data Plans to Generate RFID Solutions in Partnership With SeeBeyond

Raining Data and SeeBeyond are joining forces in an initiative to provide solutions to manage and orchestrate the flow of data generated by Radio Frequency Identification (RFID) systems. As part of the tentative agreement, the companies will enable the integration of information from existing applications to generate standards-based collaboration among partners across the Supply Chain, powering the EPCglobal Information Service (EPC-IS). SeeBeyond is the provider of the world's first fully integrated composite application network suite for advanced integration and composite application solutions, the company said.

As companies struggle to unlock the ROI around RFID initiatives, the realization of a best practices framework to enable real-time information sharing is becoming fundamental to any RFID project. This sharing of data not only encompasses the enterprise applications with the four walls of a corporation, but also the business processes that span the extended enterprise. The EPC-IS, in the context of EPCglobal standards, is an important evolving component of any supply chain that needs to be able to share information with partners through an open standards framework.

As companies deploy this kind of infrastructure, performance, extensibility, interoperability and ease of access will become important criteria when sharing high volumes of information. With Raining Data's XML-based repository—TigerLogic XDMS—and the RFID Composite Application Network offering from SeeBeyond, customers and partners can take advantage of the standards-based Web Services and XQuery to aggregate information not previously accessible—delivering new efficiencies to help support accelerated ROI from RFID projects.

Together, the companies will provide a standards-based technology platform which collects, manages and integrates RFID and sensor data with existing systems to enable composite applications such as: track and trace, product recall, advanced shipping and receiving reconciliation, and total inventory visibility.

"Organizations trying to unlock the ROI from RFID investments must be able to integrate this real-time data with existing systems to drive new ROI-driven applications," said Reed Henry, senior vice president of Business Development, Strategic Alliances and Marketing for SeeBeyond. "Partnering with a leading XML Data Management, XQuery and Web Services technology provider, such as Raining Data, enables our customers to leverage our ICAN suite and integrate real-time EPC/RFID data to drive new business application development."

"We believe the intended alliance between Raining Data and SeeBeyond offers companies the most complete RFID platform today," said Ajay Ramachandran, vice president of Enterprise Applications Group for Raining Data. "Combining XML Data Management, XQuery and Web Services with an integration platform, such as SeeBeyond ICAN, delivers the necessary components to drive new Supply Chain applications and fully take advantage of EPC/RFID data."

RFID Privacy & Security

Continued from page 17

price comparisons and inventory level comparisons. While the RFID tags will not provide your competitors with pricing information, it will provide information about inventory levels.

Since all this requires is a portable reader which isn't as obvious as someone physically counting your inventory levels on a clipboard, you are less likely to know when someone is doing it.

This also goes for your vendors. In some retail markets, like the building supply retail market, some of the vendor's salespeople will come into your store and review the products on the shelf and give you recommended order quantities for more stock as well as recommended supplement products.

In this case, an RFID tag can be used by the salesperson to tell how long a specific product has been on the shelf, which will help them, but since they can read any RFID tag, they will know if you sell their competitor's products and how many of these products are on your shelf.

They can then use this information as marketing tools to sell more of their own product, or as a strong-arm tactic to try to get you to not sell their competitor's product. You may have already run into these tactics without having RFID tags in the mix, so you may be wondering why I bring it up.

Right now, in order for a vendor to do this, they have to physically count or hunt down their competitor's products in your inventory. With a reader, they no longer have to do this.

Supply Chain DOS and Ghost Attacks

I have not heard of this as a problem yet, but I wouldn't be surprised if this starts popping up in the next few years. Since RFID is radio transmis-

sions, anything that relies on this in your manufacturing process can be disrupted by interference on the same radio wave length.

More people are familiar with DOS (Denial of Service) attacks in regard to the Internet. If an attacker sets up a transmitter that overloads your RFID readers on your assembly line, then it will cause missed reads and/or slow down your processes. I'm sure you can see where I'm going with this, so I won't spell it out.

Ghost attacks aren't always attacks. Ghosting happens when a reader thinks it picks up a tag when it really hasn't or shouldn't have. This is actually a common problem with Class 0 and Class 1 tags and readers. Gen 2 tags and readers have changes in them to help prevent against ghosting caused by frequency issues.

But if an attacker sets up a transmitter, or even if someone leaves a tag close

to a reader by accident, then you will get a ghost tag which can throw your system off in either inventory counts or manufacturing processes.

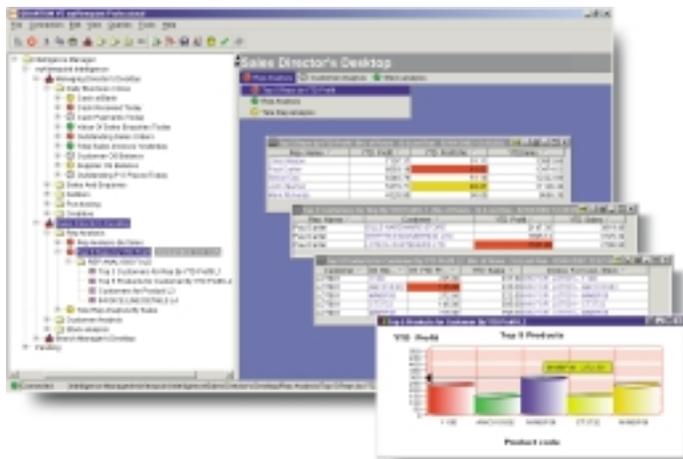
Conclusion

There are server privacy and security concerns you should be aware of regarding RFID tags. Not all issues are consumer related, many of them are business related. There are more RFID

privacy and security concerns brought up every day, while people find different methods for dealing with others.

Feel free to contact me if you want to discuss this more: nrector@natecsystems.com or you can call me at (303) 465-9616. You can also get more information about RFID by attending the Spectrum Regional Shows and online presentations. is

N A T H A N R E C T O R , a regular contributor to *Spectrum*, is owner of Natec Systems, a consulting firm specializing in D3, AP and R83 environments and custom programming. He can be reached at nrector@natecsystems.com or <http://www.natecsystems.com>.



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Taking Control *of Your* Printer with

For those of us who have written programs to create sophisticated looking output on laser printers from traditional MultiValue systems, the task has been, at best, arduous. How many times have we asked the question, "Wouldn't it be nice to write one set of code and be able to print that output to any printer on the network?" With OIPI you can!

What Is OIPI?

Bundled within Revelation Software's flagship product, OpenInsight, is an integrated set of commands used to create pre-packaged documents. This set of commands is collectively called the OpenInsight Printer Interface or OIPI.

OIPI is by far one of the best ways to achieve high-quality output from OpenInsight or from any MultiValue database that OpenInsight binds to. With OIPI you can easily export your output to file formats such as Adobe PDF, RTE, and HTML.

How Does OIPI Work?

OIPI consists of two commands:

- **Set_Printer(Message, Parm1, Parm2, ...)**, which sends messages such as TEXT, FONT and BMP to the OIPI print engine.
- **Get_Printer(Message)**, which retrieves messages such as DEVICES, PRINTERINFO and POS from the OIPI print engine.

The first parameter for Set_Printer is a required message that is sent to the printer. The remaining parameters are optional and are utilized to control the behavior of the message. Get_Printer utilizes only the message parameter. Each of these commands are functions and will return values. In the example where *status=Set_Printer(Message)*, if status is True(1) then the command is successful. Unsuccessful commands return negative error codes. The

return value for the *Get_Printer* command is the value of the property requested by the message parameter. These commands are very similar in function to the PRINTER ON, PRINT and PRINTER OFF commands found in traditional MultiValue systems.

Message Types

The Set_Printer command has two required messages (INIT and TERM) as well as some frequently used messages such as (TEXT, FONT, ADDTABLE, POS, TEXTXY, BMP, and EXPORTDATA). Let's look at these various message types:

- The **INIT** message starts a printing session and controls the initial properties for each printing session. For example, *status=Set_Printer("INIT", Filename, Title, PageInfo, PrintSetup, Printer)*
 - *Filename* contains values for the filename within OIPI and the filename information for exported data.
 - *Title* contains values for window titles.
 - *PageInfo* contains values for margins, paper size and number of copies.
 - *PageSetup* contains values for proper orientation.
 - *Printer* contains values for device, port and scale.

OIPI

- The **TERM** message ends a printing session, clears resources, activates preview buttons and prints the report. This message is used in the following manner, `status=Set_Printer("TERM")`
- The **TEXT** message sends standard text to the printer.
- The **FONT** message sets the font that is used for printing the main body of text and is used by the **ADDTABLE**, **TEXT**, **TEXTBOX** and **TEXTXY** messages.
- The **ADDTABLE** message is used to print tables and columnar reports. Column alignment, width, and position of data within each column can be controlled as well as setting header/body, header shade, body shade and border style.
- The **POS** message is used to set the current printing position for the **TEXT** and **ADDTABLE** messages.
- The **TEXTXY** message is used to send output to the printer at a specific location.
- The **BMP** message will print a bitmap at a specific location on the page and can be used to print 16 color BMP files, 256 color BMP files, WMF files and ICO files.
- The **EXPORTDATA** message is used to insert raw data into the RTF or HTML export.

A very simple "Hello World" print program utilizes the following code:

```
Subroutine Hello_World_Example(dummy)
  Declare Function Set_Printer
  status=Set_Printer(" INIT" )
  status=Set_Printer(" TEXT" , " Hello World" )
  status=Set_Printer(" TERM" )
  Return
```

In Figure 1 below, our sample output is displayed in the Print Preview Window. The Print Preview Window allows us to preview our output on the screen, scroll through the output, search for a specific string within the output, and select the printer for output.



