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40 INVENTORY FOR PROGRAMMERS (PART I) Sometimes knowing how to do something is the easy part. Knowing what to do is a bit more difficult. In this first article of a series, Charles gives us an overview of the inventory process.

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10 MY BLOG SPACE When you've written as many articles as Mel has, you itch to try a new format. Mel cautions us about the business issues related to blogs, then announces what he intends to be up to next. **BY MELVIN SORIANO**

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6 NEW LEADERSHIP FOR INTERNATIONAL SPECTRUM

So who is this new guy, and what is he going to do to our Spectrum? Find out what the new Chairman of International Spectrum plans to pursue.

BY SHANNON STOLTZ

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by Nathan Rector



We had a good show this year in Long Beach. There was a lot of activity and many new products. I also talked with a lot of you at the show. Many of the questions that I was asked dealt with the marketplace, such as “Where do I think the market is going?” and “Why did you purchase International Spectrum?”

I talked with many of you one-on-one, but I thought it would be a good idea to talk to everyone else in case you were as curious as the people that cornered me throughout the show.

Most of you know, I’ve been in the marketplace for many years, despite the fact that many people complain that I don’t look more than 25. I remember the old Spectrum shows in the 1980s that had thousands of people and the days when the vendors of mini-computers showed off the number of concurrent terminals their systems could run. I started writing for Spectrum magazine and speaking at the shows in the early 1990s, and I started exhibiting in the late 1990s.

So as you can see, I’ve been around for a few years and have actually been on just about every side of the market: End User, Consultant, Presenter, Vendor, and Exhibitor.

When I started looking at purchasing International Spectrum, the first question that my wife asked me when I told her about it was: “Where is the market going? Will it still be around in 25 years?” My first reaction was a resounding “YES,” but then I had to think about it. Why do I have such a strong feeling that things will stay around for the next 25 years?

The first thing that came to mind was some PowerPoint slides that Gus showed me back in 2002. He had put together some slides that showed the businesses that used MultiValue. Those slides showed me solid facts that supported my feeling unto that point. Some of the companies on those slides that I still remember are: DataTel, Epicor, WalMart, ADP, EpiTech, Reynolds and Reynolds systems, Intuit Eclipse, PetCo, Blue Cross, Marriott, and it went on and on. There were about 58 prominent companies on that list.

The next thing that came to mind was the fact that the Long Beach Show was the 25th anniversary show. Look around you a little at the other computer shows. The 25th anniversary show makes International Spectrum the longest running computer trade show in the US.

The next thing I found interesting was the number of DIFFERENT verticals our marketplace has. Granted, this is nothing unique in a database market. But I still found the diversity interesting. There are about 89 different verticals out of the 10,000 subscribers to the International Spectrum magazine, in 55 countries. Some of these are:

- Medical Billing
- Hospital Management
- Document Images
- Retail POS
- Wholesale Warehousing
- State and City Government
- Accounting
- Aerospace
- Construction
- University Administration
- MRP
- ERP
- *And the list goes on*

Why is this important to me? Well, it shows that the vertical solutions providers can adapt to the business market to provide solutions to new emerging markets quickly and easily. You all know that it takes less time to create, install, maintain, and administer a MultiValue application than something written in another database.

Well, this ease of development has caused MultiValue applications to show up in just about any vertical market. That is a strength that many companies can’t boast of.

That last thing I would like to point out before signing off is that we have 10,000 active magazine subscribers. When I term active subscribers, I’m referring people that have resubscribed to the magazine or has attended a show since 2001. If I take that back to 1994, when I first started giving presentations at the shows, that number jumps to 47,000 individuals that have received the magazine in the past.

That being said, Gus has done an excellent job of building a foundation for me to work from. I’m very grateful for that and wish Gus well in his retirement. Now it’s my turn to help the MultiValue marketplace through the next 26 years... I have to top Gus before retiring myself. ■

— NATHAN RECTOR, PRESIDENT, INTERNATIONAL SPECTRUM —
Nathan@intl-spectrum.com

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NEWS RELEASES/UNSOLICITED ARTICLES
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GUI & Green Screen: Getting the Best of Both Worlds is Easy

Ever catch yourself thinking fondly of the past, when the MultiValue world was all green screen and users had achievable expectations of how their systems should look and feel? Little overwhelmed or confused about how you'll move those applications in a reasonable timeframe at an acceptable cost? Character To OpenInsight (CTO for short) from Revelation Software is the answer to your dreams.

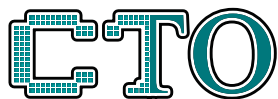
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New Leadership **and** VISION **for** International Spectrum

After 25 years at the helm of International Spectrum, Gus Giobbi has stepped down. At the International Spectrum show in March, Gus and Monica Giobbi announced the sale of International Spectrum to Nathan Rector of Natec Systems. Nathan Rector may be the new owner of International Spectrum, but he is not a new face. Known for his International Spectrum show presentations and magazine column, Nathan Rector has shared his MultiValue knowledge with International Spectrum readers since 1993.

Why Sell Now?

When asked why they decided to sell, Gus Giobbi explained, "It was time. After 25 years, [International Spectrum] needed someone to take a fresh look at where Spectrum and the MultiValue market could be improved and advanced."

A year ago, the Giobbis' put the word out that they were looking to sell. Several parties expressed interest, but discussions stalled. "When Nathan expressed interest in exploring the acquisition, we immediately liked the idea. As a long time writer for the magazine and featured speaker at many Spectrum shows, Nathan seemed the ideal candidate to move Spectrum forward to new achievements," said Gus Giobbi.

A Vision for the Future

Citing Nathan's relative youth and industry knowledge, Gus Giobbi expressed his confidence in the new owner. To ensure success, Monica Giobbi is staying on to "provide meeting planning and business continuity services to Nathan." Gus is stepping aside completely so Nathan Rector can "effectively take over the leadership role" at International Spectrum.

According to Gus Giobbi, "The timing of this sale is perfect... the MultiValue market has been on an upswing in the past three years. All of the key

providers are in great shape and most significantly, the continued success of IBM's U2 group bodes well for the future."

Nathan Rector agrees, "The MultiValue market is positioned for growth. I look forward to aligning International Spectrum with the growth and vision of the market."

Nathan has distinct plans for making that happen. At the International spectrum show in March, he unveiled his three-year plan and goals. "Gus and Monica have laid out a solid foundation to build on. I'm looking forward to taking it to the next level," he said.

An Industry Portal

The first changes have already begun. This month a new International Spectrum web site launched. "I wanted to update the International Spectrum web site to be more of an industry portal, where users and consultants can find information, read white papers, register for webinars, and access back issues of the magazine and the E-xtra Spectrum newsletter," said Nathan Rector.

At the moment, the web site is a work-in-progress. However, visitors will notice one new feature: Surveys. Nathan explained, "Our readers are important. To provide information that is valuable and helpful to them, we need to know what tools they are

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New Leadership and VISION

Continued from page 6

using, what they are interested in, how they are using their MultiValue systems. We need to get to know our readers better.” Nathan Rector also has expressed this desire to hear from his readers and audience at the International Spectrum show, where he invited interested audience participants to come talk with him.

Changes at the Magazine

At the magazine, change began two months ago when long-time editor Nichelle Johnson stepped down to pursue her teaching career. “As a writer, I worked with Nichelle for twelve years. She did a great job and will be missed,” said Nathan Rector.

Replacing Nichelle is Clif Oliver, another long-time consultant, speaker, and writer. “Clif brings a comprehensive background to Spectrum. He knows the industry and the publishing business.

His writing, training, and editing experience as well as his technical expertise will be a great asset.” said Nathan Rector.

Readers can look forward to increased technical content, book reviews, and two new columns — Clif Notes written by editor, Clif Oliver, and From the Inside written by publisher, Nathan Rector. “We’re expanding the magazine’s base of writers and adding more technical articles to the magazine,” said Nathan Rector, “We want the magazine to share

information that helps our readers solve practical problems as well as stay up-to-date with industry news.”

More Training Opportunities

Along the same theme, webinars are also on Nathan’s list of enhancements. “When Spectrum began offering webinars last year, those who can’t make it to a show gained a great resource. Entire shops are sharing a conference room to listen in on the training webinars. I want to expand the webinars to include free vendor product demos and more training content,” shared Nathan Rector.

The “more training content” theme continues in Nathan’s plans for the regional and main Spectrum shows. “This year we’re focusing on the expanded show schedule already planned, but going forward, we want to include more training

presentations at the shows, particularly the regionals,” explained Nathan Rector.

“Show participants have expressed interest in more training opportunities for technical staff and more seminars and case studies aimed at non-technical and management personnel. We are looking at offering multiple seminar tracks at future shows and at other ways to add value for show participants. We’re open to feedback.” said Nathan Rector.

“The MultiValue market is positioned for growth. I look forward to aligning International Spectrum with the growth and vision of the market.”

The 2006 regional show schedule includes Cincinnati, Ohio; New Jersey; Seattle, Washington; and Clearwater, Florida. Main shows will be held in Sydney, Australia and Long Beach, California. Florida is a new location for the regional International Spectrum show, as the user group in Florida is no longer putting on their own show.

Industry Marketing Materials

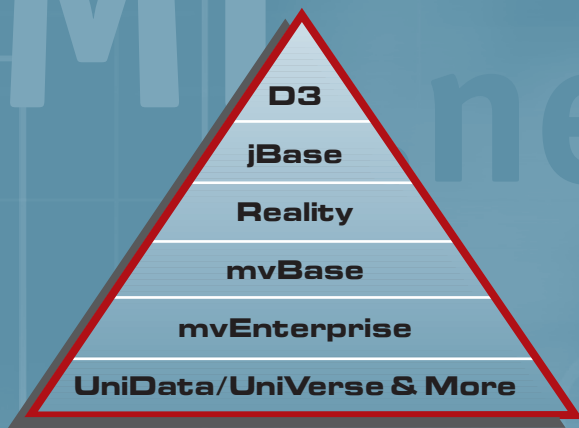
Another avenue on the International Spectrum’s three-year plan is to develop materials for the MultiValue community to educate the general public about MultiValue systems. Initially, copies of International Spectrum magazine are being made available to consultants and VARs who want to give copies away at their booths at vertical trade shows and conferences. However, the vision is much more than this.

“We’d like to develop the Multivalue.org website into a marketing tool for the MultiValue marketplace,” said Nathan Rector. The vision includes access to industry marketing materials, a Rent-a-Coder service, and a Consultant Find database.

A Fresh Vision and New Resources

With the plans and goals laid out, the new International Spectrum team has its work cut out for itself. The goals for the first year are aimed at building show attendance, increasing webinar participation, and building the new International Spectrum web site. With the MultiValue market on an upswing, a new leader at its helm, and experienced staff on board, the new International Spectrum company is poised to offer the MultiValue community new and expanded resources, based on the solid foundation Gus and Monica Giobbi so aptly built. **IS**

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MyBlogSpace

BY MELVIN SORIANO

Lookatme, Hereiam, Listenifyoucare

BLOG. It sounds so icky. As with other 2nd generation Internet terms, it's a contraction of other words (1st generation was prefixing every word with "i" or "e", as in e-Commerce). Blog stands for web log, an online diary or article that is frequently added to and edited.

Blogs often have random philosophical thoughts, opinions of the day, and rants. Perhaps 100,000 new blogs are appearing each day. Forbes estimates that nearly 20 million are now online. You can be reasonably sure your employees and relatives are among the millions of bloggers out there—not just while at home, but while they are at work.

Clearly blogs are popular. That's because a blog is an entirely different animal. Yes, a blog is an online diary. Yet, unlike those worn books locked and hidden under mattresses of yesteryear, these writing efforts are public. Very public. Musings and blatherings are laid down on virtual paper, but with the wonders of the Internet allow and encourage one's opinions, longings, regrets, and experiences to be shared with the entire world.

So unlike the secretive, paranoid world of personal diaries, blogs are meant to

be indexed, googled, browsed, and followed. It means that those with the biggest e-mouths are able to get their feelings and ideas out to anyone willing to listen. And it's altering the way people exchange ideas. That's because blogs are also influential.

There was a day when you had to subscribe to newspapers, journals, and magazines in order to get current news, commentaries, and editorials. News made the huge jump to the Internet early on, but those other aspects of journalism lagged behind.

The first foray into the exchange of opinions started on personal web sites. After years of looking at pictures of pets, children, and vacations, people started to rethink their web efforts. It frequently took too much time, and most people simply do not have the hardware, graphic software, skills, and talent to develop pages that represent them well.

That led to two separate developments that overlapped somewhat and are today bleeding back together. First was the rise of columnists writing on their own web sites. With the strong public interest in politics, society, celebrity, religion, and music, regular people began to put down their favorite ideas and thoughts, with links to the writers, pages, and opinions that reflected them.

The other development was the rise of Friendster and MySpace. Young people around the country began to document their interests, friendships, dates, family, jobs, and hobbies in web sites with appealing templates. An individual could take these basic templates and easily add custom graphics, pictures, music, text, and links. They link to each other, too, creating virtual communities rather quickly. Students communicate with their classmates; long distance friendships can be sustained with a combination of these personalized web pages and online chat.

