INSIDE! SPECTRUM 2003: SHOWCASING A WORLD OF CHOICE FOR MULTIVALUE USERS

$7.00 U.S.

INTERNATIONAL SPECTRUM®

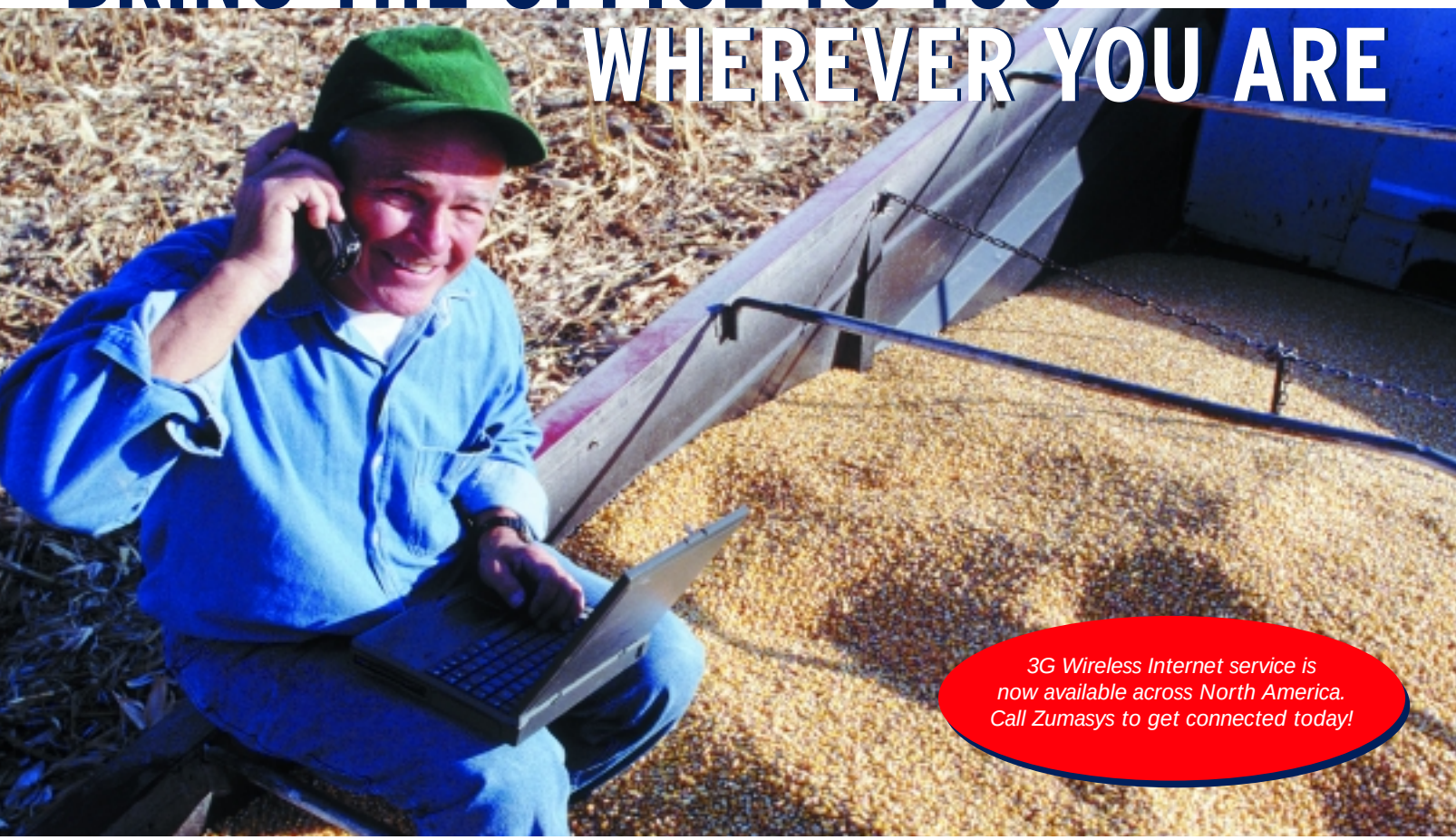
THE BUSINESS COMPUTER MAGAZINE

MARCH/APRIL 2003 • AN IDBMA, INC. PUBLICATION

Avoiding 'Black Hole' Migrations

How to Manage the Migration: A Model for Success

BRING THE OFFICE TO YOU WHEREVER YOU ARE



Mobilize your workforce today with the Sierra AirCard, a 3G Wireless Internet connection, and Citrix MetaFrame XP remote-access software.

Log on to Zumasys' new website **www.workforcemobility.com** and follow these simple steps to order:

> 1 Pick Your AirCard ($349)

AirCard 550 (CDMA)

AirCard 555 (CDMA)

AirCard 750 (GSM/GPRS)

The AirCard allows you to access 3G cellular data networks at speeds up to 144kbps

> 2 Choose Your Carrier, Coverage Map & Rate Plan (range from $35-$99/month)

Sprint verizon T-Mobile

> 3 Choose Your Wireless Tablet or PC

Viewsonic Tablet PC V1100 – $1,995
Pentium III 866Mhz, 256MB RAM, 20GB HDD, 56K Modem, 10/100 LAN, 10.4˝ TFT Screen, Windows XP Tablet PC Edition, 3.4lbs

Panasonic Toughbook R1 Notebook – $2,075
Pentium III 866Mhz, 256MB RAM, 20GB HDD, 56K Modem, 10/100 LAN, 10.4˝ TFT Screen, Windows XP Professional, 2.2lbs

Fujitsu P1110 Notebook – $1,299 Crusoe 800Mhz, 256MB RAM, 30GB HDD, 56K Modem, 10/100 LAN, 8.9˝ TFT Screen, Windows XP Professional, 2.2lbs

> 4 Start Working Smarter!

Zumasys recommends Citrix MetaFrame XP, Windows 2000 Server and MS Terminal Services for deploying Windows and legacy applications over 3G Wireless Internet connections. To learn more, contact at Zumasys sales engineer at 800-841-3879.

ZUMASYS

Zumasys, Inc. | 20472 Crescent Bay Drive, Suite 104 | Lake Forest, CA 92630 | Phone: 949-334-0287 | Fax: 949-334-0288 | Email: sales@zumasys.com | Web: www.zumasys.com

The Freedom To Soar.

Throughout history, posters have been used to communicate messages concisely and often beautifully. Take the poster illustrated here. It pays homage to the works of David Lance Goines in the 1970s. A leader in the free speech movement, his linear style and pastel colors express the concept of freedom. A concept that, with jBASE, you'll actually be able to experience firsthand.

The set of four limited edition jBASE posters is available – visit www.jBASE.com.

With jBASE – the remarkably liberating multidimensional database – there are no limits to where you can go. Your world class applications can now run on your choice of database: jBASE, Oracle, SQL Server or DB2 without modification and can easily share data with other applications using those databases. The freedom you enjoy with jBASE means that you can deploy anywhere in the world in any language and on all major operating systems. So why live another day under the constraints of your current technology when you can be truly set free with jBASE?

To learn more, call 1-877-999-5227 or email info@jBASE.com.

jBASE

INTERNATIONAL SPECTRUM®
MARCH/APRIL 2003

Cover Story

IMHO — MANAGING THE MIGRATION
A Model for Success

20

Lurking behind successful systems are usually some gruesome project catastrophes. What can you do to avoid the pitfalls of a migration gone awry? A cutting-edge project management model will increase the likelihood of success.

By Steve VanArsdale

DEPARTMENTS

6 From the Inside
17 Newsmakers
45 Marketplace

INTERNATIONAL SPECTRUM is a registered trademark and MultiValue is a trademark of IDBMA Inc. All other registered trademarks and trademarks are the property of the respective trademark holders.

features

10 SHOW REVIEW: SPECTRUM 2003 — SHOWCASING THE WORLD OF CHOICE
Spectrum 2003 was the place to be to see the MultiValue industry's newest innovations, hear about the "state of the MultiValue market," and learn about the latest technologies.

46 PROGRAMMING STANDARDS
Creating, following or enforcing programming standards is quite a challenge, particularly in the MultiValue environment. By Mark Johnson

36 PALM VS. POCKETPC — WHICH IS BETTER?
Deciding whether the Palm or the PocketPC is better all depends on which one is right for your business needs. By Nathan Rector

40 CORPORATE REPORT: NORTHGATE INFORMATION SOLUTIONS: BRINGING REALITY BACK TO THE FOREFRONT
Northgate Information Solutions kicks off an aggressive campaign to reintroduce the Reality DBMS back into the North American market, with Rich Lauer and Tim Holland leading the charge.

14 GREETINGS FROM REVELATION SOFTWARE!
An introduction to a new column that will give technical tips for OpenInsight, Revelation's MultiValue-based DBMS that runs on PCs. By Mike Ruane

32 WEBONOMICS 101: 76 TROMBONES AND A BIG SPOOF PARADE
Spoofing is a clever and sophisticated attack on computer systems. Here's how to guard against these breaches of security. By Melvin Soriano

28 LEGACY CORNER: DYNAMIC VERSUS DIMENSIONED ARRAYS
Explore the pros and cons of the two array type variables that MV systems offer. By Mark Johnson

44 BTW (BY THE WAY)
In a timely coincidence, right after the author wrote that MultiValue is the world's classiest XML repository, Raining Data released developer's versions of TigerLogic XDMS 1.0 for Windows 2000 and Windows XP. The author weighs in with his opinion about the new XML software. By Steve VanArsdale

8 THE HISTORY OF MULTIVALUE, CHAPTER 10: THE TIMELINE
We've come a long way, baby! See the milestones and triumphs of the MultiValue market. By Gus Giobbi

CORRECTION

In "English (Recall/Access/UniQuery, etc.) Reports in Data/Basic," in the Jan/Feb issue, page 25, a section of code was misprinted. The last code box for column 3 should have appeared as follows:

```
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<I>"L#6":" ":NAME<I>"L#30":" ":INVS<1,I>
NEXT I
```

Not Just Another gui Face

Good Looking, *And Smart...*
It must be AccuSoft!

AccuTerm 2K2 now includes a powerful GUI Development Environment delivering Rapid Application Development (RAD) for MultiValue systems.

AccuTerm 2K2

Features

- GUI Development Environment for MultiValue applications
- New Wizard based Import/Export of MultiValue data from Excel, Access, XML and text files
- Serial, Modem, Telnet and Secure Shell (SSH) connections are supported
- VBA compatible scripting language for automating complex tasks
- Multiple sessions using WIndows multiple document interface (MDI)

Plus Many More!

AccuTerm 2K2 Internet Edition

The *FASTEST* way to deploy legacy applications on the Web!

When you choose AccuSoft you get the added benefits of:

FREE Tech Support & No Copy Protection!

AccuSoft ENTERPRISES

AccuSoft 8041 Foothill Blvd. Sunland, CA 91040
Tel 818.951.1891 Fax 818.951.3606 www.asent.com

MultiValue **"Come As You Are"** Invitations Keep Coming

I told you this before, but I'm going to tell you again. If you've got a packaged, documented, proven, niche vertical market MultiValue software package, you are sitting in the catbird seat! If you're squatting on one of these things and you haven't packaged it yet, my recommendation is to hop to it soon, because the outside world is seriously eyeballing ready-to-go MV applications and getting ready to list them in their portfolios. Like all things of this nature, the people who get there first will have the advantage.

I say "outside world" because the idea of moving your MV application "as is" from one MV environment to another MV environment is not new. And jBASE started the concept of moving MV applications into non-MV environments years ago. But up until now, the giants outside of the MV space have largely ignored us. Now, it seems, they'd like to have our applications. I'm not talking about tools here; I'm talking about business applications for vertical market industries like insurance, etc.

We saw the beginning of this last year when Microsoft sent speakers to two of our regional Spectrum conferences to talk about their .NET (dot net), and how, by using XML, an MV application could be integrated without any reengineering. In short, the message was, migration as we knew it, is dead. Microsoft is inviting everybody to bring their legacy software to the party "as is." You can continue to access data and program in the same language as you did before; it will "look and feel" just like it did before; but you'll be able to use all of Microsoft's tools that you couldn't use before. The price is that you'll have to learn XML. Microsoft will be happy, because they will sell you their .NET Server software.

At the Spectrum Show in San Diego in February, another shoe dropped when Oracle entered the show as a late entry with ONgroup, and sponsored the final luncheon. The group was small because it was the last session of the show and because of the late entry it wasn't able to be promoted pre-show very well, but you could feel the air being sucked out of the room when Oracle's Robert Teng put up the slide saying "Bring along your MultiValue Dictionaries, your Data-BASIC, your everything" and you can run your MV application under Oracle 9iAS. And once you've done that, you'll be able to use Oracle's bazillion tools.

Whodathunkit? As Emeril would say: "BAM — kick up the value of MV another notch!"

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

INTERNATIONAL
SPECTRUM
MARCH/APRIL 2003

GUS GIOBBI
Chairman

MONICA GIOBBI
President

NICHELLE JOHNSON
Editorial Manager

TECHNICAL ADVISORY BOARD
Henry Eggers, Independent Consultant
Tim Holland, Holland Consulting
Bruce Johnson, Tag Consulting
Ronald H. Jones, Ron Jones Consulting
Nathan Rector, Natec Systems
Bryan Shumsky, VIA Systems
Melvin M. Soriano, Eagle Rock Information Systems

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

IDBMA's *International Spectrum* is published six (6) times per year at the subscription price of $40.00 U.S. in the U.S.A.; $45.00 U.S. in Canada and Mexico; $50.00 U.S. for other countries. Single copy rates are $7.00 U.S. in the U.S.A. and Canada, and $9.00 U.S. in all other countries. *International Spectrum* is published by IDBMA, Inc., 7596 Eads Avenue, Suite 140, La Jolla, CA 92037; 1-858-551-7855; **E-Mail:** requests@intl-spectrum.com; **Website:** http://www.intl-spectrum.com. Copyright 2003 International Database Management Association, Inc. All rights reserved. Reproduction in whole or in part, without written permission, is prohibited.

PRINTED IN USA • ART AND DESIGN: CP Design; 858-642-6878; San Diego, CA

NEWS RELEASES/UNSOLICITED ARTICLES
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.

International Spectrum is a registered trademark and MultiValue is a trademark of IDBMA Inc. All other registered trademarks and trademarks are the property of the respective trademark holders.

In 1993, I appeared in an ad for OpenInsight. That's it on the right there. Ten years has seen many changes in our industry (and in the color of my hair), but the simple fact remains: Revelation's product line stands the test of time and continues to grow to meet your needs. OpenInsight, now a full 32-bit product, has its own database to store my data, or I can use SQL Server, Oracle, Notes, or any ODBC compliant database. Its form designer, where I make forms and menus, supports Unicode and ActiveX/OLE Controls. The XML Workspace and OECGI Web Gateway let me communicate with the latest technologies across the web.

I can generate reports using one of three different reporting tools built into OpenInsight, or, using the Revelation ODBC driver, use Crystal Reports or other reporting tools.

With OpenInsight, there are practically no limits. It scales up nicely from single-user systems to thousands of users by using Revelation's suite of Network products. As a developer I can even make unlimited single-user runtime copies of my application for free.

OpenInsight, our flagship product, offers you a high return on investment. We can have you trained and developing in 2-3 weeks. For more information about taking classes at Revelation Headquarters or one of our Authorized Training Centers (ATCs), and how you can use OpenInsight, call us at 800-262-4747 or visit our website (www.revelation.com).

WOULD YOU BUY BEER FROM THIS GUY? NO! HOW ABOUT SOFTWARE?

OPENINSIGHT 32
32-Bit database development

Call 800-262-4747 for:

- More information about OpenInsight
- Recent user stories
- A class schedule
- An OpenInsight Pint Glass (while supplies last)

No matter where you work, there's a Revelation ATC near you. Call for locations.

Deep down, I am still a developer first and foremost; OpenInsight is the tool for my development needs. I like the product so much I bought the company.

Mike Ruane
President & CEO, Revelation Software

99 Kinderkamack Road, Suite 109, Westwood, NJ 07675 | 800-262-4747 | Fax 201-722-9815

REVELATION SOFTWARE

www.revelation.com
info@revelation.com

Revelation Software is a division of Revelation Technologies, Inc. OpenInsight and BASIC+ are trademarks of Revelation Technologies, Inc. All other brand and product names are trademarks of their respective holders.

BY GUS GIOBBI

The History of MultiValue

CHAPTER 10

From The Beginning Through The 1980s At A Glance — A Timeline

IN THIS SERIES, we've been following the growth of the MultiValue/Pick market as its popularity exploded in the 1970s and 1980s. In this installment, we pause to give you this interesting timeline which shows the system's rapid proliferation in the early years.

MultiValue Industry Flow of Time

1965 Dick Pick is hired by military contractor TRW Systems Inc. to work with Don Nelson on the Parts Acquisition Data System (PADS). The first completed specification is called Generalized Information Retrieval Language (GIRLS).

1967 Microdata Corporation commences operations as a small electronics firm.

1969 Pick and Nelson's software, which had been renamed General Information Management (GIM), was delivered to the US Army, which had taken over the project and renamed it Integrated Technical Data System (ITDS).

Dick Pick joins General Analytics Corporation; continues work on his system, now deemed in the public domain. Now known as Reactive Information System (RIS), the first port is made to the Microdata 800 minicomputer CPU.

1970 General Analytics files for bankruptcy; Pick continues to independently develop the adaptation of RIS to the Microdata 800 CPU. System is now called ACCESS.

1972 Prime Computer founded

1973 Gus Giobbi leaves CSC to found Interactive Inc.; Chooses Microdata system to develop the first Distribution and Inventory application. System developed completely in assembly language because Ken Simms had not yet adapted Dart mouth BASIC to Microdata.

1974 Pick incorporates Richard Pick & Associates; continues development on Microdata 1600 CPU; calls combination of ACCESS and Microdata 1600 DM512. (Insiders know DM512 stands for Dick's 512 byte Machine).

