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INSIDE: ERP AND TODAY'S EXPECTATIONS

INTERNATIONAL Spectrum

THE MULTIVALUE TECHNOLOGY MAGAZINE | MAR/APR 2009

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```
00.5,10,1,c  
"Date",univ  
"Invoice",u  
"Page #",un  
"From id",0  
"Out (0)",0  
"Out (1)",0  
"Out (2)",0
```



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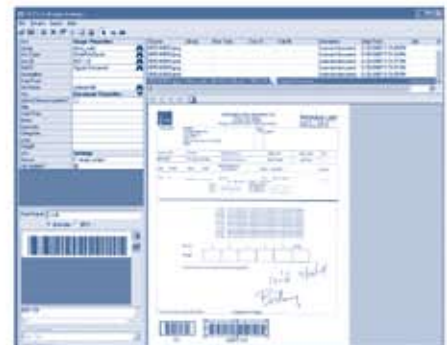
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6 Mining Open Source Software for Your Own

Projects There are a number of Open Source applications available, some of which are complete application suites like Open Office or Sugar CRM. But there are also smaller pieces to the puzzle that you can incorporate into your own MultiValue software. **BY CHARLES BAROUCH**

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You have a software solution that is excellent, efficient, and with terms that are attractive. But the prospect wants to build their own. How do you communicate across this gap? **BY CHARLES BAROUCH**

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InterSystems recently released a new product, InterSystems DeepSee, which allows real-time business intelligence (BI) capabilities to be embedded into any Caché (or Ensemble) application – including those migrated from a legacy MultiValue platform. Take a look at how it can be used with a Caché-based MultiValue application. **BY LEE H. BURSTEIN, INTERSYSTEMS CORPORATION**

From the Inside

BY NATHAN RECTOR

<http://blog.intl-spectrum.com>

The economy sucks! I was trying really hard to not to talk about it. It seems like everyone and their mother is talking about it. It sucks!

Ok, now that I've stated the obvious, let me get to my point... We have an opportunity that we have to exploit. If we don't exploit this opportunity, then it is almost criminal.

As everyone is seeing, companies are cutting back on personnel. This means that IT will be required to implement automation and streamline procedures to make up for this lack of personnel. You have likely seen this already, or you will start seeing this in the next few months.

I predict that 2009/2010 will be the start of the death of monolithic applications that are hard to alter quickly. The companies that use these monolithic applications are going to stop paying the yearly support to these vendors to cut their costs. Companies have paid hundreds of thousands to millions in support fees yearly for existing applications that are starting to cost their business.

With the economy the way it is, minor changes like UI or adding a new gee-whiz feature that doesn't actually do anything for the business processes isn't going to cut it anymore. If you have been following other IT and CIO magazines, you've probably seen a trend in companies dropping yearly support that is being paid to mainline vendors and going with consulting companies that can maintain the existing software for one-fourth the cost of what the mainline vendor is charging for "minor upgrades."

As companies start trying to cut their operating costs, but need to keep up with ever changing business practices, you are likely going to see more demand to account for why IT departments are spending the money they are. They aren't going to keep you from spending it, but they will make you justify why you are spending it.

Opportunity! Opportunity! Opportunity!

We know MultiValue technologies, architecture, and design patterns have large amounts of cost savings to the business and end users. It costs less to operate. It is Green and has been a Green platform for years. No extra or specialized personnel are required to run or maintain the day to day computer operations (while I can't say much about the rest of the enterprise). And there are many other benefits we bring to the enterprise.

By using MultiValue architecture and design patterns, we can develop applications quicker and for less than many other business software developers. Add to the fact that we can connect and communicate with many other database types, MultiValue technologies and architecture can save a business a lot of money automating business practices without even having to change software they are currently using.

So how do you exploit this opportunity? Talk with me at the conference and keep a watch on the International Spectrum Blog (<http://blog.intl-spectrum.com>). I'll be talking some more about ideas on how to do this.

-NATHAN RECTOR

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INTERNATIONAL Spectrum

MARCH/APRIL 2009

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International Spectrum is published six (6) times per year at the subscription price of \$40.00 U.S. in the U.S.A.; \$45.00 U.S. in Canada and Mexico; \$50.00 U.S. for other countries. Single copy rates are \$7.00 U.S. in the U.S.A. and Canada, and \$9.00 U.S. in all other countries. International Spectrum is published by International Spectrum, Inc., 80 Garden Center, Suite 6, Broomfield, CO 80020; Tel: 720/259-1356; Fax: 603/250-0664 E-Mail: request@intl-spectrum.com. Copyright 2009 International Spectrum, Inc. All rights reserved. Reproduction in whole or in part, without written permission, is prohibited.

PRINTED IN USA

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Mining Open Source Software for Your Own Project

BY CHARLES BAROUCH

I'm Feeling Partial

One of the nice things about open source software is that you don't have to use it. If I want a function or feature that comes with SAP, I have to use SAP. Commercial software is often monolithic; everything is mixed into a single package.

If I want a function or feature that comes with an open source project, I might be able to abstract just that part and embed in my own software. I've become very partial to partial use of open source.

Now, being a good citizen of the software community, I never take from a project except in the way that the developer's license allows. I'm sure this applies to all of you as well. Free software isn't free. It requires you to pay attention.

Hack and Slash

For this exercise, I'm going to write a spell checker. Since I don't have the time or interest in compiling a huge and viable dictionary, I'm going to use one from an existing project.

The good news is that I have an embarrassment of riches when it comes to picking a project to plunder. After looking at several choices, I'm going to limit myself to two open source targets: ispell and Aspell.

Of course, you aren't limited to these choices. For example, *The New York Times* has a fascinating beast called the corpus which contains 650,000 articles. If I abstract a word list from that sort of repository, I could build quite the dictionary. Take a look at the licenses for this and other massive text

stores that might provide you other ways to build your spell checker's dictionary.

So, how do I hack up Aspell and ispell? First I need to see that they have value as designed. So, I'll go to the web sites (fig. 1) and check them out. Not only will I find some excellent information about their use, but as a bonus, I'll discover that the dictionaries are already separated out. As an extra bonus, they are separate so as to make use of foreign dictionaries easier. That means that if I build off of the Aspell or ispell format, I get multi-language compatibility by default.

