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THE MULTIVALUE  TECHNOLOGY MAGAZINE

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# From the Inside

BY NATHAN RECTOR

Happy holidays to all!

It's the end of the year — time to relax, family enjoyment, and gift giving — and time to start planning for 2009.

Now that 2009 is just around the corner, it is time for me to start talking about what is coming up: The International Spectrum Conference and Exhibition 2009 in Denver, Colorado on March 23rd – 26th. That is less than four months away.

Have you taken a look at the conference details yet? If not, please do. You'll find many informative sessions that you shouldn't miss. You will also find on the conference web site some documents and materials to help you justify attending the 2009 conference to your management. We all know how hard it is to explain to your management why it is important to go to any conference. Look through the materials in the "Why Attend?" section to see sample trip reports, a Letter to the Manager, and other information to help out.

You'll also find a conference blog that contains other information you will find useful — from new sessions, to speakers' posts on what they will cover in their sessions, to exhibitor information and events.

If you are having a hard time talking your management into paying for

the attendance, don't forget that the Exhibition Hall is FREE to all attendees and "walk-ins". This gives you a chance to see all the tools, products, and enhancements from your favorite MultiValue vendors, including seeing new products that would benefit your company's business systems.

The Exhibition Hall is open on Wednesday and Thursday. Full Conference attendees get to preview the Exhibition Hall on Tuesday night during the Preview Party.

To find out more on the 2009 Conference, visit:

<http://www.intl-spectrum.com/conference/2009/>

Look for the Conference Brochure landing on your desks soon with more helpful information.

**-NATHAN RECTOR**  
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# INTERNATIONAL Spectrum

NOVEMBER/DECEMBER 2008

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*Happy Holidays from International Spectrum!*  
*Nathan, Tracey, Clif, and Shannon*



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# Are You Prepared?

BY NATHAN RECTOR

*Note: All ideas in this article are recommendations only.*

**T**he last couple months have been a bit interesting in regards to weather. And we are just now starting to get into winter which always brings more interesting weather.

After the recent hurricanes, I was talking with my sister in Texas to see what kind of damage was done. She told me about the flooding and power outages, and I started thinking about this article that originally ran in the September/October 1996 issue. I thought it might be a good idea to revamp it a little and bring it to your attention again.

Contrary to what many companies do, disaster recovery does not end at doing daily saves and taking them off-site. That is merely the start.

After a rash of disaster recovery planning done in early 2000, some companies have not updated their plans, or even looked at them. Some of the companies in Texas learned the hard way that you have to revisit your disaster recover plan at least once a year. Not to mention test it every so often.

Disaster recovery plans should consist of how to deal with the following:

1. Natural disasters (i.e., fire, flood, snow storm, tornado, etc.)
2. Blackouts
3. Hardware failure
4. Theft
5. Key personal leaving
6. Viruses

## Backup Tapes

Most people who work with large databases or servers do saves. How often are the saves done are another story. If you do a save every night, then perfect. But many small businesses do saves once a week or even once a month. Then, when disaster strikes, they complain because they have to re-enter by hand all the data that was not saved. Usually this is a several week project costing several thousands of dollars, even when they only lost one day's worth of transactions. The first step in having a good disaster recovery plan is to do daily saves — no ifs, ands, or buts.

Keep in mind, though, that saves are only a minor part of a disaster recovery plan.

The next step is to make sure you have enough protection against bad saves. Yes, even after doing a verify on the tapes, bad saves still give MIS managers nightmares. I've seen clients reuse the same tape night after night, and then come to me after they realize they have a bad tape and no other form of back up.

Never, ever use the same tape night after night. The best thing to do is to have at least 10 tapes, and rotate them every night. This way you are using a new tape every night, and can fall back on previous tapes if one is corrupted.

I know, this seems like common knowledge, but too many times I've seen this happen —

especially with how much tapes cost. They start reusing the tapes because they don't want to purchase another set.

Another one of those common knowledge things that seems to fall apart is to always keep tapes in a place where they won't come to harm. What use are your tapes left in the office when it gets flooded, or a fire happens? Not only do your computers and servers get destroyed, but your backups are too.

The best place to keep your backup tapes is off-site. Once a client kept their save tapes on the top shelf of their computer room. One night their building went up in flames, and so did their tapes.

Save tapes should always be taken off-site when they are not needed. If you keep only one or two tapes on-site and keep the others at another location off-site, it is almost a sure thing that you have at least one good tape within a day's time in case of a disaster.

Do keep in mind that the tapes not at the work site need to be easily accessible. Some people keep their off-site tapes in a bank safe or at a security company. It is a good idea, until you need these tapes after the bank or security company is closed — for example, on the weekend or holiday.

Using safes are a good idea too. Most safes come with a fire rating which help keep the material inside the safe from getting burnt. If you have tapes at the work site, always keep them in a fire-rated safe when not in use.

I'm sure you just read all that and said, "uh, physical tapes, why not keep virtual tape saved instead?" Virtual tapes, or pseudo tapes, are faster, cost less, and easier to get access to.

Well, the rules for physical tapes go for virtual tapes as well. Most virtual tapes systems are just another piece of hardware sitting in your computer room. Easy access for restoring data and systems when hardware failed,

but not when you have fire, flood, or theft.

If you don't want to use physical tapes, then look at moving your virtual backups off to a server in the cloud. This gives you the best of both worlds. You don't have to pay for physical tapes or deal with the tapes going bad, plus you get your backups off-site.

---

## *You never know when a disaster will strike. Be prepared for it.*

---

### **Blackouts**

Blackouts are a common thing during the storm season. Most people have a UPS to keep their computer from losing power before someone can do an orderly shutdown. One of my retail clients has taken this one step farther. He installed a dedicated electrical line that his computers are connected to. On one end of the line, he has a decent size UPS to handle all the computers connected to this line. From there, he is able to connect a generator to the UPS and supply power for however long the blackout lasts. This allows his business to stay open when others have to close their doors.

Several years ago, site generators were still on the expensive side. If you don't have a site generator to power your building, it may be worth looking into again. They have come down in price, and allow you to power your whole building during a blackout using natural gas or propane. While for long term use running a generator can cost a little bit of money, keeping your business phones, computers, and employees working while your completion is not can pay for the generator use fairly quickly.

### **Hardware Failure**

Hardware failure is rare but just as troublesome as natural disasters. What

do you do when your hard drive dies on you, and you're stuck with a dead computer for the next 48 hours while the parts are delivered, replaced, and your system reloaded? Two hours is a long time, let alone 48, for your computer to be down when your business depends on it.

Yes, that is what the backups are for, but it still take a minimum of an hour to reload all your data and operating systems, and then what are you going to do about all the transactions that you lost because your backup was from two nights ago.

Sometimes, there isn't much you can do, but bite the bullet. Although, there are alternatives that people bypass because they don't know about them, think they are overkill, too much of a hassle, or cost too much. After you spend the 12 straight hours re-entering key transactions by hand, those excuses no long seem valid.

One alternative is using transaction logging. Many new operating systems supply this option built-in, but there are also third-party vendors that supply them too. Sometimes, this alternative causes the overall system to run slower due to the additional overhead of dumping the changed information to a disk or tape media, but it is very rare that it would.

One alternative is running hot-backup and/or disk replication. Hot-backups work similar to transaction logging in that it saves all the changed transactions. The difference is that instead of sending the data to a tape or disk, the information is sent directly to another computer via the network, creating a mirror image of your main computer on another working computer.

A hot-backup also allows you to keep a backup computer at a different physical location. So when a disaster strikes your main computer, you are down for no longer than it takes to get the backup computer to your site and plugged in. Many times, the backup

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## Reporting and Business Intelligence Tools:

# Tantiva

BY CHARLES BAROUCH

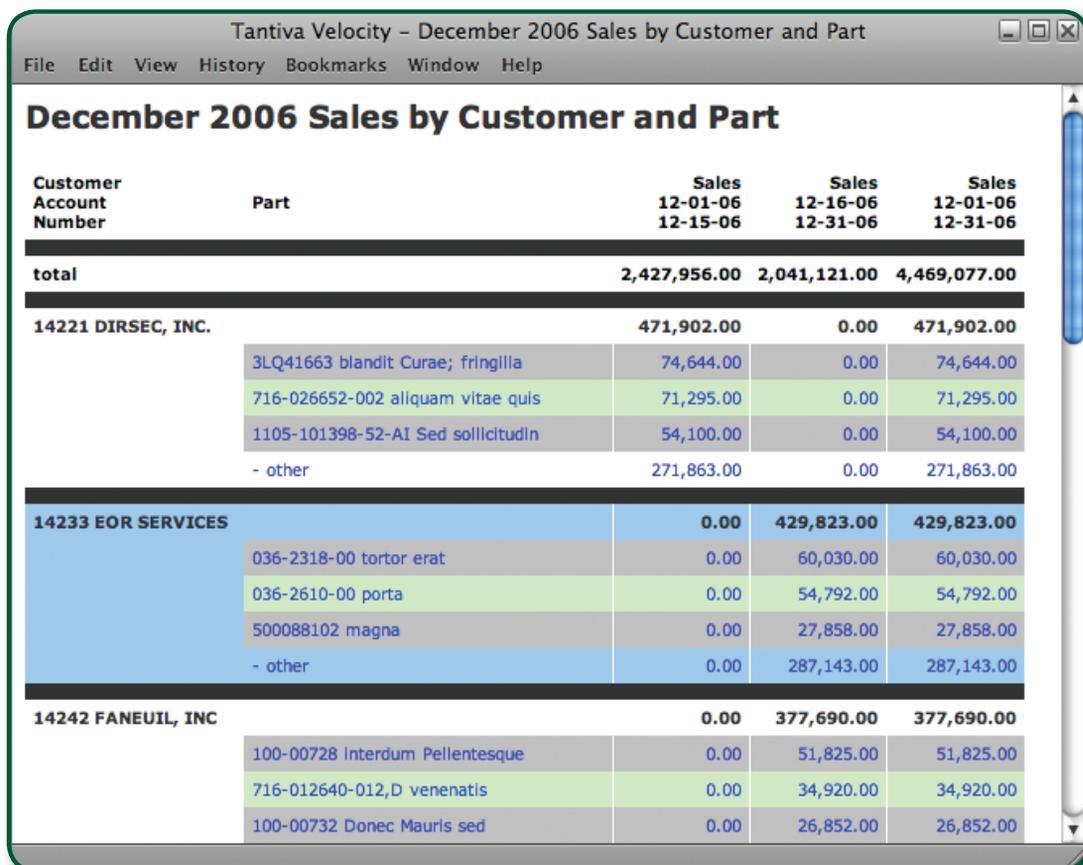
**R**oss Morrissey and Brian Bond met with us under a cloak of secrecy. Today the cloak lifts and we can finally talk about what they've told us.

**SPECTRUM:** *We had to do this interview under NDA (non-disclosure agreement). What's the big secret?*

**ROSS:** We're working under the radar to avoid distractions and focus on the product without having to worry about marketing yet.

**SPECTRUM:** *I know this is something BI-related, can you give us some more details?*

**BRIAN:** Our company is named Tantiva, the product is named Velocity.



The screenshot shows a web browser window titled "Tantiva Velocity - December 2006 Sales by Customer and Part". The browser's menu bar includes File, Edit, View, History, Bookmarks, Window, and Help. The main content area displays a table with the following data:

Customer Account Number	Part	Sales		Sales	
		12-01-06 12-15-06	12-16-06 12-31-06	12-01-06 12-31-06	12-01-06 12-31-06
<b>total</b>		<b>2,427,956.00</b>	<b>2,041,121.00</b>	<b>4,469,077.00</b>	
<b>14221 DIRSEC, INC.</b>		<b>471,902.00</b>	<b>0.00</b>	<b>471,902.00</b>	
	3LQ41663 blandit Curae; fringilla	74,644.00	0.00	74,644.00	
	716-026652-002 aliquam vitae quis	71,295.00	0.00	71,295.00	
	1105-101398-52-AI Sed sollicitudin	54,100.00	0.00	54,100.00	
	- other	271,863.00	0.00	271,863.00	
<b>14233 EOR SERVICES</b>		<b>0.00</b>	<b>429,823.00</b>	<b>429,823.00</b>	
	036-2318-00 tortor erat	0.00	60,030.00	60,030.00	
	036-2610-00 porta	0.00	54,792.00	54,792.00	
	500088102 magna	0.00	27,858.00	27,858.00	
	- other	0.00	287,143.00	287,143.00	
<b>14242 FANEUIL, INC</b>		<b>0.00</b>	<b>377,690.00</b>	<b>377,690.00</b>	
	100-00728 Interdum Pellentesque	0.00	51,825.00	51,825.00	
	716-012640-012,D venenatis	0.00	34,920.00	34,920.00	
	100-00732 Donec Mauris sed	0.00	26,852.00	26,852.00	

Fig. 1 Tantiva Velocity analytical reporting software

**ROSS:** Tantiva Velocity is a complete analytical reporting solution delivering reports securely to Web browsers or Microsoft Excel. It is written in UniVerse by MultiValue people for MultiValue people. There's no better way to find your top ten customers or products.

**SPECTRUM:** *So, what are your roles in this new company?*

**BRIAN:** I'm the smart one. Seriously, I designed the core MultiValue components of the product. Ross handles the product design and user interface.

**ROSS:** The core product is the Tantiva Matrix Engine, and Tantiva Velocity is the first report server to embed the Tantiva Matrix Engine.

**SPECTRUM:** *Does that mean that you plan on opening up the engine to other developers at some point?*

**BRIAN:** No, just for products from us, but we could do an embedded solution with someone.

**ROSS:** The engine is the answer to what Brian's role is, but we are very much focused on the complete product and how people will use it.