1975 Pick becomes an unsalaried employee of Microdata and continues work with Microdata on DM512 development. Microdata names the system REALITY and the retrieval language, ENGLISH.

IN2 Group Intertechnique of France adopts Pick's system and sells it under the proprietary name REALITE.

1976 Pick splits with Microdata; intends to market his system independently; creates Evolution system based on Intertechnique's Multi-6 minicomputer.

Microdata releases Release 3 of the O/S on new firmware.

1977 Devcom develops what becomes INFORMATION running on Prime hardware.

1978 Altos founded; Cosmos founded; The Ultimate Corp. founded and becomes the first PICK licensee.

1979 Microdata acquired by McDonnell Douglas; Applied Digital Data Systems (ADDS) becomes the second PICK licensee.

DEVCOM sells INFORMATION rights to Prime Computer.

1980 Pick moves out of hardware marketing to concentrate on O/S development; sells his holdings in Pick & Associates and with it his rights to Evolution.

Evolution Computer Corporation founded to continue marketing the Evolution system.

Stratus Computer Inc. founded.

1981 The Ultimate Corp. goes public.

Pick & Associates becomes Pick Systems

First implementation of Pick on the IBM Series 1

Sequoia Systems founded.

1982 First International Spectrum show held in Lake Tahoe, California.

CIE Systems formed as a subsidiary of C.Itoh Electronics Inc.

COSMOS releases Revelation System with PC/DOS on the IBM PC.

New PICK implementations begin on Altos, SMI, Datamedia, General Automation and Pertec hardware.

DEVCOM completely bought out by Prime Computer.

Evolution Computer Corporation files for bankruptcy.

1983 Evolution acquired by Applied Technology Ventures which continues marketing the Evolution system.

Edge Computer founded.

1984 Pick Systems releases PICK on the IBM PC/XT.

Fujitsu Microsystems of America becomes a PICK licensee.

VMark Software founded.

1985 IBC licenses PICK.

Sanyo/Icon licenses PICK.

VMark releases uniVerse

Spectrum Manufacturers Association (SMA) founded.

1986 Pick Systems releases first commercially viable version of Open Architecture; implemented on Pinnacle hardware by Archford Computers in the U.K.

Fujitsu Espana; Rexon Business Machines; Toltec Computer become PICK licensees.

1987 Rich Lauer and Tim Holland leave Pick Systems to form Concurrent Operating System Technology (COST) - implement Open Architecture for Sequoia Systems. Sequoia becomes first Pick Open Architecture licensee.

Scan-Optics buys Pertec Computer Corporation.

Mainframe Micros Inc. acquires Cosmos; company renamed Revelation Technologies.

Edge Computer acquires Toltec Computer.

1988 The millionth PICK user announced at International Spectrum show in Anaheim.

Fujitsu Australia becomes a PICK licensee by acquiring Wicat Systems.

Rexon acquired by Alpha Microsystems.

PICK on IBM's 6150 RT made available.

Seattle OS acquired by Pick Systems to market RT version as BluePICK.

GA receives cash infusion from U.K.'s Sanderson Electronics.

1989 Stratus announces availability of its PICK product, the XA2000 family

ARIX acquires Edge Computer (now Edgecore).

Hewlett-Packard makes deal with VMark to market uniVerse on UNIX.

SPECTRUM 2003

Showcasing the New World of Choice

IN FEBRUARY IN SAN DIEGO, CALIF., the MultiValue industry gathered once again to show its latest innovations, share knowledge, and meet and greet one another at Spectrum 2003. The conference sessions ranged from "The State of the MultiValue Market" panel featuring all the database vendors (see article "Executive Panel Discussion: Updates on the MultiValue Database Industry") to how to program in Java. From vendors, the key word seemed to be "interoperability," as they demonstrated new products and features that allow MultiValue databases users to connect to the "rest of the world." Read on to get the hottest news from Spectrum 2003.

Executive Panel Discussion:
Updates on the MultiValue Database Industry

By Lisa Corbett

A YEAR AFTER Modular Information Systems' Independent Review of the MultiValue Database Companies and Technologies and the following executive panel, MultiValue database vendors revisited the state of the industry in this well attended panel discussion at Spectrum 2003.

The following database company representatives were present:

Susie Siegesmund, ***IBM***
Dave Bryant, ***jBASE***
Rich Lauer, ***Northgate Information Solutions***
Tim Spells, ***ONgroup***
Mario Barrenechea, ***Raining Data***
Mike Ruane, ***Revelation Software***
Bryan Schumsky, ***Via Systems***

This year's executive panel was a very lively one, with key issues surrounding MultiValue product branding, the availability of higher educational courses taught on the MultiValue database products, the attraction of new VARs, and the creation of MultiValue technology certification programs.

Once again, MultiValue database companies have undergone organizational change within the last year. jBASE International is now owned by Mpower1, with TEMENOS retaining the jBASE developmental database effort, while jBASE International retains the jBASE distribution and support effort. Northgate Information Solutions has retained the dynamic duo of Rich Lauer and Tim Holland to head up the U.S. efforts to distribute the Reality database. The remaining MultiValue companies have remained organizationally stable, with a noted increase in the IBM U2 sales team (eight new salespeople have hit the U2 streets, after a stellar U2 performance in U2 sales last year).

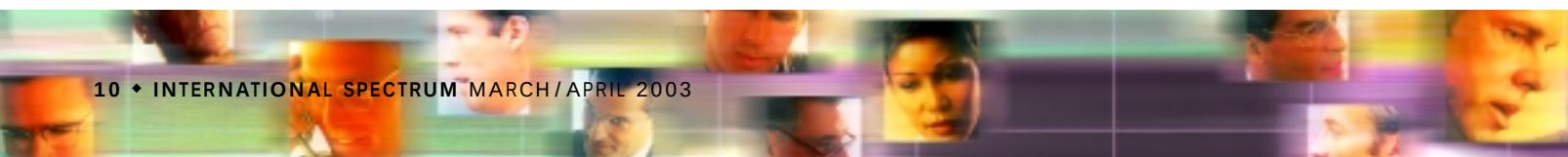
There was not a notable increase in the number of MultiValue VARs, or new VARs being attracted to develop MultiValue software. Each of the MultiValue database companies indicated that existing VARs were doing an excellent job of migrating character-based applications to either browser-based or client-server development architectures, and that market share was not being eroded. jBASE was an exception, with new VARs developing hedge fund management software, bio-technology, and a Web-based health care claim solution.

In MultiValue branding, only one company had risen to the challenge of branding their products. Revelation is shipping every copy of OpenInsight and JOI with MultiValue brands on the media. They have also set up a MultiValue Web site at www.multivalue.net. Susie Siegesmund at IBM Corporation shared with us the special difficulty of advertising and marketing the U2 products at IBM. The U2 products belong to the database product "pillar" group at IBM. This pillar is called DB2, but represents all databases. Pillar advertising and marketing is focused around DB2, which makes it hard for databases like U2 and Informix to get noticed. The U2 group is working hard through IBM to have them realize that advertising DB2 won't tell anyone about all the other databases. In the meantime, they actively participate in joint marketing with VARs which allows them to focus on advertising solutions that work. IBM noted that a number of VARs are very happy to be selling a product identified with IBM, and that the IBM brand — as the third most recognizable brand in the world — is helping VARs market their products. Raining Data has taken another tack and decided to go back to their roots. They are now identifying their database products as "Pick" products. They will not be using the MultiValue brand, and feel that the Pick name and history stands for itself.

In higher education both Revelation and jBASE have done an excellent job of getting classes started up. The University of Warsaw in Poland is teaching a course in jBASE, and the Royal Melbourne Institute of Technology in Australia is teaching a class on business technology with jBASE as the development host. Revelation has courses being taught at the University of DC, Bergen Community College, and the Business School at South Bank University, London. Revelation has also developed a course curriculum and is looking for instructors interested in teaching Revelation at local community or private colleges. jBASE and Revelation are willing to donate database licenses for courses being taught in higher education.

IBM and Revelation lead the way in technical certifications. IBM has U2 Developer and System Administrator certification tests coming out soon. These certifications will be available at any IBM authorized certification center. Revelation will be rolling out technical certifications through their Authorized Training Centers in 2003.

For those of you awaiting the 2003 Independent MultiValue Database Vendor report, it will be published in the second quarter. We wanted to get complete fiscal 2002 informa-



tion, and as such, waited until the public companies completed their financial year before sending them the updated 2002 survey.

Finishing off the first survey with a high note, one of our primary goals of performing the MultiValue Database Survey was to identify the total MultiValue market size. We were waiting on numbers from Raining Data, and are delighted to report an October 2002 update. Reliable inside sources at Raining Data provided the Installation and End User Seat information. It is our understanding that this reflects current MultiValue licenses on Annual Maintenance Contracts only, and as such may be understated. This is not an official survey response from Raining Data. This new information is marked with an asterisk *

COMPANY	SITES OR INSTALLATIONS	LICENSES OR END USER SEATS	%
IBM U2	65,000	4,000,000	56%
jBASE	3,500	130,000	2%
Northgate		300,000	4%
Raining Data	20,000*	1,300,000*	18%
Revelation	49,425	1,405,000	20%
Via Systems	800	18,800	0%
	TOTAL 138,725	**7,153,800**	

Vendors Give Users More Choices Than Ever

ONgroup Provides a 'MultiValue Enabled' Version of Oracle

ONGROUP was on-hand to show attendees how they can efficiently move their MultiValue applications to Oracle 9i Application Server. Company COO Tim Spells said conversion to Oracle with ONware is similar to "going from PICK to UniVerse—the enabler is ONware." In most cases, MultiValue applications will run on Oracle "as is" with no code changes. Once converted, Oracle's new application server tools, as well as products such as .NET and SQL Server, can be used with the MultiValue application yet all of MultiValue's functionality is retained. As a result of converting with ONware, VARs can market their vertical market software applications on Oracle, DB2, SQL Server or any other relational database.

Oracle 9iAS highlights include:

- J2EE and Web Services
- Government certified security
- Wireless
- Caching, clustering, high availability
- Business intelligence
- Enterprise integration

According to Spells, ONgroup's mission is to increase the value of MultiValue by allowing MultiValue applications to be a part of the mainstream. "This extends the life of legacy MultiValue applications and opens up the world of Oracle to the MultiValue market," Spells commented.

ONgroup, which sponsored the MultiValue Luncheon in conjunction with Oracle Corp., also offers consulting services for companies wanting to move their MultiValue applications to Oracle. Robert Teng, vice president of Business Development for Oracle 9i Application Server, was the keynote speaker at the luncheon, addressing how MultiValue developers can have the best of all worlds—their valuable MultiValue BASIC applications and dictionaries running with Oracle 9iAS—without change.

For more information, visit www.ongroup.com.

Raining Data Demonstrates Two Major Products

AT RAINING DATA'S booth, attendees could see demonstrations of two exciting new technologies—the Pick Data Provider for .NET and TigerLogic XDMS.

Pick Data Provider for .NET allows D3, UniData and UniVerse database platform users to take advantage of the .NET Framework by utilizing Microsoft Visual Studio .NET. A Data Provider in the .NET Framework serves as a bridge between an application and a data source. Raining Data's Pick Data Provider for .NET is designed to provide additional functionality by exposing the inherent capabilities of the Pick data management environment when developing or deploying applications with the Microsoft .NET Framework.

TigerLogic XML Data Management Server (XDMS) is a high-performance XML data management system. As the company continues investing and extending the capabilities of its core technologies, Raining Data offers its D3, mvEnterprise, mvBase and Omnis customers this new enterprise-grade product that provides an effective growth path to Java and XML-enabled environments. To learn more about Pick Data Provider for .NET and Raining Data's Early Adopter Program as well as TigerLogic XML, contact the company at sales@rainingdata.com.

Raining Data also recently announced Pick mvEnterprise 4.2, which offers the ease of use and hierarchical power of the multi-dimensional database model with the performance and flexibility of UNIX. The Open Data Architecture and UNIX interoperability tools provide a seamless interface between Pick mvEnterprise and UNIX. Pick mvEnterprise 4.2 has enhancements for high performance, effective administration and compatibility with other multi-dimensional environments, providing near-seamless migration from R83, OA, Ultimate, Reality and others. The data interchange extensions in Pick mvEnterprise are the most robust in the industry, the company said.

Via Systems Highlights UniVision Multi-Value Database

VIA SYSTEMS' main focus at the show was UniVision, its MultiValue database management system, said Bryan Shumsky, director of Engineering. "We've been having a lot of success in the market with it; it's feature rich and has a low cost per user," he stated.

UniVision's high points are its compatibility (it's compatible with existing applications running on PICK AP, D3 and R83, General Automation, Mentor and Ultimate) and advanced connectivity features that allow a user to talk to other ODBC databases, COBOL files, etc. "We're going to continue focusing on selling

the MultiValue database product, as well as tools that integrate with it," Shumsky commented.

He said the company is still "excited by the Web, and WebWizard, in our opinion, is the easiest way for people to get their MultiValue database on the Web." WebWizard leverages the power of the existing computing environment to create sophisticated Web-based applications. Knowledge of HTML is not required with WebWizard's InstaPage features. Touted as "affordable yet invaluable," the initial purchase of WebWizard includes two days on-site installation, training and/or consulting.

For more information, visit www.via.com.

Revelation Unveils OpenInsight on Linux

DEVELOPED as a response to user requests, OpenInsight running on Linux was being demonstrated in Revelation Technologies' booth. "Now you can get rid of your Novell or NT servers and pop in Linux," said Mike Ruane, Revelation's president. "It's easier to maintain than Novell or NT."

OpenInsight's extensive GUI tool set is a big draw for the MultiValue market, Ruane remarked. Because Revelation's particular flavor of MultiValue database was originally developed for the PC market in 1982, it's had a GUI tool set for a long time, he said.

OpenInsight also provides a natural connection to U2 databases, enabling developers to "have green-screens going against the U2 database and use OpenInsight's GUI tool set to look at the same data at the same time," Ruane said. A key benefit of OpenInsight is its interoperability with other environments.

With the power of today's PCs, he said, the size of companies using OpenInsight ranges from the "White House and the Secret Service to investment banking companies to mom-and-pop paint shops."

For more information, visit www.revelation.com.

IBM Promotes U2 Family of Products

IBM showcased the U2 family of products including UniData, UniVerse, System Builder and RedBack. IBM has continued to enhance and support the U2 products. IBM's Susie Siegesmund, who participated in the executive panel on "The State of the MultiValue Market," said the company is "very pleased to be a part of the MultiValue market and is committed to it." However, the company currently brands all of its databases DB2, and the "UniVerse and UniData names could go in the next year," she said. But that certainly doesn't mean that the U2 databases themselves are going anywhere.

IBM SystemBuilder enables developers to increase their productivity with rapid application development. Developers get support for character-based and graphical-user interfaces (GUI) from a single set of source code, and support for integrating with existing application code—all while adhering to industry standards. Developers can build client/server mission-critical business solutions specifically optimized for relational and MultiValue databases. SystemBuilder's SBClient component brings GUI features to host-based applications.

IBM RedBack integrates e-business solutions with existing U2 applications, providing an object-oriented view of U2 database and business logic. RedBack is a multithreaded rules-based network application server designed to help the user build, deliver and maintain scalable, transactional applications for the Internet and corporate Intranets. RedBack interfaces front-end developer tools with existing U2 data and applications to deliver portable, maintainable and affordable solutions, while providing environment independence.

For more information, visit ibm.com/software/data/u2.

jBASE Makes Connections

JBASE INTERNATIONAL came to Spectrum 2003 to partner with other software vendors and showcase the interoperability of the jBASE database management system, said Dave Bryant, president.

jBASE Basic was being demonstrated running on various interchangeable databases, Bryant said. "Our jEDI architecture has been enhanced; it's more sophisticated, and more straightforward to use," he commented. "We're exhibiting products that are complementary to jBASE, such as Temporal Wave. We're also showing our commitment, renewing old acquaintances, and forming some new ones. It's important that we be here and show people what jBASE has to offer."

Over the last six months, three major VARs have opted to take advantage of what jBASE has to offer by signing on with the company. "One of the things we're focusing on is how we can help our resellers penetrate other markets—both outside the MultiValue market and geographically," Bryant said. "This is a result of our partnership with Mpower1. They provide business acumen to complement our skills and knowledge of the MultiValue market."

For more information, contact info@jBASE.com.

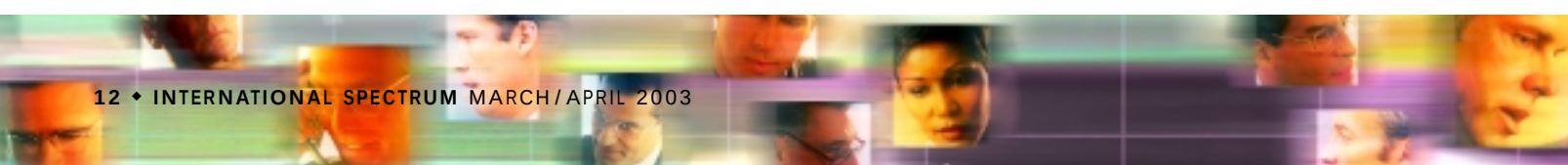
GA eXpress Introduces New Data Access Tools for MultiValue

THREE NEW PRODUCTS were announced by GA eXpress at Spectrum 2003: Liberty Enterprise Server, mv2SQL, and mv2Report. Company president Jane Christie said Liberty Enterprise Server is very exciting; there are currently four beta sites, and it will be brought to market this year. Liberty Enterprise Server is an application integration server, designed to make it easy and affordable to connect diverse enterprise systems internally and externally to business partners, e-market exchanges, and consumers over the Internet via Web services and XML documents using standard protocols such as HTTP.