It's the equivalent of a vanity license plate.

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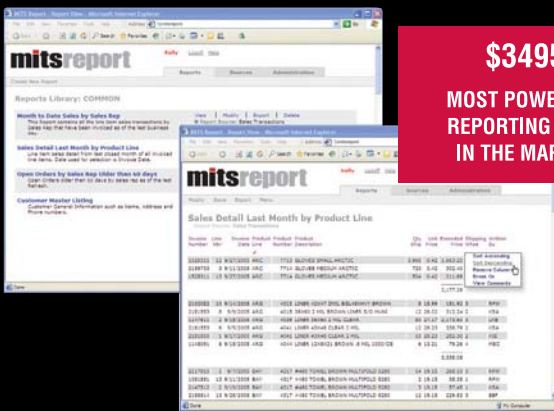
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MyBlogSpace

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You get to let the world know what you listen to. You can search out who else listens to what you listen to and get a feel for your personality. You could read a listing of musical likes and decide whether you'd enjoy chatting or keeping up on this person. For example, in the last month, I saw Mamma Mia, the Trojan Marching Band, and Madama Butterfly; I sang Matthias, Moses Hogan, Gretchaninov, and Taize; I karaoked to Beatles and Eagles; and I XM'd and iPod'd to the 80's, Bette, Phantom, Babs, and South African rhythms. A MySpace website or blog would definitely allow similarly minded oddballs to monitor my activities and perhaps get ideas for things to listen to or laugh about.

And although blogs primarily share ideas and opinions through words, MySpaces mostly shares ideas and opinions through music. It's a generational divide that doesn't matter, since the web can handle both cohorts.

Of course, Webonomics 101 is about money, productivity, and exploitation of the Internet. And blogs are no exception to this guy's eye. There seem to be several business opportunities for professional bloggers.

- Grow bigger and bigger then sell out to mainstream media. Many political web blogs such as andrewsullivan.com have sold off to traditional media.
- Become a content supplier to a big Internet or media company. You then encourage good blogging with popular writers and then deliver those words to the big guys.
- Go the route of cartoonists and star columnists. By syndicating, you can maintain your brand names and author's independence.

- Act like an academic journal and create a self-edited group. You can draw on excellent writers to places like HuffingtonPost.com. After a well-documented accident, [HuffingtonPost](http://HuffingtonPost.com) was able to pour out dozens of articles and still come out with a Hunt-With-Dick-Cheney online game in less than 24 hours.

- Redo the blog as a type of online magazine with editors and other traditional hierarchies.

And what is the effect of all this on regular businesses? Well, first one must recognize that blogging represents a significant amount of time both on those who write so much, but also those who can't resist reading about others' opinions.

And you thought it was tough keeping your employees from doing personal shopping and, er, adult web surfing at work.

Blogs, though, represent a special concern for companies. They are interactive, outspoken, public, and many times anonymous. Google it yourself: many major companies have some blog criticizing them for some reason or another. And it's not the customers you should worry about.

Blogs allow disgruntled employees, whether current or former, to trash anybody and any company. Moreover, you also have the potentially frightening possibility that trade secrets and private data can be released to the world. Public corporations also have to worry about stock market and the laws that govern them. And, like e-mail, if an employee could rea-

sonably be seen as speaking for the company, the employer bears some liability for the employee's flames.

So, like your e-mail and web surfing regulations, you should develop for your company better rules regarding blog reading and writing. Here are a few ideas.

- Be sure blogs are added to your employee acceptable behavior rules that dictate appropriate e-mail and Internet use.

Be sure blogs are added to your employee acceptable behavior rules that dictate appropriate e-mail and Internet use.

- Ban disclosure or discussion of confidential information for blogs, as you would for e-mail.

- Disallow any unapproved use of trademarks and logos.

- Make it clear that blogs represent the employer as well as the employee. Customers and competitors are to be treated with the same respect as they would be treated in a non-blog setting.

- Mandate that employees who maintain blogs must state that the views they express in their blogs are personal and unrelated to the employer.

So, just as I warned y'all a few years ago about this stuff, it's time to add these few extra items on your list of Internet considerations.

Which, oddly enough, leads me to a final few comments.

Footnote in History ****

Columnists like me are used to writing a piece every so often, at the pressure of a stressed out editor. For example, I often take an idea that's been percolating in the back of my head for the past several days, spice it for you and

Continues on page 14

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MyBlog Space

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give you the chance to eat it up. Hopefully it's tasty.

But it's different now. And since Webonomics 101 has been going on for a dozen years, and with the changes at International Spectrum, perhaps it's time to groove to a different beat. So, with the next column, I thought I'd start to evolve along with the Net.

Instead of going on about one specific topic, I'll more likely touch upon several different Internet developments that caught my eye and made me think about Webonomics. I'll describe these topics and my thoughts. Give links. Maybe talk about music.

Yup. A blog.

So... until this experiment fails and I have to try out podcasting, hasta la vista Webonomics-circa-1994. Hola 2006.

Mel Soriano

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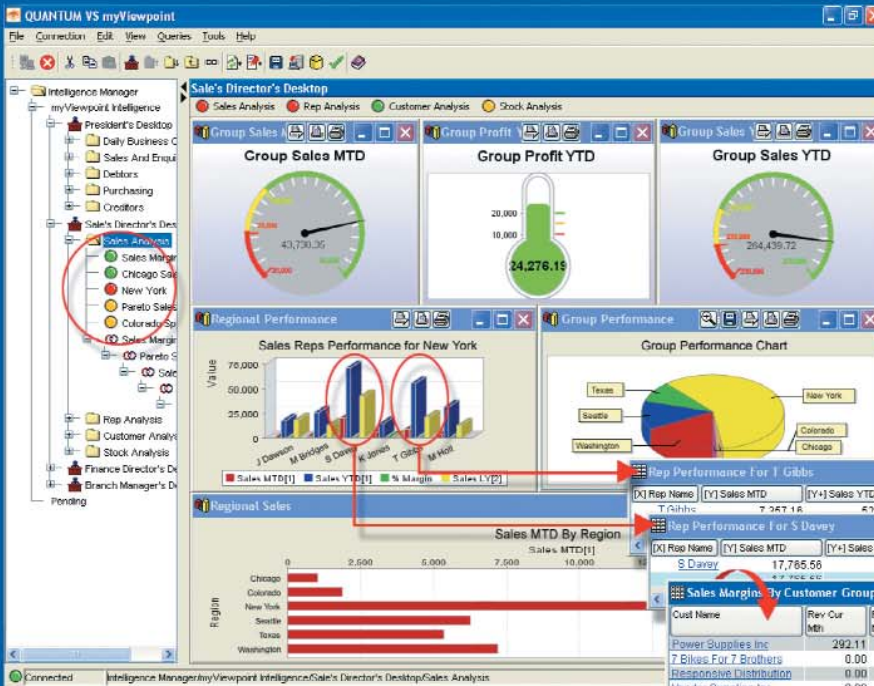
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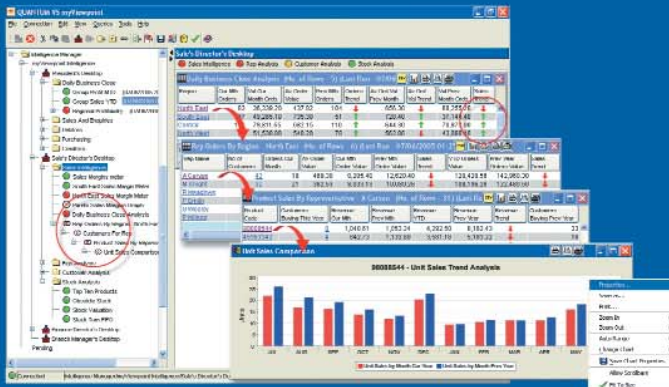
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Using that Trigger FINGER

Understanding Revelation's MFS Technology

NOTE: With the recent sale of Spectrum Magazine, all of us at Revelation Software would like to wish Gus, Monica and the rest of the crew the best of luck and thank them for the years of great service and support they've given us and the rest of the MultiValue community. We'd also like to take this opportunity to wish good luck to Nathan Rector, Clif Oliver, and the rest of their crew in this newest endeavor. We look forward to working with them for a long time to come.

The idea of a trigger in a database has been around and practical for many years now. The basic idea of a trigger is that if an action occurs, another action must take place, automatically, without any input from the user. In many cases a trigger is used to automatically update information in a database: tagging a record with who last updated a record and when they did so, logging all users in a system, and encrypting data are just a few examples of actions that could take place as a result of triggers. In the Revelation world, we use something called a Modifying Filing System (MFS) to create our triggers. In this article we will explore the theory, creation, and use of MFSs in an OpenInsight-based application.

While writing an MFS is not for the meek of heart, it can be done fairly easily. Like writing any critical piece of software, a good knowledge of OpenInsight and Basic+ routines will let an experienced developer gain tremendous control over a system, whether it be for audit, security, or protection.

What is an MFS and what does it do?

An MFS is nothing more than a subroutine that can view and modify data just after it has been read or just before it will be written to disk. It is at a level so low that it is just above the Base Filing System (BFS) in the chain of access from the operating system. In fact, Revelation's U2 Connector mentioned in an earlier article is an example of a BFS.

Specifically, a BFS is a program or series of programs that provide the interface between the physical storage of the data and the Basic+ programs that make the file I/O requests. A BFS constitutes a filing system.

An MFS is an extra layer between Basic+ and the BFS. The MFS monitors files activity, and then passes file I/O requests, along with any data used by that request, on for further processing.

An MFS, being a subroutine, is written in OpenInsight's flavor of BASIC called Basic+. In OpenInsight there are two sample MFSs provided, and online at www.revelation.com there is an MFS manual available for download.

An MFS can do that work that it can because it allows a developer to modify one or more of a number of primitive operations, such as READ, WRITE, DELETE, LOCK, UNLOCK, and many others—a total

of thirty-four in all. In an MFS a developer can choose to have the primitive work as normal, work in a modified way, or not at all. This ability is what makes an MFS so powerful. Because of the nature of the beast, every action that happens to a table can be monitored or modified.

Once an MFS is installed onto a table, a user cannot get around whatever

actions are triggered by it, whether data is modified by the Editor, a data entry window, or an update process. Even trying to

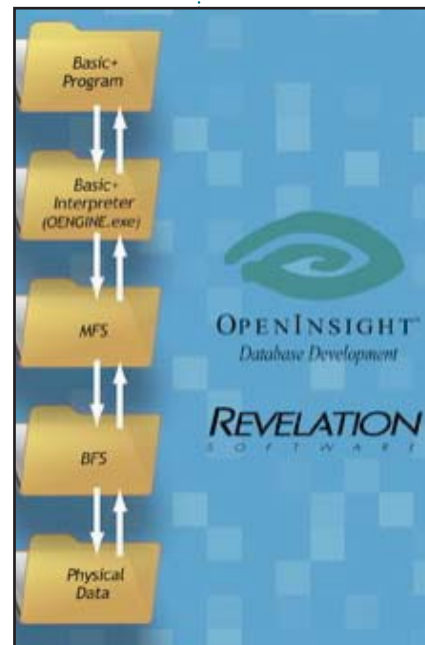


FIGURE 1 - The flow from a program or window to the OS and back

BY MIKE RUANE, REVELATION SOFTWARE

access the data from an external source, such as ODBC or a .Net connector, will have to pass through the MFS. If the table is physically moved out of the system and an attempt is made to access it, the lack of the MFS will cause all access to that file to fail.

Once an MFS has been written, it can be installed onto the file or files using the SET_MFS command available at TCL. Before we start writing, let's look at the flow of an MFS.

Flowing through an MFS

Given that a developer has written an MFS with the functionality he or she envisioned, and it has been installed onto the file, we'll discuss the flow through opening a record in the editor, changing a field name, and then saving it.

First, the very first time the file is accessed, a primitive called 'INSTALL' is invoked. It is invoked only the very first time that a file is accessed, so if there are

operations the developer want to happen only the first time a file is accessed, this is the place to put that code.

Next, the OPEN operation is called. The file is then checked to see if it has been opened before.

The LOCK is called next.

After the record has been locked, the READ operation is invoked. When the record has been modified, the user then saves it. The WRITE primitive comes next, and when it completes, the UNLOCK primitive comes next.

When you think about it, the primitives are matching the steps that the developer would follow if doing the same processes. If the developer wanted to do some work with any of these primitives, they would make the interceptions at the primitive level.

For example, on a delete, a developer can decide that only users logged in with a certain security level or username can delete records. The developer can set an error status with a system routine and the delete will not go through.

```
CASE CODE = DELETE.RECORD
op = 'DELETE'
gosub update_log
if @username = 'MTR' else
  Call Set_Status(1, 'FS279', name:@vm:'BOOKS')
end
GOSUB NEXT.MFS
```

FIGURE 2 - an Example of limiting the DELETE primitive

While the primitives mentioned above are simple enough to understand, some others are not necessarily so. Suppose that you were writing a security MFS, and that this MFS let a user see only records that belonged to employees in their department. Rather than modify every report already in existence, or try-

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Using that Trigger FINGER

Continued from page 17

ing to limit what the user could do from TCL, it would be far easier and more secure to limit the access with an MFS. In this case, a developer would need to work with the SELECT and READNEXT

primitives, making sure that the data passed back to the calling process received only the data that should be received according to the security settings. It requires more knowledge, but it is very, very powerful.

