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INSIDE: BUSINESS TECH: MARKETING – PART 2

INTERNATIONAL Spectrum

THE MULTIVALUE TECHNOLOGY MAGAZINE | MAR/APR 2010

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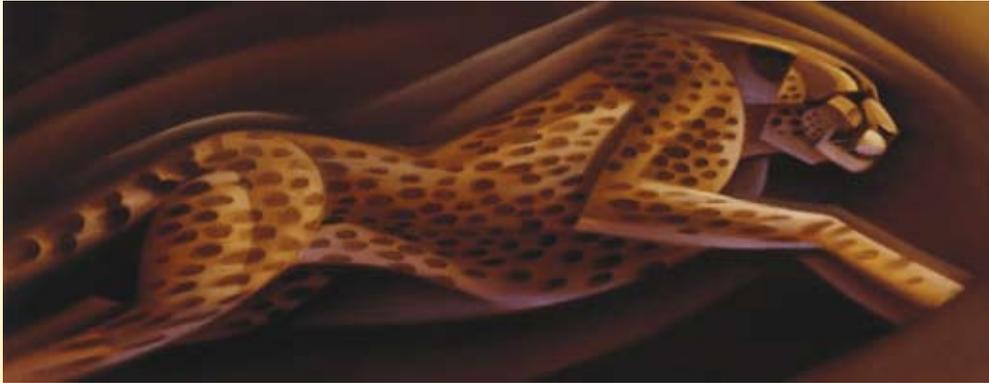


First Look Inside
OpenXML

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With Word 2007, Microsoft introduced a new document format based on XML, thus opening the ability to work directly with the document structures. This first article introduces OpenXML and shows how to explore this new format. **BY BRIAN LEACH**

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14 Spotlight on jBASE Twenty-one years of development and innovation have gone into Release 5 of jBASE. Explore what this robust MultiValue platform has to offer. **BY JBASE**

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26 The Model of a Modern MultiValue Environment Over the years, MultiValue systems have demonstrated their ability to run sophisticated business applications with lower cost of development and modifications. But information technology continues to advance, and so must MultiValue. So what should the ideal modern MultiValue environment be able to do? **BY LEE H. BURSTEIN, INTERSYSTEMS CORPORATION**

28 Applying the Object-Oriented Programming Technique of Encapsulation to MultiValue Code – Part 2 In a continuation from the last issue, you will learn and see examples of how commuter modules and variable named common areas can provide encapsulation. **BY JARED BRATU, REVELATION SOFTWARE**

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From the Inside

BY NATHAN RECTOR

iPhone, iPod, Android, iPad, and Blackberry, as well as other digital media devices, are changing the enterprise. Yes, I did call them digital media devices, not cell phones or smart phones.

These devices have moved beyond what the smart phone was originally designed to do and have become devices for handling digital media, which also just happens to be a cell phone. Now, to be fair, digital media has also moved beyond news, e-mail, and social media, my friends are out shopping for pink shoes," type of information. Digital media is now more about interacting with the digital content that makes our personal lives, corporate lives, and zany trivia addiction run.

Cell providers are quickly learning that the bandwidth requirements have increased in the last few years and will continue to increase in use as more people need to access customer, client, and production needs outside the office.

Personally, I tried to hold off on the iPhone bandwagon. Not because I didn't want one — I really did! Just ask my wife. The reason I held off so long was because I spent all day in front of the computer and already had all the tools I needed to get my work done and communicate with people. Short of SMS, I could do everything I wanted to from my computer.

All I used my cell phone for was to talk when I was out of the office, but not much more. So, why spend the money on a data plan that I didn't think I'd use completely? Well, as with all technology, my dinky archaic cell phone wouldn't hold a charge for more than 24 hours. I'd had it for close to seven years.

Since I planned on iPhone enabling the International Spectrum web site (m.intl-spectrum.com), I figured now would be a good time to switch to an iPhone and use it for development. Now I'm learning the true power it provides, as well as devices like it, and how it is changing the enterprise.

While it does provide you little bit of the "can't escape the office" feel, it also allows you to do more outside the office. And now you are starting to see them being used inside the office and enterprise. They are moving beyond the personal communication devices that cell phones started out as and are becoming means of receiving both personal, corporate, and world information. This digital information has moved beyond the news, e-mail, and social media, and has become a means of interacting with system status, help desks, CRM, ERP, and many other control systems.

While these can all be done on the computer, receiving alerts and then being able to interact with the alert in your ERP or CRM without leaving the current application you have loaded on your computer has become invaluable. With the digital media devices, you can see and interact with your critical information without having to disrupt your normal day-to-day work or processes.

If you are not already addressing the need for these devices to interact with your enterprise, you'd better do it soon.

-NATHAN RECTOR
President, International Spectrum
nathan@intl-spectrum.com

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NATHAN RECTOR
President

CLIFTON OLIVER
Managing Editor

SHANNON STOLTZ
Content Editor

TRACEY RECTOR
Layout



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Revelation Software Ltd.
45 St. Mary's Road
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Ealing
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BY BRIAN LEACH

OpenXML is the name given to the document format introduced by Microsoft for Office 2007. This is a published standards-compliant format based on two pervasive technologies — ZIP and XML — replacing the proprietary binary formats used by previous versions of Microsoft Office. Since OpenXML is based on open standards and represents content as XML, it is possible to work directly with document structures without even the need to have Office software present.

This opens up new avenues for document automation and for simplifying both the creation and import of data from such documents as spreadsheets by direct programming. In the past, this meant relying on mail merges or through Office applications themselves either running on the desktop using VBA or operating as COM automation servers, which could be unreliable.

In this article, I will be introducing the main structures of an OpenXML document. In subsequent articles, I will show you how to read and update Excel spreadsheets and Word documents using data drawn from your MultiValue applications.

Viewing the OpenXML Format

OpenXML, as the name suggests, was designed to be an open document interchange format, competing with the emerging ODF (Open Document Format) standard. OpenXML effectively spans two

specifications: the XML representation of document content and a storage format known as the Open Packaging Convention (OPC). The latter uses ZIP compatible compression both to reduce the size of the final document and to enable a single document file to archive a variety of different content. So to begin to understand how to manipulate an OpenXML document, we need to first open a Word 2007 file to see what it contains.

Although OpenXML was introduced as the standard document format for Office 2007, you can create and consume OpenXML documents from earlier versions of Office. For that, you need to download the free Compatibility Pack from Microsoft.

- Armed with an OpenXML compatible version of Office, start Microsoft Word and create a new document with the classic text “Hello, World.”

- Save it with the standard .docx extension and uncheck the box to save a thumbnail.
- Next, locate the document in Windows Explorer, copy it and change the extension on the copy to .zip.

Now if you open this file you will see that it is a regular zipped archive containing three folders and a top level document named [Content_Types].xml (fig. 1).

Packaging Convention

The Open Packaging Convention makes it easier to manage complex documents by separating out the document elements through a structure of folders and relationships. At a physical level, all OpenXML documents follow a similar structure, composed of a number of folders that contain in turn the various elements that make up the document. The key to the structure is found in the top level [Content_Types].xml file which acts as an index, describing the main elements and defining the entry point for the software to begin reading the document (fig. 2).

For a regular Word document, the main content is held in the document.xml file found in the Word folder. This contains the document text (the Hello, World you typed along with all the adorning information for layout, font handling, table specifications, and such).

Open up the document.xml and you will see the Hello, World text you typed inside a structure representing the paragraph, run and text familiar to anyone who has programmed Word through VBA (fig.3).

The document.xml is not the only file in the Word folder; there you will also find style information, settings, and the font table held in their own document parts. If you were to add headers and footers to your document, each one of those would similarly create a separate

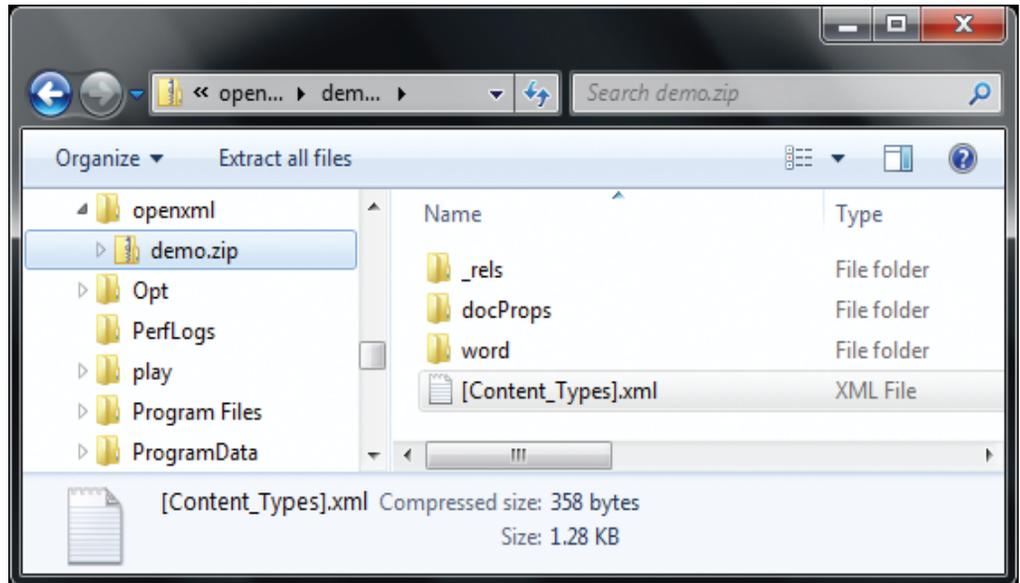


Fig. 1 OpenXML Document Structure

```
<Types xmlns="http://schemas.openxmlformats.org/package/2006/content
types">
  <Default Extension="rels"
  ContentType="application/vnd.openxmlformats-package.relationships+xml"
  />
  <Default Extension="xml" ContentType="application/xml" />
  <Override PartName="/word/document.xml"
  ContentType="application/vnd.openxmlformats-
officedocument.wordprocessingml.document.main+xml" />
```

Fig. 2

file in the Word folder. Each such file is known as a 'document part'.

The use of document parts provides great flexibility. A PowerPoint presentation, for example, uses this format to hold each slide as a separate part file, making it easier for developers to copy content between presentations.

Media Content

To see the real advantage of the OPC format, add an image to the original document (fig. 4) and save it once more, again renaming a copy with a zip extension. When you open up this document content, you will see that the Word folder now contains a new sub-folder named media. This holds the image that you added in an unencoded format (fig. 5).

```
<w:body>
<w:p>
  <w:pPr>
    <w:rPr>
      <w:lang w:val = "en-GB"/>
    </w:rPr>
  </w:pPr>
  <w:r>
    <w:t>Hello, World.</w:t>
  </w:r>
</w:p>
```

Fig. 3



Fig. 4 Image in Word (nice tiger!)

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ask them. Those older folks among us remember when survey calls were relatively infrequent, and likely to get answers from us. Nowadays, I find myself feeling annoyed when asked, just because so many people are asking. I get them on all five of my phones, in the stores, on the street, and by e-mail. It has become too much.

So, what is a marketing person to do if asking isn't received well? Motivating people to do things is a core marketing skill, so marketing motivates you to respond. See how many of these types of motivators you've been targeted by this week:

Fill out our questionnaire for a chance to win an iPod.

Every completed form will be entered into our monthly drawing.

Free subscription, if you qualify.

Your response will be rewarded with a \$10 gift card.

When you get people get used to discounts, you may be rewarding them for delaying purchases. One way to reverse this trend it to reward volume, not timing.

Say "You Heard It on WKAI" and the refills are free.

Putting our IT hat back on, we need to start thinking about how to support these self-defining techniques. Of course, gathering data is of limited value unless we are prepared to present it, so we need to look at reporting, dashboards, cubes, and other analytic output.

