INSIDE! Blast From the Past: Getting Current With People Who Graced Spectrum's Cover

$7.00 U.S.

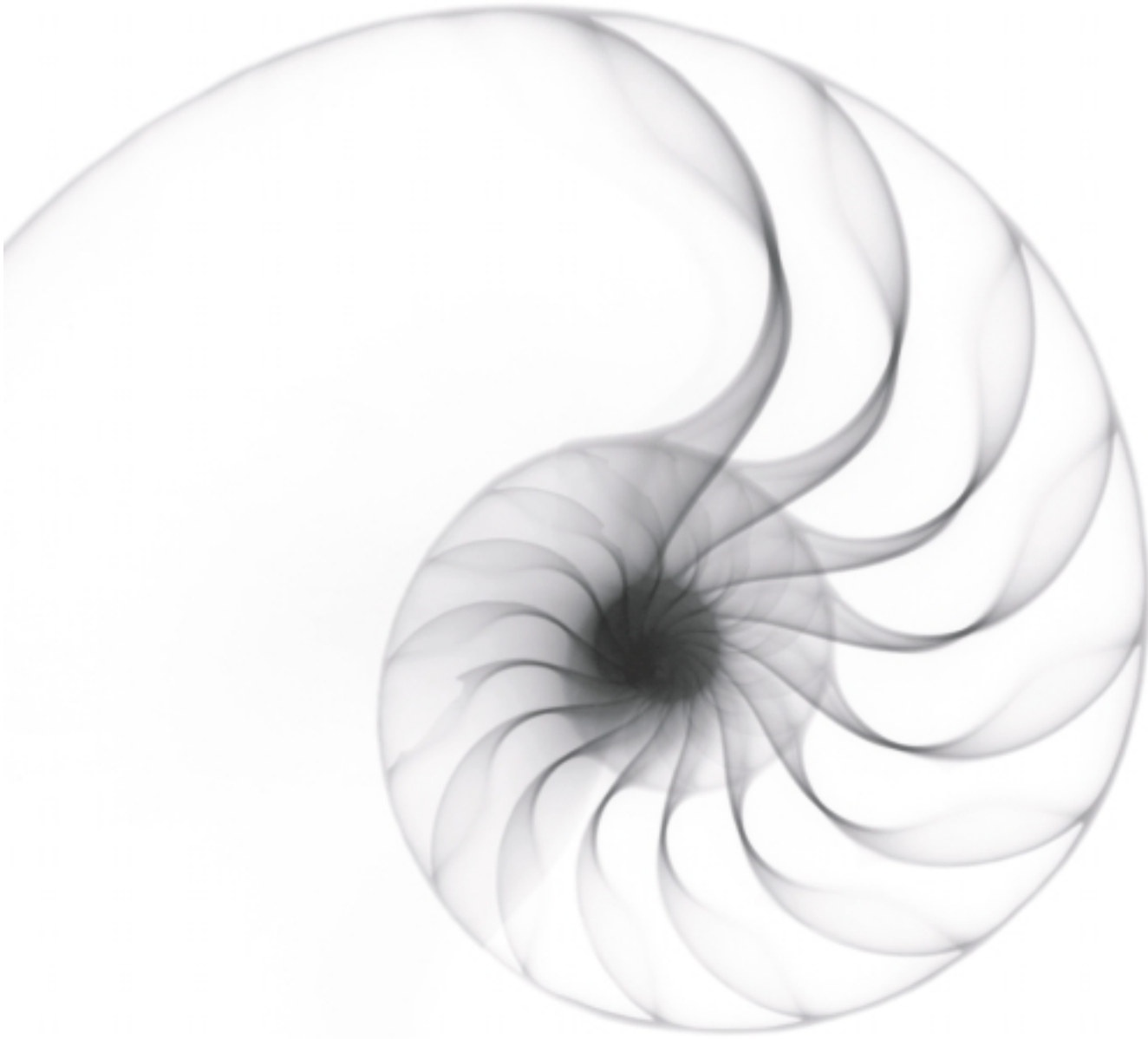
INTERNATIONAL SPECTRUM®

THE BUSINESS COMPUTER MAGAZINE

JANUARY/FEBRUARY 2005 • AN IDBMA, INC. PUBLICATION

Is MultiValue a Dinosaur When It Comes to Information Technology Controls and Audit Procedures?

COBIT: A Guide to Compliance With New Government Regulations



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

WILL IT REALLY DO ALL THAT?

