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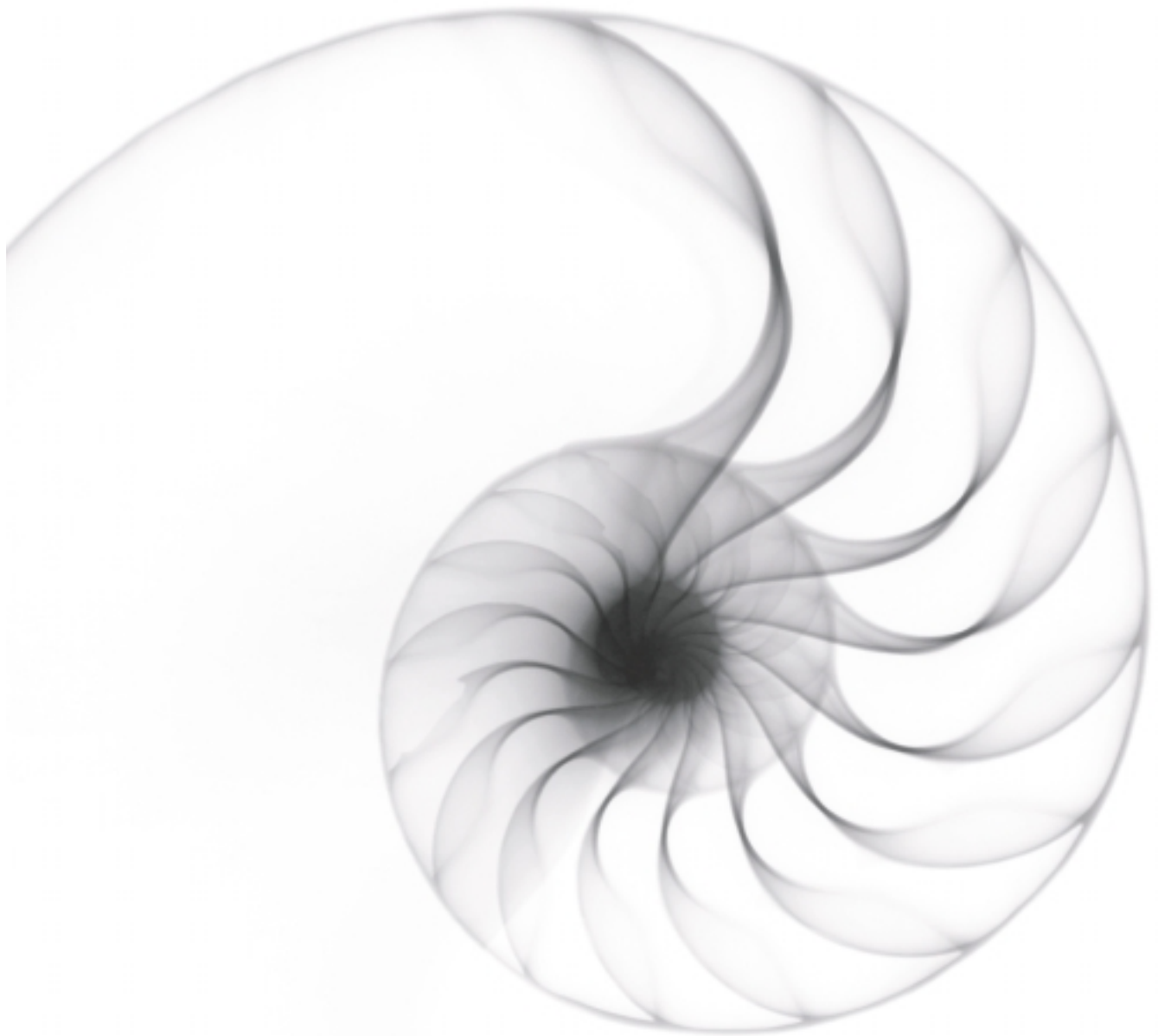THE BUSINESS COMPUTER MAGAZINE   SEPTEMBER/OCTOBER 2004 • AN IDBMA, INC. PUBLICATION

A Global Connection

Plugging in to What International Exhibitors Have to Say About MultiValue's Present, Future and Potential for Growth

"THEY BELIEVE DESIGNBAIS WILL....SIGNIFICANTLY IMPROVE YOUR WEB DEVELOPMENT PRODUCTIVITY, SIGNIFICANTLY IMPROVE YOUR PROFITABILITY, IMMEDIATELY TURN YOUR MULTI-VALUE DEVELOPERS INTO WEB DEVELOPERS"

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Cover Story

Taking the Pulse of the MultiValue Market: A Report Card on How the MultiValue Market Is Doing and What's Needed to Keep It Growing

DEPARTMENTS

The Eye *of the* Beholder

The second installment of Leanne Green's article, "The 25 Most Influential People in PICK — Where Are They Now," is possibly one of the most revealing articles ever published in the history of this magazine (see page 40). It points out how incredibly different each of us perceives the past, present and future of the MultiValue market.

It's all I can do to refrain from putting my own two cents worth in, but I think not doing that is what objective reporting calls for at this point in time.

Depending upon your own experience, you'll no doubt find yourself nodding your head in agreement with the sentiments expressed in the article that you agree with, and violently objecting to those that you think are wrong. Almost like Republicans and Democrats.

In addition to soliciting colorful experience anecdotes, Leanne asked the 25 most influential these probing questions:

1) In your view, has MultiValue/PICK made it into the mainstream?

2) Of the seven surviving MultiValue database providers, who will make it and who won't?

3) Is there still opportunity in the MultiValue/PICK market?

4) Is the MultiValue/PICK market dead or alive?

After you read what the 25 had to say in response to these questions, we at *Spectrum* magazine would be really interested to hear what you have to say. While you're all fired up, please take a moment and send me an email (gus@intl-spectrum.com) and give us a piece of your mind on the subject.
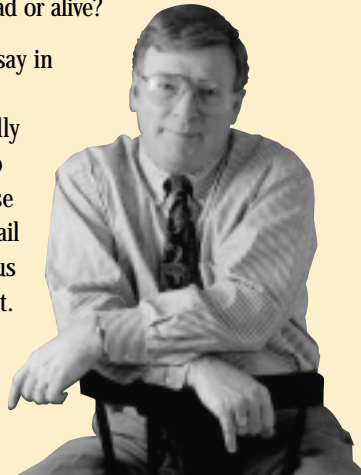
— GUS GIOBBI, CHAIRMAN, IDBMA, INC. —
gus@intl-spectrum.com

Taking the Pulse of the
MultiValue Market

Spectrum Exhibitors Give a Report Card on How the MultiValue Market Is Doing and What's Needed to Keep It Growing

ast year, the International Spectrum conference and exhibition returned to Australia and the U.K. after a 15-year absence and found an audience of MultiValue users, developers and companies who were starving for the opportunity to get together with others using similar technologies and experiencing similar challenges. Throughout the exhibition and conference, attendees expressed how enthused they were to network with other users and MultiValue companies, gain more knowledge, and get a jumpstart on all the newest MultiValue products and capabilities.

In these countries, Spectrum revisited a thriving, large installed base of MultiValue users who are dedicated to continuing to use the same technology and keeping it current. A group of exhibitors who will be participating in the U.K. and/or Australia shows shared their insights on how they perceive the health of the MultiValue market and what will shape the future of this industry. In their comments, one may find nuggets of wisdom or a unique idea that, if implemented, would increase awareness of a great technology and propel the industry further into the consciousness of the mainstream.

Among the questions asked: Is the MultiValue market growing, shrinking or staying the same; are you optimistic or pessimistic about the future of MultiValue; and do you plan to migrate your business from MultiValue? Have you ever asked yourself, "What would I do if I was elected president of a MultiValue database provider?" Read on to find out what developers of MultiValue products and services had to say.

Spectrum Exhibitors Broaden Their Horizons

Spectrum exhibitors convening in London, England, Sept. 22-23, 2004 and Sydney and Melbourne, Australia, Oct. 12-13 and Oct. 18, 2004, respectively, expect to find an international audience eager for the latest products, new information and answers about the stability and future direction of the MultiValue marketplace. If last year's vendor fair and conference were anything to judge by, the exhibitors will get what they're expecting and attendees will find the answers they're seeking. Both the U.K. and Australia boast a huge population of MultiValue users and many U.S.-based MultiValue companies are making the trek to court their business.

Following are the companies that will be on-hand to demonstrate their wares and discuss the latest technologies that will take MultiValue to the next level.

London, England
Sept. 22-23, 2004

AMENZ Ltd.
DesignBais
DMcons
EasyCo.
Eagle Rock Information Systems
EDP PLC
IBM
jBASE International
Management Information Tools
ONgroup
Northgate Information Solutions
OHM Systems
Prospectus IT Recruitment
Raining Data
Revelation Software
SJ+ Systems Associates
VMark UK Limited
Web Control
Winnix Software

Sydney, Australia
Oct. 12-13, 2004

ACS Australia
*Apscore International
*Citadel Computer
*DesignBais
*DMcons
Eagle Rock Information Systems
*Fusionware
IBM
*jBASE International
*Key Ally
*Management Information Tools
*Meier Business Systems
Natec Systems
*OHM Systems
ONgroup
PRISM
*Raining Data
*Revelation Software
*SJ+ Systems Associates
*Stamina Software
Sterland Software
UniWare
*VIA Systems

(Companies with "" will also be attending the "networking and technology day" in Melbourne, Australia, Oct. 18, 2004.)*

Taking the Pulse of the
MultiValue Market

MELVIN M. SORIANO is president of Eagle Rock Information Systems (ERIS), an Internet Application Service Provider and WebWizard/MultiValue Developer. ERIS has deployed enterprise-wide solutions on most MultiValue platforms and operating systems.

Q Are you optimistic or pessimistic about the future of the MultiValue market?

A Both good and bad are occurring. I find that installations that are connected to a strong VAR will remain with MultiValue, so long as the VAR creates value and integrates to modern systems. Companies that have VARs that do not help them integrate well to other systems will move to other application solutions and, consequently, other database options.

Q Do you think the market is shrinking, expanding or staying the same?

A There is growth and contraction at the same time, depending on the vertical. I find that in general there appears to be a contraction in places where the VAR has not innovated.

Q Are your own company's MultiValue sales shrinking, staying the same, or expanding?

A Our MultiValue income has been steadily expanding since the dotcom implosion.

Q Are you better off with MultiValue today than you were four years ago?

A Yes, the MultiValue market has been a steady rock during the dotcom implosion.

ROSS FERRIS, of Stamina Software, has been involved with MultiValue for over 20 years. Stamina Software develops the Visage thin client application development environment, and also R5, its flagship ERP product.

Q Are you optimistic or pessimistic about the future of the MultiValue market?

A I'm cautiously optimistic. It's certainly encouraging to see IBM bringing out new releases of their U2 product with features that are relevant to today's market, and the sheer "bulk" of IBM helps people in the U2 space in terms of credibility. I am concerned about the viability of some of the other database vendors, because without them there obviously isn't a market, but I don't think MultiValue is going away any time soon, and with the emergence of GUI and Web-enabling tools like Viságe, multi-valued applications can edge closer to the mainstream.

Q Do you think the market is shrinking, expanding or staying the same?

A The figures I see from the DB vendors indicate that the market is growing. Certainly for our R5 product every sale is to an organization that DOESN'T currently have a multi-valued solution in place, and our existing users keep increasing their user counts. This is where the VARs can/do make a difference — as a community WE must ensure that our solutions remain competitive, otherwise it will not matter WHAT the DB vendors do, because no one will want our old-fashioned solutions!

Q Are your own company's MultiValue sales shrinking, staying the same, or expanding?

A We are certainly seeing growth — our current R5 users are not going away, and Viságe is giving us exposure to a wider audience of MultiValue VARs, so we have some visibility of what they are doing "down the pipeline."

Q What percentage of your annual sales are built around the MultiValue market?

A We derive over 80% of our sales from the MV market in one way, shape, form or another, and it would be fair to say that it is the cornerstone of our business, and remains our principal focus.

Q What percentage of your annual sales are derived from existing MultiValue customers?

A Our existing client base provides at least 70% of our sales, through maintenance, upgrades and new developments, as well as ancillary hardware and service sales. We are also seeing an increase of sales to existing MultiValue users (not necessarily historical customers of ours) of our Viságe development tools and Viságe.BIT data warehouse products.

Q Who is your primary MultiValue database provider?

A Historically (for the last 10 to 15 years) we have dealt more or less exclusively with Raining Data, but I can see that U2 will be playing a more important part in our future.

Q Do you have a strategic plan in place to migrate your business from MultiValue or are you staying with MultiValue or both?

A We are firmly rooted in the MultiValue community and have no immediate plans to migrate, BUT ... our Viságe product leverages XML (everything from screen definitions to data dictionaries are presented via XML) and allows us to work through a data abstraction layer (no more REC<1> references). We are watching native XML support in products like DB2, Oracle and SQL Server with interest, and if these products reach maturity within two to three years, then we may have an interesting pathway to mainstream RDBMS environments.

Powerful New Reality V11.0 Enhancements delivers:

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- GUI Spooler, Reducing the cost of printer management.
- DataBasic from English, Improved reporting flexibility.
- SQL Expanding support for stored procedures and binary data types.
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- MultiValue Enhancements. Maximizing migration efficiency.

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- **Secure** – Comprehensive range of security features, widely used for highly secure law enforcement systems.
- **Portable** – Runs on a wide range of platforms, built from a single source.
- **Stable** – Supported by thirty years of continued development.
- **Open** – Interconnects to other databases and applications, highly performant SQL interface and web integration.
- **Compatibility** – Viable migration path from other MV platforms.
- **Efficient** – Requires less hardware per transaction.

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INFORMATION SOLUTIONS

Taking the Pulse of the MultiValue Market

Q If you were elected president of a MultiValue database provider, what changes would you make?

A First, I'd bundle a product like Viságe so that I can offer clients a pathway to GUI and beyond, providing capabilities for business analytics and presentation quality reporting as part of the package — without any increase in price! Next I'd look at licensing costs and support for Web-based deployments, so that my VARS aren't disadvantaged price wise. Then I'd "steal" a good idea from Revelation, and provide FREE single-user runtime licenses so that my VARS can deploy free trial systems, and "seed the market" with free, or ultra-low-cost systems if they wanted to.

On the second day, I'd identify the VARS that *are* actively selling solutions and look at discovering why/how their formula works so that I could use it as a pattern to assist other VARS that may not be so successful. I'd also invite them to be on a consultative committee so that I can be somewhat assured that they continue to be "happy" with the service, and are aware of future product directions and feature sets, and also look at gaining their approval to use any high-profile clients as reference sites and become part of my marketing collateral (to answer the "who uses MV" questions with a pre-packaged, high-quality presentation that can be used by *any* of my VARS).

By Wednesday I'd be looking for a marketing company to poll existing VARS with a view to a SWOT analysis, and also looking at ways we may be able to introduce them to complementary VARS. I'd be working towards trying to avoid the duplication that currently occurs in the market, on a larger scale and yet similar to the way that VB grew because of the ability to re-use components.

