

INSIDE! DEVELOPMENT STRATEGIES SWING BACK TOWARD THE MAINSTREAM

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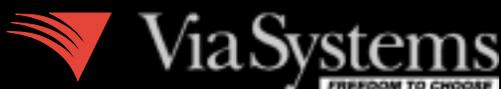
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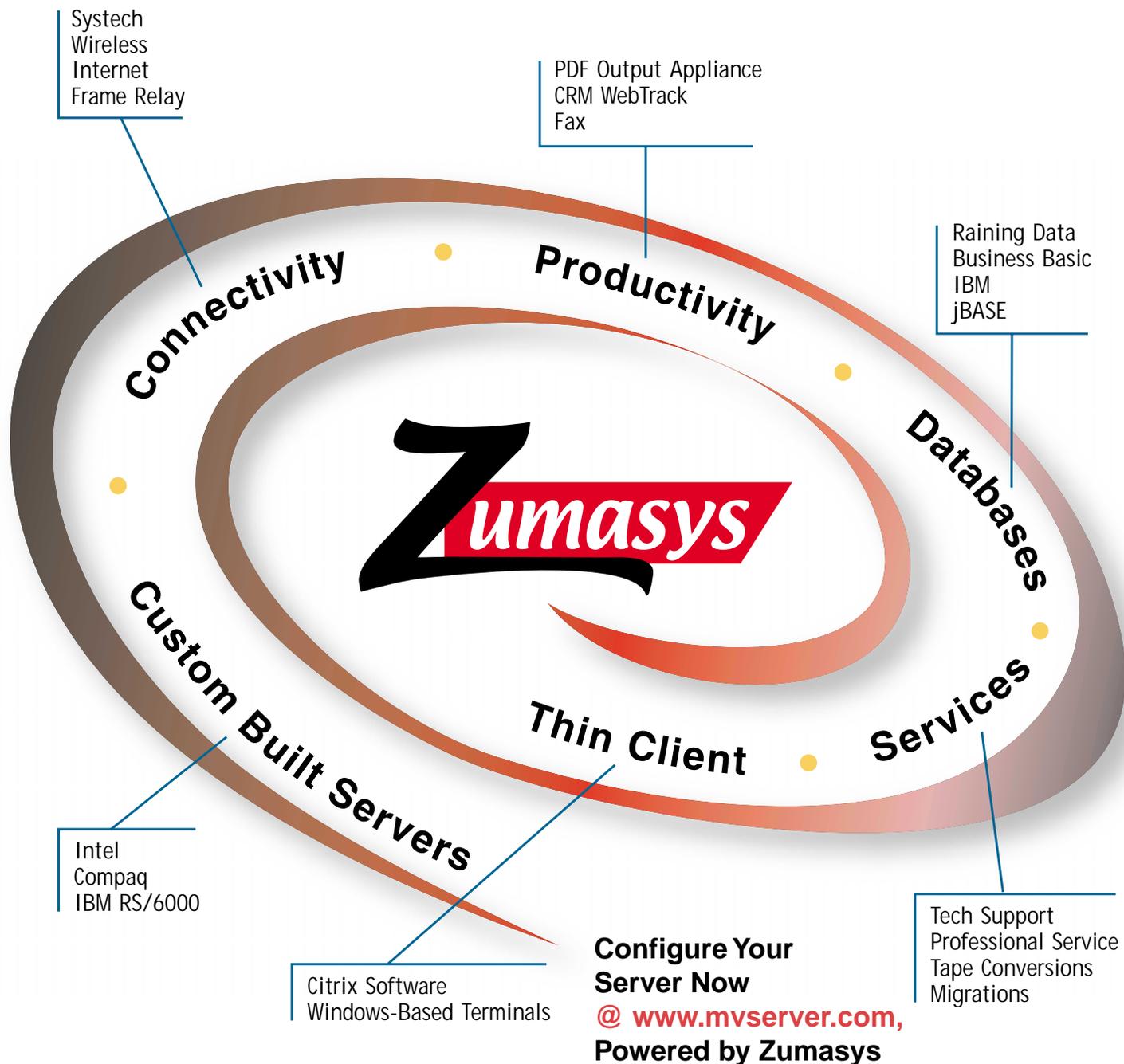
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Wireless Networking

LOOK MA, NO HANDS, FEET, OR WIRES

36 As wireless technologies come into their own, the MultiValue community must seriously consider new developments in wireless technology and how they can be useful to our industry.

BY MELVIN SORIANO

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At the recent Spectrum show, it was evident that the center of gravity in the MultiValue market has shifted yet again—revealing two major trends in MultiValue software development. BY STEVEN BACKMAN

40 SPECTRUM SPOTLIGHT: INTERSYSTEMS CORPORATION WANTS TO BE THE FASTEST IN TOWN

With Cache—a post-relational database offering a fusion of objects and SQL data in a multidimensional engine—in its cachet, InterSystems, one of the top 100 software providers in the world, aims to live up to its motto: “Make applications faster.”

26 DIAMOND IN THE (MAIN)STREAM: HOW TO GET TO WHERE YOU ARE

In the culmination of his series on data warehousing, the author defines the “Transition Architecture,” the first step in any migration, a proving ground for new techniques and technologies and a way to avoid costly failures. BY STEVE VANARSDALE

20 CREATING EXCEL FILES FROM MULTIVALUE DATA

You likely already know that you can export information from your MultiValue database into Windows files using terminal emulation programs such as ViaDuct and AccuTerm, as well as launch Windows programs from within your MultiValue BASIC programs. Find out how you can use a combination of these abilities to view your data in Excel. BY NATHAN RECTOR

8 CONSUMER CHRONICLES: VIA USES ITS WEBWIZARDRY TO HELP LEADER IN HIGH QUALITY FABRICS AND INTERIOR DESIGN WEAVE A SUCCESS STORY

High-end fabric and furnishings provider Scalamandre was looking for new ways to use its MultiValue-based computer solutions to better reach the designers and buyers who sought its services. The company found what it was looking for when it selected WebWizard to provide Web access to its MultiValue database.

30 HOW DOCUMENT IMAGING DELIVERS THE GOODS FOR THE TRANSPORTATION INDUSTRY, PART 2

Part 2 continues to explore how document imaging and management technology is helping the transportation and logistics industry to meet increasing customer expectations, enabling critical shipping documents to be viewed over the Web.

10 21ST INTERNATIONAL SPECTRUM SHOWCASES MULTIVALUE INDUSTRY'S BEST

Exhibitors put on quite a show at the 21st annual Spectrum Show, showcasing products and services covering every aspect of contemporary computing.

14 HISTORY OF MULTIVALUE, CHAPTER 4: THE MICRODATA 'DEALER' NETWORK

A look back at MultiValue's heritage: How the unique and innovative Microdata Dealer Network—one of the main contributors to the rapid success of the MultiValue database model—came about and the legacy it left on today's MultiValue market.

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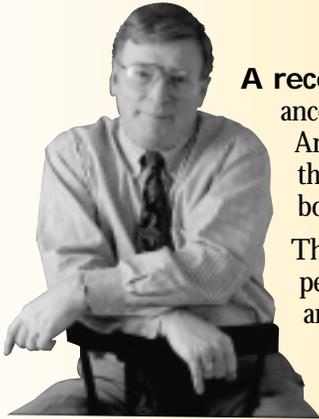
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April 1, 2002, San Diego, Calif.

In the Strange *But* True Department



A recent study conducted at MIT under the guidance of Professor Eric Von Neumain, Chairman of the American Neurological Society, recently confirmed that, like the computer, each of us human beings are born with differing, and finite, components.

The study compares brain MHz ratings to how fast a person thinks, I/O receptors to our eyes, ears, touch, and other senses, external storage devices to things like written memos and photographs, and so on.

Participating scientists concluded that each of us is born with an exact, measurable amount of internal storage capacity located in the frontal lobe of our brain, and if we ever completely fill that "hard drive," that's when we die. In general, then, the study concluded that how long one lives is a function of how much "disc capacity" you are born with, and which life experiences get placed in permanent storage.

The researchers were puzzled, however, by the fact that autopsies revealed no substantial difference in the internal capacity of men and women of similar physical build and background environment, yet in accidents where husband and wife of the same age met early untimely demises, the husband's storage capacity was on average 11.5 percent more filled than the wife's.

On further analysis, researchers found the answer to the mystery. When the male storage section was put under the electron microscope they found substantial extraneous stored information supplied by his female partner that the male was apparently unable to purge.

The brain of one male specimen who died a full 30 years before his spouse, for example, contained hundreds of hours of painful images of himself patiently sitting in the women's department of Macy's watching his wife pore over racks of women's fashions. His instruction set had been expanded with millions of additional commands such as: "That doesn't go there!" "That goes out to the trash!" "Don't put your feet on the furniture!" "When are you going to fix that!" "We need to talk!" and "Not tonight!"

Professor Von Neumain's summary stated that "undoubtedly, the habit of the female constantly talking to the male at the same time he is engaged in something interesting like watching a football game or drinking beer also had the 'doubling up' effect of introducing mounds of life-shortening gigabytes of data into the male storage facility."

The study made no conclusions as to whether this "female stuffing of the brain" is a subconscious, deliberate plot for the female to "do in" their mates, or if it's simply a difference between the way men and women think.

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

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NEWS RELEASES/UNSOLICITED ARTICLES

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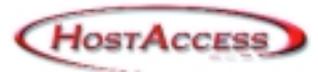
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VIA USES ITS WEBWIZARDRY *to Help Leader in High Quality Fabrics and Interior Design Weave a Success Story*

S C A L A M A N D R E is a name in fine fabrics and furnishings that dates back seven decades, and over that time it has emerged to become the standard in creating and recreating items of the highest quality.

Jackie Kennedy called on Scalamandre when she sought 19th century silk for her White House redecoration project. William Randolph Hearst needed a Renaissance design from Scalamandre when he built his castle in California, and the restorers of Thomas Jefferson's Monticello chose Scalamandre to make silk curtains for the president's 18th century Virginia home.

Cutting-Edge Leadership

While Scalamandre puts its expertise into historical projects such as these, its technology needs are grounded in the best 21st century solutions. "We have been using the MultiValue database as the foundation for our own software development efforts the last 15 years," says Tom Dittrich, Scalamandre technology chief. "As a business to business firm, we offer designers lots of products, which means constant change in pricing, styles and specifications. MultiValue-based solutions filled the bill."

Scalamandre management, headquartered in Ronkonkoma, N.Y., on Long Island, was open for new ways to use its computer-based solutions to better reach the designers and buyers who either sought its services, or who wanted to know more about specific products, but often found it difficult to stay in touch.

Under Dittrich's direction, the company began to integrate its MultiValue database to a virtual private network (provided by Enterprise Wide Connections) and then turned its attention to the newest universal computer tool that lets any business in the world visit Scalamandre by just clicking a mouse — the Internet.

Internet Productivity

"We saw the Web as a way to show our products to the marketplace 24/7, and when we need to update our database, we can make updates at the site easily and cost effectively," Dittrich explains.

His department began digitizing images, and then laying out a Web design that would be fast, robust and able to show off fabrics and their rich colors and the elaborate designs of interior selections in their best form. Dittrich needed facilities to provide Web access to his MultiValue database. One of the possible solutions was WebWizard.

Dittrich was already familiar with Via Systems since Scalamandre is a regular user of the company's flagship ViaDuct product. "We saw some ads for WebWizard in the trades, so we asked Via Systems to show us more," he says. "We looked at a few other competitive offerings, but chose WebWizard because its price and its productivity separate it from others very quickly."

As with all of Via Systems' products, WebWizard operates on all of the most popular MultiValue databases.

Easy To Use

Scalamandre's inside computer staff found WebWizard easy to use. "They went through a short learning curve, and in many cases, few or no changes to existing MultiValue applications are required," Dittrich says. "That helped us get Web development up and running fast and accurately. Our people didn't have to reinvent the wheel because existing subroutines, whether

for calculating prices or maintaining file indices, are usable with WebWizard."

The company also built a comprehensive employee Web site for its designers, internal sales force and customer service staff to access and use as a communication platform. "WebWizard let us easily make these functions and systems available company-wide on this cross-platform environment," Dittrich says.

And as importantly, the Scalamandre Web site supports e-commerce. "WebWizard enabled us to bring our MultiValue data into this profitable new way of doing business," Dittrich explains.

Worry-free Security

Unlike other client-side Web technologies, WebWizard uses server technologies for a secure environment. Database security is enhanced because the client browser never knows how to actually log into the MultiValue system. File structures are always kept hidden from Web pages. The result: users get the information they need and the database stays secure.

"This is vital because on our site, we have a password protected Designer Entrance," Dittrich says. "WebWizard lets us build personal relationships with designers who need any number of Scalamandre services, and are assured details remain private as they serve their clients' needs."

Staying on top of its Web business keeps Scalamandre weaving its success story. And Via Systems ensures that Scalamandre's history keeps repeating itself. **is**

How Does WebWizard Work?

In order to connect your MultiValue host system to the Web, there must be a "communication link" between your Web server and your MultiValue host.

WebWizard is the software that provides this communication link.

When a user "browses" to a WebWizard page, the WebWizard software on the Web server utilizes TCP/IP, PicLan, or serial communication lines to send the request to the MultiValue host system. These requests are processed by the WebWizard software loaded on your MultiValue host, and the resulting Web pages are sent back to the Web server. The user's Web browser receives, and then displays, the generated Web page. **is**

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21st International Spectrum Showcases MultiValue Industry's Best

After a rainy start, the San Diego winter sunshine broke through the clouds and brightened up the 21st annual International Spectrum Conference & Exhibition.

Kicked off by a "town-hall" style executive panel discussion made up of key executives from IBM, jBASE Software, VIA Systems, Revelation Software, On Corporation, Raining Data and Northgate Information Solutions, a mood of determination to continue the cooperative branding of MultiValue through the MV VAR community ended up in action items toward that goal in the upcoming year.

Attendees to the conference chose from over 60 technical and new product sessions covering timely topics including Thin Client, Application Hosting, Distributed MV Systems, Backup Solutions, Web-Enabling and Web Development, Wireless and PDA Solutions, Core Web Technologies, Data Mining, and MultiValue to MS Office Tools.

Visitors to the exhibition were treated to a full array of demonstrations, hosted receptions and the ever-popular Spectrum Sweepstakes. Here's a summary of what the exhibitors were showing:

▶ **1mage Software** of Englewood, Colo., displayed its document imaging/management solutions that work with existing MultiValue systems and applications. Compatible with Linux, UNIX, and NT, the software is built atop a U2 database and offers a robust API library. Tel: 800/844-1468 Web site: www.1mage.com.