Writing your own MFS

As mentioned above, OpenInsight ships with two example MFS shells. The first, named MFS_SHELL1 is an example of a drop-through routine. The second, named MFS_SHELL2, is an example of a case statement. In my opinion the case statement is easier to work with, and is what I have used as a basis for all the MFSs that I have written. It will be used in the examples in this article.

The first thing to remember when writing an MFS is that just put putting an MFS on a table, the developer takes responsibility for all of the operations that the primitives perform. In other words, make sure that you only modify the parts of the MFS that you care about, and leave the rest alone.

For the purposes of this example, let's assume the following requirements:

- 1 The MFS will be put on only one file, named BOOKS.
- 2 Every time a record in the file is updated, fields 7 and 8 of the record (named LAST_UPDATE_DATE and LAST_UPDATE_BY respectively) must be updated.
- 3 Whenever a record is deleted, we will first copy it to a file named BOOKS_BAK, and if we can't, the delete is stopped.

Looking at the requirements, it appears that only two primitives will need any changes—WRITE and DELETE. However, we will also need to modify the INSTALL primitive to set up some variables and do some housekeeping. Let's start with the INSTALL changes.

Since the MFS code is run by the system every time one of the primitive operations is called, it must be very efficient. For example, we don't want to have to open the BOOKS_BAK file every time we do a delete; it would be much more efficient to open it in the INSTALL and keep the handle available to us in a common variable. So, the first thing we do is

create a named common variable for use in the program. Figure 3 shows our common in the program.

Once the common variable has been set up, we need to open the BOOKS_BAK file in the INSTALL. We'll try to open the file, and if the open fails, we'll just let the common variable be null. Figure 4 shows the code.

```
CASE CODE = INSTALL
* mtr 1-18-06
  open 'BOOKS_BAK' To backup_handle else
    backup_handle = ''
  end
  STATUS = TRUE$
*
CASE CODE = RECORD.COUNT
  GOSUB NEXT.MFS
*
CASE CODE = REMAKE.FILE
  GOSUB NEXT.MFS
```

FIGURE 4 - the code change around for the INSTALL primitive

Some observant readers no doubt saw two other primitives in the screen shot above, and noticed that in the INSTALL there is a variable named STATUS that gets set to TRUE, and that in the other primitives the code executes a gosub to a label called NEXT.MFS. What happens in NEXT.MFS requires some explaining.

When a file is opened, the system does a bit of processing and creates an entry in a memory-resident table named SYSTABLES with information about that file. Some of the information stored concerns the directory where the file resides, the type of file, the account or application the table belongs to, the name of the file at the operating system level, and a list of MFSs and BFSs associated with that table. Figure 5 shows the entry for the BOOKS table.

```
Common /books_mfs_common/ backup_handle
EQU TRUE$ TO 1
```

FIGURE 3 - The common statement in the BOOK_MFS

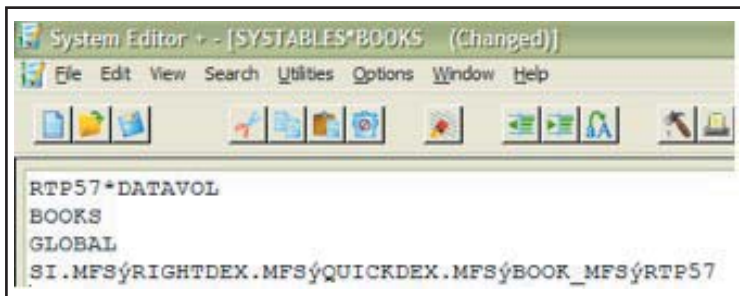


FIGURE 5 -
The SYSTABLES entry for the BOOKS file

If we look at the values in field 4 of the entry, we see an @SVM delimited list of MFSs on the file. This is called the MFS chain. In this example, SI.MFS is used by secondary indexing, RIGHTDEX.MFS is used to maintain a sorted list of keys in the file for quick lookup, BOOK_MFS is the code we're describing now, and RTP57 is the BFS used by OpenInsight's Linear Hash filing system.

When writing an MFS, there is placed upon the developer the responsibility to make sure that the next filing system, whether it is an MFS or a BFS is called or skipped correctly. Knowing how to control this flow is the most powerful way of working.

So, back in our BOOKS_MFS, when the WRITE primitive is called, we want to update the LAST_UPDATE_DATE and LASTY_UPDATE_BY fields. All that's required to do this is to modify the RECORD variable that gets passed into the MFS automatically. Figure 6 shows that change.

Finally, our last bit of tinkering in the MFS has to do with the delete. As specified in our requirements, every time a record is about to be deleted, it must first be written to the BOOKS_BAK table,

and if that is successful, we allow the DELETE primitive to be called. If it fails we'll generate a system error that will get passed back to the user. Figure 7 show the simple changes needed in the code.

And that's it. All that's left is to install the MFS onto the BOOKS file. That can be done by typing in the SET_MFS command at TCL, which brings up the window seen in figure 8. In the window, Specify the Table upon which you want to install the MFS, the name of the MFS you wish to install, and where it should go in the MFS chain. In most cases, any MFS you write should be added to the end of the chain. *Continues on page 20*

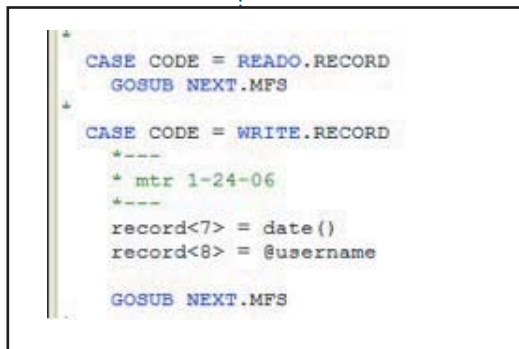
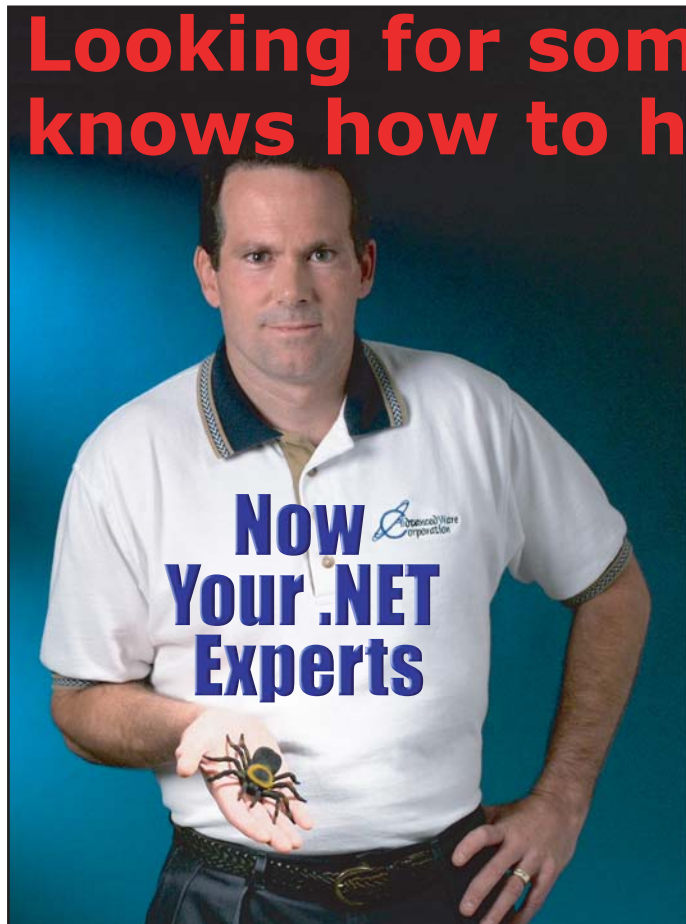


FIGURE 6-
Modification of the WRITE primitive

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Using that Trigger FINGER

Continued from page 17

By tracking changes at the field level, indexes are maintained automatically.

Some practical MFSs for your own use may be one put on a source code file to automatically put a time, date, and version stamp on the code. Another may be an

```
System Editor - [SYS\PROCS\BOOKS_MFS]
File Edit View Search Utilities Options Window Help

CASE CODE = DELETE.RECORD
-----
* mtr 1=24=06
* Write out to books_bak first, and if successful, let delete happen
-----
If backup_handle then
  Write record On backup_handle, name then
  Gosub Next.MFS
End else
  Call Set_Status(1, 'FS279', name :@vm: 'BOOKS')
end
End else
  Call Set_Status(1, 'FS279', name :@vm: 'BOOKS')
end
```

FIGURE 7

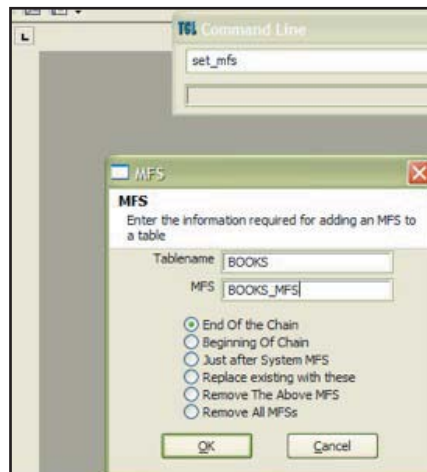


FIGURE 8 - The SET_MFS window

At this point the developer should test the MFS thoroughly. We'll leave that as an exercise for the reader.

Practical Uses of MFSs

OpenInsight itself uses a number of MFSs within the product. One used by every file, or rather dictionary, is called DICT_MFS and it does a tremendous amount of work.

Another very useful and practical MFS is SI.MFS, a Revelation-supplied MFS used for OpenInsight's Secondary Indexing.

encryption MFS, where the data stored on disk is encrypted and looks like garbage to systems other than the one with the MFS, which would also handle the decryption. There are numerous possibilities, limited only by your imagination and customer needs.

In Summary...

MFS, though simple in theory, are very powerful in practice. Writing an MFS, or trigger as they are known in other database technologies, can give a developer a tremendous amount of power, and can save huge amounts of work by doing that which a trigger is designed to do: take some action automatically as a result of another action. Writing an MFS in a Revelation product is almost a rite of passage; nearly every top OpenInsight or Arev developer will have written one. Hopefully, this article will whet your appetite to have a go at it, or at least make it a bit less intimidating. Good luck with writing yours! **IS**

MIKE RUANE is president

and CEO of Revelation Software, devel-

oper of OpenInsight. The company

can be reached at 800-262-4747 or

www.revelation.com.

Highlights *from* **Spectrum**

The 25th Annual International Spectrum MultiValue Conference & Exhibition



▲ This was just one part of the buffet. With the way this gang eats, do you have any idea of the challenge in getting a picture with nobody in line?



▲ With twenty-seven vendors from which to choose, there was something for everyone.



▲ Grafting a monitor onto a booth reps head seems a bit extreme, but you have to admit, the eye contact is compelling.

March 7th through the 10th, 2006, the 25th annual International Spectrum MultiValue Conference and Exhibition was held in Long Beach, California. Twenty-five years. That makes International Spectrum the longest running computer trade show in the United States. We think you will agree that is something to be proud of. This year we had twenty-seven vendors exhibiting. Tuesday through Friday, there were sixty-eight conference sessions with a wide

variety of speakers. Tuesday through Thursday evenings had special events, including a trip to the Queen Mary for the 25th Anniversary Reception. But even with all hard work that goes into planning, organizing, and accomplishing an event this large, a conference like this would not be a success if it were not for the vendors, speakers, and especially you, the attendees and supporters of International Spectrum.

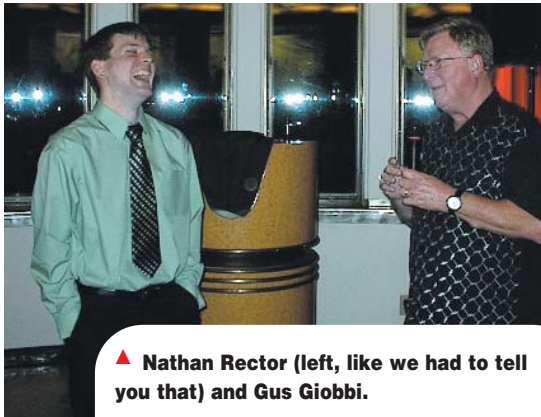


▲ Jeff Brady, one of our long-time MultiValue friends (right, back turned) talks with another well known MultiValue personality, Ron Spencer. Ron is retiring, and we will miss him. Good luck, Ron!

Continued from page 21



▲ From the right, Monica Giobbi, daughter Alex, son Paul, Paul's wife Tiffaney, and the Godfather himself, Gus.



▲ Nathan Rector (left, like we had to tell you that) and Gus Giobbi.



▲ The MultiValue community may be losing Gus and Monica, but we've still got Paul Giobbi.