YES

DesignBais

www.designbais.com

INTERNATIONAL
SPECTRUM®
JANUARY/FEBRUARY 2005

DEPARTMENTS

[FROM THE **INSIDE**]

24th Annual Spectrum Show

This is my favorite time of year when we're getting ready for the annual Spectrum Show. It's the time when we find out who's hot and who's not; what's new and what's not; who's doing well and who's crying the blues.

This year, the new third-party Web-based rapid application development systems will be center stage. Conference attendees can get an overview of the capabilities of DesignBAIS, Visage, and WADE, three modern day products competing for the hot MultiValue Web application development market. Interested people can stay on for an extended technical session if after the overview they want to hear more in-depth detail.

The MultiValue to Microsoft Connection will also be more prominent in the show — this year's conference includes presentations on several fronts in many of these areas from Raining Data's PDP for .NET to how to interface your MultiValue data with Excel, Word and Mail Merge.

In the category of "If you can't lick 'em; join 'em," there will be presentations on how to take your MultiValue system lock stock and barrel to Oracle or DB2, and still be able to code in Data Basic or whatever you used to do before.

As the number of competing products in the MultiValue business intelligence tools market increases and the sophistication of drill-down models improves, your MultiValue enterprise can now deliver truly astounding business intelligence to management. This year's conference includes new two-hour training workshops for these amazing products.

Tools, Tools, Tools — There will be more new and creative software tools to enhance your MultiValue tool chest plus many new technologies for MultiValue. This year's program has lots of .NET for sure, but also other important technologies including XML, SOA, RFID, SOAP, SQL, Linux, and Web Services.

Also new this year are special system administration tips and techniques sessions given by MultiValue database providers who are loaning us their systems experts to give you an inside scoop on effective system administration.

And of course, top executives will present their annual corporate updates. Meet key executives from every core provider of the MultiValue database and hear first-hand reports of future product plans. Participating companies include IBM (UniVerse and UniData), jBASE International (jBASE), Northgate Information Solutions (Reality), ONgroup (ONware), Raining Data (D3, mvBASE, mvENTERPRISE), Revelation Software (OpenInsight), and VIA Systems (UniVision).

There's lots more happening — including International Spectrum's Database Challenge — and you can see the whole schedule of events on www.intl-spectrum.com. We hope you'll register to attend, and we look forward to seeing you in San Diego.

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

IDBMA, Inc.'s INTERNATIONAL Spectrum®

International Spectrum 2005
MultiValue Conference & Exhibition

February 22-25, 2005

Hyatt Islandia Hotel & Marina on San Diego's Mission Bay

INTERNATIONAL
SPECTRUM®
JANUARY/FEBRUARY 2005

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

IDBMA's *International Spectrum* is published six (6) times per year at the subscription price of $40.00 U.S. in the U.S.A.; $45.00 U.S. in Canada and Mexico; $50.00 U.S. for other countries. Single copy rates are $7.00 U.S. in the U.S.A. and Canada, and $9.00 U.S. in all other countries. *International Spectrum* is published by IDBMA, Inc., 311 4th Avenue Suite #513; San Diego, CA 92101; Tel: 619/515-9930; Fax: 619/515-9933 **E-Mail:** requests@intl-spectrum.com; **Website:** http://www.intl-spectrum.com.

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

NEWS RELEASES/UNSOLICITED ARTICLES
International Spectrum is eager to print your submissions of up-to-the-minute news and feature stories complementary to the MultiValue marketplace. Black and white or color photographs are welcome. Although there is no guarantee a submitted article will be published, every article will be considered. *International Spectrum* retains all reprint rights.

DO YOU WANT TO HAVE THE BEST OF BOTH WORLDS?

OpenInsight is an object-oriented GUI application development environment that works natively with your MultiValue database.

With OpenInsight you can preserve your existing code, dictionaries and data that drive your **existing** applications!!! And you can still program in Basic!

Our software runs on any PC out there that can run Windows - no special hardware is required. And we still bundle the tools and database together.

We hope you will join us at the 2005 International Specturm Conference. Be sure to attend one of the Revelation sessions to see OpenInsight and OpenInsight for Linux (OIL) up close. And don't forget to stop by our booth for great giveaways and one-to-one demonstrations.