Key features are:

- Collaboration via transformation between diverse e-business document types
- Line of business connectors to reach legacy back-end data and applications
- W3C industry standards-based connectivity utilizing XML
- Portable architecture for Microsoft Windows or UNIX-based systems
- Powerful declarative programming speeds Line-of-Business (LOB) programming efficiency

Liberty Enterprise Server helps solve the problems encountered when legacy systems and applications need to participate in e-business.



mv2SQL, a new addition to the ePath family of products, provides an easy-to-use tool for exporting data from MultiValue databases for use with Microsoft Access or Microsoft SQL Server database applications.

mv2SQL provides the complete solution for the selection of data, as well as the creation of SQL tables to export data into.

Unlike other MultiValue data export solutions, mv2SQL eliminates the need for selection of data by running sub-routines on your MultiValue host system, although the facility is still available, the company said.

mv2Report satisfies the need to access information from MultiValue systems with current PC desktop technology. mv2Report provides the complete reporting solution for those users who wish to generate custom reports from their existing MultiValue database, when they want, and right from their desk. Little or no knowledge of the MultiValue application is required to generate and run reports.

With the introduction of these new products, Christie said GA eXpress is "continuing in the direction we started in 2000, focusing on data access and connectivity across the enterprise. We're providing application solutions that allow customers to seamlessly integrate and connect both inside and outside the MultiValue world."

For more information, visit www.gaexpress.com.

Zumasys Shows 'How to Bring the Office to Where You Are'

ZUMASYS INC. demonstrated how you can use wireless technology to take care of business wherever you are—whether it's accessing your email or MultiValue applications when you're out of the office or warehouse workers using touch screen technology to fulfill orders or make updates in the computer system.

This next-generation concept allows businesses to be steps ahead, increasing productivity by enabling employees to access applications at any time, anyplace. For example, a salesperson using a Contact Management application can do follow-up while at the site, instead of going back to the office, enabling him or her to make more sales calls. "This is revolutionizing the way we work," said Paul Giobbi, Zumasys president. "It's solving a corporate paradox—people are supposed to get out of the office to sell, but at the same time, they need to check email. We're using email in a critical sense now; we have to stay in touch."

With the enhanced capability of cellular networks to carry data, wireless technology is an exploding field, Giobbi said. Businesses can have mobile Internet over a 3G connection with all of their applications, not just email. When configuring a wireless solution, Zumasys usually provides a wireless network card, service, portal software, and firewall compliance.

Citrix MetaFrame XP is the software that optimizes data transmission over cellular networks. It gives you simple, fast access to Windows applications from any device including tablets, handheld computers, and thin clients. "No one else has the same speed as Citrix; Citrix makes users think the application is faster than it really is," he said. "Citrix launches applications faster than they would on a PC."

This wireless solution is database independent as long as Citrix is running on Windows 2000, Giobbi said. "Any application that runs with Windows can be used by Terminal Services or you can use it through a terminal emulator," he added. Through its free Technology Seminars, Zumasys is educating businesspeople and IT professionals about what's possible with wireless technology, and what's coming up the pipeline.

Visit www.zumasys.com for more information.

Modular Information Systems Teams With @Better Results

MODULAR INFORMATION SYSTEMS (MIS) and @Better Results Inc. have formed a strategic alliance to provide more benefits to their customer bases. The goal is to integrate the Better Results product line with the MIS Help Desk, which will provide a tremendous improvement in @BRI customer response times, said Lisa Corbett, president of MIS. Now, MIS will be able to offer @BRI products. For more information, see "Newsmakers" on page 17.

MIS also announced that it is shipping Vintners Advantage, a MultiValue-based winery management software package. The fully integrated suite of software modules offers benefits in terms of production efficiency, time and cost savings, quality control and accurate management information.

Vintners Advantage features a new visual interface. "We redid the front-end in Visual Basic and will start shipping in April," Corbett said. "We did our first winery show with the new product and received a really good response. We were blown away by it." **For more information, visit www.miscorp.com.**

Hot Products at Spectrum 2003

FabGen: The Web Software RAD Tool for the 21st Century and Beyond

FabGen is a rapid application development (RAD) tool that allows you to create menus, data screens, batch processes and display reports for access using standard Web browsers without writing any HTML programming code.

FabGen also creates screen and menu templates and reports for use with traditional character-based terminals and terminal emulators, as well as with standard browsers.

Unlike code generators, which generate code that resides separately from the generator, FabGen is a parameter-based RAD tool that is installed with the application software and executes the compiled menu and data screen parameters files that it generates. This makes applications running under FabGen much faster than applications running with code created by much more verbose code generators.

Since no RAD tool can always provide all of the functionality required in a particular software application, Basic subroutines can be written and connected anywhere within a data screen to provide added functionality not provided by FabGen.

Using FabGen, new applications can be created quickly for prototyping purposes and then fleshed out and installed in a fraction of the time necessary to write or re-write the same application in a third-generation programming language and HTML code.

Existing applications can be upgraded to Web browser standards and installed without writing any HTML code, using the same "x,y" cursor positioning already in use.

FabGen uses PixieWeb as the browser I/O engine to pass HTML pages and data between the browser and your database in either a real-time, dynamic, persistent interaction or in a batch, non-persistent interaction with the database.

FabGen runs on many popular databases and operating systems. **Learn more by contacting sales@sysmarkinfo.com.**

MvInternet3X Integrates Pick and the Web

Pixius Communications demonstrated its new release of MvInternet, called MvInternet 3X. MvInternet3X is a tool for the integration of Pick databases and the Web. All of the current application tools used for the Web can now be connected to your Pick application, according to Pixius. "You are not limited to Web products specifically designed for Pick," the company said. "This includes the integra-

Continues on page 14

mvToolChest

Continued from page 13

tion of multiple Pick environments with other databases such as Oracle. With MvInternet3X, you can dynamically generate Web applications from your Pick database and exchange information with other databases using the most current techniques such as XML."

At www.pixius.com, you can find an interactive demo of MvInternet3X, documentation, and the link to download a free evaluation copy. Pixius also offers the services of experienced database administrators, programmers, and Web masters to help design Web-enabled Pick applications and can host MultiValue applications on its servers. The company supports all of the major versions of Pick and Oracle.

WADE - A Complete Solution for Internet and Intranet

OHM Systems, a leading developer of manufacturing solutions, promoted its Web-Centric Application Development Environment (WADE) at Spectrum 2003. WADE is a set of building blocks and tools used to design, develop and deploy business application systems for use both on the Internet and Intranet. "The beauty of it," said Catherine Anbil, OHM's vice president, "is that it takes full advantage of what Pick is known for. You can take your current application and, only programming at the business logic level, rewrite it into a Web-centric application."

The design philosophy includes:

- Make full use of browser functionality
- Provide on-line, real-time data validation
- Database field level read/write security
- Rules-based design for flexibility
- Ease of maintenance and upgrades
- Speed, and
- Database integrity using begin/end transaction controls

To prove the product, OHM Systems rewrote 33 modules of its MRPII/ERP software package using WADE, Anbil said. The results were highly successful with the introduction of a Web-enabled version of OHM-WARE. **For more information, visit www.ohmworld.com or sales@ohmworld.com.**

mv://e-Store Takes e-Commerce to Another Level

Going beyond allowing you to put your catalog online, mv://e-Store, from Eagle Rock Information Systems, enables customers to purchase electronically too. Your database and network are ready for complex business transactions, and with mv://e-Store, you can offer your customers all the benefits of e-Commerce, the company said.

Using mv://e-Store, you can access your existing MultiValue database, whether it's from IBM, Raining Data, or other similar DBMS vendors. The software is set up in its own account on your existing database so you know that the data will be in a format that your technical staff understands.

You can also access all of your existing software files, programs, and reports; mv://e-Store can call those programs directly. Your secure shopping cart can even be used off cell phones, Palm Pilots, AOL, Web-TV and other new Internet devices. mv://e-Store can handle credit card billing also. **For more information, visit www.eriscorp.com.** *Continues on page 39*

Looking for someone who really knows how to handle RedBack?

Come to AdvancedWare

The RedBack Experts

Our Real-Time Web and Wireless PDA solutions work with any UniVerse or UniData application.

Internet/Intranet Solutions
Wireless PDA Applications
Web and PDA Development
RedBack Training

As the world leader, AdvancedWare has more successful Web and PDA implementations than anyone else. Give us a call to unlock the power of your UniVerse or UniData system.

949-609-1240
www.AdvancedWare.com

AdvancedWare Corporation

Greetings from REVELATION SOFTWARE!

BY MIKE RUANE, REVELATION SOFTWARE

As this is the first in a series of columns that will explore and explain some of the technical details regarding OpenInsight, I'd like to take this opportunity to give a brief review of the history of Revelation Software, and a quick update on the current state of the software.

OpenInsight is a full 32-bit, GUI-based, MultiValued, Variable-Length application development tool. If you've seen or worked with this product, you know how powerful, scalable, and flexible it is. But where did it come from? Read on to find out.

The '80s- Birth of the Cosmos

Revelation Software was founded in 1982 with the name of Cosmos. Cosmos was founded by five Pick developers from the Seattle, Wash., area. These five developers—Mark Peckham, Roger Harpel, Mike Nourse, David Ostby, and Paul Ostby—had worked together in the prior years at various organizations such as Escom and NorPac. They ported a Pick implementation to the then-new IBM PC. Actually, they ported it to an Intel 8088 emulator that was written in Pick Basic, since their PC was on back order for months. The product was nearing completion, but the company was running out of money. They scraped up enough to attend the International Spectrum show that was being held in Reno that year. They showed the product, and enough people were impressed sufficiently to place orders. With funding now in place, they completed the product and began to ship.

Revelation, as the first product was known, was one hell of a product. It had its own MultiValue, Variable-Length filing system. It had both data and dictionary files, and could also support indexing. The dictionaries were especially powerful in that calculated fields, known as "Symbolic" fields, actually stored Basic programs, instead of "correlatives," so the developer had to know only Basic. A metacompiler was developed so that the Revelation Basic (R/Basic) programming language would always have fast compiling.

In 1987, Cosmos merged with a company named Mainframe Micros Inc., or MMI. At this point the name of the company was changed to Revelation Technologies, since most people associated the company with its main product, Revelation. However, at this time, a major enhancement was made to the software, and a new product named Advanced Revelation was released. Advanced Revelation, or Arev, was a unique database product. Building on the solid base of Revelation, Arev included a new screen creation and maintenance tool called Paint, new merge processing, introduced the Popup, plus new indexing and self-resizing files.

However, at about this time, Revelation Technologies began to distance itself from the MultiValue world. It focused more upon the PC-based database and development tool world, which was also evolving into the Windows-based development world. As the years passed, most of the MultiValue world began to forget about Revelation, or even believed that the company had gone out of business.

The '90s- Great Strides, Some Disappointments

In 1990 Revelation introduced client/server capabilities into the product with a SQL Server bond. In fact, Revelation sold more copies of SQL Server than Microsoft did for a while.

In 1991 Revelation introduced OpenInsight version 1.0-and it was a serious flop. A departure from all that made Arev so popular with its developers; it was not accepted by either the DOS-based Arev crowd, or a new Windows-based class of developers. In 1994 OpenIn-

Continues on page 16

 Continued from page 15

sight version 2.0 was introduced, and Revelation Software's foray into the GUI world began in earnest.

By 1995 network technology had advanced sufficiently that Revelation's network drivers needed to be modified. Having been in the PC arena before there were networks, Revelation had offered several drivers to its customers over the years, including Novell, Banyan, DEC Pathworks, AT&T StarLAN, Lantastic, LAN Manager and others. With the advent of networks that could support hundreds of concurrent users, Revelation introduced first its NLM for Novell, and then its NT Service for NT Networks.

1996 saw the introduction of Revelation.Com, Revelation's Web site. Based upon Lotus Notes, the Web site, still free and in use today, contains information about Revelation's product development, News and Information, press releases, but most importantly, a searchable threaded online discussion group that now has nearly seven years of questions and answers to nearly every facet of Revelation's product offerings.

1997 was the year of The Works. The Works is a program designed specifically for developers. It's an annual subscription that provides a development copy of OpenInsight, technical support, upgrades, access to special sections of the Revelation Web site, and access to senior-level developers. This program continues today with hundreds of participants. 1997 was also the year that Revelation added Web extensions to OpenInsight. Core routines were added to OpenInsight for security and Web interoperability, and a Common Gateway Interface (CGI) gateway was added. OpenInsight's form designer was also modified to publish forms in HTML format, and the Report Builder was modified to generate HTML reports to the Web. These tools continue to be used and enhanced to this day.

A New Millennium - A New Change

November of 2000 saw another change in the management of Revelation Software. WinWin Solutions, a Revelation consulting company based in New Jersey, took over controlling interest in the company. Now that it was headed by developers, the Revelation community was heartened by the change, and within the first year two enhancement releases were made to OpenInsight. There was a growing problem — OpenInsight was still a 16-bit product in a 32-bit world. Partners and clients were unable to make sales of this older technology. In the summer of 2001 Revelation began development of a 32-bit version of OpenInsight, and in February of 2002 it was shipping to the world. The upgrade from the 16-bit version was quick and painless, and we were on a roll.

Around this time Revelation Software re-introduced itself to the MultiValue world. First by advertising in *International Spectrum* magazine, attending the main show and a number of regional Spectrum shows, as well as showing at the OSDA show and joining the OSDA board, showed that Revelation was back. Our products and technologies were being well received in the community, and we began to be noticed again.

In 2001 and 2002 four more releases of OpenInsight were delivered to the development community, each taking the product further in the Applications Development world. New support for XML import, export, and storage was added. OLE and OCX control support was also added to the Form Designer. Major and point releases are scheduled for at least the next 24 months.

Current State of the Software

So, having ingested 20 years of history in a few paragraphs, let's look at the current state of the software.

OpenInsight is a full 32-bit, GUI-based database and application development tool. We have our own MultiValued, Variable-Length database structure. This filing system, when running standalone, supports file sizes up to 8 gigabytes per file, with an unlimited file size when running with the latest TCP/IP network drivers. All files are self-resizing, with definable frame sizes ranging from 512 bytes to more than 10K. Dictionaries have no limitations on the number of fields. OpenInsight also connects natively to a number of MultiValued data sources.

OpenInsight also supports secondary indexing. We have three types of indexing: Btree, Cross-Reference, and Relational. Indexes can be updated immediately during write, or can be put into pending records and updated by either a dedicated indexing workstation, or during downtime on any workstation.

The OpenInsight Table Builder allows the creation and maintenance of our native tables. Developers can create both fixed (stored data) fields and symbolic (calculated) fields. There is no limit to the number of fields a table can have. This tool was written using OpenInsight itself, as are many of the tools within the product.

The Database Manager is used to maintain environmental settings, create and maintain indexes, create and maintain users, check for and fix Group Format Errors (if they occur), and other housekeeping activities such as attaching tables, etc.

The Form Designer is a WYSIWYG tool used to create data entry forms, dialog boxes, or menus. The Form Designer comes with a toolbar that includes 14 different types of standard controls (edit lines, edit boxes, check boxes, etc.) as well as the ability to add OLE/OCX controls to a data entry form. Each control responds to a specific set of events (such as a mouse click, a character being pressed, the user leaving the field) known as the event set. On each event the developer has the option of adding code to these events, or to hook up a standard event, such as calling a popup, reading a record, writing a record, etc. The Form Designer is also used to create Multiple Document Interface (MDI) frames. When using an MDI Frame as the entry point for an application, the user can have multiple screens open at the same time, enabling cutting and pasting from one screen to another, the viewing of multiple records from the same file, and other such functionality.

Our editor is used to both create and modify programs or examine records. The System Editor is an MDI frame, allowing the developer to view records, programs, or inserts at the same time.

The User Interface (UI) Workspace that is used for creating Popups, Help Notes, Messages, A Wizard Wizard (A wizard in OpenInsight that is used to create wizards for your OpenInsight application), and event designer, which allows developers to extend the event set for any control in an OpenInsight form.

OpenInsight has three built in reporting tools — and with our ODBC driver, users can use nearly any third party reporting tool of their choice. Our System Monitor is very similar to a TCL line; our R/List reporting language is very similar to Access or English. Our Report Builder makes simple reports and lets the user save them to a library. The Revelation Reporter is a complex, powerful reporting tool allowing for multiple fonts, colors, images, and data sources.

There are other tools, such as an XML workspace and a client/server workspace, but these are the major ones. In forthcoming articles we will be focusing on tips, techniques, and practical examples of working with OpenInsight. We look forward to the future—we hope you do too. **is**

Letters to the Editor

Dialog on Mark Johnson's article, "The GOTO Debate and Statement Labels" (Jan./Feb. 2003)

I would like to thank those who responded to my GOTO article in the last issue. Here's one of the replies and some more comments about this infamous topic:

Dear Editor,

I really enjoyed reading Mark Johnson's article on the history and current trend of using GOTOs in programming logic. He gave a helpful background as to how some have become religiously opposed to the practice and offered solace to those who use them with discernment. However, I must confess that I align myself on the side of the zealots who refuse to incorporate GOTOs. I won't even allow my programming staff to use them lest there be serious reprisals. ;-)

Like Mark, I am primarily motivated by a desire to avoid sloppy "spaghetti-code" programming. It also helps to enforce better design flow in our routines, making it easier for those who must follow in my footsteps to understand the purpose of my program. I am convinced that poor programming practices generally come from those who never considered that their work would ever be looked at by anybody else but themselves. I've been guilty of this as well.

One common misuse of GOTOs that Mark didn't identify was using them to break out of a FOR-NEXT loop prematurely. This really gets my blood pressure up. To be honest, I'm not a fan of using RETURN either. Our policy is that there should only be one RETURN statement for each GOSUB and one main RETURN for the whole program. A routine should have only one final exit point.

I am not afraid to admit that I tend to be a purist, perhaps even too much for my own good. Many times I have wished that I wasn't so stuck on maintaining our standards ... our lives would have been made easier. Yet, this nagging voice tells me that in the long run it will pay off. Mark mentioned that he has "yet to see a program of significance that doesn't have at least one GOTO." I invite him to visit our office one day and be surprised.