▲ Stepping outside for a stroll, you were greeted by the MultiValue symbol shining down onto the deck.

A conference like this would not be a success if it were not for the vendors, speakers, and especially you, the attendees and supporters

The conference opened Tuesday morning with the welcome address by Gus and Monica Giobbi. Gus gave brief history of how he had become involved in the MultiValue market and in the origins of International Spectrum. He then proceeded to make the Big Announcement. After twenty-five years, he and Monica had decided that it was time to turn the reins over to someone else. International Spectrum had been sold to Nathan Rector of Natec Systems.

Nathan took the stage and introduced the first phase of his vision for International Spectrum. This included a redesign of the Spectrum web site as a MultiValue portal, increasing technical

content in Spectrum Magazine, and adding more educational sessions to the regional conferences. To assist with the transition, Monica Giobbi will remain on staff for a year, and Clifton Oliver has accepted the position of editor of the magazine. Nathan thanked Gus for his many years of hard work in promoting MultiValue, and then it was off to the sessions.

Tuesday was a full day of conference sessions, thirty of them, going until 5:00 p.m. At that time, the exhibit hall was opened for a sneak preview and welcoming party. It was a great time to reconnect with acquaintances from previous conferences, catch up with old friends, and make new friends. With food in one hand and beverages in the other, people roamed the exhibits planning their visitation strategies for the next two days.

Wednesday started with a MultiValue breakfast, sponsored by Raining Data. Then attendees had a choice from fourteen sessions, many of them quite technical in nature. At noon the exhibit hall was opened. The afternoon was

Continues on page 24



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The 25th Annual International Spectrum MultiValue Conference & Exhibition



▲ **Nathan Rector** With the Giobbi clan at his side (right), Gus introduces the Rector clan: Nathan's wife, Tracey Rector, and his father-in-law, Danny Passig. Nathan? Still on a tour of the ship. Timing is everything at one of these events, or so we are told.



▲ **Long time Spectrum Magazine columnist, Mel Soriano, demos software at his booth. What do you want to bet it had something to do with that Web stuff?**



▲ **Our host, Rod Owens of Ashwood Computers, opens the transition ceremony with a mini-roast of Gus. Ron and Jeff**

Continued from page 22

spent speaking to the exhibitors, finding out about the latest technical innovations available for MultiValue, and watching demonstrations of the new products. The day was topped off (no pun intended) by an ice cream extravaganza provided by Revelation Software. The evening was left open for free-form socializing, private dining, and the inevitable after-hours technical conferences conducted in the meeting hall adjacent to the hotel lobby.

The late night technical conferences of the previous evening notwithstanding, Thursday morning started bright and early with a continental breakfast courtesy of Entinsik, Inc. Thursday's format followed that of Wednesday, with the morning being filled with technical sessions and the exhibit hall being opened at noon. When the exhibit hall closed at 5:00 p.m., the festivities began. Attendees boarded chartered buses for the short ride over to the Queen Mary. Upon our arrival, Gus directed us to the aft end of the ship

(at least we think he said "aft") where we were greeted by the Captain. Special tours had been arranged for our group that showed parts of the ship not normally included in the usual tours. (See? We told you folks in the MultiValue community were special!)

The tour groups were limited as to the number of people that could be accommodated at one time, so the rest of us waited our turns by feasting at the buffet generously provided by Ashwood Computer Company. After sufficient food and beverage had been consumed, Rod Owens took the microphone to bid Gus farewell—and to fire a few humorous shots across his bow. But it was all in fun, and no offense was intended or taken. The new Spectrum staff would like to make one clarification, however, Rod. Just because Monica is staying with us for a year, Gus did not

sell the business and Monica along with it. That would have driven the asking price way too high. So we stole her.

Introductions and ribbing complete, Gus came on deck accompanied by the theme music of The Godfather. Funny, he doesn't look like Marlon Brando (see the pictures). After thanking everyone for a great, successful, and fun twenty-five years, he introduced the Giobbi Clan and had them come up with him: Monica, daughter Alex, son Paul and his wife Tiffany. He then asked the Rector Clan to join them for the changing of the guard. Nathan's lovely wife,

Tracey, was accompanied by his father-in-law Danny Passig, and, and, ..., no Nathan. Nathan? Nowhere to be seen. It seemed odd that someone would throw in the towel on a new venture so soon.

If you have been following Spectrum Magazine the last twelve months as we reminisced about the challenges of the previous conferences, you know that something always happens that was not included in the plans. It was quickly discovered that the neither the Giobbi's 25th and last conference, nor the Rector's first, would go without having at least one thing go sideways. It seems that Nathan was part of the last tour group and was not present, although accounted for. So everything was placed on hold, and we make another circuit of the buffet. We thought about turning out the lights and then yelling "Surprise!" when he walked in, but the crew of the ship started sweating about fire regulations, insurance liability, and the like.

When Nathan arrived, being the consummate professionals that we are, everything was picked up where we left off, and the official turn-over was completed without further incident.

The music then started, and the dance floor was open. Let's just say that noting the dearth of males out there, apparently the MultiValue community shares at least

one point in common with our rival database communities — geeks can't dance.

You might think that the Friday of a conference would be a horrible time to be scheduled to speak. The exhibits have been torn down the night before, it is only a half day, people are leaving to fly home, some of them across an ocean, and the blowout reception was the night before. You would be surprised. While the last twenty-five years of International Spectrum have demonstrated that we enjoy our camaraderie, have fun, and don't always take ourselves seriously, we are serious about our commitment to the Multi-Value model and market. Friday offered eleven sessions. Sure, there weren't as many people there, but take a look at the conference brochure and note the content. If you weren't there, you missed your opportunity, not only for that information, but also to have a chance to connect with the speaker for a one-on-one conversation, something not always possible in a crowd. So next year, think about that. Besides, flying on Saturday beats fighting the Black Friday business crowds and missed connections.

We look forward to seeing you at the Regional Conferences and back at Long Beach in 2007. IS



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Feedback

What came first, the letters or the letters-to-the-editor department?

We are making another change to International Spectrum Magazine—a Feedback Department, sometimes known as Letters to the Editor.

We want to hear your comments, your reactions, your agreement or disagreement with what you see. Also, do not hesitate to let us know about things happening in the MultiValue Community we may not have heard about yet.

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Jane M. Christie Joins the Mpower1 Group of Companies

Working with Mpower1 International, jBASE International and BlueFinity International as USA Sales Consultant



07 March 2006 - London, UK and Portland, Oregon, USA - Mpower1, an international operation specializing in business creation, turnaround, growth and development for software companies, is pleased to announce the recent appointment of Jane M. Christie to Sales Consultant in their USA operations.

Ms. Christie will be responsible for establishing new business opportunities for **Mpower1** and its subsidiaries, jBASE International and BlueFinity International. jBASE is a leading provider of database management products and software development tools; BlueFinity supplies leading-edge .NET oriented software development tools and consultancy services to the MultiValue database and Microsoft developer communities.

Ms. Christie brings decades of business management experience and a track record of exceeding revenue expectations to the group. As Director of

Operations for First Data Resources Southern California Services Business in the mid-eighties, she was responsible for major account sales and was a key member of the acquisition teams that facilitated strong growth for the company.

Ms. Christie then began her notable career in the MultiValue market when she joined General Automation in the late 1980s, first as Vice President of Customer Services, then Vice President of Sales and Services, and lastly CEO of GA and the

re-invented company in 1998, GA eXpress. She launched GA's services organization, doubled its revenues annually and spent 15 years in executive positions with GA eXpress, including spearheading several key acquisitions.

In 1997, International Spectrum Magazine recognized Ms. Christie's leader-

ship and her company's dominance in database development by naming her "Person of the Year".

Ms. Christie most recently held the position of Director of Sales and Support for FusionWare Corporation.

Ian Leeper, Director of **Mpower1** International, feels Ms. Christie's experience in the MultiValue industry will be an immediate asset to the company

as they continue to expand the group's presence in the USA.

"Jane understands the sectors we are targeting and the products we market. She is well regarded within the industry and especially by some of our existing clients which makes her an ideal addition to our team."

"I have been very impressed with Mpower1's investment and commitment to forward thinking products such as the jBASE database management products and BlueFinity's .NET development tools."

- JANE M. CHRISTIE

"I have been very impressed with **Mpower1's** investment and commitment to forward thinking products such as the jBASE database management products and BlueFinity's .NET development tools," Ms. Christie said. "I am excited to join the team in bringing these revolutionary products to the MultiValue marketplace."

About Mpower1 International

Mpower1 is an international operation headquartered in the UK and operating from offices around the world specializing in business creation, turnaround, growth and development. Mpower1 provides an infrastructure that incorporates management, support, sales and all other aspects of a successful business operation to companies looking to expand into new markets, achieve exponential growth, consolidate an existing position or recover from an under achievement. Mpower1 calls upon a highly experienced team of directors, senior level employees and its global infrastructure to deliver an extensive knowledge of many international markets, the experience to manage the unexpected or unwanted and the necessary network of contacts around the world to achieve accelerated growth. For more information visit www.Mpower1.com. ■

For additional information regarding:

BlueFinity International

www.BlueFinity.com

jBASE International

www.jBASE.com

Zumasys Helps Financial Services Company Achieve Disaster Recovery Goals

Using State of the Art Replication Technology from Double-Take Software

March 22, 2006, Lake Forest, CA - Zumasys, Inc. today announced that WCM Investment Management, a money management firm, contracted with **Zumasys** to successfully move all of their servers to a hardened data center and replicate their data using technology from Double-Take Software. Double-Take updates data continuously at the byte level over a LAN or WAN connection and ensures that changed data is protected and can be quickly restored at all times. This new implementation provides WCM with 100% up time, regulatory compliance and access to critical business applications over a secure, SSL-based browser connection.

WCM Investment Management provides innovative growth equity investment management services to corporations, private individuals, public funds, Taft-Hartley plans, endowments and foundations. The primary goal of the project was to increase disaster preparedness and achieve regulatory compliance. Additionally, WCM wanted its managers to have secure browser-based access to its SQL-based CRM (Customer Relationship Management) software, complex trading and financial services applications, as well as corporate email.

"In our fiduciary role, it is imperative that we are able to manage our client's money in the midst of any disaster," says David Brewer, Principal for WCM Investment Management. "From the beginning, **Zumasys** took the time to understand our operations and applications and they responded with a total solution that met our business objectives. We are very pleased with our decision to partner with **Zumasys**."

Zumasys relocated WCM's primary servers to a data center to provide additional reliability and stability. The data center is a 100,000 square foot Telco-grade building, built to withstand natural disasters and an earthquake level 4. Next **Zumasys** implemented Citrix Presentation Server 4.0 and the Citrix Access Gateway, a universal SSL VPN appliance, to provide users with fast, secure remote access to all of their mission critical applications. Then a backup site was established and all of WCM's applications were consolidated using VMware ESX Server, virtual infrastructure software for partitioning, centralizing and managing servers. The two sites are kept synchronized with Double-Take which combines continuous real-time backup and automatic failover capabilities for disaster recovery, high availability, and centralized backup.

"The combination of these market leading technologies—Double-Take, Citrix and VMware—is allowing **Zumasys** to centralize, consolidate and virtualize applications in new and exciting ways and we are excited about the positive effect it is having on our customer's businesses," says Dan Putnam, VP Sales for **Zumasys, Inc.**

About Zumasys, Inc.

Zumasys specializes in architecting and implementing multi-vendor technology solutions that solve IT challenges. The company focuses on preserving and evolving legacy systems and allowing remote branches and mobile users to connect to applications wirelessly. **Zumasys** applies its expertise with Citrix Presentation Server and Microsoft Terminal Server to create browser-based application portals that are accessed over cellular-based mobile Internet connections (i.e. 3G Wireless). These

Continues on page 44

New Products

UvSpoolerPlus™



Finally, after all these years, a generic PICK spooler that now runs on UniVerse.

Avoid being limited by the missing print spooler in UniVerse on NT.

Avoid rewriting all the STARTPTR and SP-ASSIGN commands in your generic PICK software to SETPTR commands to run on UniVerse.

UvSpoolerPlus allows you to run your generic PICK software on UniVerse using the generic PICK printer commands that are embedded in your software or that you use at TCL — e.g. :STARTSPOOLER, STARTPTR, SP-ASSIGN, SP-EDIT, LISTPTR, LISTPEQS, etc. — just like you do on your generic PICK database.

UvSpoolerPlus will hold, print, hold-and-print and spool on-hold print jobs from designated print queues to designated printers when those jobs are generated and/or when you want to print them.

And (adding a feature to the generic PICK spooler) you can configure each printer to the print characteristics of the assigned print queue when the printer is assigned to that queue, using printer drivers that we supply and/or that you may write - which is the “Plus” in “**UvSpoolerPlus**”.

In addition, you no longer have to overcome the FILE-SAVE and ACCOUNT-SAVE tape format incompatibilities between UniVerse and most generic PICK databases when transferring your software. You can use our FileCaddy programs, TAPE.DUMP and TAPE.LOAD, to quickly and reliably transfer the software and data files in each account from most generic PICK databases to UniVerse in just two steps.