For more information on Revelation's flagship product, OpenInsight, or to put a new face on your legacy MultiValue database, visit:

www.revelation.com/intl-spectrum/ishome

OpenInsight for Linux

Revelation Offices – Global

Revelation Software, Inc.
Corporate Headquarters
99 Kinderkamack Road, 1st Floor
Westwood, NJ 07675
Toll Free: (800) 262-4747
Phone: (201) 594-1422
Fax: (201) 722-9815
Email: info@revelation.com
Web: www.revelation.com

Revelation Software Ltd.
Northumberland House
45 St. Mary's Road
Ealing
London, W5 5RQ, UK
Phone: +44(0)208 912 1000
Fax: +44(0)208 912 1001
Email: info@revsoft.co.uk
Web: www.revsoft.co.uk

Revelation Software Australia Pty Ltd.
Unit 2
Suite 105, 20 Dale Street
Brookvale, NSW 2100
Australia
Phone: +61-2-9939-6399
Fax: +61-2-9939-6366
Email: info@revelationsoftware.com.au
Web: www.revelationsoftware.com.au

REVELATION SOFTWARE

Where in the World Is VMark?

Where in the world is VMark, a MultiValue company that many thought fell by the wayside years ago? Attendees at the recent Spectrum show in London discovered that that certainly wasn't the case when they encountered VMark's exhibition booth. It turns out that VMark is alive and prospering, distributing U2 products in various parts of the world with headquarters in Spain, and offices in France; London; Stuttgart, Germany; Stockholm; and Sao Paulo, Brazil. Many people, particularly in the United States, had the impression that VMark met its demise when the company merged with Unidata and became Ardent in 1998. However, the VMark name lived on when Pablo Fuertes, who was then country manager for VMark Spain, decided it would be in the best interest of his customers to become an independent entity and founded the VMark Group.

Headquartered in Madrid, the VMark Group was expanded into France in 2002, becoming the sole distributor for U2 products. More recently, Fuertes opened an office in Manchester in the U.K. "Having opened a U.K. office earlier this year, it was especially important for VMark to attend this year's London Spectrum show," said Vicki Barrow, account manager. "It had been apparent from talking to U2 customers that it was confusing for them to hear the name 'VMark' again, having thought that the name ceased to exist after the merger with Unidata. This response was also true at the Spectrum Vendor Fair — upon seeing the VMark booth, attendees looked surprised and puzzled, asking 'Is this really VMark?' and 'I didn't think they existed anymore.' Attending this event gave us the chance to explain the history of the company and tell people what we are doing in the U.K. and throughout Europe."

The VMark Group, headquartered in Madrid, Spain, recently opened a new office in Manchester, U.K., which joins locations in France, London, Stuttgart, Stockholm and Sao Paulo.

The VMark Group currently employs over 120 people. Eric Delobelle, sales manager, said VMark's success as a U2 distributor can be contributed to many factors. "Many of our employees have years of experience within the U2 market, most being ex-employees of Unidata, VMark or Ardent," he said. "This has allowed us to provide high quality services to our customers. Taking the time to employ the right person for a position has meant that our staff turnover has been very low, giving customers a continued service. We have also received a lot of support from IBM, and have been able to use this to benefit our customers."

"VMark recently worked with IBM to stop the deployment of SAP at a large end-user site and, along the way, double their U2 license count."

– ERIC DELOBELLE
Sales Manager

In addition to the distribution of U2 products, VMark has a policy of working with its customers to solve business issues ranging from IBM pricing and procedures to defending their investment in U2. Recently, a VMark business partner was interested in using RedBack for the new version of their application. Before they made this investment, they wanted assurance from their customers that this was the right thing to do, according to Barrow. VMark organized a meeting at IBM regional headquarters where IBM helped validate that RedBack was the best choice and also confirmed that there was a commitment to the future of the product.

When it comes to partnering, VMark puts a lot of action behind its words. "VMark works with both IBM and our customers to help communicate the position of U2 as an actively developed and supported IBM product set," Delobelle said. "We are able to relay our customers' needs, their problems and issues to IBM, letting them know what the U2 market wants, what they need, making sure that their individual voices are heard within IBM. We are also in the position to bring IBM to the customer, recently working with IBM to stop the deployment of SAP at a large end-user site and, along the way, double their U2 license count!"

VMark is also assisting U2 customers to expand their business into Europe, from providing them with free office space to helping with the legal issues. A French business partner wanted to open an office in Spain but wasn't sure how to do it, Barrow said. VMark facilitated by hosting meetings in Madrid, offering an office in VMark Spain, initiating customer contact, and helping the partner understand Spanish culture.