On Thursday the marketing company would be polling non-MV developers to quantify any opportunities from the SWOT, and try and determine the key factors and features I need to have/enhance in order to maintain my existing VARS, and also attract new ones. My Thursday would be spent with venture capitalists so that I could launch into my marketing campaign.

Friday would be spent with the advertising gurus, fleshing out details of the richest (?) programming competition ever organized. Using the FREE single-user MV database that I now have at my disposal, and using the integrated MODERN development environment, I'd put a challenge out to university students (who can work in teams — but who will also be flooding the market "soon") to develop a working business system — five runner-up prizes of $100K, with a first prize of $1 million. I figure I'll get my money's worth from the free publicity.

Saturday I'd wake up in sweat, wondering if my gamble would work — then I'd remember it was just a dream!

Q Are you better off with MultiValue today than you were four years ago?

A Yes! Today I have a choice of tools and technologies that let me interact with "other" systems far more easily than I could four years ago. I think the wheel is turning, and people are again appreciating the benefits of a single, centralized system rather than the proliferation of client/server data islands. The IBM name can now be firmly aligned with the MV market, which allows us to gain a measure of credibility through association. We have also seen our notion of "multi-values" adopted by other databases as nested or embedded tables, and we can draw on similarities to the ubiquitous XML, no matter how tenuous. A "good" application with connectivity to the outside world, with a heritage of success and proven business worth is always a scarce commodity.

CATHERINE is co-owner and vice president of OHM Systems Inc., developer of a progressive, global, full Web-centric ERP/MRP application including developer tools, CRM, and VRM. Her primary focus at OHM is sales and operations. With 15 years in the MultiValue world, Catherine was educated in business and finance.

Q Are you optimistic or pessimistic about the future of the MultiValue market?

A I am more realistic. In all the recent years, no large organizations, including IBM, have embraced the power and understanding of the MultiValue database. No real market presence is being noted. I look around at a world of far less efficient database environments that are winning the business in large corporate America because of the large company marketing promotions and support they receive. It is the same perception as the 1980's hardware market where if your application did not run on Big Blue you were not invited in for the system evaluation process. Other database companies "give away" their licenses to colleges and institutions to ensure it is exposed and used by as many professionals and new IT and programmers as possible. When is the last time you saw a magazine ad for U2 or the names UniVerse or UniData? When have you opened a Fortune 500 magazine or *Wall Street Journal* and read about any of the powerful MultiValue environments?

Q Do you think the market is shrinking, expanding or staying the same?

A Given the three choices, it is definitely shrinking with any new application developers coming in to create a niche or market product release. It is staying the same with end users that are under 50 concurrent users as it is a great maintenance free environment. Additionally some of the status quo is due to the diehards of this environment such as us at OHM who continually work on development environment tools and methods to best promote and utilize the strengths of the multivalue. And then it stays the same because there is always a winding down period as the shrinkage starts.

Taking the Pulse of the
MultiValue Market

Q **Are your own company's MultiValue sales shrinking, staying the same, or expanding?**

A Since our company's current product is a MultiValue platform, we continue to market and have success in the mid- to small-tier sectors. Where we struggle and are not successful, though receiving accolades on the OHM application, is that large companies with 100 to 200 and upward users have existing commitments to non-MultiValue environments and staffs trained to support that. Therefore, the IT departments do not have understanding, knowledge or experience of the MultiValue world and don't want to take it on.

Q **What percentage of your annual sales are built around the MultiValue market?**

A All sales related to the OHM ERP/MRP and CRM applications and that of our WADE development tools at this time.

Q **Who is your primary MultiValue database provider?**

A IBM.

Q **Do you have a strategic plan in place to migrate your business from MultiValue or are you staying with MultiValue or both?**

A We will absolutely continue to support MultiValue and develop in this environment as long as the market remains. Hopefully, at some point, we will see a change in a regrowth of that market. But not counting on it, we are already in stages of relationships and development to provide all our application and development products in a true open system environment.

Now the best of these worlds would be a powerful hybrid of the true MultiValue engine and portability to any database environment.

Q **If you were elected president of a MultiValue database provider, what changes would you make?**

A Since the request to provide these answers was to keep it short, I will try to hit the highlights. More advertising. More education. Give away the product to colleges, high schools and other IT institutions. Provide training sessions to promote the dynamics. Get in trade journals with articles and information where the powerful decision-makers take notice of the MultiValue power. Provide a campaign "CHALLENGE" to the other databases — make it as big a deal as a major prizefight. Do anything to get people talking in a positive way about a great product and keep the movement going. Provide developers with an easy way to use powerful working development tools like OHM's Web-centric Development Application Environment (WADE) so that more types of applications are coming into the sector to compete in RFP's being offered.

Q **Are you better off with MultiValue today than you were four years ago?**

A Somewhat better today, only due to some of the technology advancements in the database abilities by companies like IBM who gave us, as developers, some conduits to piggyback off some database features in the Web technology, therefore allowing OHM to concentrate more on the application development side. Overall, from the MultiValue market four years ago until today, not much has changed except that less overall "MultiValue" flavors of the product are available.

BRIAN EGAN is Sales & Marketing Manager - Asia Pacific for Meier Business Systems. He is a 25-year veteran of the MultiValue marketplace, having spent the past 7 years at MBS (Meier Business Systems), the leading distributor of IBM's U2 product family in the Asia Pacific region. Prior to this Brian spent 18 years at two of Australia's early pioneering MultiValue organizations in a variety of roles that enabled him to actively participate in the growth of MultiValue in the region.

Q **Are you optimistic or pessimistic about the future of the MultiValue market?**

A With the credibility afforded the MultiValue market as a result of IBM's ongoing commitment, I see a bright future for all. A wide range of MultiValue-based application solutions traditionally have stability, flexibility, scalability and ease of maintenance at the back end database and have been introduced to the "New World" through an ever-increasing number of technology enablers.

Q **Do you think the market is shrinking, expanding or staying the same?**

A Whilst we have seen some growth in the number of sites or installed users, actual figures would indicate a net decline in the MultiValue share of the global software pie. Traditionally MultiValue developers have been successful in deploying their solutions inside major corporations (both public and private sectors) as niche, functionally rich departmental solutions, however, there is no significant increase in the number of these software houses.

Q **Are your own company's MultiValue sales shrinking, staying the same, or expanding?**

A As a leading distributor of a variety of MultiValue products, it would be fair to say that the numbers are relatively stable and do demonstrate some growth. Some seg-

ments are doing better than others and I feel the greatest challenge is to expand the MultiValue developer base. This will most likely eventuate through careful and strategic partnering of MultiValue databases and tool sets to ensure that MultiValue represents a technologically sound, creative and efficient environment to attract new developers.

Q What percentage of your annual sales are built around the MultiValue market?

A MultiValue is our core competency and almost all of our business therefore revolves around this marketplace.

Q What percentage of your annual sales are derived from existing MultiValue customers?

A MBS promotes MultiValue databases and tools, and a large proportion of our business is derived via our successful reseller network. A large percentage therefore comes from these existing customers as they install new sites, additional technology and functionality.

Q Who is your primary MultiValue database provider?

A IBM.

Q Do you have a strategic plan in place to migrate your business from MultiValue or are you staying with MultiValue or both?

A With such a high percentage of our business related to MultiValue, we have and continue to hold to the philosophy of "Sticking to our knitting."

Q If you were elected president of a MultiValue database provider, what changes would you make?

A I would look to enhance the marketing and support of the MultiValue environment with particular emphasis on the broader developer community. I would make it easier for developers to gain access to products and tools and ensure that they receive an appropriate level of support.

The IT industry also needs to be reminded that this "dinosaur" really is good technology. One means to enhance the exposure would be to promote MultiValue throughout educational facilities.

On the marketing side — many people just do not realize how widespread MultiValue is being used. In Australia it possibly touches over 80 percent of the population via utilities, financial institutions, service providers, federal and state bodies, retailers, manufacturers, etc., etc.

Q Are you better off with MultiValue today than you were four years ago?

A Absolutely! IBM's involvement with MultiValue products aids the sales process by removing frustrating objections such as "What database did you say?" There are also some amazing development products and tools that have been created for the MultiValue marketplace and these only serve to enhance the offerings we are able to provide to our customers and partners.

Taking the Pulse of the
MultiValue Market

Continued from page 13

SUSAN JOSLYN is president of SJ+ Systems Associates, which specializes in tools that provide software configuration and software development lifecycle management for IBM U2 and MultiValue software.

Q **Are you optimistic or pessimistic about the future of the MultiValue market?**

A I've always thought the "doom of MultiValue" was a Chicken Little proposition. The sky is not falling. Our marketplace shifts from time to time. And some resellers do keep it a bit "under wraps." But we all have stories of companies that thought they could do better ... and came back (or worse yet, didn't come back). Big companies that bought out little MultiValue-run companies and thought they could bring everything over to "big O" or something else — only to end up moving the whole BIG parent company to the MultiValue-based solution. We're in a great spot. My question is: Why do we have to spend so much time wondering if we're dying? It's so Woody Allen.

Q **Do you think the market is shrinking, expanding or staying the same?**

A Shifting ... but ultimately expanding quietly.

Q **Are your own company's MultiValue sales shrinking, staying the same, or expanding?**

A Expanding.

Q **What percentage of your annual sales are built around the MultiValue market?**

A 100%

Q **What percentage of your annual sales are derived from existing MultiValue customers?**

A 100%

Q **Who is your primary MultiValue database provider?**

A Lately IBM U2, but not exclusively and certainly seeing surges in the others.

Q **Do you have a strategic plan in place to migrate your business from MultiValue or are you staying with MultiValue or both?**

A Staying with MultiValue.

Q **If you were elected president of a MultiValue database provider, what changes would you make?**

A First, I think they are up against all kinds of pressures and issues that I don't understand. But sometimes I do wonder if their intelligence could be bad (does that happen?). My biggest soapbox, the thing I think would be a win-all-around proposition, is to standardize on a sleek, robust ADE with clear and simple API's for attaching other back-ends and jazzier front-ends. All of the MultiValue database providers — since the beginning — have stopped short of providing that. To me it's just unfinished.

This solution would need to be simple and extremely affordable (free). It would have rudimentary user interface logic but would be more like a schema product on the host/database end (with agile mapping to other environs) and easy, obvious clip-ons for user interfaces. Not feature rich, but simply supportive to other feature-rich UI/ADE's.

Then everyone would be able to deal with their integration issues ... everyone would be able to jump on the next new bandwagon. And nobody would think they had to replace their MultiValue system to do it.

Call me a dreamer. But I'm not the only one.

Q **Are you better off with MultiValue today than you were four years ago?**

A Absolutely.

TIM SPELLS is president of ONgroup, developer of ONware, which enables MultiValue applications to run on Oracle without reengineering.

Q **Are you optimistic or pessimistic about the future of the MultiValue market?**

A Optimistic. In general, MultiValue applications are proving to be superior in business functionality to applications developed with "mainstream" languages or tools. We have witnessed many organizations attempting to replicate the MultiValue business functionality and failing. We have seen similar results of organizations attempting replacement with a packaged solution. The high cost and very complex challenge in attempting to replace MultiValue applications is a testament to their outstanding development and performance. Now, with ONware enabling the integration of MultiValue applications with mainstream languages, tools, and applications, we have every reason to feel optimistic about the future of the MultiValue market.

Q **Do you think the market is shrinking, expanding or staying the same?**

A It is difficult to tell; there was a period of time without much in the way of new applications from our VARs. Recently, we are seeing new sales due to the VAR now being able to offer their highly functional product without changing the business logic run on relational platforms and utilizing languages, (e.g., .NET, Java, etc.), tools and other applications in the relational world. Also, we see the addition of MultiValue Web application development tools that have surfaced starting to have some impact on the growth of the MV market.

Q Are your own company's MultiValue sales shrinking, staying the same, or expanding?

A ONgroup's MultiValue sales are expanding. We believe we are meeting the needs of the MultiValue market by allowing the MultiValue application to run on Oracle, SQL, and other high-demand database systems. As a result, MultiValue applications are now running on MV, relational, object-relational and hybrids; and MV applications are maintained and developed using relational and object tools as well as MV tools. MV applications are being integrated with relational and object applications.

Q What percentage of your annual sales are built around the MultiValue market?

A 92% in 2003; we are forecasting 87% in '04. At first we were bringing Oracle and other relational technology to the MV marketplace; more and more we bring MultiValue development tools to the relational market.

Q Do you have a strategic plan in place to migrate your business from Multi-Value or are you staying with MultiValue or both?

A Both; our strategic plan is to migrate our partners (VARs) and end user organizations to the relational world without changing their business logic. We accomplish this using ONware, a MultiValue environment that equips MultiValue applications with database independence.

ONware is a suite of middleware products that separates business applications from the DBMS; it allows redeployment on SQL Server and Oracle. We accomplish this with little if no change to the original application. The presentation to the end user remains the same, and there is no need for re-training of the end user or IT staff. Essentially, ONware is a run-time and development environment that emulates those of the common MultiValue platforms.

The difference between ONware and other MultiValue environments is that ONware is database independent; ONware does not include an embedded database. Data is data; it is separate from application logic. ONware allows you to choose the databases in which to store your data and in the format that makes sense for the demands of the organization.

Your applications perform as they do today regardless of how you choose to store the data.

ONware includes: data migration utilities, to move data from the MultiValue DBMS and into the relational databases; normalization and mapping tools, to re-structure the 3-dimensional MultiValue data structure to the

QuickBooks
Why Should We Care?

BY NATHAN RECTOR

At the Spectrum show last March, I talked with a lot of software developers that wanted to be able to exchange information with QuickBooks. This got me thinking about QuickBooks and what it can do for our market.

Most of us have written some kind of accounting software. Whether it is a stand-alone package or part of our existing main package, we know how quickly it can become outdated.

The other problem we have is training. Most of the accounting software we have included in our systems does not conform to other accounting software. Granted there are only so many ways to do accounting, but each software package handles the data entry differently.

Now QuickBooks comes along and the bookkeepers that our customers are hiring are asking why they can't just use QuickBooks. In larger companies, this isn't really the case, but the small shops that only have a controller and maybe a bookkeeper, or the owner does all the work themselves, want to use QuickBooks.

Why you ask? Especially when your software already does all the accounting for them ... and much better than Quick-Books can, right?

Well, I'm going to have to disagree with you on that. I started working with Quick-Books several years ago because the paperwork was getting out of hand, and I didn't have time to write accounting software when I was writing software for everyone else. I found that QuickBooks could do everything I wanted to do, plus a few other features, and did it better than anything I would have written.

If you've ever worked with QuickBooks, you'd see what I'm talking about. The interface is so easy to use that people without accounting knowledge can actually use it. Intuit has made accounting and book-keeping as close to idiot proof as they could. It is really hard to make an error other than the general data entry errors.

There are tons of reports and tools that help businesses manage their cash and financing, and to top it all off, the payroll systems are unparalleled. The payroll system is a gold mine for most businesses.

