INTERNATIONAL
Spectrum®
THE MULTIVALUE TECHNOLOGY MAGAZINE | NOVEMBER/DECEMBER 2016

MultiValue Industry End-of-Year Recap 2016

Also in this Issue

- Corporate Cavemen
- Building a Modern Application Part 6 — Version Defense
- Smart Business Consulting

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INTERNATIONAL Spectrum
THE MULTIVALUE TECHNOLOGY MAGAZINE

FEATURES | NOVEMBER/DECEMBER 2016

6 **2016 MultiValue Industry End-Of-Year Recap** The year 2016 continued to provide us with changing technologies and changing market demands. But the economic landscape seemed to improve somewhat. We asked some of our MultiValue partners to share with us some of their accomplishments from this last year and what to look for in the next.

10 **Business Tech: Corporate Caveman Concussion** Igrocni the caveman sees you materialize, in whatever you are wearing right now, and hits you in the head with a rock. When you understand why he hit you, you'll have some insight into how the rest of your company sees your department. **BY CHARLES BAROUCH**

15 **Building a Modern Line-Of-Business Application: Part 6 – Version Defense Strategy** This article series is exploring what it takes to build a Line-Of-Business application from scratch using the tools and features found in modern software technologies. Part 6 discusses defense strategy. **BY NATHAN RECTOR**

22 **Smart Business Consulting Before Technical Consulting Ensures Success** Often the technical people are blamed for failures they had no control over whilst overpriced vendors often walk away untouched. If we don't want to be one of these statistics, we need to stop the disaster before it starts. To do this we need to take the initiative in the business strategy before it gets to the technology discussion. This is why we need to engage in the business consultation process. David Jordan talks about this problem and the solutions to addressing it. **BY DAVID JORDAN**

DEPARTMENTS

From the Inside page 4
From the Press Room page 12
Master Class In MultiValue page 19

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From the Inside

Changes are a-coming, if you have not already seen them. Because businesses are increasing IT spending for automation projects your work load and requirements are increasing.

Here at International Spectrum, we are providing the information you need to help with the technical requirements you have.

If you haven't noticed yet, the Spectrum website has been changing over the past year. We are providing more tools, software, and tech information for you.

In addition to increasing the information on the website, we have also added more content to the International 2017 Conference. And the conference is quickly approaching: May 1st to May 4th, 2017. There will be lots of information, resources, and training for you and your staff.

Our 2017 Conference will include content for experienced developers as well as for new developers and the all-important MultiValue Administrators. The conference will be at the WigWam in Litchfield Park, AZ, same as last year.

I am working with my speakers to produce more content on upcoming technologies as well as working with your existing technologies. Many of the sessions are not only more than just Power-Point, but also live demonstrations of what works and what doesn't. This will allow you more real-world details as well offering you a chance to ask questions outside of the time constraints of the initial training session.

I have always been a big fan of professional networking when I've attended conferences, both as a developer and then as a speaker. I feel this is one of the most productive and valuable activities at any conference. With that in mind, we will be offering many opportunities to talk with your fellow attendees, both during and after conference.

Since we know that you don't always get a chance to see or talk with everyone you would like to at the conference, we will continue the post conference on-demand videos as well. This will allow you to review sessions you attended, or have employees back at the office benefit by watching sessions you thought were important.

At the 2017 Conference, you will be able to see a quick overview of what the vendors have to offer before the exhibit floor opens, during our Vendor Speed Dating. With these quick 5 min overviews of what each vendor is offering, you can easily pinpoint the people you want to talk with, or which 50-minute product demo session you would like to attend.

As we get closer to the end of the year, you will find more and more changes and new features that will help you make your job easier. Don't miss out on valuable information, resources, and solutions.

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Learn more about the MultiValue Symbol and see what MulitValue Technologies and MultiValue Communities exist to help you support and manage your business and systems. To find out more visit
http://www.intl-spectrum.com

MISSION STATEMENT *International Spectrum* magazine's editorial mission is to be the premier independent source of useful information for users, developers, and resellers of MultiValue database management systems, open systems business database solutions, and related hardware, software, and peripherals. Published bimonthly, International Spectrum provides comprehensive coverage of the products, companies, and trends that shape the MultiValue marketplace as well as the computer industry at large — helping its readers get the most out of their business computer systems.

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International Spectrum is eager to print your submissions of up-to- the-minute news and feature stories complementary to the MultiValue marketplace. Black and white or color photographs and diagrams are welcome. Although there is no guarantee a submitted article will be published, every article will be considered. Please send your press releases, articles, and queries to: editor@intl-spectrum.com. International Spectrum retains all reprint rights.

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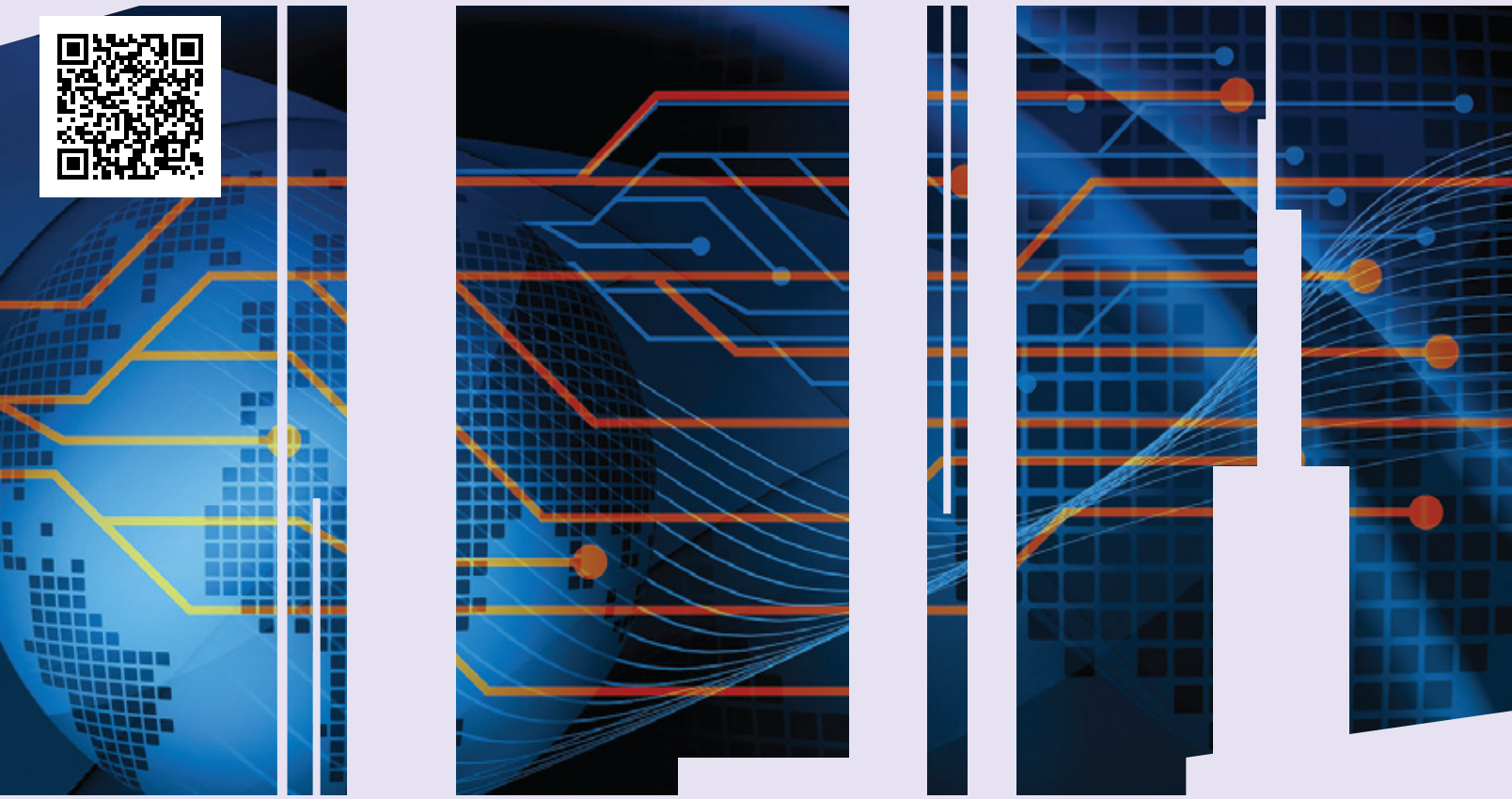