The last barriers to moving your software to Universe have finally been removed. The “PICK Flavor” on UniVerse is now complete.

There’s never been a better time to migrate your software to UniVerse. You can migrate your software yourself using our migration tools or we can migrate it for you.

Our migration package includes both **UvSpoolerPlus** and FileCaddy. Special pricing for UniVerse is available as part of our migration package and/or services.

To find out how easy it is to migrate your generic PICK software to a database that’s adding tomorrow’s features today, and that’s supported by IBM, contact Dave now at Sysmark Information Systems, Inc., 800-SYSMARK (800-797-6275), davet@sysmark-info.com or www.sysmarkinfo.com.



**Northgate
Information
Solutions
is pleased to
announce
the availability of
Reality V12.0**

■ Reality Web Services

Offer secure access to your DataBasic routines over the Internet to non-Reality applications without having to modify your code!

Reality leverages Northgate’s Web Services Framework to expose and existing DataBasic subroutines as standard Web Services providing benefits, which include:

Greater efficiency: one standard, one set of tools

Greater interoperability: can interact with any consumer worldwide or locally

Reduced integration costs: service all consumers on any platform

Reduced training requirements: only need one technology

Simplified business communications: one service can be offered to everyone

Responsiveness: organizations can respond quicker to market demands

Reduced maintenance: Web Services promotes the use of clean interfaces

Component re-use: Deploy your services to many applications

Externalize business assets: integrate with customers, partners and suppliers

Reduced costs: Uses standard web communication technologies

Service consumers: can use any environment which supports Web Services

■ **XML Parser/Generator**
Simplify working with XML documents.

Easily extract information from XML documents with simple to define queries. The Reality high performance XML parser is written in C and accessed from DataBasic for superior performance – faster than any solely DataBasic-based XML solution. XML documents are parsed into memory as a DOM tree. They can then be queried many times without having to reparse.

Incorporate MultiValue data into XML documents using simple templates.

■ **Fast Backup/Restore**

Need to reduce your system backup and restore times? Running out of night?

Reality V12.0 introduces a new backup method, which can reduce your current backup and restore times by up to 30 times, which can backup running systems without affecting your active users.

■ **DataBasic Profiler**

Tune your application! See where time and system resources are spent within a DataBasic application.

Capture a profile of any DataBasic application and see the call path taken though the application with timings of how long each subroutine is taking.

Profiles can be presented in a graphical format for simple interpretation.

■ **DataBasic Stack Trace**

View the DataBasic call stack as it changes, with details of the time taken to make each subroutine call. Simplify the diagnosis of problems with particular ports.

■ **CSV File Integration**

Seamlessly read and update CSV and tab-separated files, as if they were native Reality files within the Database. No need for code, no intermediate data!

■ **GDI Printer Support**

Drive lower specification WindowsÆ printers and Pseudo printer drivers, such as PDF generators, directly from Reality.

Set up Reality despoolers on Windows hosts to print

using the Windows GDI (Graphical Device Interface). This is a high level printer-independent interface that translates the print data into a graphical format that can be printed without further processing by the printer.

■ **Reality DR (Disaster Recovery)**

Offer greater protection by maintaining a copy of your database on a remote machine via a possibly slow or intermittent communications link.

■ **System & Application Alerts**

Provides a mechanism to report a range of significant events in real time to users over a choice of transmission mediums, such as email, SMS text messages and HTML pages.

■ **Striped Partition Filing System**

New higher performance file system for Windows and AIXÆ, Striped Partition Filing System allows you to tune system and disk caching to optimize performance.

■ **Database Isolation**

Run completely independent Reality Databases on a single system, separate logs, license keys.

■ **Compatibility Enhancements**

Numerous compatibility enhancements to further simplify your migration to Reality:

- New Functionality -Verbs
- ISELECT, ICOUNT
- New Functionality - DataBasic
- BREAK, EXIT, CONTINUE (in loops), SENTENCE(n), READNEXT KEY, READPREV KEY
- Enhanced Functionality to EXECUTE (full Syntax)
- Enhanced Account restore for mvEnterprise and jBASE tapes.
- mvEnterprise and jBASE tape image compatibility
- Number of Proc file and select buffers increased to
- 47
- New Platforms
- Linux ES 4
- Linux ES 3 (64 Bit)

For pricing, contact your nearest Northgate Sales office. Visit www.northgate-is.com/reality or email reality@northgate-is.com

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mvCMS

Open Source Backed by MultiValue Technology

BY CHARLES BAROUCH

Open Source used to be a marginal concept. Now most MultiValue systems can run on Linux. So, even if you never contribute to the movement, never download a single piece of GPL licensed software, you are, to some degree, in the Open Source movement. We all are.

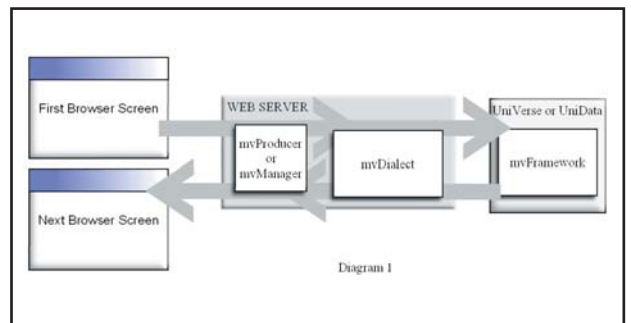
Some of us are embracing this movement in a very direct way, by contributing. Examples range from Maverick, Bart, Winter, and OpenQM — all of which are MultiValue database implementations — to tools that work within our existing systems, like mvCMS. This article is about a project which I've directly contributed to, mvCMS.

When the International U2 Users Group decided to overhaul their web site, we faced a challenge. As a zero-income group without the legal standing to even accept a cash donation, everything we use had to either be free or offered freely.

Instead of just using existing open source tools, which meant continuing to host a MultiValue site on a non-MultiValue database, we chose to build an open source site manager, named mvCMS (pronounced moove C-M-S).

Before we can discuss the structure of mvCMS, we need to cover a core object-oriented concept. You see, unlike the traditional MultiValue world, where code tends to be tightly bound, often with all the major functions held in a single program, the web is more object oriented. For those who don't work with object-oriented technologies, simply replace the word "object" with the word "fragmented," and all will be clear. Good OO technology is fragmented into clean, well delineated parts, all of which encourage reuse in other projects. While not all OO is good, all OO is fragmented.

If you want to understand the deeper inner workings of mvCMS, they can be found at <http://u2ug.keyally.com/mvcms.html>. This article is more focused on the logical flow.



SIMPLE EXAMPLE

Syd is browsing a site and wants to see the calendar entry for June 3rd. She clicks on a link which triggers a CGI script. That script can be written in any language and we refer to it as an mvProducer (if it displays results) or an mvManager (if it also allows you to update the information).

The mvProducer, in this case, is written in PHP and it is responsible for determining the look of the data (font, color, etc.) This site displays calendar pages as a table that is two columns wide, with one row per entry. The left column has the start time and the right column has the short description. June 3rd has one entry, starting at 8:00 PM and holding a description of "Party!" The way that data makes it back to the mvProducer from the database is obvi-

ous once you look at the diagram. The mvDialect is a bridge that makes the mvFramework look like PHP to the PHP code, and it makes the PHP look like a UniObjects call to the database.

So, Syd clicks the browser link marked June 3rd, the CGI (PHP) calls through the mvDialect and pulls the data from the database by calling the mvFramework API called basicCalendar. The mvFramework returns the values to the mvDialect, which makes the data look 'right' to the PHP code, which formats the data into a table and pushes the results back to the browser as a new page.

COMPLEX EXAMPLE

If you want your CGI to do multiple calls to the mvFramework, you need to

Eventually, mvCMS will be handled as a SourceForge project. Meanwhile, it is being conducted on the u2-community e-mail discussion list.

go through another step called an mvSection. This is not just an aggregator. The purpose of an mvSection is to control the overall format and layout. Like the mvProducer and mvManager, the mvSection can be written in any language. So, recasting our last example with an mvSection, we see this:

Syd is browsing a site and wants to see the calendar entry for June 3rd. She clicks on a link which triggers a CGI script. That script can be written in any language. We refer to it as an mv-Section. In this case it is written in PHP. The mvSection knows where each part of the page comes from (mvProducers, mvManagers, plain HTML, etc) and knows how to apply cascading style sheets and other thematic elements.

The mvSection passes the specifics of the request (in this case, the date June 3rd) to the mvProducer in charge of displaying calendar data.

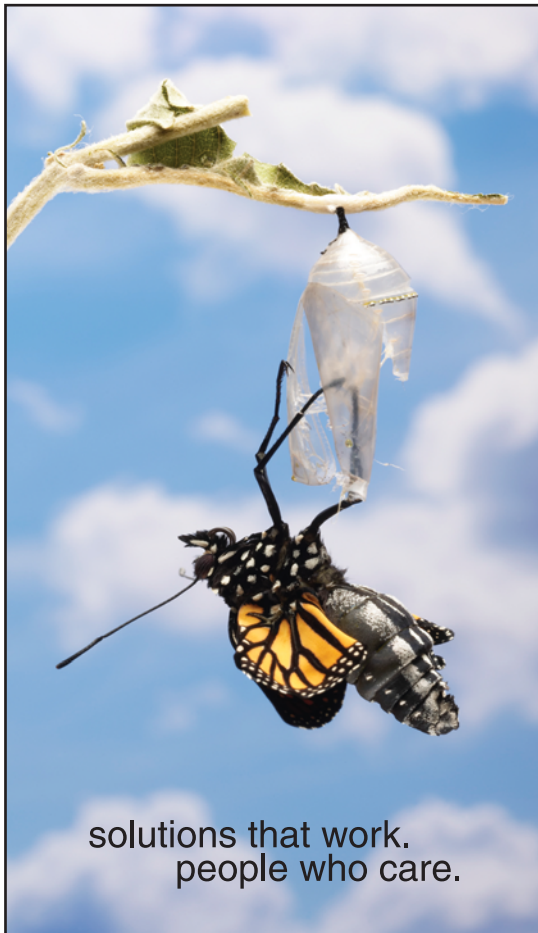
So, Syd clicks the browser link marked June 3rd, and the browser displays a page which includes the calendar information.

HOW CAN YOU FOLLOW OUR PROGRESS?

Eventually, mvCMS will be handled as a SourceForge project. Meanwhile, it is being conducted on the u2-community e-mail discussion list. To subscribe to the list and follow our progress: visit <http://listserver.u2ug.org>, enter your e-mail address, and 'browse all' lists to obtain your access. We have other lists there which may also be of benefit to you.

HOW CAN YOU GET INVOLVED?

We are always looking for participants. You can get involved by contacting us at U2UG@KeyAlly.com. [is](http://www.u2ug.org)



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Interview with Mr. Robert Nagle, Vice President of Software Development, InterSystems Corporation.

At the 2006 International Spectrum Conference in

Long Beach, California, Spectrum Magazine had

the opportunity to sit down and talk with Mr.

Robert Nagle, Vice President of Software

Development for InterSystems Corporation, the

makers of the Caché database. A new player in the

MultiValue market, we were interested in what

they were doing and what they saw for the

future of MultiValue.



ROBERT NAGLE
*Vice President of
Software Development,
InterSystems Corporation*

Q Thank you very much for talking with us.

Would you start by giving us a brief history of InterSystems Corporation, the Caché database, and how that has brought you into the MultiValue marketplace? Why did we attract your attention?

A N S W E R : InterSystems has been in business for almost 30 years. Our focus has always been on providing the best possible technology for professional application developers. Originally, our roots are in the MUMPS market, and we were one of the early and largest vendors in that space.

In 1997 we introduced Caché as a path to the future for MUMPS application developers. We wanted to provide technology and tools that captured the best features and characteristics of MUMPS development but allowed people to build contemporary applications. What that means changes every two to three years as new waves of technology roll through. But that's part of what we wanted to enable, to give people a platform for the future. We knew that being a full native object database was important. We knew that having extremely high performance SQL access was important. And we wanted to retain the rapid application development and extreme scalability which were the hallmarks of the MUMPS style of development.

So Caché blended together the best features of MUMPS with native objects and SQL. That allowed the MUMPS application vendors to host their applications on Caché and start to develop new forms that had SQL access that got exposed as objects, initially through Visual Basic, and then it became Java, became .NET, and now its web services. XML became important for people. They were able to just use our object model and say, "I want this to be an XML enabled class," and all of

a sudden all their data got projected out as XML. So that was kind of the vision [we had]. As technology changes we do the heavy lifting to let them deploy Java, to let them deploy .Net, to let them use Pearl, or Python, whenever it is they want to use.

And what we'd like to do is to offer some of that rich set of capabilities to the MultiValue developer community. Retain all the benefits that you have of PICK-style access to data using files, using Query or Access, whatever name it goes by, the query processing that has made lots and lots of PICK applications so successful because of ease of reporting and rapid queries. We wanted to provide that, but also allow you to see your data as native SQL, native objects, and to use all the other features of Caché.