Now, back to the original question: Do we care? Especially when we already have

> QuickBooks has tons of reports and tools that help businesses manage their cash and financing, and to top it all off, the payroll systems are unparalleled.

accounting software included in our packages. The answer is "yes." If you haven't had a customer ask you for it yet, I'm guessing you will within the next year or so.

The reason: simplicity. Nothing can beat QuickBooks for simplicity and like I said, most bookkeepers know it. CPAs are also starting to request the information to be sent to them in QuickBooks format.

OK, now how do we get the information into QuickBooks? There are several ways to do this. The first is good old hand entry. I know, I know ... the tech in us have a hard time with this option.

Import	▶	Excel Files ...
Export	▶	
Archive & condense data...		IIF Files ...
Utilities	▶	Web Connect Files ...
Timer	▶	Convert From Quicken ...
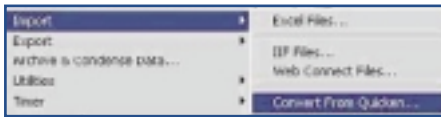
The second option is using comma-delimited files and importing the information into QuickBooks. The drawback to this is that QuickBooks only supports this kind of Import with specific file types: Customer, Vendor, Inventory and Chart of Accounts.

The third option is to use .IIF files. These have been around for several years, but are not well documented. You can find out more information at http://www.Quick-Books.com/support/faqs/qbw2003/premier/117503.html. The other drawback is that it still requires the user to import the information.

The last option is to use a tool like mvQB to update QuickBooks real-time. mvQB is a set of programs that lets MultiValue databases read and write information directly to QuickBooks. With a few program calls, you have to update QuickBooks at transaction time, or at the end of the day during a batch update.

Editor's Note: For more information on the mvQB product, you can contact the author at nrector@natecsystems.com.

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UniVerse and UniData
Hashed
FILES
Part 4

UniVerse's 64-Bit Files

BY JEFF FITZGERALD AND PEGGY LONG

When UniVerse introduced the 64-bit file option to support database files greater than 2Gb, it didn't directly affect us because we were running an obsolete HP E-25. Our system didn't have a large enough disk to create a 1Gb file so we weren't concerned about the 2Gb limit. Since then we have upgraded!

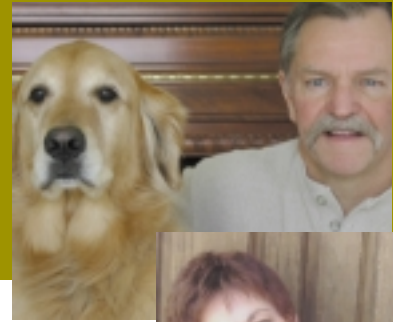Our new HP has 10Gb, our iPod has 5Gb, Jeff's memory stick has 128Mb, and a new Canon digital camera has a memory card that will hold 4Gb. As we discussed these statistics we began a nostalgic review of the disk drives we had used over the last 20 years. Thinking back, we recalled a number of clever ways software had created "workarounds" to compensate for the shortfalls of the hardware and O/S restraints we had faced. Yes, there were always limits and tradeoffs — and still are.

If you remember Prime INFORMATION you may remember that there were two types of files used for statically hashed files — SEGSAM and SEGDAM. For files with a modulo less than 2000 the SEGSAM structure was used. For larger modulos the SEGDAM structure was used. You could not "RESIZE" across this barrier. To convert from SEGSAM to SEGDAM you created the file with the larger than 2000 modulo and INFORMATION would use the SEGDAM structure.

SEGSAM was an acronym for "segmented sequential access method" and SEGDAM was an acronym for "segmented direct access method." The documentation described both of these structures as "segment directories for organizing data files by number." This meant file names were not used. The subfiles were referenced by number, and for Prime INFORMATION this was a very efficient structure for database files where the hashing algorithm returned a group number. The group number was the "name" of the subfile (aka group) in the segment directory. In short, the segment directory indexed the subfiles which were referenced by number instead of name.

The header of the SEGSAM structure was 2048 bytes, which limited the number of subfiles that could be addressed using the available addressing space. The SEGDAM structure was a hybrid directory structure that could address SEGSAM structures thus extending the number of subfiles that could be addressed. Using the SEGDAM structure allowed for much larger files. Of course, since the SEGDAM files used an additional level of addressing, there was a cost.

The need for SEGDAM files was created by the need to store more data than a SEGSAM file could handle efficiently. It seems that there is always a need for bigger files to hold more data. Does anyone ever delete data or reduce the amount of data they wish to keep in the "active" file? We are guilty. Until two years ago Fitzgerald & Long had 18 years of accounting data in the same file. If performance had not become so SLOW we would not have created a "history" file. (We are still using PI/Open, by the way, which will be converted to UniVerse NT before the end of the year!) The files are all dynamic and we are using alternate keys, so why is it slow? It's BIG. And even with alternate keys the probability of a lot of I/O — reading most if not all of the file to select year-to-date transactions — is a bet you can take to Black Hawk (one of our three gambling towns in Colorado).

So, obviously we are not "casting stones" toward anyone who likes to have ALL of the data in the "active" files. Of course we know the impact on performance but the bean counter (Peggy) was willing to forego the best performance to "keep things simple" and have easy access to all the data — until it was just TOO slow.

The largest prime number modulo in Prime INFORMATION was 65521, which would have created a file of a little over 130 megabytes, a relatively small database by today's standards. In those days the problem was not how big a modulo you could use but it was a question of disk space. INFORMATION didn't allow you to vary the separation (except for dynamic files — either 2k or 4k buffers); the buffer was 2k.

In 1970 the largest disk drive we had available was a CDC 300 megabyte drive that was the size of a washing machine and sometimes vibrated almost as much! If you bought the disk drive from Prime it was painted orange to match the computer, otherwise it would probably be blue. The price tag was around $30,000. Peggy, being an Auburn University graduate, was very fond of orange and blue in the computer room!

You could theoretically create a file larger than 300 megabytes but where would you put it? A file could not be split across two physical disk drives or for that matter across physical or logical structures. Space was the limit in those days. It was not until the UNIX and NT days that addressing a database larger than 2 gigabytes became an issue. The disks weren't that large, so we purged data, created history files, and sub-divided data into smaller, logical sets such as multi-volume files and distributed files.

Disk space was very costly. System resources such as files units, memory and swap space all worked to encourage system administrators to keep historical data on tape and even on microfilm.

As an aside, I'm reminded of a COBOL class that I took where the project was to

Identifying 32/64-bit Files

Here is a very simple program that we wrote and cataloged to create a Verb in the VOC.

```
0001: FILENME = ''
0002: PRINT "ENTER FILE NAME ":
0003: INPUT FILENME
0004: OPEN '', FILENME TO FILE.VAR THEN PRINT "file opened" ELSE ABORT
0005: ARRAY = ''
0006: STATUS ARRAY FROM FILE.VAR
0007: FIELD32 = ARRAY<32>
0008: IF FIELD32 = 1 THEN PRINT "Old 32-bit file"
0009: IF FIELD32 = 3 THEN PRINT "New 32-bit file"
0010: IF FIELD32 = 5 THEN PRINT "New 64-bit file"
0011: STOP
0012: END
```

Here is a sample execution:
```
>FSTATS
ENTER FILE NAME ?LARGE
file opened
New 64-bit file
```

We can think of a number of enhancements to this program, but this example is short and it works! A more useful program would select all of the VOC entries that define files and loop through the list reporting the 32/64-bit status and the file size. This would allow undesirable 64-bit files to be identified.

UniVerse's 64-Bit Files

Continued from page 19

write a program that would sort data records by their key using no disk and only two tape drives. The issue of course was that there was not enough disk space to do this task on disk thus the use of tape drives was the "workaround!" They were 9-track tapes. Can you imagine all of the tape requests to the operator?

When UniVerse and UniData "arrived" on the "MultiValue" scene, disk drives were larger and less expensive. But, there were still limits. A "show-stopping" limitation soon became evident. It was a UNIX limitation. A "regular" UNIX file could not exceed 2Gb. This limit was due to the addressability limitations of a 32-bit machine.

UniVerse and UniData solutions to this UNIX limitation were much the same as used in the INFORMATION days. Subdividing data into a number of "distributed" files where the location could be calculated was a successful technique. Moving old data to history and simply purging data were ways to keep files from exceeding the 2Gb boundary.

Large files were slower than small ones (and still are). Software strategies such as the use of alternate keys, cross reference files, and B-trees could substantially reduce the amount of time required to select a subset of data records. But, all of these solutions required software and labor to implement.

Another less elegant solution was to convert large files, those approaching 2Gb, to dynamic files and let them "overflow." Dynamic files are created as a directory with at least two subfiles, data and overflow. Because overflow — which includes records larger than the LARGE.RECORD parameter — is stored in a separate file, reaching the physical UNIX limit could be postponed. This solution was marginal due to poor performance as the overflow increased.

When many UNIX systems were implemented with 64-bit architectures which allowed files larger than 2Gb, UniVerse introduced the "64-bit" file. This allowed enough "address" space so that the larger files could be accommodated. The internal structure of UniVerse files had to be modified to allow for the larger addresses in record headers. Each record header was doubled in size to enable the 64-bit files.

To create a 64-bit file that exceeds 2Gb requires that the hardware and UNIX operating system allow the creation of these 64-bit files. This usually requires that the filesystem be modified to support large files.

On our HP this is done by using the *largefiles* option to the UNIX *mkfs* command.

Once the underlying UNIX system supports large files, there are three ways — at least — that will cause a file to be created as a 64-bit file. The most obvious is through the use of the CREATE.FILE command.

This command: CREATE.FILE TEST 2 3 4 64BIT creates a 64-bit file, type = 2; modulo = 3 and separation = 4. Dynamic files can be created in the 64-bit mode also.

For example: CREATE.FILE TEST2 DYNAMIC 64BIT creates a dynamically hashed 64-bit file.

Because Peggy had spent hours looking through old Prime documentation (to insure that our facts concerning SEGSAM and SEGDAM files were accurate), she first tried to create a 64-bit file with this command:

CREATE.FILE LARGE 2 3 4 -64BIT

Note the "-64BIT" at the end of the command line. Keywords used by the Prime INFORMATION command line to invoke options were generally prefixed with a dash. Peggy had been checking the status of each file as she created or modified them to insure the 32/64-bit objections had been invoked. We had written a BASIC program to report whether a file header was 32-bit or 64-bit. Quite surprisingly the file she had created using that last command with the -64BIT was a 32-bit file! This is what she found in the VOC entry:

0001: F -64BIT

0002: LARGE

0003: D_LARGE

Bottom at line 3.

Of course! UniVerse didn't recognize the -64BIT as a keyword and assumed it was the *description*! The correct syntax should be "64BIT", with no dash! There was a good lesson in this — your command may "work," but you may not get the results you expected.

The RESIZE command also has a 64BIT option that may be used with both statically hashed and dynamically hashed files.

>RESIZE LARGE 64BIT DYNAMIC created a 64-bit dynamically hashed file and

>RESIZE LARGE 2 3 4 64BIT created a 64-bit statistically hashed file.

Peggy noted that using -64BIT caused RESIZE to report a command line error:

>RESIZE LARGE 2 3 4 -64BIT

RESIZE: *Invalid file name, sizing parameter, or option on command line.*

By using the CREATE.FILE and/or the RESIZE command and the 64BIT keyword on the command line, a 64-bit file can be created. There is a "32BIT" keyword that causes a 32-bit file to be created; its usage is the same as the 64BIT keyword. Additionally there is a UniVerse default that may be configured to define what type of file is created if neither 32BIT nor 64BIT is specified. This default is defined in the "uvconfig" file. On our HP the pathname is:

/usr/ibm/uv/uvconfig

The parameter is 64BIT_FILES and the value is set to 0, which means that 32-bit files are the default. By setting the value to "1," the default can be changed to 64-bit files. Here is the documentation found in the uvconfig file.

64BIT_FILES - This sets the default mode used to

create static hashed and dynamic files.

A value of 0 results in the creation of 32-bit

files. 32-bit files have a maximum file size of

2 gigabytes. A value of 1 results in the creation

of 64-bit files (ONLY valid on 64-bit capable platforms).

The maximum file size for 64-bit

files is system dependent. The default behavior

may be overridden by keywords on certain commands.

64BIT_FILES 0

For the grand majority of UniVerse systems, having more than one or two files that exceed the 2Gb limit is rare. But, the new, inexperienced database administrator may jump to the conclusion that because the 64-bit file is "new" it might be better. Plus when he resized those big files they would be automatically converted to the 64-bit structure and he would not have to remember the keyword on the command line. He could simply forget about the issue of the 2Gb limit if he changed the default.

The very small amount of documentation that we have been able to find concerning 64-bit files does not offer any advice as to the costs and/or benefits of using this new structure. The primary benefit is obvious — a UniVerse database file can exceed the 2Gb limit imposed by the older structures. If there are additional benefits, please let us know. We haven't found them.

On the cost side, the most obvious issue is the substantial increase in overhead. Each

data record requires at least 12 bytes of additional overhead. Think what that means if there are a million data records in the file — 12Mb of additional overhead.

Let's look at a simple example. Let's imagine a file has 2.5Gb of data and the average record size is 500 bytes (without the additional 12 bytes when it is converted to the 64-bit format). The record count is 5,000,000, which means that a minimum of 60Mb of overhead will be added to the physical file size. Okay, that's only 2.6% (12 bytes / 500 bytes), but why pay the "tax" if it isn't needed. If the amount of data is under 2Gb, is there a good reason to use the 64-bit structure? If you can think of one please let us hear from you.

If you have been the database administrator since before UniVerse Release 9.5 was loaded AND you know that the default in the uvconfig file has never been changed, then you probably know exactly how many 64-bit files you have because you created them. But, if you are the new DBA or your software vendor installed your system, you may be surprised to find that you have a number of 64-bit files that you would rather not have. So, how do you find those files?

We have tried these commands hoping that one would identify whether the file was a 32-bit or a 64-bit file. These first three only read statically hashed files (types 2 through 18).

HASH.HELP

FILE.STAT

HASH.AID

These two will also read dynamically hashed files but don't report 32/64-bit format.

GROUP.STAT

ANALYZE.FILE

We then tried UVFIXFILE and were very surprised by the result!

>UVFIXFILE LARGE

uvfixfile does not support 64-bit files.

We were running out of ideas, but then Jeff suggested we try the old faithful standby that he uses instead of UVFIXFILE to patch broken files — "filepeek". IT WORKS! Notice the line called "Default mode... 64-bit". Note that this command is used at the UNIX prompt and not in UniVerse although it is a program provided by the database system. Please be very careful if invoking filepeek — this is a powerful tool with options that can easily destroy files when used carelessly!

filepeek LARGE

filepeek status:

Active file .... "LARGE/DATA.30"

Current file address . 0x0000000000000000

Maximum file address . 0x000000000000D7FF

Window size .... 512 bytes

0xFF will display as . "ÿ"

Default base 16

Default mode 64-bit

File type 30

Modulo 1

Separation 4

Group 0 .... 0x0000000000000800

Free head 0x0000000000000000

Hash Type .... 20 (GENERAL)

Split Load .... 80 Merge Load 50

Current Modulus ...... 26 Base Modulus 16

Large Record .... 1619 File Space 41612

Select Count .... 0 Next Split 11

UniVerse's 64-Bit Files

Did someone in the UniVerse design group decide that we really didn't need to know if a file were 32-bit or 64-bit? Our guess is that it was either simply overlooked or the designers decided that if you were aware enough to ask the question you were probably knowledgeable enough to write your own utility.