GET CONNECTED.

Knowledge and Education for the MultiValue Professional.

About Our Professional Membership

We are all busy in our day-to-day work and staying up-to-date with the current MultiValue technologies can be difficult.

Professional Memberships provide you access to knowledge, solutions, information, and code that you won't find in other locations.

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2016 MultiValue Industry End-Of-Year Recap

Ashwood

What new features or services did Ashwood introduce in 2016?

We've made dramatic improvements to our ForeMost ERP Scheduling and Time and Attendance modules and we have enhanced our MRP Logic also. Our work with our mvTools on several customers sites is receiving rave reviews. Our FastBac back-up preprocessor tool significantly increases the usefulness and value of our customer's server snapshots and this is something almost every site we work with is doing now or will be in the very near future! We're offering NEW Monthly Preventive Maintenance Systems Services for our customers whether their servers reside on-site or off and providing proactive systems support as opposed to the reactive support that many companies are used to.

What was the greatest or most exciting thing that happened to your company or product in 2016?

We have another NEW ForeMost customer! Cleveland Vibrator Company in Cleveland Ohio went live in 2016 and Our ATeam is growing, we've added two exceptional new team members in 2016, Teresa Thomas is helping us to improve ForeMost as is Jon Kristofferson our new Technical Services Manager!

What would you like Spectrum readers to watch for in 2017?

The continued, rapid evolution of our ForeMost ERP solution, Cloud Hosted ForeMost Solutions, Our NEW ForeMost SaaS Solution, Our NEW Multi-tenant ForeMost Solution.

Entrinsik

What new features or services did Entrinsik introduce in 2016?

For over ten years we've been offering Entrinsik Informer as a reporting solution that empowers end-users to access data from multiple sources real-time, particularly MultiValue, and report off that data in numerous ways. This year our R&D team has been working very hard at architecting the most significant upgrade to our Informer software. With this new release we've evolved the product into an agile data discovery platform to interactively do comparative analysis while automatically generating reports and visualizations. Currently in late alpha testing with overwhelmingly positive feedback from users, Informer 5 delivers advanced data analytics, data governance, visualizations, collaboration all in one platform. Pretty cool.

What was the greatest or most exciting thing that happened to your company or product in 2016?

This has been an exciting year for Entrinsik, both with our Informer and our Enrole products. Because of the way Informer has been re-architected in this upcoming release, end users are now intelligently guided through each phase of the data discovery process. The market is flooded right now with complicated BI and data discovery solutions and we've intentionally developed Informer with an emphasis on ease of use, intuitiveness, and speed. If users need to discover key information often hidden in the data, Informer actually suggests meaningful visualizations; then you can use them, not use them, modify, customize, or add different data points to it. Informer then also allows users to collaborate with each other to comment on different report results, glean insights from the data, and create teams to work on data together. It's a truly powerful solution and we can't wait to get it into the hands of as many people as possible.

What would you like Spectrum readers to watch for in 2017?

In addition to launching Informer 5 and continuing to expand Enrole into continuing education departments around the world, Entrinsik is gearing up for our ICON 2017 conference where hundreds of Informer and Enrole users will gather together

to learn more about the latest updates to the Informer and Enrole platforms. ICON 2017 will take place in Raleigh, North Carolina from April 26 to 28, 2017 and will feature breakout sessions with members of the Informer and Enrole product development teams, panel discussions on best practices and methodologies, training sessions, and round table discussions specific to different industries. The conference is going to be a fun time to celebrate the new release of Informer with an Informer 5 Launch Party! Space is limited so reserve your spot today before the early bird discount expires at http://www.entrinsik.com/icon2017/.

HDWP

TCADS, LLC is releasing their new app before the end of the year. BeBackBy is a virtual safety net for hikers, bikers, and backpackers.

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Consultants Needed Nationwide

We have started making the rounds of trade shows, established a new, more modern websites, and overhauled our software infrastructure, putting Ladybridge's OpenQM at the heart of our project.

Spectrum readers should watch the market re-align. Tablets are starting to lose market; the smart watch craze is starting to die off. Unsurprisingly, the computer (laptop, desktop, server) is still the go-to for most work despite all the new options.

HDWP, Inc. is releasing their first boardgame/cardgame Etandavos: Chaos. We are planning a line of MV-related technical books in partnership with International Spectrum.

Ladybridge

What new features or services did Ladybridge Systems Ltd introduce in 2016?

Alongside many small developments requested by our users, we added two new interfaces to QM, a "pure Java" API and Python support.

The pure Java API is part of the QMClient connectivity features. We have had a Java API for several years but this was based on the Java Native Interface (JNI) which meant that we needed a separate version for each platform. The JNI version will continue to be supported for a while but the new pure Java version removes the need for the JNI and is fully portable across all systems that support Java.

Although Python has been around for many years, there has been a growing interest in using Python as a programming language in MultiValue applications. Our approach has been to provide a Python wrapper for QMClient, allowing Python programs to access QM data files, execute commands, call subroutines, etc. By using QMClient we maintain the managed environment provided by QM, removing the risk of application errors causing hard to debug failures of QM and also avoiding the maintenance issues that would be created by integrating the Python interpreter into the core QM engine. QMBasic applications can also execute Python programs.

we

Our development plans continue to be largely driven by requests from our users and we take great pride in our responsiveness to these requests. Our underlying goal is to take MultiValue forwards by enhancing the core features of the environment.

We will be at both the Spectrum Conference in Phoenix and the Zumapalooza conference in Las Vegas. We look forward to meeting existing and prospective QM users.

ONSystex

2016 was a big year for Onsystex. We expanded our suite of MultiValue capabilities with three new products designed to help companies take advantage of dozens of new technologies while continuing to leverage their MultiValue applications.

OASYS|OMNI provides a complete API configuration framework which exposes MultiValue data and business logic as REST API's. Easily managed by existing MultiValue teams, these API's are being used in 50 installations to drive cloud integrations, new mobile applications and replace of legacy modules with modern new capabilities.

OASYS|BRIDGE delivers a bi-directional real-time replication service to enable data to flow back and forth between MultiValue and SQL. In do-

ing so, we enable an entirely new generation of application development and integration possibilities. Most importantly opening your systems up to modern Business Intelligence solutions.

