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MultiValue and XML: A Natural Fit

20 In the near future, disparate computers will talk to each other in XML. And guess what? MultiValue practitioners are in a great position because XML was tailor made for MultiValue.

BY STEVE VANARSDALE

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Not Just Another **gui** Face



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[FROM THE **INSIDE**]



The 23rd Annual Gathering of the MultiValue Software Industry

February 17 - 20, 2003

Hyatt Islandia Resort Hotel | San Diego, California

To register: www.intl-spectrum.com

In February, the Spectrum Show will be 23 years old, and it will mark the 30th year I've personally been involved in the MultiValue market. When I talk about that with friends, I always say that means either I'm too stupid to know when to quit or I know something that everybody else doesn't.

There have been many times over the last few years when it looked like curtains for our industry, but in retrospect, I should have known there was never anything to worry about. Once the investment in the business rules of MV application software was made years ago, it was destined that the market would demand that somebody step up to the bar to find ways to bring those rules forward as technology evolved. In short, companies may come and go, but the MV applications will remain as long as somebody finds a way to connect them to the present.

Nothing substantiates this theory more than the gradual disappearance of the word "migration" from our lexicon. We went through the period where the perception was that you had to migrate away from MV to something else if you wanted to stay current. Today, the rest of the world sees the value of our applications, and instead of trying to entice us to migrate, we are being "invited to come as we are" to the mainstream by no less than the likes of Microsoft with .NET.

But the rest of the world may have a shock coming. We've always been an independent bunch because we've had to do it all alone for a long, long time. MV people also don't like to lose control or have mainstream licensing restrictions. I think that's why there are no less than 30 major new connectivity software tools being demonstrated at the Spectrum Show next month. The MV developers have once again created their own ways to connect to the "mainstream," and that's why we've chosen the theme "Tying It All Together" for 2003.

I hope you'll join us at the annual Spectrum Show to see this phenomenon for yourself. Log on to www.intl-spectrum.com to see the great new program we've put together for you this year. You'll update your personal knowledge base, make new business connections, and make new acquaintances in the informal, relaxing environment of San Diego in February.

Hey! Is it possible that we're actually the mainstream? See you there!

— GUS GIOBBI, CHAIRMAN, IDBMA, INC. —
gus@intl-spectrum.com



INTERNATIONAL SPECTRUM

JANUARY/FEBRUARY 2003

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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 are welcome. Although there is no guarantee a submitted article will be published, every article will be considered. *International Spectrum* retains all reprint rights.

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Folks, I have a lot more I want to tell you about OpenInsight, but my coffee is getting cold. For more information about OpenInsight, or about OpenInsight training classes at Revelation Headquarters or one of our Authorized Training Centers (ATCs), go to www.revelation.com/intl-spectrum/ishome or call 800-262-4747.

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The History of MultiValue

CHAPTER 9

The UniData Relational Database

Today we know UniVerse and UniData as the peacefully co-existing “U2” databases owned by IBM, but in the beginning, the two concepts were at the center of fierce competition. This installment of the History of MultiValue concentrates on the origins of UniData and how it became involved in the MV industry.

Founded in 1984 by Ming Yue, the company called Unidata set off to “create the next-generation relational database platform.” The goal was to then take that product and “compete in the mainstream RDBMS mar-

ketplace.” And so it was that amid much fanfare in 1989, the company entered the market with UniData, its relational database management system based on UNIX.

But the company soon realized that for a database management system to be successful, it would have to have a stable of mature vertical market applications built around it; and if done from scratch, would require a long, difficult and expensive evolution. After coming to this realization, Unidata decided to maintain its long-term “mainstream” goal, but to focus in the short term to develop tools that would allow already developed applications to run in their database environment.

After assessing the state of the market, Unidata developed software tools that allowed applications developed for PICK and Prime Information to run under the UniData RDBMS, then later acquired the popular System Builder fourth generation application development system, and the rest as they say, is history.

Although Unidata protested vehemently to any linking of the company’s future to the PICK market, that was the side the bread was buttered on. In 1990, when asked what Unidata’s greatest challenge was, Ming Yue exploded. “First of all, UniData is not

‘PICK’ and it isn’t ‘PICK on UNIX.’ We never designed UniData as just a copy of PICK on top of UNIX like VMark Software did! UniData is truly a relational DBMS. After a year of theoretical research, study and testing, we introduced the most advanced relational technology; the SQL implementation on the nested relational data model, along with many Windows-based 4GL and networking tools. We have never considered UniData as just another PICK player, nor do we want to exist exclusively in the PICK market!”

Then in 1997, under the old familiar heading of “if you can’t lick ‘em - join ‘em,” Unidata and VMark Software merged and eventually became Ardent Software.

Ardent was later acquired by Informix, which was subsequently acquired by IBM, and thus Unidata ended its long journey in IBM’s U2 portfolio where it resides today.

Because UniVerse and UniData customers are fiercely loyal to their chosen database, IBM has continued the business practice of keeping the two separate and maintaining both; so even though they peacefully coexist under one company, the rivalry is destined to continue among the people who use them. IS



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New Technology, Products and Services Invite Web Integration Without Reengineering

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mvToolChest!

Presenting the Top 30 MultiValue Software Tools

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SHOW PREVIEW

FEBRUARY 17 - 20, 2003

SPECTRUM 2003

Showcasing the New World

THE MULTIVALUE FAITHFUL NO LONGER have to weigh the pros and cons of migration. With today's options, taking advantage of the Web is just a choice away. There's a treasure trove of products and services from MultiValue providers that enable Web integration without reengineering. And you can see them all in one place — Spectrum 2003, which will be held in San Diego, February 17-20, 2003.

With recent acquisitions, mergers, and new products, the Spectrum show has been infused with fresh energy. Hear companies like IBM, jBASE International, and Raining Data talk about their products, future directions and strategies. Database Management System suppliers VIA Systems and Northgate Information Solutions will also be on hand to give updates on UniVision and Reality, respectively.

TUESDAY February 18, 2003

THE 2003 CONFERENCE

The conference features a new event, mvToolChest, which will profile more than 30 of the top MultiValue tools (see sidebar). Developers and end users can also enhance their store of knowledge with information-packed sessions including:

- ◆ Learn about HTML, VBA, Java and JavaScript from the MultiValue Developer's Point of View
- ◆ Programming Personal Digital Assistants
- ◆ MultiValue Web Development Tools: An Independent Review and Assessment
- ◆ How to "Browser-Enable" Your MultiValue Applications
- ◆ Hidden Secrets of Revelation's OpenInsight for Workgroups, Raining Data's mvDesigner and jBASE
- ◆ Advanced Dictionary Building—Creating Complex I-Descriptors
- ◆ Marketing Your MultiValue Solution to Main Street
- ◆ Working With XML in the Real World
- ◆ Advanced Redback Coding

- ◆ Switching to Wireless Networking: Does It Make Sense for You
- ◆ Writing CGI (Common Gateway Interface) Programs for the Web
- ◆ Mobilize Your Workforce with a 3G Mobile Internet Connection & Citrix MetaFrame XP
- ◆ Interfacing Your MV Software With Microsoft Office

KNOWLEDGE-BASE ROUNDTABLES — An Opportunity to Network

Spectrum 2003 is also an opportunity to network and brainstorm with others who use the same technologies, share common challenges, and ask similar questions. The "Knowledge Base Roundtables," being held February 18 and 19, allow you to make connections during breakfast at the table of your choice. The following special interest groups will be featured:

- ◆ IBM U2 Users
- ◆ EpixTech/Dynix Users
- ◆ jBASE Users
- ◆ Datatel Users
- ◆ Raining Data Users
- ◆ CCS Users
- ◆ Reality Users
- ◆ CUBS Users
- ◆ Revelation Users
- ◆ Epicor Users
- ◆ UniVision Users

SPECIAL EVENTS

In addition to being held in idyllic San Diego (with whale watching and fishing tours offered right next door to the hotel), Spectrum 2003 will have special events such as wine and cheese tasting on the exhibition floor, the MultiValue Luncheon, and the Spectrum Sweepstakes with free giveaways.

February 17 - 20, 2003 | Hyatt Islandia Resort Hotel | San Diego, California

World of Choice

WEDNESDAY February 19, 2003

- ◆ Web Enabling Tools
- ◆ VAR Roundtable
- ◆ Reporting Tools
- ◆ Consultant's Roundtable
- ◆ PDA Programming
- ◆ Peddler's Roundtable
- ◆ Wireless Programming
- ◆ Marketing Roundtable
- ◆ XML Programming
- ◆ Java Programming

mvToolChest Features 30 Top MultiValue Tools

At the Spectrum 2003 conference, you'll be able to get up close and personal with more than 30 of the top tools the MultiValue world has to offer. You'll get the chance to see what your options are, hear about all their features, and get a feel for what the product can do for you. From tools that simplify Web application development to products that allow you to create PDA applications for use with MultiValue data, here's a sneak preview of what's in the mvToolChest.

DataReady - A New MultiValue Reporting Tool

Today, information has to be real-time, mobile and above all, easy to use. The reports need to be usable in multiple formats (for example, Web, Excel, printouts) and with different desktop environments. DataReady, from Eagle Rock Information Systems, is a new reporting tool that uses WebWizard or other Web integration software to make it easier for users to create ad hoc reports.

Visage - An Evolution in Software Development

The Visage Application Development Framework (from Stamina Software) can be used to leverage existing database designs and Basic code to produce 21st century ultra-thin client GUI applications that can be deployed on a high-speed LAN, corporate WAN or the Internet.

You'll be able to see how the drag and drop database integration of the Visage Designer allows you to produce functional prototypes in minutes, without any coding. The prototypes can be incrementally enhanced in an interactive manner to produce a full-featured solution in a fraction of the time required with other technologies.

Informer - Web-based Report/Query Tool

Informer, from Entrinsik, is a tool that allows decision makers to retrieve the right information quickly and economically from their robust U2 database applications. Informer overcomes the key

obstacles that have plagued other approaches. Informer accesses the data using the UniObjects API so it requires no intermediary file such as ODBC. It also uses its own Meta or dictionary file, allowing end users a way around the U2 dictionary entries. Also, because it uses a Web-based, Outlook-like user interface, it is intuitively easy to use and overcomes user anxiety.

ViaDuct - Move from Terminal Emulation to Windows Integration

ViaDuct, the Windows integration tool from Via Systems, allows end users and developers to import, export, and manipulate MultiValue data. With its innovative "wizards," ViaDuct provides low-cost entry to Web connectivity, GUI screen enhancements and more. Learn how to use the TCL wizardry to generate Excel charts and graphs, and HTML documents and tables, without programming. You can see how the File Transfer Wizard is used to import data from a variety of Windows and non-MultiValue sources. The mvExplorer Windows interface is used to drag and drop items between the MultiValue and Windows world.