Best regards,
Donald M. Bakke, president, SRP Computer Solutions Inc.

The Author Responds

FOR-NEXT and LOOP-REPEAT loops traditionally did not have any iteration controls which necessitated the use of GOTOs, complex flags and logic to interrupt their normal flow. Now, most platforms support EXIT and CONTINUE to eliminate the need to label the NEXT/REPEAT statements or the statements following the loop's conclusion.

Perhaps the most popular response was to my statement that I have never seen any program of significance that didn't have any GOTO's. To my surprise, the academic example of failing students who use GOTO's has carried forward to companies who enforce strict GOTO-less coding techniques. These companies are obviously VARs who have complete software packages or companies who have endeavored to replace their entire set of MV software with this style of programming.

This falls under the concept of House Rules. Some of us consultants don't have the luxury of writing brand new applications in our own preferred style. Rather, we are required to fit into the standards that exist in our clients' systems. If there is more than one style of programming in a client's system, then our new style won't make matters worse or better. If there is a uniform style, then we should strive to keep that style going, despite being different than our own.

Many respondents provided program examples of this particular GOTO-less technique. Some misunderstood my claim that I have never seen a program of significance without GOTO's. That didn't mean they don't exist, it's just that I've never seen one in all of my clients' systems. Each of my clients has had an average of six programmers before me, all with their own style.

Unfortunately the lines are already drawn on this topic. Those who responded saying they use GOTO's (roughly 50 percent) indicated that they too hated the spaghetti effect and use them with prudence. Perhaps the two sides will never meet. Or need to.

Read my article called Programming Standards on page 46 to further understand how standards come about. But as you'll read, there's more than one way to skin a cat.

@Better Results and Modular Information Systems Form Strategic Alliance for Sales and Support Services

Common Clients in the Public Housing Authority Sector Bring Companies Together

FOLLOWING A popular trend within the MultiValue database industry, Modular Information Systems Inc. (MIS) and @Better Results Inc. (@BRI) have joined forces on multiple fronts to provide ongoing and innovative benefits to their respective customer bases.

"Modular is pleased to partner with Better Results for many reasons," according to Lisa Corbett, MIS president, "but the primary interest is in leveraging our infrastructure. The initial goal is to integrate the Better Results product line with the MIS Help Desk, thus providing a tremendous improvement in @BRI customer response times. In addition, MIS will now be able to offer quality @BRI products including PH@ST, @YourService, and ViaODBC that provide real solutions in areas where our clients have been asking for viable alternatives to previous technologies."

Jeff Jakus, president of @Better Results, adds: "Modular is great at all the things that come from running a successful organization for almost 20 years. @BRI is pleased to transition our support function to an organization with such a strong reputation for quality customer service. This arrangement will allow us to concentrate on what we do best-which is to develop and refine innovative tools that extend the life of legacy business applications."

This strategic alliance was founded in the Public Housing Authority market where both parties share common customers and have experienced significant successes with enhanced reporting tools, consulting services, proposal writing and other database services.

"Adding the MIS product line of Database Support, add-on U2 tool and license sales, RFP writing, MultiValue Database Training Classes and Windows Help Desk Support will dovetail nicely into the Public Housing marketplace, where we have made many friends, as well as creating additional opportunities," states Dave Meyer, @Better Results VP of Business Development.

While adding Help Desk Support for @Better Results and increasing sales exposure for Modular Information Systems is the basis for the creation of this strategic alliance, the companies intend to seek out additional synergies whereby both companies' customers will ultimately be the benefactor.

Brian Riedlinger, CTO for @Better Results, comments: "Combining our technical talents under this alliance allows us to provide top line products such as IBM's U2 databases and tools, ViaODBC, ViaDuct for jBASE, Modular's Vintners Advantage Winery Management Software, and other leading technologies to our combined customer bases with unequalled customer service and support. This is a very exciting time! In fact, presenting @BRI's flagship product, ViaODBC, to MIS clients is already producing results."

Zumasys Finishes Record Year With 51 Percent Sales Growth

ZUMASYS INC. announced a 51 percent sales increase in fiscal 2002 over the previous year, culminating in a three-year revenue growth of 521 percent for the privately held company. Incorporated in September 2000, Zumasys has become an industry leader in providing workforce mobility solutions and technology rejuvenation services.

Zumasys' year was highlighted by strong sales in several vertical markets including agricultural, financial, manufacturing, medical, education, government, energy and other sectors. New customers included US Borax, Cornell University, Wickes Lumber, Mazda USA and Vacation Resorts International.

"2002 was a tough year for many emerging technology businesses, but Zumasys thrived because of the incredible advantage we provide our customers," said Paul Giobbi, co-founder and president of Zumasys. "Our technology rejuvenation services and workforce mobility solutions give companies the ability to lower IT costs while dramatically boosting the productivity of remote workers."

Revelation Software Honored for Export Achievement

Expands Global Focus

REVELATION SOFTWARE, a Westwood, N.J.-based, software development company, was awarded the U.S. Commercial Service's Export Achievement Certificate in January 2003. The award recognizes U.S. businesses that have made their first or a new-to-market export sale.

Revelation Software is a client of the Newark Export Assistance Center and has been in the Global Markets for over 10 years. Revelation is among the first software companies to publish an open, public, threaded discussion for its developers and create a virtual community for the sharing of information and the exchange of ideas. The site, www.revelation.com, continues to be a highly acclaimed resource for members of the International Community, providing the ability to post and exchange ideas across time and datelines.

In 2001, under new ownership, management recognized its existing international client base was an essential part of its success and coordinated efforts with partners and distributors to significantly increase exports. Despite an economic downturn in the technology sector, these efforts resulted in an average 50% increase in markets that showed little to no increase in the previous 24 months. Markets included: Australia, Canada, Hong Kong, Malaysia, Mexico, New Zealand, and the United Kingdom.

"I am thrilled to accept this award," said Mike Ruane, president and CEO of Revelation Software. "We would not have been able to increase our exports as well as we did without assistance from the Newark Export Assistance Center. We plan to do even better this year, especially in Europe and Russia with support from the U.S. Commercial Service and NJ Commerce's Office of International Trade and Protocol."

Revelation Software will be participating in this year's CeBIT show in March, co-exhibiting with the U.S. Commercial Service and Revelation's U.K. distributor, RevSoft UK. "We are grateful for Revelation Software's support and encouragement in helping us to expand the user base in Europe," said Francesca McAuley, managing director, RevSoft U.K. "Their attention to the EMEA Market has never been more apparent."

BY STEVE VANARSDALE

IMHO

Managing the Migration: A Model for Success

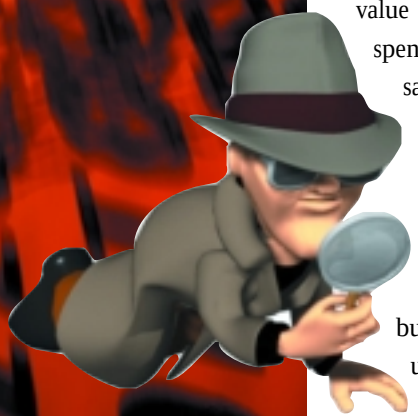
Lurking behind successful systems are usually some gruesome project catastrophes. The Standish Group survey, at http://www.scs.carleton.ca/~beau/PM/Standish-Report.html, estimates that an incredible **72 percent** of all IT projects fail. The average cost overrun is 189 percent of the budget. In my own experience the record-setters are always software and hardware migrations.

It's not hard to explain why migration projects can be black holes. Consider the cost of each failed migration. Look at the lost time ... the wasted effort ... the under-sized or unusable hardware, aging into obsolescence. Moreover, these death marches are often repeated! So you can add crushed staff morale, damaged reputations, and decapitated careers. Not to mention the Gone-For-Ever revenues that the migrations were supposed to deliver, and some FUBAR'ed market opportunities. For example:

◆ There was the case of the largest multi-value VAR in the world, migrating a successful app with 10,000 programs and 8,000 happy user sites, to TurboPascal ... resulting in three years and three million dollars down the tube. The first time. They tried it at least twice more.

◆ Then there is the multi-national manufacturer that budgeted $600 million for migrating everything, including the multi-value app, to an ERP system. They had to start over, after spending about $50 million. But now, three years later, the same project is costing $700 million. That's a loss of **150 *million*** dollars. Think of the good that you could have done with that money.

◆ At the other end of the scale: there was the small IT shop with a critical marketing app, migrating to an industry-standard data warehouse. It wasn't a budget-busting project, and data warehouse re-engineering is not uncommon, but still, this migration has to be some kind



of record: the last report was no less than 12 attempts. Try to imagine getting the migration team fired up for that 13th effort.

Most experienced IT people know other examples (one only has to think of the legendary migrations of Multi-Value apps to Oracle or Informix). On the other hand, consider a successful migration. New capabilities, reduced costs, streamlined operations, more visibility for the team, new leaders, and new career opportunities. Plus: enriched revenue and/or enhanced ROI for a hundred follow-on projects. These are real rewards that help companies, that can fund exciting new projects or provide benefits to enrich the lives of employees.

So. With so much at stake, why do so many go so wrong? In a word: **maturity**. Actually, it's the watchword of cutting-edge project management. There has been landmark research, several books, and a wealth of white papers that have established that the level of project practices of an organization is directly proportional to the capability to plan and complete projects on time and in budget. Carnegie Mellon University's Software Engineering Institute's "Capability Maturity Model" **(CMM)** was the first maturity measurement stool. The famous **PMMM**, or Project Management Maturity Model, published for J. Kent Crawford and Karen White by Marcel Dekker in 2002, is a five-level scale for determining the probable cost effects to a project in a given environment. This measure of Project Management Maturity is directly proportional to the cost-effectiveness of projects, and to the likelihood of success. The most interesting aspect of this 21st century standard is that most IT organizations limp along, stalled in the first stage of project management maturity (ref: www.pmsolutions.com/maturitymodel/index.htm). Studies show that means they spent $80 billion at last estimate, and wasted an astonishing third of it.

An equally embarrassing statistic would be the number of strategic systems migrations undertaken by organizations that are simply not ready. This is even *more* wasteful, because in a migration project, when "it ain't running," it's hard to spin into one of those lame success stories. IMHO, it's wasteful and humiliating enough for all participants, that any IT management worthy of the name simply must take preventative measures.

Enter the **Strategic Migration Maturity Model**, a multi-level measurement of readiness for the job-wrenching task of re-engineering one's environment and one's self.

Level 1 - **Initiation**
Level 2 - **Orderly process**
Level 3 - **Optimized criteria and standards**
Level 4 - **Managed process**
Level 5 - **Optimized process**

The **SMMM** is loosely structured along the public-domain aspects of the Project Management Maturity Model, but is focused solely on the particular requirements of successful migrations. While the PMMM has a gradual benefit to an organization, the SMMM is a logical and reliable method for lowering the risk, and ***immediately reducing the cost***, of any strategic migration project. *Continues on page 22*

"Strategic" Migration?

"Strategic" is a definitive word here. There are two fundamental types of application system migration. Any migration which does not deliver one or more organizational strategy is largely cosmetic, or political, or otherwise discretionary. Therefore minimal risk to the organization, and cost is not really all that important. If, on the other hand, the migration directly supports one or more overall strategy of the organization, the migration is of the second type, and as serious as heart bypass surgery. The measurement of success factors within an organization is critical to success, and to failure, as follows:

◆ Some migrations are the results of management vision. These migrations benefit the organization by enhancing revenue or reducing cost. The timing of these migrations is somewhat discretionary, at least at the earliest stage, but in order to minimize the costs and maximize the benefits, they should not be undertaken until both the system and the organization are ready. Here the SMMM is a measurement of the likelihood of a migration's **success**, and should be the primary factor in determining whether to start the migration.

◆ Some migrations are more or less mandatory. Legal requirements, or imminent system failure, or sudden costs or loss of revenue, are all in this group. Migrations for these reasons preserve the organization's life and livelihood, or in other words, are for survival. These migrations simply must be done, as soon as possible, regardless of the risk or cost. The SMMM is therefore the measurement of the likelihood of **failure**. And as any project manager or military commander will agree, in a desperate situation the first step to get back to safety is to assess that likelihood of failure, and reduce it. ■

IMHO *Continued from page 21*

Level One: An organization has made it to Level One of the Strategic Migration Maturity Model when the organization knows what it is going to migrate. This is more difficult than it seems. Few organizations can produce a person who knows all these things, let alone a written description of them. Here is the minimum list of what is required:

Going down: the organizational components of a simple systems migration.

The organizational functions - tasks, services, deliverables, results. Daily, weekly, periodically.

The organizational departments - formal and informal, the "what's" that are affected.

The organizational personnel. - who. By their name, title, phone extension, and eddress.

Going back up: The components nobody thinks about until it's too late.

The non-organizational personnel- again, who. By name.

The non-organizational organizations - vendors, suppliers, regulatory agencies, of course, and neighborhoods/towns/cities/states/ countries. And also competitors.

The customers - who. Preferably by name. And also by type, region, demographic, and dollar value.

The non-customers - markets. Groups. Interests. Those positively and negatively affected.

Going in: the hardware assets replaced, overloaded, or simply used up.

The computer systems - servers, workstations, including: what, where, when, and how affected.

The networking - including networks, hubs, routers, modems, multiplexors, and even the wires themselves.

The people - for every one of the above, whomever maintains, tunes, or simply knows best about each one of them.

Finally: A definitive inventory of the system software components. This is all the stuff that you thought was all you had to worry about. Surprisingly, one rarely sees a good list of this stuff before the mozzarella hits the Mixmaster. Instead, everybody assumes everybody knows about everything, and forgets the two central truths of migration management:

1) Everybody knows something nobody else knows, and

2) Nobody knows nothing about what they don't know.

While a migration without the organizational information is often embarrassing (like finding out the CEO is a customer after he gets an invalid invoice), the major causes of classic migration cost overruns are mistakes in this software inventory (like, when he suddenly doesn't get a bill at all). So this inventory must include: accounts, files, programs, menus, dictionary attribute definitions, correlatives, conversions, indexes, control files, config files, extract files, interfaces, and, interestingly enough, the data. What, where, when, how, and how much. Be warned: often the migration team simply substitutes a file-stats report, or a VOC, or a volume table, or sometimes just a file-save tape. And pays later for the stuff that shouldn't be migrated. And pays dearly for the stuff that's missing. And pays much, much more for the bad stuff that shouldn't be migrated but afterward cannot be distinguished from the good stuff (the "plausible-but-erroneous" data, dictionaries, and programs). Do the research; analyze your systems.

BTW: *a lot of people write little BASIC programs to ferret out all this information. My own trusty little programs meander quietly through each account, dictionary, and program file, and create a file of statistics that is incredibly useful later when you're looking for something. Note the code on the following pages. E-mail me if you'd like electronic copies of the programs.*

Now, when you think you're finished, you're not. Now that you've got all the components, start an evolving list of the software components and changes that will be in place or in the pipeline by the time the migration is over. Is it supposed to be a secret? Of course not. So make it your secret weapon ... the Prescription for Perfect Politics. This list tells you everybody's hot buttons. Maintain this list daily. Discuss it, update it, even publish it. Let people know you care.

This, then, is Level One. The entry point. The ante. The first step to reducing the cost of a migration project.

One can almost hear the whining already. Sure, this is a lot of work. But you know that you should know these things before you start. Your entire team should know these things. The entire organization should know these things.

And it's expensive to get somebody to gather all this intelligence. So **don't**. That is, don't get somebody. Do it yourself. Surely you shouldn't need to ask somebody from outside the organization to tell you the stuff that somebody in the organization already knows. Don't kid yourself; you know it and your boss knows you know it too. **Wise up**, and save that money to invest in the SMMM levels 2 through 5. A good migration project can touch more people and places than you would normally get to impress in ten years. Instead of turning in a successful migration and getting yourself a pat on the butt, improve the organization and get yourself a big, fat promotion.