The big question is "How?" If the questionnaire is web-based, data collection is easy, but data validation is now in IT's hands. If it is on paper, then collec-

tion is a bit harder on us, but at least it will provide jobs for clerks.

We can't look at those as the only options. Maybe the form needs to live on a touch screen. Maybe it needs to run on my Android mobile. For marketing, these are logistical questions, which are secondary to the content of the questionnaire. To IT, these are fundamental questions which need to be answered first.

BOGO Knows

Another way to get customers to self-track is to offer encoded coupons. Offer a code of 1002NYT in the February NY Times and a code of 1003EM in the March e-mail and you know which marketing piece brought the customer to your door.

Dynamically generating coupons lets you uniquely identify each coupon's origin. I give numbers MV0001 to MV0900 to the people who flyer cars in the parking lot and I give the next 300

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BUSINESS TECH: MARKETING — PART 2

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numbers to the folks who hand out papers on Eighth Street. Now I know that putting them on cars got a 2% return, but street hand-offs got 10% despite my giving out far fewer pages.

If I apply the same thing to the web, I can link the on-the-fly dynamically generated coupon code to the Google Analytics — or other data — that I had at the moment that the customer acquired the coupon.

Being able to connect the dots makes our metrics progressively more useful. We are still in a fuzzy place, but we are de-linting as fast as we can.

Limited Time Offer

Since the best metrics involve incentives, and incentives reduce revenue, we are left with the worry that we are marketing ourselves to the poor house. Remember that discounts are given to

the people who qualify, not just the people who would not have bought without prompting.

When I sell a \$100 item on a 20% margin and I give 10% off to a customer I would have already gotten, I've cut my profits in half. Conversely, if I make the sale because of marketing, I make \$10 I would have missed. So, marketing by discount risks leaving money on the table.

Another problem with marketing by discount comes when we train our customers to stop buying. How many of us have had this conversation:

"I'm going to buy a new TV."

"Don't be stupid, wait until next week, there should be a holiday sale."

So, when you get people get used to discounts, you may be rewarding them for delaying purchases. One way to reverse this trend is to reward volume, not timing. Good examples are:

Progressive discounts: Save up to 20%: 5% on orders up to \$50, 10% on orders over \$100...

Pay a one-time fee of \$99 and get free shipping all year long.

Join our savings club and earn more discounts the more you shop.

Bring a friend, and you each get a discount.

Limited time offer.

I was in Florida recently and overheard this conversation:

"Why did you go to that restaurant?"

"I had a coupon that was expiring."

Fair Use

In all fairness, sales are not the only reason for marketing. Coca Cola doesn't just put ads to sell soda. They also do it to create a more esoteric thing: brand value. I used to work for a company which made ties with the Coke logo on

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I Think we took the wrong bridge!

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INTRODUCING OPENXML

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The packaging convention is specifically designed to handle media and other binary content such as embedded objects. These are poorly represented in regular XML where they generally need to be encoded into swollen formats and make the document structure large and slow to parse. With OPC, these are stored unaltered in a separate media folder, and referenced in the document parts.

Relationships

The constituent parts of the document are bound together using relationships. For each document part, there is a corresponding file in the _rels sub-folder to define the document part relationship. Here the image added is given a Relationship Id (fig. 6).

The Relationship Id uniquely identifies a media or style element within the document part. If you look again inside the updated document.xml, you will see this id referenced in the (rather complex) image specification (trimmed here in figure 7).

This level of indirection, along with the complexity in representing certain elements as pictures, are two of the features that make navigating or restructuring an OpenXml document in code fairly cumbersome. It does, however, mean that some tasks — such a personalizing documents with customer-specific images — can be achieved in a very straight forward manner by simply replacing the media folder content.

Now that we have briefly outlined the packaging convention, it is time to turn

Since OpenXML is based on open standards and represents content as XML, it is possible to work directly with document structures without even the need to have Office software present. This opens up new avenues for document automation.

our attention to the document format itself.

Changing a Document

Representing a document structure, be that a word processing document, spreadsheet, or presentation, as an XML document makes it amenable to processing using regular XML tools such as XDOM and XQuery. Once one dispenses with the difficulties of the packaging convention and, in particular, adding new document parts, within each part you can make full use of these tools to transform, locate, and add content. However, even a brief look at the document.xml will convince you that real world navigation of these documents is not entirely straight forward and requires a lot of background research; the markup reference part of the specification alone runs to over 5,000 pages!

So the easiest way to work with OpenXML is to start with an existing

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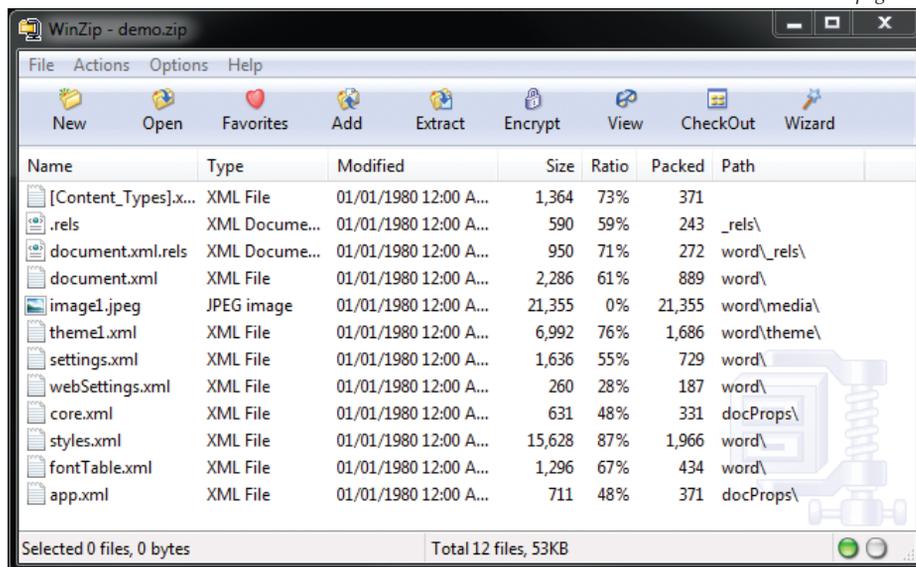


Fig. 5 Image in OpenXML package.

```
<Relationship Id="rId4" Type="http://schemas.openxmlformats.org/officeDocument/2006/relationships/image" Target="media/image1.jpeg" />
</Relationships>
```

Fig. 6

```
<pic:pic xmlns:pic = "http://schemas.openxmlformats.org/drawingml/2006/picture">
  <pic:nvPicPr>
    <pic:cNvPr id = "0" name = "hobbes_200_225.jpg" />
    <pic:cNvPicPr />
  </pic:nvPicPr>
  <pic:blipFill>
    <a:blip r:embed = "rId4" cstate = "print" />
  </pic:blipFill>
</pic:pic>
```

Fig. 7

The Next Generation of MultiValue

jBASE Release 5

jBASE Release 5 brings Mainstream features and benefits to the MultiValue community.

A true 64-bit implementation, jBASE 5 offers non-stop capability in the database. It delivers all the advantages that 64-bit runtime will provide, such as no file size or memory allocation restrictions or 32-bit addressing limitations. In addition, there are specific features that aid development and non-stop computing.

jBASE Release 5 represents a landmark in the delivery of MultiValue databases and delivers a truly outstanding, cutting edge platform capable of catapulting legacy as well as mainstream applications to the forefront of tomorrow's computing solutions.

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Native commands - no "virtual machine" overhead

Thread safe architecture

Full support for Windows, Linux and Unix

jBASE 5 is available now. Visit www.jbase.com for details.

INTRODUCING OPENXML

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document and to then change the details programmatically. To go some way towards smoothing this, Microsoft recently released a new API targeting .NET developers, the OpenXML SDK 2.0, which presents a LINQ-based view of the content while taking care of some — though by no means all — of the intricacies underneath. For an open source alternative, the PHPEXcel project on CodePlex provides a rich source of document management functionality and a good set of classes to plunder for your own use.

So, can you simply take an OpenXML document, unzip and change the content, and zip it up again? Not necessarily. The Office applications are very picky about the form of ZIP compression used — just try to extract and then re-compress the document you created above using the built-in Compressed Folder handler in Windows Explorer. Even if you have made no changes, Word will complain that the document is broken (fig. 8).

To compress the archive effectively, you need to be selective about the type of compression and the zip tool you use. WinZip, for example, works fine if set to maximum portable compression. Using this (you can download the evaluation version, if required) you can open the document.xml, change the text to read something else, and then zip this up again to create a new document. Give it a try. This will be the pattern for most of the development operations we will be covering.

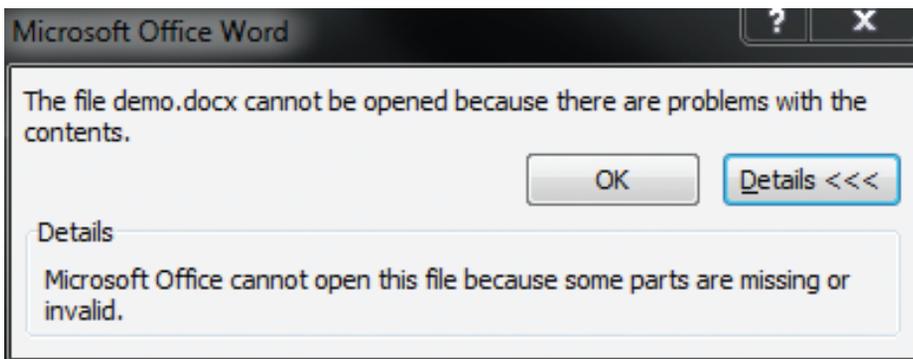


Fig. 8 Oops — Windows built-in Zip isn't good enough.

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For the very best results you need to use the System.IO.Packing classes included in the .NET framework. We will be looking at those and the OpenXML SDK in the next article. **IS**

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Spotlight on jBASE

BY jBASE

Since its founding in 1989, jBASE has become known as a technological trailblazer in the MultiValue industry, offering unparalleled robustness, scalability, and connectivity. Twenty-one years of hard work and determination has led to the evolution of a product line perfectly placed for today's and tomorrow's application needs. Today, jBASE is positioned to migrate existing MultiValue applications (with functionality intact) to the new world of mainstream application development environments.

jBASE provides complete freedom in your IT environment by ensuring there are no barriers to your growth. The open architecture of jBASE is uniquely designed to allow a wide range of application development tools and back-end databases to form part of a jBASE solution. If the answer to your business problem is a mainstream database or third-party application, then it is a simple task to integrate using jBASE.

Interoperability with Oracle, DB2, SQL Server

A fundamental design feature of jBASE is database independence. By means of an innovative, open, and published interface (jBASE External Device Interface, jEDI), any jBASE developed application can read and write to whichever database is required for data storage just as simply as the jBASE database. This means a jBASE solution can be billed as an Oracle, DB2, or SQL Server solution without a major rewrite and at an economic cost.

Major end users can match a corporate requirement for RDBMS compliance while still benefiting from thousands of hours of development in tailored applications written in Basic. VARs can deliver applications to markets demanding RDBMS databases to capitalize on their investment and expand their business. Even the tough task of merging two companies with diverse IT strategies is easily accomplished by jBASE and its jEDI architecture. Couple this with the variety of operating platforms that jBASE runs on and it's plain to see that your options are endless.

Seamless Integration with Mainstream Development Tools

jBASE runs natively on an operating system so it does not incur the overhead or the inconvenience of running interpreted code in its own enclosed environment. A jBASE program is compiled and catalogued as an operating system level executable that can be called from any other piece of

executable code capable of calling external routines.

Most importantly, once compiled, interoperability with third-party applications and drivers is seamless and native. If you have Basic code that is responsible for the routing of your fleet of trucks or for determining the best way to place goods in a warehouse or for assessing risk on a stock portfolio, you can now call it from any other environment — Java, VB.NET, C or C++, or even your favorite IDE.