Q How exactly does MultiValue fit in with Caché? Most of our readers are familiar with MultiValue resting on top of a host operating system. So does MultiValue rest on top of Caché, or is it embedded within it?

A N S W E R :

That's a very important question, so let me talk about the overall system architecture of Caché.

At the heart of Caché, and what makes Caché the blindingly fast, scalable database that it is, are what we call multidimensional arrays-globals. These are sparse multidimensional arrays that allow very flexible storage formats, and we have a highly optimized transaction engine that deals with all the persistence

and integrity of that data. Our view of a universal data architecture is that you can access your data through globals,

you can access your data through SQL, or you can access your data through objects, all concurrently, and that's what Caché has been, until now.

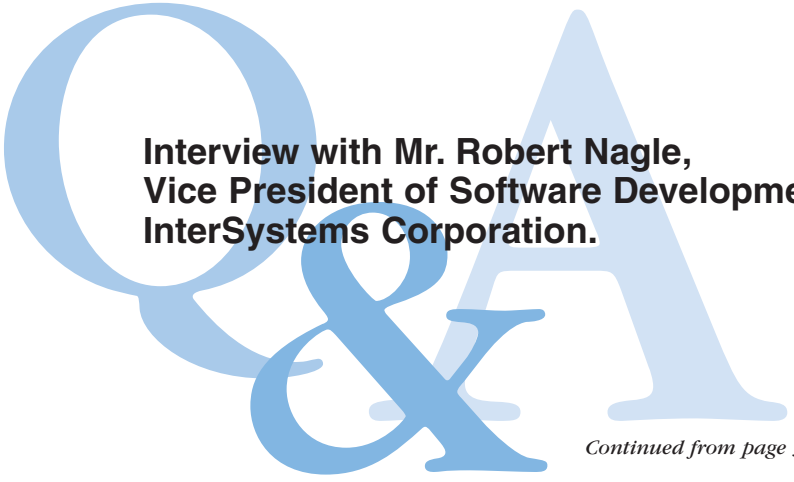
What we have added is the ability to have MultiValue style access—opens, reads, and writes to files. So you can access your data, which is stored in our globals, using reads and writes from MV BASIC, just as you would in any PICK format. You've got an amazingly reliable storage engine underneath you that has 25 years of development underneath it, so it's got high performance, extreme

reliability, and ease of management. But that's not what's important. The key is that from an architectural point of view, your data is stored in globals, but you see it just as you would with a normal file, just as SQL access sees it as tables, and object access sees it has objects. So now you have four ways to access your data, whether it's for inserts or updates. That's the data storage portion of it.

Additionally, from the language point of view, we have a high performance virtual machine that up until now has supported two languages: Object Script. Which was our first language and Basic, which is something like VB Script, and what we have added is support for MultiValue Basic, as an equal partner. All three languages get generated down to the same byte-codes and execute against the same virtual

Their vision is to move all the PICK code and the old MUMPS code all onto our integrated framework and allow the pieces to work together as components.

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Interview with Mr. Robert Nagle, Vice President of Software Development, InterSystems Corporation.

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machine, so they're all equally fast. And you can call back and forth between them, call them directly as routines, from one to another, or you can have objects that are written partly in Basic, partly in MultiValue Basic, partly in Object Script, and mix and match. What you get to do is leverage all the library of classes we've already developed and provide as part of Caché. So the two components are the storage and the language runtime.

We've also added, just as a side note, support for PROCs. They actually compile into the same byte-codes. That's mostly to make it easy for people to move their applications across. We don't expect that many people are writing new PROCs today, but it's important for lots of older applications to get their code running on Caché.

Q Can you give us any success stories of customers who have already migrated from another MultiValue platform, and what their experience was like?

A N S W E R : Sure. One of the more interesting stories is a company called Rhyme Systems from the United Kingdom. Rhyme is an interesting company because they have had applications that were written in MUMPS originally and applications that were written in PICK. Their applications are in the financial services space.

Several years ago, they moved their MUMPS application to Caché, and

more recently they moved a lot of that code, a lot of that logic, to our new product, Ensemble, which is targeted at enterprise systems services. What they wanted to do was consolidate all the decades of applications development in a single platform and to be able to reuse different components for registration, for lookup, and for balancing accounts. They wanted to be able to mix and match between components that are being built in Caché, now written on Ensemble, and all the PICK-based code that has been under development for thirty years, so it's a pretty massive application. It's used by two of the top five stock brokers in the United Kingdom. They wanted to have an integrated technology base that became more focused on application integration. So their vision is to move all the PICK code and the old MUMPS code all onto our integrated framework and allow the pieces to work together as components.

They're here, and they're going to talk about their experiences at moving across. I think they've had a positive experience in terms of working with us. One of the things that InterSystems prides itself on is that we try to work very closely with partners, especially people who are posing us new challenges. We like to respond to challenges and help application developers get to a new and better environment, so we've worked very closely with them, and I think they've been very pleased with the outcome.

Q At the last Spectrum in San Diego, about a year ago, if my memory is correct, was the first time InterSystems came out and strongly said, "We are coming into the MultiValue marketplace." If we view that as the announcement of, "We're here; we're a player," what would be your message to the MultiValue marketplace this year? What's transpired over this last year; what's changed in your software; how are you different today than when you first made your announcement?

A N S W E R : That's a good question. Last year we wanted everyone to understand that we were serious about building new technology to make MultiValue development exciting, and to grow. But to be honest, we didn't quite have all the pieces figured out. I mean, the environments that you run in, they're complicated. And we don't pretend to have all the answers. We didn't pretend to have all the answers then, and we're still learning a lot. So it has taken us some time to figure out what we think is a good product vision. What we want to talk about in 2006 is that product view, and we want to show people that product. We want to give people that product. And we want them to experiment with building new applications, using all the code they still have, XML enabling their applications, integrating with our Java object implementation, working directly with .NET, creating web services; we want to deliver that product to people.

Last year we were talking about, "We're here. We're really making a serious commitment to this market. We want to build something exciting." This year, we want to say, "Here it is; come try it." We may still have some rough edges to figure out. We're still learning things about the MultiValue market, but we think we've got something that's pretty cool, pretty fast, pretty exciting.

Q You say that you're still learning the MultiValue market. As a relative newcomer to our marketplace, and looking at things with new eyes, how do you see the MultiValue market as far as where it is going, of how InterSystems can help expand the MultiValue market?

A N S W E R : That's a complicated question, I think. In some respects, there are parallels between the MUMPS market and the MultiValue market. But in many respects they are different, and lots and lots of the details are profoundly different. So I don't want to stress that analogy too much. But what we would like to offer is some exciting new technologies. We think that there is some great applications written in MultiValue. We know that. We know that there are lots of great MultiValue programmers out there. And what we'd like to do is invigorate all those people with some new opportunities to build applications more quickly and have them scale in extremely radical ways. We're very proud of our performance, very proud of our scalability, very proud of our database reliability. What we would like to try to offer to the MultiValue development community are those things from a run-time perspective, but also some excitement on the development front.

Q So you are trying to introduce the MultiValue development community to the Caché implementation of the technologies that have proven successful for them and then add an entire set of technologies to help them expand their ability to compete?

A N S W E R : Exactly. We want to retain what's good, and what works, and what's worked for decades. It's important. But the world of application development is changing con-

stantly. We went through the example, six or seven years ago. Everybody was still trying to build thick client applications. And then there became sort of a backlash against that and people were moving to the web. You have the waves of J2EE development and .NET competing with that, and how do you reconcile between those two choices? Or do you become agnostic and say, "I'm just going to play the web services

space. Who knows what's happening outside me?"

Part of what we want to do as a company is, we want to do all of that sort of plumbing for you. If you decide, "I've been working on this path, and now I need to change to that path," we're going to make that possible for you. We have done that with our appli-

Continues on page 45



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BY ROBERT HOUBEN



Middleware Metadata

& MultiVa

FusionWare Corporation has a long history of developing middleware for MultiValue systems. This middleware typically leverages mainstream industry standards, and FusionWare has a tradition of involvement in these standards bodies. As a result, FusionWare has consistently delivered middleware that has enabled MultiValue users to extend their applications with the least risk, the greatest reuse and leverage of standards and the most complete integration into industry standards.

FusionWare has watched with interest as the mainstream computing community has evolved its middleware practices over the years, especially as this evolution has affected the ability for MultiValue data to participate in mainstream

Business Intelligence (BI) Enterprise Application Integration (EAI) and Web Services initiatives.

This evolution can really be summarized around the issue of metadata. This article details this relationship and how it has affected the industry. It also shows how recent changes will affect the ability of MultiValue systems to easily integrate with other systems.

T H E E V O L U T I O N

In the Beginning

The first real database standard was Open DataBase Connectivity (ODBC). This was an industry initiative by a lot of companies, including Microsoft, who released ODBC as part of their platform in 1992.

ODBC made the assumption that your data would be accessed using ODBC's slightly extended flavor of ANSI SQL syntax. For true interoperability it was critical that drivers

supply metadata that described data from the perspective of an SQL architecture. The interesting problem here for the MultiValue community was that their data was not first-normal-form, let alone relational. As a community, we broke the first few “rules” of the relational model, and the rest was simply a moot point!

This meant that in order to properly expose MultiValue data, you had to “map” your MultiValue structures to something that looked like it was ANSI SQL compatible.

Value

In most real-world scenarios, this presented some interesting challenges.

In each of their ODBC releases, Microsoft talked about their vision for the future roadmap of data connectivity. Each time they would talk about how more than 80% of all data was in non-relational data stores and how they had a vision for how you would be able to get to it without having to go through this relational mapping exercise.

Meanwhile, a whole list of tools came out to enable such useful Business Intelligence exercises as ad hoc reporting, data mining, data staging and warehousing, and many others. All of these tools leveraged the fact that they could count on asking for, and getting, consistent metadata.

Every developer tool that has ever been developed to enhance a developer’s experience or an end user’s ability to create reports on the fly counted on this but was also limited by assumptions about the state of the metadata.

The problem for most MultiValue users was that the closest they had ever come to actually having metadata was the list of dictionary items on their system. These, unfortunately were not enforced, not required, and typically not completely accurate. What’s more, for most users, these did nothing to define actual structure and relation-

ships of fields that actually contain multivalued, let alone subvalues.

This necessitated a costly data exploration, mapping, validation and cleansing cycle that was typically iterative. Those who stayed the course and spent the time were rewarded with systems that would enable them to work with the latest tools and technologies from a large assortment of vendors, but this exercise was not for the faint of heart.

As a sidenote, some products provided on-the-fly mapping. The problem with this was that if you included a multivalued field with three multivalued, you would get three rows. If you skipped the multivalued, you would get one row. Data analysis tools were making assumptions about cardinality that fell apart in these situations, resulting in incorrect results. Basically, there were no real short-cuts to mapping, not if you wanted to be able to really leverage all the BI tools that were springing up around ODBC.

Mapping Wizards

After doing a large number of these mapping projects for customers, we began to realize that there was a commonality to what worked, so we created an ODBC mapping wizard that would run through both your dictionaries and your files and come up with a best-first-guess for you of what was in the file. Our customers loved the new wizard. The new feature saved time, made it easy to map and accuracy was increased.

You could then fine tune this selection, choosing between multiple definitions for a field until you got the one (or ones) that worked. I said “or ones” because there were times when a field, dependent on context, might have either a date, for instance, or a text string. The only way to work with this from an ANSI SQL point of view was to map it as two fields. You can’t change a data type in midstream. That just doesn’t work!

When FusionWare released the Relational ODBC Driver Edition, it was the first ODBC driver outside of the ones supplied by Microsoft. With the release of this driver in 1992, MultiValue data is made available to mainstream Windows applications. Some of the familiar applications are Excel, Access, Word, Cognos, Visual Studio, PowerBuilder and Brio. With these tools and many others you are able to extend your MultiValue data and applications to your developers, users, customer and partners. The ODBC Driver Edition provides a comprehensive mature set of tools for enhancing your business agility.

JDBC

For those who wanted to access data from Java, the JDBC specification provided an API that followed not only the original SQL Access Group’s (SAG) Call Level Interface (CLI) but actually leveraged the success and maturity of Microsoft’s ODBC specification. It was really a Java clone of ODBC and required the same metadata and the same ANSI SQL compliance.

With the release of the FusionWare Relational JDBC Driver Edition in 1997 our customers were then able to implement the “write once, run everywhere” economy of Java-based application development and maintenance to any MultiValue system. The FusionWare JDBC Driver Edition is a pure Java level 3 driver (not simply a bridge to an ODBC driver) that provides a platform-independent interface from any Java-enabled environment to any MultiValue database.

OLE DB

OLEDB was the first database access standard that allowed access to non-relational data sources. I say standard because, in practice, anything that comes from Microsoft becomes a standard much more quickly than things

Continues on page 38

Middleware Metadata and MultiValue

Continued from page 37

that come from bodies like ECMA or W3C, except when the latter are supported by reference code from Microsoft.

FusionWare Direct OLEDB Driver was released in 1996. This product delivered a high-performance development environment for MultiValue to Windows applications that retained the MultiValue data's hierarchical nature.