Instantly Web Enable Your Application with Tarantella

By using Tarantella Inc.'s Tarantella as an infrastructure layer, you can focus on what you do best—new functionality and features. Embedding Tarantella eliminates the need to worry about changes in how people access your application. Whether it is a fat client, thin client, wireless device, portal, local or remote access, Tarantella gives your application optimal performance. Key benefits of using Tarantella's technology are:

- ◆ No client software to install
- ◆ Increased security
- ◆ Application deployment without touching client desktops
- ◆ Ability to integrate application into a portal
- ◆ Single sign on
- ◆ Remote access for mobile/home workforce, including printing

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FEBRUARY 17 - 20

SPECTRUM 2003

Showcasing the New World of Choice

UnForm and sdStor Offer Dynamic Graphical Enhancements and Report Archiving

UnForm, from SDSI, is a software product that provides dynamic graphical enhancements to text reports and form prints. It can be used to add laser forms and presentation quality reports, as well as PDF versions of the same, to nearly any application.

SdStor is a companion report archiving product that stores reports and provides extensive retrieval capabilities.

See how you can use both products to save paper and mailing costs, streamline document processing and add polish to output.

jWB, jBASE's New Web Builder System

jBASE Web Builder delivers fast, Web-based application development, allowing you to extend your MultiValue applications to the Web or add more capabilities to your existing Web development. jBASE Web Builder empowers jBASE developers to create industry-strength business applications using Internet technology.

mvMobile - Create PDA Applications That Use MultiValue Data

PDA's are steadily working their way into the MultiValue marketplace. mvMobile, from Natec Systems, is a new software utility that allows you to easily create PDA applications that use your MultiValue data. You'll see firsthand how mvMobile lets you create PDA programs that will access MultiValue data. Highlights include creating wireless applications and syncing information with your MultiValue database.

mvQuery - The Reporting Tools That Understands MultiValues

Implementing an effective reporting solution involves more than installing reporting tools. Obtaining the best value from your reporting investments requires a sound information strategy. MMT MultiValue Solutions' mvQuery provides practical measures for addressing the competing reporting needs across your information community. See how you can identify techniques for delivering a secure and maintainable reporting solution to satisfy different classes of information stakeholders and add value to new and legacy applications.

MIT'S - Interactive Reporting/OLAP for MultiValue Systems

From the character-based transactional report generators that are built in to all MultiValue systems to the more recent GUI and Web-based presentations, there has been quite an effort over the years to enhance report generation. However, the underlying method of data retrieval is still based on time-consuming extraction methodology that may run through a large number of records to report data.

MIT'S, from Management Information Tools Inc., is the standard Business Intelligence reporting tool for MultiValue users worldwide. It uses On-Line Analytical Processing (OLAP) to present report data in response times measured in seconds and in a much more useful and interactive reporting format.

Concerto Universal - An Easy, Standards-based Web Solution

Concerto Universal, a Java Application Server, is touted as the first true, standards-based Web development tool for MV e-business applications. For most organizations, E-business means "inte-

gration" with existing business applications. Concerto maximizes your competitive advantage, enabling you to leverage your existing MV applications as well as rapidly develop from scratch.

Accuterm2K2 GUI - Converting Applications from Text- to Full Blown Multi-Form Windows

Accuterm2K2 GUI allows the MultiValue programmer to write Windows, Visual Basic style programs using a GUI Designer and MultiValue BASIC code. The only database and language you need is MultiValue. Its MAIN-EVENT feature turns your application into a multiform, multitasking Windows application that runs right beside all the other Windows programs.

ODBC - Standards-based Data Interchange With Mainstream Windows Reporting Tools

There are many options in reporting, but, according to @BetterResults, an exclusive North American distributor of ViaODBC, none makes more sense than using ODBC for the Extract, Transform and Load (ETL) interface. @BetterResults will show ODBC providing a real-time interface between your data and the rest of the world. Live examples will be demonstrated using a MultiValue database with Crystal Reports, Excel and an exciting new product called XL Reporter.

SQL Server based data cubes populated with real time MultiValue information will also be shown along with industry leading Proclarity, a GUI-based drill down business intelligence tool.

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The Spectrum 2003 Exhibitors

Building HTML and XML Servers With WebWizard

WebWizard, the Web development environment from VIA Systems, allows MultiValue programmers to generate and maintain "live" HTML responses from their MultiValue database. WebWizard can also generate XML responses, and issue XML requests, allowing MultiValue programs to interact with the World Wide Web. The WebWizard "wizards" can also be used to generate Web output and update screens based on existing files and dictionaries without any programming required.

TotaLink - Credit Processing Solution

The Internet has impacted not only the way we do business but also the pitfalls many developers fall into when implementing on-line credit authorizations. TotaLink, from Total Computing Solutions, can be integrated into retail POS, Mail Order/Telephone Order and E-commerce solutions.

WADE - Webcentric Application Development Environment

OHM Systems' WADE deploys business solutions using the browser in an n-tier technology environment. With a Java middleware and a MultiValue backend, the environment provides rules-based, real-time solutions for the browser.

Features include on-line real-time validation; built-in search engines; work flow; internal comments; field level security; email; fax; graphs; interface to drawings; Excel and documents, and hooks to other intra/Internet sites. This tool runs on Windows, UNIX and Linux.

1IMAGE Demonstrates Benefits of Document Imaging

1IMAGE utilizes the MultiValue database to make the payoff for document imaging quicker. Image Software will show how document imaging can benefit your company with more efficient and effective management of receivables, payables and all other vital documents, as well as improved customer service.

PRC - A Complete Software Configuration Management Tool for MultiValue Software Development

PRC is a soup-to-nuts solution, encompassing the equivalent of up to a dozen mainstream SCM tools. From SJ+ Systems Associates, PRC handles it all—from problem reporting, traditional project management, source control, test management, automatic deployment with rollback and a host of tools and utilities—to make managing the development life-cycle cleaner and software better.

Mvinternet Connects MultiValue Databases to the Web Using DATA/BASIC Programs

Mvinternet, by Pixius Communications, allows you to connect to the Web using your own DATA/BASIC programs. You can use your favorite Web authoring tool to develop Web pages, and with the insertion of a few hooks into the document, your Web server will be running your DATA/BASIC programs to generate Web content.

mv://e-Store - An Integrated e-Commerce Package for MultiValue Applications

E-Commerce is much more than just posting a form and emailing an order to your sales clerk. You need to be able to offer items that are on hand and offer the appropriate discounts to your customers as well as assess shipping charges and taxes.

With mv://e-Store, from Eagle Rock Information Systems, you can use your existing MV order entry, inventory, and accounting systems to properly inform your customers. Mv://e-Store enables you to quickly offer some of the most common features found in standard shopping cart software. You can connect it to your database using WebWizard or the integration tool of your choice.

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Tincat Group Inc.
Total Computing Solutions
VIA Systems
Zumasy

PDA Security

BY NATHAN RECTOR

PICTURE YOURSELF IN A CRITICAL business meeting with the most important movers and shakers in the company. You're called on for a final project delivery date, reach for your trusty Palm handheld ... and it's gone!!

This may not happen to you, though the more important question is, what plans have you made should it happen? Buying new hardware and syncing data to a new handheld is easy; in fact this might be considered one of the Palm's greatest strengths. However, the scary part of losing your handheld is what happens to the information it carries? Your friends, family, spouse and kids' contact information? Your daily schedule, project data and client list? Credit card and PIN numbers hidden in so-called "private" memos?

In this article, I'll try to give you some ideas on how to secure your PDA and the data it contains.

Who Owns Me?

Losing a PDA is more common than the theft of one, so taking some precautions to make sure an honest person can return it to you isn't a bad plan. Always enter your contact information in the owner fields, found in Preferences on a Palm and under the Personal tab on a Pocket PC. This allows people that find your PDA to return it to you.

San Francisco Airport's Lost and Found says making contact information available on a PDA makes it much easier to return it

when lost: "Smart PDA owners have their contact information appear when you turn the device on, or they have a business card in the case."

Pocket PC has a nice feature that lets you display your owner information when the device is turned on, even if you have activated password protection. Although Palm owner information is stored in Preferences, if you turn on the password lock-out feature, a Palm will display owner information along with a password request when activated.

Built-In Security

Palm OS-based devices and Pocket PCs both come with a password protection option. Turning it on not only protects your data, but it might discourage would-be thieves from making off with your organizer.

The Palm security application — found on the main menu of a Palm — lets you mark records such as addresses, calendar entries, or memos as private and then hides them. You can also assign a password to your device that unlocks and shows hidden records.

You can also use the same security application to lock your device so that someone must enter a password to get to any application on the Palm. The only problem is that you have to specifically run the security

program before it will lock your device. If you do not return to the application menu and start this program only your private records will be secured.

Pocket PCs offer a similar power-on password that locks the device until you enter your chosen password. Turning this on requires some navigation. Go to the Settings command, then the Personal tab, and select Password. Enter a password and check "require password when device is turned on."

There are several third-party applications that you can use to improve upon the built-in security:

◆ PDABomb is an application that locks your PDA more completely than built-in tools. PDABomb enhances password protection by disabling all forms of data transfer—even the infrared and HotSync ports—until the correct password is supplied. You can even have the program erase all your data if the password is not entered correctly after x number of attempts.

◆ A \$9.95 alternative, OnlyMe, locks a Palm-based device whenever it's turned off. Similar to the built-in password feature, OnlyMe requires you to enter a password to access any of your PDA data. But even with password protection on, OnlyMe returns you exactly to your previous state, so a quick power off won't require you to drill back into the application or file that you were working on.

◆ For more customized security, TealLock replaces the Palm security application with one that offers personal options. The \$16.95 TealLock includes shortcut-stroke activation; custom locking for screen, text, and images; and optional automatic lock-

ing. You can also set it to hide private records immediately when you turn off the device, or after a specified period of time.

◆ And if you only trust your own hand, try JotLoc, a handwriting recognition password protection tool available for \$11.95.

Conclusion

Businesses should take a long hard look at setting up security measures on any PDA that is to be used in their environments. If you want to read more on PDA security you can find some really good information at: <http://rr.sans.org/PDAs/dilemma.php> is

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► **Raining Data** Aligns Management Team to Drive New Business Opportunities

Boris Geller, Vice President, Market Development, to Lead XML Data Management Business

RAINING DATA CORP., a long-time provider of scalable, flexible and reliable data management software, announced the appointment of Boris Geller as vice president, Market Development, to lead Raining Data's new XML market initiatives.

Geller, who joined the company earlier in 2002, will continue to report directly to Carlton H. Baab, president and CEO of Raining Data Corporation. Geller will be responsible for product, marketing, business and channel development strategies, operations and delivery of the company's new high-performance XML data management solutions that streamline access to a variety of critical business data. In this role, Geller will nurture relationships with industry analysts and build strategic alliances with channel partners and systems integrators who are currently developing XML applications for major enterprise customers in financial services, healthcare, telecommunications, and higher education industries. Geller will also lead integrated messaging, branding and positioning efforts to expand the company's presence in new markets while continuing to serve existing customers.

"This alignment of the executive management team focuses our ability to deliver

infrastructure software for eBusiness and Web Services environments," Baab said.

"Boris has a successful track record of launching new enterprise software products that solve critical problems for Fortune 1000 customers. His experience in cultivating channels, strategic alliances, and relations with development community expands our bench strength to build an ecosystem around our products as we continue to take advantage of new business opportunities," he added.