FIGURE 1 - A sample invoice created using OIPI

Next we will look at the code used to produce the output in Figure 1.

Figure 2 - Code used to produce the sample invoice in Figure 1

```
Subroutine OIPI_Example(dummy)
```

*This program creates a simple invoice using a variety of OIPI commands.

```
Declare function Set_Printer,
Get_Printer, RGB, Msg
$Insert OIPRINT_EQUATES
```

* Initialize the printing session with a name, dialog title, and margins.

```
name = " Sample Invoice"
title = " "
title<1> = " Printing Sample
Invoice..."
title<2> = " Example Print Preview"
margin = 1:@FM:1.75:@FM:1:@FM:1
```

* Display the report using the Print Preview Window.

```
x = Set_Printer(" INIT" , name, title,
margin, " ", 4)
If x < 0 then
  x = msg(" ", " INIT ERROR = " :x)
End
```

* Set the text font and the header/footer font.

Continues on page 22

Taking Control of Your Printer with OIPI

Continued from page 21

```
x = Set_Printer(" FONTHEADFOOT" ,
"Times New Roman" :@FM:12)
font = " Arial" :@FM:12:@FM:" L"
fontBold =
" Arial" :@FM:12:@FM:" L" :@FM:1
x = Set_Printer(" FONT" , font)
If x < 0 then
  x = msg(" " , " FONTHEADFOOT
Error")
End
```

* Set the header with the text "Sample Invoice" centered, and "Page # aligned to the right margin on the first line. The text "for the OIPI 2.0" is centered on the second line.

```
x = Set_Printer(" HEADER" ,
@vm:" Sample Invoice" :@vm:" Page
' P' " :@FM:@vm:" for the OIPI
2.0" :@FM)
If x < 0 then
  x = msg(" " , " HEADER Error")
End
```

* Print a bitmap at 1 inch from the top and 1 inch from the left side of the page. The left and top values are calculated from the margins. The width and height of the bitmap will be 0.5 by 0.5 inches, and the bitmap will print on every page.

```
x = Set_Printer(" BMP" , " PRINT-
ER.BMP" , 0:@FM:-0.75:@FM:
0.5:@FM:0.5, 0, 1)
If x < 0 then
  x = msg(" " , " BMP Error")
End
```

* Set the text font to Arial Bold and print the title of the Date/Invoice

table. Then print the date and invoice number with no bold. The first column of the table is blank to place the date and invoice number in the correct location on the page. Center the date and invoice number and print the table with no column header or border.

```
x = Set_Printer(" FONT" , fontBold)
table1 = " ,Date,Invoice No."
convert " ," to @vm in table1
x = Set_Printer(" ADDTABLE" ,
">5040" :@VM:" ^2160" :@VM:" ^21
60" :@FM, " " ,
table1, " " , " " , " " , TB_NONE)
x = Set_Printer(" FONT" , font)
table1 = " ,01 Jan 1996,340082"
convert " ," to @vm in table1
x = Set_Printer(" ADDTABLE" ,
">5040" :@VM:" ^2160" :@VM:" ^21
60" :@FM, " " ,
table1, " " , " " , " " , TB_NONE)
```

* Print a blank line then print the Bill To/Ship To table. This table has no column header or border and has left justified columns.

```
x = Set_Printer(" TEXT")
x = Set_Printer(" FONT" , fontBold)
table2 = " Bill To:,,Ship To:"
convert " ," to @vm in table2
x = Set_Printer(" ADDTABLE" ,
" 3600" :@VM:" 1440" :@VM:" 3600"
:@FM, " " ,
table2, " " , " " , " " , TB_NONE)
x = Set_Printer(" FONT" , font)
table2 = " "
table2<1> = "Test Company
123//Test Company (Billing Dept)"
table2<2> = " 123 West Main
Street//555 West Main Street,
MS:123"
table2<3> = " Portland, OR
97005//Portland, OR 97005"
convert "/" to @vm in table2
```

```
x = Set_Printer(" ADDTABLE" ,
" 3600" :@VM:" 1440" :@VM:" 3600"
:@FM, " " ,
table2, " " , " " , " " , TB_NONE)
```

* The table below has column headers and borders. Each column is center justified.

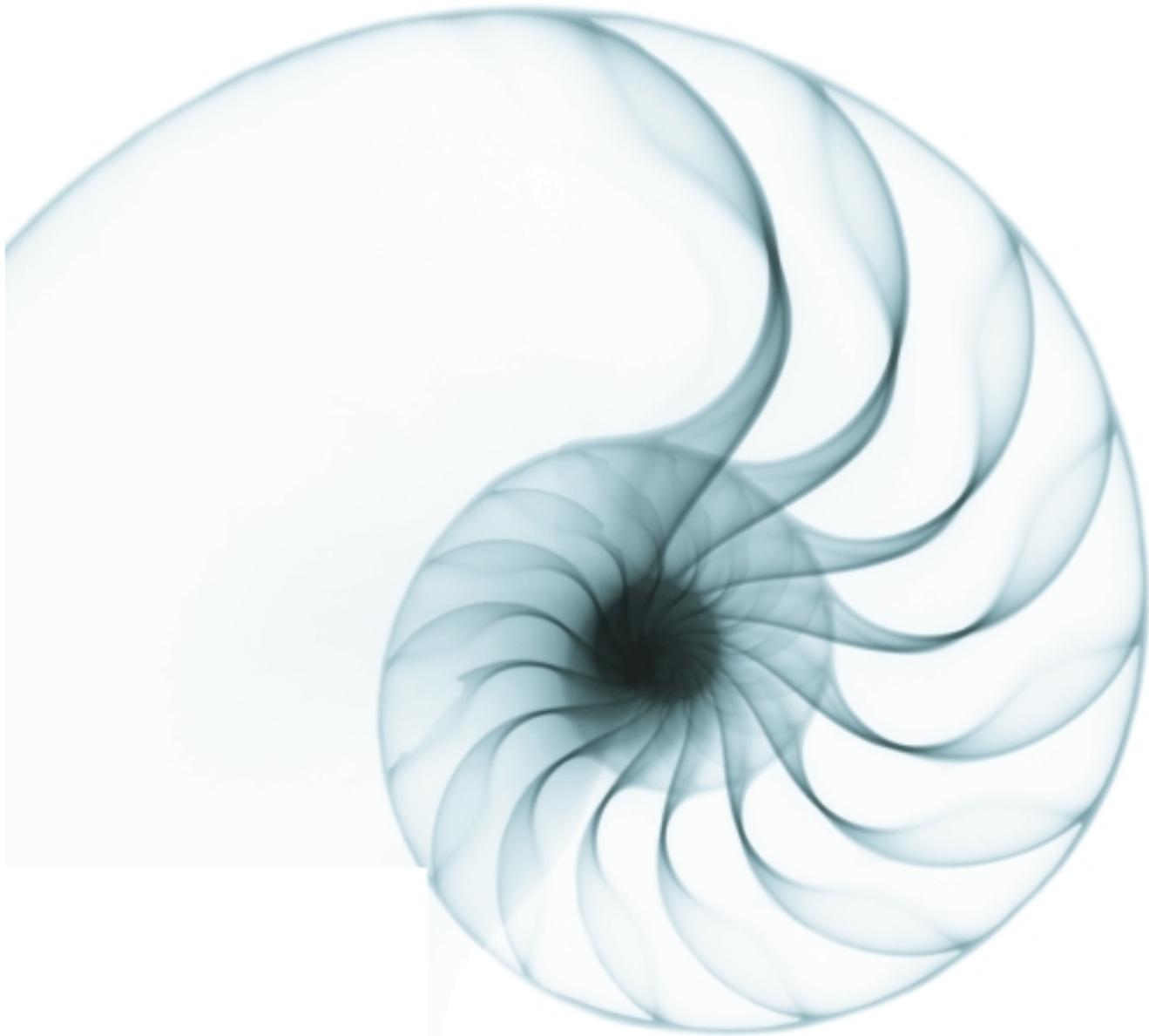
```
x = Set_Printer(" TEXT")
x = Set_Printer(" FONT" , fontBold)
table3 = " Terms,P.O. Number,Ship
Date,Ship Via"
convert " ," to @vm in table3
x = Set_Printer(" ADDTABLE" ,
" ^2160" :@VM:" ^2160" :@VM:" ^21
60" :@VM:" ^2160" :@FM, " " ,
table3, " " , " " , " " , TB_ALL)
x = Set_Printer(" FONT" , font)
table3 = " Net 30,9500123,03 Jan
1996,UPS Next Day Delivery"
convert " ," to @vm in table3
x = Set_Printer(" ADDTABLE" ,
" ^2160" :@VM:" ^2160" :@VM:" ^21
60" :@VM:" ^2160" :@FM, " " ,
table3, " " , " " ,
" " , TB_ALL)
```

* The position of the next table is set to 0 inches from the left margin, and 3 inches from the top margin. This will guarantee the table will always start to print from the same location.

```
x = Set_Printer(" POS" , 0:@FM:3)
```

* Create the sample data for the main table. This table has column headers, because the column headers need to be printed at the top of each page if the main invoice table requires more than one page. The rows will have borders.

Continues on page 45



YES

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Spectrum Celebrates 25 Years of Showcasing the MultiValue Industry

Surviving in the trade show game for 25 years is no small feat. Next year, Spectrum 2006 marks 25 years of exhibitions and conferences—making International Spectrum the longest continuously running computer trade show in the computer industry. Almost like the little engine that could, it has outlasted many other bigger-name computer trade shows, a true testament to the staying power of MultiValue technology. What started off in 1982 as basically a user group meeting between Northern and Southern California PICK users, in a small matter of time, blossomed into a major trade show event that filled 100,000 square foot convention centers at the height of the MultiValue industry. Over the years, Spectrum has fulfilled a unique niche, serving as a microcosm of the MultiValue industry—the place where deals are sealed, products are introduced, and the latest technologies are learned. Leading up to Spectrum 2006, this 25th anniversary special kicks off a series of articles remembering significant events over the past 25 years.