```
Aspell
http://aspell.net/

ispell
http://ficus-www.cs.ucla.edu/geoff/ispell.html
```

Fig. 1 The Links

Where Can I Look Up the Meaning of Dictionary?

To use the ispell or Aspell dictionaries in my project, I need to know how they are formatted, and I need some way to import them into my application database. So, let's look under the covers and see what we've got.

The ispell dictionary is literally a word list. If you stripped everything after the "/" on the lines which contain a slash, you'd have an incredibly simple implementation. So, importing an ispell dictionary is just importing and cleaning up a text file. Here's a sample from the start of the American English dictionary:

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Revelation WebOI

An Introduction to a New Web Development Toolkit

The OpenInsight Development Suite 9.0 was released in early January 2009. The Suite contains an integrated Internet/intranet tool called WebOI. WebOI is a web enablement and development toolkit that interrogates existing OpenInsight data, as well as U2 data, and ties it to the Web. Existing OpenInsight forms and pop-ups can be ported quickly and easily to the Web, and existing subroutines and functions can be integrated to apply business logic, allowing for maximum re-use and integration with minimum effort and cost.

WebOI is one of the methods in which OpenInsight can interface with the Web. It contains a conversion tool for OpenInsight native windows to be converted to HTML pages. It contains a tool for converting OpenInsight scripted event handlers to an external subroutine, effectively separating your presentation items from your processing logic. All the components necessary to integrate your application with WebOI, with the exception of web server software and web browser, are included in the OpenInsight Development Suite 9.0. WebOI takes full advantage of Ajax processing.

WebOI is for the OpenInsight developer who wants to continue to develop with the OpenInsight Form Designer, User Interface Workspace, and Basic+ programming language and publish to the browser with a single click.

WebOI uses standard Internet browser compatible pages, providing access from any popular web browser. Pages can run in full screen mode or handheld mode, providing access through virtually any Internet or intranet device, anywhere an Internet or intranet connection is available. Pages can be simple, to ensure compatibility across older browsers, or can be feature rich for maximum visual impact.

WebOI makes custom software, and web enablement of existing applications, affordable and available to OpenInsight developers without having to learn a new development environment. It does so by allowing development, maintenance, and web enablement to be carried out extremely quickly. WebOI has taken advantage of the next step in web processing, Web 2.0.

All you need is OpenInsight 9.0, OECGI2, IIS, the OpenEngineServer, and an Ajax compatible browser.

The OpenInsight Development suite provides two methods for using WebOI: WebOI Web Ready and the WebOI Designer. I would like to give you a quick overview of each and provide some simple examples of the WebOI Web Ready piece.

WebOI Web Ready

OpenInsight has a native form, WebOI Web Ready, accessible from within the OpenInsight IDE, which provides for converting existing OpenInsight windows and pop-ups to be usable within WebOI. The existing windows may be multi-page tabbed windows and WebOI will render them within the browser as such, with no extra development necessary by the application developer.

Web Ready is a quick and easy way to add web front-ends to existing OpenInsight applications, providing a fast and cost effective means of rejuvenating existing or legacy systems, and retaining the investment that those systems represent. Web Ready is an extension to the WebOI software toolkit.

Using WebOI Web Ready, your existing data can be viewed, searched, and drilled into through a web-based interface, quickly, with minimal design and no coding. Updating data and applying business rules can be added with some simple design or coding, including incorporating existing functions. Default web pages that integrate with your existing data files are created automatically and can be customized using any HTML editor, allowing existing systems to be rejuvenated with ease, and at a relatively low cost.

Figure 1 is a typical Customer Entry form in an OpenInsight windows application, which we will use for our *before* image. See Figure 8 for the *after* image.

As shown in figure 2, the WebOI Web Ready tool contains a list of screens within your system. You may select an OpenInsight window from a drop-down list of all windows within your application. You can double click on the “Pop-up Used” column within the grid and a list of pop-ups that the form uses will be displayed. When you select the pop-up, it will be returned to the ta-

The screenshot shows a window titled "Customer Entry" with a search bar and several input fields. The ID is 13, Company is Danger Tours, First Name is Willie, and Last Name is Makeit. The Contact Info section includes fields for Address1 (543 Tumbler Court), Address2 (Suite 109), City (Seattle), State (MN), Zip (44334), Country (USA), Phone (555-5555), Fax, Email, and Website.

Fig. 1 Customer Entry Window

The screenshot shows the "WebOI Web Ready" interface with a "Forms" tab selected. A dropdown menu shows "EXAMPLES**CUST_ENTRY". Below it is a table with columns "Popup Used" and "Returns To".

	Popup Used	Returns To
1	EXAMPLES**CUSTOMER_ID_POPUP	CUSTOMERS_KEY
2	EXAMPLES**STATES_POPUP	CUSTOMERS_STATE
3		
4		
5		
6		
7		

Buttons for "Clear Popups", "Convert Form", "Delete Form", and "Close" are visible.

Fig. 2 A Sample Conversion Screen

ble. The “Returns To” column lets you indicate which field in your form the data returned from the pop-up will be placed into. Then, with one easy step, you can click the “Convert Form” button and your OpenInsight form is now a WebOI HTML page. When the form is converted and run in your browser, without you having to write any extra code, the pop-ups will display and the data selected is returned to the desired controls.

Many OpenInsight forms have event logic built using the OpenInsight Form Designer Event Handlers. The WebOI Web Ready toolset has a “Build Commuter Module” option that will launch a “Commuter Module Generator”. The OpenInsight Form Designer’s event handlers are convenient for rapid development but become difficult to maintain in a large project. OpenIn-

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ERP Systems and the MultiValue Advantage

Part 2 – Today's Expectations

BY CANDI HART

Who among us hasn't been frustrated when we call a supplier to check on something and we have to provide our name, address, and order number over and over again to different personnel? Don't they have us in a database that everyone can access? How come UPS is able to tell us where our package is but other companies can't even find our order? Eventually companies recognize that they are losing business opportunities because of the frustrations of their customers or when one department can't tell what's going on in another department. This is when an ERP (Enterprise Resource Planning) Software solution is considered and sought after.

In part one, I discussed where the term ERP came from and what constitutes an ERP system. I also covered some of the benefits of an ERP software system versus each department having their own individual software solution.

Though MultiValue vendors have been successfully implementing ERP packages for years, the new acronym and industry buzz has created new capabilities and expectations. Users spend much of their day managing their e-mail, accessing the Internet, and are used to control on their desktop. So, while ERP solutions must still provide functionality and interaction between internal applications, managing the user's resistance to change may be the deciding factor for both an initial sale and for a successful implementation.

Let's look at some of the modifications and the latest developments that some of the long-standing MultiValue vendors have included in their packages to successfully compete with today's products like SAP Business One, and how they have addressed the issue of the user's resistance to change.

Graphical User Interfaces

With everyone using Windows and the Internet, newer business applications have to have a graphical user interface that looks and feels like what people are familiar with. The failure of implementations is often just natural reluctance to change. If the screens and menus are in color and highlighted, users feel like they are learning something new instead of being forced to learn some old antiquated system that feels scary or tedious.

Users Ability To Customize Their Desktop

Menus need to be able to be customized so users can create them in the order of what they do most frequently. Again, this reduces the objection to change because it gives the user ownership of their processes and generates a desire to play with their screens. I am always surprised how often users will simply change the colors of their screen background and letters.

Table-Driven Drop-Down Lists

If most fields are table-driven and users can use a drop-down list to select an answer, the operator is less likely

“...managing the user’s resistance to change may be the deciding factor for both an initial sale and for a successful implementation.”

to object to trying the new software. As new people are hired, they require less training. If, wherever possible, data can be selected from a list, it creates more standardized data and simplifies validation. Though, for speed, the users will begin to know the codes they use and can type them directly in. Knowing the list is there if you need it is a big comfort to users. No more printed lists taped to the edge of the screens!

Web/Browser-Based Option

The newer packages have the option of running on the Web, if desired, or as browser-based application.

A Dashboard-Type Desktop

When a user signs on, his desktop includes graphic KPIs and Alerts as well as menus customized specifically for his needs. The desktop can indicate whatever work is pending for that user — like procurement may have an indicator that there are xx number of purchase orders that need to be placed. The operations desktop may indicate that xx number of work orders are in process and xx number are scheduled for completion in the next week.

Alerts

When a user account is set up, it is determined what information from other departments they need to notified about. For example, the customer service person may want to be notified when product is received that it is not enough to ship an order complete so they can call the customer and ask if they want a partial shipment. This should feel to them like getting an e-mail message that they need to review and respond to. It may actually be an e-mail message that has been automatically generated by the system when a specified set of criteria has been met.

Key Performance Indicators

Each level of management sets up the KPIs that they want to monitor, and they are displayed on their desktop. The Sales Manager may want to see a pie chart indicating the dollar value of all orders this month for each salesperson, while the Production Manager may want to see a percent of rejects for each product line. Though that information is still being captured by the ERP modules, the summary is instantly available and viewed in a meaningful and easily understood format. Most managers no longer want to routinely see the long reports with all the detailed transactions.

Availability Of The Latest Modules Like CRM And HR

Though the software remains modular, and may be purchased by module, many customers like to know that when they are ready, the additional modules are available and can be easily integrated into their ERP systems.

Options for Legacy/ Customized ERP software

So what of MultiValue users that are running legacy systems that fit the definition of an ERP system, but the original vendor is no longer in business, or the user has customized it so much that it can no longer be upgraded by the vendor?

When a company has new personnel, they may have come from a company with one of the latest ERP solutions. New people need detailed training, and they may complain that the old software is too complex and hard to use. It takes a while for a new manager to really find out about everything a full ERP package does and all the data it provides — especially if it isn’t visually and intuitively what they are used to.

So before he/she starts talking about buying a new ERP system, here are some of the things that can be done to enhance the existing legacy software and keep all the customized business processes.

Convert the User Interface

Whether managers know it or not the biggest objection today is the look and feel of the software application, not the technology or the inability of the ERP system to handle the interface between business processes. There are many products available that make it possible to wrap your application in a GUI interface or web browser. If it looks new, users will be more inclined to discover and appreciate all its other capabilities.

Most of these tools also provide the capability of creating custom menus, but be aware the users want to move selections around by themselves, not ask someone in IT to change their menu for them. IT should simply maintain the permissions regarding what selections the users are allowed access to.

Add Tables

Review your database and inputs, and create tables wherever possible. Then, add the table lookups to your input screens.

Tables can be created from the existing data, and then reviewed for consistency. For example, I worked with some software that had a field for country in the database. The screens allowed the country to be typed in. By creating a country code, and populating the file with the data from the existing database we were able to clean up the database. Then, we changed the screen so that a valid code had to be typed in — or a drop-down list was made available.

Continues on page 13

D3 FlashBASIC

History and Usage

Questions frequently arise in forums about how FlashBASIC works. So I thought I'd summarize it here.

First, a primer on compilation and object code in general.

Most MultiValue BASIC source code is not compiled down to machine code; it's only partially compiled down to what is called *PCode*. PCode is what results when you compile source down to an intermediate, human readable set of instructions (tokens) that are just a level up from Assembler.

There are two separate engines required to process BASIC code — the compiler engine and the runtime engine. If you watch the “where” status in D3, you'll see that during a BASIC Compile a port will run through various BC.* modes (Assembler modules), and non-flashed applications run through the BASIC runtime modes identified as BR.*.

Once the compiler has generated tokens, it's no longer needed. Every system requires a runtime to parse and execute the tokens, and the BASIC runtime code is slightly different on each platform, which is why some issues appear in BASIC on one platform and not others.

In many other environments, object code is real machine code that interacts directly with the host OS. Code like this (generally C, C++, or low-level Assembler) is generally faster than interpreted code. But machine code is platform-specific, different between Windows, Linux, AIX, Solaris, etc. A MultiValue application, specifically the object code, is intended to be cross-platform without recompilation; so, if object code is delivered as tokens then a common runtime engine can be used on all platforms to run it. It's not quite as fast as machine code, but speed is traded for portability and security. This exact same process is used with the Java Virtual Machine, and with the Microsoft .NET Common Language Runtime (CLR) which executes Common Intermediate Language (CIL). Most .NET people are fairly familiar with the concepts of the CLR and CIL, also known as MSIL.

Other languages like PHP, Perl, and JavaScript are regarded as scripting languages because they are not compiled — the runtime engine processes source code all the way down to the machine code for the specific OS.

In short, scripting languages are pseudo-compiled and executed at runtime. This has benefits and detriments. On the pro side, there is no compilation process, you run your source code and get immediate gratification. On the con side, sometimes obvious issues are not found until the runtime hits them, and this could be after the software has been deployed to end users.

Many people are confused about the difference between Java and JavaScript. Some people tell me they write Java code and I've found out later they really meant JavaScript.

JavaScript looks and functions a lot like Java, but it is interpreted, not compiled (to tokens) like Java. The name JavaScript implies that it is Java, only somehow different. But this is not the case at all. The Java language has access to many features that JavaScript does not. And JavaScript is an ECMA Standard, while Java was only recently released to open source. For these reasons and others JavaScript is frequently referred to as ECMA Script.

And Now on to D3

As we've seen, BASIC object isn't really compiled down into machine code. The D3/Pick Virtual Machine Environment (VME) is written at a high level in a proprietary dialect of Assembler, and the BASIC Runtime is a part of the VME. Object code tokens are taken in one by one into the runtime engine and executed through other Assembler instructions that manage the file system and other services.

When access to the lower-level OS is required then requests are made of a lower level called the Generic Monitor, GM, or just “the monitor.” This is the platform-specific code that does memory management, disk IO, process/thread management, etc.

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ERP SYSTEMS & THE MULTI-VALUE ADVANTAGES – PART 2 – TODAY’S EXPECTATIONS

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Add KPIs and Reporting tools
Creating tables and cleaning up the database is a good preliminary exercise to using some of the graphical reporting tools that are now available. *International Spectrum* has had articles and demos of various KPI and reporting tools that take the data in an existing ERP system but display it in the latest graphical format. New, exciting pie charts and graphs can add new life to large amounts of historical data.

Alerts

The original ERP systems had the data available real time, but the user was expected to print a report several times a day in order to watch for new transactions that may require action on their part. This is no longer the way people work. They need to be notified when something occurs — they look forward to “You’ve got Mail” messages. There are several network e-mail software packages that make it possible to send an e-mail from a Basic program, and having a list or count of items that need action should be on their desktop.

And As A Last Resort....
Purchase A New ERP Package
And Convert

It may be possible to convert their existing data into the files used by one of the new packages that include all the above features. It will still require the discovery phase to determine if there are processes that the legacy system does that is not provided for by the newer software. And, if so, the new package will have to be customized, but the database can be preserved and conversion from one MultiValue format to another is relatively easy.

ERP application suites designed to organize and manage business process and information are not new. But whereas initially the concern was about how to implement the systems, today the main concern is how a company can

manage the changes that they didn’t anticipate when the ERP system was installed. Acquisitions, restructuring, and new products and processes occur frequently in today’s marketplace. The package that can be modified quickly to manage these changes will be the one most sought after.

Speed and ease of modifications have always been the strong suit in Multi-Value applications and with the newest enhancements helping users to be comfortable with changes, MultiValue ERP solutions stand to be around for a long time to come. **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

CLIF NOTES

Continued from page 38

While bonuses and raises may not be possible right now, you can still demonstrate that you consider them valuable by offering low-cost benefits like having a regular *knowledge transfer* lunch where you buy the sandwiches. That is even better if you mix up the topics so some sessions are about something that builds skills rather than always being just about your own application deep knowledge. That will help demonstrate that you are interested in them as professionals, not just a resource you are trying to get more out of.

In every adverse situation, there are also opportunities. When things get tough, it’s an excellent time to return to basic principles while expanding knowledge and abilities.

It’s a good time to step back, breathe, and plan rather than just react. **IS**

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Data Binding

LINQ and UniXML

BY BRIAN LEACH

Ever since the early days of Visual Basic, I've failed to be convinced by data binding. The aim of the technique is to create user interface controls (text boxes, drop-downs, etc.) that are automatically associated with a data source. As the data source changes, so does the content of the controls; as the controls are modified they can update the data source. It always seemed lazy, more suited to gee-whiz demos than to real world applications. When Microsoft introduced .NET, data binding was high on the agenda using in-memory data sources called DataSets that encapsulate tables and relations. As powerful as these are, binding to DataSets leaves me equally cold.

The problem is that DataSets are insufficiently intelligent. It's not easy to apply validation without it becoming bound up in the user interface when really you want it to be closely associated with the data. It is often difficult to control the interaction between fields and if the underlying data is not in a presentable format — for example, if you want to translate to meaningful descriptions or to use mnemonics in place of internal codes — a DataSet can be rather unaccommodating. For a variety of reasons, it is a rather blunt instrument.

Binding to Objects

Fortunately, there is a better way — data binding to objects. Later versions of .NET enable you to bind controls directly to the properties of an object, rather than to a column in a DataSet. This means you can code any validation and translation logic nicely inside the class, leading to a better structure and more effective separation of duties. It is also easier to handle subsequent changes to the user interface, since the real work is being handled behind the scenes.

There are generally two ways to go about this. Anything that can be enumerated such as a `List<T>` or `Collection` can be used as the basis for an Object Data Source,

which can be set up using a wizard if you want to avoid getting your hands dirty. Or you can construct the bindings manually, by setting the `DataSource` on a control like a `DataViewGrid`, or specifying a property on a control to bind to a single object (fig. 1).

You can even feed back validation errors by implementing the `IDataErrorInfo` interface on your class.

In fact, the only problem with this approach is the work required to build these objects, especially if reading them from a MultiValue database like `UniVerse`.

There are of course many ways of doing this, but to make the article more interesting I'm going to choose a slightly obscure approach — running a LINQ query against a XML inquiry.

Fetching Data

Readers who have played with the IBM `UniObjects.NET` middleware will be familiar with the `UniXML` class. This helpful utility enables a client developer to execute a query statement — `UniQuery` on `UniData`, `Retrieve` or `SQL` on `UniVerse` — and to have the results returned in XML format. Moreover, `UniXML` can automatically generate a `DataSet` from the results (fig. 2 and 3).