OASYS|WEB leverages an innovative 'screen-scrape' technology to generate a fully responsive .NET based web interface. OASYS|WEB rapidly paints a modern web/mobile experience on traditional green screen applications. We have invested heavily in automating many design tasks to accommodate the unique emulations and characteristics of MultiValue Applications.

These products experienced rapid adoption and are easy to implement. In 2017, we expect to launch a suite of pre-canned OASYS |OMNI services which will further speed integration development. Coupled with our modernization strategy practice, we are helping companies navigate the complexities of bringing their MultiValue application into the 21st century by seamlessly expanding the MultiValue application to function with the latest technologies (Web, mobile, BI, Cloud, etc.) and teams working to deliver the solution.

Rocket Software

What new features or services did International Spectrum introduce in 2016?

In 2016, Rocket Software announced the availability of a brand new product for MultiValue: Rocket Discover for MultiValue (MV), a collaborative Business Intelligence (BI) solution custom-built to provide the deep insights MV customers want without having to rewrite their applications. With its native interface to Rocket D3, UniVerse, and UniData databases, users can easily connect to MV data sources through secure Web services and use Discover's intuitive interface for data visualization and discovery.

For the first time, MV users can easily create dashboards and visualizations to help drive their business forward without having to take data out of MV and spend hours massaging it to get key insights. As a collaborative BI solution, Discover enables executives and business users to experience a hands-on approach to BI exploration and visualization. Discover's intuitive drag-and-drop interface simplifies and speeds data analysis while reducing reliance on IT personnel. The addition of new BI capabilities reinforces Rocket's commitment to its customers to maximize investment in the MV platform. For more information on Rocket Discover for MV, visit http://www.rocketsoftware.com/products/rocket-discover/rocket-discover-multivalue

What was the greatest or most exciting thing that happened to your company or product in 2016?

Rocket MultiValue customers and partners have told us that attracting and retaining developers to work with BASIC can be a challenge. To help address this, Rocket has extended the database and application programming capabilities of Rocket UniVerse to include Python, a dynamic and modern object-oriented programming language. Rocket Software now includes support for the popular Python programming language in late 2016. The addition of native Python support opens UniVerse development to a new generation of programmers versed in open source language and tools, making it easier to hire qualified engineers and developers. We chose Python for a number of reasons:

The extensive support libraries significantly reduce the number of lines of code to be written

The availability of third-party tools and resources makes Python capable of interacting with many other languages and platforms

A large development community with many recent college graduates provides a great pool of Python talent that MV customers can draw from

The initial release of Python is supported on Windows and Linux for UniVerse

What would you like Spectrum readers to watch for in 2017?

In early 2017, Rocket Software will introduce the Python programming language for our UniData product to let our partners and customers to easily extend UniData applications and attract and retain new development talent. This latest release of UniData will also include:

Replication enhancements which will contribute to improved performance, additional protection, and more insight

Audit Logging to help with meeting compliance requirements including HIPAA, HITECH, PCI-DSS, SOX, and others

BASIC enhancements to improve performance

Security updates necessary to help protect your business such as the ability of UniData to accommodate future OpenSSL updates that Rocket releases independently of having to update UniData itself.

In accordance with the Rocket Customer Bill of Rights, we're putting Customers First: Our Engineering

team has focused on improved reliability and stability for your applications. We have resolved hundreds of reported issues, and are delivering many usability enhancements in this release.

SJ+

SJ+ Systems Associates, Inc. and PRC, our industry-leading software development lifecycle management tool, had a banner year in 2016. PRC has spread to new industries and platforms while rising to meet new challenges in seemingly contradictory governance and productivity. At a quarter of a century now – being already a Grand Dame (but don't say that about its author!), the software continues to mature. Software development teams all over the world rely on PRC in their drive to produce high quality solutions in record-breaking time with global resources. PRC is focused on the specific governance and technical challenges, incorporating new methodologies while meeting new requirements so that IT teams can focus on making the best use of them to achieve their goals. This year we've seen several approaches to agile development using PRC, a broader offering of PRC to Epicor users and to DesignBais developers. 2017 will see still wider availability in Multivalue and SQL platforms. Our mission has always been to make governance and transparency "the easier way" and to provide governance and metrics as a side-benefit to robust productivity tools and programmer gains. In the coming years, we will enable developers to take their MultiValue skills and the easy automation of PRC with them wherever opportunity takes them. Watch for announcements of platform availability early in 2017.

Zumasys

What new features or services did Zumasys introduce in 2016?

In 2016, we welcomed Technical Evangelist Patrick Payne to help educate our MultiValue customers on how they can use the "open" standards driven by companies like Google and Twitter and the new development tools they've produced. Using this methodology, customers can easily interface these tools with MultiValue systems and build a new modern user interfaces (UI) with off-the-shelf tools that appeal to younger developers, connect to any Pick database via. JSON, and position MultiValue within the NoSQL movement.

What was the greatest or most exciting thing that happened to your company or product in 2016?

2016 was all about growth for our MultiValue products. Sales of our AccuTerm remote access software grew an astounding 75%, primarily due to platform upgrades, new flexible licensing options and AccuTerm's long history of providing rock-solid SSH security and reliability. We also saw 67% growth in OpenQM, our high-performance MultiValue database, thanks to QM's very competitive price point and object-based programming features.

And since buying jBASE two years ago, we've added more net-new customers than it had in the prior ten years. jBASE is getting young developers excited about MultiValue because programs now sit natively on Linux, Windows or AIX. Everybody wants a new UI for their character screens and jBASE makes it much, much easier by leveraging non-Pick programmers and newer programming standards/methods.

What would you like Spectrum readers to watch for in 2017?

In January 2017, we will release jBASE 5.6, which is packed with even more significant new features—most notably RESTful Services, which exposes jBASE to every language environment without proprietary APIs. With RESTful Services, jBASE can receive requests from JavaScript and return results back using JSON.

Mark your calendars for Zumapalooza 2017, which will take place May 15-17, 2017, at the M Resort in Las Vegas. With over 500 attendees, 50 breakout sessions and three days of MultiValue tracks, Zumapalooza is the premier technical conference for cloud, infrastructure, and software technologies. Zumapalooza is the largest annual gathering of MultiValue users and partners and our Early Bird Registration will offer free conference passes this year for a limited number of attendees. You can find more information at www.zumapalooza.com.

Throughout the year, we will also continue executing on our SaaS strategy to bring together all of our software products with the Zumasys Cloud. IS

Our Apologies

We at International Spectrum would like to apologize to Zumasys Inc. for several errors printed in the interview with Paul Giobbi which appeared in the September/October 2016 issue. Joe Cupp's name was incorrectly spelled. Zumapalooza was incorrectly spelled. All errors have been corrected on both the website as well as the digital copies of the issue.

CORPORATE CAVEMAN CONCUSSION

BY CHARLES BAROUCH

"They decided on a tech issue without consulting anyone in the MIS department. Again."

We've had this conversation. We've had it online, in the pages of Spectrum, in the break-room at work… everywhere. The company, or certain people in the company, don't treat us as valuable contributors. We don't get invited to the meetings that change everything about our jobs. When I wonder how long this sort of mess has been going on, I find myself thinking back to the dawn of humanity.

Rock the Dress Code?