Running natively with the host operating system ensures that new technologies are easily supported which allows many options relating to future direction. Should Java or .NET or any other tools be used to develop applications, jBASE programs will seamlessly fit alongside or as part of the same application. The design of jBASE means there is no environment or shield between jBASE applications and the underlying operating environment, which makes for more elegant interoperability and optimum performance levels.

Future Proof your Application

The combination of powerful tools and a powerful database, together with truly open middleware means that, should you decide on jBASE for your application, you can rest assured in the knowledge that your investment is protected. Your data can be stored in jBASE or in any mainstream RDBMS or file system you require. Whatever the skill set of the developers in your organization, whichever technology you need to use, you can develop using jBASE safe in the knowledge it will be a future proof solution. There is no limit to what you can do with the technology provided by jBASE. The open architecture puts you in control and provides you with choice.

Release 5: Mainstream Benefits

The release of jBASE 5 marks a major new development for jBASE and brings MultiValue users closer to the mainstream than ever before. This true 64-bit release delivers a new level of resilience through the introduction of the jBASE Dataguard suite. This collection of technologies uses the same concepts as SQL Server, Oracle, and DB2 to allow jBASE to operate non-stop as a technology platform.

Why 64-bit? 64-bit removes many of the limitations that have caused problems in the past, for example, shared library size on AIX, file handles on Solaris, and file sizes on just about everything. As time marches on, the number of computer systems being built on a 32-bit architecture is dwindling and main manufacturers are only delivering 64-bit machines with 64-bit operating systems. While some MultiValue databases might have added 64-bit addressing to overcome 2GB file sizing, jBASE 5 is a complete 64-bit implementation of the database. There are no hidden 32-bit addressing limitations, allowing complex and large applications to be handled with ease.

Non-Stop Computing

jBASE 5 investment has been predominantly in the area of transaction journaling, which has been substantially engineered to provide an ever greater level of flexibility and robustness.

A number of new structures have been introduced to allow more precision in recovery. One of the major enhancements has been the addition of the concept of checkpointing. This process periodically sets markers which record the fact that the database is at a known point at that specific time. The recovery modules can refer to these checkpoints to keep the system in a robust state.

Warmstart recovery is designed to enable a database to be returned to a stable, working position following a power failure in a similar fashion to mainstream RDBMS products. It automates the recovery of a system that has been improperly shutdown with no manual intervention required.

The online backup facility has been developed to enable system managers to perform necessary regular database backups while still allowing users the ability to perform updates on the database. This functionality also enables file restoration on a live system.

jBASE 5 delivers not only some of the best system integrity and data security features in the MultiValue database market today but ones that are on par with many mainstream RDBMS products. The new features are all about reducing downtime which is arguably the goal of all data management solutions. For the first time, MultiValue solutions can be billed as non-stop in both application and database.

Java Development

New with jBASE 5 is a whole suite of functionality to benefit enterprise application development. Java Enterprise Edition (JEE) application development on jBASE 5 is supported by both the major JCA enhancements to jBASE Basic and new JDBC implementation.

This is the first time that the full JEE functionality has been supported on jBASE. And the implementation ensures the full Java Enterprise applications can be developed and deployed with ease. To round out the support for the developer the new jRemote Java functionality ensures that whatever the Java requirement, jBASE 5 can deliver. It enables the Java developer to make use of the rich functionality in existing Basic code and exploit features such as jBASE 5 transaction processing and UTF-8 internationalization.

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SPOTLIGHT ON JBASE

Continued from page 15

For the technical at heart, we have enabled Java to include JEE Connector Architecture (JCA) compliance, accept connections with JEE clients, and manage the lookup, execution, and transactional flow of Enterprise Java Beans (EJB), JMS queues and requests from Message Driven Beans (MDB). For those that prefer SQL, the jBASE query processor has been enhanced to accept SQL commands as well as jQL commands.

SQL Support

One of the main benefits of providing a SQL engine for jBASE is that the database can be used with external tools and APIs. SQL has many benefits that can be applied to the jBASE MultiValue, hierarchical database. In particular with jBASE, SQL allows users to query data where there might be tables within tables and no primary-key/foreign key relationship. This is an extreme ad-

vantage not available in most RDBMS systems. As well as integration with external API's, the jBASE SQL engine also allows SQL to be used to interact directly with jBASE files. For example, SQL can be used wherever jQL is used currently while the rich set of SQL functions allows the creation and manipulation of data tables, e.g., inserting, updating, and deleting records.

Ongoing Development

Current customers upgrading to release 5 can rest assured that the technology is tried and tested in some of the largest banking institutions across the globe. TEMENOS has been shipping the 64-bit version of jBASE technology since April 2007 meaning approximately 250 upgrades and new implementation projects rely on jBASE 5 technology to run their businesses 24/7.

With some 600 banks live or implementing in more than 120 countries, the critical mass for a proven, reliable platform for business software has

long been surpassed and today jBASE 5 technology is shipped on a daily basis around the world without concern regarding quality and reliability.

Originally a jBASE VAR, TEMENOS acquired 100% of jBASE Software in 1999 and began to fund research and development on a scale previously unachievable in jBASE's ten year history. When Mpower1 International forged a partnership with TEMENOS and attained the worldwide support, distribution, and non-banking sector rights to the full jBASE product set in 2002, jBASE core product development continued and remains today at TEMENOS where the team numbers over 30 and growing — forming the largest and best funded team dedicated to MultiValue core product development in the industry.

Since replacing UniVerse and embedding jBASE in their T24 banking application, TEMENOS has grown into its present market leadership position. In the past ten years, TEMENOS has

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Blended Applications

BY CANDI HART

Everyone may have a favorite database, but only in marketing does anyone argue that theirs is best. It is rather like arguing whether a screw or a nail is better — each have benefits in specific circumstances.

Most software developers choose their favorite DBMS and then incorporate work-arounds or third-party solutions to compensate for any weaknesses in that DBMS. The trick is to know the strengths of each DBMS and data filing system, use the system that is best suited for each kind of data, and then blend the access to the data.

A SQL database is understood by many. There are a lot of new programmers coming out of school that use and like SQL. And there are a lot of tools that have been developed for SQL, such as SQL Reporting Services. SQL is a two dimensional database structure that is extremely fast at processing transactions where everything you need to know is stored in that transaction.

Utilizing a MultiValue three dimensional database structure provides increased performance when accessing large amounts of data that would require multiple table joins in a two dimensional data structures such as SQL.

MultiValue databases lend themselves to business logic and rules and are extremely flexible. I heard it said that MultiValue developers think in terms of the business problem, while SQL developers often think in terms of how the data is stored, or what tables are needed. What format works best depends on the data to be stored and how it's going to be retrieved and viewed.

The reality today is that even an entirely self-contained MultiValue ERP software package will need to access other databases, if for no other reason than that their users may want to view data in third-party commercial, off-the-shelf data viewers such as Crystal Reports or Microsoft Excel. The MultiValue database vendors are diligently adding tools to make that access easier, but the design and considerations of how and when to access another database is still being ironed out by the application software vendors.

I recently had the opportunity to see a long standing ERP application that has been upgraded to use the best features of both SQL and their MultiValue database so, with their permission, I am going to discuss the design considerations that went into their product.

Their time and expense application requires people in many different locations, both on site and remote, to be able to enter time and expenses charged to specific projects. Security constraints at the remote locations require that the application be accessed by computers or workstations that do not allow for installation of third-party software clients. To solve this problem, a remote user interface was written in .NET and placed on the Web.

The company has created their own controller so that a .NET programmer can just call an object,

which is a subroutine that resides in the MultiValue database. All data fields are mapped to indicate which dictionary fields in the MultiValue database correspond to what SQL data sets. When the time record data is entered, it is passed to the MultiValue subroutine which creates the appropriate MultiValue record or records and then sends the insert or update to the SQL database. The MultiValue record stores all the SQL primary keys, and the transactions can be controlled by multivalued dates.

In the MultiValue application, the user can retrieve an employee record and see all the time card transactions on one screen. By clicking on a single date, another window opens (written in .NET) that displays the SQL detail. At the bottom of that .NET screen they have a button to view the data displayed in a generated Crystal report.

The reality today is that even an entirely self-contained MultiValue ERP software package will need to access other databases.

When payroll calculations are done, the MultiValue database already has all the information by pay date in each employee record, so the calculation is done with MultiValue Basic and is very fast.

With this approach, data that is desired for reporting is generated at the same time that the transaction is entered, as well as creating a multivalued list or index of SQL keys. Since the MultiValue DBMS controls what records are written, record locking can be handled

programmatically, and therefore the two databases remain synchronized. Determining how the data is going to be retrieved and viewed defines what data is stored in each database.

This is similar to the effort required in designing a data warehouse. You have to know what data you are going to want to use. MultiValue developers, in the habit of thinking in terms of the business process, are ideally suited for this kind of design.

With SQL, when a select statement is issued with joins, the tables are all searched and then a temporary table is created combining all the records selected. By creating multivalued indexes or lists in the MultiValue database of primary SQL keys that might be desired for all complex SQL joins, only one read is required.

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Open QM

"The quality of QM/Linux is outstanding! In 25 years, the best yet. Ladybridge are very responsive to our varied needs and special requests."

Sally Crowell, President, Crowell Systems

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NEWSMAKERS



Goold Health Systems Moves to InterSystems CACHÉ Object Database

InterSystems Corporation has announced that Goold Health Systems (GHS) is rolling out its core processing application on the InterSystems CACHÉ high-performance object database platform. The rollout began after successfully completing an in-depth proof-of-concept (POC) project where "CACHÉ immediately stood out from all of the other competitors," said Jason Skeffington, Director, MIS.

The global leader in software for connected healthcare, InterSystems develops innovative database, integration, and business intelligence products. Known worldwide as a highly scalable object database for transactional systems, CACHÉ handles SQL queries faster than relational databases and enables rapid web application development.

Headquartered in Augusta, Maine, GHS is a healthcare management company focusing on state Medicaid services. GHS is a health care management company that specializes in providing pharmacy benefit services, clinical services, and business process outsourcing services to state Medicaid agencies, non-profit clients, and private sector clients.

Starting From a Clean Slate

Migrating to CACHÉ was the result of an IT strategy based on the long-term future of GHS. "As we looked to the future, we realized that the legacy platform on which we run our software would not serve our mid-term and long-term strategic IT vision," said Skeffington.

"On the back-end, for example, we had growing demands for more robust disaster recovery and scalability. It was clear that the legacy platform could not fulfill our expanding requirements," he said.

"We considered virtually every possible alternative, including outsourcing our development and evaluating shrink-wrapped applications, as well as new database platforms for our core processor," he continued.

Once the decision was made to stay with GHS' own software running on a MultiValue environment, the next step called for in-depth evaluation and comparison of multiple DBMS platforms.

"We designed and implemented a very careful and rigorous POC to test product capabilities and limits and CACHÉ immediately stood out from the competition," according to Skeffington.

"InterSystems CACHÉ has other DBMS products beat by light years. The company is delivering technology innovations that their competitors haven't even thought about yet. And CACHÉ has made it possible to move to an object database environment without having to rewrite

our MultiValue applications."

The smooth interoperability, massive scalability, and high performance provided by CACHÉ are technology hot buttons for the IT staff at GHS. "The fact that development can be done with either a relational or an object-oriented approach offers flexibility that is key to our future plans," Skeffington noted.

"Our first CACHÉ-based implementation was the result of a contract for a state Medicaid pharmacy project in Wyoming," Skeffington said. "The algorithms for this project are more consistently complex than many we've had to write. Even with that level of complexity, the performance of CACHÉ has been outstanding."

The system went live and the customer is completely satisfied with the system speed and performance, according to Skeffington, who said that GHS is now migrating other pharmacy customer systems to the CACHÉ platform on an aggressive schedule.