```
txtCreditLimit.DataBindings.Add("Text", myCustomer, "CreditLimit");
```

Fig. 1

This brings me back to the main point of this article. UniXML is a useful tool, but it would be nicer to be able to generate a set of objects for binding, rather than a DataSet.

In the audio book store demonstration database (available from www.brianleach.co.uk if you want to follow along) you will discover a BOOK_SALES file holding sales orders, each of which has multiple order lines for publications complete with file translations to look up the author and title details. For the sake of this article, I want to select a set of sales orders and have these instantiated and populate some objects on the client. Equally important, I want to save myself some work by letting Retrieve build the data for me.

You should be aware that UniVerse can generate XML directly from a standard inquiry. This is the easiest way to generate data in a convenient format ready for external use, so I just need a simple SORT .. TOXML command to fetch the sales data (fig. 4).

I can run this using a regular UniCommand and capture the results. I may need to strip off some blank lines at the start (fig. 5).

I can modify the command later to add a selection of the data; this sample is enough to show me the structure. The results will look like figure 6. Note that SALE_ITEMS-MV tag holds the order line association.

Now it is time to turn these into a useful set of objects. That's a job for LINQ.

LINQing it together

LINQ (Language INtegrated Query) is one of the

Continues on page 17

```
UniXML uniXml = sess.CreateUniXML();
String cmd = "SELECT * FROM BOOK_TITLES";
try {
    uniXml.GenerateXML(cmd);
    System.Data.DataSet ds = uniXml.GetDataSet();
    dataGridView1.DataSource = ds.Tables[0];
} catch (Exception ex) {
    MessageBox.Show(ex.Message);
}
```

Fig. 2

TITLE_ID	TITLE_NAME	UNITS	FORMAT	GENRE	DEPT	ISBN
10	Hancock a Comedy Genius (BBC...	22	CD	HUMOUR	ADULT	0563525452
11	I'm Sorry I Haven't a Clue: Vol 8 (...)	1	CD	HUMOUR	ADULT	0563495421
12	Friends, Lovers, Chocolate	7	TAPE	FICTION	ADULT	1405500530
13	The Legend of Spud Murphy	5	CD	FANTASY	JUNIOR	0141805293
14	Farmer Giles of Ham and Other S...	6	TAPE	FANTASY	ADULT	0001056107

Fig. 3

```
SORT BOOK_SALES TOXML ELEMENTS
```

Fig. 4

```
UniCommand cmd = sess.CreateUniCommand();
cmd.Command = "SORT BOOK_SALES SAMPLE 1 TOXML ELEMENTS";
cmd.Execute();
String results = cmd.Response;
results = results.Substring(results.IndexOf("<<"));
```

Fig. 5

```
<?xml version="1.0" encoding="UTF-8"?>
<ROOT>
<BOOK_SALES>
  <_ID>13661*55800*1</_ID>
  <SALE_DATE>26 MAY 2005</SALE_DATE>
  <SURNAME>MAGGS</SURNAME>
  <FORENAME>CARL</FORENAME>
  <SALE_ITEMS-MV>
    <TITLE_ID>49</TITLE_ID>
    <QTY>1</QTY>
    <PRICE>9.99</PRICE>
    <GIFT>1</GIFT>
    <TITLE_NAME>Jingo</TITLE_NAME>
    <AUTHOR_NAME>Terry Pratchett</AUTHOR_NAME>
  </SALE_ITEMS-MV>
  <SALE_ITEMS-MV>
    <TITLE_ID>47</TITLE_ID>
    <QTY>1</QTY>
    <PRICE>49.99</PRICE>
    <GIFT>0</GIFT>
    <TITLE_NAME>Harry Potter and the Goblet of Fire (Book 4)</TITLE_NAME>
    <AUTHOR_NAME>J.K. Rowling</AUTHOR_NAME>
  </SALE_ITEMS-MV>
  <SALE_ITEMS-MV>
    <TITLE_ID>11</TITLE_ID>
    <QTY>1</QTY>
    <PRICE>12.99</PRICE>
    <GIFT>0</GIFT>
    <TITLE_NAME>I'm Sorry I Haven't a Clue: Vol 8</TITLE_NAME>
    <AUTHOR_NAME>Cast</AUTHOR_NAME>
  </SALE_ITEMS-MV>
</BOOK_SALES>
</ROOT>
```

Fig. 6

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MINING OPEN SOURCE SOFTWARE FOR YOUR OWN PROJECTS

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Now, before we just dash off and slash off the slashed part, maybe we should find out why it is there. Here's a look at a complex one: ablate/DGNSV. The details are here www.intl-spectrum.com/s1007. But the short answer is this: everything after the slash refers to a way in which you can modify the word. So, instead of storing "ablate", "ablated", "ablating" and so on, they store the one word and establish single letter pointers to the rules on alternate forms. By incorporating their rules, rewritten in your application's language, you gain tremendously in the completeness of your spell checker.

"If they help you make a living, maybe you should consider returning the favor."

Now, the Aspell dictionaries are different. They don't use affix (prefix, postfix, infix) compression. They do incorporate metaphone (sound alike) data in the dictionary. They are very far from plain text. If you elect to use something like Aspell, you have a lot of reading ahead of you.

If ispell is a simpler fit, why look at Aspell at all? If you build your software based on one of them and it stops getting developed, updated dictionaries might become harder to find. If you want the metaphone data, you'll have to invent it with ispell, but you'll have it with Aspell. Whenever you start a project like this, make sure you've looked at the alternatives. Not all horses run at the same speed or have as long a career.

If you are concerned with betting on the wrong horse, then don't bet. If I keep the dictionary code separate, I can have a plug in for Aspell, one for ispell, and others as I need them. This frees my software from stagnating if the underlying source stagnates.

There's also another great way to hedge your bet: donate funds to the underlying project. Donate code. Donate help with documentation. If they help you make a living, maybe you should consider returning the favor. **IS**



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President of U2UG, and a regular Spectrum Magazine contributor.

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DATA BINDING, LINQ AND UNIXML

Continued from page 15

features in .NET 3.5. LINQ is a query facility built directly into the .NET framework as a first class language element. To appreciate the rationale behind this, consider the situation faced by relational database developers. They often need to code long and complex SQL queries in the form of strings to be sent to a data provider, which means that any errors present cannot be caught until runtime — particularly risky if the query is only issued under exceptional circumstances and may not be caught in testing. Add to that the fact that

programmers need to learn a range of different query languages — for data sources, active directory lookups, XPath and so forth — and the result is an unsatisfactory mess.

LINQ was designed to address these issues of query safety and universality. By using an embedded query language, along with suitably strongly typed mappings for database entities, the compiler can check the syntax of a query at compile time. While this cannot protect against logic errors, it can at least reduce the likelihood of some catastrophic syntax error getting through at some future point.

LINQ crops up in many other places in the .NET framework. The real beauty of LINQ is that it provides a unified model for querying disparate data sources. LINQ is available for objects, SQL databases, for DataSets, as part of the Entity Framework, or potentially any other source through the necessary providers. Most usefully for us, it can be applied powerfully to XML documents. I can use LINQ to generate the sales order objects for me.

The first step is to rattle off a couple of simple classes to define a SalesOrder and an OrderLine (fig. 7). To maintain the multi-line structure, the SalesOrder will hold a List of OrderLines exposed as its Lines property. Later, I can add all the validations and additional processing I need.

LINQ for XML runs against an XDocument, which is a LINQ-enabled representation of an XML document. I can load this directly from my results generated in figure 7. (Fig. 8)

Now to the fun bit. LINQ is a strange hybrid language whose syntax looks a little like inverted SQL. Learning the syntax can take some time, but it is pretty legible once it has been constructed. Figure 9 is the query to parse out the SalesOrder content.

Turning this into English, you might say:

“For each of the BOOK_SALES elements under the ROOT of my XML document, build a new SalesOrder setting the Id, SaleDate, Surname, and Forename from the respective XML elements and return the whole set in salesList”.

The LINQ query above will generate a new SalesOrder for each of the BOOK_

Continues on page 19

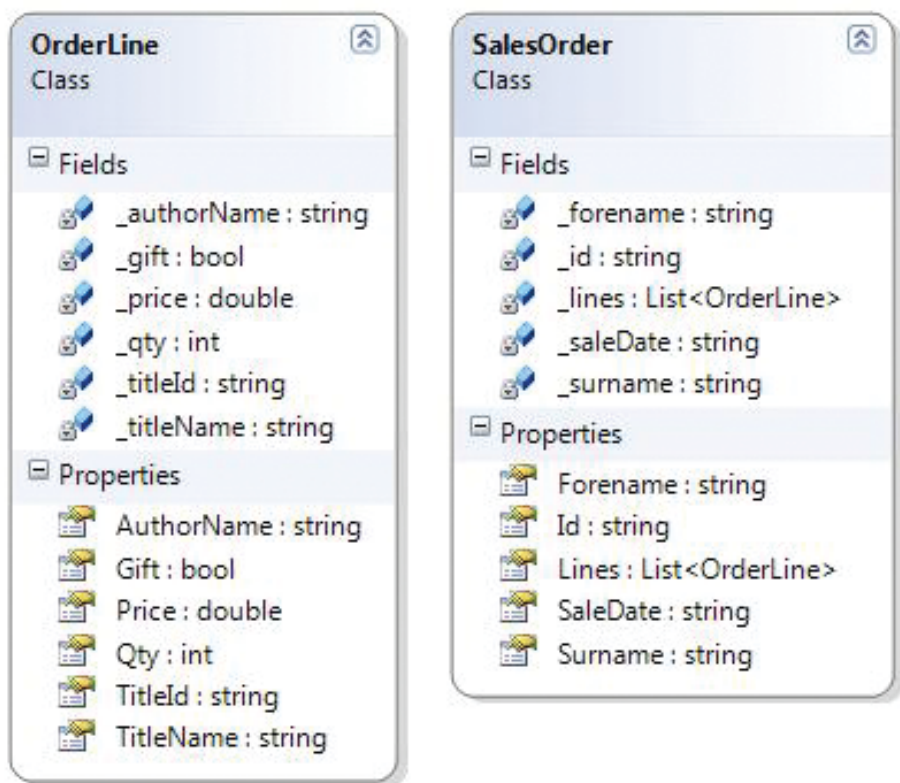


Fig. 7

```
using System.Xml.Linq;  
  
XDocument doc = XDocument.Parse(results);
```

Fig. 8

```
var salesList =  
    from e in doc.Element("ROOT").Descendants("BOOK_SALES")  
    select new SalesOrder{  
        Id = (string) e.Element("_ID"),  
        SaleDate = (string) e.Element("SALE_DATE"),  
        Surname = (string) e.Element("SURNAME"),  
        Forename = (string) e.Element("FORENAME"),  
    };
```

Fig. 9

D3 FLASHBASIC HISTORY AND USAGE

Continued from page 12

For D3NT, this monitor level is written in C. For Linux and other *nix platforms part of the monitor is written yet another lower form of Assembler, and (I believe) part is in C. Many years ago, Raining Data attempted to merge the mvEnterprise platform with D3, as both platforms included features from which the other would benefit. This project wasn't completed, in part due to the complexities of the differences between the Assembler GM in D3 and the C monitor in mvEnterprise.

(Editor's Note: Raining Data is now Tiger Logic.)

A Little History

FlashBASIC was intended to allow BASIC code to execute outside of the slower interpreted mode of the traditional runtime engine. The code is more optimized, a little closer "to the metal" than standard BASIC object code. The

FlashBASIC object code itself is really an additional module of bytes appended to the bottom of normal PCode interpreted object code.

When it was first introduced, there were up to nine levels of optimization. In theory the higher the level the more optimized, and larger, the object code got. The tradeoff was longer compilation time to produce more optimized modules.

There were two kinds of Flash — Platform Dependent and Platform Independent. The FlashBASIC compiler got its optimizations by translating the source into C, then compiling that code with the platform-specific C compiler down into Assembler for the host OS.

In practice, higher optimization levels didn't really yield significantly better performance. And for some code, higher levels ran a little slower than non-flashed code, in part because so much C/Assembler was generated in an at-

tempt to make the process run more efficiently.

The decision was made to do away with optimization levels and platform-specific modules. The Flashed modules are now platform-independent and well optimized though not as close to the metal as before. And there is no longer a requirement to have a C compiler for FlashBASIC.

Note however that at least D3 Linux does still require the C Developer package to be present at installation time. So, since we need this anyway, why is there such a big deal about not needing it for Flash?

One thing that has bothered me for years is that Pick Systems / Raining Data Marketing at some point decided to "re-brand" Pick BASIC, so that from then on *all* BASIC in D3 would be known as FlashBASIC. This created a need for new terms: "Non-Flashed FlashBASIC" and "Flashed FlashBASIC".

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DATA BINDING, LINQ AND UNIXML

Continued from page 17

SALES items encountered. But it gets even better — LINQ for XML can nest to get my order lines as well! (Fig. 10)

If that seems a lot of work, consider the alternative — parsing the results manually or reading the records one by one (with all the multi-valued file translations) and populating my new SalesOrders and OrderLines by hand.

Displaying the Results

LINQ has a number of strange habits, and one of these is delayed action. The LINQ query above has no effect until the target of the query (the salesList) is accessed. So my final step is to create a List<SalesOrder> to hold the resulting sales orders, and to iterate over it. (Fig. 11)

Now to display the results, I just bind some form elements to my list of SalesOrders. Since this is the end of the article, I'll just use two DataGridView controls for that scragged-together look, and connect them such that as each sales order is selected in the first grid, so the order lines appear in the second. (Fig. 12 and 13)

LINQ is a powerful technology in its own right, and there are plenty of books to help you learn it. With the increasing role being played by XML in MultiValue applications, it is worth considering any time you want to work with your data in .NET. **IS**

BRIAN LEACH is an independent MultiValue consultant working in the UK. He is an IBM Data Champion and Past President of the IBM U2 User Group. His third book on the IBM U2 platforms, Self Paced Training – UniVerse Client Developer, is due out later this year.