The OLEDB Driver leverages FusionWare's powerful Direct Data Access Server which also powers both the FusionWare Java Adapter and our newly released FusionWare Direct ADO.NET providers. Building with our Direct Access Server reduces your dependence on a single technology stack and increases your options for future project interoperability.

During this evolution we had many customers creating data warehouses mostly with SQL Server. At FusionWare we decided to introduce a new addition to the Data Access family of products called Direct mv2SQL. This product made it easy to export data from your MultiValue database directly to SQL Server, Oracle, DB2 or MySQL. FusionWare Direct mv2SQL was

designed for use with complex multivalued and subvalue data by automatically normalizing the data as it passes to a SQL application. All the required views are created for each level of data. This technology eliminated the need to flatten (normalize) the data so the performance increase was significant. This product built on the metadata that the mapping of your data provides, to give you a default path for

getting your data into a standard SQL database.

OLEDB allowed for two important innovations:

Your data did not have to be viewed as "flat" data.

You did not have to support ANSI SQL.

Microsoft was finally supporting the notion of non-relational data sources in a real way. While you have the option to nest data to an arbitrary depth, you are still required to decide if a field is text, numeric, decimal, date, or time. You simply have to choose a data type. This is OK, since you can always represent it as a textual field.

The only issue was that most, if not all, vendors of products for Business Intelligence (BI) purposes still required ANSI SQL compatibility in order to work with the data, so the victory only helped you if you were working with a web or client app. BI tools still weren't in the fold.

ADO.NET

ADO.NET, while it only subtly changed how

the nested structures worked, actually made it easier and more reliable to work with, as well as moved it more into the mainstream. With ADO.NET it finally feels like Microsoft got the model right.

In keeping with our expertise in creating middleware for the MultiValue community, FusionWare is excited to announce the release of the FusionWare Direct ADO.NET Provider. In keeping with our development vision of creating

standards based data access products, we have developed a true managed code provider which supports Visual Studio 2003 and 2005. It leverages the full capabilities and comprehensive integrated development environment of Visual Studio .NET. The FusionWare Direct ADO.NET Provider has no proprietary binding objects layer so it will work exactly as the .NET developer expects. The .NET developer can use all the methods and best practices that they have been trained to use to create applications with Visual Studio. For the MultiValue programmer trying to move to .NET, FusionWare includes methods for easy conversion of MultiValue BASIC programs to the .NET framework. MultiValue programmers will find it easy to use these methods both to port existing code and to write new code within the .NET framework to access their MultiValue systems.

As noted above, this technology leverages FusionWare's powerful Direct Data Access Server. The Direct Data Access Server also powers both the FusionWare Java Adapter and OLEDB providers.

Leveraging our experience working with the Relational product line, we have created a mapping wizard that will analyze your dictionaries and data and do a first-pass mapping of your MultiValue data, which you can then tailor to suit your needs. Both the OLEDB Direct Driver and the Direct ADO.NET Providers allow for unmapped direct access to Multivalued data. The optional MultiValue BASIC compatible methods that enable MultiValue developers to jump-start their move to .NET makes this move easier than ever.

SQL Server Reporting Services

Probably the most exciting recent innovation has been the release of Microsoft SQL Server Reporting Services. Initially released as an add-on to SQL Server 2000, there is also a new version of Reporting Services for SQL Server 2005.

In keeping with FusionWare's ongoing commitment to the MultiValue community, we are excited to also announce the release of the Fusion-

The problem for most MultiValue users was that the closest they had ever come to actually having metadata was the list of dictionary items on their system.

Ware Reporting Services Provider. This technology leverages the FusionWare ADO.NET Provider and seamlessly makes MultiValue data available to Microsoft SQL Server Reporting Services. The FusionWare Reporting Services Provider is designed to be easily implemented and takes very little developer time to make the MultiValue data available to the data consumer. This technology is built on proven robust technology that provides for very fast and easy data retrieval and is a true 100% compliant provider.

You can easily take reports that are generated using LIST or SORT statements and publish them for access through SQL Server reporting services.

Because it supports both SQL Server 2000 & 2005 Reporting Services, with FusionWare Reporting Services Provider, you now have the ability to build reports that incorporate data from multiple data sources. Reporting Services includes a full range of BI tools, including Analysis Services, web access, report management and other enterprise-class features.

Because of how Microsoft implemented this technology, and because of the availability of the FusionWare Reporting Services Provider, all of this rich functionality is available for non ANSI SQL Compliant data sources. This means that your MultiValue data is a full participant. Not only can your web and client applications directly access the full richness of your MultiValue data, without requiring an expensive and potentially cumbersome mapping process, but you can now do BI Business Intelligence activities against your MultiValue data.

What does it all mean?

Microsoft has often been a company that although recognized an opportunity, it has resisted many non-Microsoft initiated engineering trends. You may say that they are mercenary in their intent, but the fact is, that without them, many of today's software innovations would not be available to us.

In the case of BI and data sources, vendors would have simply gone after the low-hanging fruit of ANSI SQL compliant

data. Microsoft meanwhile saw the promise of providing access to 80% of the world's business data, which was previously inaccessible, and they made it available!

They way they did this was first to recognize that the flat relational constraint was artificial and counter-productive to developers building applications. MultiValue developers have long realized the benefits of being able to manipulate a single object that included header and detail data. Microsoft made this available through OLEDB as well as by its broad adoption of XML across its offerings. The second way that Microsoft realized this goal was to recognize that the ANSI SQL requirement was also an artificial constraint. Microsoft deserves credit for this since they are a major SQL database vendor. They still do an excellent job of supporting both their own SQL database along with IBM, Oracle, and anything else that supports ANSI SQL, but Microsoft now allows non-SQL compliant data to participate, opening opportunities that are much bigger than just the relational opportunities.

For those of us in the MultiValue community, this is a huge win! It means that we can simply focus on metadata definition. Forget about mapping your MultiValue to separate SQL views or layering expensive SQL engines onto your lumpy data. You can simply map your data for what it really is, multivalued and subvalued data, and you then work with it directly.

Having mapped this data, you can then access this for web pages, web services, mobile device, client applications or BI purposes.

We all want to be successful and rapidly take advantage of the new business opportunities in today's competitive marketplace. Organizations need to extend information beyond the walls of their enterprise and seamlessly interact with staff, customers, partners, and suppliers in real time. With the combination of FusionWare's data access products, services, expertise, with Java or Microsoft technologies you can now increase your business agility. You can now seamlessly have MultiValue mission

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help you reach your business

performance goals faster.

BY CHARLES BAROUCH

Inventory for Programmers

(Part I)

P R O G R A M M I N G , as a profession, has two very different parts. The first part is knowing how to make the computer do things. The second part is knowing things worth doing. This series of articles is not about the first part. The rest of this magazine does a great job of keeping track of new technologies and discussing them. This corner of Spectrum is devoted to the second part.

These installments are about inventory. Understanding inventory is key to programming activities like BOM (Bill of Materials), MRP (Materials Resource Planning), Stock Ledger, Model Stock, and hundreds of other practical business applications. A good place to start is one of the hardest aspects of inventory:

Inventory Adjustment.

No matter how good your computer system is, at some point, someone needs to roll up their sleeves and hand verify the inventory. Shrinkage (damage and theft), expiration of perishables, all sorts of events can trigger variances between physical goods inventory and the book (computer) inventory. A good inventory programmer makes sure that the system does two things related to large scale inventory adjustment: (1) the system should help workers to prepare for manual counts, and (2) the system should make reconciliation easy.

Preparation includes things like the ability to print tags for marking which goods have been counted, which goods are DNI (do not inventory), and which goods are found to be bad. Other good prep tools are the ability to print tally sheets (if you are doing a true manual inventory), the ability to set up scanners with the correct information (if you are doing a scan inventory), and the ability to handle transactions during inventory.

That last one is often overlooked. Unless you have a very small area to check, or a massive workforce, the odds are that someone will need to either receive in or ship out some goods during the inventory period. You should always try to develop systems that do not interfere with the company making money. One

way to achieve this task is to create a temporary warehouse that can hold goods to be shipped, and can receive goods. Keeping the goods separate will keep them excluded from the inventory process. For example, you might want to lock the door between the loading dock and warehouse, keeping the loading dock area as your temporary warehouse.

To meet the second need, reconciliation, you need to have excellent reporting and excellent update tools. Here are some basic ground rules for this part of the process:

1 Always keep the frozen (computer inventory) separate when doing counts. You'll need to for comparison to the new values.

2 Use the principles of exception reporting. Don't report every style, color, and size, just report the mismatches. Another good rule of thumb is to allow the users to set a cut off, so that they can report the biggest variances, deal with them, and then move down to the next biggest. For example, create a report of just the one hundred biggest differences, in descending order. Add a footer to the report telling them how many more variances exist, so that they can see progress. Your top one hundred report will only be a few pages, so it will be easy to work with, and, when they resolve them, the next biggest automatically fall into the top one hundred.

3 Use the correct terminology. We all wince when users use computer terms without understanding what they mean. Well, the inventory people feel the same way when we misuse their terms. Find out what the target company uses conversationally and use that

language in your reports, updating tools, and menus.

4 Make sure that your reporting tools use the options that your users expect. For example, if they make extensive use of bar codes, let them shoot the tag to update the correct product. Why force them to key all the codes in the reconciliation if they don't have to enter them anywhere else in the system.

Another major thing to remember about mass Inventory Adjustment—since they don't do it all the time, the need for simple processes and excellent documentation cannot be overstated. When you do something every day, you tend to remember all the steps. When you do something once a year, under pressure to get it done fast, you forget steps and you make errors. Anything you, as the technical person, can do to help the users is worth considering.

Now, a good Inventory Adjustment system isn't just for mass changes. Your warehouse manager may do partial inventories, 'hospital' inventories, and any number of other, smaller corrections to the counts throughout the year. Making your system serve both purposes (mass and targeted) results in two benefits:

(1) you get to write and maintain less code, (2) the inventory people don't have to learn two

systems. Both of these advantages also result in a third advantage: reduced errors.

Targeted inventory has its own considerations. For example, in a mass inventory, you are looking for differences across all the products you carry. In a targeted inventory, they will more likely need to

report on a single style or class of goods. Often, targeted inventories are done with an eye toward closing out a product. In this case, an inventory valuation (not just number of units, but cost of units and potential sale value of units) may need to occur. Once you are programming inventory valuation, you have to think like a financial programmer. Inventory programs can get away with rounding and other 'close enough' methods. Financial programs can affect tax filings, stock prices (if you are publicly traded), and other systems of record that extend beyond the gates of your company.

Before writing or updating an inventory system, take the time to understand the company and the industry with whom you are working. There may be specific legal standards in place with which your system must comply. Also remember that some inventories explode, burn, or otherwise punish people for mishandling them. Your process has to take into account safe practices.

On a final note, consider new technologies. One of the new hot buttons in inventory is RFID. Companies like Airespace make monitoring systems that can tell if inventory is walking out the back door, has ended up on the wrong truck, or has been put on the wrong shelf. There are companies making voice systems for inventory tracking in cold rooms. Some people may need technologies for inventorying things that can't simply be scanned or eyeballed, like cubic volumes of gas or liquids. We have to move with the times and we shouldn't hesitate to present our clients and employers with a full range of options.

In Inventory for Programmers (Part II), we'll discuss the differences between raw materials, finished goods, and imports.

A glossary of inventory terms can be found at BusinessTech.KeyAlly.com. IS

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Use the correct terminology. We all wince when users use computer terms without understanding what they mean. Well, the inventory people feel the same way when we misuse their terms.

International Spectrum's MultiValue Application Database Challenge

BY CANDI HART

The second annual MultiValue Application Database Challenge was scheduled to be held Monday, March 6th, prior to the opening of the 2006 International Spectrum Conference and Exhibition. Unfortunately, the challenge was canceled due to a lack of participants.

Several of the teams that did sign up, however, expressed an interest in seeing the challenge specifications. We were excited by the specifications that Candi Hart wrote, and we wanted you see them. Perhaps this will encourage you to sign up for the 2007 challenge at the conference in Long Beach.

The Scenario

The GM for the company you work for is a big NFL football fan. For many years she played in the office football pool but never won! Although she reads the information on the nfl.com web site, she wasn't able to get a consolidated view of all the games each team has played during the year, so she developed a spreadsheet to keep track of the information she wanted to review before making her picks. Halfway through this season, she won the pool. Everyone is asking how she did it. She has agreed to provide her spreadsheet to her programmers so they can build a data base to better enter and store the data. The programmers are excited about show-

ing the boss how much more they can do with the data in a Multi-Value database rather than in Excel.

The spreadsheet contains all the games each team has played in order, who they played, the scores, and the win loss record. As the season draws to a close, she was able to show each team by conference (AFC versus NFC) by division (North, South, East, West) showing their win-loss record (which goes toward their standing within their division).