Geller has extensive experience in devising and executing product, marketing, channel and partner strategies at globally established and dynamically growing enterprise IT companies. Geller joined Raining Data from SteelEye Technology, an enterprise data and applications reliability software company, where he was a vice president, Marketing. Prior to that, he served as a senior director, Marketing and Alliances, for BEA Systems, the world's leading application infrastructure software company, where he took a key role in launching the company's enterprise application integration and Java application components business units. Before joining BEA, Geller held a variety

of executive and senior management positions in product, market, and business development organizations at BMC/BGS, HP/Digital Equipment Corp., and Legato/Qualix.

"Joining Raining Data was a unique opportunity to be part of a well estab-

lished company at an exciting point when the adoption of XML and Web Services continues to build momentum," Geller said. "We are now well aligned to take advantage of that momentum. Raining Data's seasoned management team, rich heritage in delivering enterprise-grade software and established global presence

provide a solid foundation to deliver scalable and extensible solutions for enterprise customers building new Java and XML applications that require next-generation, high-performance XML data management infrastructure."

Continues on page 44

► Raining Data Announces Fiscal 2003 Second Quarter Results

- ◆ First Quarter of Positive Operating Income
- ◆ EBITDA Improvement to 17% of Revenue, \$0.86 Million
- ◆ Year Over Year Revenue Increase of 13 Percent

Raining Data Corporation has announced financial results for the second quarter of fiscal year 2003. Revenue for the quarter ended September 30, 2002, increased 13% to \$4.95 million from \$4.39 million for the quarter ended September 30, 2001. Fiscal year to date revenue increased 3% to \$9.66 million from \$9.41 million in the prior fiscal year.

Earnings (loss) before interest, taxes, depreciation, and amortization (EBITDA) improved by \$1.92 million to positive \$0.86 million, or 17% percent of revenue, for the quarter ended September 30, 2002. For the quarter ended September 30, 2001, EBITDA was negative \$1.06 million. Fiscal year to date EBITDA improved \$3.02 million to a positive \$1.14 million, or 12% of revenue, from

a negative \$1.88 million for the same period in the prior fiscal year.

The Company computes EBITDA, as reflected in the table below, by adding depreciation, goodwill and non-goodwill amortization and non-cash stock-based compensation expense to its GAAP reported operating income (loss).

The Company recorded an operating profit of \$0.01 million for the quarter ended September 30, 2002, as compared to an operating loss of \$4.68 million for the same period in the prior year. Fiscal year to date operating loss was \$0.63 million compared to a loss of \$9.24 million for the first six months of the prior fiscal year.

For the quarter ended September 30, 2002, net loss was \$0.98 million as compared to a net loss of \$5.63 million for the same period in the prior fiscal year. Fiscal year to date net loss was \$2.66 million compared to a net loss of \$11.14 million a year ago.

Net loss per share was \$0.05 and \$0.15 for the quarter and six months ended September 30, 2002, as compared to a net loss per share of \$0.36 and \$0.71 for the quarter and six months ended September 30, 2001.

"This quarter the Company realized the financial benefits of the cost controls and changes that have occurred over the last twelve months as evidenced by recording an operating profit for the first time since the merger in December 2000," said Carlton H. Baab, president and CEO. "We have also seen year over year growth in the revenues of the Company and further improvement in the EBITDA, while we have continued to focus on and invest in product development. With the scheduled releases of updates to our existing products, successful implementation of a price increase during the second quarter and a continued focus on cost control, we look to maintain this positive momentum through the rest of fiscal 2003 and beyond."

The GOTO

Debate and Statement Labels

B Y M A R K J O H N S O N

No topic in programming offers up more area for debate than the use of the GOTO statement.

The art of programming is quite subjective to the techniques learned by programmers and how and when they use them. I've always observed programming to be a blank sheet of paper and we programmers have the same box of 64 crayons to create our masterpieces.

Many debates can be had for the use of different techniques. It appears that there's an opinion on virtually every method used to program. Fortunately (or unfortunately) if it compiles and gives the user what they want, then it's considered a complete program, regardless of what it looks like underneath the hood.

No topic in programming offers up more area for debate than the use of the GOTO statement. There are very outspoken programmers who stand on their soapbox and strongly declare that they NEVER use a GOTO and those that do must still drag their knuckles on the ground when they walk. There are those that incorporate the GOTO in their collection of otherwise useful programming tools to get the job done. And finally, there are those who never really caught on to the dynamics of contemporary language programming and continue to program what has been deemed "spaghetti code."

Without starting a holy war on GOTO's, let me first explore why GOTO's got such a bad rap. The first version of Basic, called Dartmouth Basic, and others that followed, did not allow for the multi-line IF..THEN..ELSE statement that we all enjoy. Those programmers had to branch around unwanted statements to resume the regular process. This leap-frog effect is probably the biggest reason GOTO's are hated as reading this code with our MV glasses, we can clearly see that the code could have been written with a multi-line IF statement.

BTW, PROCs have this same limitation and is probably another reason why this language is on the endangered species list. But that's another article.

Pre-MV Basic programmers also had to provide a line number for each line of code, not just those referenced by a GOTO or GOSUB. Thus, it was somewhat logical to branch to a numbered line beyond an unwanted numbered line to accommodate the IF limitations at the time. I'm sure many of you remember the RENUM command to renumber the program lines to allow for more to be inserted.

When these programmers got into the MV world, they brought with them this leap-frog theory, although they were glad to not have to number each line. Other pre-MV COBOL, RPG or assembler programmers were more disciplined in their approach to structured programming, partly due to the syntax of the code. Other later language crossovers like Pascal and/or C were the same discipline. This practice was the genesis of more structured MV programming that is easier to write and maintain.

I performed a casual survey on one of the popular user forums for MV and got a good amount of feedback regarding the GOTO's. Some slammed it completely, others regretted that they cannot eliminate them completely, while the majority consider them a useful programming tool if used with a degree of discipline and/or logic. One even recalled a professor teaching Basic that would give a student a zero if there was a GOTO in their code.

Those that dislike GOTO's tend to have all of their code separated into logical areas as internal or external subroutines. Both allow the RETURN statement to cause an early exit instead of using GOTO's to skip

past lines of code. Their continued avoidance of GOTO has caused them to depend upon many levels of nested LOOP.REPEAT or IF.THEN..ELSE to segregate their logic. This too can be over-used as sometimes there may be hundreds of lines between a LOOP and its matching REPEAT. This becomes hard to maintain unless you print out the program and lay it out on a conference table.

Those that incorporate GOTO's seem to be aware of the slings and arrows from the anti-GOTO crowd and use GOTO's sparingly and with a certain sense of logic. Their code seems to be a good combination of GOSUB's and GOTO's when necessary. Supporting this is a standard set of label nomenclature that is consistent from one program to the next.

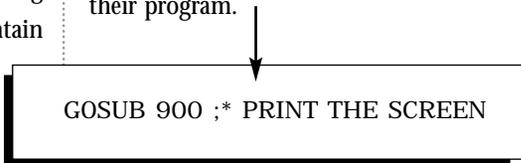
As a programmer, I know that when I read a 20 line section of code, if I see a statement label within those 20 lines I begin to wonder what other part of the program is referring to it. Often times, I go to the top of the program, do a global locate and breathe a sigh of relief when the label isn't referenced. That's one less element of logic I have to consider.

If it's referenced only once from within a few lines of itself, I take a quick glance to see if that logic can be reduced to a multi-line IF statement and then I'm not distracted the next time I visit that program.

This brings me to the next related topic, statement labels. In days gone by, and still some native MV installations, you could only use numeric statement labels. When alphabetic labels were introduced, it brought about a new technique of labeling program areas with their logical purpose. Thus GOSUB 900 could be replaced with GOSUB PRINT.SCREEN and the pro-

grammer could naturally follow the logic from all areas of the program instead of having to find label 900 to see what the GOSUB is doing.

Some programmers defend numeric labels as they could easily have scattered about their program.



```
GOSUB 900 ;* PRINT THE SCREEN
```

One of the suggestions for using numeric labels is to keep the labeled sections in numerical order. This way as you review an 800 line program, you would know that label 250 comes after label 200 and before label 300. Some programmers further develop this theory as they have sections of their programs separated with numeric labels every 1000. Thus the 1000 area may be for housekeeping, 2000 for inputs, 3000 for validations and 4000 for updating. Labeled lines within each 1000 section will be x100, x200, x300 etc.

More support for numeric labels comes in the form of being consistent with the number chosen to represent specific values or functions. In a many-field maintenance program with no 4GL support, you could have the 15 fields labeled 10,20,30,40, etc. and then you can use the ON ANS GOSUB 10,20,30,40 and hopefully they match the real edited field number. Having ON ANS GOSUB NAME, ADDR1, ADDR2, CITY, STATE is a little more difficult.

While numeric labels lend themselves to being used in a numeric priority, alphabetic labels may not enjoy this luxury. I've never seen, although I've heard of, programmers moving around program blocks

Continues on page 44

THE XML

BY STEVE VAN ARSDALE

MultiValue and XML A Natural Fit

XML is not as complicated as the world thinks it is. At least, not for you.

*True, it's not exactly snap, crackle, pop, but close. More like **Map, Flap, and Snap**.*

MAP the sources and destination of the data.

FLAP the map onto the data, preferably in classy little attribute-defining-item correlatives.

SNAP the interface into place ... and use a TCL command to generate XML documents.

Let's discuss how, and how easy.

Just what is XML anyway? Technically, and philosophically, other folks have explained it better than it can be done here. I recommend <http://www.w3.org/XML/> as the definitive place to start.



For those of us lacking the time and the patience to take a tutorial on the “eXtensible Markup Language,” XML is: an ASCII text format for data. Each field of data has a unique start label and end label enclosed in wedges like this: `<label>`. The end label is the start label with a forward slash in front of it, `</label>`. Same basic idea as EDI. Except that XML and all of its derivatives have one fundamental and extraordinarily compelling feature. Namely, that the definition of each label is embedded in the beginning of the document.

What a concept: Every valid XML document carries the instructions on how to read itself. Here's a sample:

```
<?xml version = " 1.0" ?>
<!-- filename:TEST.FILE dictionary:DICTION TEST.FILE -->
<!DOCTYPE DOCUMENT [
<!ELEMENT ITEM (attributes)*>
<!ATTLIST ITEM ID CDATA #REQUIRED>
<!ELEMENT attributes (ID) >
]>
<DOCUMENT>
  <ITEM ID=" 907310" >
    <CUST.NO>10967</CUST.NO>
    <DATE>08/17/68</DATE>
    <SKU>1881</SKU>
    <QTY>1</QTY>
  </ITEM>
  <ITEM ID=" 917310" >
    <CUST.NO>10811</CUST.NO>
    <DATE>09/05/68</DATE>
    <SKU>1903</SKU>
    <QTY>3</QTY>
    <QTY>9</QTY>
    <QTY>8</QTY>
  </ITEM>
</DOCUMENT>
```

The actual data resides between the <DOCUMENT> and </DOCUMENT> labels. The stuff at the beginning is a very simple DTD, or Document Type Definition. It says that the following XML document follows the ANSI W3C standards. Moreover, the document contains ITEMS. And that each ITEM has to have an ID, and may have one or more attributes.

Very cool. The DTD tells a program that reads the XML document, or a "parser," how to do its job. Try it out; when this text is stored in a file with an extent of .xml, and the file is opened with Internet Explorer, the IE browser displays the data in a standard menu format. The browser understands enough about your data with this simple DTD to open and close items with a mouse click.