"It's great to have the opportunity to partner with GHS as they move to a database that supports their leadership position in the specialized and complex Medicaid management segment of the healthcare technology industry," said Paul Grabscheid, InterSystems Vice President of Strategic Planning. "We are committed to providing the rich features, high performance, and enterprise scalability they require for ongoing growth in this intensely competitive market sector."

For more information about InterSystems, visit InterSystems.com.

For additional information about Goold Health Systems (GHS), visit www.ghsinc.com. ■



Kore Announces Partnership with Demand Management, Inc.

Kore Technologies has invested significant time in reviewing various purpose-driven applications that we believe would add value to our customers. We are pleased to announce that we have formed a strategic partnership with Demand Management, Inc. (DMI) to resell their Demand Solutions suite of industry leading demand planning products as Demand Solutions West.

This new relationship will enable Kore to sell and support the Demand Solutions products and leverage our many years of experience in the manufacturing and distribution industry. Furthermore, using our Kourier Integrator integration technology, the Demand Solutions products can be quickly and easily integrated with your manufacturing or distribution system.

Why Demand Solutions

For companies that deal in the production or distribution of real goods, the biggest challenge is in the management of the supply chain. Some of these challenges include: variable demand, long lead times, global supply networks, and real-world production or supply chain constraints. Additionally, in these tough economic times, an efficient and effective supply chain may be imperative for survival. To manage the balance between demand and supply, it's essential to use software solutions that leverage current technologies, best practices, and techniques. With the right tools, business operations can be optimized to maximize revenue and minimize expense.

With Demand Solutions software, you can expect to:

- Improve fill rates
- Increase inventory turns
- Optimize inventory
- Increase inventory planning accuracy
- Increase customer satisfaction
- Create greater efficiencies
- Unlock profit potential through improved demand planning
- Assist with sales and operations planning

About Demand Solutions

Demand Solutions is a leading supply chain software solution for small and mid-sized enterprises. More than 2,000 customers in over 70 countries use Demand Solutions for:

- Demand Forecasting
- Inventory Planning
- Inventory Replenishment
- Sales & Operations Planning
- Retail Planning

- Collaboration
- Advance Planning & Scheduling

Demand Solutions helps customers reach their planning goals by providing products that are affordable, easy to use, and cost effective to implement, and deliver fast ROI.

About Kore Technologies

We specialize in extending the enterprise through integrated best-in-class solutions. Our enterprise integration and e-Business web solutions compliment and extend the functionality of enterprise applications, thereby increasing the usefulness and lifespan of existing products — for a fraction of the cost to develop or purchase new software. For more information, visit www.koretech.com. ■



Entrinsik to Demonstrate Next Generation Software Developed Using Google Web Toolkit at the Google I/O Conference

Entrinsik Inc., a leading provider of innovative operational reporting and analysis solutions, announced that for the second year in a row, members of its product development team were selected to demonstrate their use of the Google Web Toolkit (GWT) in the develop-

ment of the latest release of Informer Web Reporting at the upcoming Google I/O Developer Conference. The two-day event will be held on May 19-20, 2010 at the Moscone Center in San Francisco. Entrinsik developers will be demonstrating Informer in the Developers Sandbox.

Listed as an "Editor's Pick" in the Google Web Toolkit App Gallery, Informer delivers true real-time access to multiple data sources simply and easily using a built-in web-based query engine. "We are very excited that Google has asked us to return to Google I/O this year to show our Informer product," says Brad Leupen, CTO at Entrinsik.

GWT enabled Java developers at Entrinsik to harness the richness of Ajax in a cross-platform, web-friendly environment to radically enhance the experience for users of its Informer software. GWT is the engine behind Informer's drag-and-drop analytics, one-click charting, and powerful WYSIWYG criteria builder.

"We continue to leverage the power and flexibility of the GWT platform to bring a next-generation reporting and data analysis user interface to the web browser," says Leupen. "GWT makes Informer's interface so easy to use that casual business users, managers, and executives who need to interact with data from multiple data sources when and where they need it can perform real-time, ad hoc reporting and analysis without IT support."

To learn more about Informer visit www.entrinsik.com/googleio or call 888-703-0016.

About Entrinsik, Inc.

With tens of thousands of users across various industries, Entrinsik's Informer Web Reporting

software delivers true real-time access to multiple data sources simply and easily using a built-in web-based query engine. Informer leverages a powerful metadata model that creates consistency among disparate data descriptions and structures to provide a single point of secured information access for ad hoc reporting, report customization, and analysis.

Forget about data silo constraints. Informer extends self-service operational reporting and analysis capabilities to both technical and business users who can now quickly and easily perform their own analyses on the fly in faster more powerful ways than ever before. For an Informer demonstration or a free trial, call us today at 888-703-0016 or email us at sales@entrinsik.com. ■



16 Nonprofits Picked For Nerdery Overnight Web Site Challenge

Nerdery Interactive Labs has announced 16 nonprofit organizations selected for The Nerdery Overnight Web Site Challenge, the web development firm's volunteer-driven 24-hour event.

With heavy interest from volunteers, The Nerdery invited 16 web development teams — rather than 12 as planned — to spend the weekend of March 20-21 creating free web sites for these nonprofits:

Continues on page 24

New Products



Rocket U2 Offers Webinars for SB/XA Product

Rocket Software (www.rocketsoftware.com) has announced that it will offer a complimentary webcast series focused on the latest release of RocketU2 SystemBuilder Extensible Architecture (SB/XA).

SB/XA is a Rapid Application Development (RAD) and deployment environment delivering up-to-the-minute interface design and portable reporting capabilities. Existing SB+ applications can automatically convert without requiring changes to the underlying code. More information can be found at www.rocketsoftware.com/U2.

An Introduction to SB/XA

Thursday, April 1

10:30 AM - 12:00 PM EDT

www.1.gotomeeting.com/register/548031081

6:00 PM - 7:30 PM EDT

www.1.gotomeeting.com/register/159968153

This webcast introduces the technologies used to create SB/XA and how you can configure SB/XA to enable its new features including installing and

configuring the new middle tier to allow the new presentation clients to be deployed. Single Sign-on allows users to authenticate once and automatically provide credentials between client, middle tier, and application server. This improves the user experience and reduces administrative overhead. XPS Print Viewer converts all existing reports that can now be published and shared in portable format using XML Paper Specification (XPS).

Starting Your SB/XA with Style

Thursday, April 22

10:30 AM - 12:00 PM EDT

www.1.gotomeeting.com/register/909411945

6:00 PM - 7:30 PM EDT

www.1.gotomeeting.com/register/545754848

This webcast is ideal for existing SystemBuilder users who want to upgrade existing SystemBuilder applications and start to take advantage of the new presentation clients with styling. This complimentary webinar will take you step-by-step through upgrading an application, converting screens from character or GUI and simple styling techniques that you will be able to immediately take advantage of within your own applications.

The webinars will be led by Stuart Mackenzie, an Advanced Technical Support Engineer for SystemBuilder products with over 19 years of experience with MultiValue databases and development tools. He has held a variety of roles includ-

ing application development, training, and customer support. Stuart joined System Builder in 1995 and spent eight years as a consultant in U2 Professional Services before joining the U2 Client Support group.

"Our customers have long enjoyed the powerful data management capabilities inherent in our data servers, and are invested in applications that use them," says Susie Siegesmund, RocketU2 Vice President and General Manager. "At the same time, they have to stay current with modern interface and reporting standards — without breaking the bank. SB/XA gives them the tools they need to quickly and cost-effectively bring their SB+ applications into the 21st century."

Vinnie Smith, RocketU2 Tools Product Requirements Manager, says, "Many of our customers have devoted years of development effort to creating robust, feature-rich SB+ applications, but until now they've lacked a way to update their visual interface. Some applications have as many as 3,000 or more screens to update and the cost and effort required to re-code each and every one would be prohibitive. Worse, it would probably destabilize the underlying logic. We decided to create a new User Interface (UI) using XAML (Extensible Application Markup Language) to present existing SB+ application in a fresh, new, visually-compelling UI without requiring changes to the underlying business ap-

plication logic."

About Rocket Software

Rocket Software (www.rocketsoftware.com) is a global software development firm that builds and services Enterprise Infrastructure products for the world's leading OEMs, networks and software companies and enterprises. The company's products complement and extend strategic infrastructure in the areas of: application modernization, business intelligence, compliance and security, consumer productivity, database servers, database tools, file transfer, mainframe productivity, network management, publishing and search, SOA and integration, storage management, terminal emulation, and text mining. Rocket is engaged in business and technology partnerships with IBM, EMC, RSA (the security division of EMC), HP Enterprise Services, Avaya, Motorola, and many others. ■



Silverlight and mv.NET

Microsoft's Silverlight product was launched in April 2007 and has evolved quickly to become a powerful framework for the creation of the latest generation of Rich Internet Applications (RIA).

Silverlight is an extensive web browser plug-in that allows web

browsers to host desktop-like .NET applications. These applications are created in a very similar manner to the way in which traditional (rich-client) desktop applications are built. This means quicker, more effective application development and richer browser applications — especially for database-centric applications vital to the running of an enterprise — often referred to as Line of Business (LOB) applications.

Silverlight applications are created using Visual Studio. The development process (both application programming and debugging) is very similar to that used when creating rich client applications. This provides a better development process to that used in traditional web application development and allows much richer, more responsive and visually stimulating LOB applications to be easily created by any developer familiar with Visual Studio.

BlueFinity's Solution Objects, part of mv.NET, allows .NET developers to easily create powerful, nested data aware business objects-based access layers to MultiValue databases. In line with BlueFinity's mission to provide state-of-the-art Microsoft centric toolsets, Solution Objects has been enhanced to generate access layers that are able to run within the Silverlight browser environment. This means that Silverlight applications are able to access MultiValue data via industry standard interfaces and allows the full power of Silverlight's excellent data binding technology to be used against MultiValue data.

The Solution Objects access layer handles all aspects of MultiValue database interaction within the Silverlight application in an efficient and intuitive man-

ner. This allows the developer to focus on creating the presentation and business logic layer of the application and utilize all of the many powerful user interface features of Silverlight within their application.

Any existing MultiValue-based application can be lifted above the competition using Silverlight and mv.NET without needing to move away from tried, tested, and trusted MultiValue database technology or existing business logic. Solution Objects allows you to retain existing investment in MultiValue Basic application code and, where necessary, enhance business logic within the .NET environment, while offering the ability to create application interfaces using the very latest industry standard RIA technology.

In summary, .NET, Silverlight, and mv.NET together provide the tools to allow you to future-proof your MultiValue application, incorporate non-MultiValue programmers into your development teams and deliver cutting-edge, visually-compelling, browser-based applications. All of this is based on industry standard technology at a cost which makes it affordable for even the tightest of development budgets.

Silverlight support within Solution Objects will be available for developers with the formal release of Visual Studio 2010, which has been scheduled by Microsoft for April 2010.

For more information, email sales@bluefinity.com or visit www.bluefinity.com.

About BlueFinity International

BlueFinity International (www.bluefinity.com), part of the Mpower1 group of companies,

supplies leading-edge software development tools and consultancy services to the MultiValue database and Microsoft developer communities. Founded in 2002, BlueFinity has created a series of products. Its flagship product, mv.NET, is a comprehensive solution for developers wishing to access MultiValue databases from within Microsoft's .NET environment. ■

provides critical documentation and smooth automation as well as transparency along with a robust security framework and comprehensive auditing.