```
var salesList =
    from e in doc.Element("ROOT").Descendants("BOOK_SALES")
    select new SalesOrder{
        Id = (string) e.Element("_ID"),
        SaleDate = (string) e.Element("SALE_DATE"),
        Surname = (string) e.Element("SURNAME"),
        Forename = (string) e.Element("FORENAME"),

        Lines =
            (from l in e.Elements("SALE_ITEMS-MV")
            select new OrderLine{
                TitleId = (string)l.Element("TITLE_ID"),
                TitleName = (string) l.Element("TITLE_NAME"),
                AuthorName = (string) l.Element("AUTHOR_NAME"),
                Qty = (int) l.Element("QTY"),
                Price = (double) l.Element("PRICE")
            }).ToList<OrderLine>()
    };
```

Fig. 10

```
// private member to hold the sales orders
private List<SalesOrder> _salesList = new List<SalesOrder>();

// this actually runs the query
foreach (SalesOrder s in salesList) {
    _salesList.Add(s);
}
```

Fig. 11

```
dataGridView1.DataSource = _salesList;
dataGridView2.DataSource = _salesList;
dataGridView2.DataMember = "Lines";
```

Fig. 12

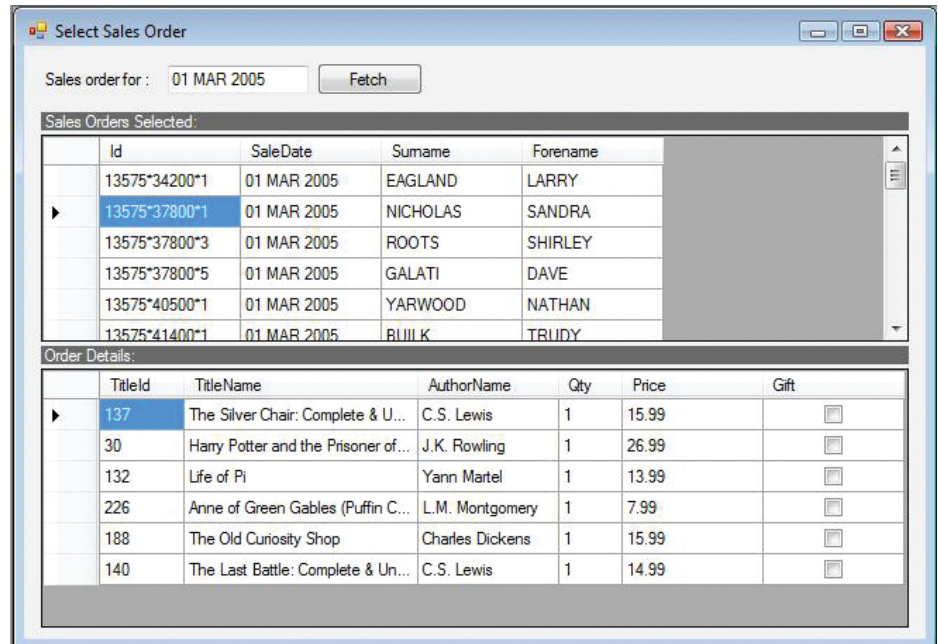


Fig. 13

Feedback

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

Please send your comments by e-mail to: editor@intl-spectrum.com

New Products



Tantiva LLC Introduces Tantiva Inventory Analysis

Tantiva Inventory Analysis leverages the power and speed of Tantiva Velocity to deliver GMROI and other key inventory metrics with unprecedented speed and agility.

Sales analysis has traditionally been the “killer app” for business intelligence tools, but in the world of wholesale distribution, more sophisticated measures are often used to gauge success. More and more businesses are turning to GMROI as a measure to control costs and increase profits. GMROI — Gross Margin Return on Inventory Investment (calculated as Gross Margin times Inventory Turns) — is a key performance indicator that captures both the cost of slow moving or excess inventory and the incremental revenue of sales. Until now, inventory analysis was generally performed offline with monthly hard copy reports or massive static Excel spreadsheets.

With the interactive reporting of Tantiva Inventory Analysis, GMROI can be calculated over any time period to allow quick responses to changing business conditions. Rather than wait days or weeks following month-end to gain an understanding how inventory is moving, Tan-

tiva Inventory Analysis makes month-to-date analysis possible, with the ability to quickly zero in on under- and over-performing warehouses, product lines, vendors, and sales channels. Accurate inventory measures will help companies reduce excess inventory and cost with minimal impact customer service.

Wholesale distribution is a vertical where MultiValue applications are dominant. Large volumes of SKUs, customers, and transactions make distribution a challenge for conventional applications, and for conventional business intelligence tools. With no restrictions on drill-down paths or date ranges, Tantiva Velocity makes an excellent foundation for a flexible, agile reporting. Designed with experience drawn from working with MultiValue distribution and inventory packages including AFS, AutoPower, Eclipse, Epicor iSolutions, Prelude, and SHIMs, as well as custom software, Tantiva Inventory Analysis integrates quickly and easily into MultiValue environments.

Example analysis for any level of granularity from enterprise to SKU includes:

- GMROI month-to-date vs. same period last year
- Turns (COGS/Average Inventory) year-to-date vs. same period last year
- Value of Slow Moving product
- Average Monthly Usage
- Inventory Months/Days of Supply
- Upside Flexibility
- Obsolete Inventory Rate
- Point-in-time Inventory

Valuation

- Error Checking – shipped without stock

Tantiva Inventory Analysis is designed and priced to give quick ROI. To start a conversation, contact sales@tantiva.com or visit www.tantiva.com.

About Tantiva Velocity

Tantiva Velocity was developed to leverage the strengths of IBM's UniVerse environment and today's low cost servers. Velocity offers true ad hoc analytical reporting — the ability to quickly slice and dice data without restrictive predefined date ranges or drill-down paths. Tantiva Velocity delivers an easy-to-use web-based interface requiring minimal training, Microsoft Excel compatibility, and superior reliability even in environments where there may not be a dedicated IT staff.

About Tantiva LLC

This is the third time partners Ross Morrissey and Brian Bond have worked together. Brian hired Ross away from Canada's largest software company ten years ago to work at a large 24x7 UniVerse shop. Ross later recruited Brian to join him at a Multi-Value software company where they worked with many customers and resellers, each with their own particular data issues. Today they bring a pragmatic approach to software development. Combining groundbreaking technology with standard tools to gain efficiencies in installation, maintenance, and use, Tantiva sets a new standard in MultiValue software. ■



Sneak Peek: jBASE Release 5

jBASE International, a leading supplier of database management software is pleased to unveil features of its multidimensional database, jBASE Release 5.

This release builds on jBASE Release 4 to deliver a true 64-bit database implementation together with new Application Programming Interfaces (APIs) and enhanced resilience through the introduction of Dataguard. The Dataguard features allow jBASE to be a truly non-stop MultiValue database.

The new features include:

64-bit database

jBASE 5 is a true 64-bit MultiValue database. Whereas other MultiValue databases might have added 64-bit addressing to overcome 2GB file sizing, jBASE 5 is a complete 64-bit implementation of the database. The upgrade path for all jBASE 4 customers is very straightforward.

Warmstart Recovery

A jBASE 4 database can be recovered by restoring the last backup and replaying the transaction journal but requires manual intervention. Warmstart enables jBASE 5 to automatically recover from events such as power failures in a similar way to mainstream RDBMS products. This is made possible by the

checkpointing enhancements to transaction journaling.

Checkpointing

Transaction journaling has been enhanced to provide an even greater level of flexibility and robustness with the introduction of checkpointing. Periodically, checkpointing pauses activity to record a point in time when the database is in a known state — a checkpoint.

Resilient Files

In badly-sized hash files, data is frequently split across a number of different frames and all must be read from and written to disk when the data changes. If something goes wrong there is a significant chance that an update will be interrupted and the structure of the file corrupted. In jBASE Release 5, a new JR resilient file type has been introduced to eliminate this possibility. In a resilient file, where data spans across disk frames, it is built up in a separate area of the file and flushed to disk. Only once it is on disk is a pointer updated to the new data structure rather than the old structure. There is a small performance overhead when using JR files due to the extra flushing.

Auto-Resizing Files

As well as being resilient, JR files also resize automatically. This is achieved by separating the location of the data from the record key of the file. This means that the structure of the underlying data can expand without having to redistribute all the data as was the case with previous hash files.

Online Backup and Restore

Backup and Restore commands have been enhanced so that a database backup and restore can be performed without the need to shutdown activity on the

database server. The backup will be a complete copy of the database at the point in time when the backup process finished. This backup is guaranteed to be in a consistent state because of the new checkpointing feature. The new Restore command can also be used on a live system

New APIs

A new jRemote Resource Adapter has been implemented for jBASE 5. It is a J2EE Connector Architecture (JCA) compliant resource adapter allowing J2EE applications to integrate with a jBASE Enterprise Information System. The JCA accepts connections with JEE clients and manages the lookup, execution, and transactional flow of Enterprise Java Beans (EJB), JMS queues, and requests from Message Driven Beans (MDB). By means of the JEE user functions a jBASIC program can perform transactional calls to EJB's, drop messages on JMS message queues, and perform processing via custom synchronous MDB's.

A new Secure Socket Layer (SSL) API has also been implemented for jBASE 5.

Native SQL Support

The query processor has been enhanced to accept SQL commands as well as jQL commands.

New JDBC and ODBC Connectors

A new 64-bit JDBC connector allows external applications written in Java to retrieve data from jBASE via this industry standard interface.

A 64-bit ODBC Connector implementing the OpenDatabase Connectivity (ODBC) 3.0 API has also been developed. It supports a driver manager based and Unicode compliant

interface featuring support for transactions and the calling of stored procedures.

The jBASE Release 5 Beta program will begin in Autumn 2009 with the general release by the end of 2009. Those interested in testing their applications against Release 5 should email r5@jbase.com for more information. Support for jBASE 4.1.6 will continue through 2012 to ensure maximum version stability.

About jBASE International

jBASE International, a member of the Mpower1 group of companies, is a leading supplier of database management software and web enabling tools for developing, deploying, and maintaining business applications solutions. The flagship product, jBASE, was designed from the ground up to be an open database product that would bring the strengths of MultiValue technology into the mainstream computing market. With exclusive worldwide distribution rights, jBASE International offers technologies and assistance that allow businesses to thrive into the future. Visit www.jBASE.com for more information. ■

ing to U2 businesses with the announcement of IBM WebSphere DataStage Server for UniData and UniVerse (DataStage for U2). In alignment with IBM's highly respected Smart Planet Initiative, this offering helps businesses cleanse and understand their data to provide better information to decision makers. Warehoused data is then easily queried by popular analytic tools like Cognos or used by warehousing appliances like IBM's Balanced Warehouse offering.

DataStage for U2 delivers three key capabilities necessary for success in enterprise data integration: the most comprehensive connectivity to easily and quickly map multivalued data to any target system; advanced development and maintenance tools to speed implementation and simplify administration; and a scalable platform that can easily handle today's massive volumes of corporate data.

DataStage for U2's intuitive development environment provides a top down dataflow capability that allows developers to create a visual sequential data flow model. Simple GUI-driven drag and drop design components and powerful scripting language shorten the time to build a data integration infrastructure. Available on popular platforms like AIX, Windows, and Linux, DataStage for U2 provides an affordable way to enable data transformation and integration solutions for U2 businesses.

Contact:
Martha Schraer, U2 Marketing Manager, IBM
707-643-5846
www.ibm.com/software/u2 ■



Announcing IBM WebSphere DataStage Server for UniData and UniVerse

The U2 division of IBM brings the power of Data Warehouse-

New Products

Continued from page 21



Revelation Software Announces Release of OpenInsight Development Suite 9.0

Revelation Software today announced the availability of the latest release of OpenInsight Development Suite (OI) 9.0. OI 9.0 provides many new features including WebOI, a web enablement and development toolkit.

With WebOI, existing OpenInsight Forms and Pop-ups can be ported quickly and easily to the Web and existing subroutines and functions can be integrated to apply business logic allowing for maximum reuse and integration.

The 9.0 release offers a new look and feel with the inclusion of a new IDE for the Application Manager. Also included is a new System Editor++ which has fast, accurate color coding, the ability to collapse code, and show line numbers. In addition, the System Editor++ supports the opening and editing of OS files and performs color coding on HTML and JavaScript tags. Syntax assistance tips for Basic+ keywords, functions, and subroutines are also provided.

Also new to OI 9.0 is the Bravo Dashboard from Sierra Bravo Corporation. The Bravo Dashboard is a MultiValue CGI application that delivers the output of individual business metrics wid-

gets to a dashboard web page. A new .NET version of the OIPI Print engine is included as well as enhancements to Basic+, Banded Report Writer, Table Builder, Arev32, Report Builder, XML Workspace, and the U2 Connector.

Release 9.0 is the culmination of over one year's development that has touched almost every entity within the product. It is a free upgrade to current members of Revelation's Works Program.

The OpenInsight Development Suite 9.0 will be offered in three versions: Desktop Edition, Server Edition, and Enterprise Edition. Each Edition is targeted to meet the needs of specific market segments.

All editions of OI 9.0 are Network Ready and include the Universal Driver 4.5 with the purchase of a new license.

"We have extended OpenInsight by embracing new technologies such as Web 2.0, .NET, and a Dashboard interface with price points that address all market segments," said Robert Catalano, director of sales at Revelation Software.

"I am proud to release OpenInsight 9.0," said Mike Ruane, president/CEO of Revelation Software. "We listened to what our customers have been asking for and we delivered in this release. I believe that OI 9.0 will allow Revelation-based applications to be extended into the foreseeable future."

OpenInsight Development Suite 9.0 is available from Revelation Software, or through their network of resellers. See Revelation.com for details.

About Revelation Software

Founded in 1982, Revelation

Software delivers a suite of application development tools and companion services that take full advantage of leading network computing architectures, messaging, groupware, and client server platforms. Today, the company's flagship product OpenInsight is the only database development and application environment that provides both Windows and Java-based GUIs tools to develop and deploy web-based and client server applications that support native and relational XML, SQL, Lotus Notes, and the MultiValue data sources such as Arev, Pick, and IBM Universe. There are more than 1.5 million licensed users of Revelation products across 60,000 deployed sites worldwide. The company has offices in Westwood, New Jersey, as well as a European distributor in the United Kingdom and an Asia Pacific subsidiary in Australia. ■



SpoolerPlus on OpenQM Lowers Migration Cost And Ongoing Operating Expense

Software migration specialist, Sysmark Information Systems, Inc., and OpenQM authors, Ladybridge Systems, Ltd, are pleased to announce the certification of Sysmark's generic Pick print spooler, SpoolerPlus, on OpenQM.

SpoolerPlus provides improved compatibility and lower cost to users of OpenQM as their data-

base of choice to support Multi-Value application software.

Improved Compatibility with Pick and Reality Software

Application software designed for generic Pick and Reality databases can be moved to OpenQM often without any modification of embedded print commands.

SpoolerPlus provides the print spooler and print queues to which print jobs and printers can be assigned to ensure a flexible and efficient use of printers to print all print jobs.