UniVerse BASIC provides a STATUS statement that returns a dynamic array containing 33 fields. The 32nd field contains the "Addressing and Header Support Style" code number.

1 = old style file header, 32-bit addressing

3 = new style file header, 32-bit addressing

5 = new style file header, 64-bit addressing

Field 31 contains the file revision stamp that will be either

ACEF01xx = 32-bit file or

ACEF02xx = 64-bit file

Our file called LARGE had the value of **ACEF020C**, the 64-bit revision stamp in field 31 and **5** in field 32. To use the STATUS statement you must first open the file. The UniVerse BASIC guide docu-ments this statement on page 11-692. There is an example — a very strange one — on page 11-696.

To summarize the message we are hoping to convey — there are always limits to file sizes, addressing space and physical hardware. Creating solutions to "work around" these limits is going to cost something such as performance, additional complexity, additional software, additional labor and perhaps reduced productivity when performance is impaired.

The 64-bit file structure creates a solution for those files that exceed 2Gb in size. From both experimenting and from experience we know that large files are slower — sorting and selecting — than small files. To improve performance, various software solutions such as alternate keys, cross reference files, distributed files and B-trees can be incorporated into the sorting and selecting process to enhance performance.

Reducing the size of the file by rolling old data to history or simply purging data may "work" but are probably less desirable than keeping all of the data "active." Implementing any of these ideas is costly.

Because of the overhead associated with the new 64-bit structure we encourage you to use this structure only when a file is quickly approaching the 2Gb limit or has exceeded it. Don't convert files to the 64-bit structure if they are NOT approaching the 2Gb limit. It increases the physical size of the file and if there is a benefit to wasting space we have not discovered it. The bottom line is that using the 64-bit option when it is not needed is counterproductive. **is**

Twenty years ago Peggy Long and Jeff Fitzgerald were running a critical benchmark on a top-of-the-line Prime INFORMATION system. The benchmark aborted. After several hours of detective work they identified a damaged file. That started a discussion concerning performance, broken files and how to check the internal structure of files after a system crash.

After several weeks of work using Peggy's FORTRAN skills and Jeff's INFO BASIC knowledge they were confident that they understood the file internals. This led to a utility that would quickly scan a file, report errors and recommend the optimum MODULO and TYPE parameters needed to RESIZE the file. A year later they began marketing FAST, which evolved from this utility.

Is Your MultiValue Database Resilient?

BY MARK FULLER, NORTHGATE INFORMATION SOLUTIONS

*P*eople say that "the main asset of any company is its staff" and that staff retention is very important. I don't for a minute disagree, but I would argue that another asset, that is also vitally important, is the company's data. Data in a database constitutes a substantial financial investment, and will often contain commercially or even socially sensitive information.
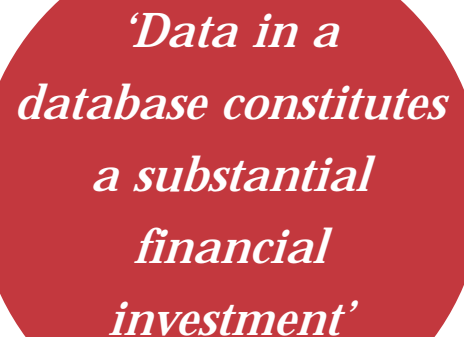
What happens if a company loses its data? What can be done to address this risk? How does a MultiValue database fit into the world of disaster recovery? These are some of the questions I hope to answer in this article.

> *'Data in a database constitutes a substantial financial investment'*

Is Your MultiValue
Database
Resilient?

Can You Afford Not to Have a Resilient System?

If a company loses its data, then the penalties could be astronomical and are often underestimated. Look at some of the evidence.

◆ "Companies that aren't able to resume operations within 10 days of a disaster are not likely to survive." (Source: Strategic Research Institute, Jan. 2002).

◆ "Problems with IT cost small and medium enterprises (SME's) £100 billion in lost turnover each year according to the London Business School. Computer crashes are estimated to cause losses of £31 million each year."

When an incident occurs, it is not just the material damages that need to be taken into account, i.e., loss of earnings while systems are unavailable, cost of human resources sitting idle, cost of late billings, etc.; but also the non-material damages that are often very difficult to quantify. Now with the World Wide Web, your systems are visible globally and the impact of a system being down is far more widespread. Worst still, in a mission critical 24x7 system, it could even mean the difference between life and death!

Addressing the Risk

Traditionally, these risks have been managed by simply backing up data to magnetic tape or other storage media, and this should still be a vital part of any disaster recovery strategy. However, this is no longer sufficient on its own for most organizations as the cost of restoring data is prohibitive. RAID disks and cluster technology can also help and are in themselves great technologies, but again, for some organizations, these can no longer be relied upon independently, as they only protect you from approximately 30 percent of failures. Another option is to completely outsource the hosting of your

database to a specialized "hosting" company and pass the risk onto them. However, for those organizations, which wish to maintain their own disaster recovery procedures, then a MultiValue database is a "low cost," efficient database, which addresses these needs.

MultiValue databases have been traditionally strong, and secure data stores deployable at low cost. Some today, such as "Reality" from Northgate Information Solutions (Northgate) stand out from the plethora of vendors with resilience features that are second to none and ensure that they are the market leaders in this field, but all of the vendors offer some degree of resilience, some of which is "free," so why not implement it? In keeping with the "ease of use" of the database, these tend to be easy to administer and give you a viable resilient path when coupled with the technologies above. The capabilities of MultiValue databases, such as Reality, mean that you can operate a 24X7 operation, and indeed this has been the case for many years in mission-critical organizations.

Some of the Solutions Available

Most, if not all of the MultiValue vendors provide both Transaction Handling and Transaction Logging capabilities; let's take a look at what they do.

Transaction Handling provides protection around a series of updates to data files from an application by grouping the "updates" together. A "transaction" is a set of related database updates that must be completed indivisibly for the database to remain consistent. This effectively means that if one update fails, they all do and a "roll back" occurs to "remove" updates and bring the files back to the state they were in before the "group" of updates began. This can protect you from "application

crashes'" whereby some files have been updated and others haven't, causing downtime while someone recovers any inconsistent updates that have broken business logic.

Transaction Logging enhances the data security and resilience of a MultiValue database by recording all changes made by both completed transactions and discrete updates. This minimizes the loss of valid updates to your database in the event of a failure and enables these updates to be replayed rapidly to a restored database.

Some vendors now also provide recoverable filing systems (Rapid Recovery or Journaling filing systems). This effectively records all structural changes to a database. This enables the physical integrity of all files to be restored within minutes of restarting a database after a system failure.

Northgate includes the above options at no extra cost and has further extended the resilience capabilities, which are discussed below.

Shadow Database enhances resilience by allowing two copies of a database to be maintained on different disks on the same system. The "live" database records all updates via transaction logging while the second or "shadow" database remains unmounted and unavailable to users.

At a time convenient to individual sites, the "shadow" database is mounted and the transaction logs are replayed to keep the database in step with the "live" one. Shadow Database avoids the lengthy processes of restoring a database, enabling the system to become available for use quicker. The "failed" database can then be recovered without impacting on the user community.

Failsafe provides a high level of resilience by mirroring databases across separate systems. Users will connect and run applications on the primary machine and updates will be

seamlessly transferred to the secondary machine and replayed on the database in "real-time." If the primary machine fails, the secondary is quickly re-configured as the primary, and users can then re-connect and continue working. Service is thereby maintained with minimal interruption.
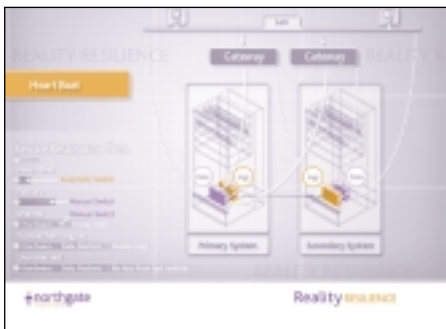
Heartbeat is the highest level of resilience offered by Northgate Information Solutions. This builds on the "failsafe" technology but automatically detects primary system failure. Should the primary fail, the secondary is automatically re-configured as the primary and users are switched to it. Users are automatically logged on to the top level of their current application so that they can continue working with minimal disruption to service.

The above features are available on Windows, UNIX and Linux platforms.

In Summary

Great leaps have been taken by vendors of MultiValue databases in the last few years, including fully protected journaled filing systems, standby databases and failsafe machines which can effectively look after themselves. All of which, when coupled with the technologies mentioned above, make MultiValue databases a viable alternative to more mainstream databases where some of this functionality exists, but at far greater costs. **is**

Wireless
with Mass Dispersion
What's Next for Wi-Fi

High-speed Internet isn't everywhere. Road warriors know this. After a long day driving or flying, you settle into a small town and find that there are no broadband options at all. Often times, you might not even be in a really small town; you might be in a small city where not all areas have been connected yet. The access for rural towns has been ever more disappointing.

We may be seeing exciting options, however, in the near future. Cities seem to be taking the cue from many colleges and universities. Rather than worrying about the prohibitive costs of rewiring every room and every facility, they brought in wireless technologies to fill the tremendous demand. Telecommunication companies and municipalities are experimenting with unlicensed radio spectrum to create less costly bandwidth.

So far, the speed of these systems compares favorably to standard broadband options, despite the novel implementations. The companies are using less costly equipment. Moreover, the use of unlicensed radio spectra is free; there are no fees to pay to use those frequencies. As the implementations in cities are tested and refined, the telecommunication companies are preparing to expand across wide regions in the United States and in other technologically demanding countries.

In many ways, this might be as important as the rollout of cell phone technologies 20 years ago. If bandwidth can be made available, wireless no less, in all types of communities, then we'll see homes and businesses taking advantage of the opportunities in ways quite comparable to the explosion of cell phones as standard devices. Moreover, we're likely to see exciting new products and communication technologies, just as text messaging and cell phone Web browsers came out of nowhere in just a few years time.

It sure seems like the unlicensed frequencies are the most exciting unexplored territories since we landed on the moon. This free spectrum is encouraging all sorts of scientific innovation. Surprising, really, since most companies ignored these frequencies for years. But from companies like Intel to institutions like MIT, new gadgets and uses are streaming out. And we're talking far beyond the world of cordless phones and microwaves.

But conventional wireless is only beginning. There are several innovations in broadband that you should also be considering. These new technologies will insert wireless networks seamlessly into cars, homes, factories, and service businesses. Billions have been invested in recent years. We're starting to see the results of these investments and by next year, we should see a wave of interesting new devices exploiting the inventions.

We're not talking about devices that are limited to the 300 feet that Wi-Fi currently offers. Let's face it: the 300 feet is a dream already, as most laptops probably disconnect at around 150 to 200 feet. No, the new wireless devices are dealing with ranges that cover miles, with the intention that connectivity simply blankets a geographic region. Combined with the

> ## Unlicensed frequencies are the most exciting unexplored territories since we landed on the moon.

short distance coverage of infrared and Bluetooth, most normal distances will be net-enabled.

The Web will then be seriously wireless. These networks are intended to seamlessly work with each other and with normal telephone networks. Machine and Man will be able to communicate rapidly, automatically, and remotely. You'll be able to drive down a highway or relax on a train, all while using a laptop or PDA to surf the net. Or, as gadgets come forth, use a device in your car to warn you of upcoming traffic conditions, or even perhaps to report the traffic conditions for new slowdowns that occur annoyingly right in front of your car. These tools might report the weather, too, leaving traffic-weather-news AM stations in a bit of a bind.

Back at home, we should be able to watch movies and DVDs, listen to CDs and download song libraries, from the living room TV and its remote control, as beamed wirelessly from the remote PC. We're already seeing home theater system businesses hitching their wagons to wireless speaker systems. No more wires running across the carpet or behind sofas; just sounds beamed to speakers hidden behind furniture, even without line-of-sight access.

Wireless chips will make it easy to create monitoring devices for all sorts of equipment. Wireless-enabled light sensors in skyscrapers can report when the lights go out. Utility meters will be able to report usage without the need for a meter reader or access for that meter reader. Some companies are experimenting with using the devices to report changes in toxicity in wastewater.

BY MELVIN SORIANO

In other words, we're moving beyond people talking to people. We're moving beyond computers talking to computers. It's essentially Nouns talking to Nouns, with or without our active participation. It's like the battery-operated watch. Once we gave up on the task of winding a timepiece, it sits there quietly beaming (visually) the time to any and all who look upon it.

A bit like science fiction? There are a few technologies that will make this possible, and their rollout this year is quite anticipated. WiMax looks quite a lot like Wi-Fi. You'll have hot spot zones that all revolve around an antenna in the center. People can communicate with that antenna to share data, or more importantly, get onto the Internet, so long as they have a laptop or PDA that can use the WiMax standard. Just like Wi-Fi. But there is one tiny difference; the range is 25 to 30 miles. OK, not quite like Wi-Fi.

Essentially, then, WiMax is a realistic alternative to conventional broadband. It doesn't require any telephone or cable connection to a home or office whatsoever. More amazing, you won't have to do what's currently being installed at many campuses and hotels; there won't be a need to install antennas every couple hundred feet.

One antenna can handle enormous numbers of transactions.

The only drawback for this exciting technology is that it isn't good when you're moving. You'll lose your connection. But Intel and other manufacturers are fast developing versions that can stay connected even while driving. A similar protocol, known as Mobile-Fi, is said to be two or three years away, but will shockingly be even faster than most home broadband solutions offered today. All this and at highway or train speeds.

In contrast to the WiMax and MobileFi concepts, ZigBee allows communication among hundreds if not thousands of miniature sensors. The sensors will be placed ubiquitously: office suites, farms, factories, roadways. The sensors are normal in that they can detect and collect data, such as temperature, chemistry, and motion. Unlike conventional sensors, however, they can immediately send out information, distress signals, and warnings over the radio spectrum. These tiny sensors are meant to be left alone for as long as their batteries can last, which is essentially for years.

The sensors talk to each other, creating a vast network, passing data onwards and

onwards. Eventually, they can reach a more powerful computer that can then connect to a broadband connection. Motorola and others will be releasing products this year using this innovation.

Instead of using small data communications, Ultrawideband serves up monster files. This technology permits computers and users to move large files or databases rapidly over shorter distances. This is an ideal solution in the home, where people might want to toss a show from the PC to the VCR or television without any need for cables. Motorola is selling chips with this technology today, so we should be seeing interesting uses very soon.

Stay tuned for more! I'll cover comparisons of these wireless options in the next issue. is

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Design**Bais**

Web Tool Modernizes MultiValue Applications

DesignBais Blends MultiValue Functionality With the Web's Ease of Use

An example of a client maintenance form designed in DesignBais.