In order to do that, you'll need the Strategic Migration Maturity Model levels Two (creating an orderly process optimized for success) through Five (optimized for visibility — yours.) In the next article, I'll describe each level, and the precise steps, to turn the next migration into your next career boost. ***=/srv***

```
* ATTRIBUTE.MAP utility ;srv * 10/2002
* ----------------------
* for ALL accounts
* ----------------------
include bp standard.variables
!
INIT: !
EXECUTE 'WHO' CAPTURING RESPONSE RETURNING ERROR
ACCOUNT = OCONV(TRIM(FIELD(RESPONSE,BLANK,3)),"MCU")
IF ACCOUNT NE 'DM' THEN
CRT 'This process must be executed in the DM account.'
GOTO WRAPUP
END
!
HOUSEKEEPING: !
OPEN 'MDS' TO MDS.FILE ELSE DEBUG
OPEN 'MD' TO MD ELSE DEBUG
READ ACCOUNT.LIST FROM MD,'ATTRIBUTE.MAP.LIST' ELSE
COMMAND = 'SSELECT MDS WITH D/CODE "D]" "Q]"'
EXECUTE COMMAND RETURNING ERROR CAPTURING
RESPONSE
IF ERROR = 401 THEN GOTO WRAPUP
SELECT MDS.FILE TO ACCOUNT.LIST
END
ACCOUNT.LIST = OCONV(TRIM(ACCOUNT.LIST,AM,'T'),"MCU")
*
OPEN 'GLOBAL.DICT' TO GLOBAL.DICT ELSE
EXECUTE 'CREATE-FILE GLOBAL.DICT 1 11' CAPTURING
RESPONSE RETURNING ERROR
END
EXECUTE 'CLEAR-FILE DATA GLOBAL.DICT' CAPTURING
RESPONSE RETURNING ERROR
IF ERROR NE NOTHING THEN
CRT 'GLOBAL.DICT error; terminating.'
GOTO TERMINATE
END
!
START: !
ACCOUNT.COUNT = DCOUNT(ACCOUNT.LIST,AM)
FOR ACCOUNT.NO = 1 TO ACCOUNT.COUNT
ACCOUNTNAME = ACCOUNT.LIST<ACCOUNT.NO>
*
COMMAND = 'ATTRIBUTE.MAP ':ACCOUNTNAME
EXECUTE COMMAND
*
NEXT ACCOUNT.NO
!
WRAPUP: !
!
TERMINATE: !
STOP
*
END
```

```
* ATTRIBUTE.MAP utility ;srv * 10/2002
* ----------------------
* for one account only
* ----------------------
include bp standard.variables
!
INIT: !
TCLREAD COMMAND
COMMAND = TRIM(COMMAND)
IF OCONV(FIELD(COMMAND,BLANK,1),"MCU") EQ "RUN" THEN POS = 4
ELSE POS = 2
ACCOUNT = FIELD(COMMAND,BLANK,POS)
IF ACCOUNT = NOTHING THEN CRT 'Account:':;INPUT ACCOUNT
IF ACCOUNT = NOTHING THEN GOTO TERMINATE
!
HOUSEKEEPING: !
OPEN 'MD' TO MD ELSE DEBUG
!
START: !
OPEN ACCOUNT:',MD,' TO MD ELSE DEBUG
COMMAND = 'SSELECT ':ACCOUNT:',MD, WITH D/CODE "D"'
EXECUTE COMMAND RETURNING ERROR CAPTURING RESPONSE
IF ERROR = 401 THEN GOTO WRAPUP
SELECT MD TO FILE.LIST
FILE.LIST = TRIM(FILE.LIST,AM,'T')
*
FILE.COUNT = DCOUNT(FILE.LIST,AM)
FOR FILE.NO = 1 TO FILE.COUNT
FILENAME = FILE.LIST<FILE.NO>
*
CALL ATTRIBUTE.MAP.SUB(ACCOUNT,FILENAME)
*
NEXT FILE.NO
!
WRAPUP: !
!
TERMINATE: !
*
STOP
*
END
```

```
SUBROUTINE (account,filename)
* srv * 10/2002 * version 0
* ----------------------
*
include bp standard.variables
*
INIT: !
sample.size = 100
item.map = nothing
q.host = nothing
tilde = '~'
*
HOUSEKEEPING: !
*
display = TRUE       ;* displays progress
test = FALSE         ;* uses test conditions
*
if display = TRUE then crt filename
*
open "MD" to md else debug
* open the dictionary
open ACCOUNT:',':filename:',' to datafile then
```

Continues on page 38

```
open 'dict',ACCOUNT:',':filename:',' to dictfile else debug
command = 'sselect dict ':ACCOUNT:',':filename:',' 
command:= ' with d/code "a" "A" "s" "S"'
execute command returning error capturing response
if error = 401 then goto TERMINATE
select dictfile to DICT.ATTR.LIST
end else
 debug
end
* open the global dictionary
open 'dm,global.dict,' to global.dict else debug
*
START: !
*
PROCESS1: ! sample the file for multiple-value attributes
select datafile
for item.no = 1 to sample.size
 readnext itemid else goto process2
 read item from datafile,itemid else item = nothing
 if index(item,vm,1) ne 0 then
              for attr.no = 1 to dcount(item,am)
  attribute = item<attr.no>
  if attribute = nothing then item.map<attr.no,1> = 'OPT'
  if index(attribute,vm,1) ne 0 then item.map<attr.no,2> = 'MV'
            next attr.no
end
next item.no
*
PROCESS2: !
dict.attr.count = dcount(DICT.ATTR.LIST,AM)
dict.attr.no = 0
*
PROCESS2.1: *
dict.attr.no+=1
if dict.attr.no >= dict.attr.count then goto TERMINATE
attr.id = DICT.ATTR.LIST<dict.attr.no>
if num(attr.id) then goto PROCESS2.1 ;* eliminate default attr defs
read def.item from dictfile,attr.id else debug ;* selected not found
amc = def.item<2>
globaldict.id = account : STAR : filename : STAR : amc "R%3"
read globaldict.item from global.dict,globaldict.id else
globaldict.item = nothing
end
*
attr.name = oconv(attr.id,"MCU") ;* attribute name
if attr.name = nothing then goto PROCESS2.1
dcode = def.item<1>
sname = def.item<3>
assoc = def.item<4>
conv = def.item<7>
convert vm to svm in conv
convert "" to "" in conv
corr = def.item<8>
convert vm to svm in corr
convert "" to "" in corr
length = def.item<11>
if length = nothing or length = 1 then length = len(attr.id)
type = def.item<9>
*
value.no = dcount(globaldict.item<1>,vm)
if value.no = 0 then value.no = 1 else value.no+=1
globaldict.item<1,value.no> = attr.name
globaldict.item<2,value.no> = dcode
globaldict.item<3,value.no> = sname
globaldict.item<4,value.no> = assoc
globaldict.item<7,value.no> = conv
globaldict.item<8,value.no> = corr
globaldict.item<9,value.no> = type
globaldict.item<10,value.no> = length
*
if display = true then crt globaldict.id
if test = true then crt globaldict.item else
write globaldict.item on global.dict,globaldict.id
end
*
goto PROCESS2.1
*
TERMINATE: !
*
return
*
SUBROUTINES: !
*
END
```



```
* PROGRAM.MAP utility * s.r.vanarsdale * 10/2002
* ----------------------
* for a program file
* ----------------------
include bp standard.variables
!
INIT: !
TCLREAD COMMAND
COMMAND = TRIM(COMMAND)
IF OCONV(FIELD(COMMAND,BLANK,1),"MCU") EQ "RUN" THEN POS = 4
ELSE POS = 2
ACCOUNT = FIELD(COMMAND,BLANK,POS)
IF ACCOUNT = NOTHING THEN CRT 'ACCOUNT:';;INPUT ACCOUNT
IF ACCOUNT = NOTHING THEN GOTO TERMINATE
POS += 1
FILENAME = FIELD(COMMAND,BLANK,POS)
IF FILENAME = NOTHING THEN CRT 'FILENAME:';;INPUT FILENAME
IF FILENAME = NOTHING THEN GOTO TERMINATE
!
HOUSEKEEPING: !
OPEN ACCOUNT:',':FILENAME:',' TO PGM.FILE ELSE DEBUG
!
START: !
READ PGM.LIST FROM PGM.FILE,'D3-TO-UV.CONVERSION.LIST' ELSE
COMMAND = 'SSELECT ':ACCOUNT:',':FILENAME:',' 
EXECUTE COMMAND RETURNING ERROR CAPTURING RESPONSE
IF ERROR = 401 THEN GOTO WRAPUP
SELECT PGM.FILE TO PGM.LIST
END
PGM.LIST = TRIM(PGM.LIST,AM,'T')
*
PGM.COUNT = DCOUNT(PGM.LIST,AM)
FOR PGM.NO = 1 TO PGM.COUNT
PGM.NAME = PGM.LIST<PGM.NO>
*
RESULTS = NOTHING
CALL PROGRAM.MAP.SUB(ACCOUNT,FILENAME,PGM.NAME,RESULTS)
*
NEXT PGM.NO
!
WRAPUP: !
!
TERMINATE: !
*
STOP
*
END
```

```
SUBROUTINE (account,filename,program,results)
* s.r.vanarsdale * 10/2002 * version 0
* ----------------------
*
include bp standard.variables
*
INIT: !
*
HOUSEKEEPING: !
display = TRUE       ;* displays progress
test = FALSE         ;* uses test conditions
*
pgm.log.item = nothing
stmts = 0;calls = 0;opens = 0;files = 0;results = nothing;V = 0
conv.flag = FALSE
*
if display = TRUE then crt account:',':filename:',':program:str(dot,40):
*
open account:',MD,' to MD else
results = 'MD not found.'
goto TERMINATE
end
open account:',':filename:',' to pgm.file else
results = 'File ':oconv(pgm.file,"MCU"):' not found.'
goto TERMINATE
end
* open the global program map
open 'dm,global.pgm.map,' to pgm.log else debug
*
START: !
read pgm from pgm.file,program else
results = 'Program ':oconv(program,"MCU"):' not found.'
goto TERMINATE
end
pgm.log.item = nothing
line.count = dcount(pgm,am)
*
PROCESS1: !
for line.no = 1 to line.count
line = pgm<line.no>
convert ';' to vm in line
line = trim(line,vm)
stmt.count = dcount(line,vm)
for stmt.no = 1 to stmt.count
        stmt = trim(line<stmt.no>,blank)
        if stmt = nothing then goto next.stmt
        stmt = oconv(stmt,"MCU")
        first.word = field(stmt,blank,1)
        if num(first.word) or first.word[len(first.word),1] = ':' then
stmt = trim(stmt[col2()+1,99])
        end
        if stmt[1,1] = '*' or stmt[1,1] = '!' then goto next.line
        if field(stmt,blank,1) = 'rem' then goto next.line
        stmts += 1
        subr = nothing;open.file = nothing
*
        PROCESS2: !
*
        begin case
case index(stmt,'CALL ',1) # 0
                gosub CALL.ROUTINE
                calls += 1
case index(stmt,'OPEN ',1) # 0
                opens += 1
                gosub OPEN.ROUTINE
case stmt[1,5] = 'FILE '
                files += 1
                gosub FILE.ROUTINE
case index(stmt,'COMMON ',1) # 0
                gosub COMMON.ROUTINE
case index(stmt,'COMMIT ',1) # 0 or index(stmt,'ROLLBACK ',1) # 0
                gosub TRAN.ROUTINE
case index(stmt,'INCLUDE ',1) # 0
                gosub INCLUDE.ROUTINE
case index(stmt,'MSLEEP ',1) # 0
                gosub SLEEP.ROUTINE
case index(stmt,'ROOT ',1) # 0
                gosub ROOT.ROUTINE
case index(stmt,'RQM ',1) # 0
                gosub RQM.ROUTINE
case index(stmt,'SYSTEM(',1) # 0
                gosub SYSTEM.ROUTINE
case index(stmt,'TCLREAD ',1) # 0
                gosub TCLREAD.ROUTINE
case index(stmt,'U$',1) # 0 or index(stmt,'U?',1) # 0
                gosub EXIT.ROUTINE
case index(stmt,\"U\,1) # 0 or index(stmt,\'U\,1) # 0
                if index(stmt,'OCONV',1) # 0 or index(stmt,'ICONV',1) # 0 then
 conv.flag = TRUE
 gosub CONV.EXIT.ROUTINE
                end
case 1
                stmts+= -1
        end case
*
 NEXT.STMT: next stmt
NEXT.LINE: next line
*
WRAPUP: !
pgm.log.id = account:'*':filename:'*':program
write pgm.log.item on pgm.log,pgm.log.id
results = calls "r#2":' calls, ':opens "r#2":' opens, '
results:= stmts-calls-opens "r#2":' others'
if display = TRUE then crt @(40):blank:results:@(-4)

*
TERMINATE: !
*
return
*
SUBROUTINES: !
*
UPDATE.LOG: *
V+=1
pgm.log.item<1,V> = line.no
pgm.log.item<2,V> = code
if code = 'CALL' then pgm.log.item<3,V> = subr
if code = 'OPEN' then pgm.log.item<4,V> = open.file
if code = 'INCLUDE' then pgm.log.item<5,V> = incl
if code = 'EXIT' then pgm.log.item<6,V> = user.exit
return
```

```
*
COMMON.ROUTINE: *
code = 'COMMON'
gosub update.log
return
*
INCLUDE.ROUTINE: *
code = 'INCLUDE'
dummy = field(stmt,blank,2)
incl = stmt[col1()+1,99]
gosub update.log
return
*
CALL.ROUTINE: *
code = 'CALL'
position = index(stmt,'CALL',1)+4
subr = trim(field(stmt[position,99],'(',1))
gosub update.log
return
*
OPEN.ROUTINE: *
code = 'OPEN'
if index(stmt,'DICT',1) = 0 then
  open.file = field(stmt,blank,2)
end else
  stop.col = index(stmt,' TO ',1)-5
  if stop.col = 0 then stop.col = index(stmt,' ELSE ',1)
  open.file = trim(stmt[6,stop.col],blank)
end
convert \'\ to \\ in open.file
convert \"\ to \\ in open.file
gosub update.log
return
*
FILE.ROUTINE: *
code = 'FILE'
gosub update.log
return
*
RQM.ROUTINE: *
code = 'RQM'
gosub update.log
return
*
ROOT.ROUTINE: *
code = 'ROOT'
gosub update.log
return
*
SYSTEM.ROUTINE: *
position = index(stmt,'SYSTEM(',1)+7
param = field(stmt[position,99],')',1)
code = 'SYSTEM(':PARAM:')'
gosub update.log
return
*
SLEEP.ROUTINE: *
code = 'MSLEEP'
gosub update.log
return
*
```

IMHO *Continued from page 25*

```
TRAN.ROUTINE: *
code = 'TRAN'
gosub update.log
return
*
TCLREAD.ROUTINE: *
code = 'TCL'
gosub update.log
return
*
EXIT.ROUTINE: *
code = 'EXIT'
position = index(stmt,'U$',1)
if position = 0 then position = index(stmt,'U?',1)
user.exit = trim(stmt[position,99])
convert \'\ to \\ in user.exit
convert \"\ to \\ in user.exit
gosub update.log
return
*
CONV.EXIT.ROUTINE: *
code = 'EXIT'
position = index(stmt,'CONV',1)+4
user.exit = trim(field(field(stmt[position,99],',',2),')',1))
convert \'\ to \\ in user.exit
convert \"\ to \\ in user.exit
gosub update.log
return
*
END
```

STEVE VANARSDALE is a contract project manager with special affection for MultiValue, working and writing from Chicago, where "heartland" means putting one's heart into the work. Write to steve@vanarsdale.com.

ICEBREAKER™

NEW Economical *real-time* e-Business Solution for Multivalue Databases

Real-time Database Connectivity to your Web Site - featuring:

- Secure Login
- Intelligent Product Lookup
- Unique Customer Pricing
- Client Specific Shopping Cart Accumulator
- Instant Messages to Account Salesperson
- Quick Order Mode
- Order On Hold for Later Additions
- Secure Credit Card / Check Authorization
- Dynamic Ad Generation
- Certificate Based Client Access System
- Secure Encrypted Data Transmission

FOR MORE INFORMATION CALL
ROSS BALDWIN @ 800-229-2881

icePower
Internet Changes Everything

NATEC Systems

7402 Church Ranch Blvd, Suite 517
Westminster, CO 80021

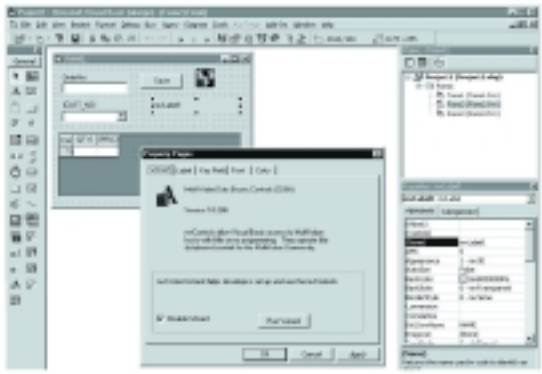
Providing Solutions to your Multivalue Questions

mvConduit (PalmPilot Conduit)

Use MultiValue Host programs to Sync your data with the PalmPlilot

- Sync with Address Book
- Sync with Memo Pad
- Sync with To Do List
- Sync with Date Book
- Easy Setup

Providing Multivalue solutions for your windows and PDA integration needs.



mvControls for Visual Basic

- Intuitive Wizard
- Fast! Uses ViaOjects, D3/Objects, or Un-iObjects.
- Use existing MultiValue Host programs to control validation and prepocessing
- Works with almost all MultiValue System (D3/Universe/UniVision/Unidata/mvBase/ mvEnterprise and Legacy mvDBMS)

Phone: 303-465-9616
Fax: 603-250-0664
Email: nrector@natecsystems.com
http://www.natecsystems.com

BY MARK JOHNSON

DYNAMIC *Versus* Dimensioned Arrays

Our MV systems offer us two array type variables: Dynamic and Dimensioned. In this article I will explore the pros and cons of each form and illustrate some historical decisions on using either.

Academically speaking, arrays in general are used to hold data in a numerically referenced fashion. If you had 20 friends, you could have an array called FRIENDS and each element would be a different friend's name.

In MV systems, most arrays are used to hold data records read in from the file system. There are other uses as well, and I'll cover them also. Both forms of arrays can get the data from the file using READ or MATREAD respectively. Each has its benefits and detractions and hopefully you can choose the proper one for your programming.

The main difference between dynamic and dimensioned arrays is that dynamic arrays are simply a string variable with certain system characters delimiting the fields. A dimensioned array is a collection of a known number of elements, each element being a string variable.

The main difference between dynamic and dimensioned arrays is that dynamic arrays are simply a string variable with certain system characters delimiting the fields.

Dynamic Arrays:

Pro: Truly more suited for data records as the three system delimiters for data records and the entire MV system is based upon attribute, value and subvalue marks. These are directly referenced with each level of array levels.

Pro: Elements can be inserted or deleted within the array at all levels with the proper expansion and contraction.

Pro: You can test if the complete dynamic array is null or empty.

Pro: You can use SUM to accumulate a total.

Pro: All string functions can be used against any and all parts of the entire array.

Pro: The LOCATE function specifically exists to quickly search a whole array or element for a value.

Pro: You can test to see if two arrays are the same.

Pro: External dictionary subroutines exclusively use dynamic arrays.

Con: The debugger can only show the entire array (variable) and not a single field.

Con: It's argued that accessing the higher count (1000+) fields in an attributed array consumes more process time and may be deemed inefficient.

Dimensioned Arrays:

Pro: With MATREAD, each element is an attribute of the data record.