Igrocni the caveman is minding his own business, attempting to discover fire, when you appear before him. He greets you with a concussion. Rock meets head. Bang. As you look up bleary-eyed from the ground, you realize that this feels familiar. If he were in a suit, you might have even expected his reaction. We get bonked all the time.

Why? Let's start off with the clothes. He's in a rotting, poorly cleaned, pelt. You are in a shirt with a humorous quote from some movie. That makes you strange. In the corporate world, the T-shirt isn't making you any friends. Try this test: find a co-worker who has a casual work environment — not just for MIS, for everyone — and I'll bet the rank-and-file workers from other departments get along better with the tech workers. Some of the managers may as well, especially if they also dress down. The funny thing is, if they dress up, your dressing up probably won't help.

He's in a rotting, poorly cleaned pelt. You are in a shirt with a humorous quote from some movie. That makes you strange.

If I wore a suit as expensive as some of the execs, they'd decide they were overpaying me. If I wear something more, let's say, economical, I'm still not dressing like them. I can often get a better response by wearing a nice button-down shirt and good slacks. It isn't what they are wearing but it is something they would wear. Don't dress for the job you want. Dress adjacent to the job you want. It's less expensive and more likely to make you stand out in an acceptable way.

There is an exception to dressing toward the norm. If you think you can pull off Great Wizard, then dressing differently works. There's a mystique created by "dresses like that and they still accept him. He must be really good." Just remember that some people rage against mages.

Also, bear in mind that everything I just mentioned is much harder if you are female. The number of clothing options, and the number of negative opinions you face, are higher. Note to the men: Women do have it harder. This is just one example. However much you are judged, it isn't a patch on what they go through from both male and female co-workers.

Ooga Booga

The second reason you got bonked is because you don't talk like them. You talk about file-resizing and Igrocni shouts "Ooga Booga" in frustration. As with the cave, so with the boardroom. I've seen this misrepresented by people in MIS as "we are more analytic." No. Just stop doing that. Please. It may be true here and there, but it is

less true than you think. *They* are differently analytic.

Rocco in marketing may not understand why requesting a five hundred page report creates load on the machine. He may not grasp why running the report midday yields smaller numbers than running it at night. That sounds stupid to you. It should. Likewise, he can track fifteen marketing code embeds in his head, taking their penetration, use, and buy-a-longs into account. Rocco has no idea why you can't. You're supposed to be the smart ones.

When I explain to Pat in accounting why the quarter-fiscal report will *always* mismatch the P&L, I get a glazed-eyed response. However, she can do amortization calculations in her head. Jack in shipping has every baseball stat for his favorite team memorized and can make an argument for his ranked-order analysis of all the pitchers. Nora can glance at a crafting project and never have to look again. That girl who looks like she's spacing out in the art department? She's coordinating color palettes in her head, watching for clashes and reading the emotional temperature of the result. Everyone has a focus — work or play — that may well match or exceed yours. You are better at what you are focused on. They are better at what they focus on. There is no guarantee that you are smarter or more analytic than they are.

The Best Cave

Odds are, you didn't spend last Tuesday morning defending a mud puddle from three aggressive goats. Igrocni did. What you do and where you go may also separate you from the others. In my current job (one of them) we have a lunchtime gaming group. Often, I see someone watching and realize that they are impressed that we have the nerve to play a game in "public." Regardless of their department or station, the idea of being open about a difference is often considered brave or arrogant. Interestingly, we get people from different departments and different ranks – this isn't just an IT (geek) activity. Gaming, for this subset of people, cuts across those things. I could say the same things if we ran a book club at lunch or a knitting circle.

My lack of sports knowledge and my not being a smoker excludes me from being one of "us" to certain people. Where I live and where I shop can also knock me out of the in-crowd. I still remember a co-worker from thirty-plus years ago listening to a conversation about the nascent of world home computers. She looked at the three of us who were comparing observations about the Timex Sinclair vs. the Commodore VIC-20 and said, "Is it me or is it you? When I go home, I read fashion magazines. I go to the theater. The last thing I want to do with my free time is the same thing I do in my professional life." And she was in our department. Imagine how we look to those who are further out from what we do.

Bad Weed

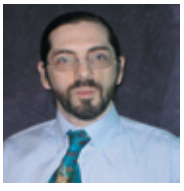
When our caveman hunts, he lays flat and peeks through the tall grass. He is literally in the weeds. As technical people we live in the weedy world of details. Most of our co-workers see "being in the weeds" as slang for lost or confused. They like the ten-thousand-foot view. They want the high-level briefing. Of course, that leads to follow-up questions, which brings the conversation back into the weeds. We get frustrated because it would have been easier for us to just discuss the weeds. That's our perspective. They get frustrated because a supposedly simple question yields a — to them — crazy answer which turns into an eight hour discourse.

So, weeds bad. I'll try to remember that. Except the answer, my friend, is buried in the weeds. The answer is buried in the weeds. Worse, the questions we need to ask in order to finish/fix/find the issue requires answers that require an understanding of the details. I've developed a way to ease people into that. I say, "the short answer is *No*. The long answer may lead to a *Yes*. Do you want the long answer?" I get a lot of yeses.

The Other Reason

We don't just get a concussive welcome because we talk, dress, and focus differently. We get bonked because poor Igrocni has had other visitors before. He's learned to bonk first and ask questions later. Remember that the way your co-workers often react to you is because of their previous experiences. I've been yelled at for decisions made by people who left before I got to the company. Transference is not uncommon.

Do I still wear funny shirts? On Fridays I do. High-end slacks? Only when I must. No one is telling you to change. Just understand that our choices are choices and they come at a price. **IS**



CHARLES BAROUCH is the CTO of HDWP, Inc. and the Publisher at HDWPbooks. You can read his writing in International Spectrum, Theme-Thology, Novo Pulp, Pax Solaria, PerehelionSF, and the Interrogative series, which begins with Tiago and the Masterless.

From the Press Room

CirrusPrint 2.0 Released

SDSI announced the release of CirrusPrint 2.0, a cloud printing application designed to meet the complex needs of hosting providers and larger enterprises that require a higher level of security, configuration control, and legacy printer support than currently available through other cloud printing providers. Among the target markets for the software are hosted application providers, such as Amazon Web Services, Rackspace and Azure, and ERP application software vendors who wish to retain printing functionality and security in a cloud environment.

"We looked at Google Cloud Print but it forced us to send print data to a third party, compromising our security protocols." Said Adam Van Beek, CTO, Prism HR. "CirrusPrint, runs on our Rackspace web server, and was the only cloud printing application that was able to print exactly what it is sent -which is essential for our customer's high volume and precise, payroll check runs."

CirrusPrint is a server centric cloud printing application that provides all the control, security and configuration capability that IT managers have come to expect from print server management software. The application allows a single site administrator to setup an unlimited number of companies, assign administrative rights, monitor system logs, add remote systems, etc… In addition, CirrusPrint prints exactly what it is sent and supports legacy printers—even if they don't have email built into them.

Documents can be sent through multiple input channels to CirrusPrint, including network printer ports and email, and they are quickly and securely routed to remote printers and users. Flexible configuration and control enables such features as print distribution to multiple devices, fault tolerant offline printing, and multiple printer support via a single email address. Printed documents can be sent directly to a user's browser on a desktop, phone or tablet -avoiding the clutter of an email in box. ■

Information Technology Systems Inc. Announces Another Digital Transformation Success.