Imagine. No more grubby three-ring binders of field labels and definitions, most obsolete. No endless searching to

Continues on page 22

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```

<?xml version = " 1.0" ?>
<!-- filename:TEST.FILE dictionary:DICTIONARY:TEST.FILE -->
<!DOCTYPE DOCUMENT [
<!ELEMENT ITEM (attributes)*>
<!ATTLIST ITEM ID CDATA #REQUIRED>
<!ELEMENT attributes (ID, BRAND, COST, CUST.NO, DATE,
ITEMID, MARKET, NEW.ITEMID, PRICE, QTY, SKU, STYLE) >
<!ELEMENT BRAND (#PCDATA)>
<!ATTLIST BRAND
    amc NMTOKEN #FIXED " 6"
    conv CDATA " (raw)"
>
<!ELEMENT COST (#PCDATA)>
<!ATTLIST COST
    amc NMTOKEN #FIXED " 5"
    value CDATA #IMPLIED
    conv CDATA #FIXED " MD2$"
>
<!ELEMENT CUST.NO (#PCDATA)>
<!ATTLIST CUST.NO
    amc NMTOKEN #FIXED " 1"
    conv CDATA " (raw)"
>
<!ELEMENT DATE (#PCDATA)>
<!ATTLIST DATE
    amc NMTOKEN #FIXED " 2"
    conv CDATA #FIXED " D2/"
>
<!ELEMENT ITEMID (#PCDATA)>
<!ATTLIST ITEMID
    amc NMTOKEN #FIXED " 0"
    conv CDATA " (raw)"
>
<!ELEMENT MARKET (#PCDATA)>
<!ATTLIST MARKET
    amc NMTOKEN #FIXED " 7"
    conv CDATA " (raw)"
>
<!ELEMENT NEW.ITEMID (#PCDATA)>
<!ATTLIST NEW.ITEMID
    amc NMTOKEN #FIXED " 0"
    corr CDATA #FIXED " F;Or;C*;NV;C1;-;::;"
    conv CDATA " (raw)"
>
<!ELEMENT PRICE (#PCDATA)>
<!ATTLIST PRICE
    amc NMTOKEN #FIXED " 5"
    value CDATA #IMPLIED
    corr CDATA #FIXED " A;N(QTY)*N(COST)"
    conv CDATA #FIXED " MD2$"
>
<!ELEMENT QTY (#PCDATA)>
<!ATTLIST QTY
    amc NMTOKEN #FIXED " 4"
    value CDATA #IMPLIED
    conv CDATA " (raw)"
>
<!ELEMENT SKU (#PCDATA)>
<!ATTLIST SKU
    amc NMTOKEN #FIXED " 3"
    conv CDATA " (raw)"
>
<!ELEMENT STYLE (#PCDATA)>
<!ATTLIST STYLE
    amc NMTOKEN #FIXED " 8"
    conv CDATA " (raw)"
>
]>

```

```

<DOCUMENT>
<ITEM ID=" 333510" >
<CUST.NO>10633</CUST.NO>
<QTY value=" 1" >5</QTY>
<QTY value=" 2" >6</QTY>
<QTY value=" 3" >7</QTY>
<QTY value=" 4" >9</QTY>
<QTY value=" 5" >6</QTY>
<QTY value=" 6" >1</QTY>
<QTY value=" 7" >5</QTY>
<QTY value=" 8" >5</QTY>
<QTY value=" 9" >2</QTY>
<QTY value=" 10" >9</QTY>
<COST value=" 1" >$19.46</COST>
<COST value=" 2" >$12.71</COST>
<COST value=" 3" >$19.37</COST>
<COST value=" 4" >$11.68</COST>
<COST value=" 5" >$13.88</COST>
<COST value=" 6" >$13.10</COST>
<COST value=" 7" >$19.60</COST>
<COST value=" 8" >$12.37</COST>
<COST value=" 9" >$17.34</COST>
<COST value=" 10" >$10.75</COST>
<PRICE value=" 1" >$97.30</PRICE>
<PRICE value=" 2" >$76.26</PRICE>
<PRICE value=" 3" >$135.59</PRICE>
<PRICE value=" 4" >$105.12</PRICE>
<PRICE value=" 5" >$83.28</PRICE>
<PRICE value=" 6" >$13.10</PRICE>
<PRICE value=" 7" >$98.00</PRICE>
<PRICE value=" 8" >$61.85</PRICE>
<PRICE value=" 9" >$34.68</PRICE>
<PRICE value=" 10" >$96.75</PRICE>
</ITEM>
<ITEM ID=" 330610" >
<CUST.NO>10198</CUST.NO>
<QTY value=" 1" >8</QTY>
<QTY value=" 2" >7</QTY>
<QTY value=" 3" >9</QTY>
<QTY value=" 4" >6</QTY>
<QTY value=" 5" >8</QTY>
<QTY value=" 6" >3</QTY>
<QTY value=" 7" >7</QTY>
<QTY value=" 8" >7</QTY>
<QTY value=" 9" >9</QTY>
<QTY value=" 10" >8</QTY>
<COST value=" 1" >$19.74</COST>
<COST value=" 2" >$19.00</COST>
<COST value=" 3" >$12.33</COST>
<COST value=" 4" >$18.32</COST>
<COST value=" 5" >$12.05</COST>
<COST value=" 6" >$11.76</COST>
<COST value=" 7" >$17.94</COST>
<COST value=" 8" >$19.66</COST>
<COST value=" 9" >$15.97</COST>
<COST value=" 10" >$14.42</COST>
<PRICE value=" 1" >$157.92</PRICE>
<PRICE value=" 2" >$133.00</PRICE>
<PRICE value=" 3" >$110.97</PRICE>
<PRICE value=" 4" >$109.92</PRICE>
<PRICE value=" 5" >$96.40</PRICE>
<PRICE value=" 6" >$35.28</PRICE>
<PRICE value=" 7" >$125.58</PRICE>
<PRICE value=" 8" >$137.62</PRICE>
<PRICE value=" 9" >$143.73</PRICE>
<PRICE value=" 10" >$115.36</PRICE>
</ITEM>
</DOCUMENT>
(end =/srv)

```

find the label you want, or to document the new one. No more years of waiting for the ANSI committee to publish the format you need, or to add the field that would make it work. Most important: no more busted programs and data rejected because the input program choked on an unknown field label.

Microsoft and a few other leading-edge companies are promoting a more powerful DTD, called a schema. Under their plan, the schema for an XML document will reside anywhere in the World Wide Web; all that the XML document will contain is a URL, or Web address. Sort of begs the question about whether all computers will be attached to the Web, but that's apparently a "given" for these vendors. In any case, DTD or schema, XML fulfills the requirements of disparate systems.

So when your kiddies grow up to be cowboy programmers, companies will all talk with each other in XML. Programs may still communicate in SQL, and down on the network level, systems will communi-

cate in TCP, that other equally inefficient-but-common denominator, but up on the application level where the actual work gets done, we'll all exchange data in XML.

A long time ago, while working on a team with a high-ticket consulting firm, I was taught that consultants can tell you what you can do. Or for a little more money, what you should do. But with a little more time they can tell you what you will do. Feels good to get a chance to do that once in a while.

Because just in case you haven't heard the really good news: All over the world, the debate is raging about an effective XML repository. Guess what: XML was tailor-made for MultiValue. It's uncanny. When one reads the historical, technical, and philosophical history of XML, one learns that because XML was created by practitioners (meaning real people, doing real work), XML is very practical. So XML embraces a fact of the universe: **People Have Two Phone Numbers. And Buy More Than One Thing.**

OK, maybe that's two facts. Anyway, in contrast to every other mainstream technology that I have encountered, XML handles Multi-Values as a matter of course. Like it was made for it. The example on page 22 proves it.

So how do you take advantage of this cozy coincidence? One way is to bundle XML into the latest and greatest flavor of MultiValue, and call it a new feature. Bundle in a few lines of code written by a third-party, and call it new. Charge folks a few bucks more, for something that is intrinsically already a part of MV. This is the famous MultiValue market-engineering tradition.

Or you can simply write your own program for XML. By way of experiment, there is a simple XML generator that can be written on just about any MultiValue system. XML becomes a simple TCL or ECL command with a syntax in the standard SMA format:

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BY MARK JOHNSON

English

(Recall/Access/UniQuery etc)

Reports in Data/Basic

WHILE MUCH EFFORT IS SPENT TO HAVE the MV query language (MQL as English, UniQuery, Access, etc.) be responsible for the majority of columnar reports, and we concentrate on designing our data files for this goal, many reports need to be done within Data/Basic (DB) in order to calculate complex values or to bring in data from other files. We all know the frustration when we turn that corner and the existing MQL report cannot be enhanced any further and must be converted to DB.

We've all perfected our own ways of controlling breaks and creating columns in DB to simulate the readability of MQL. On most MV systems, DB HEADING and FOOTING statements imitate their MQL counterparts. It's up to us to code the proper spacing and contents of the columns being output.

In my travels I have seen some confusion on the best way to handle the preparing of columnar data. One such report that causes some confusion is an A/R aging report and I'll use it as an example of this article's topic.

Granted, you could produce an aging report using regular MQL but if the customer has 25 open items, then their CUSTNO field would be repeated 25 times as well as any translated customer information as shown on report A. The report should appear like a MQL report with the customer information showing up at the top line of their invoices (or perhaps recurring throughout their long-winded aging, or perhaps at the beginning of each new page) as on report B.

Report A:

CUSTNO	CUST-NAME	INVNUM	DATE	AMOUNT
123123	FRED COMPANY	111111	03/01/02	100.00
123123	FRED COMPANY	222222	05/01/02	50.00
123123	FRED COMPANY	333333	09/01/02	100.00
etc				

Report B:

CUSTNO	CUST-NAME	INVNUM	DATE	AMOUNT
123123	FRED COMPANY	111111	03/01/02	100.00
		222222	05/01/02	50.00
		333333	09/01/02	100.00

Mark Johnson is a 23+ year veteran of the MV database and has worked on a variety of implementations. He specializes in maintaining and enhancing legacy systems and is available for contract, short and long term programming projects in the New Jersey, New York and Eastern Pennsylvania areas. He can be reached at majprogramming@com-cast.net

Often there's a few customer fields that want to be displayed but you would run into the same problem in Report A because each A/R record would retrieve the same values for each same customer. What we would like to see is Report C:

As you process each invoice for that customer you can have the following code for the print line:

Then, the entire CUSTINFO block, saved in HOLDCUSTINFO would start over again. If you're really clever, you can detect

```
PRINT CUSTINFO<1>>"L#37":" ":INVTNUM"L#6":" ":INVTDATE"L#8":" ":INVAMT"R#8"
DEL CUSTINFO<1>>
```

Report C:

CUSTNO	CUST-INFO	INVNUM	DATE	AMOUNT
123123	FRED COMPANY	111111	03/01/02	100.00
	123 MAIN STREET	222222	05/01/02	50.00
	ROCHESTER, NY 12345	333333	09/01/02	100.00
	PHONE: 123-123-1234			

the start of a new page and re-instate CUSTINFO.

If you've accumulated two or more blocks of data, let's say LEFT, MIDDLE and RIGHT, you can properly format each

Clearly this is a more readable report with the complete customer information in its column on the left and each detail row on the right. Note that for this customer, his INFO block has more lines than he has invoices. Some customers may have many invoices or only one invoice. The output should look the same.