▶ **AccuSoft Enterprises** of Sunland, Calif., demonstrated a pre-release version of AccuTerm 2002, its premier 32 bit terminal emulation and host connectivity package for Windows. The new release includes AccuTerm GUI 2002 with more GUI objects, enhanced designer and improved runtime support. Tel: 818/951-1891 Web site: www.asent.com

▶ **Ashwood Computer Company** of Cincinnati, Ohio, distributed information about its integration, conversion, migration and consulting services to MultiValue systems users nationwide. Ashwood is an authorized dealer and support provider for jBASE, UniVerse, UniData, D3, MBAs, Reality and DataStage for Unix, Linux and NT platforms, and they offer server hardware, OS, database and application software, a variety of training services, and custom programming and support. Tel: 513/563-2800 Web site: www.ashwoodcomputer.com

▶ **Atkin/Jones Computer Service** of Santa Ana, Calif., supplied information to attendees about its applied computer networks management, technical support (break/Fix) and IT infrastructure sales organization. The company provides professional planning, design, supply, installation and ongoing administration services. Additionally, the company displayed its proprietary Power Witness, a MultiValue database auto-shutdown software package. Tel: 714/953-4351 Web site: www.atkin-jones.com

▶ **CDBMA** (California Database Management Association), the nation's longest running MultiValue User Group has been providing information to the MultiValue IT community for over 27 years in the Southern California area. The group handed out useful information for other user groups around the world and also hosted its dinner meeting in conjunction with the Spectrum Show. Tel: 714/708-8112 x204 Web site: www.cdbma.org

▶ **Avexxis Corporation** of Avon, Conn., displayed its CatMan system (Catalog Management Software) and also showcased AVRAD, a new RAD environment for the MultiValue market. AVRAD handles extended character and GUI interfaces with the same source. Tel: 860/676-9006 Web site: www.avexxis.com

► **Database Designs Associates** of Chelsea, Mass., acquainted attendees with its full range of consulting services for the MultiValue community. The company has a particular focus on integration between MultiValue databases and the Internet, and interfaces with Microsoft products. Tel: 617/889-0929 Web site: www.dbdes.com

► **Database Trends** and Applications Magazine of Morristown, N.J., a monthly publication for IS managers who are members of their organization's information project teams, distributed information about the magazine which covers data management, data integration, business analytics and data warehousing as well as enterprise level database applications. Tel: 973/285-3305 Web site: www.dbta.com

► **Eagle Rock Information Systems** of Pasadena, Calif., displayed its tools for graphical interfaces, e-Commerce, and Internet integration. Included were the company's new WebWizards that assist users in devising secure, sustainable, straightforward, and sensible solutions. Tel: 626/535-9658 Web site: www.eriscorp.com

► **Easy Computing Company** of Glenolden, Penn., distributed information about its worldwide network of secure hosting centers. The company specializes in offering low-cost, reliable, and simple to install, Easy-Connect connectivity from your server to any user anywhere in the world. Tel: 610/237-2000 Web site: www.easyco.com

► **Epicor Software Corporation** of San Diego, Calif., displayed its integrated eBusiness, supply-chain and manufacturing solutions and services for the extended relational database and tools market. Through development and partnership with our customers, the company creates solutions that enable companies to extend and modernize their enterprises with eBusiness software, supply chain integration, process engineering and other innovative technology. Tel: 858/352-1600 Web site: solutions.epicor.com

► **GA Services LLC** of Irvine, Calif., displayed a line of MultiValue utilities and products including MITS, an on-line analytical processing (OLAP) tool, mv2Report, a Windows based reporting tool for most MultiValue databases, and Cyclades, the TS Terminal Server series designed to fulfill the application requirements of serial console management and remote access as well as the role of a traditional terminal server. Tel: 949/752-6515 Web site: www.gasllc.com

► **GP Solutions** of Baltimore, M.D., showcased their GP Mate Maintenance Management System, SEEK Records Management System and Web enhancement services. GPS also provides consulting services to the Multi-Value industry in the areas of indexing and retrieval systems, Visual Basic, system optimization, data warehousing and conversion. Tel: 410/244-8548 Web site: www.gpsonline.com

Continues on page 12

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► **IBM's UniData and UniVerse** (U2) Division of Denver, Colo., demonstrated its U2 extended relational databases and illustrated how these high performance, scalable data management environments can be used for embedding in vertical applications. IBM's U2 tool offerings include MITS, an end-to-end business intelligence and online analytical processing (BI/OLAP) solution specifically designed for the MultiValue environment; RedBack, IBM's scalable object-enabling solution for the U2 databases; SystemBuilder, a mature and proven 4GL tool; and wIntegrate, an advanced terminal emulation and host-based application enhancement tool.

Tel: 303/294-0800 Web site: www.ibm.com/software/data/u2

► **InterSystems Corporation** of Cambridge, Mass., and ON Corporation of Ventura, Calif., co-displayed Caché, a post-relational database product that can support existing MultiValue applications (via MVON). The company emphasized how MultiValue users can take advantage of the variety of technologies available with Caché including ODBC, JDBC, COM, Java, XML, SOAP, and Caché Server Pages. InterSystems Tel: 617/225-3071 Web site: www.intersys.com; ON Corporation Tel: 805/641-1400 Web site: www.on-corp.com.

► **jBASE Software** of Framingham, Mass., developer of the jBASE relational database, displayed the latest in jBASE desktop and development tools including jDP (the OLE DB, ODBC, JDBC and ADO interface) or jBASE ObjEX, and how to build Web solutions with Java ObjEX or jBASE Web Builder. Information about jBASE Release 4.1 was also available. Tel: 508/598-4100 Web site: www.jBASE.com

► **Modular Information Systems** of San Ramon, Calif., was offering attendees a full range of professional services including Network Design and Architecture, System Integration, Performance Tuning, System Administration, Full Life Cycle Development, Software Design, Programming, Independent QA and Testing, IT Strategic Planning, Project Management, IT Outsourcing, and Conversions. Tel: 925/244-5930 Web site: www.miscorp.com

► **Natec Systems** of Broomfield, Colo., provided demonstrations of its new mvControls, a set of MultiValue Data Bound Controls for Visual Basic, as well as MultiValue to Palm Pilot solutions. Tel: 707/443-6716 Web site: www.natecsystems.com

► **Northgate Information Solutions** of Irvine, Calif., demonstrated Concerto, a next generation e-business server, that combines a Java application server and productive tool-sets that enable the development and deployment of sophisticated Web applications. Northgate also introduced the new release of Reality, V9.0, with its new graphical front end, Reality Explorer that contains a number of other enhancements including RealWeb, a Web-based solution that allows customers to imbed legacy data or applications directly onto the Internet. Tel: 949/823-1000 Web site: www.northgate-is.com

► **Obsydian Technologies** of Greenwood Village, Colo., demonstrated tools for expanding the power of U2 database applications. Their U2 Connector opens up U2 application functionality for integration with standards-based software. Tel: 303/770-3500 Web site: www.obsydiantech.com

► **Paul Scott Consulting** of Londonderry, N.H., focuses on providing enterprise-wide IT and management consulting services. The company educated attendees on their full suite of services including strategic business planning, application development, documentation, database analysis and integration, training, and Internet marketing solutions. Tel: 603/432-7700 Web site: www.ps-consulting.com

► **Raining Data Corporation** of Irvine, Calif., introduced a suite of high-performance Database, Tools and Connectivity products that let developers leverage the power of their connectivity offerings, and make applications more open to existing interfaces. Emphasis was placed on mvDesigner, the company's new GUI Rapid Application Development environment for Multi-Dimensional database technology. Tel: 949/442-4400 Web site: www.rainingdata.com

► **Rasmussen Software** of Portland, Ore., demonstrated Anzio Lite, its inexpensive Telnet and terminal emulation client. The company also demonstrated AnzioWin, adding many advanced features, and Print Wizard, a stand-alone print filter, supporting auto-fitting, forms overlays, UNICODE, special forms and a programmer's API. Tel: 503/624-0360 Web site: www.anzio.com

► **Revelation Software** of Westwood, N.J., demonstrated a number of its products, including its flagship product OpenInsight and JOI — Java for OpenInsight. It showed OpenInsight with Web, XML and wireless applications, and distributed free evaluation copies of the software. Tel: 800/262-4747 Web site: www.revelation.com

► **Sandri Technologies** of Plymouth, Mass., demonstrated its new mvQuery product, the end-user friendly report writer and query tool that understands multi-values, and connects locally so there's no need for ODBC. Tel: 508/747-7261 Web site: www.sandritech.com

► **SJ+ Systems Associates** of Coral Springs, Fla., demonstrated PRC, which the company claims is the first and only REAL Software Configuration Management tool for MultiValue and/or SB+ development. The product provides robust, integrated support to every step of the software development life cycle, from problem reporting, project management and source control through deployment, rollback and reporting. Tel: 954/796-9868 Web site: www.sjplus.com

► **Stamina Software** of Wallsend, New South Wales, Australia, was showcasing "Visage," an evolutionary application development framework designed for the 21st century. Visage enables the developer to deploy thin client solutions over a high speed LAN, WAN or the Internet, while leveraging your existing database designs and business rules. The product is MultiValue database independent and allows the developer to harness mainstream technologies and ongoing initiatives like Java, XML, JavaScript, VBScript, SOAP, .NET, etc. Tel: 01161-249-538-050 Web site: www.staminasoftware.com

► **Strategy 7 Corp.**, of Newport Beach, Calif., distributed information about its capability as a nationally recognized Value Added Partner for top vendors including Hewlett-Packard, IBM, Informix, Ascential Software, In.vision Research, jBASE, Raining Data, PortalVision, BroadVision and Brience. Wireless technology demos were also conducted in the Strategy 7 booth. Tel: 949/719-9410 Web site: www.s7.com

► **Sunergos Software** of West Jordan, Utah, demonstrated its new and blazingly fast graphical administration and programming tools. The company claims its tools reduce the MultiValue prejudice of new IT management and staff by giving them tools they can understand and use. Tel: 801/560-1110 Web site: www.sunergossoftware.com

► As part of your normal business activity, you also receive, generate, handle, store and otherwise process hundreds or even thousands of documents each day. **Keynet Inc.** of Windham, N.H., was demonstrating its Co-Star Document Management Software to seamlessly combine, or integrate your paper or electronic documents with your MultiValue system. Tel: 603/890-5355 Web site: www.keynetinc.com

► **Technical Resource Group** (TRG) of Costa Mesa, Calif., a professional services and consulting company, headquartered in Costa Mesa, Calif., distributed information about its system/database migrations, application programming, security, database interface to Web sites, networking, support and system administration capabilities. The company has expertise in Unix/AIX/Linux and Windows operating systems; is a Microsoft Certified Partner; and is Compaq and Citrix certified. Tel: 714/708-8112 Web site: www.picktrg.com

► **Total Computing Solutions** of Pleasant Grove, Utah, demonstrated its revolutionary credit card processing system, TotalLink, and how easy it is to integrate mainstream merchant processing into your MultiValue application. The company also introduced IntegriView, a tool to easily integrate its Visual Basic Graphical User Interface directly over Telnet sessions. Tel: 801/796-8320 Web site: www.Total-Computing.com

► **VantagePoint Software** of Bountiful, Utah, demonstrated its new mvComponents Suite, which provides everything a programmer needs to develop modern, efficient, scalable client/server and Web-based applications that understand multidimensional, MultiValue data. Tel: 801/292.5344 Web site: www.vpsoft.com.

► **Via Systems** of Colorado Springs, Colo., demonstrated its popular line of MultiValue productivity tools including WebWizard, a connectivity tool to connect the Internet directly to MultiValue host data; Via Duct, the leading Windows-based terminal emulation/connectivity tool; WinLink, the powerful middleware development tool; and UniVision, a powerful and open multi-user database management system. Tel: 719/788-6800 Web site: www.via.com

► **Weaver Consulting** of Shingle Springs, Calif., demonstrated over 100 MultiValue utilities for programmers and end users. Several new utilities the company claims you can't live without were announced including a MultiValue email package, EMAIL-for-PICK. Tel: 530/676-6052 Web site: www.weaver-consulting.com

► **Web-Link-USA** of Phoenix, Ariz., demonstrated its new Weblink VPNserver, a serial/Telnet VPN that routes TCP-IP-based data from a central host site to LANs or serial devices at remote offices. With the Weblink product, customers can eliminate expensive dedicated circuits. The company also introduced its Merlin WebWiz, a revolutionary new product which allows customers to develop and host their own Web site and email server. Tel: 480/460-2647 Web site: www.weblinkusa.com

► **Zumasys** of San Clemente, Calif., distributed information about its capabilities as a leading provider of Raining Data database products and development tools, with more than 8,100 users under paid D3 support. The company offers custom-built Intel, Compaq and IBM RS/6000 servers, which it integrates with MultiValue databases, Linux, NT/2000, SCO, UnixWare or AIX. In its booth, the company demonstrated handhelds, PCs and affordable Esprit thin clients connecting over a wireless network to a server running Citrix MetaFrame XP. Tel: 949/369-8015 Web site: www.zumasys.com

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The Microdata 'DEALER' NETWORK

One of the chief contributors to the early and rapid success of the MultiValue database model was Microdata's unique and innovative distribution network for its "Reality" system.

B Y G U S G I O B B I

In the 1970s, virtually all computer manufacturers sold their computers through their own "in-house" sales force. The computer salesman would sell a customer the hardware, and then try to find software and certain other hardware add-on and services companies to work with the hardware. As is the case today, to augment in-house sales staff, larger distributors and some vertical market software companies could become an Original Equipment Manufacturer (OEM) and purchase computer systems from a computer manufacturer on a firm schedule volume contract at a substantial discount, and re-label and re-market the hardware as their own.

As competition for qualified computer system resellers increased, manufacturers strove to create new distribution channels that would reward the successful reseller with discounts proportional to their performance. The traditional OEM contract of the day required the reseller to commit to a certain number of systems per month, and the reseller had to take (and pay for) those systems whether they had buyers for them or not. The more systems committed for; the greater the discount.



An Early Microdata Dealer Showroom

Realizing the brutality of this arrangement for some resellers, some companies like Applied Digital Data Systems came up with the "back-ended" OEM contract, which started with the premise that in any given annual period, a reseller would start by selling only one system at the smallest discount, but as additional systems were sold throughout the year, discounts would accrue to the reseller as if he had committed to that actual number of systems at the beginning of the contract year.

But in 1972, under the guidance of a man named John Keogh, Microdata introduced its Microdata "Dealer" program, a radically new and creative concept for selling "turnkey" computer systems like nobody had ever seen before.

Modeled somewhat after the local car dealership, the idea was that the Micro-

data Dealer was a company where you bought your business computer system, and then all aspects of maintaining your computer system could be purchased at that same dealership.

These Dealer services and products included not only the computer system itself, but also hardware upgrades, on-site hardware maintenance, peripherals (printers, tape drives, etc.), software, consulting and program enhancements. In short, the Dealer could take care of the customer's every business system need.

The concept turned out to be a great idea at just the right time. Unlike the competition, the single-source Microdata Dealer customer liked the fact that he did not have to indulge in multi-vendor "point the finger" exercises when a problem arose. If there was ambiguity about whether the problem was hardware or

software, for example, the Dealer took care of it. On the other side of the coin, however, as time went by, it wasn't long before everybody realized that the Dealer arrangement fostered a strong dependence by customers on the Dealer.

Becoming a Microdata Dealer was not an inexpensive proposition. To start with, the new Dealer was expected to purchase a "Dealer demonstration system" which cost anywhere from \$30,000 to \$75,000 depending upon the Dealer's intended applications and/or timesharing goals. Microdata was also picky about the physical layout of the prospective Dealer's office space (demo room) and financial depth.