Information Technology Systems Inc. has provided a national real estate broker specializing in the large multi-family property market with the ability to produce simple to understand custom designed browser-based market comparison reports.

Standard graphs and spreadsheets could not present a quick yet complete overview comparing 6 to 12 properties against each other while highlighting the property listed for sale. In addition to text and graphs, photos of the properties were to be included in the reports. Basic programs were written to use the information about the properties to write hundreds and even thousands of lines of HTML code at the granular level to meet the exact specifications of the customer. Extensive use of absolute positioning, font types, text size, text colors, and single pixel color gifs allowed the creation of a concise and informative picture to be presented to prospective investors.

Examples of the results as well as code snippets are available for review on the web at http://www.itspick.com/html-case-study.html

Information Technology has staff with over 100 years of combined Pick / MultiValue experience. They pride themselves on listening to their customers and developing real world solutions for their customers.

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ClearConnect Leveraging RESTful web Services in AusVantage V8 version 8.1.3

Representational State Transfer has gained widespread acceptance across the web as a simpler alternative to SOAP and Web Services Description Language. RESTful web services are REST architecture based web services that are lightweight, highly scalable and maintainable and are very commonly used to create dynamic APIs for web based applications.

ClearConnect is an advanced e-commerce B2B and B2C solution that leverages Rocket Software's RESTful web services to create two-way, real-time integrated web stores

that are tailored for your organization. The ClearConnect web service employs JSON format data messaging which improves response times and integrates seamlessly with modern, JavaScript driven websites and web applications. RESTful web services are now leveraged in AusVantage V8 version 8.1.3.

ClearConnect processes order data requiring no re-keying or importing via AusVantage's financial and supply chain modules, maintaining your core business within one integrated system. ClearConnect automatically updates changes to your web store and provides real-time order and data processing.

Businesses with online shops recognize that customers need to be well informed of stocked items to improve sales opportunities. ■

OpenInsight 10 Alpha v3 Is Available

OpenInsight 10 Alpha v3 is available for download to all Works Members.

The Alpha v3 is available as a full install or an update to an existing Alpha.

This version includes many enhancements to the IDE, Form Designer, Table Builder and O4W.

OpenInsight for Web (O4W) v2.0 included in Openinsight 10 Alpha v3 is a rapid application development tool that lets you generate responsive forms, reports, and dashboards. Use our GUI drag-and-drop to lay out your forms and then test in both desktop and mobile browser mode. Or use our full-function API to create the most sophisticated web pages. ■

OnSystex Provides New Capabilities In OASYS For Enterprise CIOs

Onsystex, Inc. announced an expansion of its platform to include new capabilities designed to help enterprise CIO's meet mandates to eliminate their dependency on aging MultiValue applications.

They include OASYS|Omni MultiValue-based API framework designed to expose both reading and writing of legacy functionality and data as RestAPI's, OASYS|Bridge real-time replication services which surface MultiValue data structures in normalized SQL-based databases for use in business intelligence, reporting and external web development applications, and OASYS|Web user interface development platform which generates responsive web/mobile interfaces dynamically from "green-screen" implementations.

According to Tim Spells, CEO of Onsystex, "We have been an active participant in the MultiValue marketplace for over 25 years. We have leveraged our knowledge of both the strengths and weaknesses of MultiValue technologies to create this powerful suite of tools and services."

Jeff Zayicek, CEO of Ratex Business Solutions, a provider of MultiValue-based ERP systems to large Universities, said, "OASYS|Omni provided us a platform to introduce new cloud-based functionality, expose our legacy functionality as RestAPI's accessible to our clients, and integrate .net developers into the process of enhancing our system. The platform is enabling us to evolve a strategy of engineering new capabilities without having start completely over."

Bob Miller, COO of Onsystex shared that "While MultiValue applications have enjoyed almost four decades of success they no longer can compete with modern development tools and infrastructures. The industry has consolidated into a handful of small operating system providers with relatively microscopic investments in the technology compared to mainstream database and development tools. Combined with aging development resources, this has left many very large firms struggling to develop roadmaps to eliminate these systems."

Sterling Moses, IT Manager at Brigham Young University, Idaho said, "With OASYS|Omni we were able to integrate critical web site functionality back into MultiValue ERP system with only a couple hours effort. ■

QM Release Notification (3.4-8)

This minor release introduces a few new features requested by our users.

This release introduces minimal support of character maps into the non-ECS version of QM. This allows developers to adapt the default map to give better support for the accented characters found in European languages without needing to use the ECS version.

The CREATE.FILE command now checks for an optional $ENCR VOC record to control automatic application of encryption to hashed files.

The ENCRYPT.FILE command has been extended to provide a simple way to apply encryption to many files in a single operation.

The QMBasic EREPLACE() and FIX() functions have been added for improved compatibility with other multivalue products.

From the Press Room

The QMBasic OPTION() function has been extended to allow setting/clearing of an option.

A QMClient session can now use the AUTOLOGOUT command to terminate the session after a period of inactivity. ■

Zumasys Joins Palo Alto Networks Partner Program

Zumasys announced that it has become authorized to resell Palo Alto's Next-Generation Security Platform and VMware-based threat-prevention solutions.

Palo Alto Networks is the #1 threat-prevention platform, protecting networks by providing multiple layers of prevention, confronting threats at each phase of the attack. Palo Alto's threat-prevention subscriptions protect the network from advanced threats by identifying and scanning all traffic—applications, users, and content—across all ports and protocols.

"We have been impressed by Palo Alto's VM-series firewall technology and their commitment to virtualization, VMware NSX and cloud multi-tenancy," said Paul Giobbi, President and Co-Founder of Zumasys. "Palo Alto is the fastest-growing company in the segment because they have a game-changing security platform focused on bringing an end to the era of breaches, and we are excited to bring this technology to our cloud and on-premises solutions." ■

Rocket UniVerse 11.3.1 Has Released

The Rocket U2 team is pleased to announce the launch of the biggest release of UniVerse in its 30+ year history.

UniVerse 11.3.1 includes major new features such as native Python integration to help attract and retain new development talent as well as to easily develop and extend applications for UniVerse. Rocket U2 has hardened their High Availability / Disaster Recovery solutions with additional replication features, and have enhanced our Audit Logging capability to be more flexible and performant.

These are just a few of many capabilities among hundreds of customer requests added. ■

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Building a Modern Line-Of-Business Application

Part 6 – Version Defense

BY NATHAN RECTOR

Modern Line-of-Business applications are no longer self-contained. Instead they are lots of small applications that connect together to make a seamless whole. This increases the importance of keeping client applications on the same version.

As developers and administrators, we want to make sure that everyone is using the newest-latest-greatest version, but that can turn into an installation — and time management — nightmare. Often our solution is to try to do as much on the server as we can because that is centralized. Personally, I find this the best solution, but it isn't always an option.

Since we want to guarantee that the client software and the server software are using the same version, we need to create a version defense strategy. There are 2 basic scenarios that I'm trying to address:

- Handling changes that break compatibility between client and server software
- Handling changes that provide backward compatibility between client and server

Modern applications are no longer self-contained, and require some way to communicate version differences between the client and LOB back office application.