Spectrum and MultiValue Keep the Fires Burning

The Spectrum show has weathered many changes within the MultiValue industry as well as the computer industry over the past 25 years. Through it all, the show has changed, too, but it remains a center point of the MultiValue community. "The main factors that have contributed to the success of the show for so long are twofold, I think," said Gus Giobbi, chairman of IDBMA Inc., the company that produces the show. "First and foremost, the decision made a long time ago by the core providers of the MultiValue database to migrate the database to the open systems market. Specifically, instead of fighting the world, the MultiValue database now runs under and communicates with everything, including Oracle and Windows if you like.

"Secondly, the MultiValue database is simply a terrific user-friendly tool that has kept apace with evolving technology and has a huge bank of tried and true application software built around it, supported all over the world by tens of thousands of seasoned IT professionals."

Reflecting on how Spectrum has played a part in helping perpetuate MultiValue technology, Giobbi said, "When I look back over the 25 years of producing the show and keeping up with all the changes that have happened in the MultiValue industry, I have a great feeling of satisfaction in knowing that Spectrum has played a key role in keeping the technology alive and vibrant."

The Roasts: Taking the Gloves Off

A main attraction of the first three Spectrum shows were the roasts that featured the leaders of the MultiValue industry, dressed to the nines, seated

Little did the executives know that some of their business's success was riding on their performance in these roasts.

from these roasts. Giobbi said the idea of the roasts can be attributed to him. "When I was growing up, my sister and I were enamored with the Dean Martin-style roasts, and I studied how they wrote the material," he commented. "I came up with the idea of doing a roast at the Spectrum show, and everybody thought it was a cool idea to try because

on the dais in front of an audience, trading barbs about each other's companies. If you've been checking out e-Xtra, Spectrum's e-newsletter, you've

seen video clips taken the market was really on a high and we had lots of egos."

What started as an entertainment event ended up having business consequences or advantages, depending on how a CEO performed. "As time went on, I discovered there was only a handful of these executives that could actually write material that was funny," Giobbi said. "So as it came closer to the event, it became clear that I had to even ghost write the lines for some of these guys. Not all of them—there were some that were really good like Robin White [who was with ADDS/NCR at the time], George Ridgway [of SMI], and Bob

Continues on page 26



Dick Pick (left), Microdata's Bob Purdy (center), and AAMR's Gordon Cryne crack up at the 1983 Spectrum Roast as another zinger is delivered from the podium.



SMI's George Ridgway zaps a member of the dais with his classic dry wit!



Spectrum Celebrates 25 Years of Showcasing the MultiValue Industry

Continued from page 25



Altos' Ron Conway hurls another insult to Dick and Barbara Pick to the great amusement of Microdata's Bob Purdy (right).



ADDS/NCR's Robin White suggests a logo for Bill Thurman's Climax Computer as Gus Giobbi looks on.



Fujitsu's Wayne Wahlenmeier delivers another "tasteless roast" to the audience.

Purdy from Microdata. Then there were some guys who you just couldn't write for at all. They wanted to do it all on their own and they fell flat on their faces."

Little did the executives know that some of their business's success was riding on their performance in these roasts. "We had many people tell us that one of the reasons they came back to subsequent roasts was that they made the decision on whether or not to buy from a company based on how well the CEO presented himself at the roast," he said. "In all honesty, you could tell a lot about the company by looking at how well—or not well—the CEO did. There were some people who rambled on indefinitely and bored everybody to death. But some of the one-liners were really good, and people really enjoyed seeing them perform."

Although the executives were usually well prepared, presenting at the roast could be nerve wracking. Would they get a good amount of chuckles, or would they be met with dead silence? White recalled that he had a terrible case of stage fright, but once he got on stage, it was fun. "Obviously, I enjoyed the actual participation, but I didn't enjoy the anticipation. I had a fairly good sense of timing, and I could make people laugh."

The first roast, held in 1982 at the first-ever Spectrum show at Caesar's Lake Tahoe, was extremely successful, which led to subsequent roasts in 1983 and 1984. Dick Pick, the developer of the original PICK system and the CEO of PICK Systems, was the subject of the first roast, and the jokes frequently veered into off-color territory. "Unfortunately—or maybe fortunately—there's no record of that event [it wasn't videotaped]," Giobbi said. "Some of the people on the dais were pretty far off base, talking about the drug culture and the PICK people in Orange County [where PICK Systems was based]."

After the second roast in 1983, show co-producer Monica Giobbi (and also Gus's wife) advised against doing it again. In hindsight, Gus said he probably should have listened to her, but decided to do the roast at the next year's show. In 1983, Gus describes the atmosphere surrounding the Spectrum show as euphoric. "PICK was being embraced by virtually every significant manufacturer, and the market was riding high. This was before the minicomputer crash that ended the euphoria."

The roast was the one place to find out what people really thought, in the form of humor. Gus, the emcee, kicked off the '83 roast with the promise that it "would be more dignified this year," and warned the audience, "Just because you're in the audience doesn't mean you're immune from this process." The audience was often an active participant in the proceedings, privy to inside information given by the top executives themselves.

The heads of rival companies were seated next to one another—Dick Pick next to Bob Purdy of Microdata, joining Robin White from ADDS/NCR, George Ridgway from SMI, Ted Sabarese from The Ultimate Corp. and Ron Conway from Altos, among others.

If a company was having problems, it was fair game, whether it was profitability or faulty products. It's not surprising that some companies felt their toes had been stepped on and didn't make an appearance the next year. In his introduction of Robin White, Giobbi quipped: "Robin announced the 2-for-1 CRT sale, which is you buy two and you might get one that works." On top of that, he added: "ADDS has introduced the keyboardless terminal—you can't enter any data on it but it solves Mentor's (ADDS' product) response time problem." Giobbi remembered: "NCR owned ADDS at that time, and NCR was very upset about that because they were in fact having quality control problems with their ADDS terminals. So that was the reason that Robin was not on the '84 panel. He was *not* allowed."

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White remembers that particular incident a little differently, noting that "it's amazing how time distorts memories. I certainly didn't get upset. Somebody at NCR might have made a comment to Gus, but we knew it was all in good fun. I believe the following year, I was asked by NCR not to participate because it was a little too juvenile for NCR's taste. NCR was a little more buttoned down than I was. ... It wasn't a demand that I not participate. I think they were more concerned about what I used to say more than anything else. I was fairly risqué in some of my comments."

A hot topic at the '83 roast was lawsuits, which had been plaguing the industry. When the late Bill Thurman noted that there were no lawsuits pending, someone in the audience shouted, "We're working on it!" Thurman also took heavy ribbing that year for starting a company named Climax Computer Corp. Despite Giobbi's admonition against jokes referring to sex and drugs, a name like Climax proved irresistible to many of the participants.

General Automation was taunted for introducing a product line named Zebra. Rumor had it that General Automation had arrived at the show with a herd of zebras. Ted Sabarese chided Data Media for having a "product that was going to be released in 30 days for the last 14 months." Sabarese awarded the Data Media executive

with a compass and binoculars to plot the company's direction. Altos was a newcomer to the PICK industry and had just gone through the trials of porting PICK to its hardware. At the show on the strength of offering the lowest-cost PICK System, Altos was kidded: "The only problem you have left is that your royalty to Pick is more than the cost of your system."

Mother Nature Has a Say in Show Direction

A close call thanks to Mother Nature didn't keep the show from going on in Lake Tahoe in 1982, and the show's producers tempted fate again in 1983. Those years, the show experienced what is now fondly recalled as the "Great PICK Blizzards." "In both years, there was a horrendous snow storm that parted just in time to let everybody get into Caesar's Lake Tahoe, and while we were there, it trapped everybody there," Giobbi remembered. "It cleared just in time for us to leave. It was magnificent while we were there, but we were really just dancing on the edge of disaster, which is why in 1984 we moved the show to Reno at the MGM Grand."

Next issue, we go back in time to the Pro-Grammes, Spectrum's very own awards show for outstanding MultiValue-based application software. During this series, you're welcome to send your remembrances to editor@intl-spectrum.com. [is](http://www.intl-spectrum.com)

mv.NET:

Bridging the Gap From
MultiValue to **Microsoft .NET**

mv.NET is the brainchild of U.K.-based BlueFinity International, a company founded in 2002 by a group of software designers and developers whose mission was to create “state-of-the-art software tools for the rapid creation of professional, business-oriented, MultiValue database-centric applications utilizing Microsoft’s .NET environment.” mv.NET (its first production release became available in December 2004) melds the design team’s vast experience in creating both end-user applications and the lower-level developer tools used to create those applications, and their knowledge of the .NET framework. BlueFinity’s engineering team has been working with the .NET framework since its early pre-beta releases in 1999, the company said. Coupled with the design team’s knowledge of the .NET environment is a history with MultiValue. The company’s engineers have experience working with all flavors of MultiValue databases, ranging from the early days with McDonnell Douglas to the modern days with jBASE, IBM, Raining Data and others.



DAVID COOPER
*senior developer at
BlueFinity International*

In this article, BlueFinity’s senior developer, David Cooper, reveals what differentiates mv.NET from other .NET offerings in the MultiValue market; the underpinnings of the product’s design; and how it bridges the gap for MultiValue users who need to make the leap to Microsoft .NET.



Q At its inception, what was the purpose for developing mv.NET?