More than a few entrepreneurs became millionaires by acquiring these lucrative Microdata Dealerships. Although it was illegal to offer a Dealer an exclusive geographical area, a substantially similar objective was achieved by Microdata's policy of limiting the number of Dealers it would accept in a specific geographical

region. John Keogh carved out Southern California for himself and eventually co-authored his now infamous book entitled "How to Make a Million Dollars After Tax in Four Years," which touted the Microdata Dealer model as the route to this success.

Only a handful of these original Microdata Dealers continue to exist today. Most have either been acquired or retired by their owners, but as was said earlier, more than a few of these pioneering entrepreneurs are now basking in the sun on the Riviera.

In the long haul, however, there is a strong argument that while these Dealerships installed tens of thousands of successful installations and made many people wealthy (this included some of the early salesmen who made a small fortune on a single multiple-system sale to a national account and earned up to 25 percent of the gross profit), they have done little to further the penetration of the MultiValue industry. Quite the opposite,

because of their competitive nature and the competitive disadvantage of being labeled as associated with the then radical elements of the "Pick" market, very few Dealer customers are aware of the MultiValue database engine that drives their business computer system.

This "small-minded" thinking is compounded by the fact that many MultiValue customers consider their computer systems to constitute such a competitive advantage that Dealers are forbidden by contract to use their installations as testimonial case studies or in some cases to even divulge that a MultiValue system is being used.

This attitude persists today in spite of the fact that the largest supplier of MultiValue databases in the world today (UniVerse and UniData) is none other than IBM. is

NEXT ISSUE: Dick Pick splits from Microdata to form Pick Systems and sets off on a mission to license the Pick Operating System to the world.

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Letters to the Editor

A Newcomer Appreciates the 'Value' in MultiValue Databases

BEING A RELATIVELY "NEWBIE" to the MV field, 5 years, I am finding that this DB is a hidden treasure. With my previous life as a programmer in the Progress/Symix environment I am finding out all about the capabilities of the MV systems. One of the greatest features is the amount of resources that we DON'T have to use to have a fully functional DBMS/ERP system.

In my previous job using Progress/Symix we had a DBA, three programmers and a networking person. This was all for a company that had one site and ~\$30 million annual revenue, with nothing out of the ordinary. I am now the director of IT for a company that is twice the size of the previous one, but has only one person doing both the DBA and programmer work and one net admin person.

The ease of use of this DBMS is phenomenal to say the least. Not to mention that we have five sites reaching from Michigan to Mexico all running on one system. We run UniData and DataFlo ERP on a Compaq ES40 Unix box with a Novell Netware 5.x network infrastructure. The stability of our Unix, UniData and Novell systems far exceed anything I have seen from other companies our size. This obviously keeps my overhead down while supplying our user base with the services they demand.

I will be greatly interested in the future articles on the history of MultiValue. Keep up the great work and magazine.

—**Dondi L. Williams**

CHA, CNA, CNS, CUA
Director, Management Information Systems
S. H. Leggett Co.

Views on Data Warehousing Are 'Right On'

THIS LETTER

addresses the articles by Steve VanArsdale, dealing with data warehousing, in recent editions of *International Spectrum* magazine. His writings on this subject take me back to a personal experience with your Las Vegas show of, I believe, 1996.

One of your staff members called me prior to that show, and asked if I would be interested in being a panelist on a couple of subjects. At first, looking at the titles of the discussions, I advised her that I wasn't sure that I possessed the expertise for any of those subjects, but looking again, I said YES to data warehousing and to some other subject that escapes my memory. I also told her that there was a caveat to

the data warehousing discussion, from my perspective, and it would probably be construed as somewhat negative, especially if other panel members had "warehousing/mining" tools to be peddling.

The caveat was this: I would want to speak about this subject as it relates to a company like The Kittery Trading Post, and the type of budget that it has to apply to IT. We weren't in the market for forking out large amounts of money for hardware and software that would enable us to "mine" our databases on somewhat "occasional" occurrences. It didn't go to say that the information wasn't important; my regards for the "data warehousing/mining" scenario dealt more with cost effectiveness.

ZUMASYS INC., a leading Solutions Integrator, released its results for the fiscal year ended December 31. Total revenues for the year increased 312 percent, total gross profit increased 364 percent, and overall, the company maintained a gross profit ratio of 35 percent.

In 2001, Zumasys announced that it acquired the assets of The Computer Clinic, a 20-year-old professional services company based in Huntington Beach, Calif. As a result of this transac-

Having presided over the Northern New England Pick Users Association for more than four years, back in the late '80s and early '90s, I was fortunate to come in contact with many, many MV-based IS shops similar in size to KTP's, and in most cases, much smaller. In fact, at one point in time, we had over 150 member-companies, encompassing Massachusetts, New Hampshire, Vermont, and Maine. KTP was one of the larger companies (by no means, the largest), in terms of annual revenue. I felt reasonably certain that my feelings conveyed during that Spectrum session on data warehousing were representative of the majority of those NNEPUA members.

We wanted answers from our database, but at what cost?

Reports 2001 Results

Revenues Increased 312 Percent from a Year Ago

tion, Zumasys added resources and doubled its square footage in the Amanecer Business Park in San Clemente, Calif. The new facility supports the increased staff and features an expanded integration/pro services lab.

"We were pleased to post significant top-line growth in only our second year of existence," said Paul Giobbi, Zumasys' president. "Our customers are seeking ways to improve their productivity and our expanded professional services staff and facility are allowing us to deliver on these objectives."

Additionally, Zumasys announced new or expanded relationships with several strategic partners in 2001, including Citrix Systems, Compaq and IBM.

"Zumasys continues to execute on its vision of providing 'legacy IT rejuvenation' and this is reflected in our increased number of high-profile strategic partnerships," Giobbi added.

New Server Configuration Tool Added to Web Site

Zumasys has also added a new server configuration tool to the

Zumasys Web site which allows you to configure a Zumasys Intel-based server pre-loaded with the database of your choice (D3, jBASE, UniVerse, UniData, SQL Server and more).

In addition, Zumasys is offering a new PDF Output Appliance that allows you to print any character-based print routine to a PDF file in just seconds. You can visit the site at <http://www.zumasys.com>. Click on "configure your server now" to give it a try.

Zumasys is a national provider of technology services and business computing solutions to a broad range of customers. The company offers "custom built" Intel, Compaq and IBM servers, integrated with AIX, Linux, Windows NT/2000, Citrix, SCO or UnixWare. Zumasys is a member of the Citrix Solutions Network and specializes in helping customers with Unix and legacy-based computing environments implement Citrix MetaFrame XP and affordable Windows-based terminals from Esprit, Neoware and Wyse. ■

My views spoken then were very much echoed by Steve VanArsdale in his "Life After Pick" and "Diamond in the Mainstream" series of articles. Of course, I did not have the type of armament that Steve provided, i.e., the Oracle table stats, but my argument had much the same basis. Those of us with even pseudo-state-of-the-art MV databases (e.g., post-R83, etc.) have what's necessary to build reasonably sound ad hoc reporting for management information, or what some might refer to as "decision support systems."

Here at KTP, since our move to Advanced Pick in 1992, and subsequent move to D3 in 1998, we have made massive strides toward presenting quick results to "I-need-to-know-now" questions, regarding our database. The single-most powerful enhancement for us has been the advent of "indexing." We have indices built on many, many attributes of data,

as well as "translations" from attributes across to other files.

For example, our Product Master file has a Product Class, 4-digit number that specifies which category the product belongs to. That 4-digit class is indexed, and allows very rapid selection of inventory items by selected class. There is also a Product Class file, which stores, among other data, the description of the 4-digit class, the Point-of-Sale Department code, and the G.L. code. Even though these pieces of data are not resident in the Product Master file, they are still indexed, via the Product Master file, allowing us to select inventory items that belong to certain POS Departments, or to specific GL Codes. In actuality, there are indexes built on this Product Master file for data that doesn't even exist in the file.

Many of our programs have multiple criteria entered for search

patterns, but we employ the use of, first, selecting the data based on one of those indexed attributes, narrowing the search, considerably, before refining the search with the remaining elements of desired criteria. Now, with the use of Visual Basic, or mvDesigner, we have been able to build very user-friendly inquiry screens, against heavily-populated databases.

I just completed an mvDesigner application that queries 2.2 million sales transactions, compiled from 1998-through-current sales; the file is just over 2Gb in size. From that file, an inquiry can be made on transaction date, or by product. The response time to display the array of matching items is remarkably fast, because of the indexed fields that we can inquire against. There is only one "date" per transaction; however, the number of products per transaction is unlimited, and, quite

often, very numerous (that's the kind the owners like to see).

These facts match, pretty much so, what Mr. VanArsdale points out in his articles, and precisely what I used as my argument AGAINST data warehousing, per se, back in 1996. My viewpoints were not met with much enthusiasm, then, as I suspect there was more than one purveyor of add-on products in the audience. The fact still remains, MultiValue databases provide us with a very sound base for data mining, without added, costly utilities.

It was refreshing to read from an "expert" in the Pick community that what I have been striving for these past several years was "right on."

Hoping for continued success for IDBMA,

—Jim Cronin, Sr.

*Director of Management
Information Systems
Kittery Trading Post*

Zumasys Upgrades to Citrix Gold Status

Completes Thin Client Implementations with Mazda USA, HoneyBaked Ham and Bureau of Land Management

ZUMASYS INC. announced that it has upgraded to Gold Reseller Status with Citrix Systems Inc. Increased technical certifications and demand from mainframe and Unix-based customers were cited by the company as two key reasons for upgrading.

Citrix MetaFrame provides super-fast remote access to Windows applications over any connection. MetaFrame saves businesses money by allowing them to run applications on a centralized server and connect to any device including inexpensive thin clients, PCs, Macs and iPAQs.

Zumasys provides pre-sales consultation, installation, integration and support for the complete Citrix applications server product line including Citrix MetaFrame, NFuse application portal software, XPS portal software and Citrix Independent Computing Architecture (ICA). The Zumasys management team has been working with Citrix software since 1996.

To become a Citrix Gold Reseller, Zumasys was required to add certifications including CCEA, CCA and CCSP; demonstrate the highest level of technical competence; and show a strong sales track record with Citrix products. Ongoing participation in Citrix product training will ensure that Zumasys' staff is able to offer clients the most up-to-date product support available.

"We are pleased to reaffirm our commitment to providing innovative and cost-effective thin-client solutions," said Paul Giobbi, president of Zumasys. "Citrix is the global market leader in thin-client computing and our Gold status is just another example of the strong vendor partnerships that we bring to our clients."

Zumasys also announced that it recently finished Citrix roll-outs with Mazda Corp., The HoneyBaked Ham Company and Bureau of Land Management. In each case, Citrix MetaFrame XP solved remote-access challenges by allowing applications to be deployed over the Internet, Frame Relay and Satellite, while maintaining exceptional performance. Applications included GIS, Budgeting and JD Edwards.

For information about upcoming free seminars where you can learn how to use Citrix MetaFrame XP to access "any application, from any device, over any connection," including affordable Esprit Windows-based Terminals, go to www.zumasys.com or call (949) 369-8015, ext. 106.

Modular Information Systems Moves Headquarters

MODULAR INFORMATION

SYSTEMS, in need of expansion, has moved its headquarters to the famous Bishop Ranch development in San Ramon, Calif. The relocation was completed in early January.

"We are delighted for an opportunity to expand our facilities,"

said Lisa Corbett, president of Modular Information Systems. "We have been able to find excellent premises, and this expansion will allow us to better serve our growing client base."

Fortunately, Modular Information Systems continues to grow despite the current economic climate, something Patrick Shabram, manager of Sales and Marketing, attributes to expanded services. "Our expanded Help Desk Service has attributed a great deal to our growth," Shabram said. "Customers appreciate having a technical resource readily available and can utilize certified professional personnel on an as-needed basis. Additionally, our Network Services group and value networking rates continue to gain visibility and win customers over."

The new address for Modular Information Systems is 2303 Camino Ramon, Suite 210, San Ramon, CA 94583-1389. All other contact information, including telephone numbers, fax numbers, e-mail addresses, and Web site address will remain the same. ■



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CREATING EXCEL FILES

FROM MULTIVALUE DATA

B Y N A T H A N R E C T O R

It's been a while since I talked about integrating MultiValue information with Office products. In previous articles, I covered using VBA to process MultiValue information. However, for many things, VBA is not required.

Most of you probably use terminal emulation programs such as ViaDuct and AccuTerm to access your server. You also likely know that you can export information from your MultiValue database into Windows files using these tools, as well as launch Windows programs from within your MultiValue BASIC programs. You can use a combination of these abilities to view your data in Excel.

Let's start with creating some simple spreadsheets by creating a comma delimited file in Windows. Both AccuTerm and ViaDuct have the ability to enter a file name, list of record numbers, and a list of fields you want to transfer.

If you transfer this information into a file with the extension of .CSV, you can open this file in Excel and it will convert it into a spreadsheet.

Host file: INVOICE

Itemids: *

Fields: PRODUCT QTY RET.DOL TOT.DOL

PC file: TEST.CSV

Options:

Start

Cancel

Select...

Help...

The name of the PC file to receive data from the Host file.

Sample of ViaDuct File Transfer Screen

	A	B	C	D	E	F
1	P	1	\$100.00	\$100.00		
2	P	1	\$50.00	\$50.00		
3	P	2	\$75.00	\$150.00		
4	A	1	\$20.00	\$20.00		
5	A	1	\$10.00	\$10.00		
6	B	1	\$5.00	\$5.00		
7						
8						
9						
10						
11						

several different ways, but they all require you to create the Windows files using a program instead of the built-in functions of the terminal emulators.

Let's start with adding totals and headers to your information. If we create

```
"P","1","$50.00","$50.00"
"P","2","$75.00","$150.00"
"A","1","$20.00","$20.00"
"A","1","$10.00","$10.00"
"V","1","$5.00","$5.00"
```

Adding headers are the easiest. In the first row of information, just add the text that you want to display in each column header:

```
Text.csv
"Product","Qty","Dollar","Extend Dollar"
"P","1","$100.00","$100.00"
"P","1","$50.00","$50.00"
"P","2","$75.00","$150.00"
"A","1","$20.00","$20.00"
"A","1","$10.00","$10.00"
"V","1","$5.00","$5.00"
```

Even though this is the easiest way to create an Excel spreadsheet, there are limitations. As you can see, the cell widths do not change to accommodate the data, there are no headers, and there are no totals. It's just the raw data that was pulled from your MultiValue files. You can get around these limitations in

a comma delimited file on your MultiValue system first and then transfer that completed file to the Windows machine, we are able to add the additional information we want.

```
Text.csv
"P","1","$100.00","$100.00"
```

Continues on page 22

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Creating Excel Files from MultiValue Data

Continued from page 20

Now, if we want to add total columns, we need to know just a little bit about Excel Cell Formula, but other than that, it is just as easy to add them as the Headers:

Text.csv

"Product","Qty","Dollar","Extend Dollar"

"P","1","\$100.00","\$100.00"

"P","1","\$50.00","\$50.00"

"P","2","\$75.00","\$150.00"

"A","1","\$20.00","\$20.00"

"A","1","\$10.00","\$10.00"

"V","1","\$5.00","\$5.00"

""", "=SUM(C2:C6)", "=SUM(D2:D6)"

This simple comma delimited file becomes the following when loaded into Excel:

Product	Qty	Dollar	Extend Dollar
P	1	\$100.00	\$100.00
P	1	\$50.00	\$50.00
P	2	\$75.00	\$150.00
A	1	\$20.00	\$20.00
A	1	\$10.00	\$10.00
V	1	\$5.00	\$5.00
		\$265.00	\$335.00

This allows you to create quick, simple spreadsheets, but it still doesn't solve one problem: cell width and formatting. If your data is longer than the default cell width, then it becomes hidden behind data from the next column. Also, you are unable to create pretty spreadsheets with different fonts or colors when using a comma delimited format.