**SPECTRUM:** *If you had to give an elevator pitch for why your product is worth using, what would it be?*

**ROSS:** Speed - implementation speed - update speed - query speed.

**SPECTRUM:** *Speed is an excellent selling point. Let's talk about speed of implementation. How easy is it for a programmer to learn your product?*

**BRIAN:** I taught Ross the basics in a couple of hours. With anyone else, 20 minutes.

**SPECTRUM:** *Sounds like you two have a good relationship.*

**BRIAN:** We've known each other for ten years. This is the third time we've worked together. I was in charge of programming at Seattle FilmWorks about 10 years ago, and hired Ross. SFW was a mail-order photo lab. We were setting up a system to scan photos and make them available for downloading. We had about 5 million customers and another 25 million other names on

files for direct marketing. The web server grew from 10GB to 20TB in a couple of years. And this was in 2000, when a terabyte wasn't cheap.

We had six independent UniVerse boxes running various parts of the business to keep the lab running when one of them was offline, so we got good at moving data around. UniVerse was even used to drive film sorting and splicing robots.

**ROSS:** I wrote a series of articles and gave Spectrum presentations outlining some of the web interface techniques we used with UniVerse to control phantoms and provide reports with hyperlinks to images and triggering business processes like reprints.

**BRIAN:** We learned a lot about how to squeeze a lot of performance out of a computer. We were running up to 40,000 rolls of film per day through the system. We ultimately had over 500,000,000 million JPEG images available online to our customers, all controlled from UniVerse. Anyway, we learned a lot about speed and web interfaces from this work. This gave us a great foundation for inventing Tantiva Velocity.

SFW had a lot of turnover, so we also learned how to make things work well with very little end-user training.

**SPECTRUM:** *Excellent. How has that impacted the product specifically?*

**BRIAN:** For example, Velocity is really easy to set up.

**ROSS:** We've worked with over 100 organizations on setting up business intelligence solutions on MultiValue and every successful implementation starts with a clear idea, or vision, of what their reporting needs to do. Once you have that vision, decisions about what files and fields to use go pretty quickly, and our goal was to make it easy to capture those decisions.

**BRIAN:** Like any software, you need to know what you want to do with it. Tantiva Velocity pre-aggregates discrete transactions into a structure designed for rapid reporting. Step one is to extract the details into a separate UniVerse database. We do this to ensure the numbers remain static so the results can be audited. Second, the transactions are loaded into a structure we call a matrix.

This doesn't involve much work. In the current screen, you basically give it a name and most of the parameters

*Continues on page 19*

# Change Control

## It's An Inside Job

**E**ver popular as a plot device, the inside job is the surest route to success in almost any endeavor, nefarious or heroic. Being an insider means that you know the inner workings and the players that work them. This helps whether you are trying to steal diamonds, affect national security, or simply control IT processes.

Stealing diamonds is a little out of my field of experience and national security is best left to more qualified personnel, but IT controls are devices I know something about. So let's stick with advantages of an inside job in relation to IT Governance and its main component: Change Control.

### Does the Shoe Fit?

There have been some articles in recent years focused on how to make use of the myriad of free (or very inexpensive) change control tools available on the open market. Part of the appeal, of course, is that they are, as mentioned, free or very inexpensive. The other appeal is that phrase *open market*. What I mean by that term is that these change control utilities

are widely used for the most popular, well-known tools.

There is a certain appeal to taking a mainstream approach — a safety in numbers feeling that comes from doing something that everyone else is doing. The truth is that the real answer when your dad asked, “If Johnny jumped off a cliff would YOU jump off a cliff?”

“Yes. Yes, I probably would, Dad. It would seem safe — I mean Johnny did it! And ... hey, Johnny's really cool and everyone likes him. So yeah, Dad, I'm going off the cliff after Johnny!” Your dad might have been surprised, but the folks that market stuff to you wouldn't raise an eyebrow.

How many web site shopping experiences have you had where the list of products resulting from your keyword search were in “Most Popular” order? How many books have you selected because they were “bestsellers?” It's not a bad approach when it comes to movie and book recommendations. While not a guarantee, it's a good bet that if lots of people like something, you will like it too.

It wouldn't work for shoe sizes, though. If you used a shoe sale web site and selected based on the most popular size, the chances are decent that they'd fit you — since there's a good chance that you'd be in that curve of the population wearing the most common size. But the fact is that you know whether or not you wear the most common shoe size. You probably know exactly what size of shoe you wear! So it really isn't necessary to base the size decision on what most other folks fit into.

What a coincidence — you know what type of software you develop too! And in what database IT changes are made and stored! And like it or not — if you're in this magazine reading this article — you are *not* developing software in the most common tools used by the general public. Their loss, but the truth all the same!

When the subject is change control, mainstream approaches and products may very well have the advantage of being widely known and widely used. But, just like a shoe in a popular size, if it doesn't fit, you are going to be schlomping around in

*Continues on page 16*

### DISCLOSURE

The author has a product called PRC which is, in part, a change control tool. PRC is a software configuration management tool that provides full IT governance to the software development life cycle. It is written in and for the MultiValue/U2 environment.



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# The Art and Science of Training

## Part 2

**W**hen we do an activity, like writing, we trigger a series of secondary activities: the article has to be sent, it has to be edited, it has to be laid out, it has to be read — please let it be read. Likewise, when we present, we spawn a series of other tasks — the business of presenting.

### Team Player

Let's say we want to teach a new programming technique. We've talked about how to present it, but we haven't talked about where to present. Let's start with the least effort intensive option — presenting at someone else's event.

The playing field is fairly broad. We can contact a local user group, a vendor whose technology will be used in the presentation, or find a conference that will attract an interested audience. Depending on which option you take, getting the people who run the event convinced to let you present — well, that depends on your credentials and their needs. The best way to get someone else to let you speak is to establish that you bring two things: (A) credentials and (B), well, we'll talk about "B" a bit later in this article. Let's stay with "A" for now.

### Credentials

Experience presenting, writing for publications, doing TV and radio interviews — these are the sort of credentials of which we normally think. Unfortunately, we may find them hard to acquire. How do you get experience presenting when no one wants to let you present without experience? The good news is that these are not the only credentials which matter. Most of us are more qualified than we realize.

Let's say you've been employed in IT for the last twenty years and it has all been with the same company and they are not very IT-centric. So, you've attended a few conferences, but you've never been on a high visibility project or spoken professionally. No one's looking to interview you as a technology expert.

If your topic relates to your work, you are still a person who brings two decades of experience to your topic. That's a credential. You've attended conferences, which has given you an opportunity to evaluate other presenters. If you've taken that opportunity, you already have a basis for doing your own speech. That should help you demonstrate skill.

Don't underestimate the value of your personal life in establishing credentials. When I started writing tech articles, I got the opportunity because I was already writing game reviews. What does one have to do with the other? Well, game reviews have to go in on a deadline. They need to be written by someone who knows how to attract an audience's attention. They need to convey that the writer has an opinion worth hearing. All of those things are the same with tech article writing.

So a game reviewer is a half trained tech article writer. In that manner, you're speaking at your Lodge, or PTA meetings, or even Career Day, those are all training for doing a technical presentation. Mike Ruane likes to say, "Give me a topic and I can speak on anything for thirty minutes." At some level, presenting is presenting. Do enough of it, and the rest is just doing the homework.

Always remember that the person, or group, whose event you are presenting at has their own goals. Aligning what you want to do with what they want to do helps you move toward a yes. Pitching an anti-Capitalism speech to a Chamber of Commerce is not a novice play. Pitching a new metric for evaluating database efficiency to a database user group is a much easier fit.

## Your Audience

The "B" thing I alluded to before is the easiest way to align yourself with a commercial venue, like a paid conference. In this case, "B" stands for *Bring Your Own Audience*. When a conference hires Dana Carvey to MC the kick off, they aren't hiring him for his acumen in the IT field. They hire him because he will increase the size of the audience. If providing you with a speaker's slot in the schedule means that more tickets will sell, you will move up the candidate chain more quickly.

## Solo Act

Another choice is to go solo and offer the class directly. After all, if you are the organizer, it won't be hard to convince the organizer that you should get to speak.

Many of us can put up a web site and rig up some sort of sign up sheet. The rest probably know someone who could. So, if we have a topic, we have a presentation, and now we have a sign

up sheet on the web, we're good to go, right?

No. Remember that staging a presentation is a skill. So is marketing those presentations. So is putting up an effective registration system. Ask Nathan some time how many person hours go into a Spectrum Conference. But a class must be much easier to put together, right?

No. While a class is much easier from a logistical standpoint, it is just as hard from a marketing standpoint, and much harder from a sales standpoint. Why is it much harder to sell? Think about a typical conference. Let's say they have twenty seven presentations spread over three days, in three tracks. I'll pay for the conference if four or five topics are worthwhile. I might pay for it with only three interesting topics, if I like the speakers on those topics enough.

When you go solo, I will only pay if your single topic is worth the travel, time, and expense. Remember, when we go to any conference or class, we

are likely to be paying for more than just the presentation. We have time off from work, perhaps hotel fees, likely travel fees, certainly food expenses, all added to the cost. So, the run-your-own is tough. Obviously it can and has been done, but don't underestimate the business side.

## Ghost to Ghost

The new, non-travel option is distance learning. Virtual classes and virtual conferences exist and they are much easier for attendees, in terms of time and expense, but they have a huge drawback. While going virtual lets me speak to people all over the world, I'm likely to be speaking in the worst setting.

Imagine that I establish the Key Ally World Conference. We have sixty people at the keynote speech. As I begin, six, of the ten of them who are connected from home, get phone calls or hear the doorbell ring or get hollered for by a spouse or significant other. So, without any clue, I've lost 10% of

*Continues on page 14*



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## THE ART AND SCIENCE OF TRAINING - PART 2

Continued from page 13

my audience. Three, of the twenty five who connected from work, have been called away for emergencies — like a down system or critical reporting errors. That's another 5% secretly eroded. The remaining fifteen, who are connected from remote locations as they travel for work, well I only have half their attention as it is. By the end of the presentation, I have three real, focused attendees, and two dogs barking at the screen in Oklahoma.

It is not always this bleak. As it turns out, the more you charge for distance learning, the more people will focus on getting value back from the experience. So, when I teach online, it tends to work better if there's an expense associated. The other trick to successful remote training is to keep the presentation reasonably short. An hour, perhaps two, is as deep as you really

want to go. More short sessions is better than fewer long session in the majority of cases.

### Repeat Performer

One final thought: When you present for the first time, you have little power to draw an audience. No matter how good you are, they won't know that until after they sit in your room. However, if you do well the first time, those who heard it might remember next time. That's the key here. Presenting once is like taking all the pain of training for a marathon and then only running a few steps.

Can the first time be a huge success? Yes. Some first timers, due to topic, marketing, word of mouth, and other factors, can achieve a large, interested audience. Generally, it is a gradual thing. To maximize those early speaking opportunities, you need to know your intended audience well or have someone working with you who does. It will generally keep getting easier to

attract an interested audience the more you present in the same market/interest segment.

When I fill a room, I never assume that all the credit goes to me. When I fail to fill a room, I don't hold all the responsibility. Think of a presenter the way you think of a lead singer. Mick Jagger is the face of his band, but you would rather see the Rolling Stones than see Mick a cappella. So, when you see me at the next Spectrum, think of Tracey Rector and all the others who aren't on the stage, but without whom there would be no stage. **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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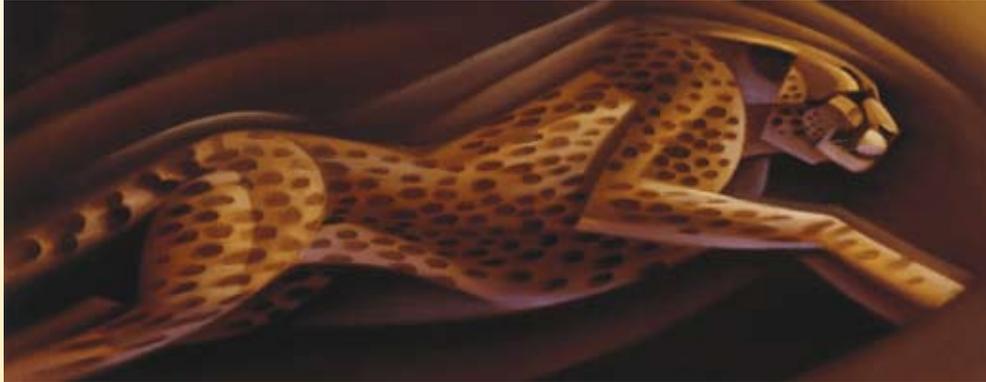
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## CHANGE CONTROL – IT'S AN INSIDE JOB

Continued from page 10

something oversized or nursing blisters from something too small. Enough of the shoe analogy — what is the real difference between a change control tool that is written for Windows or Unix and one that is written in and for the MultiValue environment?

### What is Change Control?

Let's begin by making sure we're on the same page about change control itself. What is it and why are we concerned with it? For the purposes of this discussion, when we talk about change control we are talking about using a tool to prevent unauthorized changes from occurring and to audit authorized changes. Sometimes deployment is included, as well.

Our reasons for needing change control can range from just wanting things to be in a bit more control to gover-

nance requirements by various regulatory agencies. For the moment let's suspend any discussion of security frameworks and administration — figuring out what you must control and the details of who can do what under which circumstances. We'll just go with the meat of the matter for now: controlling change.

---

*"...our goal is to let the right people do the right things and prevent the wrong things being done by the wrong people..."*

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Once we set up our security the way we want it, our goal is to let the right people do the right things and prevent the wrong things being done by the wrong people or even the right things being done by the wrong people. Assuming those rules are in place levels the playing field for examining change control. It's not really a level playing

field though, and we will be coming back to this!