Compatibility

Developers will often overlook handling compatibility until too late in the development cycle. Having to retrofit compatibility management into applications becomes burdensome. It is not as simple as just adding it to the server side of the LOB application. It does require the client to be retrofitted as well.

When building compatibility handling, you are going to be introducing a dreaded level of bureaucracy to your developers and IT department. This is more like introducing paperwork than it is like producing new technology.

Don't get me wrong, some new technology is likely to be added just to decrease the administration headaches that you will be introducing. Honestly, more than likely you already have these headaches. They are harder to avoid now.

Managing Version

The first thing you will need to address is how and where you are to manage the compatibility and version information. My recommendation is to keep it on the LOB server, and just have the client verify and respond to the server.

There are 2 different pieces of information that we need to keep track of:

- Overall LOB version and compatibility
- Client session version and compatibility

Client Session Version and Compatibility

I would recommend keeping a record of all the clients that are connected — or have been connected — to the LOB server(s). This will provide administrators the ability to plan upgrades when any are needed <Fig.1>.

As I talked about in my last article, the Connection API defines an easy way for a client application to access the LOB APIs. There can be more than one type of Connection API that interface with the same Business API.

Since it's typically the Connection API that is in need of upgrades, we need to know what APIs are being used where. There are times when a Connection API just isn't enough, so an application name can be used as well.

An example of this: you've built a specific windows application which interfaces with your LOB APIs. Even if this windows UI uses another client (such as .Net or Java) there should be a listing here for that application as well. This allows you to see who is using which applications, as well as who is using which Connection APIs.

The "client or location name" is mainly the computer, device, or location identifier. For anything in your network, you want the name of the computer at least. If this is an off-site application you may want the IP address or some other identifier for that remote location. If used on a mobile device, then I would recommend using the name of the device so administrations have a means of tracking it down.

Personally, I have found when using a windows machine, having the workstation name and the currently logged in windows user name is helpful. If your IT staff is not in control of where software gets loaded, then sometimes it can get loaded into a user's roaming profile instead of on a specific machine. Knowing the Windows username, in addition to the workstation name, would help you isolate this sort of hiccup.

```
<Connection API Name or App Name>*<Client or Location Name>
Ie:   JAVA*10.0.0.2
      DOTNET*WORKSTATION1
      DOTNET*DOMAIN\NATHAN@WORKSTATION1
      EXCELADDIN*WORKSTATION1
      OUTLOOKADDIN*WORKSTATION1

<1> = Version Number (ie: 1.2.3.aaa)
<2> = Platform (Windows 7, Windows 10, iOS, Web)
<3> = Date Updated
<4> = Time Updated
<5> = UserName Update
```

Fig. 1

Again, this is important information. It helps your administrators plan bulk upgrades. It gives them insight into when it may be necessary to force users of a specific version to upgrade.

Overall LOB Version and Compatibility

Version and compatibility settings come in different forms. I'm not talking specifically about source code version control, or workflow version control, but generalized client/server matching. Source code and workflow version controls are part of this process, but is designed to handle a different requirement.

When you separate applications into multiple parts — split between different client applications and the server — you have to keep those parts in sync. This means you have to keep track of API versions, either for backward compatibility or just to notify client applications when it will no longer work.

I have chosen to use a complex key to help represent different bits of information <Fig.2>.

As I talked about in the Client Session Version and Compatibility section, the Connection API or App name is important. Remember that it is possible that you can have different versions of Connection APIs due to bug fixes or enhancements.

Each record will represent a separate version number of the LOB application. This allows you to include build dates, IDs, and notes that can be used for reference or explication. It also allows you to define upgrade requirements for each specific version of the Connection API currently being used.

The Upgrade Version Number field is used to define which version number should be used when an upgrade is done. The Upgrade Message is used to provide a human readable message about the upgrade.

Once you have all this, you will need to provide a means to check to make sure the client can check its version.

Version Checking API

The API used for version checking should be an independent Business API so it can be done at anytime throughout the application workflow. Ideally, you would do this check at

```
<Connection API Name or App Name>*<Version Number>
<1> = Build Id (used as a reference point back to Source or Workflow controls)
<2> = Build Date
<3> = Build Time
<4,n>= Build Notes
<5> = Upgrade Version Number
<6,n>= Upgrade Message
```

Fig. 2

logon, before the application has done any loading of the Business API data or applications, but things are often not ideal.

API:

VERSION.CHECK

Request:

- VERSION.NO = Version number the Client/Connection API wants to use.
- CONNECT.API = connection API Name or App Name
- CLIENT.NAME = Computer Name and/or Computer Login.

Response:

- STATUS = Ok, Upgrade requested, Force Upgrade
- UPGRADE.MESSAGE = message to display about upgrade needed/required
- UPGRADE.VERSION = version needed to upgrade to
- LOB.API.VERSION = Version of LOB API that is going to be used

It is import to note that I'm returning the LOB APIs version as well. This version is likely within the same as the Connection API version, but as bug fixes and enhancement in the LOB API are made, it is important for the client to know if there is a difference for some reason.

VERSION.CHECK Status: Force Upgrade

This is the easier upgrade process to code. The basics being that everything stops and the application will terminate with a message that an upgrade is required.

The more advanced approach is to do the upgrade automatically, but that may not always be feasible depending on the application, security settings, or other issues.

VERSION.CHECK Status: Upgrade requested

This status notifies the application that the LOBAPI has a different version available than the client is actually using, and that it is recommended that the client upgrade to the new version, but is not required.

This allows the user to be aware of enhancements, but not force them to upgrade until they are ready to do so.

If you want to be able to handle this type of version strategy, then you will need to include the client/connection API version with every call to the Business APIs as well. This way the Business API can make decisions on how to handle different version of the requests.

Version Information API

Information on the current version is important information to the administrator and tech support. I would recommend also including an API that provides information about the current version the client or Connection API is using.

API:

VERSION.INFO

Request:

- VERSION.NO = Version number the Client/Connection API wants to use.
- CONNECT.API = connection API Name or App Name
- CLIENT.NAME = Computer Name and/or Computer Login.

Response:

- BUILD.DATE = Date the version was built on
- BUILD.TIME = time the version was built on
- BUILD.NOTES = the information found in the build notes.
- UPGRADE.VERSION = version next that this API can be upgrade to.

Conclusions

Version checking can get very complex. It will vary depending on how you want to write your applications, but it is important to plan it out ahead of time. This is how your Modern Line-of-Business Application needs to handle code changes across disconnected applications and multiple devices per user. IS

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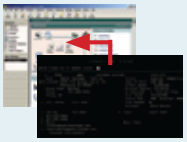

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IS.UUID.V1

UUID V1 Time Based Generation

A Universally Unique Identifier (UUID) is an identifier standard used in many non-MultiValue databases and software to generate a Unique Id outside of using incremental numbers. A UUID is simply a 128-bit unique value that can be expressed as either a larger number, or a string.

The common format for a UUID is a string format that looks like the following:

```
123e4567-e89b-12d3-a456-
426655440000
```

The intent of a UUID is to generate and ID that can be used across different databases, and always be unique. This is different from a sequential number that would only be unique in the file, or table, itself and not across files, accounts, or databases.

There are several different versions of UUID. This article is based around the Version 1 of the RFC 4122 specification for UUIDs. Version 1 is used to generate a Unique Id based on the current date/time, a clock sequence value, and a specific Node ID.