A N S W E R : We saw that there was a gap in the market to provide a complete MultiValue development environment for Microsoft .NET able to connect into all major flavors of MultiValue platforms, not only the latest versions of the vendors' MultiValue databases but also previous versions too. By that I mean that we needed to not only provide the development environment and handle connectivity but also to handle management and administration as well. Plus, and by no means a *small challenge*, was to make "everything for the developer" work from within Visual Studio .NET.

We had seen several early attempts of the MultiValue database vendors to provide .NET interfaces (for example,

IBM U2 with UO.NET, which is only available on the very latest releases) while the rest were still struggling with COM based interfaces. Generally speaking, the .NET interfaces provided by the vendors to date have really only enabled the minimum object level possible. This has resulted in the developer having to take responsibility for setup and management of the whole environment and to implement a lot of additional code to ensure an efficient and high-performance application. The true cost is not only manifested by long lead-times for delivery of applications to market but also, in our experience, a higher cost of ownership in the long term.

So, the combination of no fully cross-platform lead from the MultiValue database vendors, Microsoft's .NET technology becoming pervasive and winning the bat-

tle in many key areas against Java (plus a mega-dollar marketing budget) and, not least, our vision and experience, resulted in the creation of our flagship product — mv.NET. mv.NET is therefore the .NET development and deployment product of choice for MultiValue databases.

Q How does mv.NET help meet the needs of today's MultiValue users?

A N S W E R : The key characteristic which we had to ensure for mv.NET was the striking of the optimum balance between making the .NET environment a familiar and comfortable space for the MultiValued developer — allowing them to continue utilizing all of the cool things that you can do with MultiValue technology,

Continues on page 30

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mv.NET: Bridging the Gap From MultiValue to Microsoft .NET

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while at the same time making sure that the really cool things which you can do with .NET were still fully available. No simple task.

With all the undoubted skills that Microsoft has brought together to bring its .NET technology to market it also appears to have the “right product at the right point in time.” You only have to see the major ramp up in .NET application deployments this year and the speed that applications are being rolled out to see that it was vital for MultiValue developers to also be able to ride on the crest of the wave. mv.NET, therefore, needed to deliver all the application environments of Web, Web Services and Rich Client and provide .NET style data access technology through a full ADO.NET managed data provider. Quite simple when written down quickly!

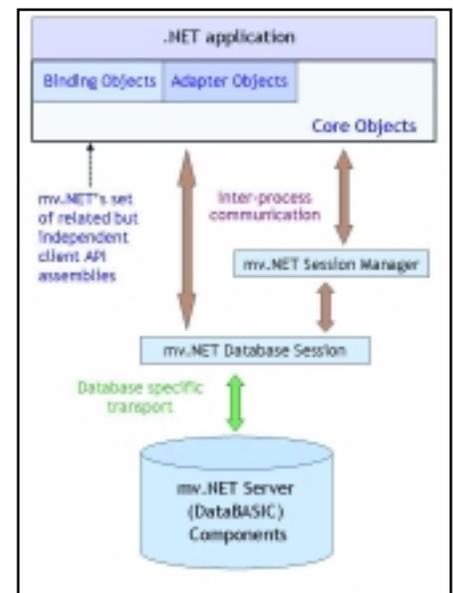
So for any MultiValue VAR, dealer or end user that has the need for Microsoft .NET, then mv.NET is available today. In addition, mv.NET is the ideal technology for some sites that today don't even know that they want Microsoft .NET — let me try and explain by looking at a couple of examples.

A large corporation has Oracle and SQL Server together with several core business applications running on UniData. They also have a new .NET policy and need access to data in the UniData database from Oracle and SQL Server based applications. Using mv.NET and Web Services, the data can be presented to the Oracle and SQL Server applications on-demand. A straightforward project to implement and the UniData system is no longer seen as a remote data island.

A medium sized company has all its core business applications from a VAR running on D3. The company has

grown rapidly and the applications are tightly matched to the company's business needs. The new CFO has a requirement for a new application, so stock answer — buy in an SQL application. Wrong! mv.NET with Binding Objects will enable RAD application development that makes full use of the corporate data in D3. Application look and feel is the equal of anything an SQL vendor can offer, plus there is tight integration with existing core data. All this is achieved without the inherent risks of replacing the application and the database.

It's about time that we had a look at the architecture behind mv.NET.



As can be seen from the diagram, Core Objects provide the foundation underpinning both Binding Objects and Adapter Objects — but more on them later.

Initially, let's look at mv.NET's Data Manager. This tool can be run stand-alone or as a VS.NET add-in and acts not only as a setup/management utility but also as an invaluable developer tool. The starting point in Data Manager is to set up the configuration database which holds all information on all available MultiValue databases (Server Profiles), details of all available accounts on those servers (Account Profiles) and Session Pooling configu-

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ration settings. At this point, without any further action, Core Objects can be used. For Binding Objects and Adapter Objects, some additional definition work is necessary; however, the benefits of doing this additional work accrue later. In addition, Data Manager is used to handle Account, File, Dictionary, Item data and Index maintenance and provide a terminal emulation facility and control intra- and inter-system data transfer.

As mentioned earlier, Core Objects not only provides the underlying framework upon which all other mv.NET products are based, but it also provides, in its own right, a wealth of end-user capabilities to allow the developer to rapidly create feature-rich, high-performance applications using the powerful tools provided by Microsoft's .NET environment. Core Objects has strong integration with Microsoft's Visual Studio.NET product,

allowing the developer to carry out virtually all aspects of application creation from within the VS.NET environment. Each class within the Core Objects class library contains a range of interface members — methods, properties and events. It is by the use of these members that the developer is able to carry out a wide range of MultiValue database-related tasks within the .NET environment. Many of the features provided by these classes will be familiar to the MultiValue developer; in fact, wherever possible, Core Objects' classes have been designed to mirror the traditional functionality provided by DataBASIC and other core MultiValue components. However, by virtue of the fact that the client/server architecture differs in a number of fundamental ways from the legacy green-screen application paradigm, mv.NET's classes provide features that will be new to the MultiValue developer.

Complementing Core Objects is the Binding Objects package, which provides state-of-the art data binding technology, allowing rapid application development from within the .NET environment. All aspects of Binding Objects are fully MultiValue data structure aware, right down to subvalue level. From the simplest file maintenance form to the most complex multi-database, multi-file transaction screen, Binding Objects provides the ease-of-use sophistication capable of meeting the most demanding needs of today's business application developer.

Binding Objects provides the developer with the choice of using either native .NET databinding, or mv.NET's extension which provides a richer, more intuitive databinding data model, allowing more sophisticated use of the MultiValue data model and a greater range of business application development features.

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Monolith Corporation Launches Bare Metal Disaster Recovery for MultiValue Sites

Monolith Corporation, a subsidiary of Brunswick Corporation (NYSE:BC), has announced the offering of a bare metal data disaster recovery system for MultiValue network servers and workstations that provides complete system recovery in minutes — not hours. Based on Symantec LiveState Recovery, this system helps overcome today's system and data disaster recovery challenges by providing a rapid, reliable approach to recovery with the additional benefit of a non-intrusive method for backups.

"It's cool! It is fast and efficient for restores and offers a feeling of system security because of both the internal and external backups. When you add to RAID drives, you feel that your system is well covered," said Jeff Smerdon, a UHL/Monolith end user.

System Administrators can perform a full range of tasks including full system restoration, complete bare metal recovery, and restoring individual files and folders in minutes. In the event of a disaster, failed systems can be quickly restored to a specific point in time without taking hours to manually rebuild and restore data from a tape backup or reinstalling from scratch.

"You can never have too much data protection and ease of recovery—Monolith makes it a cinch with their V2i solution,"

said Thomas Reid, president of TCR Development Solutions Inc. "We include it now on all our new servers, and are adding the solution to our existing customer database."

LiveState Recovery is a disk-based backup solution designed to capture and encapsulate a server's entire live state including files, configurations and settings, in one easy-to-manage and portable file. Administrators can capture full and incremental snapshots throughout the day without interrupting user productivity or application usage.

Backups can be saved to virtually any disk storage device including SAN, NAS and RAID array. Monolith offers a bundled solution which allows the MultiValue administrator the option of using either DVD or external USB drives as the removable media. The MultiValue bundles are available in either 160Gb or 250Gb versions.

LiveState Recovery is a key component in Monolith's Total System Solution and its commitment to providing excellent solutions for the MultiValue community.

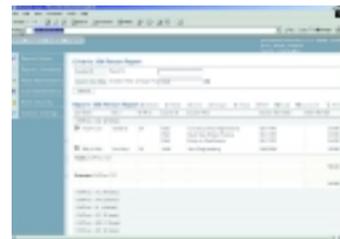
For more information, contact sales@monolith.com.

About Monolith Corporation
Monolith Corp., a wholly owned subsidiary of Brunswick New Technologies, is based in Raleigh, N.C., with offices in

Canada and Florida. Since its incorporation in 1986, Monolith has committed itself to developing, implementing, and supporting solutions that improve the business processes of its clients, specializing in Infrastructure and Computing Architecture solutions. Monolith has cultivated alliances with technology leaders to ensure that its staff is qualified to provide superior service. Through partner programs with Microsoft, IBM, Intel, and Cisco, Monolith is able to take advantage of advance product notification, product training and recognition as a preferred source for delivering solutions based upon the variety of products offered by these companies.

GEAC Agrees to Resell Entrinsik's Informer Web Reporting Software

More Speed and New Architecture Top the List of Enhancements to New Release of Informer



Geac's (TSX: GAC, NASDAQ: GEAC) Public Safety Division has agreed to become a reseller for Entrinsik's Informer Web Reporting Software. Geac Public Safety Division provides leading computer-aided dispatch and

records management systems for emergency services such as law enforcement agencies, fire departments and ambulance service companies. Geac continuously pursues a "total solution" approach for its customers and Informer provides a great complement to their existing software, the company said.