### Comparing U2-Based Methods To Outside Tools

The first difference we can examine is the file structure — and the tools' understanding thereof. For those in traditional MultiValue environments, none of the files are visible, accessible, or manageable from outside of the MultiValue environment.

For folks using U2 products, the directory-type files where the programs are stored are exposed. Items stored in hashed files, such as dictionary definitions, control items, or data that is part of the configuration of the application are *not* accessible from outside of the environment. Therefore, a tool that is outside of the U2/MultiValue environment either can only manage part (or none in the case of Pick) of the software repository. For the rest, mechanisms have to be built within the MV/U2 environment to publish items from



hashed files to directory files for outside management.

The next difference is in the tools of change. What are the methods and mechanics of how the software is changed? Even if you are content with only managing program code in directory files, the fact that you indicated in an outside tool that an item is checked out does not have any actual physical impact on a program in your program file, in terms of accessing it from within the MultiValue / U2 environment using TCL commands or basic programs. You can use an editor from outside with a change control tool that speaks to it, but you'll have to put something in place to prevent TCL access. The outside change control tool cannot control or audit changes made using inside development tools, so those inside tools must be disabled.

While we're on this notion of outside-ness, there is the fact that the outside tool is outside. It's sort of like you have

a bookshelf in your office where you can reach it from your desk without getting up, but whenever you want to read anything in any book on the shelf you have to get up and go out to the garage to log that you are going to do so. Not only is this an inconvenience that could cheerfully be skipped, but even the most well-meaning of us could forget a procedure like that! So if you want to make the tool handle the check-in and check-out from within the environment, you'll have to build something of your own to handle that interface.

Along those lines, if you were to build an interface so that a programmer could query the availability of a software component from TCL before modifying it you may want to design it such that it gives the user information and may offer options based on the specifics of the user, the item, and the situation. It may or may not be possible to read the security structures set up in the outside tool to manage this. This is actually unlikely, unless you build

something on the outside tool side that exports that security structure and rule set. Even if you do that — you are going to have to develop the interpreter that translates those rules to behaviors within the MV/U2 environment.

By now, to use the outside tool with any convenience at all, you've had to develop software inside your MV/U2 environment to

- Conform to the file structure
- Wrap or prevent the use of TCL commands
- Modify your programs and utilities that implement change
- Build a calling-out procedure to indicate the checked-out / checked-in status
- Design a framework and interface to inform the user of the availability of software components they may wish to modify and offer choices for various situations.

*Continues on page 18*



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## CHANGE CONTROL – IT'S AN INSIDE JOB

Continued from page 17

Wow. What's the outside tool doing for you?

### Benefits Of Using Inside Change Control

There are a few strong and obvious benefits to using a change control tool built inside the environment where you are effecting change. First and foremost, the change control tool understands the architecture, the tools used to change things, and the underlying relationships between them, along with intrinsic functions such as compiling, cataloging, building indexes, and other platform-specific deployment functions.

Working inside the MV/U2 environment also means that items in hashed files and dictionaries can be managed the same way as the source programs. One approach, one solution, one set of procedures.

Probably the strongest advantage of staying inside the environment is the possibility of making the interaction with the tool automatic as a developer works. No extra steps to remember, rather a streamlined integration of developer and tool.

There is also the advantage of the familiar database environment — the information about your change control is in the same database as your other soft-

ware and application. And, in our MV/U2 world, that means that easy reporting and visibility is at your fingertips.

### What Else Makes Up The SDLC?

Remember earlier when I said we could level the playing field by strictly comparing the change control aspects of the inside vs. outside tools. Well, let's look now at how a tool knows what files to allow or disallow and audit changes against. This is where the change control portion needs to interface directly with the policies and procedures of your security framework.

While it is not impossible to implement a manual and voluntary policy, it is certainly easier to establish the rules in the framework and then allow the tool to govern. In such an environment, not only does our common editor tool "ED" automatically interface with our change control tool, but it can automatically interface with our security framework. Thus, we can allow certain people to edit items in certain files or by certain tools under certain conditions.

It is important to publish a policy that disallows changes in *live* except during an emergency — but human nature and the nature of volunteer efforts, well. When isn't it going to be an emergency? Or what is going to stop not only a malicious event, not only a careless event, but what about an accidental event? And if we lock the live

server down completely, then how do we handle an actual emergency?

It's nice to be able to build up information about the users, the files, the items, the tools, and the conditions and then let the tool handle authorizing and auditing what someone tries to do, based on those settings. When that information is all part of the application, it's visible, accessible, and can be automatic.

Another advantage to the inside tool: the data that the tool itself keeps — the audit trails the change history — that data repository is stored in our flexible and familiar database where our myriad powerful reporting tools can be easily used to research and report on events. When an inside tool is implemented, the security aspects can be identified — policies and procedures defined and implemented — from within the environment. Then those rules can be implemented and enforced by the change control automatically, using the tools that we normally would use against the files that we might normally need to change. Then the information about those rules and events and audits can be reported easily from inside.

In a balanced comparison, a reporter will describe the advantages of both sides. It was earlier mentioned that some of these outside change control tools can be free or very inexpensive. Does that count as an advantage when one must factor in the cost of making them usable? Well, let's give it to them. We don't want to skunk the outsiders completely — or do we? **IS**

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SUSAN JOSLYN is the author of PRC, a complete, integrated Software Development Life-cycle Management tool for MultiValue-based IT. She has worked with MultiValue software since the beginning (hers and MultiValue's) and has specialized in quality, compliance, and life-cycle productivity issues since the early 1990s.

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## REPORTING AND BUSINESS INTELLIGENCE TOOLS: TANTIVA

Continued from page 9

are filled in by default. Since loading a matrix is such a fast process, it is easy to go back and make corrections and additions.

**SPECTRUM:** *So the bulk of the set up is the planning, not the typing of commands into the keyboard?*

**BRIAN:** Pretty much. That's true with any software. But it is very easy to understand how to make it work.

**SPECTRUM:** *Is this just a columnar reporting tool?*

**ROSS:** This is very much an analytical reporting tool. There have been a number of articles in Spectrum, including my own, that outline the difference between analytical reporting and operational or transactional reporting.

Analytical reporting allows you to take a second pass at the aggregated detail transactions to sort them by total and quickly find the top customer or product. You can also do calculations on

*MultiValue shops are tired of throwing hardware and resources at the problem. In 2008, nobody should need to upgrade their production server dramatically just to support reporting.*

results to find trends from time period to time period—and we allow arbitrary time periods.

**SPECTRUM:** *Can you suggest a complex business question which could be effectively resolved by use of Velocity?*

**ROSS:** Actually, it's not the complex needs that are causing pain. It's finding out who the top 10 customers were last month. You can't do that with a single pass reporting solution—you either need to write a program or wait for a complex BI tool to wring out the numbers.

**BRIAN:** I should add that building a matrix is very fast. I have built one with 12 dimensional attributes and several column measures containing 5,000,000 transactions in 15 minutes. That's on a fairly slow PC.

**ROSS:** Tantiva Velocity is designed to make the basic queries extraordinarily quick, then allow you to drill down from there, rather than imposing the drill down overhead on basic queries.

**SPECTRUM:** *What does it do for me as an end user trying to run my business?*

Continues on page 31

# .NET for MultiValue!

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# NEWSMAKERS



## F.W. Davison Partners with Entrinsik to Integrate Informer Reporting Within its HRPyramid Web Edition Solution

Entrinsik, Inc., provider of leading-edge database reporting solutions for the IBM UniData and UniVerse (U2) family of database products, and F.W. Davison & Company, developer of high performance software solutions for the PEO and HRO industry, recently announced general availability of Informer Web Reporting for their popular hosted version of HR Pyramid. Informer is already a popular reporting solution for F.W. Davison's non-hosted HR Pyramid customers. Entrinsik partners with a number of MultiValue solution providers like F.W. Davison, to integrate Informer as a real-time, interactive, web-based reporting tool for their package offering.

The hosted HRPyramid Web Edition integrates Informer Reporting software to deliver all the robust functionality of a non-hosted solution without the cost and hassle of building and maintaining a computing infrastructure. Informer is embedded within the HRPyramid Web Edition application and utilizes the security settings within Web

Edition to manage reporting access.

"The integration of these two packages provides HRPyramid users the real-time reporting functionality of Informer without any fear of accessing unauthorized data," said Scott Hastings, CEO of F.W. Davison. "Embedding Informer enables our HRPyramid customers to deliver a feature-rich, secure, intuitive web reporting solution to their clients. We are very excited to bring Informer reporting capabilities to our hosted customers."

By offering Informer as an ASP solution, F.W. Davison customers realize several key benefits:

- Shorter Application Cycles - all users are updated with the latest and greatest versions of the software all at once
- Premium Application Availability - with the reduction of IT overhead, best-of-class applications are suddenly within grasp for PEO's with limited resources.
- Improved Performance - leverage best IT practices for superior levels of availability, security, backup, disaster recovery, and help desk (shadowing).
- Financial Predictability - with a flat subscription fee, the overall expenditures for hardware, applications, and management can be reduced 30 to 60 percent.
- Reduced Risk - with no capital expenditure on software, hardware, and IT personnel, PEOs can easily test software in their own environment

"Our partnership with F.W. Da-

vison demonstrates Informer's ability to be used as a privately-labeled OEM reporting tool to deliver significant added value, says Doug Leupen, president of Entrinsik. "HRPyramid users now have a scalable, cost-effective reporting solution to securely access critical information anytime, anywhere via the Web".

### About Entrinsik

Entrinsik, Inc. headquartered in Raleigh, NC provides software and services focused on the IBM U2 family of database products. Entrinsik's Informer Web Reporting System is the industry leader for reporting systems for UniVerse and UniData. Their SEMtek product is an enterprise solution for continuing education, training, and conference providers. Founded in 1984 and in the MultiValue market since, Entrinsik aims to provide leading edge technology and unsurpassed service to their customers. For more information, visit Entrinsik at [www.entrinsik.com](http://www.entrinsik.com) or call 919-848-4828.

### About F.W. Davison

The leading developer of high-performance software solutions for PEOs and ASOs, F.W. Davison and Company is dedicated to the customer experience. Founded in 1985, F.W. Davison has combined experienced software development with personalized customer support to create a superior overall customer experience. For more information on F.W. Davison & Company, visit [www.fwdco.com](http://www.fwdco.com). ■



## Sierra Bravo Ranks No. 556 on the 2008 Inc. 5000 with Three-Year Sales Growth of 585%

Inc. has announced its annual list of America's fastest growing private companies – and Sierra Bravo is #556 on the Inc. 5000. Additionally, Sierra Bravo ranked #7 on Inc.'s Top 50 Businesses in the Minnesota, as well as #77 on Inc.'s Top 100 IT Services Companies.

From 2004 to 2007, Sierra Bravo's revenue jumped from \$599,828 to \$4.1 million – an increase of 585.5%, far outpacing the median average of 187% for the other 579 IT Services and Software companies – the Inc. 5000's largest business category.

"This accomplishment underscores the unique opportunity we have at Sierra Bravo to be nation's place to go for web development services," said Luke Bucklin, president of Sierra Bravo. "The passion and enthusiasm for our work is what puts us in a position to do great things." Founded in 2003 by Bucklin and fellow programmers Mike Derheim and Mike Schmidt, Sierra Bravo is now the largest independent web development firm in the Twin Cities.

Sierra Bravo creates practical, business-minded web solutions, including social media and Web 2.0 applications, e-commerce, content management systems, desktop widgets, database and legacy system integration, and customer relationship management tools.

Driving Sierra Bravo's steady growth is its Partner Program. Sierra Bravo adds sophisticated web development to the end clients of its Partners, which include ad, design, and marketing agencies nationwide, particularly in Chicago, Dallas, Philadelphia, Los Angeles, New York, Atlanta, Milwaukee, and San Francisco.

"Sierra Bravo's success is powered by nerds," said Bucklin. "With more than 50 programmers on staff, we can handle any web project for any client, anywhere. We consider every option in matching client needs and project scope with the appropriate technology and best-suited brains. We keep our edge by hiring top developers eager to learn – and even teach us a few tricks."

Inc. touts the Inc. 5000 as "the most comprehensive look at the most important segment of the economy – America's independent-minded entrepreneurs. Taken as a whole, these companies represent the backbone of the U.S. economy."

"The Inc. 5000 gives an unrivalled portrait of young, underreported companies across all industries doing fascinating things with cutting-edge business models," said Inc. 5000 Project Manager Jim Melloan. The 5000 companies that made the list reported aggregate revenue of \$185 billion and median three-year growth of 147 percent. As engines of job growth, the 2008 Inc. 5000 companies have created more than 826,033 jobs

since they were founded.

Companies apply to Inc. by submitting revenue figures in four consecutive years, so this was the first year Sierra Bravo was eligible for the Inc. 5000. As creators of the F1 Overnight Website Challenge, Sierra Bravo led 88 volunteer web pros to donate 24 hours of their time and talent to build free websites for 11 Minnesota non-profits – collectively valued at \$200,000. ■



## **Galveston College Chooses Datatel Colleague to Provide Constituents with Comprehensive Web-Based Services**

Datatel, Inc. announced that Galveston College has selected Datatel Colleague and Datatel ActiveCampus Portal solutions to create a Strategic Academic Enterprise that empowers its constituents with online self-service capabilities. The College also licensed Colleague Student Retention Alert, a comprehensive offering of software and professional services that identifies and serves students who are academically at-risk. The newly acquired Datatel technology and professional services will replace a legacy system used by the institution.

"Our students' success is this institution's prime mission," said

Dr. Myles Shelton, president of Galveston College. "After close consideration of three vendors by a group of stakeholders from across campus, we chose Colleague because of its seamless integrated approach to our current solutions, cost benefit, Datatel's excellent references, and features such as Student Retention Alert."