About SJ+ Systems Associates

SJ+ Systems Associates develops and supports PRC, a mature, complete software configuration management tool for U2 and MultiValue applications, including SB+. SJ+ has the experience and education in IT governance, audit, software quality, and best practices to help customers implement a complete life-cycle management strategy that is compliant and productive. For more information, visit sjplus.com ■



SJ+ Systems Associates Announces PRC 6.8

SJ+ Systems Associates, Inc. is pleased to announce the early adoption program for PRC Version 6.8. This release is a precursor to release 7 and is the first release to fully support the SB/XA release of System Builder from Rocket Software. PRC for SB/XA provides IT controls for XAML/.NET/WPF development provided by the new SB/XA platform.

PRC is a complete software configuration management / development life cycle management tool which provides IT governance including compliance with many regulatory agencies and initiatives. PRC is available for all U2 development (UniData, UniVerse) as well as some other MultiValue platforms.

Many companies are under some kind of IT governance and most agree that automation is the key to compliance and return on investment. PRC



DesignBais Announces Version 5.1

DesignBais is pleased to announce the release of v51 and the schedule for our latest round of free training webinars.

v51

v51 (release 5.1) is the first of three major releases that DesignBais has planned for 2010.

v51 includes many new features and enhancements:

- Ajax support for W3C mode - This feature provides the developer with much greater functionality for the delivery of web-based applications to the public-grade user.
- Redesigned Forms and Report Developer - This

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NEWSMAKERS

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- The Bloomington Chorale
- Centro Campesino
- Child Protection International
- Common Ground
- Dakota Wicohan
- DesignWise Medical Incorporated
- Homeward Bound
- Kinship of Greater Minneapolis
- Minnesota Association for Children's Mental Health
- Minnesota Jaycees
- Minnesota Senior Corps Association
- Multicultural School for Empowerment
- Redwood Area Communities Foundation
- Restorative Justice Community Action
- World Savvy

One additional nonprofit, Rural Renewal Energy Alliance, whose mission is making solar energy available to people of all income levels, qualified earlier by winning the Social Entrepreneur's Cup. Being "green," The Nerdery asked nonprofits applicants to plot environmentally conscious interactive strategies.

Competing nonprofits also articulated how they'd direct volunteer teams of 9-10 web pros to further their mission online. Selection judges also considered organizational need and online testimonials from people most intimately involved with the nonprofits.

These selection judges assessed applications from nearly 50 Minnesota nonprofits; they'll also pick the top development team at The Nerdery's all-nighter:

- Christine Durand, communication director, Minnesota Council of Nonprofits
- Dan Grigsby, founder of multiple startups and tech community organizer
- Dana Nelson, executive director, GiveMN.org
- Jacob Trippel, CFO and head of LaBreche Interactive

"It was excruciating to have to pick from the amazing organizations that submitted applications as part of the competitive process," said GiveMN.org's Dana Nelson. "Kudos to all of them for thinking about how technology can further their mission. The Nerdery Overnight Web Site Challenge is innovation in action!"

In addition to pro bono services from interactive professionals, nonprofits also get:

- Complimentary education in design and web applications, business analysis, or project management from sponsor Benchmark Learning
- Complimentary web-hosting on sponsor VISI's ReliaCloud service
- Complimentary digital communications advice from sponsor LaBreche

Additional in-kind sponsors: Art-house; Bruegger's; Buffalo Wild Wings; Chipotle; GitHub; Jimmy Johns; Kowalski's; Peace Coffee; Pizza Luce'; and Red Bull.

About Nerdery Interactive Labs

A division of Sierra Bravo, The Nerdery (www.nerdery.com) partners with ad and marketing agencies nationwide to execute their clients' interactive projects, including social media and mobile apps. In the first two years of the Overnight Web Site Challenge, volunteers from

The Nerdery and the Twin Cities web development community at-large have donated more than half-million dollars worth of professional services to 23 nonprofits ■



AutoData Systems, Inc. Chooses OpenQM From Ladybridge Systems

AutoData Systems, Inc (ADS), specialists in retail accounting and reporting systems in the petroleum sector have chosen the OpenQM database from Ladybridge Systems to upgrade software installed at 300 outlets.

The software was originally developed in the early 1990s on the Rev G platform running on Windows 95. The upgrade to QM includes a change of operating system to Suse Linux. Data from each retail outlet will be uploaded to the corporate system on a daily basis.

About AutoData Systems

AutoData Systems, Inc. has been engaged since March 1985 in the development, production, marketing, and support of computer systems for business applications. ADS's marketing efforts are currently concentrated in the distribution, petroleum, medical, automobile dealership, and credit collection industries.

Systems marketed by ADS generally consist of a combination of computer hardware, operating systems software, and customized application software packages. ADS also provides ongoing services and software enhancements.

ADS believes that the MultiValue database environment offers advantages in business applications due to its ease of use and application efficiency.

About Ladybridge Systems

Ladybridge Systems (www.openqm.com), based in Northampton, England, was founded in 1992 offering training, consultancy, development, and maintenance services for MultiValue database users. The OpenQM database product was originally developed as an embedded database engine but was publicly launched in 2001 for general use. It now forms that major thrust of the company's activities and is in use worldwide in a broad spectrum of industries. ■

New Products

Continued from page 23

is a major enhancement that allows the developer to quickly create forms by selecting fast (add) and adding multiple fields at one time.

- Extended Audit Trail - This feature will track all changes to records in a defined file. Included in this feature is a display screen to browse the changes.
- Report Drill Into - Allows the developer to define a form or subroutine to execute when a field is clicked on any report. Once the field is defined, any report that includes the field will automatically have this drill-into feature enabled. This also includes any eXpress report.
- Form Includes - This feature allows the developer to create standard Form Headers and Form Footers to be included in any DesignBais form.
- Enhance Security - The DesignBais security model has been upgraded to include default security classes for non-defined entities.
- Many other enhancements and fixes.

Webinar Schedule

DesignBais is pleased to announce the schedule for our next round of webinars. The topics range from introductory level to advanced techniques.

The primary goal of the webinar series is to provide an additional education resource to the many DesignBais developers around the globe. There will also be some complete overviews of the DesignBais offering

for those thinking about using DesignBais for their application development.

Also included are demonstrations of applications that have been completed using DesignBais.

All webinars are free.

To view the schedule, visit www.designbais.com. To participate, simply select the topic by clicking on the date.

What To Look Forward To In 2010:

- Integrate Flash Widgets - Interactive gauges.
- W3C Commercial-Grade Interface - Browser independence in the commercial grade mode. Develop in IE commercial grade and deploy on any W3C browser.
- Functional Indexing - Allows indexing of descriptions to a DesignBais search filter. This provides a Google/Bing style interface to your description searches. This filter also has defined the functions associated with each index entry, making the index drive various

operations within an application.

- View eXpress - Provide views of data throughout the application. This interface will drive the form and report design processes. This will include a learning feature that will enable DesignBais to learn the typology of the application database and reflect this throughout the application. DesignBais eXpress already does this for ad-hoc reporting. This is being introduced into the rest of the design environment. eXpress Reports will be able to be added to menus including custom run-time forms. All defined selection criteria will be prompted for when the menu option is select.

DesignBais Team Update

We are very pleased to announce the appointments of Trevor Ockendon and Jamie Keenan to the DesignBais team.

Trevor has extensive experience in MultiValue and brings with him a wealth of knowledge and experience in application design and deployment.

Jamie has been with the BAIS group for about eight years and has transferred into DesignBais to provide a further support center and development resource. ■



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The Model of a

Modern

MultiValue Environment

BY LEE H. BURSTEIN, INTERSYSTEMS CORPORATION

MultiValue technology has proven its worth over the years. But it sometimes struggles to meet modern demands for features and capabilities such as interactive web interfaces, SQL access to data, compatibility with Java or .NET, web services, security, and distributed systems.

Granted, you can achieve most of those things using existing MultiValue environments, but it's rarely easy. And MultiValue application providers lose business because their legacy environments haven't really kept up with today's technology.

That invites the question: *What should the ideal modern MultiValue environment look like?* This article will outline several must-have elements.

1. An Easy Migration Path

Any MultiValue environment will be worthless if you can't preserve and leverage the work you've already done. To make the migration process as painless as possible, the ideal MultiValue environment will include:

- A Way To Preserve Your Data — Programs and data must be imported directly into the new environment.
- A Way To Preserve Your Business Logic — The modern MultiValue environment

must support MultiValue Basic as a server-side scripting language. Procs, Paragraphs, dictionaries, MultiValue queries, and common TLC commands should also be implemented.

- A Way To Preserve Your Skill Set — Remember, not only will you be moving your applications to a modern environment, you will be moving yourself. The new environment must allow you to continue to be productive using your existing MultiValue development skills, even as you start to master new ones.

2. A World-class Database Engine

MultiValue technology is known for its speed and ability to handle complex data. The ideal MultiValue environment will provide:

- Efficiency — Traditionally, MultiValue technology has used hash files for data storage. But there are other highly optimized storage mechanisms that provide better perfor-

mance, maintainability, and scalability. An ideal MultiValue data engine will eliminate the need for file resizing, and allow data to be stored in Item ID order without sacrificing performance.

- Data Integrity — Data integrity should be achieved by using an intermediate journal (for example, a write image journal) that manages the update to the physical database via background processes. Additionally, a separate journal for all database updates should be part of the system to provide further integrity as well as the ability to replicate data to a secondary server.
- Scalability — Initially, your applications may serve just a handful of users or handle a few dozens of Web requests an hour. But, if successful, you'll need an environment that can scale to many tens of thousands of users, millions of transactions a day, terabytes of data, and operate in a distributed server environment.
- Easy Administration — There should be a browser-based system management portal for easy system administration. System management functions should be available via APIs that can be used in MultiValue Basic programs.

3. Security

The ideal MultiValue environment will itself be secure, and it will provide mechanisms for you to build security features into your new and existing applications. It should be internationally certified and provide capabilities for:

- Supporting Existing Application Security — Many existing MultiValue applications have been developed with a menu-based security module that is application-user oriented. Any existing security features must be supported in the new environment.
- Establishing Identity — Users must be able to prove they are who they say they are. Several authentication

MultiValue application providers lose business because their legacy environments haven't really kept up with today's technology. That invites the question: "What should the ideal modern MultiValue environment look like?"

mechanisms should be supported, such as Kerberos, operating system-based methods, LDAP, and database login. For those environments with strongly protected perimeters, it should be possible to disable authentication.

- Controlling User Access — Once authenticated, a determination must be made as to what the user is allowed to access. In the ideal environment, users will be permitted access to resources based on their security role. The environment will make it easy to manage users and provision them with the appropriate security access.
- Knowing What Happened — A verifiable and trustworthy trail of actions related to the system is needed. The auditing features of your environment should provide a paper trail of authentication and authorization actions and the ability to reconstruct security related incidents.
- Protecting Data "At Rest" — The ability to encrypt data stored on disk is a must. In the ideal environment, encryption/decryption should occur as data is written/read from disk. In addition to your data, indices, bitmap images (if they are stored in your database), incremental backup maps, pointers, and allocation maps need to be encrypted.

- Encryption/decryption should be very fast, but your environment should also allow you to tailor the level of encryption, so that you can balance your security and performance needs.

4. An Easy-To-Use Development Environment

Any modern IDE will be a client-side installation that can, based on security and permissions, connect to any server, and allow remote development and debugging. Wizards for common tasks are the norm. In addition, the model MultiValue development environment will include:

- MultiValue Basic syntax checking and coloring;
- A MultiValue command shell that supports direct execution of MultiValue Basic code, largely eliminating the need for test programs;
- A MultiValue debugger that works both from the IDE and the command shell;
- Graphical tools for the design of rich, interactive web interfaces and reports that are MultiValue data-aware.

5. Support for Objects

Today, the most widely used programming technologies (Java, .NET, C++, XML, etc.) are object-oriented, so it is vital that your MultiValue environment enables object access to data. That means:

- Full support for object modeling concepts such as encapsulation, multiple inheritance, polymorphism, embedded objects, collections, and relationships.
- You can create object definitions to access existing MultiValue data.
- MultiValue Basic has been extended to handle objects and object syntax.