Well, the advent of HTML and Office 2000 has solved this problem for us. Starting in Office 2000, Excel can convert an HTML file into a spreadsheet, and use the HTML tags to make it pretty with different fonts and colors as well as define the cell widths. Here is an example:

Test.htm

```
<head></head>
```

```
<body>
```

```
<table>
```

```
<tr><td colspan=4><center><u><font size=6>Invoice
```

```
Example</font></u><center></td></tr>
```

```
<tr>
```

```
<td bgcolor="#COCOCO">Product</td><td bgcolor="#COCOCO">Qty</td>
```

```
<td bgcolor="#COCOCO">Dollar</td><td bgcolor="#COCOCO">Extend
```

```
Dollar</td>
```

```
</tr>
```

```
<tr><td>P</td><td>1</td><td>$100.00</td><td>$100.00</td></tr>
```

```
<tr><td>P</td><td>1</td><td>$50.00</td><td>$50.00</td></tr>
```

```
<tr><td>P</td><td>2</td><td>$75.00</td><td>$150.00</td></tr>
```

```
<tr><td>A</td><td>1</td><td>$20.00</td><td>$20.00</td></tr>
```

```
<tr><td>A</td><td>1</td><td>$10.00</td><td>$10.00</td></tr>
```

```
<tr><td>B</td><td>1</td><td>$5.00</td><td>$5.00</td></tr>
```

```
<tr><td></td><td></td><td>=DOLLAR(SUM(C3:C8))</td><td>=DOLLAR(SUM(D3:D8
```

```
)</td></tr>
```

```
</table>
```

```
</body>
```

```
</html>
```

This HTML file will look like the following in Excel:

Invoice Example			
Product	Qty	Dollar	Extend Dollar
P	1	\$100.00	\$100.00
P	1	\$50.00	\$50.00
P	2	\$75.00	\$150.00
A	1	\$20.00	\$20.00
A	1	\$10.00	\$10.00
V	1	\$5.00	\$5.00
		\$265.00	\$335.00

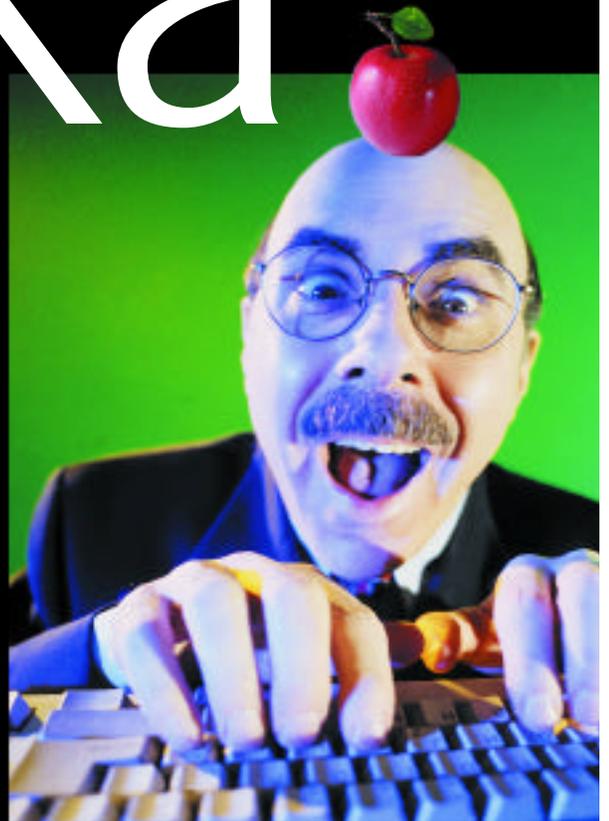
As you can see, you can easily create Excel spreadsheets with MultiValue data without a whole lot of VBA coding. Of course, this becomes static information and is not interactive with your database, but for most people, this is all that is required. is

NATHAN RECTOR, a regular contributor to *Spectrum*, is owner of Natec Systems, a consulting firm that specializes in D3, AP, and R83 environments and custom programming. He can be reached at nrector@natecsystems.com, (707) 443-6716 or www.natecsystems.com.

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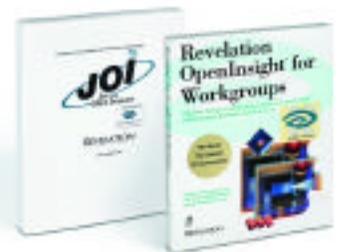
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jBASE is the launch point for connecting standard tools such as Excel, Word and Crystal Reports to the database. Once the connection is made, just access data or execute code directly from that industry-standard desktop application. jBASE OBJEX integrates seamlessly with Visual Basic for Applications (VBA). Plus, jBASE provides an OLE DB and an ODBC interface. Remember, to develop out-of-this-world applications, start with an out-of-this-world product: jBASE.

THE FREEDOM TO INTEGRATE WITH ALIEN DATABASES.

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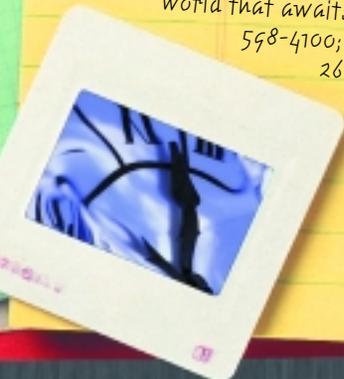
JAVA OBJEX

Java OBJEX is a recent addition to the jBASE product set. It defines BASIC and other important jBASE elements to the Java environment, and allows the interaction of jBASE with any Java technology. Java OBJEX's versatility allows it to be used with any Java integrated development environment such as Visual Age and WebSphere. Or use it to create Enterprise Java Beans. Plus, when it's used with a Java Application Server, Java OBJEX yields a robust scalable implementation of an application for the Web or any Distributed Environment.

Latest sighting

jBASE WEB BUILDER

jBASE Web Builder, the newest component of the jBASE product set, empowers developers to create industrial-strength business applications using Internet technology and their existing jBASE expertise. By providing a browser-based integrated jBASE Web Builder development environment, jBASE Web Builder breaks new ground in the Web application builder arena. Simply put, it is the 'glue' that links widely available, open and standard technologies, ensuring that jBASE Web Builder applications can be deployed on all major technology platforms.



Diamond *in the* (Main) Stream

SECTION 8

How to Get to Where You Are

A few years ago, in PickWorld magazine, there was an article on getting the most from a legacy multi-valued application. The trick is not the technical fireworks; they come fast and furious each new day. The big hurdle is getting the organizational payback that makes multi-valued data warehousing into an immediate project. My own particular interest is databases for police and fire departments. I've learned two things: that one aspect of these environments is the long startup cycle — sometimes as much as two years. And one way around the bureaucrats is a method that works equally well in any private company.

Transition Architecture: How to Get to Where You Are (Or Where You Ought To Be)

Despite a superior data model, the multi-valued database continuously loses ground to more fashionable technologies. Maybe it was justified. MV was never the easiest to explain. It has been a long while since it was the easiest to install. Lately, there are off-the-shelf applications that are equal and even superior to MV apps. And for the new generation of

users, MultiValue no longer has the most intuitive user interface; the majority of users measure everything against the seductive Windows desktop.

So the question at many sites is how to simply maintain the presence of the MultiValue database, rather than extend it. Compounding the obstacles, MultiValue lacks any perceived technological value, largely as a result of shamefully weak marketing.

Fortunately the perception of technical superiority is rarely the basis for technical change. There are usually too many differing opinions, objectives, and intervening factors. Like traveling over difficult terrain, the most sought-after path is usually the most convenient one. The solution is to turn the continued use of multi-values into the most convenient “next step.” It is usually just as easy, and cost-justified, in a small organization as in the billion-dollar corporation.

In preceding issues we discussed a variety of unique uses for MultiValued databases in the domain of data warehouse and business intelligence projects. At one point, we stressed that most of the fundamental work in these projects is not new or complex. We noted others who said that the work of establishing and maintaining a data warehouse, a basic repository for business intelligence software, is fundamental database work (per Ralph Kimball, Lou Agosta, Sid Adelman, et.al.*). We concluded that the breakthrough business intelligence technology is the graphical data mining software. It's time to revisit that point, and show how MultiValue can be the convenient “next step” for the benefits of a data warehouse system.

Most such initiatives start as user report requests. In the first stage the user learns to write ad hoc reports. This stage can

last for years, or at least until the super-users move up or out. In the next stage, standardized reports are created for unskilled users and maintained by skilled programmers. Most of the time these pre-programmed reports proliferate to the point where they become confusing if not outright contradictory. About this time the need often arises for analytical summarizations and complex, cross-file calculations. The programmed reports lose their effectiveness, against more timely personal computer spreadsheets. It doesn't take long for the dedicated programmers to lose the initiative, or the interest, or both. In this latter stage, everyone agrees that it would be easier if each user could use their flashy desktop spreadsheet tools to manipulate their own reports. Saves time (for the programmers) and money (supposedly). Users download data, and soon everyone has their own copy, and their own interpretations. One data, conflicting views.

This is the moment when the organization risks losing its way — at the point when every user with a personal view of the data realizes that they don't have an accurate view of the facts. It is at this perilous time that everybody realizes that no one can tell "real" data from the stuff that came from somebody else's personal computer spreadsheet. With luck, the mistakes are personal and embarrassing, rather than legal and catastrophic. In the hasty shuffle that follows, there is an outcry to get this data back into some kind of centralized control.

In most organizations, this anxiety becomes a project to install a new application system. There are case studies and dismal articles about quiet failures and spectacular waste — one organization in the Southeast spent three years and \$3 million trying to replace three people using a Pick application. Another company headquartered here in the heartland spent \$7 million, and 30 people. In the wiser organizations, the project objective is a new way of reporting data, not collecting it. It is in this kind of a well-focused initiative that the idea of a

Continues on page 28

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data repository takes shape. Maybe somebody reads something about data warehousing, or hears about it in the locker room or the pub. Maybe somebody just wants an easier way to get a report in their own lifetime. In any case, all agree that it's an idea whose time has come. The dilemma is: the right way to get there from where we are.

There are a variety of events that might happen next. Sometimes what happens is determined solely by the depth of the organization's pockets. This rarely works, since successful information systems cannot simply be purchased. More often, success is dictated by the commitment of the participants, and their understanding of the issues. "Bonuses accrue when the organizations take the time to design solutions."

In any case, either by design or after a few rash promises and a few sad moments, it becomes clear that a graceful migration is a gradual one. It is at this stage we propose the **Transition Architecture**.

TA is the first step in any migration. It is a report server, attached to a MultiValued database. It can extract data, or "pulls" periodically, in rigorously controlled transformations and management-sanctioned summaries. It can be automatically updated, or "pushed," with timely, up-to-the-minute data with no burden to the on-going operational systems. Moreover, the report server is open and compatible to the latest and greatest technologies: ODBC, SQL, VB, HTML, whatever. And different from the application server, it can be tuned for optimum end user performance, at a fraction of the cost (and risk!) of hacking on the application system.

The Transition Architecture is a means for any organization to relieve the burden of management reporting from the operational systems. It is a proving ground for new techniques and technologies, and a training ground for a new generation of super users. This convenient, low-cost, low-risk, "next step," makes the needs clear at the same time

THE TRANSITION ARCHITECTURE

BTW: the Transaction Architecture isn't always MultiValue. Sometimes it is a management-mandated environment, or a trendy, high profile database slated to be the home of a new application system.

No matter. We roll **TA** out as a means for timely access to safe, secure, sanitized data. It simply works out best if the proof-of-concept is a MultiValue database first. This way, the **TA** is inexpensive, easy to implement and to maintain. It allows the use of fashionable technology. But it is also sort of a shiny polished Trojan Horse.

Imagine our great gleaming Repository standing just inside the gates of MIS. While it is admirable from near and far, the adoring users cannot see inside. So in addition to all the other Good Stuff, **TA** creates a new livelihood for the former report programmers: they go into the business of building **ladders**.

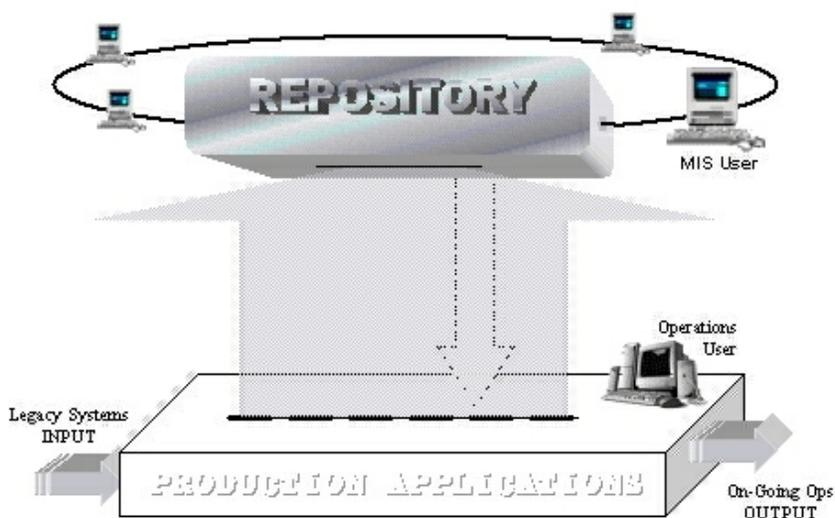
The "ladders" or data acquisition tools, will take many forms.

◆ The wooden, tilt-up, home-built version — like an ACCESS or SQL report generator. Perhaps it might even have a glossy paint job, from a terminal emulator, with icons, pull-down menus, and mouse clicks.

◆ For a Few Dollars More, they can provide the classy step-ladder version, with a visual basic GUI and some industrial-strength handholds like cascading left-side file trees and attribute-name selection boxes.

But when we're serious, or talking with the Chiefs, the "ladder" will be an upholstered lift truck, in the form of one of the impressive commercial MV data mining software packages, with spreadsheet capabilities and seamless export to Micro\$soft tools, like Excel, Access, and SQL Server. Now That's Entertainment! ■

Figure 8-0



that it protects against misinterpreting operational data. Because it allows for wide management access, and continuous quiet enjoyment of the operational applications, it is both offense and defense at once. Both sides of the organization can get what they want, on their own way to what they think they need.