```
LOOP UNTIL LEFT:MIDDLE:RIGHT="" DO
PRINT LEFT<1>>"L#30":" ":MIDDLE<1>>"L#28":" ":RIGHT<1>>
DEL LEFT<1>> ; DEL MIDDLE<1>> ; DEL RIGHT<1>>
REPEAT
```

I've seen over-written methods to coordinate the printing of these two sections of data. One of them keeps track of an invoice counter and if it is equal to 1,2,3, it prints out the corresponding customer field. It gets tricky as the break-on customer with its underlines needs to keep track of the invoice counter regardless of the count of invoices.

When you have more invoices than CUSTINFO lines, the program will continuously print the first attribute of an empty variable left justified in 37 spaces, resulting in an indent. If there's only one invoice for that customer, you can have the following code just prior to the total line or incorporate the same PRINT and DEL logic at the total line:

within its own columns and when the time comes to print them, you use this logic:

This will save you from coding three DCOUNTs and determining the highest one to give to a printing loop.

A final trick for simulating MQL output is when one of the zoned columns has only one value. You can cycle that variable through a FOR.NEXT loop without having

```
LOOP UNTIL CUSTINFO="" DO ; PRINT CUSTINFO<1>> ; DEL
CUSTINFO<1>> ; REPEAT
```

to use logic to know whether you're on the first value or not.

The solution is to treat each section as a separate report. Upon reading in the first invoice for each customer, you should create a variable called CUSTINFO where you can stuff whatever information you wish. If someone requests to add the YTD-SLS or CREDIT-LIMIT values to this area, it will be no problem. Simply have each attribute of CUSTINFO contain the desired info.

If CUSTINFO was used up during the detail line printing, the LOOP statement will still handle it properly.

```
READ CUSTREC FROM F.CUSTOMER, CUSTNO ELSE STOP
NAME=CUSTREC<1>> ; INVS=CUSTREC<33>
C=DCOUNT(INVS,CHAR(253))
FOR I=1 TO C
PRINT CUSTNO"L#6":" ":NAME"L#30":" ":INVS<1,I>
NEXT I
```

If you have customers with many pages of open A/R items, the CUSTINFO data will have been exhausted on the first page the customer appeared. Thus, you may wish to include an invoice counter and the following code

While the variables CUSTNO and NAME were never intended to be multi-attributed or multi-valued, they still can be processed as if they were to give the desired results without deleting the real value of CUSTNO or NAME as they might be needed later. Since all variables are dynamic

This routine would be exercised at the start of each new customer. Here's an example:

```
READ CUSTREC FROM F.CUSTOMER, CUSTNO ELSE CUSTREC=""
CUSTINFO=CUSTNO"L#6":" ":CUSTREC<1>
CUSTINFO<-1>=SPACE(6):" ":CUSTREC<2>
CUSTINFO<-1>=SPACE(6):" ":CUSTREC<3>
CUSTINFO<-1>=SPACE(6):" ":"PHONE:" :CUSTREC<8>
HOLDCUSTINFO=CUSTINFO
```