"While we provide some report writing capability with our standard software, the Informer product satisfies our customers' desires for a very intuitive Web-based reporting solution," said Molly Crews, general manager of Geac Public Safety Division. "At the end of day, we expect Informer will create happier customers and that will be a win-win for all parties."

Doug Leupen, president of Entrinsik, is proud to announce this reseller agreement on the heels of other similar agreements and partnerships. "We are finding the need for Informer to be much greater than we originally anticipated. Users are responding with glowing reviews, telling us they are relieved to finally have access to their data through such a user-friendly, informative product. We expect Geac customers to respond the same, and plan to work together with Geac to tightly integrate Informer into their environments."

Informer boasts a host of features providing executives, managers, and key administrators easy, interactive Web reporting from complex database structures. It provides users direct

and fast access to U2 database files utilizing UniObjects while presenting the information in an interactive HTML format on their browser. Retrieved data can also be dropped into an MS Excel spreadsheet, an Adobe PDF file,

or an email at runtime, or scheduled to run on defined intervals. Users can customize data views "on the fly" through sorting, grouping and field selection. A robust role-based security mechanism controls access to

Informer's powerful features while limiting data availability by role down to the data element level. Informer can optionally be integrated with LDAP User Access Management systems.

Just-Released Informer Web Reporting System v3.1 Boasts More Speed and New Features

The newest version of Entrinsik's U2 Web reporting system, Informer, offers new report distribution features as well as significant speed improvements — generating greater visibility into the U2 data environment for all users.

Enhancing its growing reputation as the best-in-class reporting solution vendor for the IBM U2 family of database products, Entrinsik president Doug Leupen announced the general availability for the newest version of the Informer Web Reporting System.

Informer is a J2EE Web application designed for intuitive access into UniVerse and UniData database stores. Using only a Web browser, users can create and execute personalized reports to be displayed in HTML format or exported to popular desktop applications such as MS Excel and Adobe PDF. Reports can also be scheduled to execute on a recurring basis and delivered via email or saved to the network.

Unique to Informer is the notable ease of use for report consumers, accomplished through Entrinsik's Meta File — an abstraction of the common dictionary in IBM U2 systems. Meta Files allow technical users to link files together and define for reporting only those dictionary fields they find useful, and to give those fields non-technical descriptions. This in turn allows Informer users outside the IT staff to create and modify reports without knowledge of the underlying database structure, resulting in a drastic decrease in users requiring IT resources to get to the data they need. Informer users become empowered to access their data, and to customize the view to their requirements.

New features in v3.1 include report categorization, enhanced and configurable PDF templates, extended security options, support for multiple accounts, and an architecture rewrite resulting in speed increases throughout the product. "We've always allowed customer requests to drive features, and with this release we found the most common request to be speed enhancement," said Andrew Morovati, project manager for Informer. "So the bulk of our energy as a development team was spent on an architecture rewrite. We are confident this release is the fastest reporting tool available for UniData and UniVerse."

Doug Leupen, Entrinsik's president, stated: "This release marks a milestone in Informer's development. We gather from initial response that the new features, the speed enhancements, the ease of use — all the items we focused on during development — are being widely praised by our existing customer base. Responding to customer feature requests ensured this release would be full of useful, real-world function needs, and we're proud and happy to provide our customers what they need most — the most polished, most intuitive, most powerful reporting system available to the IBM U2 market."

About Entrinsik

Entrinsik Inc., headquartered in Raleigh, N.C., provides software and services focused on the IBM U2 family of database products. Entrinsik's Informer Web Reporting System is the industry leader for reporting systems for UniVerse and UniData. Its SEMtek product is an enterprise solution for continuing education, training, and conference providers. Founded in 1984 and in the MultiValue market since, Entrinsik aims to provide leading-edge technology and unsurpassed customer service to their customers.

Information on Geac Public Safety Division can be found at <http://www.publicsafety.geac.com>. Information on Entrinsik and Informer can be found at www.entrinsik.com.

Cleaning Up with

BY MELVIN SORIANO

Ajax

An Example of Pulling Back City and State Using a Zip Code

Not again. I thought I buried this one. See, I was teaching Javascript back in the glory days of the Internet gold mine. But, lo, we return to Javascript with a new twist. This time, though, it's a bit cleaner, more consistent and offers far better ways of creating sophisticated interfaces.

The key is using Ajax.

Alas, it's not the stuff you use to scrub away annoying build-up. It's a way of exploiting the newest tools in the browsers. You can create a far more robust look and feel for your Web pages, simply by making them more interactive.

Ajax stands for Asynchronous JavaScript and XML. So, yes, it's a stretch. But, ooh, isn't it somewhat quaint to return to playful acronyms instead of simply making up odd-ball names like Accenture, Cingular or Vonage?

Speaking of acronyms, and to get my last non-sequitur out of the way, I want

to avoid disappointing my RSS readers. I decided to write about Ajax as I was finishing my series of articles on RSS technology. While putting that stuff together, I saw a clever example of deploying an RSS stream using Ajax technologies and thought, hey, let's transition to the next topic. The two blend hand in hand.

Back to Ajax.

Well, as the rather laborious name implies, this programming technique blends long-used JavaScript scripting with XML object technology. On top of that, it uses JavaScript's ability to perform functions asynchronously. If you've been following the articles and Spectrum conferences for the past decade, you're probably more than well-versed in JavaScript. Perhaps you took a JavaScript class from me.

In addition to the development of JavaScript, we've seen the large-scale implementation of XML technologies. As deployment of XML data and Web services grows ever wider, you will eventually find it convenient to con-

nect an HTML directly to XML data for the occasional update.

Probably today you have Web pages where you want one data element to be updated without reloading the entire page. Here's Ajax to the rescue.

There's an object (a subroutine) found with most of today's browsers. It's the XMLHttpRequest object. Using this function, Web browsers can retrieve and submit XML data directly, with the processing occurring in the background.

Isn't that cool? The Ajax concept extends JavaScript because the scripting can occur in the background. Just like JOB or PHANTOM. Certain activities can be PHANTOMed off, performing useful tricks while we stare at a Web page.

The XMLHttpRequest object first materialized in Microsoft's rather buggy Internet Explorer 5. But today, it also works with Mozilla, Netscape, Firefox and Safari.

Support for and increasing use of XMLHttpRequest means that is pretty much now the de facto standard. I expect that it will likely be supported even when a W3C specification develops a supposed new standard for such functionality.

I suppose the easiest way to test this is by giving you an example. First some theory, then an easy example.

First, in your header's <script> area, create an instance of the XMLHttpRequest object. For backward compatibility, you do need to branch

to do something, based on the browser's version. The two ways shown in Figure 1 are main commands that need to be called.

To do the right branching, you can use the code in Figure 2. It's a generic function call that tests the browser compatibility for you.

Continues on page 36

FIGURE 2 - Generic Function Called getHTTPObject()

```
function getHTTPObject() {
    var xmlhttp = "";
    /*@cc_on
    @if (@_jscript_version >= 5)
    try {
        xmlhttp = new ActiveXObject("Msxml2.XMLHTTP");
    } catch (e) {
        try {
            xmlhttp = new ActiveXObject("Microsoft.XMLHTTP");
        } catch (E) {
            xmlhttp = false;
        }
    }
    @else
        xmlhttp = false;
    @end */
};
if (!xmlhttp && typeof XMLHttpRequest != 'undefined') {
    try {
        xmlhttp = new XMLHttpRequest();
    } catch (e) {
        xmlhttp = false;
    }
}
return xmlhttp;
}
```

FIGURE 1 - Two Ways of Creating an XMLHttpRequest Object

```
http = new ActiveXObject("Microsoft.XMLHTTP");
```

```
http = new XMLHttpRequest();
```

Webonomics 101

Continued from page 36

So what can you do with this thing? Figure 3 shows the HTML document ziplook.htm source code. If you want, you can test it out by pointing to <http://www.eriscorp.com/demo/ziplook.htm>. When you try this page, it will allow you to enter a zip code. Without having to hit submit, the page will look up the city and state and return the appropriate values. If the zip code does not exist, it returns an error message.

The generic code in Figure 2 is up in lines 7-32 of Figure 3.

Line 35 is the path to a WebWizard from Eagle Rock program that looks up a zip code in our sample zip code table. It's not a complete table, so you can always try our zip code of 91101.

Line 37 calls the object we defined.

The next two functions are inter-related. Let's first see what causes them to execute. Line 69 has an onBlur event.

FIGURE 3 - Sample HTML document called ZIPLOOK.HTM

```
001: <!DOCTYPE html PUBLIC "-//W3C//DTD XHTML 1.0 Strict//EN"
002: " http://www.w3.org/TR/xhtml1/DTD/xhtml1-strict.dtd" >
003: <html xmlns=" http://www.w3.org/1999/xhtml" >
004: <head>
005: <title>ZIP Demo</title>
006: <script language="javascript" type="text/javascript" >
007: function getHTTPObject() {
008: var xmlhttp = " ";
009: /*@cc_on
010: @if (@_jscript_version >= 5)
011: try {
012: xmlhttp = new ActiveXObject(" Msxml2.XMLHTTP");
013: } catch (e) {
014: try {
015: xmlhttp = new ActiveXObject(" Microsoft.XMLHTTP");
016: } catch (E) {
017: xmlhttp = false;
018: }
019: }
020: @else
021: xmlhttp = false;
022: @end @*/;
024: if (!xmlhttp && typeof XMLHttpRequest != 'undefined') {
025: try {
026: xmlhttp = new XMLHttpRequest();
```

mvQB - QuickBooks API for the Multi-Value Database



- Eliminate Double Entry
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- Integrate seamlessly with Multi-Value programs

Integrate QuickBooks with Your Multi-Value Applications

RFID - What Does RFID Mean for Your Business?