SpoolerPlus also provides the print commands — like STARTPTR, SP-ASSIGN, LISTPEQS, LISTPTR, SP-EDIT, SP-KILL, SP-STATUS and STARTSPOOLER and their options — that have been used by trained staff and that have become part of established business processes on prior databases.

This eliminates time-consuming and, often frustrating, re-training of personnel and the loss of valuable print management strategies at a critical time in the life of an organization and its IT system.

SpoolerPlus also includes the extensions necessary to support the Reality syntax of key print commands, increasing the compatibility of OpenQM with Reality software.

Automated Printer Configuration For Each Print Queue

As an added feature to the generic Pick print spooler, SpoolerPlus includes the ability to define print characteristics — like CPI, CPL, LPI, LPP, etc. — for a print queue. A printer can then be automatically reconfigured according to these print charac-

teristics before printing begins, using printer drivers provided with SpoolerPlus or written separately. This feature is the Plus in SpoolerPlus.

Reducing Migration Costs

SpoolerPlus substantially reduces software migration costs by eliminating costly software modifications. "One of our customers avoided rewriting over 1100 SP-ASSIGN statements in just one Reality-based application account," according to Dave Taylor, CEO of Sysmark. Another customer prints over 3,000 insurance policies during the last days of each month thru SpoolerPlus with no modification of his System Builder software originally from mvBase.

Increasing Database Value

OpenQM provides those seeking to lower operating costs a low-cost MultiValue database with competitive functionality and outstanding technical support.

In place of required annual support fees, Ladybridge Systems provides bug fixes at no charge, OpenQM upgrades for either one year or ten years based on the original license fee paid and technical support as needed paid for on an hourly basis. All authorized OpenQM dealers also provide technical support on an hourly basis.

This combination of lower acquisition costs, lower migration costs, and optional support costs results in a substantial reduction in initial and annual operating expense year after year after year.

You don't have to pay for support that you don't need.

For more information, please visit www.sysmarkinfo.com and www.ladybridge.com. ■

NEWSMAKERS

Ashwood Computers, Inc Migrates and Upgrades American Red Ball Transit Co's Business Systems

Ashwood Computer, Inc. working with William Horton, director of Information Technology for American Red Ball Transit Co., Inc. proposed they upgrade to a new IBM pSeries UniData server and upgrade their UniData database and associated systems software.

"We were running an IBM P-Series 7025 server that was about eight years old, along with AIX 5.2 and UniData 5.4 and SB Plus 5.2." said William Horton. "Ashwood recommended a replacement server that would yield four times the memory and disk and more than triple the processor power. We agreed to the upgrade and performed the transition and upgrade over a three week period in December.

"We have been very pleased with every aspect of the contract deployment, including hardware delivery, setup, testing, migration, upgrading products, maintenance transition, and most of all, the upgraded software products, AIX 6.1, UniData 6.1 and SB 5.4.2.

"The upgrade was thoroughly tested by all departments and approved prior to go-live. Upon live migration, a number of people stated that they didn't realize anything had happened. That is the best remark that an IT Director could expect to hear after a major system upgrade and migration.

"Ashwood's personnel insured that every aspect of this migration was thoroughly completed and working according to our specifications also insuring that every point of connectivity and output had been tested and addressed. The effort was kept direct and minimal with the result being a satisfied company.

"We would not hesitate to recommend Ashwood Computer for any upgrade, migration, platform change that you may have to do."

William Horton
Director, Information Technology
American Red Ball Transit Co., Inc.
(317) 351-0600
Fax: (317) 351-0656

Business Tech: Becoming a Software Vendor

Part 2

EPT vs. VPS

The world is full of software which does *something*. Still, many companies elect to write their own. Why?

If your new product does *something*, the answer to that question is breathtakingly important. It will tell you two things: (A) what the competition lacks, which you might add to your product, and (B) why people won't buy your product, either.

When I do my *Selling MultiValue to Upper Management* presentation, I talk about the divide between how we, the advocates, see products and services and how they, the people who are buying see those same offerings. I call first side VPS and the other side EPT. Understanding the difference is key to getting your product bought.

VPS is Value, Price, and Service. When Joe the Software Developer talks about his product, he says things like "Our new release runs 20% faster. We have a lower ROI than Brand X. All our deals include round the clock support." These are VPS phrases. They come from pride in what his company and his product do best. They are generally well thought-out and, hopefully, completely true.

When I was interviewed by *eWeek* for a staff job, Eric Lundquist asked me what I thought were the key factors in selling technology. I responded by listing off the EPT concepts — Exhaustion, Pressure, and Trust. When he asked me to defend that opinion — editors like it when writers can actually explain themselves — I said this:

"I'm the first one you are talking to, we'll be here for about 90 minutes. The next guy will only get an hour. The fifteenth guy who walks in will hear 'I liked the first guy better, but you're here and I'm tired of interviewing, so you start Monday.' That's Exhaustion. When you have a 'spend it or lose it' line in the budget and the year is ending, or another group is competing to solve the same problem, that's Pressure. The only one that we want to sell on is Trust. We like to buy from known players who have a track record."

I didn't get the job.

Why? Because I was geographically undesirable. I have written for them as a freelancer because — unlike staff — freelancers usually don't have to be located in certain specific place. By changing from potential employee to potential occasional resource, I became desirable. My VPS story was now one that would successfully pass through their EPT filter.

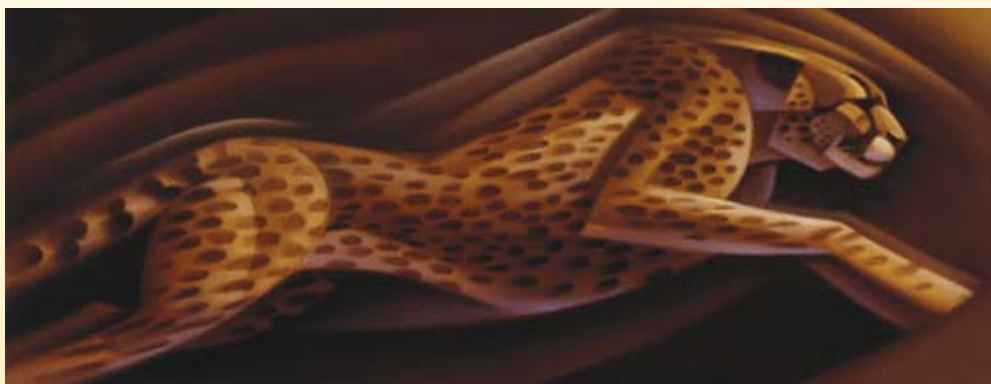
This is a key lesson in selling software. Having the best product but not having it under the terms and conditions they need, that's actually poor VPS. That means that if you run on Windows, and they only run Mac, you aren't where they need you. If you only run support hours on an Eastern Time weekday schedule, and they work weekends in Israel, you aren't *when* they need you.

I recently watched an online class where the assertion was made that the primary job of a business is to make customers. Taken from that perspective, it is easy to see why the customer's needs are as much a part of the specifications as any part of the software or hardware.

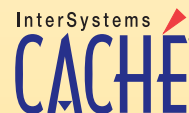
Continues on page 26

Innovations by InterSystems

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BUSINESS TECH: BECOMING A SOFTWARE VENDOR - PART 2

Continued from page 24

Idol of Millions

You started down this road because you own IP (Intellectual Property) which you believe can be marketed successfully to others. The funny thing is, others may want to develop their own IP — for exactly the same reasons you had in developing yours — which means they won't buy from you. As flattering as that might be, being cast as a role model, it also casts you into the role of competitor, when you wanted the role of solution provider.

Take, for example, a hypothetical company with a hundred clients who already use their software. You want to sell to them so that you can also sell through them to their customers. In this equation, Hypothetical Corporation provides market and you provide product. So, by simple math, if they build

their own product, they don't have to share with you, because they can provide both elements themselves.

The folks at the end-user, Theoretical, Inc. are in the exact spot you were in when you decided to turn your project

“...the customer's needs are as much a part of the specifications as any part of the software or hardware.”

into a product. If you saw the potential, they might also. So, every sales call is a chance to inspire people into becoming your competition. The good news is that most of these folks will never have the time to finish their product.

The bad news is that it may take a year or more before they realize that buying from you will get it done but brewing it themselves will never get done due to other deadlines.

Remember that every demo that fails to sell your product today might well be setting you up for a future sale. Once EPT refocuses them on the need, the Pressure and Exhaustion can work in your favor. Treat them right, even when they say no, and the Trust has a chance to kick in as well.

Subvert the Dominant Paradigm

As we discussed in the last installment, when you create a product, it is usually designed to solve a need. The paradox is that some people make money from that need — which means that fixing it runs counter to their best interests.



For example, coal does not shovel itself, so being a coal tender is a steady job at the railway. That is, until someone solves the problem by feeding coal automatically, or switching to electric trains, or finding some other way to avoid shoveling coal. You can see how the coal tender might not have seen the status quo as a problem, since it kept his family fed. He saw it as an opportunity.

So, when you create a product which reduces paperwork, you might be costing someone else a job or costing a paper company one of their steady customers. At the same time, you may also be spawning new jobs. Electric trains need new electric lines strung and maintained, they need specially trained repair crews, maybe some new rails need to be laid down. Many solutions do actively create more jobs, some solutions actively create better jobs, but all solutions run the risk of putting someone out of a job.

When Robert Coltun and I were demonstrating Zeus to a potential customer, we got the following feedback more than once: "I can see how your product will help me get the job done much faster. Since I get paid by the hour, I won't be buying it." Subvert the dominant paradigm at your own risk.

My Job is to Fix Things

When I cobble together some little bit of code, I know that I can flex it when tomorrow brings a change in requirements. I know that I can flex it when I find something annoying or time consuming. However, when I buy your software, I risk losing that level of control and comfort. If my job is to fix things and I can't change how your software works... well then, buying your software is making my job harder, not easier.

An outgrowth of this is the Tweak factor. People tend to get emotionally involved in things that are somewhat complex because of the complexity. Things which need tweaking tend to develop communities. While there are

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Patti Rowlette, Rowlette Executive Search

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certainly more people with shoe laces than there are with home theaters, we all know which one gets discussed in more animated terms.

Home theater hobbyists form clubs, buy magazines which are devoted to their hobby, and love discussing their plans. With home theater, you can add and remove components, tune speakers, reconfigure the room to optimize the effect of the sound system; in short, you can tweak it.

So, if your software just sits there and works, you may do very well presenting it to business people — who aren't generally emotionally involved in code — but don't expect their tech people to look at it fondly in many, many cases. If you make it a tweak-and-twiddle paradise, expect it to only appeal to techs who will have a lot of time to dedicate to it. If you find the middle ground, you are most likely to find sales.

GUI? CUI? WUI?

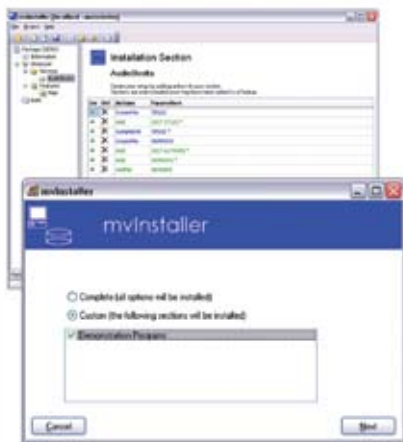
Another disconnect between developers and purchasers relates to the interface. When I build something, I know exactly where to kick it. I don't need a GUI or web-based tool to mark the spot for me. If, however, I realize that there are more people in the world who aren't me than are me, I need to make the kicking spot obvious to everyone. That's what human interfaces really are, they are a way of getting people to the right spot at the right time to do the right thing.

In the next installment we will finally start talking about technology. **IS**

CHARLES BAROUCH is the CTO for Key Ally, Inc. He is also a Past President, as well as currently a Vice President of U2UG, and a regular Spectrum Magazine contributor.

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REVELATION WEBUI – AN INTRODUCTION TO A NEW WEB DEVELOPMENT TOOLKIT

Continued from page 9

sight programmers normally use a single program for each window, calling that program from every window or process and, passing a parameter to indicate which process to run. We call these programs *Commuter Modules*.

The Build Commuter Module is illustrated in figure 3. The Commuter Module Generator removes the Event Handler script and places the code into a Basic+ function that is easily edited with the OpenInsight Editor++. The hooks are put in place for the WebOI HTML form to call the appropriate Commuter Module. Figure 4 illustrates a sample Commuter Module Generator

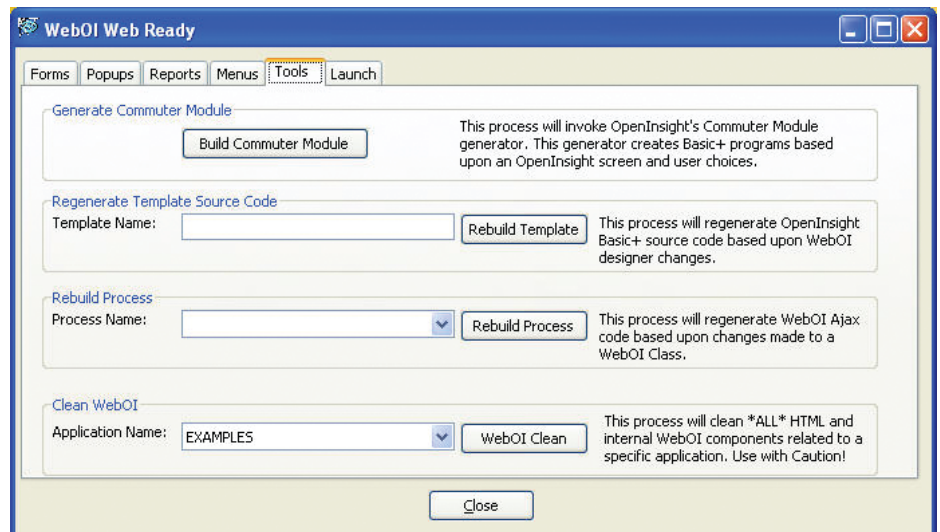


Fig. 3 Build Commuter Module

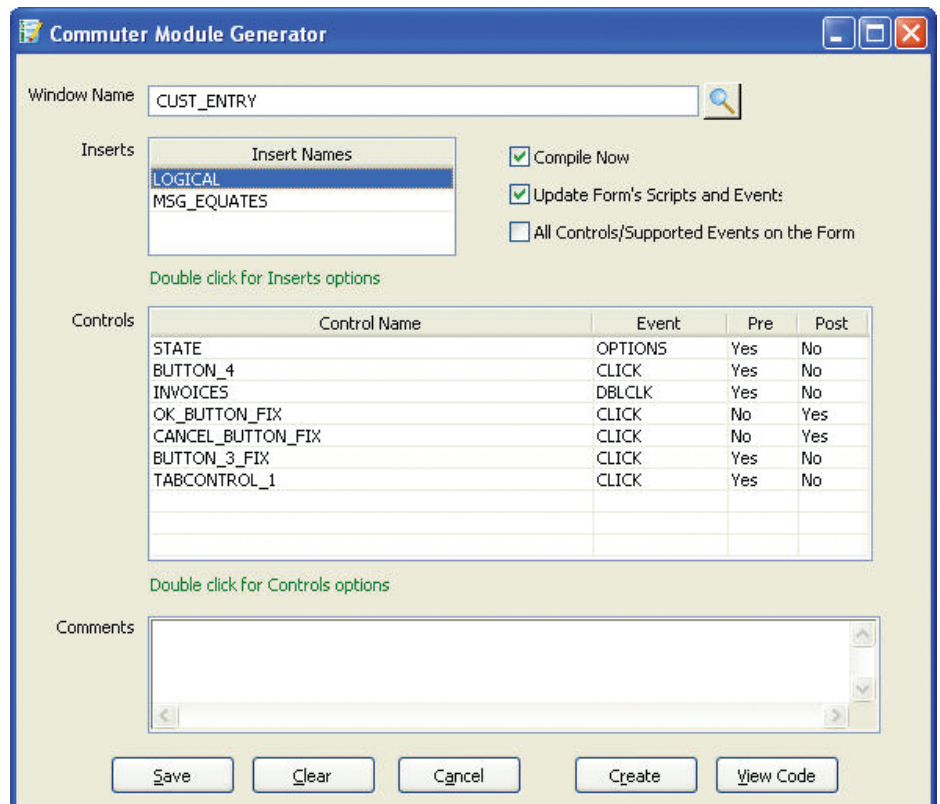


Fig. 4 The Commuter Module Generator

form and figure 5 is the code results for the conversion.

In a few simple steps, you will be able to convert your OpenInsight forms into WebOI forms with all the necessary business logic in place. You can then launch the WebOI application from the WebOI Web Ready screen (fig. 6) for a quick view of the generated HTML. The capabilities of converting your forms to the Web without having to rewrite your system should prove to be cost effective.

When the WebOI Application is launched an application menu is displayed within the browser. Figure 7 is a sample menu.

Figure 8 is the form displayed in Figure 1 after it has been converted to HTML format created by the WebOI Web Ready tool.

The WebOI Designer

The WebOI Designer is a browser-based development tool that allows for collaborative development locally or remotely over Internet/intranet. WebOI has built in scripts, tools, and commands that simplify the implementation of new tables, HTML forms and pop-ups, as well as other application components. Create your own help files for your web application through the Help Interface. Online help pages, accessible through the WebOI Designer, define all commands, pages, and options, and include examples. The online Help includes a self-training section, where developers new to WebOI can work their way through creating their first system. By the end of the self-training, developers will be able to create systems through WebOI and will be able to web-enable existing systems using WebOI.

The Designer allows you to create new WebOI Systems. The WebOI System is analogous to an OpenInsight application. The system consists of Classes, Templates, Attributes, and Code. A Class is a table and consists of Attributes (rows). Templates are the HTML

Continues on page 37