Pro: Using each element is theoretically quicker than scanning through delimiters.

Pro: Each element may be viewed in the debugger separately.

Pro: Participates in the alias concept of the EQUATE statement.

Pro: Allows maximum five levels of system controlled dimensions when each

element is used as a dynamic array, ARRAY(X,Y)<A,B,C>.

Pro: Allows multiple file handles to be referenced numerically instead of individually.

Pro: Older systems may enjoy MATREADing large field count variables instead of using READ for speed considerations.

Con: Number of elements must be known up front. When data fields grow, original field counts may become exceeded, thereby either truncating or consolidating the exceeded fields into the last element.

Con: Value marked and sub value marked data must be extracted using conventional dynamic array expressions.

Con: As each element is a variable, you may exceed the maximum number of variables in older systems. Also contents of complete array may exceed item size when writing.

Con: Cannot know if empty.

Con: Tricky if calling and subroutine program DIM sizes don't match.

Con: If you must visit many programs to increase a file's DIM size, you hope that the DIM'd array name is the same for automatic identification of programs to change.

For conventional file read/writes, one may wonder why a dimensioned array may be used when clearly a dynamic array is more suited for this task. Back in the late 1970's, when both forms were available, reading a record into a dynamic array and then using fields 3 and 4 required the use of the complete EXTRACT function. The following illustrates that older code:

```
PRINT EXTRACT(REC,3,0,0):"
":EXTRACT(REC,4,0,0)
```

It got more wordy if you were assigning one field to another field

```
REC=REPLACE(REC,4,0,0,EXTRACT(OTHER,
1,0,0))
```

At the time, you could have MATREAD in the record into a dimensioned array and use

```
PRINT REC(3):" ":REC(4)
```

or

```
REC(4)=OTHER(1)
```

These typing shortcuts caused the dimensioned array to be the "read" method of choice. When the <> form of dynamic array extraction came along in 1979, those programmers using dynamic arrays with EXTRACT and REPLACE were relieved of a lot of typing. Those programmers who were committed to dimensioned arrays, continued on their merry way, although to get at the multi-values of one of their array elements they either used the original EXTRACT or the FIELD function as shown in the first two examples below. Later, they could use example 3.

```
PRINT EXTRACT(REC(3),1,5,0)

PRINT FIELD(REC(3),VM,5)

PRINT REC(3)<1,5>
```

Dimensioned arrays bring with them an interesting benefit with EQUATES. You may use a contemporary naming convention for file/field variables and assign them to a specific element in an array. Thus you can MATREAD in the array normally, access and change each element with a more descriptive variable and then simply

Continues on page 30

Have a new software product for the MultiValue market?

Combine the power of your AD in ***Spectrum*** **magazine** with a marketing campaign to one of our qualified email lists!

It's more affordable than you think.

Call **858-551-7855**
for a free quote today.

Wouldn't you like to know?

"... **[project management]** is concerned with a) influencing the factors that create changes to the cost baseline, b) determining when the cost baseline has been changed, and c) managing the actual changes when and as they occur."

-from the Project Management Book of Knowledge (PMBOK)
Project Management Institute (www.pmi.com) 2000 Edition

LIKE TO KNOW YOUR PROJECT'S TRUE COST?

BEFORE IT'S OVER?!

MAKE THE CALL ◆ (847) 259-7224

Hands-On Project Management Professional
Planning. budgeting. development. Roll-Out.
From an hour by phone to a year of critical projects.

U2/D3 ◆ MultiValue ◆ Oracle™ ◆ SQL Server™

steve@vanarsdale.com

CPA, CIO, CDP, PMP
ERP, MRP, POS HTML, XML, LAN, WAN
AAAA - *Accounting Ain't Art Anymore.*

Dynamic Versus Dimensioned Arrays *Continued from page 29*

MATWRITE the array when complete. Here's an example:

```
DIM CUST(100)
EQUATE CUST.NAME TO CUST(1)
EQUATE CUST.ADDR TO CUST(2)
EQUATE CUST.LPTR TO CUST(18)
MATREAD CUST FROM F.CUSTOMER, CUSTNO ELSE...
PRINT CUSTNO:" ":CUST.NAME:" ":CUST.ADDR
CUST.LPTR="Y"
MATWRITE CUST ON F.CUSTOMER, CUSTNO
```

Some complete applications establish all the file equates in a separate record and the programs simply INCLUDE that record for consistent variable naming. The only drawback to this is, until you learn all the file's fields, you may not know which attribute CUST.AR.RPT.DATE.CHG is. It does get a little wordy and requires more accuracy and makes you wish for CUST(32).

It's alleged that MATREADs may take longer as the data record is broken up by attribute marks and placed into each array element. Likewise with MATWRITEs.

Both arrays also need some assistance when your current program has a dynamic ORDER<> record and there's this nifty subroutine that someone wrote that needs MAT ORDER to process. Instead of maintaining two separate versions of this subroutine, statements like MATPARSE, MATBUILD and INMAT() (consult local listings) allow the quick exchange of values from dim and dynamic arrays. If these don't exist on your platform, you can always bounce the data record off of a temporary file in this fashion:

```
WRITE REC ON F.TEMP, "ABC"
```

then

```
MATREAD ARRAY FROM F.TEMP, "ABC"
```

Anything to save from having to FOR.NEXT your way through all the variable assignments.

A special benefit of dimensioned arrays is that you can hold multiple file handles if the need arises. If your data resides in 12 monthly files, you could utilize the following example:

```
DIM FILES(12) ; MAT FILES=""
OPEN "JAN-SALES" TO FILES(1)
OPEN "FEB-SALES" TO FILES(2) etc
…
FOUND=0
FOR I=1 TO 12 UNTIL FOUND
    READ SLS FROM FILES(I), ID THEN
    FOUND=I
NEXT I
```

Some more advanced complete applications open all their data files at log-in and carry around the handles in a FILES() array. Thus, all programs would know that FILES(1) would be CUSTOMER, FILES(2) would be INVENTORY etc.

BTW for VB or other MS programmers, both arrays do not acknowledge the logical element zero in any case. MV systems function under the form OPTION BASE 1. Any use of element zero will experience undependable results depending on the platform. Some MV's treat REC<0> as the complete REC. Some MV's treat ARRAY(0) as the overflow contents if the record size exceeds the dim size.

Another caveat is two-dimension dimensioned arrays like ARRAY(100,2). You can use them as internal program variables, but using MATREAD and MATWRITE on them will produce undependable results. Keep these as ARRAY(100).

Some systems allow for the dynamic sizing of the elements of a dimensioned array. This would allow you to keep the maximum size somewhere and all the programs would dimension accordingly. Since it's not on all MV systems, this may not be a good method if your programs could end up on different platforms.

An on-line informal survey concluded that the majority use READ with dynamic arrays as their primary file handling methods. Many avoid DIM arrays completely (as I) unless used for multiple file references or if you need more than three controlled levels of data. **is**

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@comcast.net.

76 Trombones and a Big Spoof Parade

BY MELVIN SORIANO

Catch Me If You Can…

A simple town waits and watches for something exciting to happen. It's been noticed. The traveling con artist sees an opportunity and beguiles the town with promises of music and magic. Most are fooled by the fake credentials, but one indignant librarian, with some work, can detect that a con has occurred. But by that point, the town has been fooled and the hearts of its people have been opened and revealed.

Alright, "The Music Man" may be a stretch, but like the town's citizens in the end, breaches in trust can make one indignant. Spoofing is an electronic version of such an attack. It's clever and sophisticated. It's the ultimate con game. One machine forges low-level bits and bytes so that it looks and sounds like it's coming from a trustworthy computer system. The unsuspecting and trusting computer yields itself, not realizing that it's been had.

It seems so simple really. There are two fundamental concepts to any type of security, not just computing:

- Trust
- Authenticity

In order to feel secure, two entities must be able to work in a predictable, acceptable fashion. Authenticity allows the two entities to accept each other as legitimate so that trust can work its magic. This applies to all forms of security, not just computing. It's necessary with police, soldiers and heads of state; it's necessary between your desktop and your server.

Interestingly, the more trust that exists, authentication can be less loose. Likewise, if little trust exists, rather stringent controls are needed to verify authenticity.

When working through the Internet, spoofing relies on the fact that distant communication is handled by routers that find the destination machine by looking at the ending address, without looking at the starting address. Usually, the starting address matters only if the destination machine needs to respond to the starting machine.

Think of someone appearing at your doorstep. If it's a relative or a friend, you don't need to ask where they came from or even why they are there. If it's a stranger, you would ask where they are from and why they are there, and even then you might never take the chain off your door. Using this imagery, a spoof attack is akin to someone pretending to be a relative or friend or someone else you might permit into your home (the Maytag repairman?) and allowing them inside.

The spoofing computer sends a message to the unsuspecting computer, pretending that the information has come from a trustworthy starting machine. The intruder needs to have first determined the address of a trusted computer, and then forge the IP packets so as to look like the packets are coming in fact from that trusted location. As with a con artist, once you've gained the trust of a destination, much mischief can be done.

The con artist fools or spoofs the attacked computer into believing that it is a legitimate member of the network. The cracker

Continues on page 34

@ Better Results, Inc.
"Your Data - 6 Ways From Sunday"
You Know Your Data Better Than Anyone
We Can Move It Anywhere You Want,
ANY "Open Application"
What Our Customers are Saying:
"Better Results solved a crucial connection issue we were encountering with a competitive product by installing ViaODBC. In fact, we had them back during our cutover to assure success as well as to provide more mapping services."
Pablo Pazmino, App Dev Mgr,
Vitamin Shoppe Industries
"The choice was clear once we evaluated the options that were available in the marketplace. The fact that ViaODBC handles MultiValues properly and has the ability to display user friendly column names were both key in our evaluation."
Jeff Bender, COO Harris Computer Systems
"We immedately saw the benefit of easily moving data from our Unidata files into commonly used Windows applications. And, I have been particularly impressed with the improvements that Better Results has effected in the product since we became a customer."
Chris Schiffhauer, Dayton Metropolitan Housing Authority
Just thought I would let you know about a project I have been working on that has used the (ViaODBC) software. Payroll Budgeting info to an EXCEL spreadsheet. It works really great. By using the software, I have avoided writing a huge program to generate the data."
David Calvert, IT dir, Oklahoma City Housing Authority
@Better Results, Inc.
P.O. Box 69404
Los Angeles, CA 90069
(877) 274-9070 • www.BetterResults.com
MULTIVALUE

SOFTWISE
SoftwiseSoftware

Your Complete MultiValue Solution Provider

- **Convert your application to GUI using AccuTerm 2K2 GUI Interface**
  (It doesn't just look like Windows – It is Windows – Yet programmed in multivalue!!!)
- **GUI Training for AccuTerm 2K2**
  (Worried about making the transition - we can help - classes available)
- **Graphical Financial Software**
  SoftwiseSoftware
  (Payroll, A/R, A/P, G/L and Fixed Assets – uses AccuTerm 2K2)
- **Multivalue Rehosting**
  (We are partners for Raining Data (D3/mvBase), JBASE and Universe)
- **Custom Multivalue Programming**

Visit: www.softwiseco.com

THE SOFTWISE CO., INC.
(440) 236-5827 • Columbia Station, OH 44028
"Our 20th Year"

Viságe
by Stamina Software
21st Century Application Development Framework

- Integrated Design Environment
- Ultra-thin Client
- Use your MV Basic skills
- Utilize HTTP, SSL, COM/DCOM, Scripting, Java, XML, SOAP, .NET
- 4GL functionality
- Apply HTML, JavaScript, VBScript and still access multi media tools.
- Low level interface capability to communicate with any client via HTTP.
- Extensive client script libraries
- Works with a range of MV database environments

Stamina Software Pty Ltd
PHONE: + 612 4953 8050; FAX: + 612 4953 8077
www.staminasoftware.com
Email: sales@stamina.com.au

Webonomics 101

continued from page 35

doesn't want just a one-time spoof; no, the cracker will try to set up a regular connection that will allow the machine to gain strong access to that host. Ideally for the cracker, that would be "root" access. Once accomplished, the cracker could then set up a backdoor into the victim machine. It's almost like a con artist making his way into your house and getting you to give up a key to the front door.

Many people believe that spoofing involves cloaking yourself so that you can surf the net or read your email without being watched. But, given the way normal spoofing crackers work, this isn't usually possible. The starting address was forged, as mentioned earlier. Any responses would go to the real address that was forged. Consequently, a normal communication path does not exist. Instead, most spoofing is used to cause something to happen, without necessarily seeing that actual response. In other words, the cracker tries to force the victim to cough up access but doesn't actually need to see that the access was granted. The fact that there is access afterwards proves that the attack worked. This blind spoofing is one of the most common ways of concealment.

A spoof attack is akin to someone pretending to be a relative or friend or someone else you might permit into your home and allowing them inside.

The first attacks occurred back in the '90s with the Internet Worm. That's just so last millennium. Nevertheless, the attacks worked. The spoofing succeeded because it blindly gained root access and created backdoors into the target machine, entries that did not require a user name or password.

Today's attacks are frequently variations of the basic worm. I've already mentioned what can happen with blind spoofing. The Man In the Middle approach sniffs the link between two specific machines, then steps in and pretends to be one of the end points. The Redirect approach is similar but actually routes the information from the original server to the cracker's machine. An odd approach is called Flooding. This is when the victim is flooded with fake packets; the victim responds to the forged addresses and when the addresses respond to the victim, the packets are sniffed.

Pretty fancy stuff. In short, though, there are just a few basic steps.

- Find your victim (the targeted server).
- Figure out what other servers are trusted by the intended victim.
- The communication from the trusted server to the victim is interrupted and the target's packets are sampled.
- The cracker then pretends to be the trusted server, forging the packets.
- An attempt is made to connect to a service that uses only no or simple authentication. Simple authentication includes merely using the IP address.
- The cracker creates a backdoor.

Interestingly, most attacks against the root account are made from a root account. The cracker can be more successful if the victim's system is thoroughly under its control, and such attempts are far easier if the root itself has been compromised. The cracker could then easily view or modify data, create backdoors or set up all manners of Trojan horses. Why go through all the sniffing and spoofing just to get simple user access when you can head straight for the brass ring?

The blind nature of most of these attacks makes such root access possible. From the point of view of the victim, the targeted server merely held a normal communication with one of its trusted partners. It cannot tell that it's actually transacting with an imposter that is forging IP

addresses in the packets. Since the TCP/IP protocol does not require persistent handshaking, the packets get to the destination and are not confirmed back. Anything that is sent back to the attacker gets lost in the ether.

Like a con man, therefore, the spoofing artist must be cunning and predict what the victim has seen and anticipate what responses should have come out. The attacker sees nothing, but anticipating the response eliminates any need to verify what the response actually was.

In order to prevent the responses from getting to the actual trusted server, the cracker must block off or disable network traffic from the victim back to the trusted server. The most common way to do this is to flood the trusted server with requests. Once the trusted machine has been flooded, it ignores all incoming information until it clears out its buffers. Once thoroughly flooded, then, any communications from the real victim will be ignored.

In human terms, imagine a con artist trying to convince a victim that it was a police officer from a particular station; if you tie up the phone lines at that police station, the intended victim cannot place a call to the police station and the police do not realize that something is amiss.

Sometimes the flooding itself is made with spoofed packets. In other words, the cracker covers up its trail with yet more forged packets. How's that for creating a confusing trail?

When the victim sends out to the flooded machine, the target will wait for an acknowledgement. The spoofer then sends a forged acknowledgement, fooling the victim into thinking that a normal back and forth communication has occurred. Once again, the lack of a persistent private connection in Internet communications creates opportunities for forged packets. The targeted host is compromised and data transfers or command requests can commence.

Not all targeted servers are vulnerable. Some common targets include:

- Devices running Sun RPC
- Network services that depend on IP addresses for authentication
- X Windows
- UNIX "r" commands

From that listing, one might guess that only UNIX servers are vulnerable. Windows servers, however, depend on TCP sequencing, which is spoofable. Pretty much anything that interacts on an IP basis can be susceptible to this attack style.

How do you defend against such con games? Well, remember that most of this depends on IP address forging. Remove any IP address authentication and many spoof attacks fall by the wayside. Turn off "r" commands such as rsh and rlogin. These programs depend on the ".rhosts" file in individual directories. Remove these ".rhosts" files, as they define for that

Continues on page 39

Better Tools to get the job done
Fast and on budget.

The multivalue marketplace is full of consultants with years of experience and plenty of expertise. Avexxis offers you that and more!
We bring a set of tools which will get you reliable results in less time.
As an added bonus you get to keep the tools!
That's right! A fully developed RAD is yours to keep!

- Custom Integrated Systems
- Special Projects
- System Tuning
- Custom Programming
- Multivalue / MS Office Integration
- Any Industry
- Any Platform
- Any Application

MultiValue Consulting Services
888-AVEXXIS 860-676-9006
sales@avexxis.com

AVEXXIS

BY NATHAN RECTOR

Palm VS. PocketPC... *Which is Better?*

Palm vs. PocketPC. Which is better? The answer to this is: "Depends." Some people like the PocketPC because of the features and expandability. Some people lean toward the device that has the most users and platform compatibility. For others, the more mature the software and hardware the better. Still others like the simplicity and style of the Palm over the larger, clunky PocketPC.

And then there are people who just will not touch the PocketPC because it is from Microsoft, and there are people who just will not touch Palm because it is NOT Microsoft.

So which one is better? Well, it depends. There are lots of reviews out there that say one is better than the other. Like any review, it is biased towards what the person likes or needs in a device. For example, in the following review:

http://www.macobserver.com/columns/ibrotha/2001/20010608.shtml

The reviewer talked about a comparison between Palm and PocketPC, side by side with the argument between Mac X and Windows XP. It points out a lot of good points that make the Palm better than the PocketPC, but also doesn't talk about the shortcomings of the Palm in regards to the PocketPC.