At a time when the economy is putting the squeeze on many computer companies, business is booming for DesignBais Pty. Ltd., the developer of the MultiValue Web development tool of the same name — DesignBais. At the Spectrum 2004 show last Spring, DesignBais's sessions were packed with attendees wanting to see firsthand how DesignBais works. Why? Because DesignBais touts something that MultiValue developers want: a route to the Web without extensive development time and huge costs while retaining MultiValue's powerful functionality.

DesignBais is a tool that can make "applications look like 2004 and not 1994 technology." In that simple statement, David McLean, director of DesignBais, sums up the appeal of DesignBais. He says that "we are in an age where customers are demanding high-performance, high-quality applications," which puts the MultiValue market in a great position. "The database is becoming less important. Application functionality, market-readiness and price competitiveness is paramount. We can deliver this; we have been for many years."

However, when the power and functionality of the MultiValue application is shown off, it must be "dressed to impress" to compete against other applications, which has increased the demand for Web tools in the MultiValue environment. The drive to modernize the look of applications has made DesignBais a dominant player in the Web development arena for the MultiValue marketplace in the last six months, according to McLean.

DesignBais Pty. Ltd. is a sister company of BA Insurance Systems, which markets a suite of applications for the international insurance industry. Its applications have historically used U2, UniVision, D3, SB+, and SBClient.

> DesignBais was designed to allow developers to quickly convert their existing "green screen" applications to a Web environment.

The DesignBais product is the offspring of the decision to Web-enable its applications in order to be more competitive in the future. The company researched and selected a tool to take on the project, and started its redevelopment efforts. It soon became apparent that a number of new issues were surfacing.

Among them, the development team became split into two camps — the Web developers and the database developers. Also, development times were substantially longer than they expected. The company stopped the project and instituted a set of guidelines which are an inherent part of the product known today as DesignBais. As a result, all the functionality normally associated with MultiValue applications is supported natively within DesignBais.

DesignBais allows developers to design and create enterprise-wide Web-based applications. Its design tem-

plates allow for the creation of a standard user interface that can be easily applied throughout an application or its modules. With drop-down top menus and sidebar menus as a standard feature, user navigation is simple and intuitive.

DesignBais was designed to allow developers to quickly convert their existing "green screen" applications to a Web environment, and provide a superior user interface as well as the high level of functionality MultiValue developers are accustomed to.

"With our product's interface being an Internet browser, deployment is a breeze, and our support costs are significantly reduced," McLean says. "We can also start to offer deployment of applications via an ASP model, which ultimately reduces the cost of application deployment to our customers, and provides the developer with a steady and reliable income stream."

DesignBais enables rapid development in which existing BASIC code can be reused. It incorporates a comprehensive development and runtime toolset that doesn't require MultiValue programmers to learn Internet programming. A zero client deployment solution, DesignBais requires no HTA's, plug-ins or installs at the client side. Internet Explorer 6 or above is the only requirement. This makes DesignBais's applications available to everyone immediately; it's simply a link.

DesignBais also runs on all of the major MultiValue vendors' platforms. "This provides the developer with a wide variety of choice, which is not available to application providers outside of the MultiValue marketplace," McLean says. "If our clients want their application to run on Oracle, it can. If they want U2 or jBASE or D3, they can have it. We now have the ability to tailor the platform to suit our customer's requirements. We are no longer restricted by the database. This means that markets that were previously closed to the MultiValue provider aren't any longer."

Additionally, applications can be easily switched to run multiple languages including multi-byte languages like Chinese, which opens up markets that the MultiValue industry hasn't been able to attract in the past, McLean adds. "Our price competitiveness also makes us a more attractive proposition for these markets."

Through being a part of a growing movement in the MultiValue market, DesignBais has found success, but what about the market at large? In general, McLean says his outlook on the MultiValue marketplace is

Peartree Software Redesigns Applications in the Browser Environment

P E A R T R E E   S O F T W A R E has a lengthy history—dating back to 1978 — of developing and supporting applications in the MultiValue environment. Recently, it became clear that a change was necessary. David Moser, president of Peartree Software, said the main applications that the company was supporting were badly in need of a total redevelopment utilizing the browser environment. He related to *Spectrum* what happened when the company took on this project.

"Our company embarked on a research and development project early in 2002," he stated. "We investigated a number of development tools and attempted to go with a leading-edge and mainstream environment. We chose Microsoft .NET. I was expecting to encounter a number of learning curve issues and relatively slow development at the start. I never imagined that we would encounter the roadblocks and total lack of productivity that we did.

"It was like a breath of fresh air when I was introduced to DesignBais at the Spectrum conference in New Jersey in November 2003 and then again in Vegas in March 2004. Since we received the first and subsequent releases of DesignBais, we have made significant progress. DesignBais is quick and intuitive for both MultiValue and non-MultiValue programmers. In fact, non-programmers readily pick up most aspects of development in this environment.

"We expect to be able to bring our RV Dealership application to market very soon as a result of going with DesignBais. Well done!"

optimistic. "I believe that the MultiValue marketplace is poised for a very bright future. For years, we have suffered from inadequate GUI toolsets for product development. This has meant that our products do not demonstrate well against our competitors.

"We have always provided superior functionality, price competitiveness and lower support costs, but the seemingly 'old technology' interfaces of our products have kept us out of the mainstream."

Weighing in on the ongoing "Is the MultiValue market shrinking?" debate, McLean says that he believes the MultiValue market has been shrinking for some time. But there is a caveat. "I believe that this is about to change, and that the MultiValue marketplace will go through a rebirth over the next couple of years," he says. "It's all about our ability to compete in the open market. As I said before, traditionally we have been the most competitive at all lev-

els, barring our user interface and application delivery methods.

"Now that we can effectively deliver superior user interfaces to our current and future clients, combined with superior price/performance specifications, we have a very bright future. In fact, a number of our DesignBais clients are currently experiencing this phenomenon. They are being able to attract large clients that they have been unable to impress in the past."

With a new crop of tools such as DesignBais bringing MultiValue applications to the Web and giving them a more attractive user interface, what could be more impressive — customers can now have a superior product with an equally attractive price tag. "I believe products like DesignBais will help to rejuvenate and revitalize the MultiValue market," McLean concludes. **is**

Taking the Pulse of the
MultiValue Market

two-dimensional, SQL compliant (normalized) structure; a MultiValue BASIC language compiler; MultiValue Dictionary object compiler; MultiValue Command Language; MultiValue Query Language; MultiValue Line Editor; and more.

Q Are you better off with MultiValue today than you were four years ago?

A Our clients are certainly better off with MultiValue than they were four years ago. For example, one of our clients spent about $8 million attempting to rewrite their mission-critical application to run on Oracle to integrate with other Oracle applications. After three years, they abandoned the project. We converted the MultiValue application to run directly on Oracle inside 6 months and saved them millions of dollars.

SAM ANDERSON is president of Easy Computing Co., which offers services including mirrored e-mail/ Web; electronic archiving; dedicated servers and virtual servers.

Q Are you optimistic or pessimistic about the future of the MultiValue market?

A While I have been pessimistic for the last 10 years, I am now highly optimistic, because a number of people from different corners of the community are moving towards either an open-source/GPL or free-ports model for the low end of the industry. This is important, because the average MV port now approaches a retail cost of $1,000 per seat, when all tools are added in. At such prices, new entrants are totally excluded, as are small users. With "free" at the bottom end of the spectrum, there is a reasonable chance that new entrants can build a business for themselves, with some eventually growing up into large big-ticket companies.

Q Do you think the market is shrinking, expanding or staying the same?

A As it has been for almost 15 years, it appears that the overall industry is shrinking at a compounded rate of 10% to 15% a year.

Q Are your own company's MultiValue sales shrinking, staying the same, or expanding?

A Our sales continue to grow because we are in the electronic services niche, solving problems for VARs and users who want to move to data-center based processing of their work.

Q What percentage of your annual sales are built around the MultiValue market?

A About 85%.

Q Who is your primary MultiValue database provider?

A None, we currently offer U2, jBASE, and D3 electronic service solutions. We will soon be adding UniVision and QM.

Q Do you have a strategic plan in place to migrate your business from MultiValue or are you staying with MultiValue or both?

A No; see first answer.

Q If you were elected president of a MultiValue database provider, what changes would you make?

A See first answer. I cannot tell you how many instances where smaller (up to 20 user) customers with legacy systems have told me that relicensing their MV systems in new technology (e.g., moving from R83 or AP to D3) at full list price is more expensive than going out and buying a totally new system from some non-MV outfit. The core problem is pricing; there is no bell-curve in the pricing model of the industry.

Most industry providers think it is absolutely great that they get themselves to an average 30-something port system. This is utter foolishness. The reason they are getting to 30-something is because with flat-model pricing, virtually no one can/will afford 3 to 20-something port systems, and so do not buy these at all. Similarly, because infant-VARs almost without exception are incapable of selling more than 6- to 8-user systems during their first three critical years of business, there is no way for them to be successful. The open source/free initiative is intended to cure this.

Q Are you better off with MultiValue today than you were four years ago?

A See first answer.

DAVID PETERS was first introduced to the MultiValue market while at Prime with responsibility for the very successful U.K. dealer launch of PI/open. He followed the product when it was acquired by VMark and again had success with dealer sales of UniVerse. During his time at VMark, he sold his first 1,000 user MultiValue database. He also successfully developed the General Automation dealer channel in Europe and South Africa for mvBASE. Subsequently, David developed the European sales channel for the GA eXpress eTools products. David now works from the U.K. branch of jBASE International, helping to advance the jBASE product in both the MultiValue marketplace and beyond.

Q Are you optimistic or pessimistic about the future of the MultiValue market?

A jBASE International remains optimistic about the future of the MultiValue market. While there will undoubtedly continue to be a metamorphosis of the market, we see a convergence of different technologies that will allow the benefits of MultiValue to be enjoyed by a wider audience.

jBASE will also continue to lead this change through the delivery of new versions of the jBASE middleware/database/development environment that address technologies not previously available to the MultiValue world, such as IBM i5 eServer iSeries (AS/400) and multi-threading. In addition, jBASE is spearheading the adaptation of MultiValue benefits outside the traditional MultiValue world through an extension of the jBASE product family with .NET, conversion and Java technologies.

Unlike the majority of the MultiValue market, jBASE continues to increase market share and, as such, jBASE International foresees a continuing optimistic outlook for many years to come.

Q Do you think the market is shrinking, expanding or staying the same?

A While it is inevitable that some software suppliers will look to address their specific market requirements through the incorporation of databases outside of the traditional MultiValue model, jBASE is now allowing those suppliers to incorporate these databases through the jBASE jEDI and thus maintain the benefits of MultiValue that they previously enjoyed. As more and more companies adopt the jBASE jEDI approach, then it is quite possible that certain segments of the MultiValue market could grow.

With all the latest Microsoft and Java development facilities, combined with support for SQL Server, Oracle and IBM DB2, the jBASE database provides the way forward for everyone wanting to expand their use of MultiValue. In addition, jBASE allows those who would not consider themselves as MultiValue to reap the benefits of MultiValue without moving too far from their core technology objectives.

Q Are your own company's MultiValue sales shrinking, staying the same, or expanding?

A jBASE International is expanding its business both through the appointment of Value Added Resellers, either new to MultiValue or new to jBASE, new end user sales and through the continued growth and success of its longstanding and loyal community of Value Added Resellers.

At the London Spectrum show there will be further announcements that will demonstrate how this will continue to be achieved and in fact accelerated.

Q What percentage of your annual sales are built around the MultiValue market?

A As one of the major suppliers of MultiValue databases/middleware/development environments, jBASE International continues to achieve the majority of our annual sales from the MultiValue market. As stated previously, this market remains strong for jBASE and although we will continue to diversify, we expect to continue to achieve the majority of our business from MultiValue.

In confirming that the majority of jBASE International's business is in MultiValue, it should be noted that the MultiValue market for jBASE also includes sales where the underlying database is SQL Server, Oracle,

SB+ 101

SB+ Basics, Part Four

By Danny Passig
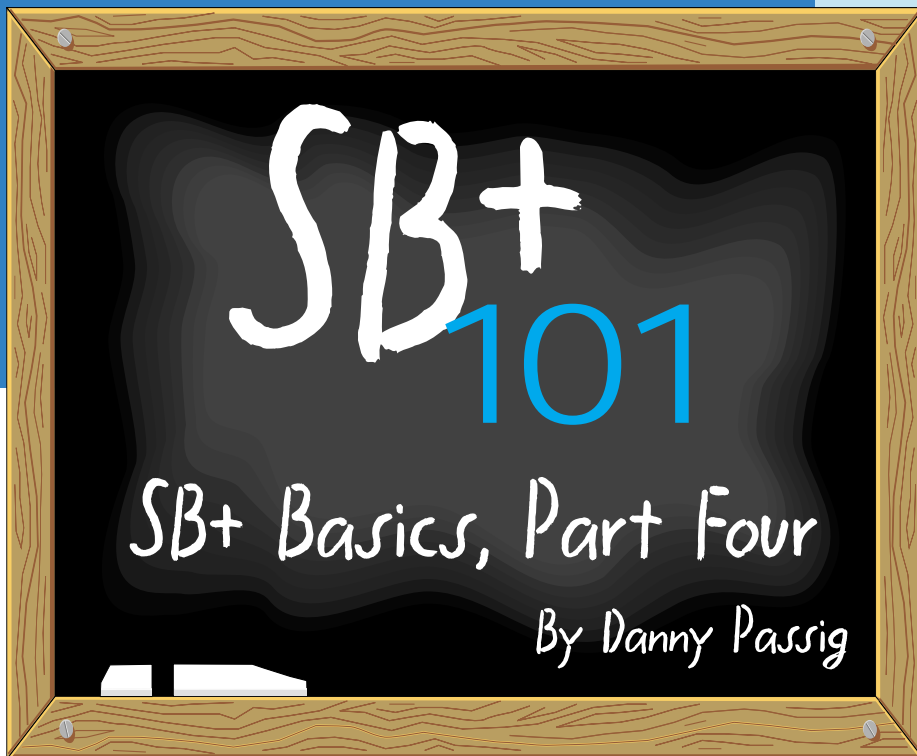
The tutorial on SB+ continues, this installment covering the fundamentals of Screen Design, Menus, Reports, and Processes.

Screen Design

Once you have defined your files and dictionaries, you may use the Screen definitions tool to make full or windows size screens. The screens may contain fields, graphic lines or literals.

When you design the screens you may use defaults, validations, field lengths and conversions for each field, which may be taken from the file dictionaries, or you may design these items as needed for each screen.

Once you have finished designing the screen you may place it in a menu or test it immediately. SB+ will build a parameter-driven driver to run the screen without the need to generate a program. This allows you to prototype a screen very quickly and see how it looks and functions. You can change a screen definition and then immediately run the screen to test the changes.