```

1  Function CUST_ENTRY_EVENTS(CollEntryID,Event,Param1,Param2,Param3,Param4,Param5,Param6)
2
3  * Subroutine Name: CUST_ENTRY_EVENTS
4  * Description: - Converter Module for CUST_ENTRY
5  * Date: 01/20/2009
6  * Author: Revelation Software
7  * OI Version: 9.0.0
8  * Comments:
9
10 * Generated for Int Spectrum
11 *** RTI Generated Converter Module ***
12 *****
13
14 Declare Function Get_Property, Set_Property, Send_Event, Popup, Dialog_Box
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Fig. 5 The Generated Code for the Cust_Entry commuter module.

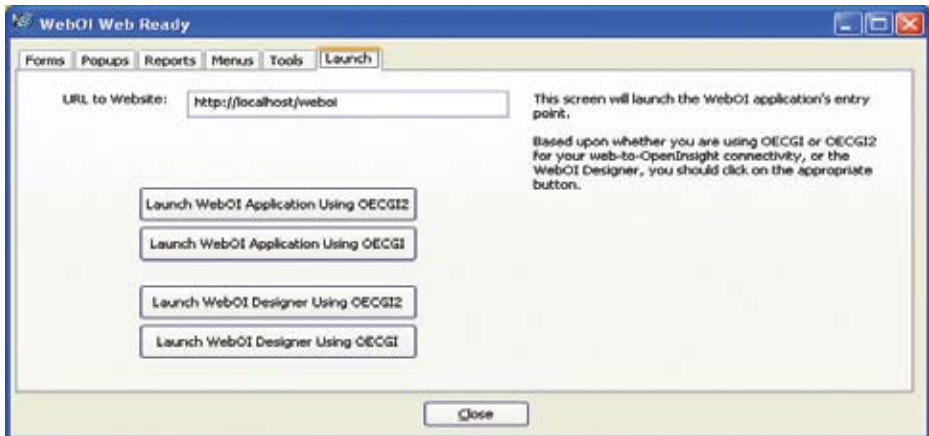


Fig. 6 Launch the WebOI Application/Designer with one easy click

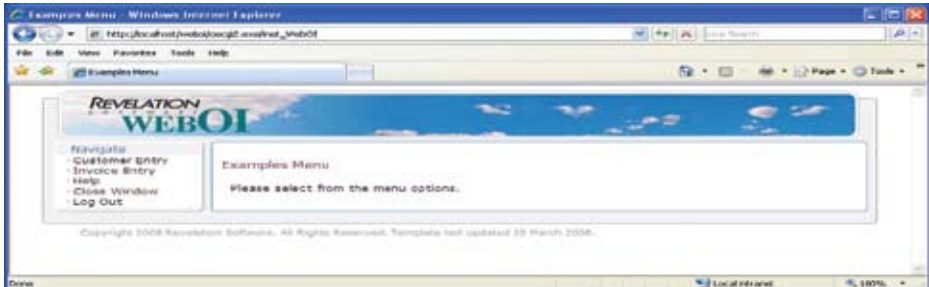


Fig. 7 The Examples Menu

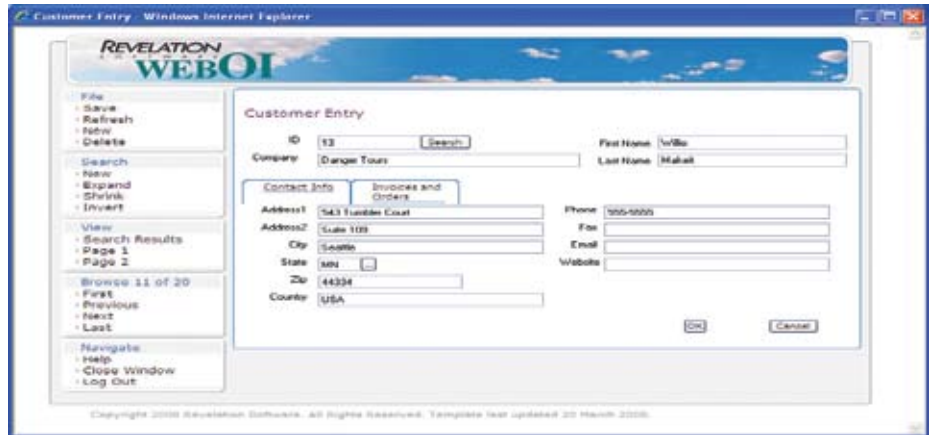


Fig. 8 A Sample WebOI HTML page

Caché

and

Embedded Real-time Business Intelligence

Introduction

InterSystems recently released a new product, InterSystems DeepSee, which allows real-time business intelligence (BI) capabilities to be embedded into any Caché (or Ensemble) application — including those migrated from a legacy MultiValue platform. With DeepSee, application providers can enhance their applications with features that help users make better operational decisions.

This article will outline the benefits of embedded real-time business intelligence, give a brief description of DeepSee, and show how it can be used with a Caché-based MultiValue application.

Embedded Real-Time BI vs. Traditional BI

Business intelligence is the art of putting the data collected by applications to good use — analyzing it to provide information that helps people make better business decisions. Traditionally, such analysis has been performed by small groups of “data experts” working with specialized tools, looking at data gathered into a data warehouse. Because loading data into a warehouse often takes considerable time, the information gleaned from traditional business intelligence is usually historical in nature. Often, for making long-term strategic decisions, historical data is fine, but typically, traditional BI is not useful for answering the question “What should I do differently right now?”

That question is best answered by using embedded real-time business intelligence. Embedded real-time BI provides two main benefits:

- It takes the data warehouse out of the picture by allowing timely analysis of data stored within transactional applications. Because the data is fresh, embedded real-time business intelligence helps users make better *operational* decisions.
- The capability to turn operational data into immediately useful information is available to all users because it is embedded as a feature of a transactional application they use every day. Users don't have to be data analysis experts or use separate tools to gain insight from their data.

InterSystems DeepSee

DeepSee lets developers rapidly embed business intelligence (BI) features directly into transactional applications that were built with InterSystems Caché. With DeepSee, developers can provide users with drill-down capability from interactive dashboards that display key performance indicators based on current enterprise data. DeepSee has four main components:

- DeepSee Designer - the Designer is used to create dashboards that include interactive pivot tables and graphs that were built with the DeepSee Analyzer. Dashboards are web pages that can easily be embedded in applications. Dashboards can also include interactive UI controls like combo-boxes, lists, radio buttons, links, etc.

- DeepSee Analyzer – the Analyzer is used to build pivot tables and graphs based on data models defined by the DeepSee Architect. Developers can, at their discretion, allow users the capability of drilling down to the underlying detail data.
- DeepSee Architect – the Architect is used to build data models which define the dimensions and measures by which data can be analyzed. Models may perform calculations if the desired key performance indicator is not captured directly by the application. Models are based on current transactional data, so a data warehouse is not required.
- DeepSee Connector – the Connector is used to extract data from systems not based on Caché so that it can be included in a DeepSee data model. The Connector uses InterSystems Ensemble, our rapid integration platform, to pull data from “foreign” databases.

Using DeepSee with a Caché-based MultiValue Application.

Once a MultiValue application has been migrated to Caché, its data files are available for use with DeepSee. Here is an example of a hypothetical sales application, showing how DeepSee works in Caché’s MultiValue environment.

MV and the DeepSee Architect

Caché supports the various MultiValue dictionary formats. While every dictionary item can become a DeepSee dimension, initial planning and requirements analysis will help define which dictionary items should become dimensions. Figure 1 shows the dictionary list for the SALES file that will become dimensions in DeepSee.