In addition to alerting staff and faculty about students with academic issues, Colleague can warn about non-academic issues (such as poor attendance, family problems, and illness) based on collaborative input to allow for quick intervention, thus helping to enhance campus safety and security.

Galveston College will also deploy Datatel's ActiveCampus Portal, a workgroup collaboration and social networking system. Built on Microsoft SharePoint technology, ActiveCampus Portal provides a single point of access to information and resources for everyone across campus.

"ActiveCampus Portal will make a huge difference for all of our constituents by allowing them to work collaboratively regardless of their location," said Shelton. "This will be very helpful during registration, as the Portal's familiar Microsoft-based look and feel will enhance our students' user experience."

Galveston College, founded in 1967, is a comprehensive community college located on Galveston Island, 50 miles south of Houston, Texas. The College provides the citizens of the Island and surrounding region with academic, workforce development, continuing education, and community service programs. Currently Galveston College has about 2,200 students each semester in credit

programs, and nearly 5,000 individuals annually in continuing education and workforce development programs.

Datatel Colleague focuses on five key business areas – enrollment and student services, financial management, enrollment and student services, human resources, and institutional advancement. Datatel also offers an array of professional services, consulting, and web-based e-marketing solutions and services exclusively for higher education.

### **About Datatel, Inc.**

Datatel provides fully-integrated administrative and academic software systems and professional services to colleges and universities, for building Strategic Academic Enterprises in support of student success. Serving five million students at more than 760 institutions throughout North America and overseas, Datatel has exclusively focused on higher education for 30 years. Datatel is headquartered in Fairfax, Va. For more information, visit [www.datatel.com](http://www.datatel.com). ■

# New Products



## MITS to Provide Business Intelligence and Reporting Solutions for Ladybridge's OpenQM Database

Developers of the OpenQM database, Ladybridge Systems Ltd and leading business intelligence and reporting solutions provider, Management Information Tools, Inc. (dba MITS) are pleased to announce MITS compatibility with OpenQM. This includes the entire MITS product line: the flagship OLAP/BI solution, MITS Discover, and MITS Report for ad hoc reporting.

### Improved Access

"We've talked to Ladybridge's customers and heard rave reviews about the power of the OpenQM platform," stated MITS president, Fred Owen. "Furthermore, their commitment to innovation and attention to customer needs creates a natural synergy between our solutions and OpenQM."

OpenQM provides those looking to capitalize on the power of the MultiValue (MV) database model a low-cost alternative without requiring a sacrifice in terms of functionality and support.

Through an intuitive web browser interface, MITS reporting and business intelligence solutions offer users unprecedented ac-

cess to data. "MITS has set the standard for business intelligence and reporting solutions for the MultiValue community and we are enthusiastic about the opportunity to make these solutions available to our customers," comments Ladybridge System's technical director and founder, Martin Phillips. "Seeing firsthand how easily users navigate through report creation and analysis with MITS products, we are confident of the benefits their solutions provide."

### Increased Value

By partnering with MITS, Ladybridge makes their value-priced solution even more attractive to those interested in migrating to the OpenQM database – eliminating concerns about compatibility. Resellers with solutions built on OpenQM can benefit by integrating MITS Report into their existing offering or provide MITS Discover and Report as valuable system add-ons.

"We have always been focused on providing our customers with exceptional value, both in terms of cost and functionality. Best-of-breed reporting and analytical solutions from MITS extend the value of our customer's OpenQM investment even further," Phillips said.

### About Ladybridge Systems

Ladybridge Systems was founded in 1992 by former Prime Computer personnel and is headquartered in Hardingstone, Northampton, England. To date, Ladybridge Systems provides training, consultancy, development, and maintenance services to MultiValue databases in the UK and worldwide. While the

OpenQM MultiValue database is their primary area of activity, they are an IBM business partner providing services to users of IBM's UniVerse and UniData products.

Ladybridge Systems remains a small privately owned company, offering a personal level of service to clients around the world. As a member of the TRUST Group, a network of independent computer companies working together, they are able to offer the vast range resources of a large company while still maintaining the direct, friendly approach of a small business. This also allows Ladybridge Systems to operate with very low overhead and offer high-value services to organizations at much lower charges. For more information, visit [www.ladybridge.org](http://www.ladybridge.org).

### About MITS

MITS is a leading developer of advanced reporting and business intelligence products. The MITS product line contains both the MITS Discover OLAP Business Intelligence suite, as well as the ad hoc report tool, MITS Report. Founded in 1996 and headquartered in Seattle, Washington, the company's technologies are used by thousands of organizations, resellers and systems integrators worldwide. MITS products are firmly entrenched in a wide range of business areas, including manufacturing, distribution, retail sales and services, education, government, healthcare, and insurance, as well as in many other industries. For more information, visit [www.mits.com](http://www.mits.com). ■



## Kourier Integrator for U2 Release 2.0 Offers Integrated Development Environment for SQL Server Projects Plus Enhancements

Kore Technologies announced Release 2.0 of Kourier Integrator for U2, its popular enterprise integration suite, which provides Extract, Transform, and Load (ETL) and Enterprise Application Integration (EAI) capabilities for connecting IBM U2 (UniData and UniVerse) applications to Microsoft SQL Server and other best-in-class applications.

The new release of Kourier Integrator for U2 focuses on providing an integrated development environment for managing MultiValue to SQL Server integration projects, adding many enhancements and features requested by existing users, and improving the overall product usability and workflow.

"Interest in MultiValue to SQL Server data warehousing continues to grow, that's why this release of Kourier Integrator has so many features developed to streamline the SQL integration process. These new features allow developers to be even more productive and see results

sooner," said Mark Dobransky, managing partner of Kore Technologies.

Highlights of the new release include:

- SQL Accelerator incorporated into Kourier Integrator for U2 Web Interface
- Improved SQL Accelerator SSIS Package Build and Batch Generation
- Faster Full Refresh Processing of SQL Server tables
- Data Export and Import Statistics Tracked to Support Data Reconciliation
- User-Defined Formulas for Data Export Fields
- Improved Testing Workbench for Data Exports
- Re-organized Application Menus Provide Better Workflow
- Many Usability and Interface Enhancements
- Expanded Online Help System, and more

The most significant change in the new release is the incorporation of the functionality previously provided by the stand-alone SQL Accelerator product into the Kourier Integrator web interface. Now all tasks for SQL integration projects can be performed within one product, which not only improves overall workflow but provides other advantages too. For example, all SSIS packages for an integration can now be quickly regenerated with just a few mouse clicks.

"We wanted to simplify the workflow and make the product easier to use. Including SQL Accelerator into the web interface provides our users with an integrated development environment that allows them to create, manage, and deploy their MultiValue to SQL Server projects faster and easier," said Keith Lambert, vice president of marketing and business develop-

ment of Kore Technologies.

Release 2.0 of Kourier Integrator for U2 is scheduled for general availability in October 2008. If you would like more information regarding the Kourier Integrator for U2 solution and how it can help you integrate your MultiValue application with Microsoft SQL Server or other databases, please contact your Kore Technologies representative, call Kore at 866-763-5673 or send an email to sales@koretech.com. ■



## Tantiva Introduces New Analytical Reporting Software For MultiValue Platforms

Tantiva LLC introduces Tantiva Velocity version 1.0, high-performance analytical reporting software for unprecedented analytical reporting speed and flexibility.

Velocity is capable of aggregating transactional data at thousands of records per second, and offers true ad hoc analytical reporting — the ability to quickly slice and dice data without restrictive predefined date ranges or drill-down paths. "The results we've seeing during beta testing are staggering," remarks Ross Morrissey, BI expert and co-founder of Tantiva. "Our build speeds are orders of magnitude faster than cube-based tools."

Tantiva Velocity was designed from the ground up to integrate with all major Multi-Value platforms. It delivers web-based an-

alytical reporting with Microsoft Excel compatibility, an easy-to-use interface requiring minimal training, and superior reliability even in environments where there may not be a dedicated IT staff.

One of the first customer sites is Bonanza Press, a Seattle-area D3 site. Rich Norris, Bonanza president, is already getting actionable insight: "With the addition of Velocity to our system it has never been so quick and easy to evaluate our sales information in a changing market place. We are discovering things we never knew about our product line."

Tantiva Velocity is available now through resellers. Contact sales@tantiva.com to arrange a demo. Dealer enquiries welcome at partners@tantiva.com.

### 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. ■



## OpenInsight Development Suite 9.0

OpenInsight Development Suite 9.0 will be available for release

in Q4 2008. The OpenInsight Application Manager will have a new look and feel with the inclusion of a new IDE. 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. New to OpenInsight 9.0 is Web-IOI, a Web enablement and development toolkit. Existing OpenInsight Forms and Popups 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.

Also, the Bravo Dashboard from Sierra Bravo Corporation will be included in OpenInsight release 9.0. The Bravo Dashboard is a MultiValue CGI application that delivers the output of individual business metrics "widgets" to a dashboard web page. Multiple dashboards may be defined, and each dashboard becomes a unique collection of widgets.

### 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 GUI s tools to develop and deploy web-based and client server applications that support

*Continues on page 24*

## New Products

Continued from page 23

native and relational XML, SQL, Lotus Notes and the leading legacy 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. For more information, visit [www.revelation.com](http://www.revelation.com). ■



### BlueFinity's mv.NET Version 4: Making Microsoft Work for MultiValue!

BlueFinity International, a member of the Mpower1 Group of Companies, is pleased to announce the general availability of the latest version of its extensive toolset designed for creating Microsoft .NET-based applications requiring access to MultiValue databases: mv.NET Version 4.

mv.NET provides a 100% native .NET interface to all major MultiValue database platforms allowing .NET developers to access all aspects of the MultiValue system (both data and program code) from within the .NET application. It also offers a wealth of end-user capabilities allowing the developer to rapidly create feature-rich, high performance applications using the powerful tools provided by Microsoft's .NET environment.

The main thrust of Version 4.0 of mv.NET is to extend support for newer operating system

platforms and .NET frameworks along with enhanced support for various foreign language-based Windows installations. Version 4 also introduces a SQL Server Integration Services (SSIS) component used to aid the transfer of MultiValue data into MS SQL Server. The SSIS component is a separate product to mv.NET called mv.SSIS.

mv.SSIS allows MultiValue users to extract data from any major MultiValue database (in both bulk and filtered export mode) to other data repositories using Microsoft's SSIS product. The definition, testing, and execution of these extraction processes is performed entirely from within the standard SSIS environment and ensures data consistency, eliminates redundant data, and saves time.

"The mv.SSIS product follows in the footsteps of its other sibling BlueFinity products by providing the SSIS developer with a tightly integrated, natural extension to the native SSIS environment allowing them to seamlessly incorporate MultiValue data sources into their existing or new SSIS workflow packages," explains Pete Loveless, CEO of BlueFinity International. "It effectively opens up the entire SQL Server set of tools and utilities to MultiValue database users."

Along with support for both 32 and 64-bit operating system platforms, mv.NET Version 4 includes support for Framework 2.0 and 3.5. "In today's fast changing world, some VARs and end users will have deployed Framework 2.0 based applications, yet new work is almost certainly going to require Framework 3.5," continues Loveless. "Bluefinity is committed to enabling both frameworks to co-exist and to providing ongoing support for new versions of the .NET Framework."

Other enhancements include support for Visual Studio 2008, a socket connectivity option for D3 databases, and performance enhancements to the Session Manager which reduces the connection/session allocation overhead and results in even quicker session allocation performance for client applications.

David Cooper, lead developer at BlueFinity, explains: "This latest release demonstrates BlueFinity's commitment and ability to deliver an aggressive product development path, focused on allowing MultiValue developers to participate as first-class citizens of the Microsoft developer community."

"The new Version 4 release lays some important foundations for a number of very exciting product developments in 2009," says Cooper. "These new developments will provide the MultiValue community with an even greater range of choice of how to develop enterprise class applications leveraging the best of both the MultiValue and Microsoft technology sets."

BlueFinity is planning a one day technical seminar in Denver, Colorado on Friday, March 27th at the Westin Westminster Hotel to showcase the product set and take an in-depth technical look at the advanced functionality by way of live demonstrations and presentations with BlueFinity developers. More information will be available soon on the BlueFinity web site.

A detailed list of Version 4 enhancements as well as access to free webinars and evaluations of BlueFinity products can be found at [www.bluefinity.com](http://www.bluefinity.com).

### About BlueFinity International

Founded in 2002, BlueFinity International ([www.bluefinity.com](http://www.bluefinity.com)) has created a series of

products for the MultiValue database and Microsoft developer communities. mv.NET allows the full benefits of the .NET service oriented architecture technology to be realized by users of established MultiValue applications. mv.RSDC enables MultiValue developers to utilize the very latest Microsoft Reporting Services technology. mv.SSIS allows MultiValue users to extract data from any major MultiValue database to other data repositories using Microsoft's SQL Server Integration Services (SSIS) product. BlueFinity is part of the Mpower1 Group of Companies ([www.mpower1.com](http://www.mpower1.com)). ■



### MITS Adds InterSystems Caché as Database Platform for Ad Hoc Reporting Tool

InterSystems Corporation announced that Management Information Tools, Inc. (MITS) will be offering its MITS Report product as an ad hoc reporting tool for the high performance InterSystems Caché object database. MITS is a leading supplier of business intelligence (BI) and reporting tools for MultiValue (MV) databases.

InterSystems develops and markets innovative database, integration, and business intelligence software. In addition to Caché, InterSystems offers the InterSystems HealthShare platform for regional and national electronic health records, InterSystems DeepSee embedded real-time BI software, and InterSystems

Ensemble rapid integration platform. Ensemble has been ranked number one for interface engines for the last two years by KLAS, a leader in healthcare technology research.