FIGURE 1 **View of a Screen Definition**

Menus

System Builder Plus is primarily a menu-driven system, but may be command driven. The menu definition tool allows you to define horizontal, vertical, or free format menus with literal text and graphical lines for your application. The menu tool allows you to add, change or delete menu items very easily.
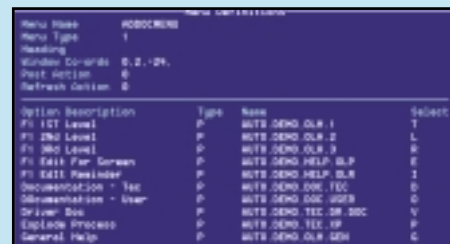

FIGURE 2
View of the Menu Definition Screen

Below is what the menu from Figure 2 looks like when it is displayed in SB+.
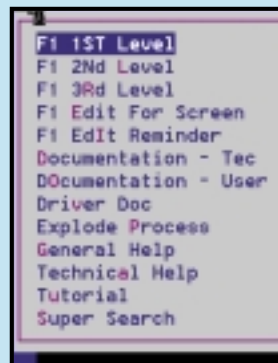
FIGURE 3
View of Menu
from Figure 2
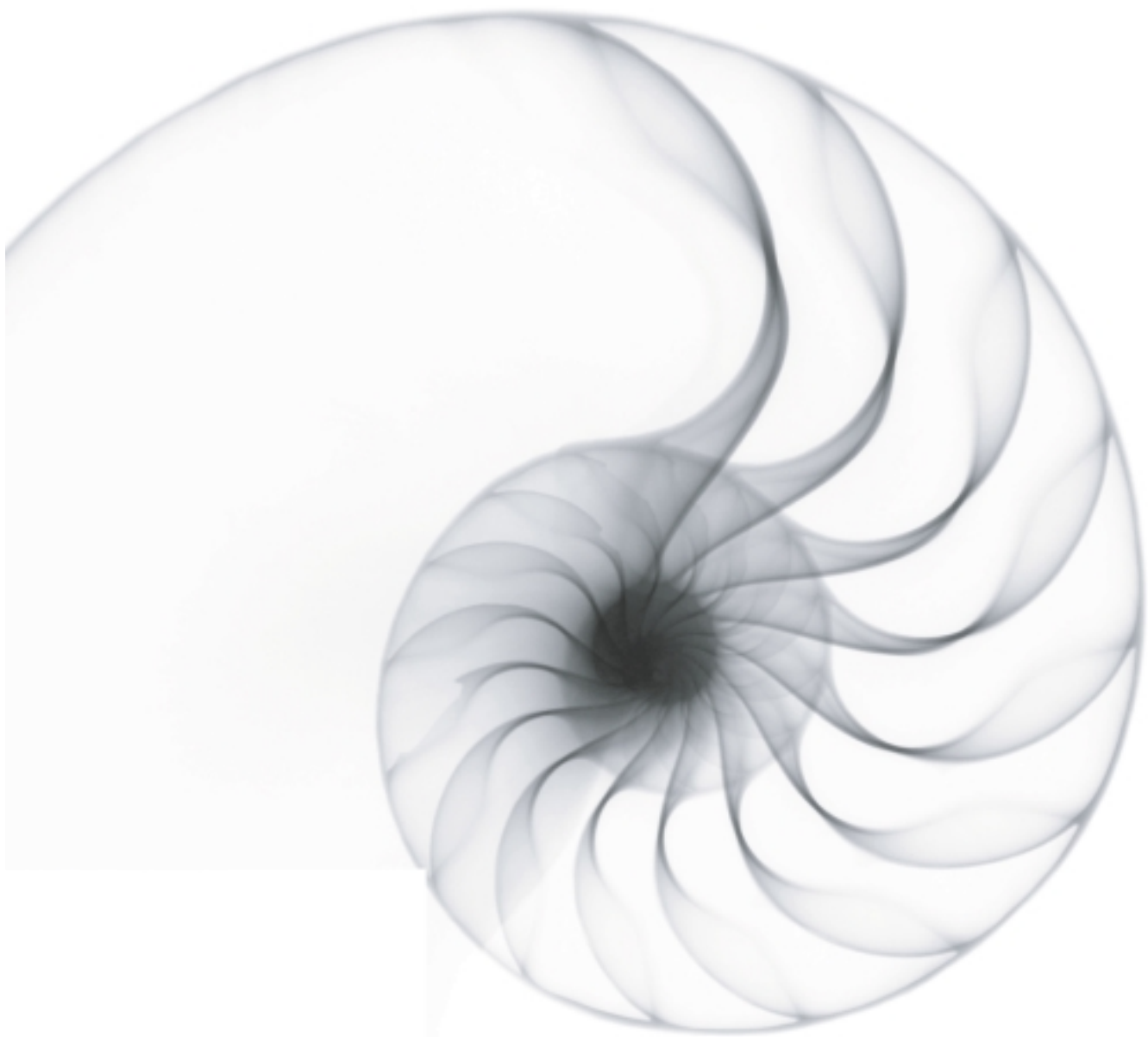
YES

JOIN THE REVOLUTION

"DesignBais provides Evolve 360 with an ability to modernise the user interface of our distribution, supply chain and warehouse management application without significant costs. It is very intuitive so we will be able to secure our investment in existing technologies and leverage the knowledge of our development and consulting skills immediately."

Alan Godby - Product Director - Evolve 360 Pty Ltd

DesignBais

www.designbais.com

SB+ 101

SB+ Basics, Part Four
By Danny Passig
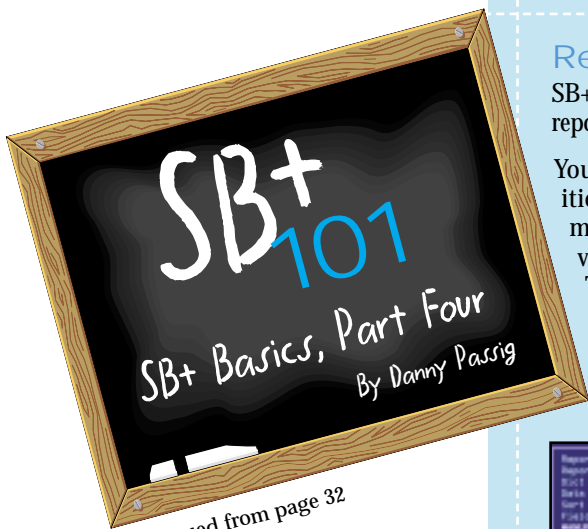
Reports

SB+ offers two tools which you can use for reporting data to the screen, printer, or files.

You may use the ACCESS Report Definition tool to use the operating environment query language, which makes it very easy and quick to define a report. There are limitations in the report layout if you use this tool as well as limited functionality.
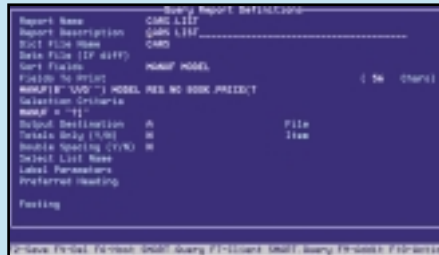
FIGURE 4
View of an ACCESS Report Definition

If you wish to use a more powerful and sophisticated report writer, use the Report Writer Definitions tool.
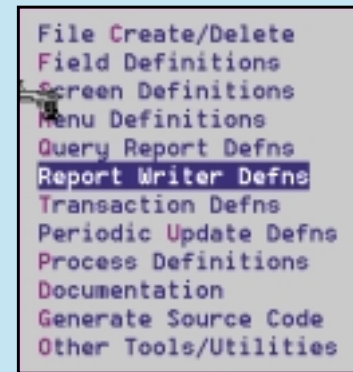
FIGURE 5   View of the tool menu where you would make a tool selection

This tool caters to all types of reports including pre-printed forms, and you may include graphics and special print effects, which may be embedded anywhere in the report. You may output the report to the screen in a window which allows horizontal and vertical scrolling. Two pass reports may be defined and this allows forward references to other data in the report, for example, percentage calculations.
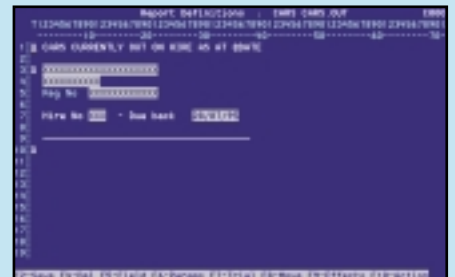
FIGURE 6   Report definition of CARS.OUT using Report Definition Tool

Processes

Processes are the building blocks of SB+. There are 21 different Process types such as Menus, Reports, Input and Output screens. Processes were used to build SB+, which gives you an idea of how powerful they are. There are many ways in which processes may call other processes. For example, in a report definition, you can call other processes at the start of the report, after a read, before and after a break, and at the end of the report.

Figure 7 View showing process slots in a report definition

Processes and the ease with which they can be incorporated give the power, elegance, and flexibility that SB+ provides to you when you design an application.

The Process Definition tool is used to define the various process types which you would use for an application. SB+ will automatically create processes for you when you use other tools; for example, when you design a screen it will automatically create the necessary Input or Output processes.

F I G U R E 8 View of the Process Definition Menu
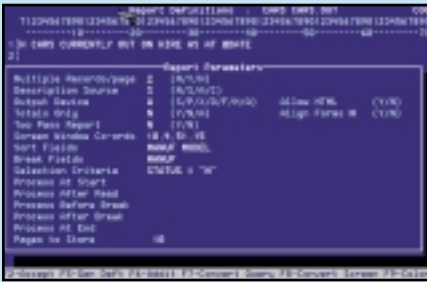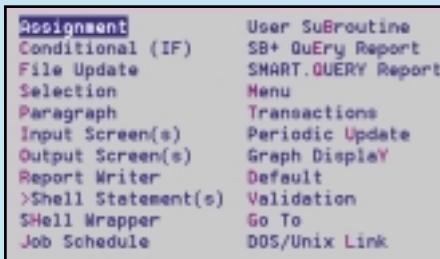
You may call any process on demand from any input prompt. One of the most powerful process calls is MP (Modify Process) which detects which process you wish to modify by the location of the cursor and will automatically invoke the proper Process Definition that will allow you to modify that process, be it a screen, report or other definition attached to the process. I use MP extensively when I work on a system I didn't develop to find out the inner workings of an application which I am not familiar with.

The SB+ COMMON block allows processes to communicate with each other. As a developer you should become intimately familiar with the variables which are in the common block as this will make your job much easier. The RTN.FLAG variable is an example of a variable in the common block and it is usually set when each process is exited. By looking at the

value in this variable you can set the action which should be taken when a process is exited, such as return to the previous screen or the top of the screen if you are in an Input screen.

Most of the processes in the tools menu (see Figure 5) can be invoked from any input prompt such as /FD(Field Definition), /PD(Process Definition), /MD (Menu Definition) and so on.

SB+ offers a library of dozens of general processes that perform a variety of useful functions such as DEBUG, which displays the current contents of any COMMON variable; LFK to make active any pre-defined set of function keys or Action Bar; or KEYS which will display how the terminal emulation you are using has mapped the keys. You can find more information about this from the on-line help in the technical help menu.

When you first start working with SB+, the concept of Processes can be confusing but don't fret, you will soon come to understand them and the power of their flexible interconnectivity as you use the tools more and more.

If you need to interface your own BASIC code to an application, there is a library of common subroutines which SB+ uses and you may call any of them to implement the interface.

That is all for this installment of SB+ 101. Feel free to email me at passigdanny@qwest.net if you have any questions about this article. **is**

D A N N Y P A S S I G

is a senior software engineer at Natec Systems. He has 33 years experience in the IT field. Danny has done customer software development and system installations for various businesses, and has worked for IBM as a support engineer for System Builder. He holds a Bachelor's Degree in Business Administration/Accounting and a MSCIT from Regis University.

BY BOB CARTEN, REVELATION SOFTWARE

OpenInsight's Active Tables

Revelation's active Tables are the topic of this article. The ideas contained are relevant to all flavors of MultiValue databases; the examples are specific to Revelation's OpenInsight product. The inspiration for this article is a recent LinuxWorld conference where this writer spent three days evangelizing the benefits of an active table to members of the Linux community. Some people were familiar with PICK databases and offered us a hearty welcome to Linux; many others, especially the college students, were newcomers to MultiValue concepts. I described how fixed fields correspond to properties, calculated fields are like methods, and Revelation's MFS programs, by intercepting all actions on a table, provide the equivalent of events. In short, our tables play an active role in collecting and presenting data. It was a delight to see newcomers' faces break into a broad smile as they 'got it.' This article is a reprise of my discussions with those Linux developers. I intend to describe the active table as implemented by Revelation Technologies products, with a focus on the power of calculated columns.

What is an Active Table?

MultiValue products use a table of meta-data to describe the information stored in one or more data files. This table of meta-data is called a dictionary. Each row in the dictionary table describes a column in the data table. This is a common feature among database products. In most database products the primary role of the dictionary is to enforce the schema, or organizing rules of the database. Multi-Value dictionaries forsake the role of enforcer for a more active role as interpreter. The flexibility of the dictionaries and the fact that database columns can manage lists (multivalues) are hallmarks of the MultiValue product family.

Fixed Columns

Revelation dictionaries provide for fixed, or "F" type columns. Some other MultiValue products call these "A" type correlatives. Some more technically minded may call these types of columns Properties of the table. An interesting feature is that the dictionary allows you to define multiple columns pointing to the same physical piece of data. This can be useful for allowing synonyms, or for providing different output conversions for the same data. Generally a developer uses one logical column per physical column in a table; the point is that every column, even the fixed columns, are actively interpreted by the dictionary and thus actively controlled by the developer.

Calculated Columns

The most obvious example is that MultiValue dictionaries support calculated columns. Many MultiValue products provide multiple methods for encoding calculations. These methods are often

called correlatives. In Revelation products all calculated columns are encoded in Basic+, our scripting language. Revelation's calculated fields correspond to I-Type correlatives. These calculated fields are full fledged programs that obtain data from other columns in the same or other tables, which can call other programs, update data, make ODBC calls, and so forth. Tools which query the data via the dictionary do not distinguish between calculated or stored columns. The active dictionary thus provides a layer of indirection to implement a logical view of the data separate from the physical implementation.

MFS Programs

Revelation tables provide the developer with the capability to intercept any table action with a program called an MFS. MFS is an acronym for Modifying Filing System. MFS programs correspond to SQL triggers. MFS programs provide a very complete level of control on Revelation tables, and are often employed to implement field or row level security, encrypted storage, and audit trails. Detailed examples are available in the online help for OpenInsight.

User Defined Conversions

User defined conversions are another feature supported by Revelation products. User defined conversions correspond to domains in the SQL arena. They can be used to implement custom validation rules and input and output conversions. Physically they are a subroutine with a specific calling protocol. Revelation's dictionary allows you to attach your custom conversion to a column. Because they affect the storing and retrieving of data, user defined conversions are another piece of the active table architecture. Revelation products include example custom conversions for phone and zip code validation.

Examples

The rest of the article provides examples of creating and maintaining OpenInsight's Active tables.

How Do I Create Active Tables?