Continues on page 30

Applying the Object-Oriented Programming Technique of Encapsulation to MultiValue Code Part 2

This article provides examples of coding an encapsulated object. We continue from part one and show how commuter modules and variable named common areas together provide encapsulation.

We begin by walking through the framework of an encapsulated object, stepping through how to implement protected variables and methods, and finally a wrap-up end-user example of how to create, manipulate, and destroy the object.

Example Code

The following section walks through the construction of a simple invoice object named `oInvoice` using Revelation Basic+ code. All objects share a similar design framework (template). The purpose of this example is to point out the key parts to the framework and implementation of the object.

The framework section will demonstrate how new instances are setup and kept separate from existing instances. During the implementation section, the `oInvoice` object will be coded to set the customer name, return the customer name, add items to the invoice, count the number of items, and total the invoice amount.

Once the `oInvoice` object framework and implementation are completed, another example will be provided to show the implementation of the object from the perspective of a programmer using the `oInvoice` object.

Object Code Framework

To begin we create a new function for our object. See figure 1. The function declaration is the enclosure for our object and will contain methods (internal subroutines), private variables (variable named `common`), static variables (general `common`), and references to supporting routines.

Before delving into the framework, first consider the interface to the object (the function). Each of the function parameters is described below.

- **instance** - Each object should be unique from the other objects of the same name. The instance variable contains an identifier that relates to a specific object. As you'll see shortly, the variable named `common feature` is used to facilitate this.
- **inMethod** - For an object to be useful, it must be mutable. The `inMethod` contains the action we want to perform in the object, i.e., get or set a variable (property), return a calculation, etc. Think of `inMethod` as the internal subroutine in a commuter module.
- **Param1...5** - Parameters that are overloaded depending on the value of `inMethod`.
- **outValue, outStat** - Optional call by reference variables are reserved for complex methods that may need to return additional data.

The first requirement for the object is a common area across all instances of the object. This is accomplished with a normal common area.

Before any object can be useful it must be instantiated. Instantiation is the term used to describe the process of taking a general object and making a unique instance. Generally, a new or setup method will be a reserved keyword enforced by the compiler to accomplish object instantiation. In this environment, there is no compiler directive to require setup to be the method name for creating new instances of the object. The example will continue the practice of using a method named *Setup* to instantiate a new object.

When `inMethod` is setup, our object will be instantiated inside the `if` statement. `Instance` is assigned a unique value and recorded in the common `instance_handles@` variable. To insure our objects are created with unique names the variable `instances_created@` tracks the number of objects created.

Now that we have a way to track the objects and assign unique names, the next step is to use the variable named common feature in the Basic+ compiler to assign a common area for this object.

The variable named common area in figure 1 is different from a normal common because it is declared with two sets of `//`'s and the enclosed name is a variable instead of a literal. This private common provides three private

*At the heart of
MultiValued platforms
is a natural mindset of
object-oriented thinking.*

variables for each instance of `oInvoice`. Although they are technically common variables and can be accessed anywhere in the program, they are protected. Without the correct value of `instance` (common name), these variables can't be referenced from anywhere else.

The last step of instantiating a new object is to initialize any object specific variables. For the sake of brevity, the `invoice_number@` is assigned to be a number based on time and the `customer_name@` is set to a generic value.

The variables `invoice_number@` and `customer_name@` refer to the variable named common area for this instance of the object. Our object now contains enough code to be instantiated into an object.

**Implementing Object
Methods**

To make the object useful, additional methods must be added to manipulate the state of the object. The `case` block at the end of figure 1 describes all of the methods the object encapsulates.

Like a commuter module, this `case` block directs program flow to the appropriate internal subroutine (object method). By calling `oInvoice` with different values of `inMethod`, the object will perform different methods. We

Continues on page 32

```
Function oInvoice(instance, inMethod, Param1, Param2, Param3, Param4, Param5, outValue, outStat)
common /oInvoice/ instance_handles@, instances_created@
Equ OBJECT_TYPE$ To "oInvoice"
isNewObject = FALSE$
If inMethod _eqc "Setup" And instance = "" Then
    isNewObject = TRUE$
    instances_created@ = instances_created@ + 1
    instance = time() : rnd(time()) : instances_created@
    instance_handles@<-1> = instance
End
inst_handle = OBJECT_TYPE$ : instance
common //inst_handle// invoice_number@, customer_name@, purchased_items@
If isNewObject = TRUE$ Then
    invoice_number@ = time()
    customer_name@ = "Revelation Person"
    Return instance
End
Begin Case
    Case inMethod _EQC "setName" ; Gosub pubSetName
    Case inMethod _EQC "getName" ; Gosub pubGetName
    Case inMethod _EQC "addItem" ; Gosub pubAddInvoiceItem
    Case inMethod _EQC "getItemCount" ; Gosub pubGetInvoiceItemCount
    Case inMethod _EQC "getInvoiceTotal" ; Gosub pubGetInvoiceTotal
    Case inMethod _EQC "Destroy" ; Gosub privDestroyThisObject
    Case Otherwise$
        Call Set_Status(TRUE$, "SYS1000", OBJECT_TYPE$ : " " : |
            inMethod : " is not implemented in object.")
        Retval = ""
        Goto End
End Case
End:
Return retval
```

Fig. 1



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THE MODEL OF A MODERN MULTIVALUE ENVIRONMENT

Continued from page 27

- MultiValue Basic can be used as a scripting language for object methods.

6. Compatibility with Other Technologies

Customers don't want to be tied to any one technology, so the more open an environment, the better. The ideal MultiValue environment will make it easy to access data using:

- SQL — Data access via ODBC and JDBC is essential, since the majority of data analysis and reporting tools use SQL. Projecting MultiValue data to SQL can often be a difficult and time-consuming task. The model MultiValue environment will make it extremely easy to provide ODBC/JDBC access to data.
- Java — Java is one of the most popular development technologies in the world. The ideal MultiValue envi-

ronment should be able to project data as Java objects, create objects from Java object definitions, and even allow the use of Java to directly manipulate data structures.

- .NET — Your MultiValue environment should also be compatible with .NET, providing both ADO and proxy class connectivity.
- XML — It should be possible to automatically create data objects from XML files, and automatically create XML files from data objects. Additionally, a complete XML API should be part of the environment.
- Other Object-Oriented Technologies — For the greatest possible openness, the ideal MultiValue environment will be able to project data to C++, Perl, Python, etc. As new object-oriented technologies are invented, your MultiValue technology partner should be able (and willing) to expand your connectivity options.

7. Support for Web Services and SOA

Web services and service-oriented architecture (SOA) in general are becoming a popular way to build composite applications. At the very least, a modern development environment needs to be able to:

- Publish Web Services — You should be able to easily transform any MultiValue Basic program or subroutine into a web service. This will entail casting the code as SOAP-formatted XML and creating the WSDL (Web Services Definition Language) definition.
- Consume Web Services — You should be easily able to read WSDL definitions and make published web services available to MultiValue programs.
- Secure Web Services — Your environment should support the WS-Security standard for SOAP message headers, and be able to encrypt the

Continues on page 31

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THE MODEL OF A MODERN MULTIVALUE ENVIRONMENT

Continued from page 30

body of SOAP messages. It should support client-side login using either the WS-Security Login via SSL, or the (less secure) HTTP User authentication via SSL.

A model MultiValue environment may also give you capabilities for connecting services, allowing you to use MultiValue Basic for business process orchestration, business rules, workflow, and business process monitoring.

8. Real-Time Business Intelligence Capabilities

Increasingly, end users are asking for applications that provide immediate, actionable information about their businesses. The ideal MultiValue environment will enable you to enhance your new and existing applications with embedded real-time business intelligence features.

9. A Responsive, Dedicated MultiValue Technology Partner

Although not an element of your MultiValue environment per se, choosing the right MultiValue technology partner is of the utmost importance. You need a partner who is financially stable, innovative, and who considers MultiValue to be a core technology in their development strategy.

With a technology partner who believes and invests in MultiValue technology, you can rest assured that your modern MultiValue environment will continue to keep up with the times. The ideal partner will also provide world-class customer support, and be truly dedicated to helping you succeed. **IS**

LEE BURSTEIN is Product Manager at InterSystems. He will be attending the International Spectrum Conference in Denver, Colorado on April 12-15, 2010.

BLENDED APPLICATIONS

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The primary keys are passed to SQL, and SQL creates the temporary table from those keys. There is no delay for the select and no need to develop complex joins in SQL. The selection is extremely fast and accurate, and the ability to drill down or audit the records being retrieved is possible. (Working in an SQL database and developing complex joins, then verifying that the SQL statement did indeed select the right records, can be frustrating to say the least.)

With the blended approach discussed here, a .NET programmer need only be told to add a new field to the screen, and pass the data; the MultiValue designer determines where the data needs to reside and adds it to the data map. No additional complex SQL selects need to be written. This keeps the MultiValue application fast and easy to modify and the number of personnel required to maintain it to a minimum.

Screens can be developed with either .NET or the MultiValue providers' tools for web browsers. I am told that screen development is still faster with the MultiValue tools, so it is great for doing mock-ups. On the other hand, there are a lot of .NET programmers available. And .NET screens can easily access other Microsoft tools.

The time and expense application I mentioned earlier allows the user to attach scanned images of their expense receipts to their expense report. If the screen designs are kept consistent, the user can't tell which tool is used, or which database is being accessed. Indeed, some screens may access both.

MultiValue application developers have the advantage of years of experience understanding business problems and the ability to quickly modify or enhance an application. Even though two databases may be used, a blended approach can still maintain the integrity of a unified central database.

Access to both databases can be controlled for security purposes, and all reports will be working with the same data. This interface can be seamless and real time rather than bolting other tools, modules, or applications to the ERP application. It saves time and eliminates multiple steps to move data between applications.

Large companies may already have separate databases, and MultiValue providers today do provide tools to talk to other databases. But I believe the real competitive advantage for the application providers will be to use both SQL and MultiValue together to provide a complete solution.

As always, planning, an understanding of the business rules, an appreciation for ease of use for the end users, and standardization is the hard part. The technology is available. Applications that embrace the best features of multiple DBMS *are* available and are successfully competing against any database that is trying to stand-alone.

I wish to thank Obvio Software for the time they spent explaining their design to me. I think they hit the nail on the head. Though I'm not arguing that one database is best, I believe in the versatility and creativity of MultiValue application developers, and I remain optimistic about the future of all MultiValue applications. **IS**



CANDI HART has been an independent consultant in Southern CA since 1980. She was known as

Candi Piech when she served as president of CDBMA. She may be contacted at candi.acp@gmail.com

APPLYING THE OBJECT-ORIENTED PROGRAMMING TECHNIQUE OF ENCAPSULATION TO MULTIVALUE CODE - PART 2

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will discuss each of these methods (go-sub branches) and look at the example code.

To begin, it would be useful to set and get the name associated with this invoice object. Figure 2 contains all of

the subroutine source code inside oInvoice.

The subroutines to get and set the customer name are straight forward. `pubSetName` subroutine handles the `setName` method of the object. For simplicity's sake, data validation has been omitted. Likewise, `pubGetName` subroutine handles the `getName` method which simply returns the name as-

signed to the variable assigned common.