### Synergy in the MV Market

"We know that the MV market is a strategic one for InterSystems and it's obvious that they're a significant force in that sector," said MITS president, Fred Owen. "This partnership will position us perfectly to deliver our web-based reporting product to the large base of InterSystems application partners."

Offering an interactive reporting environment with a browser interface, MITS Report is designed to enable reporting without querying, smooth data exporting, and easy-to-make modifications. "We expect that these features combined with the high performance and massive scalability

that Caché delivers will make the addition of MITS Report attractive to many InterSystems customers," Owen said.

"MITS is recognized as a significant player in the MV sector," said Matthew Nee, InterSystems vice president of North American Sales. "We're looking forward to working with them as they deliver the MITS Report product to our partners including those who are leveraging the MV features of Caché in their innovative applications."

### About InterSystems

InterSystems Corporation is a global software product company with headquarters in Cambridge, Massachusetts, and offices in 22 countries. InterSystems provides innovative products that enable fast development, deployment, and integration of enterprise-class applications. InterSystems Caché is a high performance object database

that makes applications faster and more scalable. InterSystems Ensemble is a rapid integration platform that enriches applications with new functionality, and makes them connectable. InterSystems HealthShare is a platform that leverages existing healthcare applications to rapidly create regional or national electronic health records. InterSystems DeepSee is software that makes it possible to add embedded real-time business intelligence in transactional systems, enabling better operational decisions.

InterSystems is the world's #1 vendor of database and integration technologies for healthcare applications. InterSystems products are used by thousands of hospitals and labs, including all 19 hospitals on the Honor Roll of America's Best Hospitals as rated by U.S. News and World Report. For more information, visit [InterSystems.com](http://InterSystems.com).

### About MITS

MITS is a leading developer of advanced reporting and business intelligence products. The MITS product line contains both the MITS Discover OLAP business intelligence suite as well as the ad hoc report tool, MITS Report. Founded in 1996 and headquartered in Seattle, Washington, the company's technologies are used by thousands of organizations, resellers, and systems integrators worldwide. MITS products are firmly entrenched in a wide range of business areas, including manufacturing, distribution, retail sales and services, education, government, healthcare, and insurance as well as in many other industries. For more information, visit [www.mits.com](http://www.mits.com). ■

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# Datasets *in* UniVerse

BY BRIAN LEACH

**T**here are many aspects of the traditional MultiValue model that make good sense in the modern world. The flexibility afforded by the metadata-driven data model enables the development of complex and agile business applications, the pessimistic locking model (where appropriately employed) can hugely simplify contention management and the low-level read/write operations that take place within Basic ensure that MultiValue systems will always remain at the forefront in terms of scalability — just what is needed in today’s internet and mobile world.

But there has always been a hole in the model. The MultiValue model excels at operations on individual records — that is the heart of the Basic language and the main factor behind the efficient use of resources — but has traditionally been hopeless at working with sets of data.

True, the inquiry language allows us to generate relatively complex reports and to build selections as key lists for passing to Basic to iterate through. But when you need to assemble a set of data — whether for export or to pop up as a helpful selection in response to a prompt — you run into a brick wall.

Traditionally, there has been no sensible link between the inquiry and Basic languages when it comes to accessing the results of inquiry processing. True, you can run selections to identify candidate records and their correct sort ordering. But to get to the actual data forming the results of an inquiry, the developer has needed to resort to a

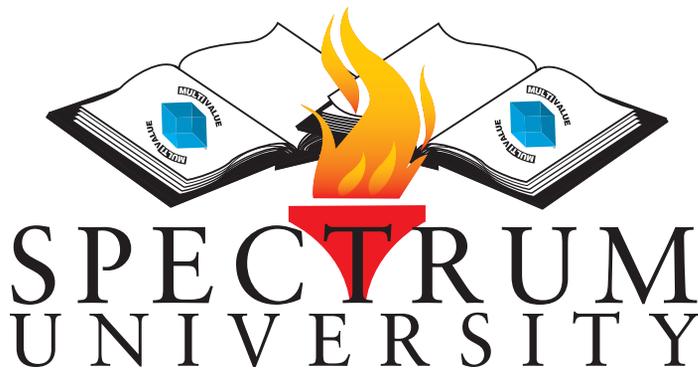
poor group of techniques that can be harnessed: dictionary items can be read and interpreted from Basic, `ITYPE()` functions called, the unsung `RE-FORMAT` verb brought into play. Where most of these fall down is when you need to get the result of more complex inquiry operations like `WHEN` filtering or break point summary operations, which need to be simulated in code. All of which means reinventing the wheel to generate in Basic what the inquiry languages already provide.

For the UniVerse developer, there are two additional powerful facilities at hand: XML and UniVerse SQL. The XML facilities are the flavor of the month and have been well covered elsewhere so I’m going to buck the trend and concentrate instead on the often-maligned SQL.

## Using UniVerse SQL

Most UniVerse developers seem to have an unreasoning dislike of SQL. Perhaps not entirely

*Continues on page 28*



Spectrum University offers once a week training classes in a variety of topics pertaining to the MultiValue market. Looking for training for yourself or employees? Spectrum University Can help! Check out our latest offerings.

# Upcoming Webinar Schedule

TIME AND DATE	TITLE
<b>Tuesday</b> <b>December 9, 2008</b> <b>2:00pm EST, 11:00am PST</b>	<b>International Spectrum 2009 - Preview and Justifying</b> Are you planning on attending the Spectrum Conference in 2009, or do you need help justifying attending to your management? Join us and see a preview of what is happening for 2009 and a look at the conference Justification toolkits to help you plan out your ROI. <i>Free!</i>
<b>Thursday</b> <b>January 8, 2009</b> <b>2:00pm EST, 11:00am PST</b>	<b>UniVerse I-Descriptors</b> This two week course is designed for experienced MultiValue developers who are familiar with Pick-flavor dictionary descriptors and correlatives or with the basics of Prime INFORMATION or UniVerse-flavor D descriptors and want to learn the use of I-descriptors for complex derivations, translates, and calling UniVerse Basic subroutines from a dictionary descriptor.
<b>Tuesday</b> <b>January 20, 2009</b> <b>2:00pm EST, 11:00am PST</b>	<b>MultiValue F Correlative</b> This two week course is designed for experienced MultiValue Developer who need to become familiar with F Correlatives.  Most legacy systems still have F Correlatives as a working and functional part of their dictionary design. This webinar will cover how to read, create and modify F correlatives.
<b>Wednesday</b> <b>January 21, 2009</b> <b>2:00pm EST, 11:00am PST</b>	<b>International Spectrum 2009 - Preview and Justifying</b> Are you planning on attending the Spectrum Conference in 2009, or do you need help justifying attending to your management? Join us and see a preview of what is happening for 2009 and a look at the conference Justification toolkits to help you plan out your ROI. <i>Free!</i>

## DATASETS IN UNIVERSE

Continued from page 26

without reason: when SQL is shackled to client-facing APIs that need to represent a MultiValue database as if it were a relational source, the overheads of working with rigid data typing, fetching column descriptions, and the need to present three-dimensional real-world data as two-dimensional tables can easily hemorrhage performance — especially in update situations in which resolving contention management issues becomes a major burden. Dynamic normalizing, while essential for working with mainstream tools, is hard work for the database and does not show UniVerse — or any other MultiValue database platform, for that matter — in its best light.

UniVerse SQL is a different beast entirely. Used within the context of the UniVerse environment, UniVerse SQL has no need to dynamically normalize, can run against regular (non-SQL) files, and smoothly handles all the facilities in the dictionary including running I-descriptors and file translations in place of costly joins. It can also perform operations that are difficult or impossible in Retrieve. In other words, when used appropriately, UniVerse SQL can offer significant benefits and should be an essential tool in the armory of any UniVerse developer.

Returning to the job in hand, UniVerse SQL also provides an easy way to extract complete sets of data ready for processing with Basic — for jobs such as exporting data or for displaying a

popup selection for an operator — by leveraging some simple BCI calls.

---

*When used appropriately  
UniVerse SQL can offer  
significant benefits and  
should be an essential  
tool in the armory of any  
UniVerse developer.*

---

### BCI Internal Calls

BCI (Basic Calling Interface) is normally associated with remote data sources, allowing a developer to access external servers such as Oracle or SQL Server over ODBC. But BCI can equally well be applied directly to native UniVerse SQL. Using the native connection is simply a question of bypassing the tedious calls otherwise needed to create a BCI context and to generate connections and statement handles, by instead using the built-in system variable @HSTMT as in figure 1.

The `SQLExecDirect()` function executes a regular SQL statement and is declared in the include file `UNIVERSE.INCLUDE ODBC.H`. This can be a DDL statement such as a `CREATE TABLE` command, a DML statement such as an `INSERT` or a statement that returns data such as an `SQL SELECT`. To test whether the command has in fact generated any data, you should follow the `SELExecDirect()` function with a check for the number of columns produced using the `SQLNumResultCols()` function (fig. 2).

When it comes to getting at this data, BCI uses a binding technique to return the results of a SQL inquiry. Most of the work of BCI takes place under the hood. This is a good example: rather than making individual calls to get each piece of data, BCI requires only that you give it a set of Basic variables to be populated with the data and then presents you a single call to iterate through the results, row by row.

The key function is named `SQLBindCol()`. This associates a Basic variable with a column of data in the results (fig. 3).

The `ColumnNo` gives the ordinal number of the column to be bound, starting from one. The column type identifies the data format of the column to be returned, though in most cases you can use the constant `SQL.B.DEFAULT` to ask BCI to work out the correct column type on your behalf. You need to repeat this function for each column whose data you want to return (fig. 4).

Once the column bindings have been established, you can run through the results by calling the `SQLFetch()` function. This navigates to the next row in the results, populating the bound variables as it goes. At the end, you must free the results or your next statement will not return any data (fig. 5).

If that seems too much work for a single set of results, don't worry. It is easy to create a general purpose subroutine to accept any SQL command and return the results as a dimensioned array, by checking the number of columns in the result set (fig. 6).

```
SQLCommand = 'SELECT @ID,SHORT_TITLE,AUTHOR_NAME FROM BOOK_TITLES'  
ErrorStatus = SQLExecDirect( @HSTMT, SQLCommand)
```

Fig. 1

```
ErrorCode = SQLNumResultCols(@HSTMT, NumCols)
```

Fig. 2

```
ErrorCode = SQLBindCol(@HSTMT, ColumnNo, ColumnType, Variable)
```

Fig. 3

```
Ok = SQLExecDirect(@HSTMT, SQLCommand)  
Ok = SQLBindCol(@HSTMT,1,SQL.B.DEFAULT, Id)  
Ok = SQLBindCol(@HSTMT,2,SQL.B.DEFAULT, ShortTitle)  
Ok = SQLBindCol(@HSTMT,3,SQL.B.DEFAULT, AuthorName)
```

Fig. 4

Now you have a single reusable way to get at results with minimum effort. And don't forget that this can include calculated fields, complex selections, and summary operations as well!

### Multivalued Data

So what happens with multivalued data — SQL is flat, right? Not necessarily. SQL is usually tied to flat databases, but not UniVerse SQL. You can of course choose to normalize the data just as you might do with a BY.EXP in Retrieve, by using the UNNEST clause in a SQL statement, as in figure 7.

The overheads of dynamic normalizing only come into play if you are using one of the external APIs like UniOleDB. If you want to preserve multivalues for

Basic processing, UniVerse SQL will do so. The results of a multivalued column are simply returned as a set of values, just as they would be for regular Basic operations (fig. 8).

So next time you need to generate a set of data quickly, why not consider using UniVerse SQL and let the database do the work? **IS**

---

**BRIAN LEACH** is an independent IBM U2 and MultiValue consultant based in the UK and the author of a series of books on IBM UniVerse. You can find out more at [www.brianleach.co.uk](http://www.brianleach.co.uk).