The OpenInsight table builder creates tables. Figure 1 is a screen shot of the tool. Figure 2 is a picture of the detail window for building calculated columns.
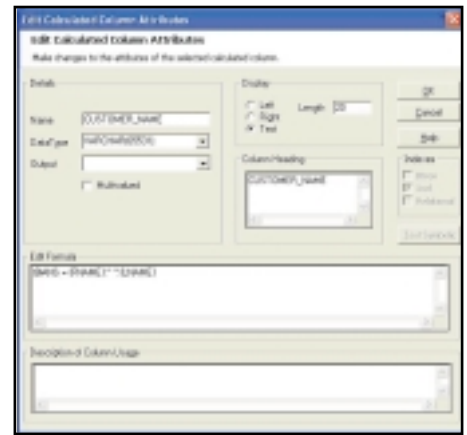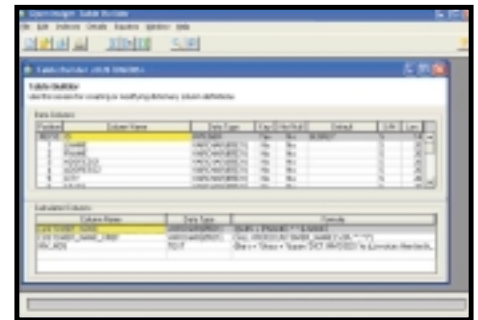

Figure 1 - The table builder

Figure 2 - The formula window

OPENINSIGHT'S ACTIVE TABLES *Continued from page 37*

To create a calculated column you just enter the name in the calculated columns section of the table_builder window, double click to get the Attribute Editor, and then enter your formula. Write the formula in Basic+, Revelation's dialect of Pick Basic. Revelation's formula processor supplies the current id and the current record in the variables @ID and @RECORD. Columns in the current row are evaluated by enclosing the name in braces, for instance '{FNAME}'. The only rule is that you must load the result of your calculation into the variable '@ANS'.

Calculated Column Examples

Listed below are some examples of what you can do with OpenInsight's Calculated columns. We show just a handful of ideas of what you can do; there are many, many more possibilities.

Lookups

The Translate (Xlate) can look up data in any table. This function is the workhorse of calculated fields. Traditionally it is used in lieu of joining tables.

The function uses three variable parameters: table name, rowid, and column name or number.

For example, to get the customer name for an order:

```
@ans = Xlate('CUSTOMER', {CUS-
TOMER_ID}, 'NAME', 'X')
```

MultiValue Lookups

Given a multivalued list of keys, Xlate returns a multivalued list of results.

Multivalued results are traditionally frowned upon in database circles. Forget about tradition. For developers of Web services, methods which return collections evoke smiles, not frowns.

For example, the formula below looks up unit prices for the products on an order.

```
@ans = Xlate("PRODUCT", {PROD-
UCTS}, "UNIT_PRICE", 'X')
```

MultiValued Operations

Calculated fields can build upon one another. Below, the unit prices are used to create an extended price.

```
@ans = {UNIT_PRICES} *** {QTYS}
```

Call an External Program

A calculated field can call any external program.

The following example provides a soundex lookup on product descriptions.

```
Declare function Soundex
@ans = soundex({DESCRIPTION})
```

Aggregate Dates

Summarizing data by month, quarter and year is a common need.

This example will convert an order_date to month end date, index this field to sum orders by month.

```
this_date = oconv({ORDER_DATE} 'D4/')
convert '/' to @fm in this_date
next_mm = this_date<1> + 1
yyyy = this_Date<3>
If next_mm > 12 then
    next_mm = 1
    yyyy +=1
end
next_month_Start =
Iconv(mm:'/01/':yyyy, 'D')
month_end = next_month - 1
@ans = month_end
```

Automatic Aggregation

By concatenating different calculated columns you can synthesize the key to a related table. Revelation products allow you to define a relational index which will use this synthetic key to maintain the parent-child tables. For example, to support sales by product by region by month, create a set of rollup files with a multi-part key of MONTH_DATE*REGION* PRODUCT

A calculated field which feeds the month_region_product could be

```
@ans = {ORDER_MONTH}:"*":
{SALES_REGION}:"*"{PRODUCT}
```

You can extend this idea to create another column to calculate the key that corresponds to the prior month, then create another column which calculates month-to-month comparisons.

Table Driven Rules

Like date aggregation above, use information to calculate relationships rather than storing foreign keys. You can use this technique to have data roll itself up, or to use dynamic relationships to implement table-driven business rules.

Calculated keys combined with the Xlate function can also let you drive complex

business rules via lookup tables. I had a customer whose service order pricing involved nine levels of logic. By using binning techniques, for instance to convert past order volume to "LARGE," "MEDIUM," or "SMALL," we were able to express all of his pricing rules in a set of tables. The unit price of each product was calculated from lookups to these tables. The sales manager maintained the tables. Pricing policy requires no programming. All of their customers get consistent pricing, so salespeople cannot sell at a loss. Implementing Web-based pricing for customers is now possible.

Selection Rules

A selection rule lets a user Use a single Boolean column rather than a family of nested selects. This makes life easier for the developer or user who creates these fields just once, and makes life easier on the user who is creating the report.

For instance, a customer incentive program could have very complex rules:

```
* Did Sales Manager plug in a manual award?
is_winner = {MANUAL_AWARD}
if is_winner else
   is_winner = ( {status} = "ACTIVE" )
end
if is_winner then
     order_threshold = Xlate("REWARDS", {THIS_MONTH}, "THRESHOLD", 'X')
     is_winner = ( {MONTH_TO_DATE_ORDER_AMT} >= threshold )
end
if is_winner then
   overdue_amt = Xlate("CUSTOMERS", {CUSTOMER}, "OVERDUE_AMT", 'X')
   is_winner = not( overdue_amt )
end
@ans = is_winner
```

By storing the criteria as a rule you can test the rule without needing to run the family of programs which implement the rewards. You can create a screen to test the rule one record at a time.

A variation on this theme is to use calculated fields to route work on a shop floor based on the status of the job, priority of the work, current load on the machines, etc.

Assertions

I often put a column named 'BAD_DATA' into each of my important files. The column contains a series of tests. The result is a code for any failed test. I run a daily or weekly report like LIST CUSTOMERS WITH BAD_DATA BY BAD_DATA BREAK-ON BAD_DATA'

HTML Output

Generate a hyperlink from the company name to a CGI page of company info. Here we assume a CGI routine named infopage which expects the customer_id as a parameter.

```
server = Xlate('CONFIG', 'SERVER_URL', 1, 'X')

href = server:'/infopage?id=':{CUSTOMER_ID}

text = {CUSTOMER_NAME}

@ans= '<a href= ' : quote(href) : '>' : text : '</a>'
```

or, with some naming conventions for your reports, put a hyperlink in a summary report which will link to the detail_report supporting the total.

```
server = Xlate('CONFIG', 'SERVER_URL', 1, 'X')
path = '/reports/':{CUSTOMER_ID}:'_':{MONTH}:'_detail.htm'
href = baseurl:path
text = Oconv({TOT_SALES}, 'MD2$,')
@ans= '<a href= ' : quote(href) : '>' : text : '</a>'
```

Using a family of columns like this, if you spool a set of reports to your Web server, you'll have an intranet site comprising hundreds of cross linked pages corresponding to your month-end reports, where users can drill through the data as needed.

Parse XML

Multivalued databases store data as delimited strings. XML stores data as delimited strings. A natural fit. If you are storing XML as rows in a table, you can create calculated fields to extract the elements you need.

Declare function Parse_Xml

```
@ans = Parse_Xml(@record, 'COMPANY_NAME')
```

Note that Revelation allows you to index calculated fields. Indexed searches are fast. Note too that I am querying the XML without disrupting it. Thus, I am able to provide very fast searches of XML data without needing to break it apart. This capability is useful if you want to use your MultiValue database as a message router or transient data store in a Web service application.

Conclusion

I could provide many more examples. Calculations which use Revelation's ODBC connections to look up factors in external databases, columns which use a socket connection and the Google API to validate phone numbers or addresses, columns which use OLE objects or DLL calls to manipulate XML, and so forth. If you can program it, you can implement it as a method bound to a table. Enormous capability is encapsulated behind a simple interface: if a screen uses a column, or if a report uses a column, then the method executes for each row selected. The concept of encapsulating methods, or services, behind a simple interface is a guiding principle of the Service Oriented Architecture, or SOA. SOA is the current architecture of choice for Web services or distributed applications. MultiValue database products are ideal engines to power this architecture. **is**

History of MultiValue

Where Are They Now?

25 Most Influential People in PICK

Part 2

Memoirs: Painting a Colorful Picture of PICK's Past and Projecting Its Future

In the July/August issue of Spectrum magazine, our ongoing series "Where Are They Now?" featured the "25 Most Influential People in PICK" from 1989.

It took a while, but after locating 20 of the 25, we were fortunate that 16 of them were willing to be interviewed in a candid and open fashion—sharing not only their career movements and current whereabouts (last issue), but also their personal memories about the past and their unreserved opinions about the future for the MultiValue market (this issue). And so in Part 2, we re-introduce some of our most influential people in the PICK market and bring you a little closer into their unique personalities, attitudes and experiences in the history of MultiValue.

25 Most Influential People in PICK, 1989
International Spectrum Magazine, 1989

1 NEIL BARRY

1989: Manager of Advanced Hardware Development, General Automation

Today: Could not be located

2 JOE BURKE

1989: Director of Prime INFORMATION, Prime Computer Inc.

Today: VP of Marketing, Exact Software Inc., Norfolk, Mass.

3 LYNN CARTER

1989: Director of Systems Engineering, Edgcore Technology

Today: Management of Software Systems Development Faculty, Carnegie Mellon University

4 BRIAN CLEGG

1989: Director and Co-Founder, Clegg Driscoll Consultants

Today: Owner, Clegg Web Systems, Australia

5 NICK DRESHER

1989: Chairman and Managing Director, Universal Computers Ltd. (UCL)

Today: Could not be reached

6 HENRY EGGERS

1989: Department Manager, Reality OS, McDonnell Douglas Computer Systems Company

Today: Retired in Southern California

7 BILL FREEMAN

1989: President, McDonnell Douglas Computer Systems Company

Today: Could not be located

8 GUS AND MONICA GIOBBI

1989: Owners of IDBMA Inc. (International Spectrum magazine and tradeshows)

Today: Different address, same business!

9 TIM HOLLAND

1989: VP, PICK Development, Sequoia Systems Inc.

Today: Retired in Ajijic, Mexico

10 JOHN HOWORTH

1989: VP, OEM Sales, McDonnell Douglas Computer Systems Company

Today: Senior Vice President, Metron-Athene Inc., Laguna Hills, Calif.

11 DEANN JELINEK

1989: Manager of Marketing Support, Datatel Mini Computer Co. Inc.

Today: Director, Software Development Best Practices and Training Services, Datatel Inc.

12 RICHARD JOWITT

1989: Group Chief Executive, EDP Plc.

Today: Chief Executive and Managing Director, EDP Plc.

13 STEVE KRUSE

1989: VP and General Manager, Pick Systems Inc.

Today: Co-Founder/Partner, Software Nation Inc., Irvine, Calif.

14 LEN MACKENZIE

1989: CEO, General Automation Inc.

Today: Retired, living in Dallas, Texas

15 EDMOND MARCHEGAY

1989: President and Vice Chairman, IN2 (Intertechnique)

Today: Could not be located

16 RANDY NAYLOR

1989: Founder and President, Northeast Data Systems

Today: Could not be located

17 RICHARD PICK

1989: Founder and President, Pick Systems Inc.

Today: Deceased

18 TED SABARESE

1989: President and Chairman of the Board, The Ultimate Corp.

Today: A partner in five restaurants and an air conditioning company in Ft. Lauderdale, Fla.

19 IAN SANDLER

1989: Director of PICK Development, Sanyo/Icon International

Today: Consultant, Florida

20 JONATHAN SISK

1989: President and Founder, JES & Associates

Today: President and Founder, JES & Associates

21 PAUL THOMPSON

1989: Chairman and Managing Director, Sanderson Electronics Plc.

Today: Involved in a number of companies in the U.K. and Australia

22 JUDD VAN DERVORT

1989: President and Founder, Keystone Information Systems

Today: Still active in Keystone

23 WAYNE WAHLENMEIER

1989: VP and General Manager, Fujitsu Microsystems of America Inc.

Today: Jupiter Systems, San Leandro, Calif.

24 ROBIN WHITE

1989: VP and General Manager, Systems Division, ADDS/NCR

Today: Retired, living in Florida and New York

25 BILL WULFF

1989: President and Co-founder, Laguna Software

Today: Owner, Orcas Net Inc., Eastsound, Wash.

Where Are They Now?

Continued from page 40

Remembering the Past

When asked to recount interesting anecdotes, notable events

or just plain-old funny memories from their careers in the early

PICK days, the 25 Most Influential were prolific in their

story-telling. Here are some highlights of our industry's history

… as told by those who were there to remember.

Joe Burke

"The most colorful memories I have of those days were the things that went on at the annual Spectrum trade shows—both on the show floor and in the private parties and meetings behind the scenes. The executives of the many companies, plus Dick Pick himself, were robust, playful and spontaneous people and they knew how to have fun. I saw scantily-clad rappers and dancers in the Pick Systems booth, a cold keg of beer after show hours in the Sequent booth and, in some cases, dancing on the tables at private parties."

Brian Clegg

"I remember lots of parties at Spectrum—well, maybe not all of them if you know what I mean. And some wonderful times with the people at ADDS. Robin White used to ring me regularly at about 7:30 a.m. Sydney time and it was not uncommon for him to ask me to keep talking while he drove into Manhattan, to keep him awake! The things you do for your supplier!"

Tim Holland

"In the early 1980s, IBM was interested in PICK for their new personal computer line. They sent two senior V.P.'s to California to meet with Dick and try to negotiate some sort of deal. Dick was unimpressed with the idea and preferred to think he was going to crush IBM when 'he really got going.' The day the IBM folks were to visit, Dick brought in a new toy he had just discovered to share with the whole office. Despite my best efforts, when the IBM executives arrived, Dick was upside down in a gravity swing and insisted on shaking their hands from his inverted position. At the time I thought it was the darkest kind of humor, but it sure was colorful and quite indicative of Dick Pick's personality. Fortunately, I can laugh at it today."

For a different perspective on this story, read on:

Wayne Wahlenmeier

"I remember the time IBM flew to Orange County to meet with Dick Pick. They arrived about one hour early for the meeting. Dick had brought in a temporary receptionist for the occasion. While he was waiting for the IBM VIP's to arrive, Dick assembled his latest toy, an inversion machine. Thinking he had a little over one hour before their arrival, he stripped down to his shorts and socks and got into the machine. Once he was upside down he realized he hadn't calibrated it correctly so there was no way he could get upright by himself. While he was hanging there pondering his fate, the new receptionist — instead of calling back and informing him that IBM was out front — just brought them back to his office, finding our fearless leader helplessly hanging by his heels! They helped him get right side up, he got dressed and the rest is history."