You will need to develop the database then load the data from the spreadsheet into it. Then you will need an input screen so that the GM can have

City Team	Conference	Division	Win Loss Record	Week	WINS		LOSSES	
					Home Teams Beat	Score	Home Teams Lost to	Score
Arizona Cardinals	NFC	WEST	2-7	1			NY Giants	42-19
				2			Y St. Louis	17-12
				3			Seattle	37-12
				4	Y San Francisco	31-14		
				5			Y Carolina	24-20
				6				
				7	Y Tennessee	20-10		
				8			Dallas	34-13
				9	Y Seattle	33-19		
				10			Detroit	29-21
Atlanta Falcons	NFC	SOUTH	6-3	1	Y Philadelphia	14-10		
				2			Seattle	21-18
				3	Buffalo	24-16		
				4	Y Minnesota	30-10		
				5			Y New England	31-28
				6	New Orleans	34-31		
				7	Y NYJets	27-14		
				8				
				9	Miami	17-10		
				10			Y Green Bay	33-25
Baltimore Ravens	AFC	NORTH	2-7	1			Y Indianapolis	24-7
				2			Tennessee	25-10
				3				
				4	Y NYJets	44-24		
				5			Detroit	35-17
				6	Y Cleveland	16-3		
				7			Chicago	10-6
				8			Pittsburgh	20-19
				9			Y Cincinnati	21-9
				10			Jacksonville	30-3
Buffalo Bills	AFC	EAST	4-5	1	Y Houston	22-7		
				2			Tampa Bay	19-3
				3			Y Atlanta	24-16
				4			New Orleans	19-7
				5	Y Miami	20-14		
				6	Y NY Jets	27-17		

the receptionist (who has too much time on her hands) enter the results of all games each week. It must be user-friendly because the receptionist knows nothing about football at all and is challenged to just transfer the phone to the right party. Actually, it would be best if there were a form (or listing) that shows each team and a line upon which the GM could enter who each team played and the final score. The GM would be happy to write down the scores of all games while she watches the games on Sunday so she can bring the form back in to the receptionist to do the data entry.

The players in the pool will receive a report each week that should look similar to the existing spreadsheet. This report makes it easy to see whether the most recent games have been wins or losses (a 6-4 record is not such a good indication of strength if the losses have been the last 4 games). You see at a glance which teams a team beat versus which teams they

lost to. The team may have a good win-loss record so far, but they've only beat some of the worst teams in the league. Reviewing this information can help a player make better decisions about who will win the next week.

The GM realizes that if everyone has this information, her odds of winning will decrease, but she has always tried to provide a fair working environment for her employees as well as opportunities for them to increase their education. IS

SPECIFICATIONS/REQUIREMENTS

- ✓ You must be able to load the data from the Excel spreadsheet into your database.
- ✓ We expect at least two input screens:
 1. Input of Team information
 2. Input of games and scores each week
- ✓ We want two 'reports' to the screen:
 1. Show all teams by conference by division, and their win-loss record, in order of most wins.
 2. Allow lookup by team to show the history of the games played by week. Should show who they played and the score, with wins in one column and losses in another. Should be able to see which week was the bye week. This report should look much like the existing spreadsheet. (no need to get creative here; your GM likes the way her spreadsheet looks).
- ✓ List or be able to discuss the advantages of having this data in a MultiValue versus an Excel spreadsheet.

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3G Wireless application portals ultimately lower costs, increase productivity and ease application deployment. **Zumasys'** 3G Wireless initiative and national Wireless WAN seminar series have attracted widespread attention and accolades from customers, vendors and press alike. Its wireless deployments have been featured in publications including Computerworld, Network World, Computer Reseller News and The Washington Post. **Zumasys** appeared on D&B's 2004 Hot 100 List of America's Fastest Growing New Businesses and Computer Reseller News 2005 List of Fastest Growing Solution Providers and the company is the only two-time winner of QUALCOMM's CDMA Wireless Innovation Awards (for Momentum Group in 2004 and

Continental Lab Products in 2005). **Zumasys** is a Microsoft Gold Partner and holds reseller agreements with Cisco, Citrix Systems, Good Technologies, HP, IBM, NetMotion Wireless, Panasonic, Sierra Wireless & SonicWall. **Zumasys** is headquartered in Lake Forest, CA. For more information, visit www.Zumasys.com.

About Double-Take Software

Double-Take Software, formerly known as NSI Software, Inc. provides the world's most relied upon solution for accessible data protection for Microsoft Windows applications. The Double-Take product is the standard in data replication, enabling customers to protect business-critical data that resides throughout their enterprise. With its partner programs and professional services, Double-

Take delivers unparalleled data protection, centralized back-up, high availability, and recoverability. It's the solution of choice for thousands of customers, from SMEs to the Fortune 500 in the banking, finance, legal services, retail, manufacturing, government, education, and health-care markets. Double-Take is an integral part of their disaster recovery, business continuity and overall storage strategies. Double-Take Software is privately held and headquartered in Southborough, MA. For more information, please visit www.doubletake.com. ■

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Interview with Mr. Robert Nagle *Continued from page 35*

cation developers in the past, people who had green screen applications and wanted to go to thick client, or people who had thick client applications and wanted to build light weight web-enabled applications; people who had great business logic and wanted to find some way to project that out of web services. All this is possible with Caché, with people building applications in C++, using Java, using Python, using Pearl. We've got people building native Caché server page applications, which is one of the fastest kind of web-based application development you can do, and we're developing on all those fronts. I think one of the key things that we can offer is that we're committed to pushing forward all these frontiers continually.

We're also committed to huge investments at the kernel of Caché. We introduced some radical improvement in the runtime environment over the last five years. We have new distributed database technology that is giving people great scale out options. That's what we want to do. We want to keep enabling applications to be bigger. We want to allow people to have freedom of how other applications integrate with the outside world.

Q Is there a particular name or branding that you have given to MultiValue on Caché?

A N S W E R : The MultiValue features that are part of Caché are part of the standard, to be released, version of Caché. Every release of Caché will have these features in them. That's generally been our philosophy; there's no special version. It is part of standard Caché. There is no add-on cost. It is just how Caché works.

Q Is there any thing else you would like to add?

A N S W E R : One of the things that we're proud of is the way

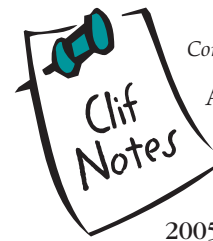
we work with people. We have a long tradition of partner-based success. More than 80 percent of our revenue comes from ISVs and VARs who are building applications, so that's how we're used to working with people. We have good models for sales and pricing, and we're responsive to people as they want to put together business opportunities.

We also have a great support organization. For applications to be successful, they have to have great levels of support. Our world-wide response center works 365 days a year, 24 hours a day. We have some very high standards that we achieve within that organization. We believe that a person should answer phone calls all the time. There's no muzak; there is no going into queues. You need to talk to engineers instantly if you have a problem, and that's what we strive to do. We let customers set priorities; we don't tell them what the priorities are. Only a customer can close a problem that has been opened in support. We can never clear or close a problem until the customer says it's closed. Our support philosophy, I think, is something that is important for people to understand as they contemplate doing business with us.

Q And finally, does InterSystems have any reaction to the changes that are going on at Spectrum?

A N S W E R :

Well, we're still really trying to digest that. Spectrum has played a huge role in the evolution of MultiValue, and we hope that it continues to play an important role. We're here, however, to support the MultiValue community, to offer our products to the community. We'll respond to however the MultiValue community views Spectrum as an entity going forward. Our goal though is to use this as a place to come and talk to people. is



Continued from page 46

And that's where it stayed for years, at degree two, many times over, until the 2005 International Spectrum when I was one of the judges for the Database Application Challenge. It was because of that last degree, the direct connection, that when Nichelle Johnson resigned as editor of Spectrum magazine, Gus and I started talking about the possibility of me stepping into that role. After a couple of months, I was invited to meet with him and Monica to discuss the offer of the editorship of the magazine...

...where I met Nathan and found out the company had been sold. I could have sworn I heard a chorus behind the office partition singing, "Hooray for Captain Spaulding," though I was probably imagining it. Those sort of hallucinations are not uncommon when you're going into shock, although for all I know Gus may have known Groucho; I wouldn't put it past him. (I wonder what the average age is of those readers who are entering a Google search at the moment. Those old enough to have recognized the reference without the aid of a search engine are going to be cussing me the rest of the day because of that tune running in a loop inside their head.)

I now start at Spectrum with the first degree of separation firmly established with the Chairman. At least this time I can look forward thirty years and see myself saying, "Yes, I've known Nathan for almost thirty years. I wonder how I slipped to four degrees?"

So Gus, when some folks say, "Don't let the door hit you on the way out," they usually don't mean it in a kind way. When I say it, it's because I just got through the door jam and it hurts to get hit in the head by a swinging door.

Good luck, Gus. Best wishes in your new ventures. And thank you. It's almost been a good thirty years.

Hm. That didn't come out quite right...

is

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(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 |
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| <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 |

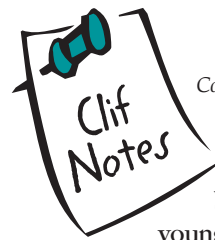
5. What major business/industry most clearly describes your company?

- | | | | |
|--|------------------------------------|---|---------------------------------|
| <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 47

even have e-mail. As difficult as it might be for some of you younger techs to believe, they built most of these connections using the phone and face-to-face contact. Dick Pick is reported to have once said that a big difference between him and Gus was, if he wanted to meet the President of the United States, he would have no idea how to go about it. Gus would just pick up the phone.

With hundreds (or more?) of connections in the MultiValue community, it is not surprising the number of people who want to wish him farewell, one way or the other. And many people will then launch into the story of how they met Gus. I figure this is my last opportunity to do that myself.

I've almost known Gus for thirty years.

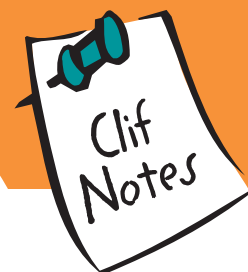
No. That is not a typo or a grammatical boo-boo. I did not mean to say I have known Gus for almost thirty years. I mean, I have almost known him for thirty years.

When Gus was at Dynamed, I worked for an ambulance company that was one of their customers. We both had Microdata Reality computers, among the first ones sold (I think mine was serial number 39, or there about). Of course, at that time there was no user group, local or national. There was no Spectrum. Yet there was the local Microdata VAR. So I guess we moved one degree closer.

And so it went through the years, slowly getting one degree closer. ADDS, the company who produced the Mentor system, was one of my customers. I reported to Joe, who reported to Robin White, who knew Gus. That put me at degree three. I worked for Jim Whalen at Devcom. Jim ended up at Fujitsu, then a PICK licensee. Jim knew Gus. Ah, hah. Degree two.

And at that point it ended, like that retractable cord that rolls up until it stops—two inches short of fully retracted.

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Hello

I Must Be going

BY W. CLIFTON OLIVER, CCP

I'm sure that you have heard the news about the change in ownership at Spectrum. If you were not at the conference in Long Beach where it was announced, you may have heard about it from someone you know who was there. Or from someone who knew someone who knew someone who had gotten an e-mail from someone who knew about it. This "friend of a friend of a friend" thing is called "degrees of separation."

The idea of degrees of separation came from a study done in 1967 by a social psychologist at Yale by the name of Stanley Milgram. Social psychologists study how individuals are effected by the presence of others and how individuals interact with others. Anti-social psychologists work in isolation and are only interested in what you say when you're talking to yourself. They are called Freudians.

What Stan did was to get about sixty volunteers in Wichita, Kansas. He sent each one a letter and asked them to forward it to a person they knew on a first-name basis who they thought might be able to forward the letter to the wife of a particular divinity student in Cambridge, Massachusetts. The person to whom they forwarded the letter was then instructed to do the

same. What this and subsequent studies discovered was that most of the letters that actually got delivered went through an average of only six intermediaries, or six "hops," as we like to say in the computer biz. (In 1967, however, we had not yet appropriated the term "hops" from the brewing industry.) Thus the term "six degrees of separation," the first degree being directly knowing the target person. Some computer engineers refer to it as five degrees of separation, zero-based indexing, but we tend to ignore people like that; they're used to being ignored, anyway.

Although there have been a number of objections to the experimental design of these studies and to the way in which the results were reported, the concept of degrees of separation has

worked its way into popular culture and is the basis of such Internet social networking sites as LinkedIn, Friendster, and the like. (The Freudians, on the other hand, are still debating the significance of targeting the wife of a divinity student.)

That's why I assumed you heard the news. In case you haven't, because you are not connected at all or you read magazines backwards and didn't see it mentioned several times on your way to the back cover, I'll summarize. Gus Giobbi is retiring from the MultiValue world. International Spectrum has been purchased by Nathan Rector.

It was interesting talking to people at the 2006 International Spectrum Multi-Value Conference in Long Beach after the announcement was made. The reactions were predictably varied. Some folks are very fond of Gus. Some folks, not so much. After all, a person cannot try to do Big Things and expect to be universally liked. It can even be argued that if you don't have at least some detractors, you aren't really doing much in life. But one thing becomes very clear when you talk to people.

Everybody knows Gus.

Gus and Monica did not build the longest running computer trade show in the United States by avoiding people, sitting in an office, and just sending e-mails. Heck, twenty-five years ago we didn't

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