If you've worked with object-oriented languages before, you can see this mechanism provides an interface without revealing the implementation details of where the name is stored. Instead of saving the variable in a named common, we could do a read/write to the invoice record or some other data source.

```
pubSetName:
    customer_name@ = Param1
Return
pubGetName:
    retval = customer_name@
Return

pubAddInvoiceItem:
    entry = ""
    entry<SKU$> = Param1
    entry<DESCRIPTION$> = Param2
    entry<COST$> = Param3
    Swap @FM with @VM In entry
    purchased_items@<-1> = entry
Return

pubGetInvoiceItemCount:
    retval = DCount(purchased_items@, @FM)
Return

pubGetInvoiceTotal:
    itemcount = oInvoice(instance, "getItemCount")
    cost = 0
    For i = 1 To itemcount
        cost = cost + purchased_items@<i, COST$>
    Next
    retval = cost
Return

privDestroyThisObject:
    instance_handles_new = ""
    position = 1 ; flag = ""
    Loop
    Remove current_element From instance_handles@ At position Setting flag
    If current_element NE instance Then
        instance_handles_new<-1> = current_element
    End
    While flag
    Repeat
    instance_handles@ = instance_handles_new
    inst_handle = OBJECT_TYPE$ : instance
    FreeCommon inst_handle
    return
```

Fig. 2

Take a look at the next three methods in figure 2: `addItem`, `getItemCount`, and `getInvoiceTotal`.

In `pubAddInvoiceItem`, the subroutine variables `Param1`, `Param2`, and `Param3` (from figure 1) are pre-arranged by your own good programming practices to be the sku, description, and cost fields. To make the code more readable, the fields are assigned labels using equates. The key to this subroutine is the assignment of the invoice item into the `purchased_items@` variable named common.

By calling the subroutines `pubGetInvoiceItemCount` and `pubGetInvoiceTotal` the object (i.e., this function) can return data without revealing the internal operation of how `pubAddInvoiceItem` was used to store the information.

Another powerful benefit of this design is the ability for objects to call themselves to minimize code duplication, even inside of the object. Consider the line `itemcount = oInvoice(instance, "getItemCount")` in the `pubGetInvoiceTotal` subroutine (Fig. 2). The subroutine `pubGetInvoiceTotal` makes another call to the `oInvoice` object to run the method `getItemCount`.

The instance variable refers to the current object and, because the object references a common area, any calls to the parent object with the same instance handle can change the state of the object or simply return information about the object state. By creating a method for counting the number of items on the invoice we can leverage it both inside and outside of the object without duplicating the implementation code.

Let's consider another reason for creating a method for something as simple as counting the number of items on the invoice. The DCount function is the standard MultiValue routine for counting the number of fields in a variable. To someone with an object-oriented mindset, functions like DCount are troublesome because the usage of DCount in this situation requires implementation knowledge of the object.

In the example, `purchased_items@` contains all of the items on the invoice and, using DCount to count the fields, will return the number of invoice

items. What if the `oInvoice` object included a new variable named `invoice_items`, would it be evident which variable contains the information to count? Does `purchased_items@` contain past purchases or current purchases? Does `invoice_items` represent the total quantity or just the items number of unique items? The answer is not clear and requires code analysis by the programmer.

The object-oriented mindset is that the object should be able to return the number of items listed without knowing which variable to DCount. This is exactly what the method `getItemCount` is used for.

The last method in the main case block is `Destroy`, which is handled by the subroutine `privDestoryThisObject`. The compiler doesn't implement the concept of objects, so we have to clean up the variable named common when the object is no longer needed.

The subroutine searches all of the instance handles in `instance_handles@`

for this type of object. Everything but the current instance is assigned back to `instance_handles@` thereby removing it from the known list of instances. The last step in the routine is to do a Free-Common on the variable named common that was established when the object was originally instantiated.

Example of Object Implementation

Everything leading up to this point in the example gets pulled together when we use the object and leverage the methods provided. In this stage of the example, we will make an invoice for Rev Guy, Rev Gal, and Rev Kid. Each of them will buy something and then compile the purchases into a single string describing the amount of their purchase. See figure 3 for the code snippet a programmer would need to use the `oInvoice` object.

The first step is to setup the objects and assign the unique instance handles into `invA`, `invB`, and `invC` using the `Setup`

Continued from page 35

```

invA = oInvoice("", "Setup")
invB = oInvoice("", "Setup")
invC = oInvoice("", "Setup")

Call oInvoice(invA, "setName", "Rev Guy")
Call oInvoice(invB, "setName", "Rev Gal")
Call oInvoice(invC, "setName", "Rev Kid")

Call oInvoice(invA, "addItem", "AUT123", "Car Widget", 150)
Call oInvoice(invB, "addItem", "SKU123", "Fancy Widget", 20)
Call oInvoice(invB, "addItem", "SKU456", "Cool Widget", 15)
Call oInvoice(invB, "addItem", "SKU100", "Widget Cleaner", 5)
Call oInvoice(invC, "addItem", "TOY932", "Widget Blocks", 10)

PurchaseSummary = |
oInvoice(invA, "getName") : ":" : |
oInvoice(invA, "getInvoiceTotal") : " " : |
oInvoice(invB, "getName") : ":" : |
oInvoice(invB, "getInvoiceTotal") : " " : |
oInvoice(invC, "getName") : ":" : |
oInvoice(invC, "getInvoiceTotal")

Call oInvoice(invA, "Destroy")
Call oInvoice(invB, "Destroy")
Call oInvoice(invC, "Destroy")

```

Fig. 3

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MultiValue User Profiles

Personal

Favorite Leisure Activities:

Hiking, traveling, and gardening

Biggest business-related pet peeve:

My biggest business pet peeve is short-term thinking. It seems almost to be a prerequisite in business these days. Also ranking up there in my peeves is "herding behavior" in the business world around some proprietary solutions that ultimately cost more time and money than they can ever return to the business.

Personal Computer:

I have a Dell desktop something or another. I can't stand laptops, but I love my Blackberry.

If I were in another line of work, I'd be...

Systems development and management completely keeps my attention and gives me a creative outlet. If I couldn't be in IT, I would probably work somewhere in real estate.

Business leader I'd most like to have lunch with:

I have an interest in alternative technologies regarding permaculture and in our current financial situation. Anyone who can further educate me in those fields would be a welcome lunch partner.

Career Track

How long at the current company:

15 years

Career accomplishment I'm most proud of:

I am most proud of the team of people that I work with at my current



RON MCKINNEY

Land Title Guarantee Company,
Vice-President of Information
Technology

job. We have a diverse skill set that has enabled us to assemble a powerful, flexible, innovative system that keeps Land Title competitive.

Most important career influencer/influence:

Initially, my parents who both were in the oil field with administrative and technical jobs were my biggest influence. After that, my brother who lead the way with a business degree and in turn influenced me to get the same degree. And finally, the first company who I worked with in Denver who introduced me to MultiValue databases.

What decision would I like to do over:

Working too much.

On The Job

Size of IT team

12

How many MultiValue DBA/Programmers:

Four MultiValue programmers, although we have a couple of business

analysts and three other programmers who can also program to a certain extent in MultiValue.

What business process is run by your MultiValue Application:

- Web site (UniData database, Python front-end)
- Real Estate Title
- Real Estate Closing
- Real Estate Escrow Accounting
- Real Estate Construction Loan Disbursement

Top initiatives:

Creation of an X-Forms-based screen generation tool as a front-end to our GUI application tool.

Re-write of our core Title/Closing application with our latest GUI applications development tool.

How I measure IT effectiveness

By costs as compared to our peers

By quality of applications as measured against any application in any industry

By applications development time as measured against any industry development time

Vision

Advice for future CIO:

The best advice I could offer: set high expectations. Hire the best people to do the job. Give them the freedom to get the job done. Clear any obstacles that keep them from getting the job done. Don't let impatience push you into short-term poor technology decisions.

What MultiValue applications/product do you use:

All of our in-house MultiValue applications are in-house written except for the usage of Web Wizard for some of our web site and intranet systems.

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MULTIVALUE USER PROFILES

Continued from page 34

MultiValue Database Platform:

UniData on AIX

UniData on Linux

Where do you see an increase in IT uses in the next five years:

I would not be surprised to see the elimination of cash by the end of five years or so.

What changes do you see in IT in the next five years:

I see more change to the usage of open source solutions to keep costs down and to more easily innovate.

What does your IT crystal ball says is going to happen in the next five years:

I see movement of large amounts of computing in businesses to "the cloud" and user interaction with that cloud through mobile devices.

The next big thing in my business will be:

The next big change will be the accomplishment of completely paperless transactions on a mass basis. **IS**

MultiValue User Profiles are open to all end users of the MultiValue Marketplace. Contact Nathan Rector at nathan@intl-spectrum.com to learn more.

APPLYING THE OBJECT-ORIENTED PROGRAMMING TECHNIQUE OF ENCAPSULATION TO MULTIVALUE CODE - PART 2

Continued from page 33

method. Now that we have three separate invoices each can have a unique name. The `setName` method assigns a name to each invoice. Remember, in figure 1, the `Setup` method assigns a default name of *Revelation Person* for all new invoice objects.

To populate the invoices, the `addItem` method will be used to pass information about the item purchased. Notice how the third parameter was a name for the `setName` method, but is used as a sku number for the `addItem` method.

The final step is to prove each instance of `oInvoice` is unique. When the `PurchaseSummary` variable is assigned at the bottom of figure 3, the uniqueness becomes evident. If successful, it will contain the string "Rev Guy:150 Rev Gal:40 Rev Kid:10".

This example demonstrated that the `oInvoice` object allows the use of the invoice object without having to deal with the specific internal implementation details. The business purpose behind the code is easy to understand because the implementation details are encapsulated in `oInvoice`. For complete source code, please e-mail jared@revelation.com.

Conclusion

The purpose of this article was to open your mind to using the object-oriented principle of encapsulation. An example was given to demonstrate how encapsulation can be implemented by leveraging the long used MultiValue technique of commuter modules and variable named common variables. The implementation of encapsulation resulted in high level code that was easy to read, easy to use, and isolated from other routines.

The example also demonstrated how multiple instances of a function (object) could exist during runtime. This is invaluable when extending applica-

tions to the web. By design, well-written web applications are separated into layers. These layers are often thought of as objects. In the context of a web application, do you think of the database as a layer or an object? Perhaps the data source is more than one type of object?

Another benefit of object-oriented programming is objects are easier to save and reference across sessions because the variables that compose a specific instance are well defined.

At the heart of MultiValued platforms is a natural mindset of object-oriented thinking; tables provide dictionary fields to hide calculations, commuter modules combine functions to form libraries, and, by their very nature, multivalued records are extensible to fit the business purpose. Now you can include encapsulation to further your techniques. **IS**

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Converting MultiValue Dates to Internet Dates

These days we have to interact with other systems, which also means interacting with other dates and times. UTC dates is a common date that we run into, as well as RFC1123 dates, which are commonly found in web data.

UTC (Universal Time Conversion) is a unique format that, while easy to generate and parse, sometimes can cause confusion.

```
yyyymmddThhmmssZ = 20100301T100000Z
```

This translates into 03/01/2010 10:00:00 AM GMT (Greenwich Mean Time).

To convert to GMT requires you to provide some additional information about the date and time information on your servers.

RFC1123 is a common format in e-mails, but can also be found in other web data. While it does the same things as UTC, its format is a little more human readable.

```
mmm dd, yyyy hh:mm:ss GMT = Mar 01 2010 10:00:00 GMT
```

Again, you see the GMT, while you can use other time zones with RFC1123, many times it's easier to just use GMT.

I have supplied a program that will help you convert your internal date/time information into one of these 2 standard date/time formats:

```
LOCAL.DATE = DATE ()
LOCAL.TIME = TIME ()
LOCAL.TIMEZONE = "PST"
CALL CONVERT.DATETIME.TO.UTC1 (LOCAL.DATE, LOCAL.TIME, LOCAL.
TIMEZONE, UTC, RFC1123.DATE, GMT.INFO, "")
CRT "UTC: ": UTC
CRT "RFC1123: ": RFC1123.DATE
CRT "GMT: ": GMT
END
```

You can get the source for this subroutine at:

www.intl-spectrum.com/resource/134/UTC_RFC1123_Conversion.aspx **IS**

Do you have a Tech Tip to share? E-mail it to editor@intl-spectrum.com

```
03/08/2010 09:17:21AM PST
UTC: 20100308T161721Z
RFC1123: Mon, 08 Mar 2010 16:17:21 GMT
GMT: 15408^58641
```

Fig. 1

BUSINESS TECH: MARKETING — PART 2

Continued from page 10

them. People didn't buy them because the ties tasted like soda, they bought them because the brand itself had a value separate from the product. So, while we have been talking about sales based metrics, there are many other kinds of fuzzy factors to consider.