```
IF MOD(INVCTR,25)=0 THEN CUSTINFO=HOLDCUSTINFO
```

arrays as well, you can reference subsequent attributes and use the null value that's there anyway. is

And so on.



Raining Data™

***Implements
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Market Initiative
with the Release
of the Developer
Version of
TigerLogic
XDMS 1.0
for Windows 2000
and Windows XP***

Q *What has been the main focus at Raining Data during the last year? What's your corporate mission?*

A During the past year, the Company has gone through many changes. In August of 2001, we began the process of developing a new management team to refocus and lead the Company in a positive direction. This team included the strongest members of the existing management and new individuals with track records of growth and success. This team has worked to improve many areas of the Company including product development, customer support, finance and operations. This has allowed us to get back to the basics of doing business—focusing on our customers and products. In addition, we've developed and released new products, extending the capabilities of our core technologies.

Our corporate mission is to become a leading provider of e-Business and Web service infrastructure technology to application solution providers. The Company strives to be the provider of choice in the markets in which we compete, leveraging our product base and technology in the database, development tools and XML arenas.

Spectrum magazine talks with Raining Data's Mario Barrenechea, senior vice president, Sales and Marketing, about how it has gained momentum the past year, and the forecast for its product lines and future direction.

Q *What major developments have taken place recently?*

A The Company has made major strides since the management changes began in 2001. By adopting best practices in the software industry, we've improved our product development cycle. Our focus on customer service and product development has led to updates and new releases throughout our product line including D³, mvEnterprise, mvBase, FlashCONNECT and Omnis Studio. In addition, we are expecting major releases of D³ 8.0 and mvEnterprise 5.0 in the coming months. These new releases were designed to meet the needs of our customers and extend our technology through additional features and functionality.

Recently, we announced our major new market initiative with the release of the developer version of TigerLogic XDMS 1.0 for Windows 2000 and Windows XP. This new product line allows the Company to leverage its core Pick technology to bring to market enterprise-grade XML data management server capabilities that provide up to 10+ times performance improvements for query operations.

Q *What product lines does the company now offer?*

A Raining Data offers four product lines that include:

- ◆ The high-performance TigerLogic XML Data Management Server (XDMS), which provides flexible, scalable, and extensible storage and retrieval of critical business data across a variety of structured and unstructured information sources, deliver-

ing scalability and transactional integrity of enterprise databases as well as dynamic extensibility and ease of use, mostly found in repositories and file systems

- ◆ Our D³, mvEnterprise and mvBase family of powerful Pick-based hierarchical multi-dimensional database management systems that are the choice of thousands of application developers worldwide

- ◆ mvDesigner, the object-oriented rapid application development (RAD) tool developed for use with multi-dimensional database applications

- ◆ Omnis Studio, a powerful, cross-platform, object-oriented RAD tool that is well suited for developing sophisticated thick-client, Web-client or ultra thin-client database applications

Q *What products is the company working on right now to release in the coming months?*

A The Company continues to invest in its core Pick technology. This investment is leveraged to provide benefits to the TigerLogic XDMS business as well as our core database and developer productivity tools businesses.

In addition, we are planning to deliver major functional enhancement releases to our TigerLogic XDMS high-performance software platform and our database products, D³ 8.0 and mvEnterprise 5.0, which incorporate significant enhancements in functionality, new features, and extended capabilities. We are also introducing OpenMV, which provides an open standard middleware interface for our mvEnterprise and D³ databases, and SysAdmin, a new system administration tool that allows maintenance of our databases in a user friendly, graphical environment.

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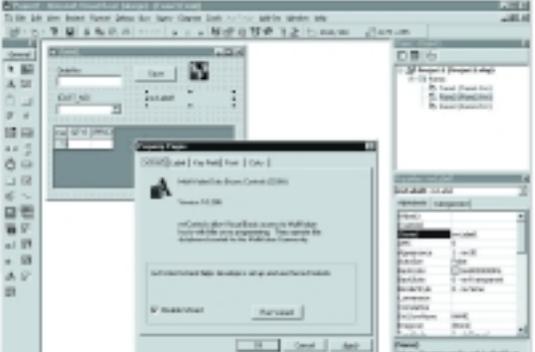
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Raining Data

Continued from page 27

Q *How do the Omnis products complement the company's other products like D³?*

A Our new Omnis Studio 3.2 version delivers a major leap forward for solution providers, Web developers, and systems integrators with its unique and revolutionary Web-client browser plug-in, fast and scalable application server, and extensive server database connectivity features. In development are new features for the next Major Release for Omnis Studio, version 4.0. The product that brings Omnis Studio technology to our core database technology is mvDesigner, which is an enhanced version of Omnis Studio. mvDesigner empowers BASIC developers by taking advantage of all the inherent features of the Omnis Studio RAD without losing the flexibility and power of the programming language or any of our D³, mvEnterprise, and mvBase database characteristics.

Additionally, the recently announced TigerLogic XDMS is a high-performance software platform that provides extensible, scalable and fine-grain storage, search, and retrieval of critical business data across a variety of structured and unstructured information sources. The product delivers enterprise-grade reliability, scalability, XA-compliant transactional integrity, on-line backup and recovery, scalable indexing and dynamic storage extensibility required for 24 x 7 operations with virtually unlimited size of data stores. The product is based on open standards, including compliance with J2EE Connection architecture (JCA), World Wide Web Consortium's (W3C's) XML Schema, XSLT, SOAP and XPath specifications.

Q *What direction is the company headed in the next six months? Are there any current market trends that Raining Data is planning to capitalize on?*

A As mentioned, the Company continues to invest in its core Pick technology. We are committed to the ongoing

development and support of our existing products and customer base, and by investing in our core technology, we can realize benefits across all of our product lines.

We are excited about the opportunities as we enter the XML market and roll-out our TigerLogic XDMS product. We are also enthusiastic about the major updates to D³ and mvEnterprise. In addition to these product development efforts, we continue to focus on creating value for our customers through enhancing our products and customer support services.

Q *What are the long-term goals for the company and how will Raining Data achieve them?*

A We are committed to our customers. We are here to listen to them, support them, and provide them with the products they need to be successful. Our core technology products offer a strong software infrastructure and solid foundation for application development. Our goal is to provide superior support to our customers with our products, and to

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Q *What are the latest available financial figures? Is the company profitable right now? What's the overall plan to maintain financial stability?*

A Our latest financial figures are posted in our most recent 10-QSB and financial press release, which is available on our Web site at www.rainingdata.com.

The Company has seen significant improvement in its financial results during this past year as evidenced by our latest earnings announcement in which the Company achieved its first operating profit since the merger of Pick and Omnis in 2000. We have also seen an improvement in our EBITDA figures, which we feel is a true measure of the Company's performance and its ability to generate positive cash flow. Details of our financial results can be found in our press releases as well as our 10-KSB and 10-QSB filings with the SEC. These results are positive, however, we must continue to build on that positive momentum and maintain the progress that has been made, with continued focus on cost control and strategic investments into personnel and product development. is

For partner sales information in North America, please contact Mario I. Barrenechea, senior vice president, Sales & Marketing at mario.barrenechea@raininglata.com.

For Product, Marketing and Press information, please contact Boris Geller, vice president, Market Development, at boris.geller@raininglata.com.

For investor and financial information, please contact Brian C. Bezdek, vice president, Finance, at brian.bezdek@rainingdata.com.

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CHARLES STAUFFER is CEO of ONgroup, a new company joining ONCorp, Blacksmith and Cuebic.

ONgroup is the newest player in the MultiValue league with the recent merger of ONCorp (sister company to Blacksmith Corp.) and Cuebic Inc. Once competitors, these two companies have joined forces as ONgroup, a company focusing on providing lower-stress, lower-cost migration from MultiValue environments to Oracle and other relational databases. Charles Stauffer, formerly head of ONCorp/Blacksmith, is now the chief executive officer of ONgroup, and Tim Spells, who led Cuebic, will serve as chief operating officer. They spoke with *Spectrum* about the market forces that transformed them from competitors to teammates.

Both companies provided 4GL application development and productivity tools. Through ONCorp, Blacksmith was already forging a path to Oracle for MultiValue users. The MVON product is a MultiValue environment that runs on any database and also runs on any network, whether host-centric, thick client, three-tier, or application server. BLACKSMITH is a fourth generation development tool and operating environment offering a graphical user interface and database independence, meaning that an application developed in BLACKSMITH is compatible with Oracle and other relational products as well as the various MultiValue database management systems. BLACKSMITH also supports Macintosh, character and Windows formats.

Cuebic's line of products includes a suite of application and productivity

tools — 4GLs, security, batch processing, report writing, documentation and operations tools. About five years ago, Cuebic began to shift its focus away from the MultiValue industry and more on the Internet, building portal sites. "Around 1996, we surveyed the MultiValue marketplace and found that most customers had plans to be out of the MultiValue world and into the relational world," Spells said. "We determined there was a limited future in the PICK marketplace. With the Internet being the big wave, we went into the Internet field."

Then in 2000, the Internet bubble burst, hitting smaller companies especially hard, he said. "In 2000, we looked at MultiValue and all the companies were still on it; however, they may have spent millions to re-engineer. So we refocused our MultiValue efforts to help move them to mainstream standards."

This is where ONCorp, with its ONware product, fit in well with Cuebic's game plan. From their vantage point in the MultiValue industry, Stauffer and Spells say they saw the same trends shaping their market: MultiValue database users who wanted to migrate to Oracle or other relational databases, but in the process, had a difficult time, to say the least. "We have large accounts, each with a few hundred users on their systems, who wanted to migrate to Oracle," Spells said. "In the last five or six years, there have been some horrendous situations where companies tried to re-engineer or buy a software package to move to a relational database. They spent millions to re-engineer and haven't been successful or achieved the same business functionality of their MultiValue applications."

Continues on page 32

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ONgroup

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Stauffer concurs, adding, "A great number of companies in the MultiValue world are eager to replace existing software with a relational database but retain MultiValue capability. Most are happy with the way their MultiValue applications work. They just want to be part of the mainstream and not feel so isolated."

If Cuebic and ONCorp could be termed a marriage, then ONware is the "brainchild." ONware is the focal point of the new company, and is the key for companies who want to move to a relational database while maintaining all the functionality of MultiValue applications. It was ONware that sparked the merger, as Cuebic saw that the product would appeal to its customer base.

"ONware allows you to migrate from a MultiValue database to a relational database like Oracle," Spells said. "Through this merger, we are able to offer that to our market and the MultiValue market in general. ONware allows you to migrate without having to rewrite the applications. MultiValue applications are converted to ONware, and once converted, there's no need to use a MultiValue or a post-relational database. These programs can now actually reside on a relational database such as Oracle or DB2.

"All the screens still look the same," he added. "The organization can still develop in their MultiValue language or develop and enhance the MultiValue application with relational tools such as Microsoft, DB2, Java, and .NET."

With ONware, ONgroup is betting that its customers will like the fact that they really can have the best of both worlds: MultiValue and relational. Recalling his experience with Cuebic's large accounts that had disastrous and expensive results when trying to migrate, Spells said, "Our solution

costs a 20th of the investment they were looking at — without re-engineering or buying a packaged solution."

Now that Cuebic and ONCorp are on the same mission, they are bringing everything — products and employees — together under the ONgroup banner. The merger doubles the company in revenue and personnel. "Cuebic, Blacksmith, and ONCorp will be shutting down operations, and the operating company will now be known as ONgroup," Stauffer explained. "ONgroup accepts all obligations of the three companies and joins the assets, including employees."

ONgroup is an equal partnership between Stauffer and Spells, and is privately held. According to Stauffer, Spells is handling the business end of ONgroup including marketing, sales and administration, while Stauffer leads the technical side of the business. ONgroup headquarters is in Atlanta, Ga., and other offices are located in Ventura, Calif., the U.K., and Australia.

According to Spells, there is a high-level of awareness within Oracle of this migration trend. "One of the things we did when we were in the Internet world, was form strategic relationships with Oracle," he said. "We talked about the big MultiValue accounts that had made efforts to migrate and the millions of dollars that were being spent. Oracle became interested. They are devoting resources and backing ONgroup as a Value-added Distributor to the MultiValue marketplace. We resell the Oracle database and tools bundled with ONware. The end result is, we're providing a MultiValue-enabled version of Oracle."

With the dust settling after the merger, ONgroup is poised to bring ONware to the forefront of the effort to ease the migration from MultiValue to relational. And in doing that, there's a new team to watch in the MultiValue league. **is**

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BY MELVIN SORIANO

Sniffing Around

Where Do Hackers Begin?

In the last issue of Spectrum magazine, we talked about the simple reconnaissance techniques used by hackers to breach your security.

In many cases, straightforward human deception can reveal or expose a system to unauthorized access.