In the resulting data model (fig. 2), the Sales Category, Sales Rep, Cust Name, Sales Amount, and Sales Date dimen-

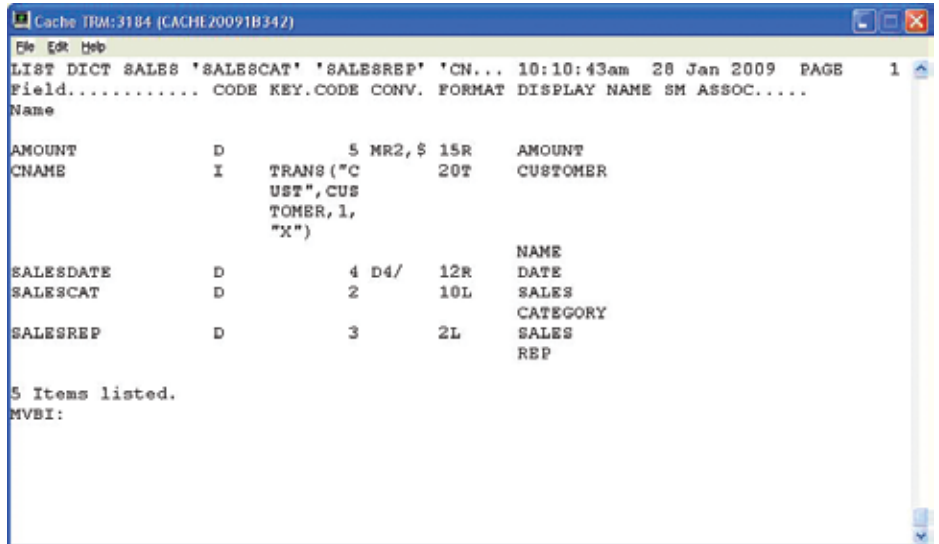


Fig. 1

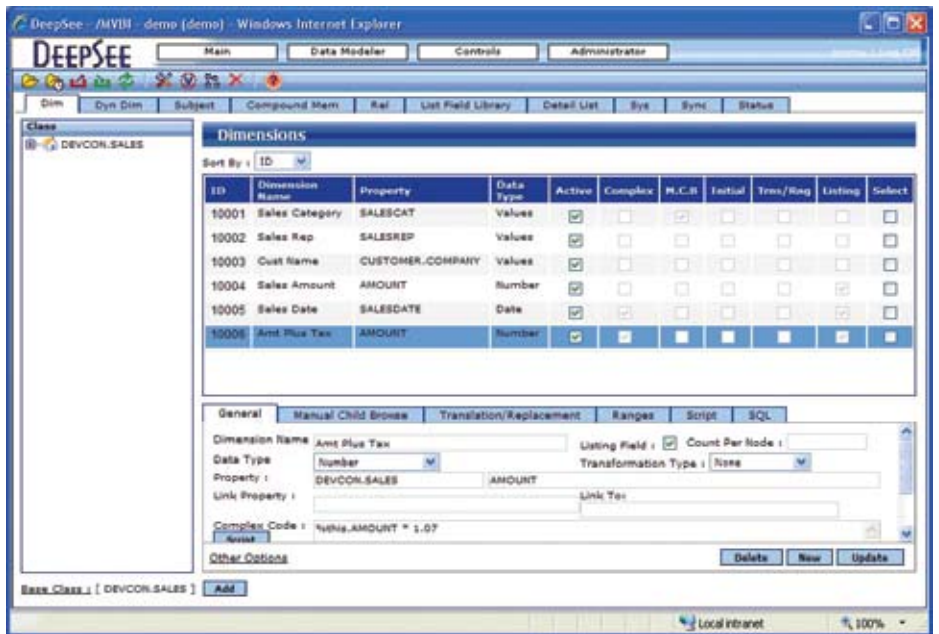


Fig. 2

sions were derived from the MultiValue dictionaries. The dimension Cust Name will get its value from the CUST file. The Amt Plus Tax dimension is calculated from the value of the Sales Amount dimension. While a dictionary can be built for this calculation, there was none in this case.

Once the dimensions have been defined, they are grouped for user access into subject areas, which will be used in the Analyzer. Subject areas can be used to restrict what dimensions a user has access to when analyzing their data. In

this example, all dimensions have been included in the Sales subject area.

DeepSee Architect also allows for the definition of detail lists that can be used in the Analyzer. The Sales Info detail list displays the Cust Name, Sales Amount, and Sales Date. The use of this detail list will be shown later.

MV and the DeepSee Analyzer

Once the dimensions have been defined and grouped into an appropriate

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D3 FLASHBASIC HISTORY AND USAGE

Continued from page 18

This tended to confuse the developer base when on one hand they were told that they are using FlashBASIC, while Support would still need to know if a site's FlashBASIC was actually Flashed.

So How Does This Work?

I usually explain it visually as shown in figure 1.

If you're running flashed code for Prog1 and it doesn't exist for Prog2, then the code dies. If you're running non-flashed code for Prog1 and there is no non-flashed code for Prog2 then that code dies. Since you now know that there are different object modules and that there are different runtime engines for each module, these rules should make sense.

If you are running non-flashed, it continues to execute non-flashed code even if there is flashed code available in some other module. Again, they don't cross, you use one or the other. Given these rules, I believe it's possible for two different users to be running different object modules depending on the initial entry point they use. And thus there is the possibility of a problem occurring here and not there with the same program.

How do you know if your code is flashed? Use the "where" command when people are using the system. If you see a lot of ports in PX.* modes, then users are running flashed code. Users with BR.* modes are in the standard BASIC runtime. Don't panic if there are users in both, but find out why.

Periodically, the Flashed code needs to come back up (not really through the

non-flashed runtime) to get access to the same VME services that are used by PCode and everything else. It's in part the D3 reliance on these services that keeps the VME from going away. Knowing which services are required from the VME can help to make flashed code perform better because it means you stay in the optimized mode for more cycles. Check the D3 reference manual, look for *FlashBASIC Features that Function Differently in D3NT vs. UNIX*.

You can be sure that all User Exits leave flashed space and execute in the VME — thus giving you a performance hit. So rather than parsing the output from CONV(", '50bb') because it looks mysterious, use @PIB, @ACCOUNT and @USER.

Better yet, you know a user's port is never going to change on you in a given session, so assign PORT=@PIB, DATE=DATE(), and others at the top of your first entry point into the application and carry the variables around with you in named common so that you don't have to call out to a function every time you need this static data.

Identifying other functions that aren't processed by the flashed modules is not as easy as saying OCONVO goes to the VME, for example. There are some functions like numeric and date masking that can be done by flashed code, while others that must be done by the VME. As you can see just by this example, there are sometimes two sets of code, like the flashed data masking and the non-flashed data masking. So it's reasonable that there could be issues in one and not the other. In some cases you *must* flash the code, for example with %functions. In other cases you cannot flash the code. For example, I don't think the 'file' statement is supported yet.

You also need to come back up from Flashed object into

the VME to do terminal IO. So rather than doing this:

```
CRT @(1,1):"FU"  
CRT @(1,2):"BAR"
```

It's better to do a single:

```
CRT @(1,1):"FU"  
→      :@(1,2):"BAR"
```

even if that line gets very long and ugly (one of the benefits of flashed code is better string handling). Right after sending output to the screen we usually pause for user response. So someone might be tempted to wonder why we care about saving time slices in a screen print if we're just going to come to a halt anyway. But the sooner one user relinquishes their slice, the sooner someone else gets a turn, and that results in the perception of improved speed.

For better performance with terminal IO, you can Flash-compile terminal definitions so that flashed object can execute compatible flashed terminal IO functions. This results in much faster screen painting (says 10x to 20x in the docs). To do this, select your favorite term-type, and use the term statement as follows:

```
term vt100 (co
```

So, Should You Flash Or Not?

The answer depends on knowing if your code contains statements that will not run in flashed mode, and the easiest way to find out is to just recompile everything. That can be done using this command:

```
compile filename * (ow
```

The 'o' option tells the compiler to generate flashed object. The 'w' option tells the compiler to not generate non-flashed pcodes. Flashed object is not generated from source code, it's generated from the pcode after a non-flashed compilation has been done. So, when you compile with the 'o' option it recompiles from source to pcode object and then does a separate step to compile from pcode to flash. The 'w' option simply tells the compiler to

Continues on page 34

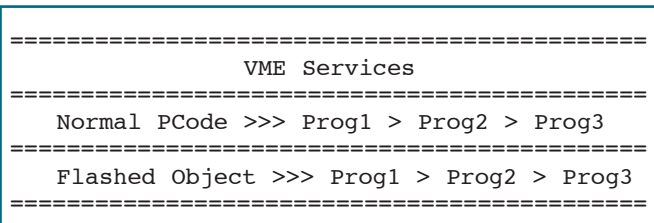


Fig. 1

CACHÉ AND EMBEDDED REAL-TIME BUSINESS INTELLIGENCE

Continued from page 31

subject area, DeepSee Analyzer will use them for various analytics. Information

can be displayed in either a traditional column-row format (i.e., a pivot table) or in graphical form. The sales amount for each Sales Rep by year is shown in figure 3 with the amount for sales rep CB for 2007 shown.

By right clicking on a section of a pie chart, the detail items that make up that section will be listed. This is where the Detail Listing, previously mentioned, is used. Figure 4 shows the Detail Listing obtained by right clicking of the pie chart section containing the amount for CB in 2007.

Of course, the same information can be obtained using the Caché MultiValue Query Language (CMQL). The same file of data, SALES, is used regardless of how we choose to display it. Figure 5 shows the breakdown by sales representative and year.

And figure 6 shows the detail data, obtained using CMQL to list the customer, amount, and date for CB in 2007.

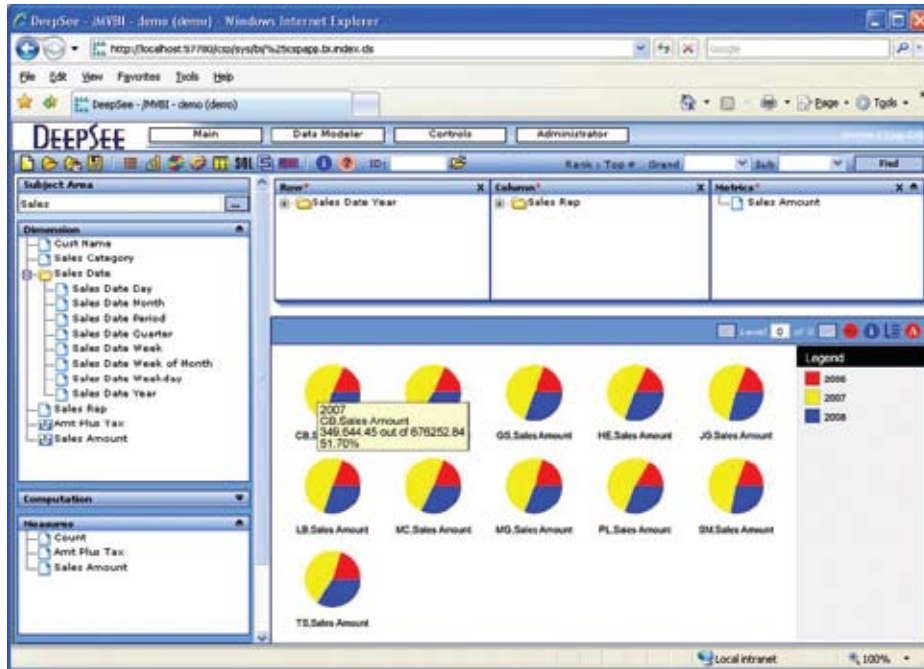


Fig. 3

Dynamic Dashboards

The DeepSee user experience is typically accomplished via a web-based dashboard. Developers can choose what pivot tables and graphs to pres-

Continues on page 35

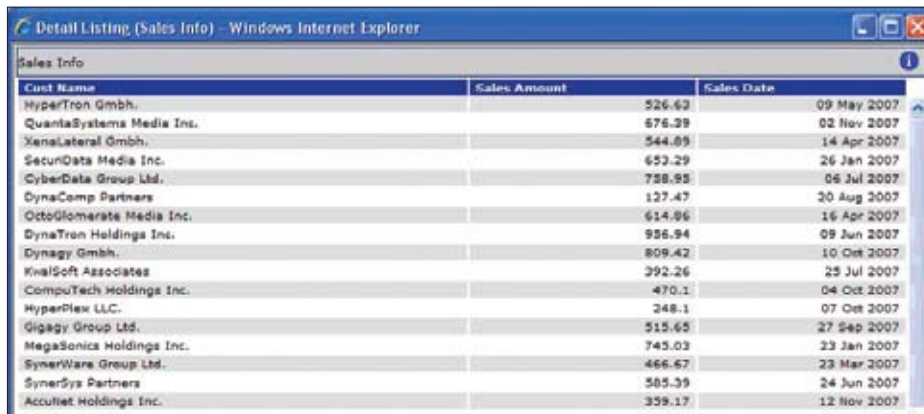


Fig. 4

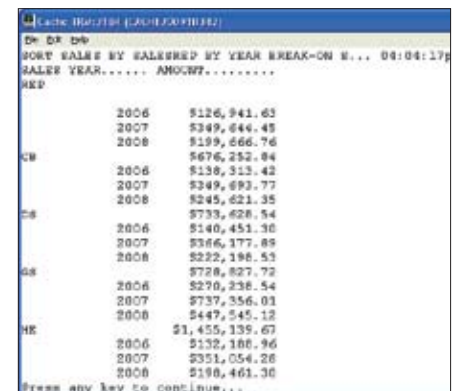


Fig. 5

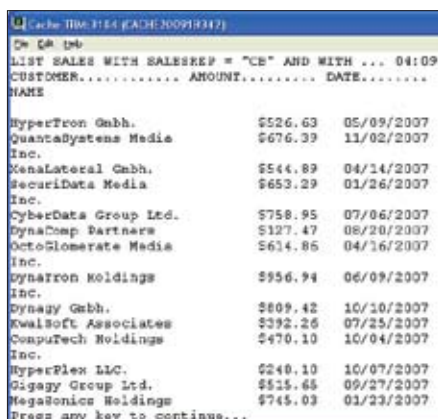


Fig. 6

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D3 FLASHBASIC HISTORY AND USAGE

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skip the first part, the object is already there, just (re)generate the flashed module and append it to the end of the existing non-flashed module.