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```
Loop
  ErrorCode = SQLFetch(@HSTMT)
Until ErrorCode = SQL.NO.DATA.FOUND Do
  Crt Id,ShortTitle,AuthorName
Repeat
Ok = SQLFreeStmt(@HSTMT, SQL.DROP)
```

**Fig. 5**

```
SUBROUTINE UniSQLGet(Cmd, Results)

$OPTIONS -M
$INCLUDE UNIVERSE.INCLUDE ODBC.H

Ok = SQLExecDirect(@HSTMT, Cmd)

Ok = SQLNumResultCols(@HSTMT, NumCols)
If NumCols = 0 Then
  Return
End

Dim Cols(NumCols)
For I = 1 To NumCols
  Ok = SQLBindCol(@HSTMT, I, SQL.B.DEFAULT, Cols(I))
Next

Loop
  ErrorCode = SQLFetch(@HSTMT)
  Line = ""
Until ErrorCode = SQL.NO.DATA.FOUND Do
  For I = 1 to NumCols
    Line<-1> = Cols(I)
  Next
  Results<-1> = Lower(Line)
Repeat
Ok = SQLFreeStmt(@HSTMT, SQL.DROP)
RETURN
```

**Fig. 6**

```
SELECT @ID, SALE_DATE, TITLE_ID, TITLE_NAME, QTY FROM UNNEST BOOK_SALES ON SALE_ITEMS
```

**Fig. 7**

```
SELECT @ID, SALE_DATE, TITLE_ID, TITLE_NAME, QTY BOOK_SALES
```

**Fig. 8**

## D3 Read/Write Windows/Linux Directory

**Many times you need** to read or write files to the host operating system. D3 has extended its Q-Pointer process to allow you to setup Q-Pointers that will read and write directly to a host directory.

These Q-Pointers look and act just like a D3 file, but has no dictionary. If you want a dictionary, then you need to create a subdirectory of \$DICT.

You can create these Q-Pointers like the following:

```
001 QS
002
002 DOS:C:\TEMP
```

For Linux files, you can use the following:

```
001 QS
002
003 unix:/TEMP
```

The default actions of these files will convert a line termination character (a Carriage Return and/or Line Feed) to attribute marks.

On Windows machines, you also have the "NT" and "NT\_BIN" options. NT works similar to the "unix" option, in that it translates files with carriage returns to Attributes only, instead of the CRLF that the DOS command uses.

NT\_BIN allows you to read the records, and no line termination conversion will be done.

You can specify additional conversion options by adding them as multivalued on attribute 3. The options are:

t {number} - Tab conversion option. This will allow you to convert a Tab character to spaces.

A - Add extra attribute mark to the end of the record when reading into D3, and remove the extra attribute mark when written back to host file systems.

n - Suppress conversion of attributes marks to line termination characters.

R - Read/write the data as raw data. No conversion is done.

s - Case insensitive record ids. Some systems, such as Linux, use case sensitive file name. This will allow you to read the records regardless of mixed case or if the file is saved as upper/lower. The record ids will always be displayed as lower case.

Do you have a Tech Tip to share? E-mail it to [editor@intl-spectrum.com](mailto:editor@intl-spectrum.com). **IS**

## REPORTING AND BUSINESS INTELLIGENCE TOOLS: TANTIVA

Continued from page 19

**ROSS:** End users can rapidly get answers about trends and over — and under — performing customers or products without the restrictions or challenges caused by large customer or SKU counts

Tantiva Velocity is designed to be completely flexible in terms of what date ranges or combinations of attributes are included in reports. Apart from speed, this is the biggest value.

**SPECTRUM:** *When will it become available?*

**ROSS:** It will be generally available by the time this article reaches readers.

**SPECTRUM:** *How do people get a demonstration or buy the product?*

**ROSS:** People can send an email to sales@tantiva.com and we will put them in touch with one of our resellers. Although our product is based on UniVerse, we are working with UniData, D3, and jBASE sites in our beta program. Any MultiValue programmer will be able to configure and customize Tantiva Velocity.

We believe that analytic reporting has to scale. MultiValue shops are tired of throwing hardware and resources at the problem. In 2008, nobody should need to upgrade their production server dramatically just to support reporting. Velocity scales.

For more information about Tantiva Velocity, visit [www.tantiva.com](http://www.tantiva.com) **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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## Clif Notes

Continued from page 45

was like a game. Later when I worked for a VAR, we had so many developers on an abused Microdata box that compilers could take from 15 minutes to the better part of an hour. That really added motivation. Then I started teaching MultiValue Basic programming, and the students and I continued the game. We found that by simply checking, rechecking, and double checking to win just the “compile the first time” game, we almost always spotted some other bug.

Did I ever achieve 100% bug free? Not completely. Sometimes your aircraft does have to return to the gate. But a software product I released with a bug-free guarantee has had only two minor bugs reported in ten years. Just wish I'd been smart enough to have charged maintenance fees.

So how did this work? First, a belief had to be changed. The idea that it was even possible to write bug-free software had to be accepted as true. Second, a belief had to be added. I had to accept the idea that this kind of thing was achievable by me, not just some super brain computer scientist with lots of degrees. And then the attitude became, “It can be done, and I can do it if I try hard enough.” It wasn't easy, but it was that simple. When students would ask, “How can we write bug-free programs,” my reply was, “First you have to decide to.”

Think of how different things would be in your shop if you could just get people to change some of their attitudes. Going to work might actually be fun.

Now if you would return the favor and tell me how to change my attitude towards that nincompoop who cuts me off for the parking space at mall, I'd have an “attitude of gratitude.”

Hope your holidays are great. **IS**

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# Indexes in OpenInsight

## Part 1: Theory

**I**ndexes. There is probably no one thing that can improve the reporting and searching speed of a system so much. Yet to so many users (and even some developers), indexes are magic.

It shouldn't be so: indexes are easy to install and relatively easy to understand. And, when applied correctly, can save untold hours of reporting and processing time.

OpenInsight, from Revelation Software, supports three different types of indexes. In this article, the first of two parts, we'll discuss the different types of indexes supported in OpenInsight and the theory of how they work. In the second part of this article, we'll discuss how to create them, maintain them, and where they are best used.

### The Theory of Indexing in OpenInsight

Reads in any MultiValue system are fast. Once the key to a record is known, a read in OpenInsight takes about one I/O operation. If the key is not known, and a value in the record must be found, each record must be read and the field evaluated to see if it matches the search criteria.

Indexes in OpenInsight are pretty similar to the index you'd find in the back of a technical manual or textbook. When looking for a particular word or phrase, you can either read through the entire manual again looking for the word, or you can look up the word in the index. If the word or phrase is there, there is a list of pages where the phrase can be found.

Indexes in OpenInsight work in a similar manner. When an index is built, a list of values in a field is created by scanning all records in a file. The list is then stored with an associated list of keys for each value in the list of indexed values. When the index is built, a 'trigger' is placed on the file. Whenever a LIST or SELECT statement is run against the field

with the index on it, OpenInsight looks up the search value in the list of indexed values and if it is found, returns the list of keys. It is exceptionally fast.

As new data is added to or changed in the file, the same trigger process notes the new data and keys associated with the data is stored in a pending file. This pending file is processed either through a manual update, or by a setting in OpenInsight's environment that will update any pending transactions for the field and file being queried. This all goes on behind the scenes and will run for years without any maintenance whatsoever.

The indexes in OpenInsight are actually secondary indexes. The primary key is the first index. In fact, the name of our trigger is a program named SI.MFS, where the SI stands for secondary indexing.

### Two Types of Indexing: Btree and Cross References

The two most common indexes used in OpenInsight are Btree and Cross References. *Btree indexes* are usually used on fields that contain a single value, such as a date, status, or value. When a Btree index is added to a field, the following occurs:

1. The index is added to a field on a file. For this example, we'll call it the STATE field in the CUSTOMER table.

2. The dictionary record for the STATE field is flagged as having an index on it. Specifically, field 6 of the dictionary record is stamped with a 1.
3. The Index Build process then reads through all records in the file, making a list of all values in the STATE field.
4. As each value is stored, the key from its record is stored in a corresponding list.
5. After the entire file has been processed, the list is written in nodes of logical chunks of data into a file with the same name as the original data file, but prefixed with an exclamation point. For example, !CUSTOMER.
6. A trigger is applied to the file.

Figure 1 shows an example of records in the CUSTOMERS file and the contents of their STATES field. Figure 2

shows how that data would be stored in the nodes in the index file.

A *Cross Reference index* acts much like a Btree index, but has an intermediate step. Cross Reference indexes are usually used on fields that contain a string, rather than a single value. During the Index Build process, the string is brought into memory and is broken up into its component pieces. Throw away words such as 'A, the, is' etc are thrown away, and the remaining component pieces are indexed. The 'throw away' words are listed in the OpenInsight environment settings as a *Stop List* and can be configured by the user.

Specifically, when a Cross Reference index is built, the following occurs:

1. The index is added to a field on a file. For this example, we'll call it the NAME field in the CUSTOMER table.

2. The dictionary record for the NAME field is flagged as having an index on it. Specifically, field 23 of the dictionary record is stamped with the name of a newly created symbolic field called NAME\_XREF.
3. The NAME\_XREF symbolic is created and has a formula that calls a system routine named XREF, passing in parameters from the initial index setup. This routine parses a passed string and removes words found on the user configurable *Stop List*.
4. The Index Build process then reads through all records in the file, making a list of all values returned from the NAME\_XREF field.
5. As each value is stored, the key from its record is stored in a corresponding list.
6. After the entire file has been processed, the list is written in nodes of logical chunks of data into a file with the same name as the original

*Continues on page 35*

ID:	1	2	3	4	5	6	7	8	9	10	11	12
Value:	CT	NJ	NY	CT	NJ	NY	RI	CT	NJ	TX	CA	NY

**Fig. 1 Raw Customer Data showing the STATES field**

Values	CA	CT	NJ	NY	RI	TX
Associated IDs	11	1,4,8	2,5,9	3,6,12	7	10

**Fig. 2 Sample Indexed Node in !CUSTOMERS file for the STATES field**

ID	Name
1	The Very Big Corporation Of America
2	The Very Fine Beverage Company
3	Crates Beverages and Fine Foods, Inc.

**Fig. 3 Customer Data showing the NAME field**

ID	Name
1	The Very Big-Corporation Of America
2	The Very Fine Beverages Company
3	Crates Beverages-and Fine Foods, Inc.

**Fig. 4 Customer Data showing the NAME\_XREF field after the 'Stop List' is applied**

Values	AMERICA	BEVERAGES	BIG	CRATES	FINE	FOODS	VERY
Associated IDS	1	2,3	1	3	2,3	3	1,2

**Fig. 5 Sample Indexed Node in !CUSTOMERS for the NAME\_XREF field**

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## ARE YOU PREPARED?

*Continued from page 7*

computer is on-site, which makes it no more than a five minute process.

### Loss of Key Employees

When creating a disaster recovery plan, IT staff usually forgets one key disaster: The loss of a key employee such as the MIS manager or programmer. If these people are just on vacation or out on sick leave, it isn't so bad, but when one of these people quits or gets fired, you have a large problem on your hands.

Generally, these people have complete access to your computer system. They know how to get to key data and know how to change it manually. Make sure you have security in place not even these people can bypass. One disgruntled ex-employee can cause a lot of damage to a computer system's data if they know how.

Another problem that occurs when a key person leaves the company is they usually aren't around long enough to train someone new to take their place. There have been companies who went for months with out doing billing or any other key function after a Controller left and no one else know how to do it. Make sure there is at least one other person in the company that knows how to operate the system's key functions.

### Test it

There is one step in a disaster recovery plan that is often forgotten — testing it. Oh, they create one, have it all ready to use, and when the disaster strikes, it still takes them just as long as if they didn't have a plan at all. *Always* test your plan on a periodic basis; for example, every six months. You never know when a disaster will strike. Be prepared for it.

There is a classic story that I've heard about testing. A company created a disaster recovery plan and had it posted. A new VP comes in, sees it, and decided to test it. He walks to the main power

*Continues on page 45*

## INDEXES IN OPENINSIGHT – PART 1: THEORY

Continued from page 33

data file, but prefixed with an exclamation point. So, in our example, !CUSTOMER.

7. A trigger is applied to the file.

Figure 3 shows an example of records in the CUSTOMERS file and the contents of their NAME field. Figure 4 shows how that is affected by the *Stop List*, and figure 5 shows how the data would be stored in the index nodes.

### Relational Indexes

The final type of index in OpenInsight is called a *Relational Index*. A Relational Index will store keys from records in one table as multivalued in a field in another table. It then maintains this relationship automatically and enforces referential integrity.

For example, consider a situation where a system is being designed for a school. There is a COURSES table, which has a COURSE\_ID, an instructor, room number, and a multivalued list of student IDs who are attending the course (named STUDENT\_IDS). Also suppose that there is a STUDENTS table that has an ID, name, date of birth and so on.

With this design, if a user wanted to see all courses that a student was in, they'd have to select courses with the student id equal to the student being

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searched for. Over time, this will become increasingly cumbersome.

A solution would be to add a relational index to the COURSES table. By putting a relational index on the STUDENT\_IDS field in the Courses Table, the index will store the value of the COURSE\_ID in a new multivalued field in the STUDENTS table. Once this index is built, a student's list of courses can be found in the new multivalued field, which is probably named COURSE\_IDS. So from this point forward, getting the list of courses is simply a matter of listing that new field. Figures 6 and 7 show a sample of this.

Remember the last sentence from four paragraphs ago where we mentioned that once a Relational Index has been applied it maintains referential integrity? Well, suppose you wanted to remove a course listing from a student's

record. You could try to open the record in an editor, delete the value from the multivalued field, and save the record. However, if you opened the record again, you'd see the value you deleted back in the field. We mean it when we say referential integrity. To get rid of a course value for a student, you'd have to go to the COURSES table and remove the student's ID from the STUDENT\_IDS field.

### Theory versus the Real World

So, now that we've discussed the theory of how Btree, Cross Reference and Relational Indexes work in OpenInsight, how do we apply them? Where do we apply them? What sort of fields should they be applied to? Stay tuned for the next issue of International Spectrum for tips on the practical use of Indexes in OpenInsight. **IS**

Course_ID	Course_Name	Student_IDS
101	Intro to Psych	306134,123456,888888,121212
301	Database Design	306134,234567,121212
451	Vax Assembler	123456,888888,234567

Fig. 6 Sample of the COURSES table and the contents of the STUDENT\_IDS field

Student_ID	Name	Course_IDS
121212	Smith, J	101,201
123456	Jones, J	101,451
306134	Ruane, M	101,301
888888	Eighty, E	101,451

Fig. 7 Sample of the STUDENTS table after a relational index has been added and the COURSE\_IDS field is created.

# Analytical Reporting By Design

**M**y last article presented the design steps around taking specific files in a MultiValue database and shaping them for analytical reporting. In this article, the business process is the starting point of a design process that helps in identifying the appropriate MultiValue files to model the process and provides a concrete deliverable – an Analytical Reporting Design Worksheet (fig. 1).

This worksheet can be used with any business intelligence tool and follows a methodology fine-tuned with workshop participants from over 100 MultiValue sites over the course of several years. A PDF version of the worksheet can be downloaded from [www.intl-spectrum.com/s1005](http://www.intl-spectrum.com/s1005).

Each of the worksheet entries will be described, and then examples from a report analyzing returns will be supplied. The target solution is a Tantiva Velocity matrix, but the same analysis would be required for any OLAP solution – so the word *hypercube* or the phrase *dimensional model* can be used where the word *matrix* occurs.

## Housekeeping

The following entries will help identify this matrix:

**ID:** The file name associated with this design in the business intelligence environment. Example: *RETURNS*.

**Designer:** The party taking credit for this matrix design.

**Date:** The date of this design – helpful when understanding some design decisions. The sophistication of these designs will evolve over time.

**Description:** A brief description of the solution. Example: *Returns Analysis*.

## High-level Vision

**Business Process:** The aspect of operations that will be exposed with this analysis. The flow of transactions as shipments, sales, or customer service calls, or snapshot of inventory, accounts payable, or accounts receivable. Example: *Returns*.

**Grain:** The smallest level of analysis for this process. A typical example is invoice line item (as opposed to order). A line item grain will support analysis of product sales, while an order grain will support customer level analysis only. Example: *return line item*.

**Audience:** The matrix designed for high-level executives will often be significantly different than the one designed for line managers. Understanding the goals of the intended audience is the key to satisfying their requirements. An audience that is too broad might be better served by two separate matrixes. Example: *Purchasing Manager*

**Vision Statement:** A vision statement has three important uses:

- it defines the scope and capability of the matrix so that completion can be defined and met;

*Continues on page 38*



## ANALYTICAL REPORTING BY DESIGN

Continued from page 36

- it guides minor design decisions without having to go back to project sponsors over and over; and
- it provides the best tool for ensuring that the project sponsors understand and agree with what they are getting.

Example: *Provide detailed information on returns to allow the purchasing manager to rank vendors on product quality.*

Notice that returns aren't being analyzed from the customer satisfaction perspective, although the end goal of this analysis is certainly to improve customer satisfaction.

**Key Questions:** One or two key questions that should reflect or amplify the vision statement, which will be used to validate the design and help test. Cer-

tainly the matrix should answer many questions, but if it fails to answer these questions, it must be redesigned. Example: *What vendor had the largest dollar volume of returns last month? What product was returned most frequently?*

### Choosing the Source Data

**Source File matching Grain:** There are three possibilities when selecting a primary source file:

- just one file matches or contains the grain of the business process,
- multiple possibilities exist, or
- no files are appropriate.

The business process you are tracking may be represented in several different files. For example: sales showing up in open orders, open order lines, order history, order history lines, shipments, and GL. Choosing the wrong file is very risky, so it's important to get this right up front.

First, look at the dates associated with transactions in each file. Does order date, invoice date, posting date(s), shipping date(s), or payment date(s) make the most sense with the vision statement?

Next, look at the volatility of the data in the file. Is the data constantly fluctuating as orders change based on actual inventory levels? Does data only reach the history file after a week or two? There is usually a trade-off between volatility and immediacy. Which is most appropriate for the vision statement?

How easy will it be to validate the resulting solution against the operational system? Are there existing production reports drawn directly from the file in question? If not, it may be difficult to isolate reporting logic errors from data extraction errors when you validate. Are you already using the source file in another matrix? This can speed validation, as well as offer the opportunity to leverage existing data extraction.

The source file matching the grain of analysis is not the only source for data.

The analysis may be driven by an order line file, but information will be drawn from product, customer, and control files. Example: *RMA*

**Source Account:** To avoid ambiguity when there are multiple versions of the source file.

**Validation Plan:** The final result will not be trusted unless it can be successfully audited. The numbers either need to match or a rigorous explanation of why they don't match will need to be created - and sold to the end users.

Either way, a solid validation strategy must be created. If there is no good way to validate the results based on the choice of source file. For example, building a matrix based on a transaction journal that seems very detailed and complete could cause problems with phantom transactions that were created and backed out without ever hitting production files that drive other reporting. It might be a better idea to build from a more widely used file, even if it involves more work.

Example: *Match totals against the existing RMA Summary Report*

**SELECT:** If the source file contains more data - more history - or more types of transactions than required by the vision statement, a SELECT statement will be required.

**Record Count:** Understanding the approximate record count in both the entire file and the subset of required data can impact the frequency with which the data is refreshed.

**Volatility:** The ideal situation would be where complete records are added and never changed. This will open the possibility of streamlined extraction of data from the source file. The worst case is where records are potentially updated. Tracking changed records will require more than a SELECT against two files, usually refreshing the entire source file is in order. If records are deleted, it may be possible to sync up with a SELECT against two files.

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## Defining the Solution

**Transaction Date matching business process and grain:** If the source file was chosen correctly, the date choice will usually be obvious. If there are several dates, choose the date that best matches the vision statement. As with the other design elements, the date is specified as a Source File DICT item. Example: *RETURN.DATE*

**Dimension Attributes:** The by-words of the matrix — by customer, by product, by warehouse. These will typically be *foreign keys* and have a supporting file containing full names or descriptions.

Along with knowing how the supporting file is referenced, it will be helpful to know how many values there are in each dimension, and whether this is a small subset of the whole. For example, an ENTITY file may contain both customers and vendors. And, for most businesses, the customers will make up the bulk of the file while vendors will

be a small subset. Provide an English name as well as the DICTionary name.

Example: *Customer - CUST.NO (CUSTOMER NAME), Part - PARTNO (PART DESC), Vendor - VENDOR (VENDOR NAME), Reason - REASON. CD (CODES DESC subset).*

**Measures:** The additive numeric values — counts and amounts — surrounding this business process. Provide an English name as well as the DICTionary name. Example: *Quantity - QTY, Extended Price - EXT.PRICE, Return Count - " 1."*

## Validating the Design

**Key Questions Answered in design?** Do the Dimension Attributes and Measures provide the data required to answer the key questions? How? Example: Yes, tracking vendor, price, and date answers the first question; tracking product and count answers the second.

**Validation Possible?** If the existing RMA report uses the same date definition

and mix of measures and dimensions, validation should be possible.

If either of these two design validation steps fails, the design — and perhaps the vision statement — needs to be revisited. About one quarter of designs uncover some inconsistency during this validation stage, and this is the best time to uncover it - before any real work has been done.

Those experienced with the various OLAP tools will already know exactly what to do with this paper design and will find their task significantly easier than if they worked through design decisions as they interacted with the software. For those not familiar with these tools, they will be covered in future articles. **IS**



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# How to Justify Your Attendance to **International Spectrum** **2009**

**J**ustifying your conference attendance to management can be challenging for some IT staff. Much discussion is focused on the legitimacy of attending conference and trade show programs. The reality is that conferences are among the most cost effective methods of obtaining education and information, and in establishing a network.

## **Why Attend Conference And Trade Show Events?**

Conference sessions allow you to:

- Learn first hand from industry experts that have successfully implemented technology solutions
- Keep up to date on new and emerging technologies
- Take the opportunity to create a professional network
- Create talking points to communicate more effectively with vendors
- Get immediate answers and solutions to issues within your organization
- Discover new products that can decrease expense and increase revenue

## **Trade Show / Exhibition Events Allow You To:**

- See the latest in technology
- Hear new product announcements
- Visit all of your vendors in one location
- Get answers directly from vendors on the exhibition floor
- Do some comparison shopping
- Seek solutions and find new technologies

- Talk directly to your MultiValue database provider to get answers to questions
- Talk with others who are using or considering a product or service you are researching

## **Who Attends This Conference?**

Executives, Chief Information Officer (CIO) and Executive and Senior Level Management, Owners, Consultants, Influencers, Technical Staff, Implementers, Sales, Operations and Production, Industry Leaders, and Vendors.

## **Why Should You Attend?**

To justify the cost you need to understand the purpose of your attendance. Make a list of the things you would like to accomplish:

- Is there a current issue at your company for which you are looking for a solution?
- Are there any developing technologies you feel would benefit your company?