This time, we'll begin looking at ways you can study your system from a more technical perspective. Of course, these same techniques are also applicable to hackers out there, but you've got to look at obvious places for outside infractions. In this issue, I'd like to go over the use of port scanners and sniffers and see how these passive tools can help you analyze your network.

A port scanner is a program that looks at a computer's TCP/IP stack. Just to be sure it's clear, let's review what it is that the port scanner is looking at. A TCP/IP stack is the cumulative set of protocols needed for two computers to communicate. Many people think of this stack as a series of layers. Going from the highest level to the lowest, the layers are: application, presentation, session, transport, network, address resolution, and physical. Data leaves a computer starting at the highest and progresses to the lowest layer; data arrives at a computer starting at the lowest and progresses to the highest layer. Application, presentation and session are usually considered top level protocols while the other details are network protocols.

On each computer that would like to communicate with other computers, there will be a series of ports. What's a port? It's a virtual, but specific, destination on a computer where a designated service is occurring. Think of a computer as a zip code and a port number as the address where a business is in operation. It's actually niftier than zip codes, though, as the same ports are usually in use across almost all TCP/IP connected machines. Commonly defined, or "well known" ports are:

- ◆ 80 Hypertext Transfer Protocol (http)
- ◆ 443 Secure Hypertext Transfer Protocol (https)
- ◆ 23 Telnet
- ◆ 22 Secure Shell (SSH)
- ◆ 21 File Transfer Protocol
- ◆ 25 Simple Mail Transfer Protocol (SMTP)

Now, TCP/IP supports 65,535 ports but only the first 1023 are privileged. You usually need to be a system administrator to affect these ports. Next, ports up to 49151 are registered ports, for applications that need standardized access on the system. The ports above that point are treated as dynamic and private ports, with little support from the network.

Given the huge range of ports available, it should be fairly apparent that unless you have some monstrous computer server, most of the services are not going to be in use. Most computers on the Internet run using just the well-known ports.

So, when a computer wants to request some service from some other computer, it must specify the destination and the method of transport. Usually, we think of the destination as that Internet address; many of us would easily recognize the IP

number as four sets of a number between 0 and 256, all separated by periods. As for the transport method, that's usually TCP/IP but it can be something called User Datagram Protocol, or UDP. UDP is used less often, largely because it's not particularly reliable, but, well, it is rather easy to implement.

Now, when a computer requests service, it specifies the destination machine and port. The destination responds with an acknowledgement that it received the request and a queue for the connection. The source computer then responds with its own acknowledgement, which allows the connection between the two servers to actually open. It's a three-part handshaking process. Technically, the three parts can be described as a) the initial computer sends a SYN packet and tracking number, b) the destination computer replies with a SYN packet and its own

Continues on page 38



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tracking number, and c) the initial computer replies with an ACK packet and the second tracking number incremented by one.

That's a lot of work to do before you even exchange data!

After all that, however, you do have a full duplex transmission. And it will continue until the data communication between the two becomes habitually corrupted, or the connection times out, or one of the computers initiates another three-part handshake, this time with FIN termination requests instead of the SYN synchronization requests.

For all this to occur, the port has to be "open" or activated to communicate. A computer that receives a request for a closed port will discard that request. An open port looks first for RST reset packets, then for ACK acknowledgement packets, and finally for SYN synchronization packets.

Back to port scanning. A port scanner looks at the TCP/IP stack and tries to find all the ports that

are listening for information. Different types of port scanners can be found, including many open source programs. I'm going to discuss generic features of what these scanners can do.

The easiest option is usually to just scan the whole computer. Of course, if you were trying to protect yourself from a port scanner, you'd probably try to stop this scanning technique from unauthorized computers. A

serious hacker probably wouldn't use a blunt instrument like this.

More subtle options include sending a FIN or a SYN packet, as though a communication was being terminated or synchronized. The destination computer responds as expected and can reveal that a service is on that port.

Now, the things I just described are rather passive in their approach. A port scanner can actually be more malicious. The port scanner could actually allow you to manipulate and configure the header of the TCP/IP packet. This will trick the destination computer into thinking that the packet comes from another location or is intended to do something rather mundane. On a poorly set up system, such manipulated packets could be used to insert malicious code, such as Trojans and bad overflows.

A packet sniffer doesn't even have to address your ports specifically, like a port scanner does. One can frequently determine the operating system of a destination computer by simply looking at the packet emanating

from the computers themselves. Different operating systems have different characteristics. For example, Windows NT usually has packets of 44 bytes while Linux has packets of 60 bytes.

Just determining the operating system or the services running of course doesn't mean that someone has broken into your system. However, it can be rather revealing. Look at the example services I listed.

Let's say a hacker can determine from port scanning and sniffing that you're running a Web server on port 80, that you're running on Windows NT and that you have some secure Web service running on port 443. The hacker may also notice that you have telnet available on port 23.

It won't take long for the hacker to start exploiting common weaknesses at these particular spots.

Now, if you had the option to configure these ports, you might want to configure them to run on alternative ports. You may need to alter how others or your employees access the networks, but you will at least be running off of the most well known ports and add a small layer to dissuade less persistent hackers.

In future articles, we'll look at some of the most common exploits once a hacker starts peeking at your computer. is

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IMHO

Continued from page 23

*XML filename item-list WITH sel-criteria
BY sort-criteria USING dictionary attr-
list (options)*

The program will generate an XML document, fully compatible with Microsoft browsers and all other XML-compatible software, stored in the target file dictionary as "XML.DOC". For an example, see the text on page 22.

The actual MultiValue XML generator program is very simple. First the XML program converts the command into a sort select and executes it. Then the program calls a subroutine that executes another program to analyze the dictionary attribute definitions, **MAPping** a simple DTD. Next the program **FLAPs** the DTD onto the data, constructing an XML item from each MV item. Then **SNAP**, the program

writes the DTD and the complete XML document to the dictionary of the file, to be copied to any networked system.

The programs themselves are a bit too long to be printed here, and in any case, you want them in electronic form to import. For the complete source code, send me an email at steve@vanarsdale.com, and I'll send a copy of the program code that generated the following XML document (or another program that produces a more comprehensive DTD containing attribute definitions, conversions, and correlatives for the attributes). In any case, this is a no-strings attached offer; you should take it, even if only to orient yourself. XML is the language of the future... "linga franca" according to one noteworthy MV expert. It's as natural as multi-value,

and just as obvious. Proponents say that eventually XML will replace EDI, and be used by everything and everybody, including you.

Let's hope that it doesn't take as long as it's taking MultiValue. Arguing with conventional database people about MV is still fun but it's getting a little boring. At the end of the debate, MV gets the trophy, but the other guy goes home with the prom queen. At least with XML, you're already dancing with her. The rest of the world are already MV users, and just don't know it. IMHO =/srv

S T E V E V A N A R S D A L E

is a contract project manager and multi-value advocate working near Chicago. He can be reached at steve@vanarsdale.com.

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THE GOTO DEBATE

Continued from page 19

so that the alphabetic label sections are themselves in alphabetic order for ease of editing. System usage and I/O never were a problem and are certainly not a problem now.

Other versions of Basic allow each subroutine to be a separately edited area of the program while still being part of the main program. Thus, using their editor, you can see the names of these routines in alphabetical order and choose which one to edit in a new screen. In theory, it doesn't really matter where the subroutines are or what they're

called because the compiler replaces their labels with absolute address references.

Another point that was brought up was the concept of running out of alphabetic names to label the lines with. I've seen the REPEAT or NEXT statements have a label called THE.REPEAT which removed the possibility of another REPEAT using the same label name. Not all systems support CONTINUE, which solved labeling the REPEATs.

Some may argue that GOSUB UPDATE.RECORD is more useful than GOSUB 900 or GOSUB 900 ;* UPDATE.RECORD. It's all based on where you came from and who taught you your initial set of MV skills. Obviously if that teacher crucified you for a technique, you were quick to lose it. If you're exposed to only one set of programs for your applica-

MARK JOHNSON is a 23+

year veteran of the MV database and has

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tion, then you can develop your skills based on the examples found there.

I estimate that I've followed roughly 40 different MV programmers that preceded me on my many clients' systems. This has given me plenty of examples to ignore and/or learn from. The worse are truly guilty of the excessive GOTO and mislabeling of lines as they appear to not understand all the programming tools that they could use. The better ones show a clearly laid out plan for their programs with consistent sections and nomenclature.

Bottom line on GOTO's: While the whipping boy for many vocal programmers, there are many more who use them properly and will continue as long as they can. It isn't as potentially dangerous as the RETURN TO statement which implies the obvious. I have yet to see a program of significance that doesn't have at least one GOTO. is

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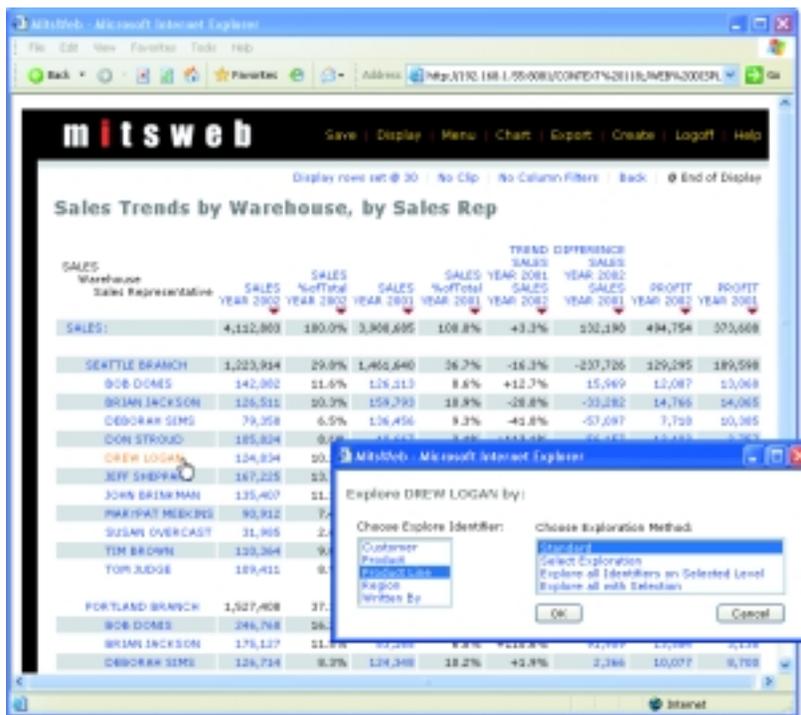
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The MIT S BI/OLAP product suite is a complete business analysis solution for gathering, managing, analyzing and distributing business data.

Successful, thriving companies take business analysis seriously, driving the growing need for business intelligence (BI) and online analytical processing (OLAP) tools. Management Information Tools, Inc. has taken advantage of this mounting industry trend, answering the cry from end users and VARs by continuing to enhance its MIT S BI/OLAP product suite. Today, MIT S is firmly established as the MultiValue market leader and provider of an easy-to-use, yet powerful and flexible, business analysis solution.

FOR THE MULTIVALUE FILE

COMPANY: Management Information Tools Inc. (MITI)

HISTORY: Founded in 1995 by the company's president, Pat Gilbrough

PRODUCT: MIT S is a cross-platform, interactive reporting, business intelligence and online analytical processing (OLAP) suite of products specifically optimized for extended relational and MultiValue databases. The MIT S tool is used by hundreds of companies for gathering, managing, distributing, and analyzing data for improved strategic and tactical decision-making.

HEADQUARTERS: Seattle, Wash.

E-MAIL: info@mitsonline.com

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Since its inception over seven years ago, Management Information Tools Inc. (MITI) has remained faithful to its formula: to provide relevant data in a thoughtfully constructed format, within an easy-to-access system. The company has dedicated itself to making information easy to understand and manage for businesses using MultiValue systems. It has remained steadfast in providing a mainstream-like tool without the need for high-end servers, a host of programmers,

New Technology er Channel

extensive training, and subsequent financial outlays that make most OLAP and BI solutions cost-prohibitive.

This low cost, high performance MITS solution seems to be in the right place at the right time. Today, the company finds itself in a high-growth mode with a market eager for the power of business intelligence and an expanding reseller channel excited about the product's new advancements. And now that a two-year marketing relationship with IBM is shifting gears, MITI finds itself back in the driver's seat of its own destiny.

IBM Marketing of
MITS

MITI began like most MultiValue software firms in the mid-1990s: a small but dedicated group of developers working day and night from one release to another; from its first beta installations to servicing many new installed sites. With a core set of customer successes under its belt in 1999, MITI caught the attention of Rain-

ing Data in Irvine, Calif. MITI worked closely with Raining Data to study marketing ideas for D3 and the MITS tool. MITI created a hypercube of all the D3 sites sold over a several year period, enabling Raining Data to quickly analyze the D3 sites by country, state, VAR, platform, add-on product, etc.

"Within a month after creating the MITS hypercube for Raining Data, we were in negotiations with Informix about the marketing rights to MITS," Pat Gilbrough, president of MITI, adding that part of that negotiation was a test of what the MITS system could do. "The test was to create a MITS hypercube of all the UniData and

UniVerse sites sold worldwide over a several year period. Ironically, this was very similar to the same MITS hypercube created for Raining Data just weeks before. The test for Informix went well enough for them to take on the product."

Although both companies were impressed by the discoveries made when looking at their own data with MITS, it was Informix that signed an exclusive agreement to market, sell and distribute the MITS tool within the MultiValue market in January 2000. Very soon afterward, IBM acquired Informix and MITI officially began its IBM marketing relationship. IBM retained the MITI group of experi-

enced engineers as its development team, while IBM's U2 resellers took over MITS sales and support. With more time and resources to dedicate to MITS development, MITS engineers were able to add key components and greatly enhance all aspects of the product suite over the last two years.

Continues on page 42

"MITS has been a huge factor in attracting new accounts to AdvancedWare, and in fact, played a key role in at least 25 percent of our new customers last year alone."

-Paul Batten, AdvancedWare Corporation

MITS: More Than a Sales Analysis Tool

The ideal MITS user is a business that produces too much data to analyze with a regular two-dimensional report. "Our customers are looking for a tool to help them use their massive amounts of generated data to their advantage," Gilbrough said. "MITS helps them to quickly analyze trends within the data itself."