What if you don't want to run flashed object but all of your programs are flashed? You can control this at the entry point to all programs. Most applications have a login proc that executes a menu program. This is done with something like

```
run bp menu
or just
menu
```

If you recompile the menu program without the flash option (o) then it will not have a flashed module and all programs called from there will be non-flashed. Or... catalog entries in the master dictionary begin with the letters 'VR'. If you

ed md menu

and change atb1 to 'VR1', then anything that calls the menu will only execute the non-flashed module, and anything called from menu will only be using their non-flashed module. There is currently no way to turn off flash for an account or system. You must do it as described here.

Want Better Performance From FlashBASIC?

I'm not sure how this is handled in NT, but in *nix platforms you can modify the 'pick0 configuration record, where you will find a line that says 'basic 4096 or similar. When D3 is booted this tells the system how much memory gets allocated just for FlashBASIC modules.

The D3 *shpstat* command allows you to see the Flashed modules in memory and you can see immediately if there is not enough memory allocated. In *nix systems (not Windows) you can also compile programs with the (k) option, like (owk) which tells D3 to leave the

object code in memory when users are done with it.

This core-locking feature is nice because it eliminates the overhead for the system in reading object code from disk for different users at different times of the day. You probably don't want to core-lock everything — keep an eye on *shpstat* when you make changes like this.

Summary

Well, there you have it. We covered a lot more than just FlashBASIC. That was a short tour around the whole system. I hope you find yourself better able to decide whether you want to use flashed code, whether you can, and how you can get more out of it when you do. **IS**

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CACHÉ AND EMBEDDED REAL-TIME BUSINESS INTELLIGENCE

Continued from page 33

ent to various users, control how much drill-down access they have, and design the overall look and feel of each dashboard. A dashboard can be static or change dynamically. In figure 7, changing the year or selecting a sales rep will change the column-row and chart displays.

Conclusion

Embedded real-time business intelligence can help users at every level of the enterprise make better operational decisions. By adding embedded real-time BI features to their applications, developers can provide significant new capabilities to their existing customers, and attract new ones.

InterSystems DeepSee provides an easy way to enhance Caché-based applications with embedded real-time BI ca-



Fig. 7

pabilities. Caché supports MultiValue technology, so by definition, DeepSee works with MultiValue applications that have been migrated to Caché.

Lee Burstein of InterSystems will be demonstrating InterSystems DeepSee at a breakfast meeting on Thursday, March 26th, during the International

Spectrum Conference in Denver, Colorado. [IS](#)

LEE H. BURSTEIN is a Product Manager at InterSystems Corporation.



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BY JOHN P. RACINE

AVERAGE on Pick-style Databases

Averages on the break and total lines are common requirements but, some find them difficult to implement without writing a whole program in Basic. Some systems support using the LPV operator in F-correlatives, but this only works sometimes on some releases. The following code snippets are B-correlatives on mvBase and can be easily converted to B-correlatives on mvEnterprise, calls on D3, or U-correlatives on QM. They need to be specified as conversions on line 7 of A- or S-type dictionaries, not as correlatives on line 8. Figure 1 shows a sample for AVERAGE.

AVERAGE must be cataloged in the Master Dictionary (MD, M/DICT, VOC).

Figure 2 shows the code for AVERAGE, in mvBase format. Your system will vary. **IS**

JOHN P. RACINE of Racine Enterprises Inc. can be reached at www.purveyor-software.com.

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

```
AVG.AMT
001 S
002 5
003 Avg.]Amt.
004
005
006
007B;AVERAGE]MR2,$
008
009 R
010 10
```

Fig. 1 A sample of AVERAGE

```
SUBROUTINE AVERAGE
$INCLUDE BASICLIB ACCESS.COMMON
B.DICTPRIMFILE=DICT$
B.ITEMID=ID$
B.ITEM=ITEM$
B.AMC=NA$; B.VMC=NV$; B.SVMC=NS$
B.NI=NI$; B.ND=ND$
B.FLAGS=NB$
B.PRIMFILENAME=FILENAME$
B.NB=B.FLAGS
EQU B.USER1 TO USER$(1), B.USER2 TO USER$(2), B.USER3 TO USER$(3)
EQU B.USER4 TO USER$(4), B.USER5 TO USER$(5), B.USER6 TO USER$(6)
EQU B.USER7 TO USER$(7), B.USER8 TO USER$(8), B.USER9 TO USER$(9)
EQU B.USER10 TO USER$(10), B.USER11 TO USER$(11), B.USER12 TO USER$(12)
EQU B.USER13 TO USER$(13), B.USER14 TO USER$(14), B.USER15 TO USER$(15)
EQU B.DATA TO CURRENT$
IF B.USER1+0=0 THEN
  BRK=0
  B.USER4=' '
  LAST.NI='!@#%$'
  B.USER2=' '
  B.USER3=' '
END
IF LAST.NI=B.NI THEN BRK=1 ELSE BRK=0
IF BRK=1 THEN
  EXT=0
  FOR LEVEL=40 TO 1 STEP -1 UNTIL EXT=1
    IF B.USER4<LEVEL>=1 THEN BRK+=LEVEL; EXT=1
  NEXT LEVEL
END
BEGIN CASE
CASE BRK=0
  VAR=B.DATA
  B.USER2<1>+=VAR
  B.USER3<1>+=1
  B.USER4=' '
CASE BRK>0
  IF B.USER3<BRK>=0 THEN VAR=0 ELSE
    VAR=INT((B.USER2<BRK>/B.USER3<BRK>)+.5)
  END
  B.USER2<BRK+1>+=B.USER2<BRK>
  B.USER3<BRK+1>+=B.USER3<BRK>
  B.USER2<BRK>=0; B.USER3<BRK>=0
  B.USER4<BRK>=1
  BRK=0
CASE 1
  VAR='???'
END CASE
LAST.NI=B.NI
B.USER1=1
RETURN VAR
```

Fig. 2 Code for AVERAGE in mvBase format

REVELATION WEBUI – AN INTRODUCTION TO A NEW WEB DEVELOPMENT TOOLKIT

Continued from page 29

that is derived from the Classes and the Code is any scripts that are necessary to process your business logic.

The WebUI Designer and WebUI Application take advantage of Ajax and Web 2.0 technology. The WebUI Web page submits a request to the server, and the WebUI server responds by sending data back to the browser. Only the necessary data to process the request is returned to the browser. The browser maintains the static pieces of the WebUI templates. This provides for speed of use and cuts down on traffic at the web server.

WebUI can also be used in conjunction with our U2 Connector to serve UniVerse and UniData data to and from a web browser interface.

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Hopefully, your appetite has been whetted to investigate WebUI further. If you are looking for an easy-to-use Web Development toolkit for your MultiValue data, download a free 30-day evaluation copy of the OpenInsight Developer Suite 9.0 from www.revelation.com. There is a WebUI Quick Start Guide available with OpenInsight 9.0 that has step-by-step procedures for in-

stalling, configuring, and creating your WebUI application. There is also a robust informative WebUI Designer Help System. **IS**

SEAN FITZSIMONS is the Director of Education at Revelation Software.

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NAME _____ TITLE _____

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ADDRESS _____

CITY _____ STATE _____ ZIP _____

PHONE _____ FAX _____

E-MAIL _____ WEB SITE _____

SIGNATURE _____ DATE _____

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

1. What is your job function/title?

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

2. Is your company a (check one):

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

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

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

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

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

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

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

CLIF NOTES

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dollars to replace what does everything we want with something else?"

There have been a lot of debates about why MultiValue is such a good choice for business systems. Some people advocate the data model. Some advocate the performance. Some advocate that you don't have to do any of that design and planning stuff; you just sit down and do it. (I never said all arguments were smart.) But I reduce it down to just six words. Why is MultiValue a good choice, especially in tough times?

You can do more with less.

Less time. Less hardware. Less people. Less hassle. In other words, less money.

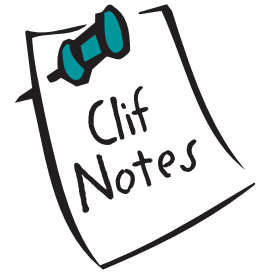
It's a good time to be an employer. Due to the current fear, real or instilled, folks aren't looking to change jobs as readily as they were a couple of years ago. Of course, some employers might see that as an opportunity to squeeze their staff — demanding longer hours with no extra pay or perks, eliminating little things like the monthly department lunch in the name of reducing expenses, or copping a "you're lucky to even have a job" attitude. You might get away with it for now. You probably would. But when things start improving, your sales start going back up, and you really, really need a motivated, knowledgeable staff, these people are out of your shop as soon as they can find another job. Abused employees are short on loyalty.

An enlightened employer, on the other hand, will see this as an opportunity to build loyalty by having a true concern for the staff's fears and insecurities. Be honest with them. Keep them informed of what is going on with the company and the department. Solicit suggestions about ways to decrease IT costs or doing more with the budget available.

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Good Time To Talk About Bad Times

BY CLIFTON OLIVER



It seems that no matter what publication you pick up to read these days, the lead articles are about how horrible the economy is, how it is going to get worse, and how

it is the End Of The World As We Know It. I find this attitude simultaneously amusing and sad. Sad, because so many people are panicking, stressed out, and sometimes in serious financial trouble (much of it of their own making, unfortunately). Amusing, because the media, always more interested in making noise that boosts ratings rather than reporting about facts that might actually help people, is doing their usual, “We’re all going to die! Oh, the humanity!” routines. Both the Left and Right wing FUD factories are working 24/7 — no layoffs on the Fear assembly lines. Amusing because the Sheeple are eating it up, making bad decisions based on it, and, in general, fixating on every negative report as if it were another fascinating train wreck.

Now, before you brand me a nutcase (ok, before you brand me a nutcase yet again), let me hasten to assure you that I am not a member of the lunatic *denier* crowd. I do not deny the Holocaust, the US Great Depression, or that we have landed people on the moon. I am certainly not denying that many country’s economies are having some serious problems, aka *Bad Times*. What I am denying is that there is absolutely nothing good to think about or work on while all of this is working itself out. If people would just remember a few things, a lot of this hysteria would be short circuited.

First, you can’t believe the media. Remember here in the US when a few months ago the price at the pump for gasoline was between \$4 and \$5? Remember the stories of how people couldn’t afford the gas to go to work? How about the Congressional hearings about those Evil Oil Companies?

At the moment, price at the pump — due to supply and demand, not government action — is running around \$1.50 to \$1.85 in a lot of areas. Funny. The media isn’t reporting that every single night. And I don’t hear any talk about the government trying to bail out the oil companies.

Second thing to remember: Bad Times always follow Good Times. Corollary: Good Times always follow Bad Times.

We’re going to survive this, folks. Don’t go to the desert to wait for the Mother Ship quite yet.

And the third, and in my opinion the most important, thing to remember is that even in Bad Times, Good Times are present. Mull on the following thoughts, if you will.

It’s a good time to be a MultiValue professional. With so many companies hunkering down, reducing expenses, and cutting projects, perhaps those thousands of dollars to move from MultiValue to Oracle might not seem so attractive to the PHBs. Now is a perfect time for you to spend some of your own time learning your platform’s newest technologies. “MultiValue can’t do web services.” “Sure we can. Here’s how.” “MultiValue only works with green screen. You can’t do web interfaces and Ajax.” “Sure we can. Here’s how.”

Become your company’s “here’s how” person. By expanding your abilities to use the full capabilities of your modern MultiValue platform and showing you can provide everything the so-called *mainstream* database products do, by the time the economies get better and there are IT budget increases maybe, just maybe, someone in upper management will ask the question, “Why would we want to spend thousands of

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Create a Direct Line between Your Data and Critical Business Decisions



Having rapid access to your data has never been more important. MITS Solutions offer a simple and affordable means to extend the value of your existing system and provide the user-friendly tools you need to make better business decisions throughout your organization. Why wait to employ the information necessary to react and respond to changing market conditions with confidence?

The MITS product line contains two unique but complimentary web-based reporting solutions: The MITS Discover OLAP Business Intelligence System adds powerful data access and advanced analysis functionality to your existing MultiValue system and MITS Report, an ad hoc operational reporting solution optimized for sorting, filtering and summarizing data.