You may find that the shortcomings of the Palm are what you need the most, so the PocketPC devices are best suited for you, but again, you may find that the shortcomings of the PocketPC outweigh the advantages of the Palm.

I talked a little about the advantages and shortcomings in *International Spectrum*, July/August 2002, so I won't go into them in this article. If you missed that article, please feel free to contact *Spectrum* or me to get a copy.

Another review:

http://pcbuyersguide.com/hardware/portables/Pocket_PC_vs_Palm.html

Focuses on the advantages of the PocketPC hardware compared to the Palm hardware, but the hardware they are comparing against is a year or so old. PDA hardware is like anything else in the computer industry —six months and it's out of date.

And then, you'll find reviewers that try to take the middle of the road approach like the following:

http://hardware.earthweb.com/computers/article.php/778471

that says that the Palm and PocketPC do not compete for the same market space, but have a dedicated niche all to themselves: "To me, a basic misconception of the PocketPC/Palm debate is the idea that these devices are directly comparable or even go after the same market segment. The Palm is a PDA that also functions as a rudimentary computer, while the PocketPC is a computer that also doubles as a PDA."

I like to think I fit into this category of reviewers, but I do have a tendency to lean more towards the Palm devices than

the PocketPC device for one simple reason…price.

Now that I've said all that and given you some places to go to see some reviews, I want to point out something that you may not have noticed: The question that you are likely asking is the WRONG question. The question isn't "Palm vs. PocketPC…which is better?" but "Palm vs. PocketPC…which is the right one for my business needs?"

When you are picking out your device, you need to look at the hardware and the OS…not just the OS. You can do just about everything on a Palm as you can on a PocketPC, and vice-versa, but you can't always get the hardware requirements in the OS you want.

Here is an example:

In many businesses, the PDA functionality starts with your salesmen (see *International Spectrum*, Sept/Oct 2001, "Diary of a PDA Project"), but then you start including PDAs into the manufacturing or warehousing environments, or other production locations. The hardware needed for your salespeople is drastically different than the hardware needed for your production environments.

Most of the time, you can just go down to the local CompUSA or Office Depot and get a PDA for your salespeople or executives, but for production environments, you need something like Symbol Technologies supplies.

There are some Symbol devices that only run PocketPC and some that only run Palm:

PDT-1800—PocketPC only

SPT-1500—Palm only

SPT-1800/PDT-2800—Palm and PocketPC available

Now I mention these devices, not because they are the only ones you can use in production environments, but because each fits differently into your production environment and are good comparisons. Each of these devices has stylus input ability and a bar code scanner, but:

The PDT-1800 has a built-in 27, 37, or 47-key keyboard, and is designed for harsh environments like freezers and drops from forklifts.

The SPT-1500 is very light and not very expensive (around $400). They are

Continues on page 38

McDonnell Douglas Systems & Peripherals

CONSULTING, SERVICE AND REPAIR AVAILABLE

Factory Trained on PRINTRONIX Printers

With over 20 years Technical and Electronic Experience.

- SERIES 18
- SPIRIT–63xx-66xx
- 4mm and 8mm Tape Systems

Yes! We do build and customize PC's for PICK based users.

Herman Elig

For McDONNELL DOUGLAS Call The Expert!

HERMAN ELIG COMPUTERS

1-800-878-8806

2159 Ohio Pike • Amelia, Ohio 45102 • (513) 797-6000 • FAX (513) 797-6001

PALM VS. POCKETPC

Continued from page 37

designed for retail floors and other low-impact environments.

The SPT-1800 and the PDT-2800 are the middle of the road between the 1800 and the 1500. They support harsh environments like the 1800, but do not have a built-in keyboard (although you can attach a thumb keyboard to the device). They are less expensive than the 1800 and give you the choice between Palm and PocketPC. Although the PocketPC version is more expensive, it is the only one that has a color screen.

I know many offices like to keep all their hardware and OS the same, so Palm over PocketPC, or PocketPC over Palm, becomes a big issue. Most of the time, this becomes an issue because programmers don't want to have to support two different code bases or learn two different programming languages. This is not an issue if you look at a product called "MobileVB" from Appforge (www.appforge.com), and there are also many times you can't get the hardware you need in one OS that you can get in the other.

As a personal choice, I would choose a Palm device for your salespeople and executives because it's lightweight, small, and doesn't cost a lot to replace when it is lost or newer devices come out on the market. Although, if your salespeople need nice hi-res graphics in their PDA applications, I would choose the PocketPC over the Palm.

In production environments, it would depend on what you need for the user. Both PocketPC and Palm support wireless hardware, but if you need to have a built-in keyboard, then the PocketPC is your only choice.

Now, don't choose the hardware without looking long and hard at the user interface of your PDA applications as well. There are many times you may think you need a keyboard, but with a simple design change in the user interface, the keyboard is no longer needed, but this is a topic for another article…or Spectrum Show presentation. **is**

Nathan Rector, a regular contributor to *Spectrum,* is owner of Natec Systems, a consulting firm specializing in D3, AP and R83 environments and custom programming. He can be reached at nrector@natecsystems.com or http://www.natecsystems.com

Manage UNIX Security for uniVerse, UniData, and PI/open the Easy Way

SENTRY

The Integrated Security System

- Simplify administration of users, groups, file permissions, and ACLs
- Protect database commands
- Audit every attempt to use prohibited database commands and objects
- Locate inconsistencies and errors in users, groups, and permissions
- Allow users to change passwords without having access to the TCL or UNIX prompt
- In-person installation and training included in North America

Fitzgerald & Long

Phone: (303) 755-1102
www.fitzlong.com

WEBONOMICS

Continued from page 35

user what IP addresses are to be trusted from the server. The "/etc/hosts.equiv" file should also be emptied. It's essentially a system-wide version of the ".rhosts" file, so it opens up the system for all users.

Moreover, you should encrypt as much network traffic as is possible. Using certificates, Virtual Private Networks, and specialized spoof-preventing firewalls, you can hide host and source destinations and keep the actual packets from being compromised.

Spoofing took off around 1995, as it was shown to be not only possible but, with different hacker utilities available, easier to implement. But today, spoofing is less threatening, as different operating systems have implemented IP packet defense measures. They randomize packet information, making impersonation more difficult.

Instead, many experts now are predicting attacks to move from IP spoofing to application spoofing. Crackers will exploit weaknesses and backdoors in services, with efforts made at creating fake identities. For example, "sendmail" has been shown to be easily fooled, and spam artists have exploited this to our utmost disgust.

So, as with any con trick, the spoofing approach is quite clever. Discreet. There are no files that are stolen and decrypted. There are no misuses of user names or passwords. And as a confidence trick, it's in historically unsavory but usually cunning company. **is**

Melvin M. Soriano works at Eagle Rock Information Systems, an Internet Application Service Provider and WebWizard/MultiValue Developer. ERIS has deployed enterprise-wide solutions on most MultiValue platforms and operating systems. HTM-Mel can be contacted at mel@eriscorp.com and visited at http://www.eriscorp.com/. You can always call him directly at ERIS's Pasadena offices: (626) 535-9658.

SHOW REVIEW

Continued from page 16

mvQuery Easily Extracts Essential Reports from MultiValue Databases

mvQuery is a solution that allows all users to access critical business data from your MultiValue application. The power of desktop applications and the increasing need for information have left IT departments swamped with requests they can't fulfill, said MMT MultiValue Solutions, developer of mvQuery. mvQuery provides a complete solution for design, generation and distribution of exports and reports throughout the organization. The product understands the MultiValue data model and the native features of the underlying database.

mvQuery 4.4, the latest release introduced at Spectrum 2003, adds powerful features to the product set and a number of performance improvements over previous versions. mvQuery 4.4 is accompanied by the release of new Print and Web Server Editions. This suite provides a comprehensive solution to enterprise-wide reporting.

Release 4.4 includes support for two new reporting formats in addition to the proprietary MVR format. These are Adobe PDF and HTML, using style sheets. Any report (with the exception of charts) can now be rendered into PDF or HTML formats, with the additional option to password protect PDF documents. A new Print Report dialog allows you to select the output format and the target locations. A new reporting facility, One Click Report, converts a result set directly into a report. This then allows the result set to be reformatted if desired and printed to Adobe PDF or HTML, using the new output facilities.

Print Server Edition provides a high-throughput, multi-process model for handling volume processing of reports, exports, PDF and HTML documents. Documents can be generated and emailed to recipients along with notifications of completion.

Web Server Edition allows easy access to query processing from within a Web browser. Web server users can submit query requests, and can view the resulting reports online or can have reports or export data emailed to them. **For more information, contact info@mvquery.com.**

Web Enablement

Software RAD Tool – FabGen™
Browser and Terminal UI's
Menus, Screens, Reports, Processes +
Parameter-Driven Reliability

Browser I/O Engine – PixieWeb®
Persistent or Non-Persistent
Real-Time, Field-Level DB Interaction

Mfg. and Distribution – FabMan®
Contact Management
e-Commerce (EDI)
Purchasing
Order Processing
Multi-level BOM (Roll-up Costs)
Estimating (Bills-of-Operations)
Shop Floor Control (Routers)
Job Costing (Timecards)
Finite Scheduling
Statistical Process Control
Payroll (State Specific)
Accounting (A/R, A/P, G/L)

EDI MapTranslator - EC/EDI*Wizard®
Integrate With Existing Software

Master Distributor for PixieWeb®
VAR for IBM, jBASE and Raining Data

Sysmark
Information Systems Inc. Since 1985

49 Aspen Way | Rolling Hills Estates, CA 90274
800-SYSMARK (800-797-6275)
www.sysmarkinfo.com
sales@sysmarkinfo.com

PRC®
Get It Right From the Source.

Want control over the changes you make to your software?

PRC **can help you get it right — and keep it secure.**

For U2/MultiValue and SB+ environments

- **Problem Reporting**
- **Change Control**
- **Project Management**
- **Time Tracking**
- **Test Management**
- **Deployment**
- **Rollback**
- **Audit**

SJ+ Systems Associates
www.sjplus.com
954•796•9868

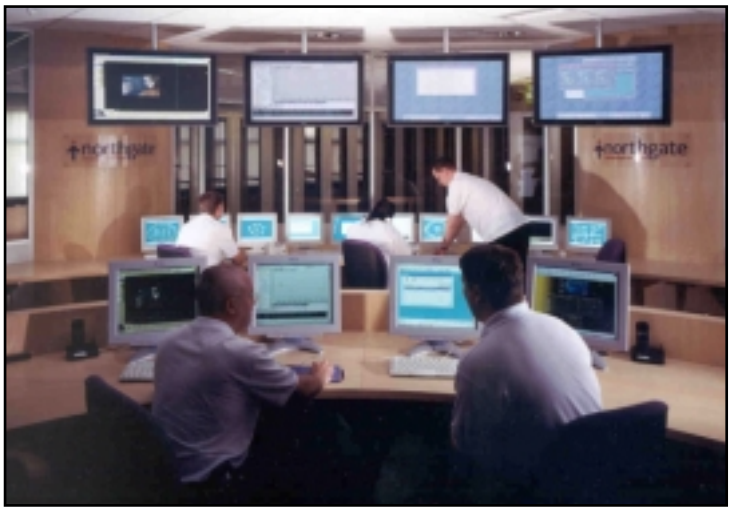
Northgate Information Solutions:

Bringing REALITY BACK TO THE FOREFRONT

Like an old friend you recognize at a school reunion, the name Reality brings out nostalgia for those who've been around the MultiValue industry for a long time. At the Spectrum 2003 Exhibition and Conference, attendees got the chance to reacquaint themselves with the Reality Database Management System, get to know its owner and current developer, U.K.-based Northgate Information Solutions, and learn about new plans to concentrate on the North American MultiValue market.

Rich Lauer is helping to lead a new effort to reintroduce the Reality DBMS to the North American MultiValue market.

Alf Pilgrim, director of Product Development and Support, says one of Northgate's goals is to "enlarge the MultiValue opportunity for everyone."



Northgate Information Solutions' Hemel Hempstead headquarters provides hosted services with a data center housing 1,000 servers.

Reality Traces Roots to the Beginning of PICK

"Reality dates back to the original PICK implementation, and a lot of people in the MultiValue business still remember Reality from its early days," said Rich Lauer, who, along with Tim Holland, has been charged with leading a new effort to reintroduce Reality to the North American reseller channel.

Alf Pilgrim, Northgate's director of Product Development and Support who came from the U.K. to participate in the Spectrum show, added, "At this show, I've met many people that have said they first learned to program on Reality."

With a pedigree that goes back to the very beginning of the PICK phenomenon, where has Reality been in recent times? While Northgate has continued to develop the product over the years, it has not "focused on the channel—reselling to VARs," Lauer stated. "They've been focused on developing the market with their own Reality-based applications in the U.K., and have been very successful at that."

Northgate has major accounts in local government as well as retail and other major commercial segments. A high percentage of these customers are very large, mission-critical sites requiring full integration of front and back office functions. Additionally, the company now offers a human resource solution encompassing payroll, employee benefits and pension modules. To illustrate its dominance in some vertical markets, out of 52 police districts in the U.K., 51 use Northgate-developed computer systems.

The company also provides hosted services for both commercial businesses and the public sector. Northgate will run applications and infrastructure either on the customer's site or in its Solutions Management Centre at its Hemel Hempstead headquarters.

The facility is in the leading class of data centers, housing an array of mission-critical servers for the government and the police. Some 1,000 servers in the Center are constantly monitored using the latest tools to deliver high-performance and extreme resilience, while a high-bandwidth network quickly delivers the data they process to users. Round-the-clock guarding keeps the infrastructure safe while state-of-the-art network security keeps the system secure.

Indeed, Northgate has been very successful at marketing its software applications—it's built a $150 million business doing it. However, a core component of all of its applications is and always has been the Reality database. Since its applications run on Reality, Northgate has a strong business justification and commitment to continue developing Reality.

Over the last two years, Northgate has built a support infrastructure in Irvine, Calif., which includes 35 people and a 10,000 square foot facility. In all, the company has nearly 1,000 employees.

A Full-Scale Operation to Expand Reality's Scope

According to Lauer and Pilgrim, it's the logical next step to refocus its efforts on the reseller channel. And Lauer and Tim Holland, who both have been involved in the MultiValue market since its early days, fit the bill perfectly to accomplish this task. Their combined technical, marketing, and business experience are being tapped to reintroduce Reality to North American VARs.

"This is nothing new for us," Lauer shared with ***Spectrum***. "Over the years, Tim and I have worked together on several occasions. In a couple of instances we were colleagues

Continues on page 42

Cromwell Business Systems Chooses Northgate Information Solutions for 'Richer Sounds' Application

Northgate Information Solutions is working with Cromwell Business Systems, the number one business systems provider to the electrical retail industry to develop an application for hi-fi retailer, Richer Sounds.

Richer Sounds will incorporate Northgate's recently launched Reality V9.1 database product as part of Cromwell's Open Retail system designed for electrical retailers. This will include Web hosting, with the added benefit of Northgate's supporting Failsafe software. With a high percentage of Richer Sounds sales via the Internet, Failsafe provides a high level of resilience by maintaining two identical databases on separate systems, which reduces loss of service and data in the event of any system failure.

The deal with Richer Sounds follows Cromwell's announcement in July that it was replacing Raining Data's D3 product with Northgate's Reality within the "Open Retail" system in a five-year contract worth £1.5 million to Northgate. The contract also includes 24/7 hosting of the "Open Retail" system at Northgate's Managed Service Centre at its headquarters in Hemel Hempstead.

Northgate's Reality is a software environment that supports multiple databases on a single host with a range of powerful utilities for building, managing and accessing the databases. It is available for several different versions of UNIX and NT-based versions of Windows, as well as supporting IBM (AIX), HP-UX, Windows XP and Linux and is compatible with other Multi-Value platforms.

Darren Rice, managing director of Cromwell Business Systems, comments, "We have been very pleased with Reality and Northgate's managed service capabilities since we announced the partnership and the deal with Richer Sounds is another positive outcome of this partnership."

PICK PROGRAMMER'S SHOP

"PROVIDING INFORMATION SYSTEM SOLUTIONS FOR BUSINESS"

We are a computer consulting firm devoted specifically to the needs of the multi-value community. We are business-experienced PICK experts and can offer you 100% satisfaction in all of these platforms:
• PICK • UniData • Universe • PRIME • Ultimate+ •

We Guarantee:
• Up Front Estimating
• Any size project, (1 to 1000+ hours)
• Local & Nationwide Support (24/7)
• Personalized Service

Our Services:
• Project Outsourcing & Management
• Data Transfer
• System Migration
• Technical Support & Training
• Windows Interfacing
• On Site and Off Site Services

5091 Langcroft Drive
Hilliard, OH 43026
Ph: (614) 921-9840
Fax: (614) 921-9842

www.pickprogram.com

WEAVER CONSULTING
Your Source for:

- 200+MultiValue UTILITIES!
- HARDWARE & REHOSTING
- SOFTWARE & PROGRAMMING
- ANALYSIS, DESIGN, TRAINING

Authorized Dealer/Partner for:
Raining Data
Monolith Corporation
Accusoft Enterprises
Zumasys
JBSi
And Others

See our catalog, tips, hints & more:
www.weaver-consulting.com
or write/call for free catalog
Email: weaverco@weaver-consulting.com

WEAVER CONSULTING
4553 Calumet Court
Shingle Springs, CA 95682-9378
530/676-6052 • Fax 530/676-5675

Northgate Information Solutions

Continued from page 41

working for an employer like Dick Pick or Sequoia Systems. We also co-founded our own company, which provided technical and marketing expertise to hardware manufacturers for PICK implementations. This venture proved highly successful."

Success, of course, is also the hoped-for outcome of this latest venture with Northgate. Lauer said Reality is a "tremendous corporate asset. It is fast, stable, resilient, highly scalable, and compliant with industry standards."