Regardless of how the users choose to get their data, the Transition Architecture is a work in progress, a means to an end. Initially **TA** simply generates reports, allows user queries, and facilitates downloading. Maybe it supplies the "Super Report"... a large, comprehensive spreadsheet of operational data that is updated every day, or even every hour. From it, or portions of it, any operational manager can get an instant snapshot, and add columns of rich, production data to spreadsheets of their own making. Real empowerment.

But that's only the beginning. The Transaction Architecture is a unique lens

to view the organization. Within its confines an infinite variety of Views of the data can be created and maintained with minimal effort. It is the ultimate Multi-Value data manipulation tool. Using only one copy of the data, **TA** will provide production files, the finance worksheets, the marketing tables, etc. It is also SQL-compatible, and accessible by VB classes and C libraries. From this angle, the repository is a conduit.

So we go forth and enterprise. We become envoys, offering to propagate our data into to others' databases. The MultiValue **TA** repository becomes a data source for other systems. Perhaps to supporting databases, that will never again have to be "out of sync" with our precious application data. Perhaps to derivative databases, like a data mart, or even a superset, like the corporate repository, or a research data warehouse, for R&D and trend analysis.

Maybe even to where we started to go. To the executive Management Informa-

tion System on a private server, tucked deep into mahogany row, continuously refreshed like the executive fridge. but with cool, clear, consistent, reliable operations data. And MV is firmly back in the mix, doing what it does best. is

F O O T N O T E :

STEVE VANARSDALE is available for project and consultations work from his offices in Chicago; see www.mvconsultants.com. Meanwhile, the author is humbly grateful to the writings of Ralph Kimball, Laura Reeves, Margy Ross, Warren Thornwaite, in "The Data Warehouse Lifecycle Toolkit", from John Wiley & Sons Inc. 1998; to Sid Adelman and Larissa Terpeluk Moss in "Data Warehouse Project Management" from Addison Wesley 2000, and to a new friend and mentor in Dr. Louis Agosta, Director of Research at the Giga Group in Chicago, and author of "The Essential Guide to Data Warehousing" from Prentice-Hall Inc. 2000

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How Document Imaging

Delivers *the* Goods

Part 2

for the Transportation Industry

Part 2 (Part 1 appeared in the Jan./Feb. 2002 issue) continues to explore how the role of the transportation and logistics industry has expanded beyond basic freight handling and how document imaging and management is a key component in helping the industry meet rapidly changing customer expectations. In this issue, see how transportation and logistics company Gilbert West went from "virtually nothing" in the way of IT, to a large WAN infrastructure involving all of its facilities and a number of its customers. Today, using up-to-the-minute data from Gilbert's network, customers can check invoices, obtain proof of delivery, receive rate quotes, and view other critical shipping documents.

The emerging breed of transportation and logistics company taking shape around IT is increasingly promoting self-help among customers by making internal information available via the Internet, asserts David DeYoung, president and CEO of Englewood, Colo.-based 1mage Software. One of his customers, El Monte, Calif.-based Gilbert West, lets customers view key documents online using document imaging. Customers can also receive rate quotes and track shipments online.

"Gilbert West is only 11 years old, and as the company has grown, the strides that our IT systems have made over the years have been astronomical," says executive president Barry Oppenheim, the man responsible for the entire enterprise IT infrastructure for Gilbert's multiple divisions, including Gilbert West and East, Gilbert Express, Gilbert Air Cargo, Gilbert LTL Express and Gilbert Home Delivery.

The Gilbert enterprise is an ideal example of the industry-wide trend toward offering customers extended outsourcing services that supplement their supply chain. From consolidation and distribution services for retailers, manufacturers and importers to repacking, assembly and fulfillment programs that can reduce time to market, their stated goal is to "not just move products, but to move business."

According to Oppenheim, in a relatively short span of time, his company has gone from "virtually nothing" in the way of IT to a large WAN infrastructure involving all of their facilities and a number of their customers, a few of whom have network equipment located on premises at Gilbert West.

Today, using up-to-the-minute data from Gilbert's network, customers can check invoices, obtain proof of delivery and view other critical shipping documents.

"The basic concept of a network has changed so much even since I arrived at Gilbert six years ago," he adds. "Today everything is basically hooked up to one big IP network, and I think that reaching out to smaller customers with an Extranet connection is a very important function for companies to consider, because traditional data sharing technologies like EDI are far too expensive for most small-to-medium companies to implement."

The internal logistics of managing multiple partnerships digitally also creates additional layers of complexity for transportation companies like Gilbert, a reality which is driving Oppenheim toward upgrading their WMS (Warehouse Management System) to accommodate higher levels of customer system integration and to facilitate improved data sharing with customers using a wide variety of platforms.

"When you buy software as a \$20 million company, it's one thing," he interjects. "When you do it as a \$150 million company, with a commensurately larger and more diverse customer base, it's an entirely different proposition."

He explains that many of their customers update the shipping and logistics and billing information directly from Gilbert's system. Some log onto the Frame Relay network, which requires a dedicated line for 24x7 access. A less expensive method currently being implemented involves developing secure VPN access for customers, a method that he sees expanding as bandwidth and processor technology continue to improve.

"Building VPN connectivity for our customers requires getting a lot of equipment and software together and operational onsite, which sounds wonderful, but it's a complicated thing to do really well," he points out.

Building this level of customer service in the other Gilbert divisions is an important consideration as Oppenheim focuses on the choice of a new enterprise-level WMS. His primary goal is to bring the various databases together into "one Big Gilbert" operating under a single, large IT umbrella.

"We've succeeded in spite of our old system, but if we're going to have the systems in place to support continued growth and development, common sense dictates that we need to put better tools in place that allow us to eliminate overlapping operations and gain increased economies of scale," he says.

He offers his company's relationship with K-mart as an example. The national retail chain works with several divisions of Gilbert, and each division has a person in Accounts Payable calling them. He sees rolling them up into a single point of contact as a way of cutting down on potential customer frustration at having to deal with each division separately, not to mention his company's phone bill.

Integrated document imaging and management technology resides at the core of the streamlined information services model he envisions.

"My philosophy has always been that you can't sit on the fence," he expounds. "You've got to be in it to win it, and you can either keep up or get left behind. If your customers are offering something like imaging technology to provide better customer service on the Web, you'd better be paying attention."

Oppenheim places a great deal of emphasis on integration in his vision of Gilbert's next-generation IT infrastructure, a point he also emphasized when discussing his company's early foray into imaging.

"We started about three to three and a half years ago," he says. "We were continuing to grow and grow and had to do something before things got really messy. We investigated several different companies, liked what Image offered, especially in terms of integration with their APIs and the final price tag. Their system is very competitively priced and will do everything the big systems can."

The initial use of the system was completely internal, organizing and distributing customer PODs. In 1999, they moved the system onto the Web using IMAGE's Web tools, and today he is comfortable predicting that Gilbert's use of IMAGE will increase as they continue to push the customer service envelope.

"The whole thing was to be able to use a browser to access the system. Since everybody has a browser, that to me was a tremendous improvement, because it finally gave us the ability to deliver information to all of our customers without forcing them to use proprietary software," he emphasizes.

Nor does he express any concerns about integrating IMAGE with the new WMS system.

"We'll integrate it exactly the same way we meshed Image with our current systems," he explains. "I'm not worried about that aspect.

As I've talked to different software companies we're looking at for the WMS, many of them have said, 'We have an imaging system.' My response has always been, 'We have an imaging system, don't worry about that, let's focus on the warehouse system.'"

Holding his cards close to the vest, Oppenheim does reveal that a company with a proven back office system has the inside track for the WMS contract, due to the fact that their AS/400-based system is already running back offices at hundreds of transportation companies.

"What I expect will happen is that we'll have two AS/400s, one sitting at Gilbert East in New Jersey running the WMS system for all the divisions and locations, and one here at Gilbert West running Lotus Notes for the entire operation, while the IMAGE system is running on a new RS/6000 here at West," he clarifies.

The practical aspects of rolling out imaging company-wide, storing and serving images for the entire enterprise from a single site - whether they're digital files in their native form or scanned images of paper documents - are leading Oppenheim deliberately toward a distributed input strategy, in the interest of speedy delivery of information.

"At present, we've got three Bell & Howell scanning stations in the main office here, and all of the scanning for the Gilbert West facilities - of which there are three plus a facility up in Northern California - all that's done here in a central scanning department. For the time being, it doesn't slow down the paper process," he adds.

Finding an efficient way to collect information from a widely scattered network of contract providers is also on his mind. Gilbert's Home Delivery division moves items that are above mail or UPS weight, for companies like Costco and their vendors, delivering a wide variety of oversize and overweight items like chairs and furniture.

"Theirs will be an interesting case, because they deal with a tremendous number of delivery agents across the country. I see retrieving the documents by fax from the most remote sites, since everybody has a fax machine, and dropping them directly into IMAGE, as one natural solution," he says.

In the interest of advising others contemplating document imaging, he points out that it is important to understand that the process isn't as simple as just scanning and storing images. Developing a solid process model that clearly defines how the document will be identified and where the system places it - a task known as "indexing" - are essential, since

Continues on page 32

Document Imaging

Continued from page 31

there's little value in trading a mountain of paper for a mountain of electronic paper.

"The shipping and logistics business generates a ton of paperwork, and the concept of a paperless office is nice, but I have to say that the system hasn't really reduced the amount of paper we generate to this point," he remarks. "However, it has given us far better control of our information and source documents, and with the initiatives we've got underway, I can see us reducing our paper volume significantly in the future."

Beyond sheer paper reduction, Oppenheim also singles out the effects the system can have on labor resources, using FedEx as an example of what the technology can accomplish. By moving more mundane customer service functions like package tracking to the Web, which their customers loved, they were able to shift labor resources that would have gone into staffing additional phone lines into other areas where resources were more urgently needed.

"Today, we offer the ability to browse for information using the Web," he states. "Is there a direct cost savings? Sure, because customers aren't calling up a person sitting at a desk. It can be hard to quantify, but if you're giving customers more efficient service, and you're not constantly going back and forth to filing cabinets digging for files, you've definitely reduced your costs and gained a competitive service edge."

The other edge of the competitive blade Oppenheim speaks of relative to customer service can also slice layers of complexity out of a complicated distribution process.

"A great example of the kind of new customer programs we're developing is one we're doing with one of the world's largest footwear companies," he shares. "The Athlete's Foot was one of the pilot retailers, and doing things the old way they would receive large orders in bulk to their distribution center, which would break it down for the stores and distribute the product. Total time from ship to shelf is, at the best, two weeks."

Now, it comes into port and heads straight to Gilbert's facility. As this happens, they let the manufacturer know which cartons have arrived and forward appropriate data to the retailers, who send purchase orders. They marry the two documents, and as each carton is scanned on the conveyor, a new address label is added on the side of the carton. The product is turned around - ready to ship - in just 45 minutes.

"It's the ultimate win/win, to use a popular cliché," Oppenheim says. "The retailer wins

because they're getting the product a couple weeks early and because of this upgrade they only pay for the outbound freight, which they're going to have pay for anyway.

"The shoe company pays for the service because it can get the product to the retailer two weeks early and they never even have to touch the product. The possible savings are fantastic. The problem has been that a lot of the retailers haven't been able to get it together, which is a shame because the program delivers the product to their retail stores in record time and they never have to touch it," he sighs.

The necessity of harnessing technology to improve every level of their operation, and by inference their customer's business, is essential to Gilbert's growth from a shipping company into a logistics provider.

Carriers like Gilbert are also using the latest wireless technology to help their employees communicate and to provide real-time information to their customers. Putting wireless devices on trucks improves supply-chain management with real-time information that allows transportation managers to dial-in their operation, re-routing trucks and keeping customers accurately informed about delivery status.

Using RF (radio-frequency) technology in warehouses to maintain real-time inventory is another area where strategically positioned IT can dramatically affect the supply chain.

"We use RF at all of our warehouses to log trailers and track product, and we're also using automation to support some of our customers that require scan in/scan out," Oppenheim says. "We originally had 900 MHz technology, but we've replaced that with a system that's much more functional and flexible. Making every link in the supply chain more visible by integrating with customers' systems is a simple tactic that can only improve the communication between us and our customers."

Given the opportunity to pass along advice to his peers about where technologies like document imaging can fit into the big picture at their shipping and logistics operations, he explains that document imaging and management is essentially a crucial piece of the larger puzzle. If a company can offer access to actual shipping documents on the Net, that's an important and powerful tool that the salesperson can offer to potential customers.

"At some point you have to step up to the plate and take a swing," Oppenheim says. "Even as affordable as IMAGE is, as with any IT imple-

mentation, there is a measurable up-front cost going in. But when you measure that cost against the business value of document imaging in relation to internal efficiency, customer service and self-service, it's a no-brainer," he smiles.

Pointing out that there are already plenty of companies in the industry using the technology successfully, he insists that shipping companies hoping to remain competitive should not only be using it, but that they won't be able to afford not to for much longer. His assertion is that in the transportation and logistics business, speed - of delivery and of information - isn't everything. It's the only thing.

"Why are your competitors using it? Are they that much brighter than you? Not likely. This isn't rocket science or brain surgery," he concludes.

In the end, Oppenheim believes that if a company isn't using technology like imaging and their competitor is, then the company is ultimately shortchanging itself and their customers. While investing hard won profits in technology is always a tough call that requires a great deal of consideration, he contends that customers' concerns must enter into the equation, and as they request more information, you'd better have a cost-effective method for delivering it.

According to Image's DeYoung, one thing is perfectly clear. The best technology alone isn't enough. Companies must still develop sound business plans and carefully cultivate customer relationships to be successful. They must truly gain an understanding of their market if they plan to provide the tools and consultation to their customers that's necessary in order for their technology investments to fulfill their ultimate goal.

"Whatever approach transportation and logistics companies take," concludes DeYoung, "the Net and key enabling technologies like document imaging and management are opening up a new world of services that they can offer, and in the end it's the customers who will win." IS

1IMAGE SOFTWARE INC., based in Englewood, Colo., is a leading provider of document management and workflow automation systems for Linux, Unix, and Windows NT. The company's modular, scalable 1IMAGE system converts business documents of any origin — from paper to e-mail — into electronic images, storing and managing them throughout their lifecycle. Image's entire product line is marketed through a direct sales force and an international VAR network. They also operate a Professional Services Group offering project management, consulting, installation, training and application image-enabling services.

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Development Strategies

SWINGING BACK Toward the Mainstream

Returning from the annual Spectrum pilgrimage out West always provokes some reflection on where we're at. Though smaller, the conference has grown in seriousness about software re-engineering and integration.

Hardware vendors—Spectrum's anchors in the mini-computer era—faded to the background in favor of database server software vendors (MultiValue/Pick's famous flavors). Now the center of gravity may have shifted again, toward an emphasis on tools for the Web, for Windows and Office, for Palm and other PDAs, and so on.

The lead vendor "product update" presentations didn't seem as packed as in previous years. The gap between second-tier vendors and the MultiValue first-tier seemed narrower, with old friends such as Advanced Revelation returning and Reality mixing it up with the familiar U2, D3, jBASE faces. We also saw a promising push toward marketing cooperation among the lead vendors.