The problem with branding is that marketing is often too successful. Pass me a Kleenex and I'll lay back in my Easyboy while I point out that brands can become so identified with a product category that the manufacturer has trouble defending their ownership of the name. Xerox had to run ads at one point stating: *You can't Xerox a Xerox on a Xerox. But we don't mind at all if you copy a copy on a Xerox® copier* because the name was in danger of falling into common use and ceasing to be a controllable brand.

Between too little measurement of success and the danger of succeeding too well, marketers have their work cut out for them.

OUT OF BUSINESS Everything Must Go!

All good things must come to an end and this topic, but wait there's more! Next issue, we will talk about modification. It will change the way you look at reading columns. **IS**



CHARLES BAROUCH is the CTO for Key Ally, Inc. He is current President of the International

U2 Users Group, and a regular Spectrum Magazine contributor.

Contact Charles at Results@KeyAlly.com, or phone (718) 762-3884 ext 1.

SPOTLIGHT ON JBASE

Continued from page 16

grown from a circa \$25 million dollar company to a circa \$500+ million dollar company with a present market capital value in excess of one billion. TEMENOS are well known to consistently attribute the highest percentage of revenue to R&D in the market and this of course includes continued investment in jBASE technology.

So, as jBASE moves towards its 21st birthday, its owners, distributors and most of all users can rest assured they are in safe, forward-looking hands on this enviable journey.

Beyond jBASE 5.2

The next phase of development of jBASE is going to be concentrated around the core of jBASE 5.2. The fully funded roadmap shows a phased release of new and improved functionality as opposed to a prolonged development prior to a major new release. This is aimed at a more flexible approach to meeting our customers' needs.

Currently being considered are jBASE monitoring improvements including JMX beans for session, lock, and connectivity monitoring, but the key elements to the plan will see a further significant expansion of support for Java. Then, because of the demands of the scale and operational demands from the banks using T24, there will be major investment in high availability and performance improvements.

Easy Upgrade

The upgrade path for all jBASE 4 customers is very straight forward. Russell Bowes, Technical Manager at Ininet Information Management in Australia says their customers have been pushing to deploy their Citadel application on modern, 64-bit systems and he began testing as a beta site in recent months.

"We are extremely pleased with all our testing on the new jBASE 5.2 release," he notes. "Our Citadel application is operational and, based on the current QA results, should be deployed to our customers in the coming months. This is a major step forward for Ininet Information Management and jBASE International."

jBASE Distributor, Fenlon Computing Services, remarks on the ease of installation. "I installed jBASE 5 at a prospect's site in Sydney and as expected all went to plan," said John Fenlon, Managing Director. "Their Java/JDBC application was operational in less than an hour; at which point they reacted, 'you've finished, its ready? We have to allocate two specialists for most of the day to do this on our Oracle installations.'"

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CLIF NOTES

Continued from page 39

Or they might want to move to a job they are qualified to handle.

The next one wasn't really a surprise for me. As a self-employed consultant, I deal with this one on an on-going basis. But it was interesting to see someone else affirm that this is a blind spot among a lot of "hard working" employees. That is to fail to recognize that

value created does not equal hours worked.

Too many times we hear comments like, "I usually work 60 hours a week. Joe is out of here at 5 PM every night. Why did he get to go to Spectrum and I didn't?" It could be because in his 40 hours, Joe creates more value to the company. It could be because of skills the other doesn't have, on his own he developed better, faster ways of getting applications done, or always comes

back from conferences with a list of suggestions of products or techniques that will have an impact on the company's struggle to stay competitive. It's a case-by-case judgment, but it's rarely about how many hours someone is clocked in.

And finally, there is the problem of thinking that by working hard, the company owes them career growth. Nooo. The company pays the salary for the value they are currently receiving. Unless the company has a need, such as having bought a new business intelligence tool, why would they pay for classes to help someone become .NET certified when the company doesn't do its development on that platform. If someone wants to change their career path, it is not up to the company to do that for them. It is up to the individual to take the steps necessary. And yes, if they are an application programmer and want to learn the latest techniques in Agile Development that might mean taking a couple vacation days and paying out of pocket to go to that conference.

In summary, it seems like a lot of people's feelings of victimization can be traced back to a misunderstanding about why they are working hard, what working hard means to the company instead of them, or a disconnect in expectations as to what the reward and recognition should be. So rather than taking responsibility to make a change, they get trapped doing more and more of the same old same old until they become just another "commodity" and management finds a cheaper source for the commodity.

Please don't let it happen to you. That's why International Spectrum has placed such an emphasis on professional development and skill building for the MultiValue professional.

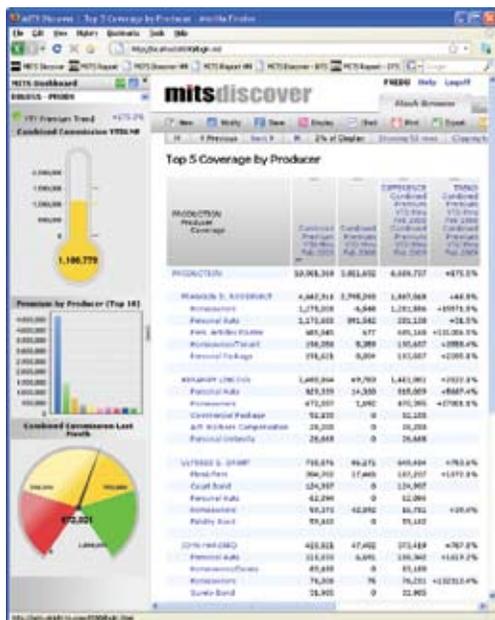
As my uncle used to say, "When you're green, you're growing. When you're ripe, you're rotten." **IS**

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Dan Hibbert, VP
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Ever Feel Like Just a Cog In The System?

BY CLIFTON OLIVER



A while back, our Content Editor, Shannon Stoltz, introduced me to a book by Rajesh Setty titled *Beyond Code: Learn To Distinguish Yourself In 9 Simple Steps*. It is targeted at the IT professional who wants to break out of the rut of constantly rushing to acquire another skill (programming in Python, for example) only to find out they have become what he calls a “commodity”— just another Python programmer easily replaced with any other Python programmer (at least in the perception of upper management).

It addresses the beyond-code skills needed to stand out from the crowd. Straight forward, concrete exercises to help in developing those skills are also provided. As frequent readers of this column will recognize, this is something I firmly believe MultiValue professionals need to take a close look at. I’ll have more to say about this book in another column. For now, I would just like to pass along the recommendation. You can buy the print version for around \$19.95 — less from your favorite online bookseller — or you can download the free PDF version from his web site (intl-spectrum.com/s1029).

While I was browsing Rajesh Setty’s site and resources, I signed up for his newsletter, which brings us to the topic of this issue’s column. He mentioned a blog post he wrote about “Why some people work hard but don’t get enough credit for their work.”

In it he presents his analysis based on his research. (I don’t think his mini-research projects would pass a sociologist’s strict definition of the word, but they are informative, nonetheless.) We all know it’s common to hear this lament. “I work so hard, but it’s not appreciated or rewarded.” I’ve written about the same topic. So I was interested to see what someone else found out and had to say about it. And I got surprised.

Yes, he did find some cases where people were being victimized and taken advantage of. We all know that

happens. But the surprise for me was that the majority of those who felt “victimized” had something in common — it was their interpretation of exactly what “hard work” meant. They felt victimized but failed to realize it was of their own making. He broke it down into ten items, but four of them jumped out at me. (You can read his entire article at Life Beyond Code (intl-spectrum.com/s1030)).

Sometimes people work hard because they don’t have the skills to do the job smoothly, correctly, using best practices, or get it done on time. It’s easy to see this in some of the MultiValue user lists. They post questions about basic things like “how do I find out what columns this table has?” How can you work easily with MultiValue data if you don’t know what a dictionary is or how to list it?

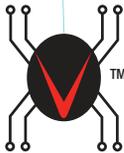
In some cases lacking the skills to do the job is the fault of the company who hired them for not providing any training. Sometimes it’s the fault of the outsourcers they work for. But a lot of times, even with IT folks who have been doing this for years, it’s their own fault for not opening a manual, not reading the last ten years of release notes, or not even asking “How does this work?” when they run across a statement or function they haven’t seen. In this case, the solution is to find out what they need to do to get those skills, and do it.

Continues on page 38

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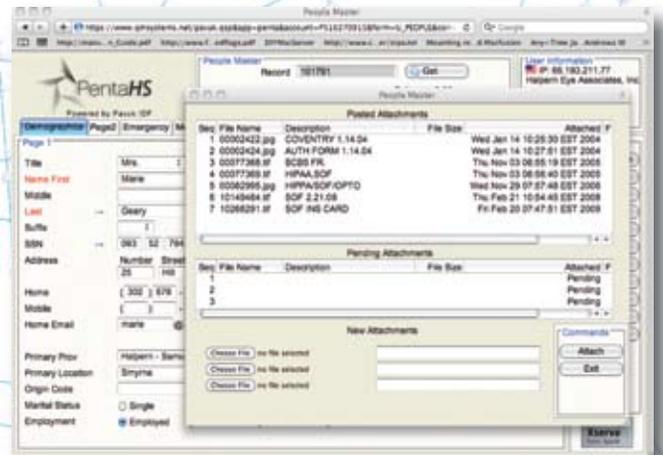
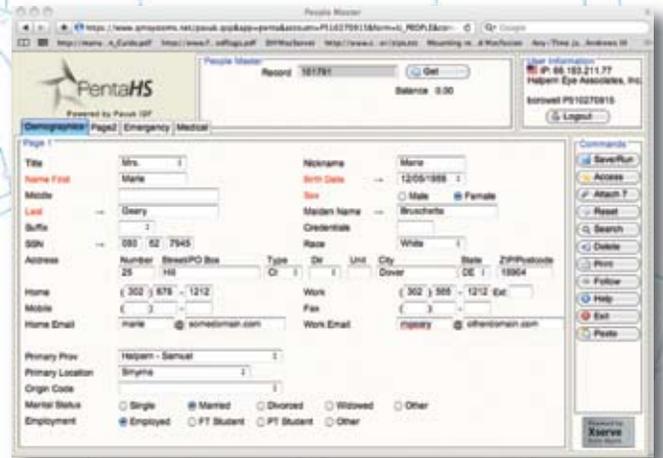
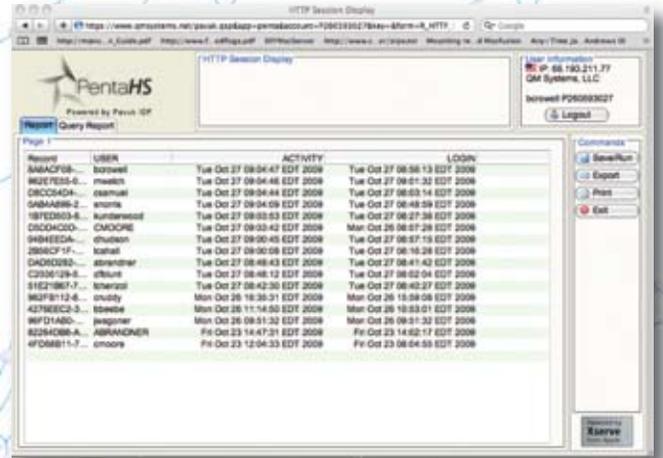
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