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```

027:   } catch (e) {
028:     xmlhttp = false;
029:   }
030: }
031: return xmlhttp;
032: }
033:
034: var url = " http://www.eriscorp.com/demo/wwiz.exe/wwiz.asp?wwizmstr=W_ZIP&CTm=prn&f=tab&z=" ;
035: var isWorking = false;
036: var http = getHTTPObject();
037:
038: function handleHttpResponse() {
039:   if (http.readyState == 4) {
040:     isWorking = false;
041:     if (http.responseText.indexOf('invalid') == -1) {
042:       var xmlDoc = http.responseXML;
043:       results = http.responseText.split(" ");
044:       if (results[0] == "" && results[1] == "") {
045:         alert(" Zip Code was not found");
046:       }
047:       document.getElementById('city').value = results[0];
048:       document.getElementById('state').value = results[1];
049:       isWorking = false;
050:     }
051:   }
052: }
053: function updateCityState() {
054:   if (!isWorking) {
055:     var zipValue = document.getElementById(" zip").value;
056:     var URL = url + escape(zipValue)
057:     http.open(" GET" , URL, true);
058:     isWorking = true;
059:     http.onreadystatechange = handleHttpResponse;
060:     http.send(null);
061:   }
062: }
063: </script>
064: </head>
065: <body>
066: <form action=" post" >
067: <p>
068: ZIP code:
069: <input type=" text" size=" 5" name=" zip" id=" zip" onBlur=" updateCity
State0;" />
070: <p>
071: City:
072: <input type=" text" name=" city" id=" city" disabled/>
073: State:
074: <input type=" text" size=" 2" name=" state" id=" state" disabled/>
075: </form><body></html>

```

If you exit the zip code field, it will call the `updateCityState` function in Lines 53-61.

The `updateCityState` function grabs the contents of the zip field. It creates the URL and then uses the `open` method of the object we created earlier. Imagine this method as being the equivalent of typing in a URL into a browser; you are “opening” a URL in a virtual mini-browser we created with our generic routine.

Now, if this were not Ajax, we would expect that something would have to wait before we get a response back. But because this is asynchronous, we can continue on our merry way while the `open` method is being performed.

Line 59 says that when the subroutine is completed to call the `handleHttpResponse` function in Lines 38-52.

This function examines the response coming back from the `open` request. It assumes that the information is parsed using tabs and then loads those fields into the city and state fields.

Rather straightforward actually.

The image shows a simple web form with three input fields. The first field is labeled 'ZIP code:' and has a text input box. The second field is labeled 'City:' and has a text input box. The third field is labeled 'State:' and has a text input box. The form is enclosed in a rectangular border.

FIGURE 4

You can see in Figures 4-6 the result. Figure 4 shows a simple Web form

Continues on page 42



Conversion codes within SB+ may be used to change data from raw form as you entered the data, into the format it will ultimately be displayed in. They are usually used for dates, times and monetary amounts. There may be times you want to convert data that is input in one form and store it in a different form on the disk and you will need to use conversion codes for this purpose.

Data within SB+ is usually stored on the disk in the most efficient form possible and then displayed to the user in a format they are familiar with. As an example, time is stored on the disk as the number of seconds since 12:00 a.m. If the time were to be displayed to the user as a number, like 30, it would not mean much to the user. Using a conversion code, the time could be displayed as 12:30 a.m. and this would be in a format which the user would understand.

In most multi-valued systems, you should not store numeric data with decimal points on the disk. If you follow this practice you will need to use conversion codes when you display the data to the user, in the proper form such as dates, time, and monetary amounts.

Input Conversion

Usually monetary amounts are entered as cents, without the decimal places. The data would be stored as entered, but redisplayed to the user with the decimal points using the MD2 conversion. The application may call for the data to be entered with the decimal places. In SB+, this can be accomplished using the input conversion of MD[I]. The output conversion is taken from the input conversion. By specifying the [I] you are doing the input and output conversion in one step on the data. F6 Addit can also be used to specify input conversions on data. As a new user to SB+, you should be aware that data and time conversions automatically imply input conversion so it is unnecessary to specify [I] when you are working with these types of data.

You may place any SB+ expression in () to differentiate it from a standard conversion code, which allows you to use these as conversion codes. @VALUE should be returned in the output format required. Expression conversion codes will not work in ACCESS report definitions. Use the OCONV function where the second parameter may be an expression, if you want a variable conversion code. For example, you could store the required code in a COMMON variable such as PARMS(1) and reference it by using the (OCONV(@VALUE, @PARMS(1))). Look in the Appendix of the SB+ manual for a list of all Conversion Codes.

Correlative

Correlatives are efficient because:

- They reduce or eliminate data redundancy.
 - Changes only need to be made to the real occurrence of the data.
- They may be used to:
- Perform calculations which involve data, constants and system variables.
 - Use data from other files.
 - Manipulate data that has been derived.

You should enter the field position of 0 when you are defining correlatives in SB+, and this will not be confused with the Key field.

Correlatives may be defined in one of two ways:

- As a multi-value correlative.
- As any SB+ expression enclosed in parentheses.

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Any PICK correlative may be defined as an SB+ expression. You should use SB+ expressions rather than PICK correlatives, then you will be able to use these expressions everywhere in SB+. SB+ expressions are more powerful than PICK correlatives, will not have a PICK equivalent and may not be used in screen and report definitions or

Continues on page 40



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ACCESS report definitions or SELECT statements.

See the section in the documentation on Expressions if you need further information on correlatives.

Allow Amend(Y/N)

Use this field to permit or prevent amendments to the field when it appears on a maintenance screen.

Default Value

If a default value is required for this field, specify an expression which will produce the necessary value in this field. Any expression may be used which results in a value and will be executed immediately before the field is accessed on a screen. The default value is normally only generated if the field is NULL, but you may force the value by

appending [M] to the end of the expression. For example: HRS * RATE[M].

Skip Option

By appending an [S] to the end of the expression, the field will be skipped and the default value taken. For example: @DATE + 10[S]. This can be useful in conditional expressions where you may need to take a default value under certain conditions, but not in others. You could also define the field with a default value and make it a non-input field and not use the skip option.

The [S][M] options may be combined, but the [M] must be specified after the [S].

Validation Code

This prompt allows you to enter a validation code or expression which

will check data entered in the screen. An error message, which you specify, will be displayed if the data is invalid.

The following types of Validation Codes are available:

- A list of valid values such as "Y","N", 1,4,8, which would accept values Y, N, 1, 4 or 8.
- Result of an expression. For example (@VALUE < 10), where the value input must be less than 10.
- Value must exist or not exist in a file. F:filename[, [dispfld][, [y/n][, len]]]

Filename = file to validate against

Dispfld = field name or position to display on prompt line for verification.

Y/N = Y means the value must exist in the file, N is does not exist. If this is not specified, Y is assumed.

The image shows three overlapping browser windows. The top-left window is for 'LANER Electric Supply' with a navigation menu and product categories. The middle window is for 'VANCE BALDWIN Electronics' featuring a login form and a welcome message. The bottom-right window is for 'epicurious' with a 'DINING OUT' section and restaurant guides.

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LI	Model / Part Number	Price*	Quantity	Ext Price	Instock**
1	FD49VPC2000-63794	\$399.00	1	\$399.00	0.00
	Part Number: 08794	Update	Delete		
	Description: Ruggedized PicoDot: Convergent Laser				
2	FD49VPLP W/30'	\$345.00	1	\$345.00	0.00
	Part Number: 08525	Update	Delete		
	Description: Ruggedized PicoDot: Polarized Red Laser				
3		\$0.00		\$0.00	YES

Len = maximum length of display field, default is 20.

- Range check. Example: R:"20" TO "30"
- No spaces allowed. S:
- Integer. I:
- Unique multi-value. U:
- Call process. C:processname. RTN.FLAG will be set to 1 if invalid else it will be 0.
- Call a BASIC subroutine. B:sub name[,parms]. RTN.FLAG will be set to 1 if invalid else it will be 0.
- Pattern match. P:pattern. Examples:
 - P1N1A - value must be one numeric then one alphabetic
 - P:3X - value must be three alphanumeric characters
 - P:0A-1N - value must be any number of alphanumeric characters, a dash, then one numeric character.
- Translate. T:val1, val2/tranval, tranval2/amc
 - Check that the value matches val1 or val2 and if it does, convert to tranval1 or tranval2 and store the converted value in position amc of the record. Example: T:0,1/DICT:./4-allow 0 or 1 and convert to DICT or null string and place in attribute 4.

You may define error messages by enclosing them in {} at the end of the validation code such as C:CHECK.VALUE {This is an invalid value}. Use the MESSAGE item in the xxCONTROL file and specify the attribute number of the error message you wish to use such as C:VAL.ENT{[U5]}. This would get the fifth attribute or message from

the MESSAGE item. Using the MESSAGE is the best method to use as you will have an easily referenced master file with error message you may use throughout your SB+ application. This will also make it easier to translate your application to another language. Note that the value entered in a field is held in the COMMON variable VALUE until after the validation and then it is placed in the field name. When you create a validation, use @VALUE within the expression to refer to the data entered and not the field name.

I will conclude the discussion of field definitions in my next article. is

DANNY PASSIG is a senior software engineer at Natec Systems. He has 33 years experience in the IT field and is currently on the adjunct faculty at Colorado State University - Pueblo in the computer science department. Danny has done customer software development and system installations for various businesses. He has also worked for IBM as a support engineer for System Builder. Danny holds a Bachelor's degree in Business Administration/Accounting and an MSCIT from Regis University.



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E-MAIL	WEB SITE	
SIGNATURE	DATE	

(All questions must be answered. Incomplete forms will not be processed. Complimentary subscriptions are limited to U.S. addresses.)

1. What is your job function/title?

- | | |
|--|---|
| <input type="checkbox"/> Principal/Owner | <input type="checkbox"/> Sales/Marketing |
| <input type="checkbox"/> President/GM/CEO | <input type="checkbox"/> Programmer/Analyst |
| <input type="checkbox"/> MIS/DP Manager | <input type="checkbox"/> Purchasing |
| <input type="checkbox"/> Contoller/Financial | <input type="checkbox"/> Consultant |
| <input type="checkbox"/> VP/Department Head | <input type="checkbox"/> Other _____ |

2. Is your company a (check one):

- | | | |
|---|---|---|
| <input type="checkbox"/> Computer System Supplier | <input type="checkbox"/> Dealer/OEM/VAR | <input type="checkbox"/> Software House |
| <input type="checkbox"/> Consultant | <input type="checkbox"/> End User | <input type="checkbox"/> Other _____ |

3. What MultiValue Databases does your company use? (check all that apply)

- | | | | |