For many of us, the real energy at Spectrum centered on development tools from both the primary database vendors and independent third party shops. At the show, we saw a full range of workable, mature options, with end

users and consultants putting them to work. Many attendees, from consultants and managers to software developers, buzzed with what we might call second round strategy discussions. Having gotten their feet wet with a trial Windows integration or Web project, increasingly knowledgeable consumers had serious questions to ask at workshop presentations and around the vendor booths.

Two Trends in MultiValue Software Redevelopment

Looking at things then from the point of view of strategic business issues instead of just technical feature comparisons, two lines of thinking seem apparent. One line of march goes toward enhancing the Data BASIC (and its other standard name equivalents) programming environment to encompass new needs. The other seeks to maximize use of mainstream development tools and environments.

The main trend right now seems to lie with tools that lean heavily toward enhancing native MultiValue programming. This encompasses many things: From database vendors, we stand on the verge of production-grade ability to read and write Oracle and perhaps other relational database tables from within Data BASIC. We have tools that store HTML pages within MultiValue files and dynamically create page level information from within BASIC. We have tools to send faxes or e-mails from within MultiValue code.

A key strategic rationale for using tools such as these is making the best use of existing, experienced BASIC programming talent. If you have a stable line of support for a mature software application, steadily adding to the existing tool kit makes a lot of sense. Current staff or supporting consultants can add new features with a minimal learning curve.

Another key has to do with planning and control and harks back to the old days where a single line of support from a single vendor seemed reasonable and practical policy. Of course, those same MultiValue-only shops can get bitten by dictates from further up the food chain requiring them to abandon MultiValue in favor of some other system standard.

The other major trend in MultiValue development emphasizes tools that open up mainstream development opportunities. It's going on ten years since we co-led the first Visual Basic class for International Spectrum to a large but skeptical audience. Now the conference features classes on Java as well as VB and usage of standard issue Web server environments.

Using mainstream tools generally means using a middleware connectivity layer that provides a connection, input/output and remote code execution capabilities. The raw database drivers from database server vendors have improved in some cases. In addition, we see some new products that "wrap" the raw connectivity in easier to use Active X controls, query tools and such. We have used a number of these products for one project or another, but in the full disclosure department, we have focused in on the mvComponents Suite from Vantage Point Software. VantagePoint has so far focused on the Windows Active X/COM (Microsoft Component Object Model) and its successors' development environment. We focus on them first because they include an array of high level software structures for Windows-side development, including the most sophisticated data manager for dynamic array-based MultiValue records. As a consulting resource, VantagePoint also brings some of the most extensive experience with actual client-server and enterprise-level distributed computing installation, no small challenge in actually configuring and deploying new software.

Developer Tools Mood Swings

This is not a case of all right or wrong on one or another side of the tools divide. One's resources, needs, staff and strategic business commitments should all figure into development technology choices. It is instructive to recognize that the mood at Spectrum has swung back and forth on these issues.

Ten years ago, Spectrum featured proprietary all-encompassing programmer tools (so-called 4GLs) almost exclusively. Change came gradually. Over time, the show highlighted more and more classes on Visual Basic, Web development and other standard technologies. We saw the first wave of ODBC, programmable middleware objects, and other database drivers for MultiValue. Marketeers glibly asserted that if you knew Data BASIC, why, Visual Basic could only be a few short hours of "roll-up-your-sleeves-and-try-it" away. Some hardy souls did give it a whirl only to grow frustrated with configuration difficulties, software fragility, and unfamiliar Microsoft Windows idiosyncrasies. In truth, these problems had as much to do with our developer inexperience with the general Windows environment than with the tools themselves. There was also confusion over whether doing client-server or Web sites necessarily meant tugging and squeezing SQL-based access out of our data.

Either way, these frustrations set the stage for a tilt back toward proprietary, MultiValue-specific tools. Seeing Data BASIC code examples forming up HTML for slick Web pages, managing fax and e-mail services, and standing watch over entire client-server experiences provided much needed reassurance to developers and database administrators beset by the "let's dump the whole thing" crowd. Fact is, with the late '90s economic surge spurring growth, mergers, and consolidations and so on, spending a large chunk of change to replace an entire mature, working MultiValue application (or other, gasp, legacy system) appeared to many as just another price of progress. Under this pressure, finding the fastest, easiest to learn, biggest-bang-for-the-buck tools made a lot of sense.

Business Strategy Drives Decision-Making

It would appear we're now seeing the beginning of a swing back in the other direction. What seems different today is the emphasis on strategic business issues rather than technology per se. Among other things, the technology has improved across the board enough to permit more of a focus on strategy.

The most prevalent issue that comes up has to do with assessing human resources for software support. "If you know Data BASIC, you can learn Visual Basic" has given way to "Why struggle with Visual Basic when you can do the same thing from Data BASIC, only much easier and faster." Conversations at Spectrum and elsewhere suggest this argument rings true for MultiValue shops with teams of experienced Data BASIC programmers at hand. For them, adopting a MultiValue-based tool set may be the better choice.

In other cases, however, the thought of continuing to rely on an aging, dwindling cadre of satisfied Data BASIC programmers produces a gnawing anxiety among managers. The more typical MultiValue shop may have one staff programmer or may rely completely on contract consultants for development. There just aren't a lot of people sitting out there waiting to dive into new, large Data BASIC programming projects. Developers in our sector do have a more sober sense of

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BY MELVIN SORIANO

Look Ma, No Hands, Wireless Networking

Do you ever feel as though you're being fed a great big spoonful of feelgood? Like some hardware or software solution seems too good to be true? So much so that IT will suddenly be the most appreciated and beloved department at your company?

It's often quite challenging to know when to buy into new technology and when to just sit on the sidelines and watch. Most of us question the wisdom of taking something large, expensive and complex and bringing it in-house at release 1.0. The MultiValue community is more likely to introduce these technologies slowly and carefully.

If you don't believe me, look at how long it's taking the Web to penetrate our businesses.

Today, we're facing some new technologies again. Wireless advances have forced us to imagine portable devices anywhere they are needed.

But there seems to be an array of protocols and networks to consider, with a slew of devices,

vendors and, worst of all, acronyms facing us each day. As can be expected, their protocols and standards are inconsistent and incompatible. But there are apparently numerous uses for these technologies that people are now starting to appreciate.

If you haven't noticed, these wireless apps are showing up in many places, from hotels to stockbrokers, hospitals to real estate brokers. Most larger organizations have projects investigating the usefulness of wireless in their companies.

It's apparently a development that's coming into its own and will be difficult to ignore. Uses of wireless even have appeared in homes, with wireless cable/DSL routers commonly selling

for less than US\$200 apiece. Some estimates suggest that there are about 40 million mobile workers in the U.S. alone, a number that is growing by as much as 9 percent annually. Wireless will need to play a major role, whether we're ready for it or not.

What allowed wireless to finally make such inroads? Several recent technological breakthroughs have been largely responsible. Bandwidths and simplistic devices had previously limited wireless to just analog pagers and simple (or if you were willing to pay, alphanumeric) paging. But the roaming workforce has eaten up countless handheld devices. That, in conjunction with ever-increasing data exchange and communication opportunities with digital connections and bandwidth expansions, has improved the likelihood that wireless solutions can meet the needs of these workers.

The end result is that many workers previously tethered to their desks are now free to move about the country. Many would be more than happy to be able to just move around the office. Wireless technology can now routinely deliver critical information wherever that employee is found, with vastly improved performance and efficiencies.

As IT professionals, we need to understand these developments. I'm looking at some of these technologies and seeing if there are ways they can be useful to our industry. Just remember that it's better to be prepared than to have the technology thrown at you because someone from on high read about it in an airplane magazine.

Today most of us surf the Internet on computers connected to a telephone or cable line. In the next few years, it's far more likely that most of us will be doing the Internet wirelessly. And not just at our desks. We'll be doing this everywhere. It's already started in some airport lounges, but add to that hotels and shopping venues.

Feet, or Wires

What is it like today? There are about 600,000 wireless LAN users in America.

We have so few options today. In the coming months and years, though, we'll see an enormous surge in gadgets pre-wired (or is that non-wired?) go through the air. Though most folks today think of cell-phones, pagers and PDAs, it's the high-speed connection to the PC and laptop that might make the most dramatic change to corporate infrastructure and support.

For most of us in the MultiValue world, the technology of choice is Wi-Fi, so I'll focus on

that during this article. There are other wireless LAN products around, but this one seems to be spreading fastest and has the best price value. Wi-Fi is used interchangeably with 802.11b, also known as Wireless.

Basically, we can deploy and use high-speed wireless networks. If the PC or laptop is near one of these wireless-enabled locations, then it can be outfitted with a wireless network card that has a transmitter and receiver. This card is a replacement for the more traditional Ethernet card. The wireless card communicates through the air to the wireless LAN.

Some studies predict rapid growth of use. We may see ten times more wireless networks by the end of this year than what we have today.

These networks are fairly easy to set up and provide reasonable coverage within short dis-

tances, say 150 feet indoors or 300 feet outdoors. It's not a line of sight implementation either. So, unless you are in a radioactive-proof military bunker, brick or other types of office walls and flooring should not pose a problem for these gadgets.

These distances aren't exactly impressive. You could go further than the ranges I mentioned, but you're going to get diminishing network speeds. Of course, if all you're doing is using telnet to connect to a green screen application, then 11Mbps might be overkill. Nevertheless, the limitation is notable. You won't be able to provide a truly dispersed coverage for a sprawling operation without multiple hubs and relays.

Imagine setting up your office network without having to crawl under a desk or lift up acoustic ceiling tiles! And even if someone else does that for you, you just have one less wire to tangle with your phone line.

The problems arise when you start talking about security. If any wireless-enabled PC meanders into range, it has the capacity to interop-

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Wireless Networking

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erate. It's like the first time I let my Palm Pilot wander in front of a new laptop with an Infrared port. I thought someone was trying to hack into my PC. And that someone was ... me!

See, the Palm Pilot was merely starting to interact with the PC. But the PC needed to confirm that this Palm was recognizable, so it was asking for a password.

I can imagine, though, the problems that could arise if either of these databases were not password protected. My PC and the Palm would start chattering away, holding a clandestine affair right below my very fingertips. That'll teach me to keep my Palm in my shirt pocket, like some stereotypical geek.

So I don't take security lightly. And with Wi-Fi, the Wireless Local-Area Network (WLAN) uses radio frequency instead of infrared to transmit and receive data over the air. That's why there are no issues with line of sight.

The 802.11 standard defines three methods of securing wireless Access Points (APs), usually PCs:

◆ **Service Set Identifier (SSID)** - The SSID acts as a simple password for a sub-network of the WLAN. It therefore provides a measure of

security. An obvious weakness to this as a single security mechanism is that the SSID is shared by several APs.

◆ **Media Access Control (MAC) address filtering** - Each AP also can be configured with a list of MAC addresses of computers that are allowed to access it. If a MAC address is not on that list, the AP will deny access to the incoming connection. Now, if you maintain your office network, I'm sure you can see the shortcomings to this security approach. This method may provide security but is only suited to small LANs. Entering MAC addresses and afterwards maintaining updated lists on all of the APs limits the scalability of this labor-intensive approach to just a few PCs.

◆ **Wired Equivalent Privacy (WEP)** - WEP is a specification to deter radio interception. It specifies encryption and authentication between APs, according to an algorithm called RC4. The encryption algorithm is based on a key, usually a 40 or 128 bit number, entered and controlled by the end user. All clients and APs then are configured to use this key to encrypt and then decrypt data transmissions. Obviously, entering these numbers can also be a big detriment if you want to try this in a larger network environment.

The combination of these three methods leads to a largely secure implementation on a small network. But it's not infallible, especially for larger or more sensitive networks. Recent public examples have been made regarding the vulnerability of Wired Equivalent Privacy encryption. It's apparent that any one of these approaches alone is inadequate.

However, if you combine the WLAN with a VPN (Virtual Private Network) then you can indeed have a robust and scalable security solution.

We'll look at these possibilities in my next article. Stay tuned! [is](#)



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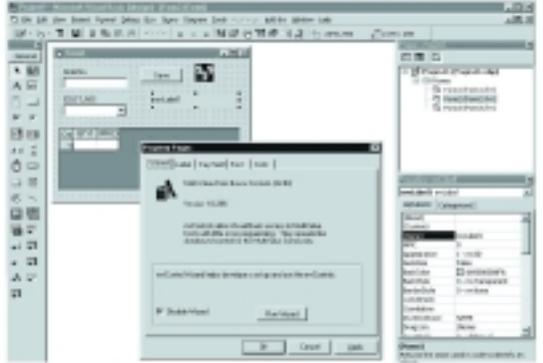
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Development Strategies

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what's involved in learning VB, Java, Active Server Page or Linux Apache scripting and other popular development environments. From a career point of view, more Spectrum attendees seem prepared to take the plunge even than a year ago.

Many shops appear to have gone through a first round of experimentation or trial implementation of new technology, whether for integration with corporate and business partner relational databases, or Web site enabling, or automated replication of data from the field or other purposes. What may have seemed the simple and straightforward adoption of new software may not seem so now. On the other hand, piles of existing code that may have appeared a hopeless obstacle may now seem more flexible and adaptable as runnable stored procedures in a new environment. For many, it's time for a reassessment of what's the best way forward.

Many factors figure into this assessment in addition to staffing and consulting resources: One is a new sensitivity to licensing costs and how they operate on the Web vs. a standard networked client-server installation. On an internal network, administrators can predict and manage user load more reliably than on a new Web site. On a Web site, by necessity, developers need a methodology for channeling the largest number of users on the site through the smallest number of physical channels into the database server. Working the code and configuring the middleware to minimize consumption of user licenses will be easier with some software than others. Generally speaking, relying on complete MultiValue database vendor tool suites driven from within the MultiValue system itself will require more attention to licensing issues than other environments.

Network configuration, Web hosting and desktop installation dilemmas also have gained sharpness compared to a year or two ago. We have come to see that a proof of concept demonstration on a developer's laptop may bear little reality to deploying a viable application in the production local or wide area network or on the Internet. Similarly, few of us had confronted the scalability of new software as usage grows, or how to measure load. Spectrum attendees seemed more attuned this year to determining whether vendors provided these standard Windows or In-

ternet deployment consulting services in conjunction with their software. For this author's team, a key premise of shifting development away from and outside of the native MultiValue environment is to enable distributed services and flexible deployment.

An additional issue concerns facilities for integrating new MultiValue applications with off-the-shelf packages. As we noted, MultiValue vendors have incorporated new communication capabilities into the database engine itself, and choices abound. Suppose a Web server has a native SQL Server or Oracle database that has to communicate with a MultiValue back end server. One choice might be to find a way to natively read and write the SQL-based data from within BASIC code running on the MultiValue system. Some software applications have apparently worked this through. Another choice would be to create a network service (compiled Visual Basic or other executable) that monitors and synchronizes data at both ends. It might run automatically against standard queuing mechanisms or get triggered on one or the other side.