Gilbrough explained that MITS' success comes from its proficiency in reporting quickly from large amounts of data and being able to compare information summarized from different periods.

Although MITS has been highly successful in automating sales analysis reports, there are many other business-critical applications as well:

- ◆ MITS is used by managers of a large credit collection company to perform up-to-the-minute analysis of the activities of hundreds of collection agents by using the continuous transformation feature of MITS.
- ◆ A division of eBay uses MITS to analyze buyers and sellers participating in high-end auctions.
- ◆ A MITS system was used by Elizabeth Arden Salons to analyze the recurring business of customers using sales transactions and comparing what services the customers used.
- ◆ MITS has begun to expand into the public sector, including public safety entities such as 911, fire, police, ambulance, and schools, especially higher education.
- ◆ Other analysis areas include manufacturing production, food production, payroll, inventory control, accounts receivable, and more.

IBM VAR AdvancedWare Integrates MITS Into Its Core Product Offerings

JUST ONE YEAR AFTER INTEGRATING the MITS component into its AWSalesReports product offering, AdvancedWare Corporation, an IBM Value-added Reseller of UniData, UniVerse, RedBack and MITS products and services, has become one of the leading resellers of the MITS OLAP/BI product suite.

"We're seeing AdvancedWare sell a MITS system every 18 days," said Pat Gilbrough, president of Management Information Tools Inc. (MITI). "The company is setting a phenomenal pace, and it's a direct result of AdvancedWare's aggressive commitment to help its U2 customer base implement emerging, best-of-breed technologies for their unique environments."

AdvancedWare uses MITS as the engine behind its data warehousing product, AWSalesReports, and integrates it with ERP applications that run on UniData or UniVerse, including Avanté, DataFlo, ManFact, and many others. Using the MITS graphical browser interface, AdvancedWare customers can quickly and easily review sales information for regions, sales reps, product lines, customers, specific products, and more. The turnkey solution includes the combination of products and services to install and implement the BI technology, as well as fully integrate it with U2 business applications.

AdvancedWare, a four-year-old company based in Irvine, Calif., triumphed early on as an IBM reseller by focusing its expertise on integrating both real-time browser and mobile handheld solutions with U2 database systems. "The MITS solution was a natural fit for our company because of its browser capabilities in MITSWeb," said Paul Batten, vice president of Marketing and Business Development at AdvancedWare. "We had been watching the development of MITS for quite some time, but it was important to us that it be browser-based. When MITSWeb became available, we eagerly joined in as an early beta site and developed AWSalesReports from there."

Batten said his customer base had been asking for a browser-enabled data warehouse solution for quite some time, so it wasn't a surprise that sales came fast and easy. "MITS has been a huge factor in attracting new accounts to AdvancedWare, and in fact, played a key role in at least 25 percent of our new customers last year alone," he said. "The MITS product suite has accelerated growth for our company, and we're forecasting even more sales in 2003 for our AWSalesReports product."

AdvancedWare provides all of the services and support required to fully integrate MITSWeb into a UniData or UniVerse application, ensuring a successful deployment for each customer. "The best thing about MITS is that you can build and deploy a complete data warehouse in one-third the time it would take with other competing products," Batten said. "Unlike other reporting tools, MITS doesn't require you to transform the data into a separate environment. It's the perfect combination of business intelligence technology integrated with U2 environments."

Coming Full Circle

Prior to assigning the exclusive marketing rights of MITS to IBM/Informix two years ago, MITI worked directly with its end users, handling all aspects of the implementation from initial installation to consulting, hypercube creation and on-going support. The "exclusive" clause on MITI's marketing and sales agreement with IBM ended as of December 31, 2002, and Gilbrough is enthusiastic about the future growth of the MITS business intelligence product line.

"The good news is that in addition to having resellers like IBM, we have the freedom to once again work with the MITS marketplace directly," Gilbrough said. "We've always enjoyed servicing our customers and know we do it well—so we are looking forward to doing this again. We're also eager to work more closely with MITS VARS and help them manage and maximize the potential of their MITS projects."

Gilbrough also said it was an enlightening experience to work so closely with the U2 group at Informix and then IBM. "The caliber, financial power and in some cases, the market share of MultiValue VARs is very impressive, and gave us a feeling that the MultiValue marketplace is on solid ground for the foreseeable future," he commented.

MITS Matures

During its development drive over the last seven years, MITS has evolved into the robust OLAP/BI solution it is today. One of the most strategic product developments came early last year, with the introduction of MITSWeb, a Windows-based gateway and set of extensions that allow a user to explore MITS applications in a standard browser environment. Within the last year, MITSWeb has also evolved from a standalone browser server to a solution that interfaces with Microsoft Internet Information Server and/or Apache on Windows or UNIX systems, using either Web server as a proxy.

MITS developers have also been busy developing the new jBASE port—with a planned release for early 2003. jBASE joins UniVerse, UniData, D3 and mvENTERPRISE as the list of MultiValue databases on which MITS is ported. MITS runs with all of these databases in a mature Windows desktop or Web browser environment.

“Now that MITS is firmly established as the standard Business Intelligence tool for MultiValue databases, we have been working on taking the product one step further and opening it up to any ODBC compliant data source,” he said.

Gilbrough revealed that the company has even more enhancements planned for 2003, including a new reporting product available on both MultiValue and non-MultiValue systems.

“This new product, with an internal name of ‘Report Tool,’ will have many features for MultiValue and non-MultiValue users,” he explained. “These include report generation, PDF generation, use of any report as a data source, MITS hypercube interface, report archiving, Web, XML, Excel, desktop report viewing and manipulation, desktop dispatch, data extraction and movement, among others.” Although MITI will market Report Tool as an add-on product like MITS, Gilbrough said it would also be structured as a solution that VARs can easily tightly integrate into their vertical offerings.

What MITS Is, and What It Isn’t
 Gilbrough believes that MITS’ unique architecture has been a blessing, yet sometimes a curse. “MITS is definitely a one-of-a-kind product within the MultiValue marketplace, but this has its advantages and disadvantages,” he said. “The advantage is that there are no other products that perform the same function on a MultiValue system, so if someone needs a native OLAP solution, MITS is it. The disadvantage is that there is no other product to directly compare it to and that

Continues on page 45

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► Compass and Access Software Partner to Bring Integrated Document Management to the Aviation Industry

COMPASS COMPUTER SOLUTIONS INC., based in Garden City, N.Y., announced a strategic partnership with Access Software to deliver integrated document management solutions to the aviation industry.

Access Software develops and markets the AIRPAX application, one of the leading aviation software solutions on the market today. Originally designed in 1987 to meet the specific needs of the aviation industry, AIRPAX is a relational database management system bundled with two distinct yet tightly integrated software modules: a Sales Module designed for Aftermarket Part Sales Organizations, and a Repair Module designed for FAA Certified Repair Stations. The software leverages the many strengths of a MultiValue environment.

Extending the AIRPAX system to include document management capabilities was critical for Access. According to Paul Leong, Access Software's president, "Aviation support and service companies are required to keep documentation for traceability. The integrated imaging solution's value is in the security and easy access to these documents from within the AIRPAX application."

Compass Computer Solutions Inc., a leading provider of document imaging systems for the MultiValue industry, was

the ideal choice for Access. Paul Leong explained: "Compass' imaging solution was a 'best fit' for Access Software. The implementation and follow-up support offering, coupled with a familiar technology platform, were deciding factors in choosing Compass."

According to Compass president and CEO John Walsh, "The integration of the document imaging with the AIRPAX application demonstrates the power and ease of use of our extensive API library. The Compass Document Management solution includes a comprehensive collection of over 100 high-level MultiValue BASIC subroutines that may be easily integrated into any application. For example, with a single subroutine call, a collection of images may be retrieved from a storage sub-system, cached to a local workstation hard disk, decompressed and displayed."

Walsh continued, "Working with partners such as Access is an excellent way to deliver added value to our mutual customers. Anytime we can provide the end users with a fully integrated, seamless solution, it is an optimal situation. Accessing documents from within a familiar, existing application greatly reduces the implementation and training time, and improves day to day operation and workflow."

Leong summed it up: "Our customers understand it's an important addition to their system when we present it to them. But they do not fully realize document management's potential benefit to their entire operation until they see it in action at their location. The question we usually hear following implementation is 'Why didn't you offer this to me six months ago?'" ■

Spectrum Spotlight

Continued from page 43

makes it harder for us to explain exactly what MITS does.”

Gilbrough said that a common misconception is that MITS is a report generator like other products entering the MultiValue market. The difference, he explained, is that MITS is a true online analytical processing tool, whereas a report generator will simply perform a query on an existing file and present the results.

MITS extracts data from a MultiValue system and places this extracted data into a specially designed OLAP file structure (a hypercube) — all of which is native to MultiValue. This OLAP file system is usually on the same system as the source data. The MITS GUI tools (MitsView or MitsWeb with a browser) are then used to present “FLASH” screens from the OLAP data. The biggest differences? With MITS, data is presented in a matter of seconds, even when dealing with source files that

have millions of records, in addition to the ability to drill down into the results in an interactive manner.

“When using a report generator, presenting information usually means establishing a query to sort, select and format a report at the time the user needs it,” Gilbrough said. “The problem with this, as we have all experienced, is that it can take several minutes to several hours to produce a single output. Once the output is delivered, the user makes another query based on information just learned from the first report. This whole cycle may take days when dealing with significant amounts of data. MITS handles this kind of information reporting within seconds and does so in an ‘interactive reporting’ manner that is intuitive and very easy to use.”

How does MITS differ from other OLAP products used in the MultiValue market?

Gilbrough explained that the other products, like Cognos PowerPlay, need to extract data through an ODBC interface, then move the data to a different system using non-MultiValue databases. “MITS performs a native extraction using the data dictionary processing features of MultiValue, requires no ODBC and is usually hosted on the same computer as the source data, thus requiring no additional hardware or foreign databases,” he continued. “Setting up access to the MITS OLAP data is as simple as any other connection to the MultiValue system.”

And finally, pricing sets MITS apart from its competitors. “We intentionally priced MITS for the MultiValue marketplace, so the investment is a fraction of the cost of non-MultiValue solutions offering less functionality and much more complexity,” Gilbrough concluded. is

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2. Once we have detected completion of the first stage, our server makes local compressed archive copies of your data, typically storing the last 3 days, last 4 weeks, and last 3 months images on its high-capacity drives.
3. The current image is intelligently remirrored via encrypted transmission to a server in one of our three remote, secure data facilities.
4. A compressed archive image is produced, and stored on another server in the same remote facility.
5. The process is checked daily by an administrator for accuracy and reasonableness. He/she will call you about unexplainable anomalies.

The elegance of this approach comes from appropriate response to disaster. Data is off premises and protected for the less than 1% of disasters that are catastrophic, but on-premises for the 99% that are life's little problems.

A broad range of failures are rapidly recovered from, aided by our assistance in appropriate data recovery.

A Surprisingly Affordable Price

Because our system is heavily automated, and uses a sparse amount of bandwidth, we provide archiving service at a surprisingly low cost. For most customers, only the following monthly costs apply:

1. A per site equipment service fee of \$100.
2. A per server or client fee of \$20 per month per machine managed.
3. A charge of \$20 per gigabyte actually archived, based upon peak archiving needs of the site in any month.

Setup charges will vary based upon special requirements, but begin at \$2,000 for systems with mirrored 120gb drives, capable of holding up to 40gb of archivable data.

Call Us

Our business is making sure your data is reliably backed up. Call us to turn your suspect archiving processes into peace of mind at no more cost. Alternatively, visit our web site to learn more about Easy-FileSave.

The logo for EasyCo, featuring the word "EasyCo" in a stylized, italicized font with a registered trademark symbol (®) to the upper right.

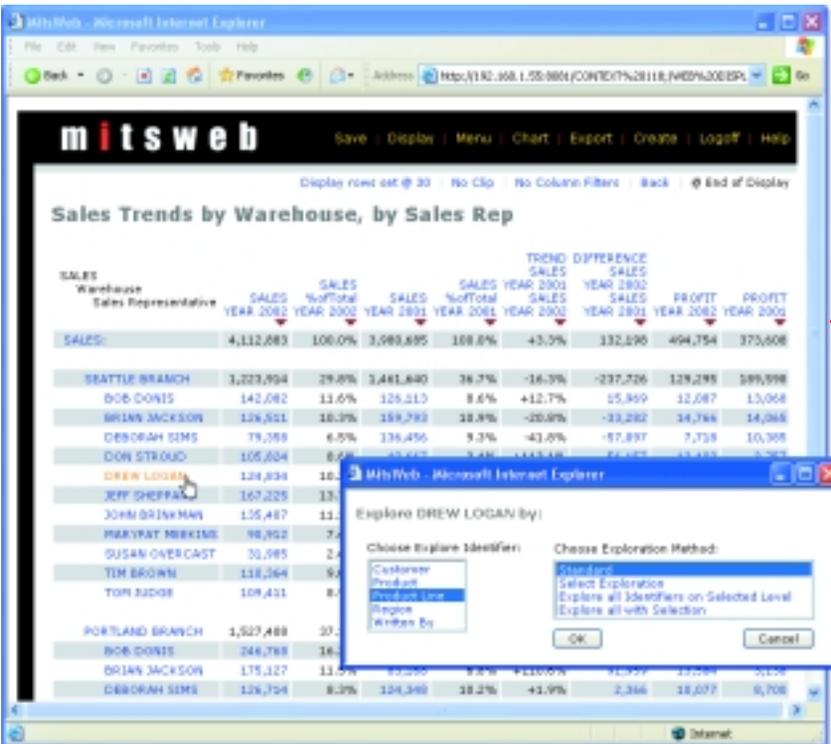
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E-mail: sales@easyco.com
web: www.easyco.com

Have you spent years putting data into your computer system and now spend days getting the data out?



Use MITS and within seconds, your MultiValue data becomes an interactive report in the hands of those who **NEED IT** **MOST.**



If information is the most valuable asset a company has, why is it so hard to get the data when you need it and how you need it? Now it's easy. The MITS Interactive Reporting System uses OLAP Business Intelligence technology to provide you with access to information hidden in your company's existing MultiValue database. MITS is fast, simple and flexible enough for everyone in your company to use. It can be customized for any user or summarized for management. And MITS is affordable. It can be used without additional hardware because it's designed to run on your MultiValue computer system.

For more information contact:
Management Information Tools, Inc.
206-789-8313

Or visit the MITS website at:

www.mitsonline.com