|--------------------------------|--|-----------------------------------|--------------------------------------|
| <input type="checkbox"/> D3 | <input type="checkbox"/> Native MultiValue | <input type="checkbox"/> Reality | <input type="checkbox"/> Other _____ |
| <input type="checkbox"/> jBASE | <input type="checkbox"/> uniData | <input type="checkbox"/> UniVerse | <input type="checkbox"/> uniVision |

5. What major business/industry most clearly describes your company?

- | | | | |
|--|------------------------------------|---|---------------------------------|
| <input type="checkbox"/> Accounting | <input type="checkbox"/> Medical | <input type="checkbox"/> Direct Marketing | <input type="checkbox"/> Legal |
| <input type="checkbox"/> Banking/Finance | <input type="checkbox"/> Dental | <input type="checkbox"/> Construction | <input type="checkbox"/> Retail |
| <input type="checkbox"/> Education | <input type="checkbox"/> Insurance | <input type="checkbox"/> Other _____ | |

6. What are your firm's approximate gross annual sales?

- | | |
|---|--|
| <input type="checkbox"/> Under \$500,000 | <input type="checkbox"/> \$500,000 - \$1 million |
| <input type="checkbox"/> Over \$1 million - \$5 million | <input type="checkbox"/> Over \$5 million - \$10 million |
| <input type="checkbox"/> Over \$10 million - \$25 million | <input type="checkbox"/> Over \$25 million - \$100 million |
| <input type="checkbox"/> Over \$100 million - \$500 million | <input type="checkbox"/> Over \$500 million |

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Continued from page 37



FIGURE 5

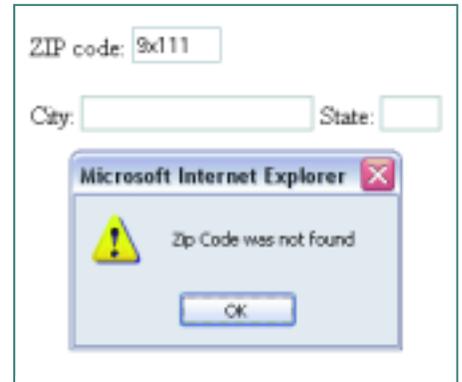


FIGURE 6

with a zip code field. Figure 5 shows the result of entering a zip code that was found in the database, yet without entering a submit button. Figure 6 shows the result of an error condition.

It's so easy. Without having to have a submit button everywhere, or having pop-ups that look things up for you in the days of anti-popup software, this will load the needed information without having to lose your place in the form.

In my next article, we'll explore Ajax some more and see what other goodies are in store for us. In the meantime, dust off your JavaScript books because your forms are going to get a lot more interesting. is

MELVIN M. SORIANO works at Eagle Rock Information Systems (ERIS), an Internet Application Service Provider and Web-Wizard/MultiValue Developer. ERIS has deployed enterprise-wide solutions on most MultiValue platforms and operating systems. HTM-Mel can be contacted at mel@eriscorp.com and visited at <http://www.eriscorp.com>. You can always call him directly at ERIS's Pasadena, Calif., offices: (626) 535-9658.

mv.NET: Bridging the Gap From MultiValue to Microsoft .NET

Continued from page 31

Binding Objects components can be used outside of the Visual Studio environment, but really come into their own when used in conjunction with mv.NET's extensive VS.NET add-in technology. Dockable toolbars providing databinding summary information along with sophisticated auto positioning of automatically created bound controls which act to save the developer valuable time in their task of creating state-of-the-art applications.

Adapter Objects provide the developer with a range of components designed to allow efficient ADO.NET based access to MultiValue databases. In fact this functionality brings the MultiValue developer as close to the SQL Server developer in terms of technology and functionality as s/he is ever going to get. In order to provide a comprehensive ADO.NET solution we have provided the following two groups of components:

- MultiValue database specific implementations of the ADO.NET classes/interfaces
- Visual Studio.NET add-in components to aid developer productivity in the use of Adapter Objects

So that we can present a MultiValue oriented ADO.NET managed data provider, Adapter Objects provides the developer with mv.NET specific classes, most of which inherit from the corresponding .NET framework IDbxxx interface. As I think you will now begin to expect from us, we have worked hard to ease the use of Adapter Objects from within the Visual Studio IDE. To do that we have provided a range of VS.NET extensions which are used in various places within the VS.NET IDE.



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Q What database environments is mv.NET compatible with?

A N S W E R : At the beginning I mentioned that a fundamental design aim for mv.NET was to provide connectivity to ALL the main MultiValue databases. We have done this and are providing the developer with the greatest flexibility to deliver applications across the widest range of databases. We also know that many organizations like the comfort zone and don't want to have to install the "latest" database release, so mv.NET is not ageist and will run on many of the old releases.

We are able to ensure, by using telnet as one of the various connection meth-

ods, the widest database support possible. Testing has also found that with the majority of databases very good performance can be obtained and good security is implicit with the correct firewall implementation and use of VPN connections for remote sites. However, wherever the database supplier has a suitable connect method we will make use of it, i.e., UniObjects for U2 and UniVision's SAC. Today we support D3, jBASE, mvBASE, Reality, UniData, UniVerse and UniVision and have immediate plans for mvEnterprise and Power95 and possibly Revelation. If there are any that we have missed, please contact us and we are sorry to have missed you out!

Continues on page 44

mv.NET:

Bridging the Gap From
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Q How is it different from other products that are in the same arena?

A N S W E R : This question is in fact very straightforward to answer. Our developers come from two groups and have built up a long-term working relationship, plus they like the odd beer together as well. The MultiValue group has skills from previous COM based projects but had also spent time working as application developers. In implementing mv.NET, the first group therefore has taken into account the “requirements of the developer” as much as the pure “functional specification.” The second group has been Microsoft .NET through and through from its inception. To them the challenge has been to enable mv.NET functionality from within Visual Studio .NET IDE. A challenge that has stretched their skills to the limit several times — the inside of Visual Studio being a “wondrous place.” So why are we different? Well, mv.NET is unique in providing a complete Visual Studio .NET environment for the MultiValue developer. Having said that, owning VS.NET is by no means mandatory for the use of the product.

Core Objects and Binding Objects have been implemented with the practical application development experience I mentioned earlier as well as with our MultiValue and .NET skills. From the many comments passed to us so far, developers are finding ease of use and productivity there from the

“You only have to see the major ramp up in .NET application deployments this year and the speed that applications are being rolled out to see that it was vital for MultiValue developers to also be able to ride on the crest of the wave.”

moment they finish the installation of mv.NET. In fact, when the many readers of this article have the opportunity to try out Binding Objects and Adapter Objects, I am sure that they will also find that mv.NET has moved .NET development well on to the next level, way beyond anything else on the market today.

The combination, therefore, of the way the MultiValue implementation has been undertaken and the fully integrated MultiValue aware Visual Studio .NET IDE ensures that mv.NET stands out as the product of choice in this market.

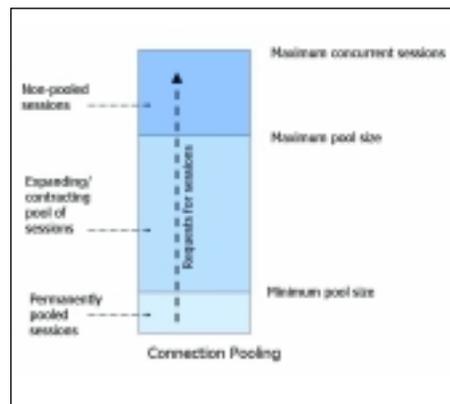
Q What are some of mv.NET's more unique features and functions?

A N S W E R : As users, we all expect “immediate” response from today's applications. With this requirement in mind, mv.NET has been engineered with in-built “data fetch on demand” technology which is under the control of the developer. Therefore, the application interface response time can be automatically safeguarded even in situations where large volumes of data are being returned or where network connections offer restricted bandwidth, thus removing a significant issue from the shoulders of the developer.

Stateless application support within the product allows developers to cut development timescales by automatically persisting data and status history across application invocations.

So far we have looked at the management of data flowing from server to client and retaining user and data status. The management of the connection itself is the next point to address.

For Web and Web Services applications, Connection Pooling is employed to ensure the most efficient use is made of mv.NET and the underlying database licenses. mv.NET's session pooling and sharing management provides a sophisticated environment for striking a balance between the need to minimize database license consumption and the need for rapid connection establishment. The following diagram summarizes the key aspects of mv.NET's session management:



The three thresholds on the right allow the IT manager to both guarantee a minimum number of database connections while at the same time allow the connection pool to grow in times of high demand. They are also able to fix absolutely the maximum number of database licenses that an application can consume.

We were also asked, "Can you reduce the number of database licenses we need to allocate for rich client applications?" Plus, I guess, there was also a hidden agenda of "Can you reduce the number of mv.NET licenses we need to buy?" The answer is "yes" to both questions, with one proviso. Develop rich client applications using optimistic locking and full use can be made of Session Sharing in mv.NET. We envisage user ratios to mv.NET run time sessions and database licenses of approximately 3:1 by using this feature. Now who said that MultiValue-based applications could not compete on price per seat!

Some of the points I have highlighted here have not gone unnoticed and we have already attracted several early adopters in this market across to mv.NET with the minimum of effort.

Q What's new in this latest release coming out in May 2005?

A N S W E R : Release 2.0 is a significant step forward in the life of mv.NET. It brings the production release of Adapter Objects — a full implementation of an ADO.NET managed data provider which, when combined with configurable dynamic data normalization, brings MultiValue databases right up to the same level as SQL database implementations within the .NET environment. With this full implementation — and we really do mean FULL! — we provide comprehensive read and write functionality together

with transaction boundaries, all based on true optimistic locking architecture. As with Binding Objects, we've also created a rich set of Visual Studio add-in technology to complement the core functionality of Adapter Objects.

Like all new releases we have fixed a few bugs and tidied a few more things up under the hood, but no fundamental changes were necessary to Core Objects or to Binding Objects. One area, however, where we have improved things is for the C# developer where the demonstration account, SOP, is now available in C# as well as VB.NET.

Q Can you give an example of a company that has implemented mv.NET — why was mv.NET chosen as the solution and how is it being used?

A N S W E R : There are numerous, but one of the most interesting is that of Drexel Management Services, a major East Coast Reseller of jBASE, D3 and mvBASE, who chose mv.NET for all future .NET development for their clients. Drexel's president, Drew Conboy, looked at other data providers in the MultiValue database market, but felt that mv.NET was the most feature rich. Drexel required a product that was fully MultiValue enabled so the fact that mv.NET provides that and allows the developers complete flexibility with its total integration with Visual Studio .NET was a major selling point. Also of importance in the decision was the fact that mv.NET works with all the MultiValue databases and provides a single development and deployment environment for all of Drexel's diverse customer base. Drexel's first customer has a Web application using mv.NET on D3. is

For more information, please visit www.bluefinity.com.

Taking Control of Your Printer with OIPI Continued from page 22