Similar issues can arise with how to manage a mail merge application with Microsoft Word. I have done my share of shoehorning Visual Basic for Applications script into Data BASIC code and then running it through an AccuTerm session. I love doing it, but to be honest, to debug it, you need someone who can understand (a) Data BASIC; (b) Visual Basic; (c) AccuTerm escape code sequences. If that's you and you want a sample, e-mail me. For anything that needs a bit of flexibility, that might want to gather doc requests from a pool of users, or that might want to work without an open AccuTerm session, I would more likely write a little Visual Basic application to manage the process. (Sure, sample available for that as well.)

Neither methodology is necessarily right or wrong, especially for any one isolated requirement. But in moving to second round, strategic-level planning, it's good to see greater appreciation of the development choices we're fortunate to have, including practical options to use the same industry-standard approaches used by the rest of the world. *is*

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InterSystems Corporation

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Since 1986, Paul Grabscheid, vice president of Strategic Planning, has used his expertise in database and application development tools and technologies in a variety of product planning and marketing roles at InterSystems. Prior to that, he served as director of Marketing for Mathematica, a database and 4GL software company. When Martin Marietta acquired the company he served as director of Marketing for that firm's Information Technology Division.

InterSystems Corporation's motto is "Make Applications Faster." It must be hitting the mark, as it ranks among the top 100 software providers in the world with over four million licensed users in 88 countries. It has been consistently profitable since it began in 1978 and grew by 17 percent in 2001 when most software companies were taking a hit. With over 350 employees, InterSystems maintains offices in Australia, Brazil, Belgium, Switzerland, England, Finland, France, Germany, Italy, Russia, Spain, and Thailand. Its flagship product, Caché, is a post-relational database touting "ultra-fast objects and SQL, massive

For the MultiValue File

COMPANY: InterSystems Corporation

FOUNDER: CEO and President, Terry Ragon, 1978

FOCUS: InterSystems Corporation develops, sells, and supports Caché, a high-performance database and rapid application development environment designed for enterprise-class client/server and Web-based transaction-processing applications. It focuses mainly on providing technology to professional application developers.

HEADQUARTERS: Cambridge, Mass.

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scalability, and breakthrough technology for developing Web applications."

Paul Grabscheid, vice president, Strategic Planning, said it's no secret why InterSystems is getting stronger when other industry players have struggled through the current business depression. "Caché's rapid application development environment actually lets developers build applications more quickly than other technologies, and its high-performance data engine makes applications run faster," he said. "Caché also uniquely combines object access, SQL access, and direct access to data, giving developers much greater flexibility than other database technologies."

Caché is a post-relational database offering a fusion of objects and SQL (structured query language) data in a multidimensional engine, which runs on most major platforms, including Windows, OpenVMS, Linux, and Unix. Caché applications also run on a range of commercial operating systems: Windows 95, Windows 98, NT, UNIX, and OpenVMS, as well as on a variety of hardware platforms supplied by Digital, Hewlett-Packard, IBM, Data General, Sun, and others. Its unified data architecture supports a full range of object modeling paradigms and can expose Caché objects as Java, ActiveX, or C++ objects.

"The company chose the name 'Caché' for two meanings," Grabscheid explained. "It evokes the advanced caching techniques that contribute to its database's high performance, and the 'cachet' gained by developers who use the very best database technology available. Caché has become particularly successful with organizations that require high-performance, scalability to tens of thousands of concurrent users, and reliability."

Company CEO and president Terry Ragon has a knack for understanding the performance and growth needs of large VARs and end-users. Prior to starting InterSystems, he co-founded Interpretive Data Systems, which is now IDX, one of the top 10 healthcare VARs in the United States. "Because of its heritage, InterSystems' management is uniquely attuned to understanding and responding to the issues and needs that are specific to the VAR community," Grabscheid said.

Currently, about 70 percent of InterSystems' customers are software developers that use Caché to build application systems tailored to specifically targeted vertical markets, the largest of which are financial services, manufacturing, healthcare, and government. These top-level VARs include worldwide companies such as IDX, Sunquest, QuadraMed, SMS, SAIC, Ontario Systems Corporation, and ACT Financial Systems.

The remaining 30 percent of InterSystems' customers are corporate and government end-user organizations. With extensive penetration in the healthcare market, InterSystems supports more than half of the user seats in this sector in organizations that include Partners HealthCare, Kaiser Permanente, SmithKline

Cacheé

in a MultiValue World

Cacheé and MultiValue products have many similarities. Cacheé and MultiValue databases are similar in their underlying structures that allows for a relatively easy migration path. Both Cacheé and MultiValue environments support a multidimensional data model that offers variable length data fields reflecting information as it is in the real world. Both environments give developers low-level access to data, a built-in programming language, and a query language.

As with MultiValue products, Cacheé requires minimal database administration, and in most cases eliminates the need for a dedicated DBA. Paul Grabscheid believes these product similarities, coupled with the unsettled MultiValue market, clears an obvious migration path to Cacheé.

"I believe that these frequent acquisitions and mergers have left many users wondering about the future of the MultiValue products," he said. "We believe it's important that our customers feel they have a future with us. Cacheé offers MultiValue users plenty of versatility to support and add value to their customer base, as well as the new functionality needed to attract new customers. Cacheé offers MultiValue users performance and the best path to the Web, object development, and XML, without having to rewrite their entire application." ■

Beecham, Corning Medical, and Group Health NorthWest, to name only a few. Customers in other industries include such leaders as Chase Manhattan, Lockheed, Shell Oil, ACT Financial Services, American Airlines' TSR division, and The Weather Channel.

Grabscheid explained that many of these leading developers and growing end-user companies have embraced Cacheé because they have critical concerns about scalability. "Most systems, once installed, tend to grow far more than anticipated," he said. "The advent of Web applications dramatically increases this growth potential.

"For VAR developers, scalability can be crucial to their business. To realize the commercial success they seek, developers want their applications to be easily deployed in small user environments and to excel in the very largest customer sites. The scalability of a database system determines the size of a VAR's market."

InterSystems has a proven track record with IS organizations that need scalability and growth, and to develop and deploy complex client/server or Web-based applications that function at high speed, even with heavy transactional loads. The company even states that the largest integrated database enterprise client/server network in the world runs on Cacheé.

Just how scalable is Cacheé? Ameritrade, the on-line brokerage firm, uses Cacheé for a back office application that does 75 percent of the daily processing at the company. But that Cacheé application only uses about 25 percent of Ameritrade's IT resources. And Partner's Healthcare, which runs the largest integrated client/server network in the world, with over 30,000 clients, bases all of its critical applications on Cacheé.

"We have found that our new customers tend to fall into one of two major categories: developers hitting performance walls with relational databases, and developers of new Web applications," Grabscheid said. "Most former relational customers come to us from Oracle, Sybase, Informix and SQL server."

The Department of Justice in Bern, Switzerland, was experiencing severe performance and scalability problems with its Sybase database. The relational system was taking more than a day to process all of the data entering the system. Following a six-month evaluation, IT manager Rolf Streb and his team were convinced Cacheé could solve their problems and ported their Business Control System to post-relational Cacheé without having to change a single line of application code. The new system, which supports Digital servers running Cacheé and PC clients using ODBC, cost less than its Sybase counterpart, is easier to maintain, and requires far less system administration.

"The greatest business benefit has been the performance gains," the customer said. "We estimate that on the same hardware as the Sybase system, Cacheé is 100 times faster handling transactions, and 20 times faster than Sybase overall."

InterSystems seems to be taking its motto to heart. It really does want to be the fastest. And it believes it will be, in the end, for even more companies worldwide, as it builds its continued growth on four basic points. "We stick to the basics," Grabscheid concluded. "We have stayed true to our vision of providing and improving on an already good product; we provide responsive support to keep our customers' applications up and running; we watch our expenditures; and we continually seek out new opportunities for our product." **is**

Independent Survey Rates InterSystems Higher than Oracle

IN JANUARY OF THIS YEAR, **InterSystems Corporation** announced the results of a survey comparing InterSystems and Oracle database technology conducted by the KLAS Enterprises research and consulting firm. KLAS specializes in monitoring and reporting the performance of healthcare IT vendors. Based on a survey of 110 healthcare IT executives, InterSystems' software rated higher than Oracle on every measure.

InterSystems' database products rated better than Oracle's in every satisfaction measurement, with the biggest Cacheé advantage being in the area of reliability, according to the KLAS report. Further, **InterSystems'** database products outperformed Oracle's by more than 2:1 in hardware required and 2.5:1 in the number of database administrators (DBAs) required.

Among survey findings:

◆ Users rated Cacheé significantly higher in the areas of database software reliability and scalability with **InterSystems** soft

ware enjoying a 0.6 - 0.9 gap over Oracle (where a 0.5 difference is considered significant).

◆ The reliability gap was the biggest difference measured in the study. When asked about downtime, 60 percent of Cacheé users reported that they had no unscheduled downtime—more than triple the rate (18 percent) of Oracle users.

◆ Respondents reported significantly higher scores for Cacheé in terms of speed and scalability with **InterSystems'** database software rated 0.7 over Oracle (where a 0.5 difference is considered significant). ■

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|---|---|---|
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| <input type="checkbox"/> Consultant | <input type="checkbox"/> End User | <input type="checkbox"/> Other _____ |

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

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

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

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|--|------------------------------------|---|---------------------------------|
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| <input type="checkbox"/> Banking/Finance | <input type="checkbox"/> Dental | <input type="checkbox"/> Construction | <input type="checkbox"/> Retail |
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6. What are your firm's approximate gross annual sales?

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| <input type="checkbox"/> Over \$100 million - \$500 million | <input type="checkbox"/> Over \$500 million |

IS 3/02

NEW

IBM Unveils Ultra-Powerful Workstations

Unix, Linux And Microsoft Windows-Based Systems Offer Next Generation in Graphics Speed; New High Resolution Monitor Completes the Picture

IN A THREE-PRONGED assault on the \$7.5 billion workstation market, IBM introduced a line-up of powerful Unix, Linux and Microsoft Windows-based IntelliStation workstations that offer up to two-and-a-half times faster graphics performance than Sun's fastest workstation.

The new IntelliStation family also includes the next generation of IBM video monitors, which can display much higher definition images than monitors from other vendors.

This announcement marks the first time that IBM's Unix workstations have joined the company's Intel-processor-based machines under the IntelliStation brand. By offering Linux on IntelliStation, IBM intends to capitalize on the growing popularity of the open source operating system among customers.

The IntelliStation workstations are certified for a wide range of business and technical applications, including engineering, financial services, digital media, petroleum exploration and life sciences.

"Our commitment to Unix, Windows and Linux gives IBM the only workstation product line that addresses the entire market — from the entry level to the most powerful scientific models," said John Holz, vice president, IBM workstations. "With unprecedented price/performance, these new IntelliStations enable engineers, financial analysts, graphics professionals, scientists and other users to tackle the most complex problems."

Blazing Graphics Performance
IntelliStation workstations support ultra-fast 2D and 3D graphics accelerators that enable advanced visualization and the rapid image manipulation that technical users require. For example, automobile and aircraft designers frequently need to rotate complex 3D images of entire models to view them from a variety of angles.

Obysidian Technologies Introduces U2 Connector

THE U2 CONNECTOR is the first product that gives IBM U2 database customers the ability to keep their applications competitive through powerful J2EE technology.

PRODUCTS

Obsydian Technologies, a provider of enterprise application solutions, announced the market introduction of U2 Connector, the industry's first standards based software product that opens up the functionality embedded in the IBM U2 databases, UniData and UniVerse. U2 Connector makes U2 database application logic available to applications through powerful J2EE technology.

While U2 databases provide a very rich and flexible development environment for creating applications, their proprietary nature makes integrating commercially available components and applications difficult. Integration with other software applications, in-house systems, and third party products is key to moving applications forward to meet business needs in a cost effective manner. The U2 Connector solves this problem by creating a bridge between the existing application architecture and J2EE Application Development platforms.

"Because the U2 Connector is standards based, it opens a whole new world of technology to our customers," states Pete McGuire, president of Obsydian Technologies. "By adopting new standards based application development technologies, our customers can quickly and cost effectively bring new features and functionality to market while still

leveraging the functionality of their existing U2 applications."

In addition to application integration, the U2 Connector supports migration of U2 applications by allowing for extraction of business rules, client interface independence, and database independence. The tight integration of Java with existing BASIC or SB+ code enables a phased migration to standards based technology. Using the U2 Connector, there is no longer any need for a large up-front investment to build or acquire new application technology.

New Intel Pentium 4, 2.2GHz Powered Portable PC Is Faster Than Notebooks and Less Expensive Than Desktops

PC Wave Launches Its PC CHIPS DeskNote Series, a Breakthrough Concept in Portable PCs, Harnessing the Power and Affordability of the Desktop Architecture, With the Mobility and Elegance of a Notebook

PC WAVE INC. has launched the PC CHIPS DeskNote series of portable PCs. This range of powerful portable desktops is flag shipped with the blistering fast Intel Pentium 4 2.2 GHz powered A928 Model. Although this product looks like a notebook externally, it is built like a desktop internally. By having an external power supply, there are none of the heat problems that restrict performance in regular notebooks. This core concept has helped price this product line below comparable desktop PCs.

"DeskNote has had fantastic success in the Asian market since its November launch," said See See Lo, CEO of PC Wave Inc. "The small footprint, sleek design and speed of the DeskNote is revolutionizing the home PC experience."

At home you can watch your favorite DVDs in any room on the ultra clear LCD monitor, or even output the digital image to your large screen television. At school, students finally have an affordable solution to manage their projects, and for the office, bringing work home or on the road is possible without any of the performance sacrifices common to notebook PCs.

The PC CHIPS DeskNote series is designed for the digital world including 4 ultra-fast USB 2.0 ports, one iEEE1394 port and an IrDA port. The DeskNote series, available in silver, graphite and hot yellow is appealing to all demographics and starts at \$699. The units will be available soon from major online outlets and retailers. ■

IBM's Unix workstation

— the IntelliStation POWER Model 265 — includes the new IBM GXT6500P or GXT4500P graphics cards.

IBM'S INTELLISTATION POWER 265 workstation contains one or two 450 MHz 64-bit POWER3 microprocessors, 512MB to 8GB of ECC memory, five PCI slots, integrated dual 10/100 Ethernet ports, three serial ports and one parallel port, and two AC power supplies plus an optional redundant power supply. The workstation includes IBM Project eLisa technology that helps increase reliability, availability and manageability.

The IntelliStation Pro workstation series delivers a new standard of functionality and visual quality by offering customers a new line of 2D and 3D graphics adapters from 3DLabs, ATI Technologies, Inc., Matrox and NVIDIA. The IBM IntelliStation Pro series workstations are now powered by the advanced Intel Pentium 4 and Xeon processors at 2.2GHz with enhanced 512KB L2 cache.

Comprehensive Linux Support

Every current IntelliStation Pro workstation has been internally or independently tested and certified for Linux compatibility and performance. IBM now offers the same level of Linux support on the workstation as it does with Microsoft Windows and Unix environments. ■

Obsydian Technologies, LLC, based in Greenwood Village, Colo., provides software solutions and services for implementing enterprise applications. The company relies on widely accepted vendor independent standards based solutions to ensure application scalability, reliability, security, and openness. Obsydian Technologies, with over 15 years experience with U2 database technologies, is uniquely positioned to assist customers with U2 database applications in exploiting standards based technologies. Obsydian Technologies products and experience enables customers to leverage existing legacy applications while providing them a path to the future. You can visit the company's Web site at www.obsydiantech.com.