"However, it was only recently that Northgate decided to make a serious effort to offer Reality as a free-standing product, particularly in North America. While the Reality product is outstanding, Northgate has not concentrated on selling and supporting Reality through the MultiValue reseller channel. Northgate, therefore, felt they would be well-served to bring additional expertise in this area into their organization."

Lauer and Holland's involvement will assist Northgate in positioning itself as a leader in the MultiValue market. Lauer stated that Northgate is "very committed to this technology and this market. Next to IBM, Northgate is the strongest player in the MultiValue market."

With the proven, solid Reality product; a knowledgeable and larger development team than other MultiValue database providers; and a positive balance sheet, Northgate definitely has the goods. But how will it go about truly accomplishing this feat?

"We will work with the Northgate team in both hands-on and advisory capacities, helping them refine product direction, technical and market strategy, customer support, and channel requirements," Lauer commented. "Where appropriate, Tim and I will interact directly with individual end user customers and VARs to ensure the maximum level of communication and feedback. This will include helping Northgate optimize the 'right' level of performance, software compatibility, conversion tools, connectivity, and third-party products. Our combined years of experience with the MV technology, knowledge of the customer base and awareness of the market's needs uniquely qualify us for this challenging assignment."

Lauer said he felt assured by the fact that this effort has the support and dedication of company leaders. "To be successful, a program must have the full support of the top management in the U.K," he stated. "So prior to getting involved, Tim and I met with Chris Stone, Northgate's CEO in the U.K. We felt it was critical that he understand the potential of the MultiValue opportunity, and we needed to be sure that he was fully supportive of the program. We were very pleased to see both the depth of his knowledge and his commitment in this area. The fact that Tim and I are part of the Northgate team should help a lot with credibility. And as the market begins to more fully appreciate the quality and depth of the Reality product offering, further credibility will follow."

The Northgate team kicked off its campaign by exhibiting in the Spectrum 2003 show. A number of key executives and engineers, including Pilgrim, attended the conference and presented conference sessions. Beyond Spectrum, he said, a series of Web seminars, white papers, advertising and regional meetings will soon be announced.

Behind the Scenes of Reality

"It's an educational process—communicating that Reality is a phenomenal product," Lauer said. "The Northgate team has continued to evolve the technology; it's second to none."

In addition to Reality, the company offers a full complement of products to not just deploy MV, but provide JAVA and Web functionality, Pilgrim said. "Northgate has put a lot of effort into allowing users to take existing applications and Web-enable them cost effectively," Lauer commented. Concerto is a free-standing, advanced environment for JAVA development and Web server functions that is well suited to MultiValue customers and can be integrated with other MultiValue products. PROIV is a powerful RAD tool for Windows and Web application development, and RealWeb is an easy-to-use API for Web-enabling existing Data/Basic programs and utilizing the Reality database.

Among other recent technical enhancements, the company has "opened up the development environment, improving the facilities there," Pilgrim noted. An upcoming release increases the total size of the database that can be supported.

One of Reality's strong points is its resilience, "aimed at big enterprise customers where the standard MultiValue technology of file save and restore are just too slow," Lauer said. Also, Reality's graphical administration tools reduce the cost of management. The company has plans to relaunch its migration tools, making it easier for VARs to adopt Reality from existing environments.

Taking a Leadership Position

The MultiValue market has undergone more than its share of major changes over the years—acquisitions, mergers, partnerships. One aspect of Northgate's new mission is to not only bring Reality back to the forefront in MultiValue circles, but serve as a steadying influence in the community, "helping to bring order and a partnering attitude back to the market," Lauer said.

Clearly, Northgate wants to be a leader with true commitment and a concern for the health and future of the MultiValue industry as a whole, which will benefit everyone in the end. Having been involved in the MultiValue industry for as long as they have, Lauer said that he and Holland "care deeply about the customers and the future of this technology. Hopefully, as other vendors continue showing their lack of commitment, our presence will add a level of trust and confidence to an already excellent product. We believe that will allow Reality to establish itself as the new MultiValue industry leader."

"As a company, we're very excited; there's a lot of opportunity here," Pilgrim added. "Our primary goal is to enlarge the MultiValue opportunity for everybody."

Summing it all up, Lauer concluded: "A quality supplier with a quality product and a genuine long-term commitment to the market—a concept whose time has come." **is**

FREE SUBSCRIPTION

Fax this form to
(858) 551-7866
and keep
***Spectrum* magazines**
coming FREE for 1 year!!

NAME _____ TITLE _____

COMPANY _____

ADDRESS _____

CITY _____ STATE _____ ZIP _____

PHONE _____ FAX _____

E-MAIL _____ WEB SITE _____

SIGNATURE _____ DATE _____

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

1. What is your job function/title?

☐ Principal/Owner ☐ Sales/Marketing
☐ President/GM/CEO ☐ Programmer/Analyst
☐ MIS/DP Manager ☐ Purchasing
☐ Controller/Financial ☐ Consultant
☐ VP/Department Head ☐ Other _____

2. Is your company a (check one):

☐ Computer System Supplier ☐ Dealer/OEM/VAR ☐ Software House
☐ Consultant ☐ End User ☐ Other _____

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

☐ D3 ☐ Native MultiValue ☐ Reality ☐ Other_____
☐ jBASE ☐ uniData ☐ UniVerse ☐ uniVision

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

☐ Accounting ☐ Medical ☐ Direct Marketing ☐ Legal
☐ Banking/Finance ☐ Dental ☐ Construction ☐ Retail
☐ Education ☐ Insurance ☐ Other _____

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

☐ Under $500,000 ☐ $500,000 - $1 million
☐ Over $1 million - $5 million ☐ Over $5 million - $10 million
☐ Over $10 million - $25 million ☐ Over $25 million - $100 million
☐ Over $100 million - $500 million ☐ Over $500 million

IS 3/03

BTW

BY STEVE VANARSDALE, MV INDUSTRY ANALYST

The XML Database is here. (Sort of.) The week after my last article, fearlessly announcing that MultiValue is the world's classiest XML repository, we had a surprise. It seems that TigerLogic™ was released, coincidently right after we published that it would work.

Never let it be said that a blind squirrel can't find an acorn once in a while. Because Raining Data finally announced a product that had something to do with the best thing in their inventory. According to RDTA, TigerLogic (TL) is an "information infrastructure software that provides both scalability, XA-compliant transactional integrity and fine-grain search capabilities." That description could have been lifted verbatim from a dozen slicks for other databases. But wait a minute. Right there, buried in the 13th or 14th paragraph, it proudly says that the product uses the "Pick Universal Data Model." PUDM. ("Poo-dumb"? Whatever. I think Mr. Pick would be proud.)

But don't get your hopes up. This is a world-class product utilizing MultiValue, the fifth-normal-form data model in a post-relational architecture, worthy of recognition. Yes, TigerLogic has a four-level file structure. Sure, TL handles embedded multi-values, and more. And yes, TL generates XML, with dictionary labels, and DTD and/or schema. Yep, it's a naturally good fit for multi-value data, and vice versa. But it ain't Pick. TigerLogic is apparently designed to be middleware only, not for end users or VARs. Furthermore, using TigerLogic in an MV system presents a few obstacles.

First, there is no user interface. No TCL or ECL. No editor. No user commands to get at XML documents (items) or Document Types (files). No native process languages like PROC or ProVerb. Similar to SQL Server, one can only see the repository data via the browser-based Administration Console. And, of course, ACCESS/English/Retrieve/Recall/AQL/whatever is gone as well. The only query that TigerLogic understands is Xpath. If you want a user to get data out of TigerLogic, you write a program in Java or HTML.

According to Boris Geller, the new VP for TigerLogic, the software is designed to be part of a larger application, receiving data in XML format, and presenting data to other processes in XML format. With the exception of the underlying D3-on-NTFS file structure, all that you enjoyed in Pick and UniVerse and UniData has been stripped out. That includes the user command line interface. Unfortunately, someone decided that also includes ODBC. Different from SQL Server, you can't use SQL to query TigerLogic. But like SQL Server, there is no native programming language. No C language interface, nor Visual BASIC. Once again, if you want to get data into or out of TigerLogic, you gotta use the Java API or the HTTP API.

There is a "bulk loader." That is, you can get an XML document with up to 2 gigabytes of data items into TigerLogic as an ASCII file or folder. And TigerLogic will serve up XML documents that contain data dynamically extracted from a networked SQL database…assuming that it is networked close enough to get a response within your lifetime. The word is that in a future release, TigerLogic may be able to do SQL updates to a remote SQL-compatible database. In any case, TigerLogic will not read data from, nor write data to, any MV database, nor Oracle, Informix, Sybase, Progress, Unify, DB2, Cache, Mumps, or Microsoft Access, except through Java or SQL.

In short, according to Geller, TigerLogic is not designed for MV users. Nor is TigerLogic for MV VARs who might want to add XML to their applications. Nor for anyone who expects to create a database of operational, query-ready data (although that would seem to be the only way to justify the heady license fee). TigerLogic is intended as an interim store-and-forward environment for the "emerging XML marketplace." Which will, presumably, be beating the proverbial path to Raining Data's doorstep…just as soon as they find out about TigerLogic in one of those huge marketing campaigns for which Pick is famous. So step back, ladies, and let's listen for Mr. Geller's fanfare. ***=/srv***

PICK PROFESSIONAL

Don't make the mistake of placing your career in the hands of just ANY search firm. We are professionals who understand the importance of CONFIDENTIALITY and RESPECT of a job search, and our database of clients is one of the largest in the country. Unlike the rest, we will work in YOUR best interests' to help you further your career. Because of our dedication and professionalism, we are recognized as the leaders in the PICK / UniVerse / Unidata placement industry in the Tri-State area and throughout the U.S. So if you are tired of putting yourself at the mercy of the rest.

CALL THE BEST! Contact...

Matt Hart

EXECU-SYS, LTD

1 Penn Plaza, Suite 3306
New York, NY 10119

(212) 967-0505

(800) 423-1964 x 302
Fax: (212)947-8593
Email: mh@eslny.com

Consultants Needed Nationwide

DOCUMENTS

How, When and Where You Want Them With UnForm®

Laser forms | PDF forms | Laser checks with MICR | Bar codes in most symbologies | Email enhanced documents

Synergetic Data Systems, Inc
2195 Talon Drive ▪ Latrobe, CA 95682

1-800-446-7374

www.synergetic-data.com
sales@synergetic-data.com

EDUCATION

PICK ◆ MultiValue ◆ UNIX

Discovery Computer Systems offers a comprehensive array of quality courses, books and videotapes ranging from introductory through advanced levels.

For a free schedule call or fax:
MARCIE MILLER

Discovery Computer Systems
626-A Grant Street, Herndon, VA 20170

(703)318-0845 ◆ FAX: (703)318-7581
E-MAIL: dscvry1@erols.com

www.discoverycomputersystems.com

Web-centric Application Development Environment

Total Internet and Intranet Solutions Development Environment

- Real time field level validation without page submission
- NO programming for development — subroutines call your business logic
- NO RISK trial offer — call or e-mail us for details

OHM SYSTEMS INC
www.ohmworld.com

sales@ohwworld.com • 513.771.0008
Post Spectrum Show Pricing Available

CREDIT CARD PROCESSING

A MultiValue Solution!

- Seamless Integration into your POS or Order Entry routines
- Single or Multiple Merchants
- Single or Multiple Modems
- TCP/IP · Internet
- Your Clearing House or Ours
- VAR Partnerships

VISA • MASTERCARD • JCB
DISCOVER • DINERS CLUB
AMEX • PRIVATE CARDS
CHECK GUARANTEE

TotaLink

Total Computing Solutions, LLC
801-796-8320
Sales@Total-Computing.com
www.Total-Computing.com

PICK PLACE

The Place to go for Pick

D3 UPGRADE SPECIAL
Client/Users • Support Contracts

Call for *Discount* Prices!

D3/NT, D3/AIX, D3/SCO, D3/LINUX, D3PRO PLUS, D3/HX

D3! Which version is best for your business? *Let us* help you decide. *Please* call for information.

PRODUCT SAMPLER: Accuterm, ViaDuct, wIntegrate, Un-Basic, Faxlink, Digi, Multitech, and more!

Authorized Pick Dealer

For Orders/Information
(440) 636-5572 • Fax (440) 636-5551

11911 Princeton Road, Huntsburg, OH 40466

NEEDED PICK PROGRAMMERS

for Florida, California, Atlanta New Jersey, Nashville, Denver, N. Carolina, S. Carolina, Texas, Philadelphia, St. Louis, Michigan, and New York City

1-800-949-5423

Chuck Okeson, Software Search
770-934-5138 • FAX: 770-939-6410

Chuck @ SoftwareSearch.com

WHAT DO YOU DO WHEN YOUR SOFTWARE VENDOR NO LONGER ANSWERS THE PHONE?

1-800-PICK-911

Bakken Software Services

PROGRAMMING STANDARDS

BY MARK JOHNSON

The concept of creating, following or enforcing programming standards is quite the challenge. Our MV environment has probably contributed to our general lack of consistent standards by allowing virtually any creative expression of programming to exist. Basically as long as it compiles and gives the client what they want, then unfortunately it's considered good programming.

There are two primary forms of standards to consider, the internal and external. The internal standards is where programmers appear to deviate from each other as there certainly is more than one way to write a program for any given task. The external is the way we create a user interface to be consistent for the application.

Standards in either case can occur if they are established early enough. If you've just hired five programmers to create a new application, then you run the risk of having to maintain possibly five programming standards as each programmer will have his own set of skills and the way he/she approaches each task. Without a higher-order internal standard of programming techniques that these programmers must follow, you will run the risk of having a diverse appearing (and maintaining) system in the future.

When a software company creates and enforces standards, they often cause many experienced programmers to take a step backward and learn the new standards. These programmers may be excellent in writing code their own way. But in the bigger picture, it's the software company's name on the product and they will strive toward a uniform appearance, both inside and outside of the programs.

Given the incredibly flexible way that MV systems allow programmers to get the job done, it's any wonder that software companies can hire experienced MV programmers. They may wish to hire the lesser experienced programmers so that they can indoctrinate them into their own standards. Maybe you cannot teach an old dog new tricks. Perhaps there is the fear that these experienced programmers may be vocal in announcing that there's more than one way to write a program, thus upsetting the control the company may desire.

One could argue that really good programmers can adapt to different standards on a new system. While probably true, there is the learning curve they must endure before coming up to speed.

There are many heated debates regarding internal programming standards. One of the most popular debates involves the use of the GOTO statement. Other internal standards are the way files are opened, screens are built and/or recalled, user input is acquired, data is printed and so on. Virtually every aspect of programming has some subjective nature about it. Six of one and half a dozen of the other.

None of these "standards" is right or wrong. They could almost be considered preferences instead of standards as there's no higher entity to enforce them. That's the nice thing about programming standards, there's so many to choose from.

On the external side there is the desire for user consistency. Virtually none of my clients' systems have a completely uniform user interface. Within one client's system there may be two or three acceptable ways for dates to be entered, sometimes as MMDDYY, others as MM/DD/YY. Clearing fields is another randomly assigned syntax as well as saving/deleting records in maintenance programs. Finally, leaving the programs to go back to the menu system often is anyone's guess from using END, E, EXIT, F, FILE, 0, <esc> or even <enter> alone.

Where does one begin to instill standards? Well, often times the cat is out of the bag as the users themselves may have gotten used to the variety of answer formats and your attempt to imply a standard will be perceived as different and thus not a good "standard."

If you write completely new programs for an existing single standard system, then you're obligated to not introduce a new standard and must maintain "house rules" for both the internal and external sides of the program. If the target application already has multiple external standards, then you should follow the most popular form despite being against your first choice. Here, you may be able to add your variations to their standards so that the program accommodates both.

Standards are best established at the beginning. But that's rarely the case with MV applications. Unless you can justify re-writing the entire application to adhere to one standard, then it's a dead issue. After all, the programs work and are already in place.

One popular solution for maintaining standards is to use a 4GL programming environment so that the user interface will be consistent and the programmers are forced to use the 4GL's rules. This solution is good for a VAR to create and maintain their large application or for those employee-programmers who have the blessing to re-write the code using a 4GL.

As an outside consultant I've never been able to prescribe any major re-writes of my clients' systems as they all basically perform their duties and don't give anyone else any problems. Plus, some of my clients' applications have major code portions written in either a manual 4GL, a non-supported 4GL or a contemporary 4GL (names withheld to protect the innocent), none of which are compatible with one another. Since all have regular MV programs as well, without the 4GL tools, I'm either maintaining parameters for the 4GL or writing enhancements from scratch, using my own programming standards.

Like water under the bridge, trying to establish standards after the fact is quite daunting. The client may not pay for it as they like things the way they are. Programming standards should be established from the start so both the programmers and users have a uniform, consistent feel.

BTW, two anecdotes regarding standards installed early or dictated. The official name for the metal part of a standard light bulb is called the Edison Base, named after you know who. Also, how many Microsoft engineers does it take to change a light bulb? None, they just change the standard to darkness. **is**

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@comcast.net.

Want to modernize your Legacy software?

Call us today — **We'll get it done** for you!

Ashwood Computer Company

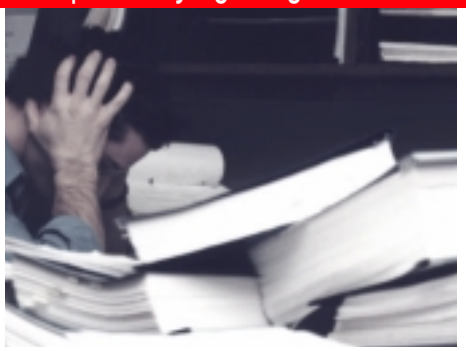
The MultiValue **Integration & Conversion Specialists**

Serving the **MV database** community nationwide since 1989

(513) 563-2800

www.ashwoodcomputer.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

mits

MITS IS A PRODUCT OF MANAGEMENT INFORMATION TOOLS, INC., SEATTLE, WA ◆ 206-789-8313