Richard Jowitt

"I was in Vegas in the early 1980s attending an Ultimate dealer meeting. Ted [Sabarese] was at the craps table and about $40,000 down. He encouraged me to play this game, which I did not understand. I had won a few dollars and mixed in with my chips was a $100 chip. I was advised to place my bet, above the line as I remember — or was it below the line? Anyway, I put down two chips and then realized one was a $100 chip. I went to retrieve the chip, only to get my knuckles rapped by the man with the long cane. Eventually I 'took the odds' and won $8,000. The words 'quit while you are ahead' immediately sprang to mind and I did! Ted played on until the early hours I was told, and won back his $40,000."

Steve Kruse

"I was always amazed that I could go anywhere in the world and find a PICK install — whether it was Russia, China, Japan, Europe, South America, you name it. One of the few times I took a personal vacation with my fiancée, we went to a Hayman Island resort in Australia. It was very remote and exclusive — just the place to get away from work. However, as it turned out, the entire resort (which took up the entire island) was run on a PICK-based system, from reservations to provisioning, maintenance, etc. When the resort's manager found out I was a top executive at Pick Systems, he upgraded our room, took us to dinner in one of their fine restaurants, and treated us like royalty. Of course, in the end, he wanted to get a free upgrade."

Ian Sandler

"[My best memory is] attending Dick Pick's first presentation of Open Architecture in 1985, and writing what was probably the first-ever PICK virus during that presentation. The program I wrote (in Basic) looked to see how many phantom copies of itself were running, and made sure that at least 20 copies were sitting there sleeping. Each copy woke up every five seconds, looked around, and started enough extra copies running to bring the total back to 20. Basically, these processes were completely benign, and really didn't use any system resources. To get rid of them, someone only needed to look at the program, see the name of the record that was being checked that would cause them to stop if it existed, and create that record. Instead, Dick saw them, panicked, tried to force a log-off, and ended up crashing the entire system so badly it wouldn't boot again."

History of MultiValue
Where Are They Now?

Foretelling the Future

Of the 16 people interviewed for this article, only three have officially retired from the business, while six of the "most influential" are no longer in the MultiValue marketplace at all. Of those we found, nine are still involved in this industry, and six still have the same job they did when the article was written 15 years ago! In this section, we asked these current and ex-PICK professionals to be frank and forthright with their personal opinions, reflections and predictions for the MultiValue market. The following four questions were asked:

◆ Do you think the PICK (MultiValue) market ever made it to the mainstream?

◆ Who, of the seven providers left, will make it? Who won't?

◆ Is there still opportunity in the MultiValue market?

◆ Is the MultiValue market dead or alive?

HIGHLIGHTS OF THEIR RESPONSES FOLLOW:

Q **Do you think PICK (MultiValue) ever made it to the mainstream?**

JOE BURKE: "Yes. PICK and its derivative technologies and services became internationally known and drove billions of dollars in total business revenue, not to mention the business value it delivered to its users for decades. In that sense it was as mainstream, if not more so, than many technologies."

LYNN CARTER: "Yes, of course it did. Thousands of firms used PICK solutions and they trusted their business to these applications. How more 'mainstream' can you be?"

BILL WULFF: "Yes. As an IBM-supported product running on Linux, and a vast variety of hardware, I think it's as mainstream as it's going to get and it's close enough. With the IBM seal of approval we no longer have to defend the old renegade label."

STEVE KRUSE: "Yes. Of course, this all depends on your personal expectations. If you compare the PICK market to Windows or UNIX or any of the leading database systems like Oracle, then, of course, we were smaller. However, there is more PICK than Sybase or many other systems that can claim to be mainstream. Overall, PICK found a niche in the market and withstood the test of time, lasting decades when other products have long since come and gone."

TIM HOLLAND: "Barely. While we have had several clear shots at breaking into the mainstream, I think we only ever got to the edges of it. On the positive side, a successful port is owned and marketed by IBM. And there are numerous imitators and emulators, including MultiValue functions being imbedded into most of the mainstream relational databases. On the negative side, way too few people outside our community have any idea of what we can and do contribute."

BRIAN CLEGG: "No, mainly because of the people it attracted. Most of us were not 'mainstream' in that we just wanted something that did the job. I always remember a customer survey we did and one of the questions was, 'What system do you use?' More than one user responded 'Wyse' because they were the terminals we were using at the time. I think if it had been IBM they would have known."

HENRY EGGERS: "No! All these weird little guys went out and bought this machine one at a time, and they just didn't tell their competitors about it."

IAN SANDLER: "No. The main reason is that it probably had the most abysmal marketing of any computer software product ever. The best chance was when Prime was rocking with their version of Prime INFORMATION. That was a great product with mediocre marketing, and there are still hundreds of sites running it to this day. Ultimate came closest. They had better marketing and a significantly worse product, and would probably have succeeded but for their management problems. I could go on forever on this subject, but won't. It's too depressing. Most licensees either didn't know the difference between sales and marketing, or didn't have the resources to do both. Pick Systems spent its resources trying to compete with its licensees, rather than trying to support them and grow the marketplace, and was probably most responsible for limiting the product's success."

RICHARD JOWITT: "No. PICK missed the boat before the arrival of Microsoft. A lot of bright but incredibly greedy people were involved at the outset — all of whom had little or no vision. Dick was happy to continue to receive his license fees, and those who implemented MultiValue were happy to profit from the sale of hardware and the DBMS. I had fierce arguments with Dick about all of this but his only answer was that 'he was not the telephone company!'"

ROBIN WHITE: "No. It was a closed proprietary technology, when the world was looking for open technology. But even if there had been the potential for it to be mainstream, I think Dick Pick, his quirky personality and desire for control, would have prevented it from happening."

Q **Who, of the seven providers left, will make it? Who won't?**

LYNN CARTER: "I find it fascinating that I only recognize one name on the list. My, how the world changes."

HENRY EGGERS: "As far as I can tell, all of the providing being done is by IBM."

TIM HOLLAND: "From my perspective, only three have a good chance of long-term commercial success: Northgate because of its internal strengths and needs and a successful application business; IBM because of its name value and installed base; and Revelation because of its PC focus and installed base. All the others simply strike me as too small and/or too uncommitted."

IAN SANDLER: "The odds are that all of them will stay around for some time yet. Every one of these products works well enough to do the job, and do it for a lower cost of ownership than their non-PICK alternatives. Long term, they will remain viable as long as the VARs who use them are viable and able to sign more new prospects each year than they lose to competitors. Fortunately, most competition comes from the Microsoft world where doing anything semi-complicated with large amounts of complex data is harder than pinning the tail on the donkey while blindfolded, or it would have all been over long ago."

STEVE KRUSE: "Hard question to answer because it makes it sound like none of them have made it. The fact that most of these software companies have been around for years is a testament to their staying powers. Of the seven, Raining Data should be in the driver's seat, but none of them have a clue how to market their products and services to the real world."

ROBIN WHITE: "I would certainly expect IBM to survive long-term, but not in MultiValue. The other participants are only fringe players and will go away sooner or later ... but I am constantly amazed at their persistence in the marketplace."

Q **Is there still opportunity in the MultiValue market?**

LYNN CARTER: "For every firm with more money than common sense, there has to be a dozen firms looking to squeeze more performance from as small an operation as possible. Companies are in business to serve their customers, not as a ploy to justify a huge IT organization. I have to believe this opportunity will always be there and I see no reason why PICK shouldn't be serving it."

BRIAN CLEGG: "We had a lot of success in the Australian market selling business solutions, which included all of the financials. Then along came Oracle Financials, SAP, etc., and competing was tough. I doubt that has changed significantly."

HENRY EGGERS: "Yes, 25 years after we all thought it would be dead! Building XML output and input files are slam dunk [in MultiValue] ... so I see lots of opportunity."

TIM HOLLAND: "Sure there is. You can still build the world's best applications in impossibly short timeframes on any of the MultiValue platforms. You can still support that application through numerous business rule changes with fewer people than on any other platform. This is our raison d'existance, and we should never forget it. If the industry is spending 4 to 5 percent of gross on IT, those using MultiValue can feel darned righteous that they're generally doing a much better job with a 0.4 to 0.8 percent of gross!"

IAN SANDLER: "The opportunity for PICK is the same as it has always been. Someone who is a competent marketer will gain control over one of these versions and sell it as a reliable and simple way for non-computer geeks to develop new business solutions. jBASE is trying. IBM isn't—although their products are excellent, and could easily be packaged for use by 'non-PICKies.' (System Builder is one example of their lost opportunity.)"

RICHARD JOWITT: "All is a tale of missed opportunity."

ROBIN WHITE: "I think it's just the opportunity to 'survive' for a few more years."

Q **Is the MultiValue market dead or alive?**

TIM HOLLAND: It's alive and still growing, but it's also still 'one of the world's best kept secrets.' I suspect that 20 years from now we'll still be saying the same thing. Live long and prosper."

IAN SANDLER: "The PICK products are still very much alive. They are living like a fungus underneath lots and lots of businesses. You don't hear much about them per se, but go into a car dealership or a college or have credit problems and you will probably see one at work. Unfortunately, the PICK marketplace appears to be brain dead because nobody is actively marketing our virtues to new VARs."

RICHARD JOWITT: "MultiValue will survive as long as applications are running, but where are the new applications and new applications developers? Without new applications, MultiValue dies. And with free of charge products available such as the PostgreSQL DBMS, why would you pay for MultiValue?"

STEVE KRUSE: "It's obviously alive and many people are still milking the cow. However, it's not growing and awareness is at an all-time low. Ten years ago you could find people in the industry that had at least heard of PICK. These days, no one has heard of PICK, certainly none of the new developers and VARs in this market."

PAUL THOMPSON: "It's very much alive. Many superb application software packages thrive on the PICK/MultiValue database."

ROBIN WHITE: "It certainly isn't a growth market, although certain MultiValue application vendors may be doing OK. I would say MultiValue is still kicking a little but is enjoying a surprisingly long, slow death." **IS**

Taking the Pulse of the
MultiValue Market

Cache or IBM DB2 as well as classic hashed files. This is as a result of the jBASE technologies, such as jEDI, discussed previously.

Q **What percentage of your annual sales are derived from existing MultiValue customers?**

A jBASE International has a strong and loyal user community of Value Added Resellers and end users who provide growing year-on-year sales and support revenues. In addition, growth from Value Added Resellers and end users that are new to jBASE continues to be strong.

Q **Do you have a strategic plan in place to migrate your business from MultiValue or are you staying with MultiValue or both?**

A As stated previously, jBASE already has a strong presence outside the classic MultiValue database market though support for SQL Server, Oracle and other RDBMS databases. However, jBASE also continues to grow inside the classic MultiValue market and remains fully committed to this. During the past two years the family of jBASE products has grown to incorporate new technologies and utilities (further definitions of these may be found at www.jBASE.com). This growth in the product family provides significant long-term benefits to our customers both inside and outside the traditional MultiValue market.

At present, jBASE International's long-term plans include the continuing commitment to the classic MultiValue market, further expansion outside this market and the inclusion of additional elements of the jBASE product family that will benefit both market segments. Examples of these include the fact that jBASE uniquely enables MultiValue applications to be deployed onto IBM OS390 mainframes and the IBM i5 eServer iSeries (AS/400).

Q **Are you better off with MultiValue today than you were four years ago?**

A We are seeing a convergence of technologies and markets from which the successful parties will be those companies that can adopt the best of both markets. This is directly in line with jBASE International's strategic plans and as such allows jBASE Value Added Resellers and end users to maintain a leadership position and exceed growth plans across the MultiValue and non-MultiValue markets.

The expanded jBASE product family certainly means that MultiValue Value Added Resellers and end users have a far stronger future and greater opportunity today, through the adoption of jBASE products, than at any time in the past. **is**

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newsmakers

OHM Targets Australasian Market; Opens New Offices in Australia

Austin Driscoll, who has many years of experience in the MultiValue industry, will head OHM's new Australia-based offices.

OHM Systems, a leader in ERP/MRP Web-centric application development solutions and other supporting products for Web-centric environments, has officially opened business offices in Sydney, Australia.

In October 2003 OHM attended a well-received Spectrum trade show that targeted the MultiValue companies of Australia's regions. OHM's Web-centric application development environment (tool for developers and large end users to move their telnet applications to a true Web environment) generated much excitement among the MultiValue developers. Additionally OHM had made contact with several manufacturing companies to demo OHM's existing feature-rich Web-centric application. From those demonstrations, contracts for installing the OHM application have started. OHM returned in June of this year to finalize contracts with some of the application users and to further develop relationships throughout Australia and the Asia Pacific Rim areas.

During the June trip to search for local talent to head up OHM's Australia location, OHM was reintroduced to an industry trendsetter from the early '80s, Austin Driscoll of Clegg Driscoll Consultants, which had a successful MultiValue application running on a variety of hardware platforms. After selling their company to the Sanderson Group, Driscoll and Clegg went their separate ways. Austin had just finished up a contract as Managing Director of Compuware Inc.'s Australia and New Zealand operation, and was available to take on the OHM opportunity. Austin commented: "I am extremely excited to be involved again in an application business, and especially pleased to be associated with a robust and technologically advanced package such as OHM's ERP/MRP offerings, plus the many other service and product opportunities that OHM will bring to the Asian Pacific market."

OHM USA employees will be attending another Spectrum conference in Sydney and Melbourne in October of this year. They will be taking advantage of this trip to Australia to begin installations of new clients and to transition the local support and implementation processes to the OHM service team of Australia. "We have just scratched the surface with our introduction to this market," said Catherine Anbil, vice president of OHM (USA) and one of the team members setting up Australia operations. "Once we have local users of our products, we believe our growth rate will set new records for installing a complete application solutions package to this part of the world. We have found that most offerings to Australia are packages that once installed require continued modification to meet the day-to-day business demands of the client. OHM's offerings are a complete, mature environment with only some personalization to each installation."

To learn more about these and other offerings by OHM SYSTEMS, visit its Web site at www.ohmworld.com.

Profit-Hound Promotes a MultiLingual View of MultiValue

Recently a new company was formed, **Profit-Hound, LLC**, proposing what it considers to be a fresh perspective on the use of MultiValue in business.

Thomas Goble, principal of Profit-Hound, puts it this way: "Many business owners don't speak 'geek.' Likewise, their IT managers don't speak 'business owner.' This creates problems when, down the road, the bottom line needs to be met."

In Goble's opinion, a MultiLingual approach to MultiValue would benefit all parties involved. He cited this example. A client was forfeiting 20-30% a year from inventory. They had excess inventory and insufficient control. Money was eroding with no end in sight. Technology did not understand inventory factors, Management did not communicate effectively with Technology, Operations wanted results. MultiValue seemed like the logical answer, if only all parties could understand, and agree, on a MultiValue solution. Facilitation, communication, and a bottom-line mindset were essential. Goble served that purpose, specifying MITS.

As Goble explains, he was fortunate to accumulate the experience he has in order to provide it to businesses. He adds, "Most companies can look within and find someone on staff who has the actual experience or potential to serve in a MultiLingual MultiValue capacity."

Goble's background includes IT director, operations manager, financial officer, vice president of a regional wholesale distributor, and leader of two regional software user groups.

For more information, please contact Thomas Goble at (888) 300-9368 or www.profit-hound.com

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