Management Information Tools Announces New Version of the MITS Product Suite

Release 4.2 Provides Significant Usability, Performance and Administrative Enhancements

MANAGEMENT INFORMATION TOOLS INC., the leading developer of Online Analytical Processing/Business Intelligence (OLAP/BI) tools for the MultiValue database market, announced the availability of the next version of its MITS platform. MITS, the acronym for Management Information Tool Software, is an OLAP/BI suite of products designed to gather, manage, distribute and analyze data for improved strategic and tactical decision-making.

MITS is the only OLAP tool with true drill-down capabilities that is native to the MultiValue environment, and the enhanced version 4.2 further facilitates more powerful and efficient

Continues on page 44

NEW PRODUCTS

Management Information Tools Launches MITSWeb for Easy BI/OLAP Use Over the Internet

New Browser Module to Revolutionize MultiValue Access to Business Intelligence

MANAGEMENT INFORMATION TOOLS INC., the leading developer of Online Analytical Processing/Business Intelligence (OLAP/BI) tools for the MultiValue database market, announced the release of its latest product, MITSWeb. MITS, the acronym for Management Information Tool Software, is an OLAP/BI suite of products designed to gather, manage, distribute and analyze data for improved strategic and tactical decision-making. MITSWeb is a Windows program and a set of extensions to the MITSServer product that allow a user to explore MITS Applications in a standard browser environment.

"Today's user base is often a mix of internal, remote and external users. Supplying all of them with up-to-date, unified access to business intelligence can be a challenge," said Pat Gilbrough, president of Seattle, Wash.-based Management Information Tools. "The development of MITSWeb is a direct result of VAR and end-user feedback. It's designed to meet the needs of current and future customers by enabling easy, powerful and consistent access to the same OLAP capabilities on the Web that in the past, have only been available on the desktop."

MITSWeb acts as a zero footprint client for viewing MITS hypercubes using a Web browser. Hypercubes are designed using MITSMaker by selecting the source data, establishing data elements for extraction and assignment, and setting the drill-down identifiers, accumulators and date ranges. MITSMaker interfaces with MITSServer to actually generate and update the hypercubes.

MITSWeb consists of two software components in the initial release. The first component is the Windows application called MITSWeb gateway that acts as a gateway between the browser and the existing MITSServer. The gateway resides on any Win32 platform and connects to the MultiValue system via a standard Telnet or Serial Connection. The second component is an upgrade to MITSServer (v.4.2) that processes requests from the MITSWeb gateway and generates output in HTML and JavaScript format for presentation back to the user.

MITSWeb 4.2 offers many of the same robust capabilities as MITSView in a browser environment, including:

- ◆ Produce valuable reports from MITS hypercubes of several years of data within seconds.
- ◆ Drill down into MITS hypercubes in ad hoc fashion to quickly discover underlying trends.
- ◆ Create 2D and 3D bar graphs and pie charts or quickly export data to other tools such as MS Excel.

MITSWeb users will benefit from the common interface of the MITS product family. Whether they are using MITSView on the desktop or MITSWeb in a browser window, they will be presented with a similar intuitive interface. Users can move from one to the other painlessly with no additional training required. Additionally, the MITSWeb user may build queries from available data, or use queries built previously by other users on MITSWeb or on MITSView. Security for MITSWeb access also remains the same as MITSView, and is administered in the MITSAdmin product.

"The prolific Internet economy has driven the need for sharing information over the net," Gilbrough said. "MITSWeb will allow remote users, such as salespeople, traveling executives and off-site consultants, to access information available in MITS without the requirement of installing extra software on a PC. Best of all, this is all done securely, while ensuring that the information delivered on the Web is the same as what the enterprise is seeing."

MITS systems are firmly entrenched in a wide range of business areas: distribution, manufacturing, healthcare and services, to name a few. MITS is available on many MultiValue databases, including UniData, UniVerse, D3, jBASE, mvBASE and mvENTERPRISE, and may be ported to other MultiValue databases in the future. Through an exclusive agreement with IBM, the MITS product line is sold and distributed through the U2 worldwide channel sales force, which includes over 600 value-added resellers of the U2 product family, including UniData and UniVerse, SB+, wIntegrate and RedBack. ■

Continued from page 43

decision-making. MITS leverages the superior flexibility of the extended relational model, delivering analytical processing within the same database used by the business applications. This advantage permits VARs to offer its customers tremendous analytical functionality that is cost-effective because it avoids the need for separate hardware and complicated non-MultiValue data extraction techniques.

"As the MultiValue leader in business intelligence tools, we have seen customer installations grow from department projects to enterprise-wide deployments," said Pat Gilbrough, president of Management Information Tools. "Not surprisingly, as more users are added, the MITS system must become more flexible to meet a wide variety of end user needs and corporate technology standards. Release 4.2 underscores our commitment to the industry to improve and streamline our OLAP technology, expand the market opportunity for VARs, and ensure the customer's business remains competitive via powerful business intelligence capabilities."

The MITS platform features five components used to extract data from a MultiValue database, package it into a highly usable cube form, and allow users to see overall trends, or drill down and interactively explore the data. Additionally, two new components have been added in version 4.2—MITSWeb (see article on MITSWeb also in New Products) and MITSWeb gateway—allowing any user to access the data via a standard Web browser.

Management Information Tools has added significant enhancements to this already innovative product suite in release 4.2, many of which are highlighted here:

All Products:

- ◆ A new Dataflow component has been added to all MITS products to enhance and simplify the connection interface to MITSServer. This includes new splash screen graphics and better flow control to resolve connection problems.

MITSServer:

- ◆ System functionality has been given a boost with the addition of event logging for performance monitoring.
- ◆ User control has been increased for stopping, starting and monitoring builds.
- ◆ A faster cube-sorting algorithm was added to assist in sorting cubes after builds.

PRC Showcased at International Spectrum Show

SJ+ SYSTEMS ASSOCIATES INC. demonstrated an enhanced version of its popular PRC configuration management software for MultiValue systems at the International Spectrum Show in San Diego in February.

PRC Release 5 features tighter integration with outside applications, including those using UniObjects, which allows users to capitalize on Java technology for new GUI applications, and with outside e-mail. Developers who choose not to use SB+ will find more robust support in the newest release, too.

"We were looking forward to having visitors to the booth see the many changes we've made to the software that will help improve productivity and give our customers a competitive advantage," says Susan Joslyn, founder of SJ+ Systems. "It's more important than ever that companies get control over the changes they make to software — and keep them secure."

PRC, which is celebrating its tenth anniversary, provides the necessary functionality to ensure that software is secure, the modifications are visible and reproducible. It also provides end-to-end software configuration management, from problem reporting through project management with change control, test management, automated deployment with rollback, and robust auditing and reporting.

PRC is installed in over 500 companies worldwide in a variety of industries. SJ+ Systems Associates is a Florida company with more than 20 years of experience in MultiValue technology and software configuration management. ■

- ◆ New interfaces have been added to MitsAdmin Security enhancements.
- ◆ MitsServer 4.2 has been upgraded to process requests from the MitsWeb gateway and generate output in HTML and JavaScript format for presentation back to the user, using the new MitsWeb component.
- ◆ The MitsServer User Guide has been augmented for both online users and those who prefer the printed manual.

MitsView:

- ◆ The Flash Screen Selector has been enhanced to display details about Flash Screens.
- ◆ The Dataflow window is now resizable.
- ◆ MitsView forms can retain their parent state (within the print, chart and detail display functions).

MitsAdmin:

- ◆ Version 4.2 now includes a GUI interface for scheduling builds and more efficient monitoring of builds and application information.
- ◆ A "stop" and "start" auto-run scheduler has been added.
- ◆ A new Event Logger reporting feature includes export-to-Excel functionality.

MitsMaker:

- ◆ The Eon Loader and Ending Calculator are now independent features in release 4.2, providing MITS users more flexibility.
- ◆ A new feature, Optional Parameters, has been added to allow storing non-standard options with the system's configuration. This enables the system to support extra features that may be supported on the server but do not have an equivalent in MitsMaker.

- ◆ The "Attachments" feature has been improved to include typical files, simplifying the deployment of MITS applications.

MitsWeb: This is the newest addition to the MITS Product Suite, acting as a zero footprint client for viewing MITS hypercubes using a Web browser. MitsWeb offers the same robust capabilities as MitsView, including:

- ◆ Produce valuable reports from MITS hypercubes of several years of data within seconds.
- ◆ Drill down into MITS hypercubes in ad hoc fashion to quickly discover underlying trends.
- ◆ Create 2D and 3D bar graphs and pie charts or quickly export data to other tools such as MS Excel. ■

jBASE Announces New Web Builder Release 3.3.2.

The latest release of jBASE's Web Builder features many usability and productivity improvements including automatic cache flushing after compiles, the ability to pull out all form parameters using just one line of code, and the ability to open all your existing jBASE files from within jWB with zero configuration.

You can even create files at the click of a button. The import facility now understands import files from previous versions of jWB, and provides a progress indicator to show how far it has gotten. There is an added security feature, which prevents URL replay, and a newly available proxy component which allows jWB to integrate with a J2EE application server. This is the first release that requires a separate license key. This release is available on all hardware platforms supported by jBASE. ■

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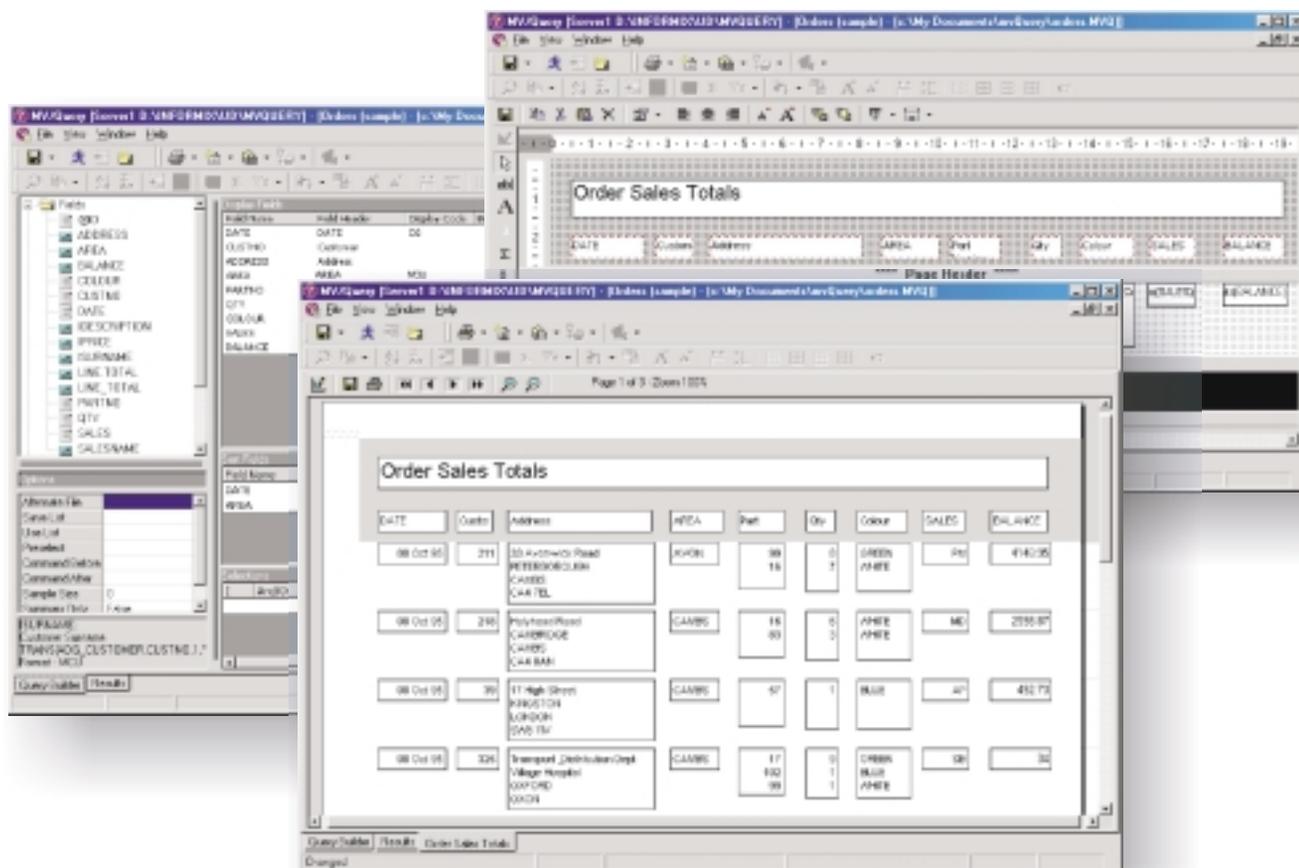
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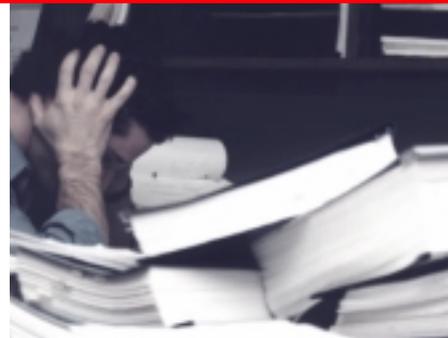
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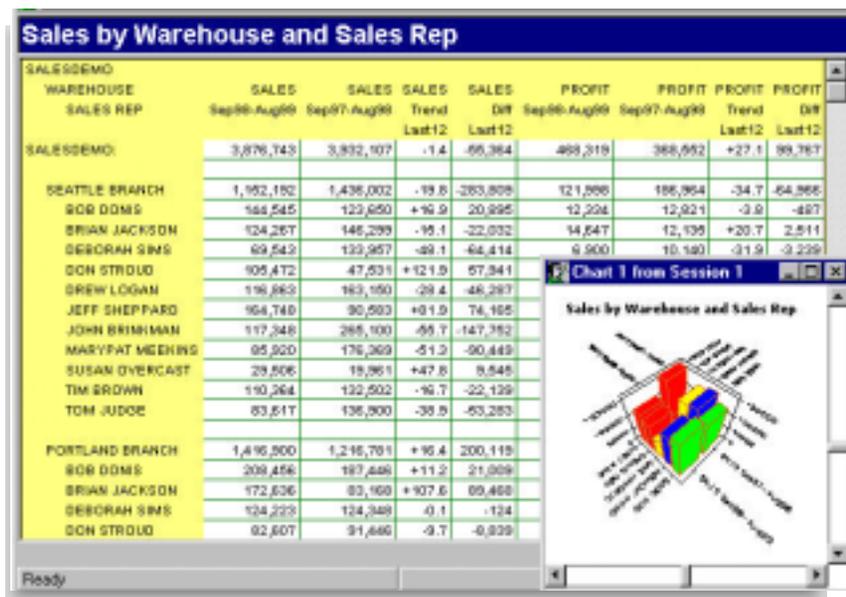
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Option #3