Current Time

The current type is the number of nanoseconds from October 15, 1585, 00:00:00:00000000. For those that don't know, this is the Date Zero for Gregorian Calendar. For those used to working with Epoch dates in Unix, or MultiValue day 0, this is a different Date Zero.

The other odd thing about this value is that the value is in Nano-Seconds, not Milliseconds format commonly found in other places.

The RFC 4122 asked that you using UTC dates and times, but does not require you to do so. It also doesn't not requires you to use Milliseconds even those there is the option to do so. Including Milliseconds in your time just allows you to have more precision, but the addition of the Click Sequence ID address the missing millisecond factor.

The code needed to generate this time value looks like <Fig. 1>.

Clock Sequence Id

Since there is a possibility that a UUID is generated within the same second, or milliseconds, RCF 4122 include the requirement for a sequential Clock Id. The value allows a unique ID to still be created even within the same timestamp.

Because of this requirement, you must provide a way to keep track of this stateful information. The easiest way to keep track of this information, without require a read and write to a file, is using a Named-Common. The program attached uses Named-Common for this purpose.

The main drawback to Named-Commons is that they are Port, or PIB, specific, so the Node ID or the Timestamp needs to include the current port number. If you don't do this, then

```
GREGORIAN.OFFSET = (ICONV("10/15/1582","D") * -1)
*
TIMESTAMP = (DATE() + GREGORIAN.OFFSET) ;* Add Current Date
TIMESTAMP = (TIMESTAMP * (60 * 60 * 24)) ;* Convert to seconds
TIMESTAMP = (TIMESTAMP + TIME()) ;* Add current Seconds
TIMESTAMP = (TIMESTAMP * 1000) ;* Convert to Milliseconds
TIMESTAMP = (TIMESTAMP + 0)    ;* Adds current Milliseconds
TIMESTAMP = (TIMESTAMP * 10000) ;* Convert to nanoseconds
```

Fig. 1

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there is a high chance of creating the same UUID on more than one port.

Node Id

The last part piece that makes this version of the UUID ID unique is the Node id. Originally, the Node ID was a network-card MAC address. Software developers started to move away from using the MAC address as the Node ID when they became more security consensus. Since the MAC address identified the physical hardware, and by extension the locations on a network the physical hardware resides, RFC 4122 was modified to allow a Random Value to be used in place of a MAC Address.

In a database, that doesn't transmit its information to other parties, I don't see an issue with using a MAC address as the Node Id, but I can also see the security concerns as well.

If you want to use the MAC address of your database server's hardware, it is easy to generate: Ipconfig /all for Windows or ifconfig for Linux. By pulling it dynamically, you don't have to worry about change a control record when you transmit your code to another machine, customer, or store location.

Another option is to buy a network card from the store, and hardcode the MAC address found on the box. The main problem with hardcoding the MAC address is that you if you plan on selling your software, or using your software on a machine other than your production machine, you have to remember to change this value or you will create id collisions.

Since I am try to keep this version of the program as fast as possible, and still have an unique value, I decided to create a psendo-random value for the Node ID instead of going the MAC address route.

The code I used for the Node ID includes the Port ,or PIB, in the 1st part of the Node Id. This way there is an additional uniqueness across ports.

The Node Id starts with a hex value of "17", with the next 2 Hex Values representing the Port, or PIB, generated from OCONV("","U55BB"). The remaining 3 bytes are randomly generated. Since I don't want to have to calculate this Node ID each time I call this program, I store it in the Name-Common area just like the Clock ID.

While creating a structured Node ID like this is technically not following the RFC 4122 specification, as long as you start the node ID with a hex of '17', it will notify any UUID parser that this is not a MAC address, but a user generated value.

Now, keep in mind, if you use a MAC address as the Node Id instead of the calculated value I suggested above, you will have an issue with ID collisions due the lack of Port, or PIB, uniqueness. In that case I would suggest adding the Port, or PIB, to the timestamp as the nanosecond value <Fig. 2>.

Since most clock values do not provided nanosecond timestamps, this would not cause you any problems as long as the port, or PIB, is smaller than 10000.

```
TIMESTAMP = (TIMESTAMP * 10000) ;* Convert to nanoseconds
*
PORT.NO = FIELD(OCONV('','U50BB'),' ',1)
TIMESTAMP = (TIMESTAMP + PORT.NO)
```

Fig. 2

Conforming to RFC 4122 Specification

The last thing that needs to be done to make this a valid RFC 4122 value: There are two more values that must be specified.

1. Set the four most significant bits of the 7th byte '0100', so that the Hex value always starts with a '1'
2. Set the 2 most significant bits of the 9th byte to '10', so that the Hex value will always start with a 8, 9, A , or B

See Figure 3.

This is all done using BITAND and BITOR. To keep this program generic, I chose to use Bit math to do the logical AND and OR, instead of the built-in BITAND and BITOR found on some systems.

The code to replicate the Logical AND and OR was borrowed from Dave Meagher's code found in the FOSS4MV/mvCrypt code on BitBucket:

https://bitbucket.org/foss4mv/mvcrypt

Example

See Figure 4.

Output

See Figure 5. IS

```
945EDC05-1033-11E6-80C0-170005B4F09D
              ^    ^
              1    2
```

Fig. 3

```
FOR I = 1 TO 100
  CALL IS.UUID.V1(UUID,ERROR)
  CRT UUID : " Error: " : ERROR
NEXT I
```

Fig. 4

```
945EDC05-1033-11E6-80C0-170005B4F09D Error: 0
945EDC05-1033-11E6-80C1-170005B4F09D Error: 0
945EDC05-1033-11E6-80C2-170005B4F09D Error: 0
945EDC05-1033-11E6-80C3-170005B4F09D Error: 0
945EDC05-1033-11E6-80C4-170005B4F09D Error: 0
945EDC05-1033-11E6-80C5-170005B4F09D Error: 0
```

Fig. 5

BY DAVID JORDAN

Smart Business Consulting Before Technical Consulting Ensures Success

How many times have new management or consulting firms made recommendations such as replacing the legacy software to drive change? How many times has such an exercise failed to deliver promised outcomes? How often have we seen it become an unmitigated disaster?

Often the technical people are blamed for failures they had no control over whilst overpriced vendors often walk away untouched. If we don't want to be one of these statistics, we need to stop the disaster before it starts. To do this we need to take the initiative in the business strategy before it gets to the technology discussion. This is why we need to engage in the business consultation process.

I have seen many such disasters as I am sure many of you have. One example was a company that decided to replace their "legacy" system. The board had been promised that the new system would take them into the future and pay for itself within a few years. It would improve productivity, a tick for cost cutting advocates. They promised easier access to information, a tick to users frustrated by the lack of reports. They promised that it would enable the business to quickly add new products and services, a tick to marketing and sales. It all sounded very promising for the future of the business. Have we not all heard similar stories?

Traditional business consulting has been based around size and economies of scale. New technology is allowing new entrants to enter the market with little cost.

What actually happened was that the business paid a premium price for brand name software. They then paid an additional fifty million dollars to duplicate functionality in the legacy system. A cost that had to be duplicated with each new version. Note this feature rich new package did not have the functionality that the fifteen-year-old system had. How was this missed?