```
tableHead = "Quantity,Description,Unit
Price,Ext Price"
table = ""
table<1> = " 1,OpenInsight Printer
Interface 2.0 -- Special limited time
introductory price,$345.00,$345.00"
table<2> = " 2,Second line item
here,$1.00,$2.00"
table<3> = " 1,Third line item here
(no charge for this bonus
item),$0.00,$0.00"
For I = 4 to 30
  table<I> = " 1,Test line item
here" : (i-3):", $0.00,$0.00"
Next I
table<31> = ""
table<32> = ",Merchandise
Total,,$347.00"
table<33> = ""
table<34> = ",Tax,,$12.00"
table<35> = ",Shipping,,$5.00"
table<36> = ",Handling,,$5.00"
table<37> = ""
table<38> = ",,Sub Total,$369.00"
table<39> = ""
table<40> = ",,Total,$369.00"
convert ", " to @vm in table
convert ", " to @vm in tableHead
x = Set_Printer(" ADDTABLE",
">1080":@VM:" <4680":@VM:" >1440"
":@VM:" >1440":@FM, tableHead,
table, RGB(192, 192, 192), " ", " ",
TB_BOX_ROWS)
```

*Terminate this printing session.

```
x = Set_Printer("TERM", 1)
Return
```

Conclusion

The OpenInsight Printing Interface provides developers with the ability to create sophisticated high-quality output without having to learn PCL5 / PCL6 code. With the OpenInsight BFS to U2, developers using UniVerse and UniData can utilize the power of OIPI to gain control of their printer output. is

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How to the Smart Way *Continued from page 6*

anything to become an eBay member, and the cost for selling an item is modest with a maximum fee of about five percent of the selling price.

Q Are there things I can't sell on eBay?

ANSWER: eBay provides a list of items that are prohibited, such as firearms and fireworks. You can find it on the eBay Web site. It also provides a list of restricted items. These are items that are not prohibited but that you need to use common sense when selling.

For instance, when selling used clothes, the clothes should be washed and clean.

Q I know a lot of people who buy things on eBay all the time, but I'm a little nervous about it. How can I make sure I don't get ripped off?

ANSWER: eBay has a reputation system it calls a feedback system. Both buyers and sellers rate each other in every transaction either a positive, a neutral, or a negative. Each member's ratings are public and permanent. You can look at the feedback of any seller to decide whether he or she is trustworthy.

Q I just started selling on eBay, and most of my feedback has been really positive. However, one buyer didn't read the conditions of sale posted in my ad, and didn't have a confirmed address for me to ship to. Since I don't ship to unconfirmed addresses, I refunded the seller his money, but this really upset him and now he's left me negative feedback. Is there any way to get feedback retracted?

ANSWER: You cannot get feedback retracted except by mutual consent of buyer and seller, but you can leave a reply to the feedback that the buyer gave you. You can also

leave negative feedback for the buyer explaining what he did.

Q I live in a rural area, so I don't really have much access to designer clothes, handbags, and shoes. I know you can get this stuff on eBay, but I don't want to pay more than it's worth just because I live in the boonies. How can I make sure I'm not paying too much for these types of things?

ANSWER: You can get an idea of value of items by finding list prices in advertisements and clothing catalogs. Then you need to decide what percentage of list price you're willing to pay for such items. You can also look at several weeks of completed eBay auctions to find out what identical or similar items have sold for in the past on eBay. That will show you the market value of such items. is

Other hot tips from Sinclair:

* Always include a photo with the item you're selling, even if it's just software in which case you could show off the box. Photographs give buyers a way to inspect an intangible product.

* Don't become overly concerned with bidding strategies - eBay has proxy bidding, which means you won't win an auction by raising the price a dollar or two. You have to beat out the highest bidder.

Say, for example, you bid \$75 for something. Someone else can come in and bid \$100, but the price only raises to \$76 on the auction site. Unless someone is willing to bid \$101 or more, the person who bid \$100 is going to win the auction. No one will know exactly how much the competition was willing to pay until they beat the highest bid.

FOR MORE INFORMATION about "eBay the Smart Way," log on to the publisher's Web site, www.amacombooks.org.

Quantum VS myViewpoint

Continued from page 15

“Branch Manager’s” Desktop, etc. Exercising control over what may be many desktops in many locations within the business, the myViewpoint “Professional Edition” incorporates additional functionality, permitting the BI administrator the necessary controls to create, modify, execute and distribute personalized Business Intelligence to other myViewpoint users, including those who want to access their Business Intelligence via the Internet.

While many businesses have struggled with implementing data warehousing or data cleansing projects and the cost associated with them, myViewpoint is a solution that allows businesses to get the true value from their corporate data, yet remains cost-effective, according to Via Systems.

At \$3,360 for the base license, and \$2,218 for the three-year software assurance, myViewpoint is billed as the most economical, feature-rich business intelligence tool in the marketplace.

myViewpoint is available for use with the UniVision DBMS, UniVerse, UniData, OpenInsight, D3 and Micro Focus Cobol. Other MultiValue environments can effectively utilize myViewpoint by installing a Business Intelligence server running UniVision and myViewpoint, and connecting to their database server. [is](#)

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Introducing the MitsWeb Dashboard

Embedded Browser-Enabled Terminal Emulator such as WinTegrate or Accuterm stays active

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Conditional Alerts can switch images to show the state of Key Metrics. Green = Acceptable Range Red = Attention Required

Dashboards are groups of Dashboard "objects" organized by user or department

Clicking on Dashboard Chart triggers MITS OLAP Flash Screen showing Key Metrics used to create chart

Key Metrics would be updated during the day when MITS Hypercubes are configured for Continuous Update

Dashboard Links trigger MITS OLAP analysis. User can begin to explore the underlying details

Built-in Dashboard Organizer lets user customize the dashboard layout

Product Line	SALES	% Profit	PROFIT	QTR	SALES	PROFIT
SALES	35,974,555	39.0%	4,040,589	11.8	33,848,263	-2.3%
PORTLAND BRANCH	5,511,495	35.6%	850,138	11.1	4,702,875	-41.3%
Assemblies	3,239,850	46.4%	368,823	30.0	1,989,440	+13.7%
Construction Equip	309,085	4.0%	35,678	19.4	289,589	-12.0%
Maintenance Products	739,490	24.4%	364,441	41.1	1,434,560	-17.4%
Repair Equip	300,809	4.0%	35,678	29.4	307,825	-19.3%
Replacement Items	236,330	9.4%	58,601	24.9	1,211,545	-19.4%
Special Tools	99,440	4.0%	26,949	27.1	8	0
SEATTLE BRANCH	3,179,459	23.8%	1,860,839	11.8	3,237,298	43.7%
Assemblies	1,447,215	44.1%	387,760	11.0	2,245,205	-16.5%
Construction Equip	51,369	1.0%	28,876	34.0	71,230	-59.5%
Maintenance Products	4,025,130	32.2%	452,734	41.0	459,470	+123.4%
Repair Equip	293,613	8.9%	128,423	41.8	189,288	+49.8%
Replacement Items	171,430	14.7%	146,431	36.0	159,308	+57.4%

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