- Are there issues you would like to talk to your vendors about?
- Can you find one idea that will increase revenue and/or decrease costs?
- Is your company looking at implementing new technology?

*“How can we justify spending money to participate in a conference when we are facing budget reductions?” The answer lies in the value of the conference’s content and the focused interaction it provides.*

- Would you benefit from expanding your personal and professional network?
- Does your company need to invest in your business system to gain or maintain their competitive edge?

### **Presenting To Your Management**

The first and foremost communication should be your company’s standard request form or a formal memo directed to your manager requesting attendance and why. Be sure to include the ROI and cost savings for attending (see below for some examples.) A sample of a memo requesting attendance can be found at [www.intl-spectrum.com/s1006](http://www.intl-spectrum.com/s1006). Schedule a follow-up meeting with your boss to discuss the request.

In your memo and follow-up meeting focus on how attending the conference is relevant to your company and/or your team’s goals and future projects. Here are some talking points to help you make a case for attending:

- International Spectrum has been hosting this conference for over 25 years and it is regarded by the industry as “the premier MultiValue Educational event.”
- I am going to look for a solution for “this” problem.
- I believe “this new technology” could benefit the company and I would like to learn more about it.
- I plan on meeting with “x” vendors to discuss these issues.
- I am going to talk with several companies about “x” technology we are looking at.

Ask how to make it happen and get the ball rolling:

- Do I get corporate travel involved?
- Do I need to have dollars in the budget right now? Is there money in another departmental budget that is unused?
- What are some of the things that I should look for while attending?
- Is there a branch office in the area that I can visit?
- If you are serious about purchasing “x” software can a vendor schedule an on-site visit to demo or meet with current users?

It is only natural for an administrator to ask, “How can we justify spending money to participate in a conference when we are facing budget reductions?” The answer lies in the value of the conference’s content and the focused interaction it provides. Sometimes learning one new piece of information or gaining better understanding about only one process can justify the entire cost of attending International Spectrum. And making one professional contact can be worth much more.

As companies decrease training budgets, they still require IT to do more with less. As companies increasingly turn to technology to compensate for a lack of employees, the needs for up-to-date solutions and products become more important and cheaper to implement. Since International Spectrum brings all the tools providers under one roof, you save time and money on research by seeing everything in one place.

The cost of attending this conference is often less than the cost of attending classes at other training sites or online. By offering workshops, peer-to-peer discussions, and varied IT and Enterprise presentations, International Spectrum 2009 offers you the knowledge of multiple trainers, professionals, and companies that are focused on the use of different techniques, methodologies, and products designed to increase your productivity and ability to meet the challenges your company or organization faces.

### **The Conference Costs:**

Early Bird Registration by Feb 15th, 2009	\$795.00
Hotel	\$169.00 Per Night x 5 nights (plus taxes)
Meals	\$50.00 per day x 5 days
Travel:	\$450.00 Round trip
Total (approximate):	\$2547.00

### **Your Return On Investment**

*To help you create your ROI statement, I’ve compiled a few items and assigned values to them. Use these as a starting point, and feel free to modify the information as you see fit.*

Research Time:

*37 Hours x \$70.00 per hour = \$2590  
Per product or tool*

How much time would you spend research all the available products, which companies have them, how they work, their costs, and see demos? For example, if you were researching reporting tools, how much time would it take to find all the available products, and setup times to see demos. You could

*Continues on page 44*

## Improving Existing Software:

# Refactoring

### Part 1

**I**n the Information Management and Services industry, there are very few truisms. There is a wide array of opinions on everything from the correct selection of programming languages (Proc versus Paragraphs), program structure (top-down, bottom-up, indented, GOTO-less, GOSUB-less), and appropriate data structures (multivalued, normalized, mixed). Holy wars continue to be fought by the advocates of coding in UPPER.CASE versus MixedCase, and nobody likes the nocase\_underscore proponents. Shop standards are usually evolved rather than developed, oral tradition rather than documented, and either ignored or rigidly adhered to even when it makes no sense.

But even in this chaotic world of discordant opinions, styles, and personalities, there is one over-arching rule that is almost universal — a rule that will cause even the opposing forces of the dynamic array versus dimensioned array camps to join hands in solidarity and sing Kumbaya. This rule?

#### **“If It Works, Don’t Fix It!”**

This is Rule Number One in most shops I have experienced. The prevalence of this rule, however, has some very unfortunate consequences.

First, due to the insistence that code not be changed except to add new features or expand capability, a lot of code is perceived as being fragile. You probably have one or two (I am being kind) programs in your shop that have a bad reputation of breaking every time someone touches them. To meet the requirements of a new accounting rule, you change ten lines of conditional logic code and spend the next three days tracking down and stomping vinanu bugs (Variable Not Assigned, Null Used).

Second, since nobody dares change any of the code originally written in 1975, the addition of new features gets accomplished by putting a GOSUB in one or more places to reference a set of new code. Because Multi-Value Basic does not allow us to scope variables, and we don’t want to create side effects in the existing code, a whole new set of variable names are created in the new subroutine. Of course, the code style of the new routine is nothing like the old code, either. So a couple of years later, you are in the program trying to figure out which ACCT.PER, accountPeriod, or actprd variable contains the data you need to pass to your new subroutine. Oh yes, and one of those is an EQUATE to an element in a dimensioned array in unnamed COMMON.

Third, large blocks of code are commented out. Nobody knows what it does (or did), but we might need it someday.

Finally, we are left with a program that nobody understands, not because the programmers in the shop are unskilled or lacking in mental acuity, but because the morass of code produced by hanging subroutines on the

side of incomprehensible code makes the code, well, incomprehensible. Thus, fragile.

## Small, Incremental Improvements

Especially in today's rapid change environment, we need code that we can look at and quickly understand, modify, and prove correct by testing. That is our goal. Given the sad state of most of the code we work with, it is not something that can be achieved overnight. First, it requires abandoning the "If it works, don't fix it," mindset. Second, it requires making the commitment that anytime we have to work on a piece of code to fix a bug or add functionality, we look for ways to make some small improvement that will move us one step closer to our goal. This methodology of continuously improving existing software is called *Refactoring*.

Refactoring is a methodology and philosophy started in the Smalltalk programming community. Thus, most of the writings about it assume you are working in an Object Oriented Programming language, though we are seeing more work and papers being produced for non-OOP platforms. This series of articles will step back from the OOP orientation and examine the underlying concepts of refactoring and explore how to apply them to our MultiValue world.

Probably the best known book on this topic is *Refactoring: Improving the Design of Existing Code* by Martin Fowler. (Its examples are in Java and assume OOP.) This is the book that got the refactoring ball really rolling, so it seems appropriate to quote its definition of refactoring:

*"Refactoring is a disciplined technique for restructuring an existing body of code, altering its internal structure without changing its external behavior."*

Take particular note of the fourth word in that definition. *Disciplined*. Refactoring is not going into code and making massive changes based on personal

style. It is a series of small, incremental improvements made over time. It is disciplined in that we also build a catalog of what kinds of code instances are candidates for refactoring, how it should be refactored, and any discussion or justification for that particular refactoring.

### Why Make The Effort?

There is no arguing whether or not cleaning up the code of a subroutine in order to make it easier to understand

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*The value of a program is increased when the ability to quickly change the program to meet unknown future requirements is enhanced.*

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and modify before making the actual modification requires a little extra effort. So the question is, is that little extra effort worth it? Well, what does refactoring get you?

First, it improves the program's design and makes it easier to understand. How many times have you spent literally hours trying to figure out some old piece of code worked and when you had the "Ah, Hah" experience, it took all of half an hour to make the modification?

Second, it helps correct "cruft creep." Cruft is that accumulation that, like the dust bunnies under your bed, are little tidbits of coding that just mess things up even though they don't prevent getting the job done. An example might be the same line of code to set a variable to a particular value duplicated in every CASE clause rather than one line of code setting the variable in a single line of code before the BEGIN CASE.

Third, it helps you spot bugs. Have you ever found yourself staring at a piece of code and muttering, "I can't believe this has been in production for five years. This isn't right. It calculates the wrong price when this, this, and this condition exists." And it wasn't a bug that was reported; it was something you tripped over just because you happened to be in that code for some other reason.

And finally, it helps everyone in the shop program faster. It seems counter-intuitive, considering that we are talking about taking time to rework code rather than just complete the additions or modifications necessary. But consider, the extra work is only a small amount at any given time; it is the cumulative effect that gives the big payback. The code is cleaner. Therefore the code is easier to understand. Because people can understand the code, additions and modifications can be made much more quickly. In addition, the fact that the code is actually understandable means that those additions and modifications will be made more safely. You aren't as likely to break code you understand as you are when trying to modify an incomprehensible mess. Thus, the program has more value.

The value of a program is increased when the ability to quickly change the program to meet unknown future requirements is enhanced — to be able to "develop at speed," as it were. It's a rapidly changing world out there, and the rate of change is increasing. For example, a few years ago a couple of Congress critters decided the Information industry needed to be regulated in some areas. Look at what we've been dealing with since. Change can blind-side you if you don't anticipate it.

Having made the case for refactoring as an ongoing philosophy and programming ethic, our next installment will start by discussing some of the key indicators that a section of code might be a candidate for refactoring. This is known among refactoring advocates as code "smells." **IS**

## HOW TO JUSTIFY YOUR ATTENDANCE TO INTERNATIONAL SPECTRUM 2009

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spend a good day to day and a half just looking for the available products and scheduling demos.

The demo itself might take two hours. If you assume you will also lose 30 minutes before the demo getting prepared and then another 30 minutes after the demo writing up your notes about the demo and your impressions, that is three hours per product.

You also have the research on implementation which could take three or four days per product just to understand how you would integrate the new product into your existing systems.

Now this is just for one product or tool. If you are planning to look at all the different tools and their competitors, then multiply this by the number of vendors available.

Consulting Time:

$12 \text{ Hours} \times \$100\text{-}120.00 \text{ per hour} = \$1200.00$

Many of International Spectrums speakers are industry experts and work as professional consultants. They are presenting at the conferences to help you understand new technologies and how best to implement them without costing your company tons of money. If you schedule time with speakers after sessions, you can get more in-depth answers to your questions.

You can easily spend three hours a day with one or more of the speakers. With a normal consultant's fee at over \$100 an hour, you can recoup most, if not all, of your conference expenses.

Training And/Or Continuing Education Hours:

$24 \text{ Hours} \times \$70.00 = \$1680$

With four days running five tracks of educational sessions and workshops, you could spend a minimum of 24

hours or more in industry training, not to mention product-specific training.

Many of the sessions at International Spectrum Conference cost well over \$500 apiece as webinars. With the advantage of face to face time with the speakers and presenters, you are getting the benefit of onsite training, which can normally cost over \$1200 a day.

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*Attendees will return to their companies with increased knowledge of the practices, techniques, and tools of technology that will make them more productive.*

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### Intangibles:

Don't invest In Software, Lose Business:

You have likely already seen this with your existing system, or will see it soon. If you don't invest in your existing enterprise systems, you will start losing business. Or you will start hearing rumblings of "you have got to move off this old technology", when there is nothing wrong with your advanced complex business system except that those using the system—both management and staff—want different user interfaces, nicer reporting options, and web connectivity.

You have to invest in training and software exploration now, so that in the future, even just two to three years from now, you know what your options are. Look closely at what has happened to Wall Street in the last few months. There are many companies that didn't move fast enough to keep up with the

changes. They are no longer in business. If your company doesn't keep up, then it will cost them more in the long run or they will start to loose business and money just because they chose to stay in the same place.

Professional Networking:

*30 hours*

Professional networking is one those items that is hard to quantify. User groups and online forums have taken over some of this, but sometimes you can be more productive just meeting and talking to people in person. You may find someone in your vertical market place that has the same problem, or has already solved the problem you have, that you would not find anywhere else.

Attendees for the International Spectrum Conference come from many different vertical marketplaces: housing, retail, banking, manufacturing, distribution, trucking, and the list goes on and on.

Some attendees find they learn a great deal from talking to one another because they are talking to someone that has already solved the problem versus someone who will help you solve the problem. If you have to place a value on this, then I would look at it as consulting time.

### Make The Most Of Your Conference Attendance

When discussing your attendance with your manager, be sure to share how you will make the most of your conference attendance. Here are a few things you can do to get the most out of the conference:

Before the Conference:

1. Match a list of session topics to specific challenges your business faces.
2. Compare the cost of an outside or on-site consultant versus the conference fee.

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## HOW TO JUSTIFY YOUR ATTENDANCE TO INTERNATIONAL SPECTRUM 2009

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3. Develop a complete cost justification using the information provided in “Why Attend” page on the International Spectrum web site.

### During The Conference

4. Network with MultiValue professionals and users to understand how to solve specific business challenges.
5. Attend training sessions and workshops.
6. Request one-on-one consulting with the speakers, product experts, executives and account managers to discuss your needs.

### After The Conference

1. Create action reports with detailed content, form execution teams, take the necessary action and follow up. See the trip report template on the International Spectrum web site.
2. Train others and give a presentation to co-workers on what you learned.
3. Implement at least one performance change you've learned.
4. Document savings associated with what you learned for next year.

## Conclusion

The International Spectrum 2009 Conference is one of the best places to get MultiValue education and product information. Just by reviewing the dollars spent versus the dollars saved, how can you pass it up?

Along with a copy of this article, I've included a “Why Attend” section on the International Spectrum Conference site. This section includes “Justification Toolkits” to help you convince management of the value and savings of attending the conference on March 23rd-26th, 2009. **IS**

## ARE YOU PREPARED?

*Continued from page 34*

breaker box, flips the switch to turn off the power to the whole building. This throws the company into the disaster recovery process for power outages.

Things run smoothly into disaster recovery mode, until they realize that the customer service department relies more heavily on the computer systems now, than they did when the plan was created two years ago. Now they can't log calls and can barely even answer the phones.

So the VP rushes back down to flip the power back on. The breaker gets stuck between on and off, so now they can't do anything because the power to the site is truly and surely broken until they can get an electrician out to fix it.

While that is happening, they fall further into the disaster recovery plan, preparing to move the computers to their off-site warehouse to setup and run. They start moving the computers, and come to find out they changed warehouses as well, and it doesn't have the power or networking infrastructure that the old warehouse had. Now they have moved all their computers from the main office to the warehouse, but can't do anything with them.

Now you can see where this story is going. Make sure you review and test your disaster recovery planning. With more and more systems being integrated with your networking systems, you may find you have to review your disaster recovery plan every time you add new hardware, software, programs, or buildings, regardless if it is IT related or not.

Disaster recovery plans should always be a key part of your business systems. The time and money it takes to set one up is worth it in the long run. Make sure the plan is written down and put somewhere that it can be found, and always go over your plan periodically to make sure it is current and that everyone knows what to do. **IS**

## Clif Notes

*Continued from page 46*

this a bit too far. After all, no amount of believing I can transform myself into a fighter jet (all right, in my case, a jumbo jet) is going to permit me to sprout wings and develop a jet engine. (Don't even go there.) No amount of positive attitude or daily group recitation of “Every day, in every way, our software gets better and better,” is going to help a piece of junk software become the next Killer App. No, I am not talking about affirmations, laws of attraction, and other metaphysical woo-woo. I'm interested in the studies, theories, and findings of the area known as Positive Psychology. Work in the areas of goal-directed thinking, learned optimism, consequences of positive emotions, and so forth indicate that yes, up to a point, changing our thinking and attitudes really can change our outcomes. Rather than discuss theory, let me give you an example.

We all know that no matter how much you test, there will always be bugs in our software. Industry pundits assure us this is true. Software systems are just so complex, complete correctness is simply not possible. This, of course, is common knowledge. It is also an attitude that irritates me to no end. I wonder how many of these people who have this attitude would get on an airplane to fly coast to coast if all of the aircraft engineers publicly pronounced, “You know, these aircraft are so complex, there is no way all the parts can be expected to be put together properly and always work correctly. Besides, the FAA is just going to issue change orders, so why even bother?” Yeah, I didn't think so. Besides, I have experiences to the contrary.

Back in the late 70s, I read a book on programming methodology that asserted that programs that compiled and ran correctly the first time should be the rule rather than the exception. Being young and dumb and not knowing any better, I started trying to do it. It

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

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

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| <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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how to respond to external events and even internal events (emotions, thoughts, etc.). In fact, one of the definitions of attitude listed in Merriam-Websters Unabridged dictionary is:

*An organismic state of readiness to act that is often accompanied by considerable affect and that may be activated by an appropriate stimulus into significant or meaningful behavior.*

I don't know about you, but I have a somewhat less than positive attitude about overblown definitions. There are only two words in that definition that are important: Act and Behavior. Our attitudes determine what we do. The typical person recognizes this on an intuitive basis and does not spend a lot of time analyzing it. On their own, they do not discover the next step.

You can choose your attitudes.

You heard correctly. You can choose your attitudes. Since your attitudes help determine what you do, and what you do affects your results, you can literally change portions of your world and your experience of it by changing your mind. This is not a new concept. In fact, one of the earliest written references to this idea may date back to the fourth century BCE.

The idea that your life is affected by your thinking has been popular with various spiritual movements, especially the New Thought movement of the early 1900s here in the United States. These schools are based on religious or metaphysical principles that are not the focus of this discussion other than as evidence that this is not a new concept. It has also found its way into the Self Help movement and a number of Business Success and Motivational seminars. One early statement was Napoleon Hill's, "What the mind can conceive, and believe, it can achieve."

Ok. I'm fine with that up to a point. But some people and books are taking

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IS 03/08

# Cop an Attitude. It's a Good Thing

B Y C L I F T O N O L I V E R



**F**or most of our readers, the Holiday Season is upon us. For many, this becomes a time of reflection and contemplation as our various spiritual, philosophical, and secular traditions encourage various attitudes like gratitude, generosity, and compassion. At the same time, we grapple with the chaos, crowds, and incivility of the shopping malls and the attitudes generated by crass consumerism, obnoxious shoppers, and the battle mentality that true happiness lies in getting possession of that last game console. Yes, it is definitely a time when we are all much more aware of attitudes. So, being the geeks that we are, let's examine the topic a bit.

Like many things, our first introduction to attitudes comes from our parents. Unfortunately, this introduction most often presents attitudes as a negative thing. "Don't give me that attitude." "Don't you dare cop an attitude when I ask you to do something." "Keep it up; you're one short step from receiving an attitude adjustment!" So we start out believing that "attitude" is a Bad Thing. If we have one, it means we are not nice, and we had better "lose it" pronto. It is not for several years that we learn there can be positive attitudes, too.

Unfortunately, having discovered that attitudes can be either negative or positive, most people make two mistakes. First, they promote a predominate attitude to the status of a personality trait. Second, they decide that once a predominate attitude has been established, it is unchangeable. Neither of these is really the case.

"She always has such a positive attitude. She can see the good in any situation." Really? You weren't in the kitchen this morning when she was late for

work and accidentally knocked an entire carton of raw eggs onto the floor. We weren't, either. But I would be willing to bet her comment was not anything along the lines of, "Oh my. What a wonderful opportunity to mop the floor. It will be so nice not to have to do that this weekend."

"He's such a self-centered jerk. His 'all-about-me' attitude is really getting on my nerves." Hm. That attitude must be why he spends his weekends dressing up in a clown outfit, going down to the Shriner's Hospital, and spending most of the day going around the wards trying to elicit a laugh or even a weak smile from the burned and crippled children.

So you see? Attitudes are not fixed. Little Miss Sunshine might not be safe to be around until after her second cup of coffee in the morning. Mister I'm Wonderful may be the assistant cook at the local homeless shelter three nights a week. Attitudes come; attitudes go. Sometimes by the hour, sometimes by the minute. Attitudes help us determine

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