With the unexpected additions, the implementation was over two years behind schedule. One hundred million dollars was lost in the conversion that was never accounted for. Eventually they had their new system. It still only supported the same products and services that the legacy system had. They still struggled to get information out of the system. The final indignity was having to increase staff to support the system. Not long after, the CEO, CFO, CIO and Chairman were gone.

This failure would be sobering on its own, but it is not an isolated incident. Ninety percent of Enterprise software projects fail to deliver to expectations. Eighty percent of innovation projects fail to deliver to expectations. In both Government and Private sectors, billions of dollars are being invested into projects that don't deliver. All of this could be avoided if we focused on the business model before looking at technology. In the above example, management became caught up in the common trap of assuming that their problems could be solved with better technology. Not enough focus was placed on how it would add value to the business. With such high failure rates, you can understand why there is pressure to get better outcomes.

It is in this changing market that we are seeing MultiValue coming back into the forefront. MultiValue users are in a strong position to meet the new demands. We have seen a reverse in sentiment. Where the drive had been to be part of the crowd, now the drive is to stand apart.

In the past, despite the fact that our systems are cost effective and productive, using mainstream technology was seen as more important. Management would ask, "If everyone else is using XYZ, why aren't we?" Multivalue had become tagged as legacy, even though other technologies were just as old.

How the fortunes change. With an environment of tight margins and increased competition, management priorities are refocused on results and productivity. IT departments that are able to deliver "complex" projects quickly, cheaply and effectively are again highly valued. Gold-plated systems that deliver little benefit are being frowned upon. The strengths of MultiValue have become a priority.

The impact stands out in one example of an equity buyout of a publicly listed company. They replaced a brand name ERP system with a MultiValue ERP system. The cost savings alone on this move enabled them to sell the business for a profit. This should make many managers sit up and take note.

We have also moved into a period of rapid change. If an implementation takes more than 12 months, it will be out of date by the time it is completed. If the expected pay-back takes more than a year, it won't happen. Competitors are so quick in copying new innovations that you lose any advantage within a year. This is where MultiValue has its strengths. It is far easier to deliver results when the technology allows you to keep time-lines short and development costs down.

Another critical advantage: managing complexity. As businesses try to be more competitive, the systems become more complex. We are seeing many projects failing as the current technologies cannot handle scaling up the complexity. It is one of the features of MultiValue that many experts fail to appreciate. Building systems and testing them is a nightmare when the programming languages are too complex. The KISS principle is critical. Keep it simple saves a lot of grief.

Yet having the best of breed technology is irrelevant if we are using it to solve the wrong problem. As a decision maker, you don't want to be a statistic. So imagine you were in a comfortable

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position to deliver dramatic results within a limited budget and without stress. That you could react quickly to market changes. That you could introduce new products and services effortlessly to maintain a competitive edge. Would it not be a relief that the discussion was on how to achieve results instead of why the system is not responding to business needs? To achieve this, you need to shift the focus on business making effective use of IT resources. Instead of wasting time doing something that does not deliver benefit, focus that time on something that delivers. It gets back to first getting the business strategy right.

My company achieves significant success by practising what I am preaching in this article. Our "CEO Innovation Blueprint" methodology focuses on the business model. We don't even start talking technology until we better understand how we can reinvent the business to better serve the customer. We have delivered dramatic results for businesses around the world by better targeting innovation. This includes helping Government departments to deliver better service under tighter budgets. We have been able to reduce the potential for failure by simply getting the business model right first. We applied this internally to our software division that now provides a leading "RegTech" innovation solution. Software that is targeting the seventy billion dollars that banks spend annually on regulation across the world. Focusing on business strategy first is paying dividends.

Why am I harping on about getting the business strategy right? We identified that projects so often failed because management looked at technology as the miracle answer to all their problems. They were attracted to the type of sales spiel from vendors, "If you put this ERP system in with all the bells and whistles, you are going to gain a competitive edge." I am not saying that it won't, but I would suggest more executives should scrutinize the how. If the Government department or business pays a fortune to end up exactly where they started from, then what was the point? How does the new system pay for itself? The key has to be on how it improves the business. That means it is a business problem, not a technology problem. As technology providers, internally or externally we need to get back into the business conversation. For if the business direction is wrong, then we are fighting a losing battle implementing the technology.

As part of getting back into the conversation, we need to understand the changing business objectives. Consider that a decade after the Global Financial Crisis we are still dealing with flat growth and squeezed margins. Governments — Federal, State, and Local — are having to do more with less tax revenue. Businesses are under pressure to deliver growth whilst caught up in a downward spiral of price discounting. Whether Government or private sector, there has been a strong focus on cutting costs. For a decade, innovation and technology has been largely driven by cost cutting. The problem is that we have cut almost every feasible cost in the business. We are no longer cutting fat, we are cutting into muscle. It has gotten to the point that we are seeing businesses undermining customer services. We see infrastructure falling apart due to shrinking maintenance. At the same time, businesses are facing digital and market disruptors. This is all creating new challenges to both businesses and Government, who need to rethink their business models.

This significant change is creating challenges for business leaders. The success models that worked in the past are no longer working. Change is too rapid for current business models to cope. When I was talking to the chairman of a shipping company in Shanghai, he raised how his business was an innovative company. His challenge was that the competitors copied them so quickly that they struggled to recover their investment in innovation. If they did not innovate they would fall behind.

We are dealing with disruptive business models that drastically impact our business. They are driving productivity that is a hundred times greater than

Feedback

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

International Spectrum Magazine has a Feedback Department, sometimes known as Letters to the Editor.

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

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entrenched businesses. High growth companies are trialing multiple new innovations a week. How many company's technology infrastructures can support this rate of innovation? While it is both frightening and exciting, we are in a time of game changing events. The smart companies are going to beat the large corporations who are slow moving. Whilst you don't have to be at the bleeding edge as some of these disruptors, you need to be looking at how you can effectively keep in touch with the new market structures they create.

Traditional business consulting has been based around size and economies of scale. The focus has been on market dominance and making it difficult for new entrants. New technology is allowing new entrants to enter the market with little cost. For one hundred thousand dollars you can setup the infrastructure to take on a bank. It is wiping out traditional advantages. The disruptors have shrunk their back-end compliance processes. They are nimbler and have smaller operating costs. If businesses are not looking at their business models, then they could struggle to compete in the future.

Rather than having to implement what some other individual or organization has suggested, get ahead of the game. Drive the conversation, set the direction. Bring business consulting into the game to look at the business model before the technology. This may be a new business consulting arm of a software vendor. It could be about partnering with business/innovation consultants that you can trust. It may be about restructuring what the IT department does within the business by taking a greater role in innovation strategy. Whatever your strategy, bring business consulting into the mix. At the end of the day the technology is solving a business problem, not a technology one. IS

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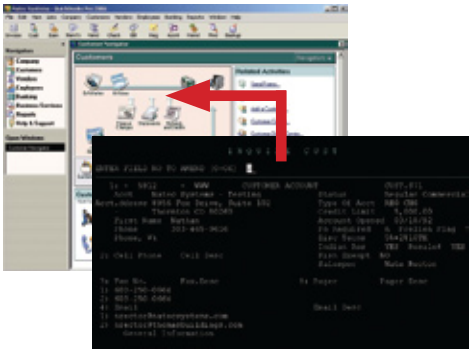
QuickBooks API for the MultiValue Database



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