In addition to expanding further across Europe, VMark is looking to expand into the U.S. in the future, creating a large network of distribution offices. VMark believes the key to success is the ability to offer a flexible service that fits around an individual customer's needs, providing much more than just the supply of products. **is**

International Spectrum—

Bringing the International MultiValue Community Together

Mark your calendar for February 22-25, 2005 today and plan to attend the MultiValue event of the year!

ANNOUNCING!

International Spectrum's First Annual

DATABASE CHALLENGE

To find out more information about participating in the database challenge email monica @intl-spectrum.com to request contest rules and entry forms.

- New half-day training workshops conducted by software authors
- Never before presented MultiValue software utilities
- The latest in Web-based MultiValue Rapid Application Development tools
- .NET and other new MultiValue compatible technologies
- Annual corporate product updates by core MultiValue database providers

IDBMA, Inc.'s INTERNATIONAL Spectrum®

INTERNATIONAL SPECTRUM 2005 MULTIVALUE CONFERENCE & EXHIBITION

February 22-25, 2005 | Hyatt Islandia Hotel & Marina on San Diego's Mission Bay | San Diego, California

Early-bird registration discounts now available on **www.intl-spectrum.com**

Is MultiValue a Dinosaur When It Comes to Information Technology Controls and Audit Procedures?

Taking the Bite Out of COBIT PART 1

IT Controls: What Are They and Who Wants Them?

In the last couple of years, many MultiValue shops here in the United States have been thrown into a panic by new federal government mandated IT controls and audit procedures stemming from legislation known as Sarbanes-Oxley. I have been amazed and dismayed, amused and bemused watching the level of wailing and gnashing of teeth in some of these shops when told they must take the time to do things like track their program change requests, control who can change live data on the system and keep records of such data manipulation, and restrict programmers from jumping on the production systems and modifying programs on the fly with no authorization, oversight, or testing. The strong, sometimes vile, reactions are such that you would think that someone had just killed their kitten.

W. CLIFTON OLIVER, CCP

Get Real!

Reality V11

35 years of development

northgate
INFORMATION SOLUTIONS

We're committed to your future

www.northgate-is.com/reality

UK Tel: (011) (44) 1442 273758 • Email: reality@northgate-is.com
USA Tel: (866) 473 2588 • (949) 823 1000

Taking the Bite Out of COBIT

Continued from page 8

If you suggest that these kinds of controls are generally accepted industry best practices that the Big Kids use and are a Good Thing, you had best be wearing asbestos underwear. Yet, in many cases the lack of IT controls is part of what causes corporate IT people to view MultiValue systems and the people who work with them as second-class citizens, uneducated rubes who don't know better, "cowboys," if you will. On one IT controls related project, the auditor came right out and told me, "This [MultiValue] system is our dinosaur. Every time we try to talk to them about controls, they tell us that [MultiValue] systems can't be controlled." The point was then made that if this was true, they needed to get rid of it and put in a mainstream system that did lend itself to industry best practices.

So while complaining that this vendor or that vendor is not doing enough to promote MultiValue as a "real" database alternative to Oracle, DB2, or SQL Server, these same MultiValue professionals are driving themselves out of a job by making claims that not only should we not try to play like the big leagues do, but our tool does not allow us to play in that game.

This, of course, is pure poppycock.

Best practices IT controls, also known as IT governance, is not about the underlying technology; it is about processes. It is a way of looking at the Information Management and Processing functions as they relate to the business goals and strategies, supporting the business processes, minimizing risk, maximizing returns on IT investments, and identifying new opportunities to use IT to a competitive advantage. Upper level business management has come to realize that information is a core business asset that needs to be managed just like facilities or inventory.

How do you approach best practice IT governance without getting bogged down and making the same mistakes hundreds or thousands of shops have made before you?

So if your IT department does not govern itself now, it will be governed by others in the future, either through management edict or governmental regulation. IT governance is like a cart, and the IT department is like the proverbial dog tied behind it. The dog can either follow along willing, or it can lie down and be dragged across the cobblestones. But go along it will.

Although U.S. publicly traded companies are now required by law to have certain IT controls in place, IT governance is not about meeting regulations; it is not an issue limited to one or two countries; it is just good business. As George Spafford of the IT Process Institute points out,

"[IT controls are] safeties that allow for better preservation of value through the management of risks. IT controls are like the brakes on a car. Not only do they serve to stop the car and keep it under control, they enable the driver to actually go faster and still remain safe."

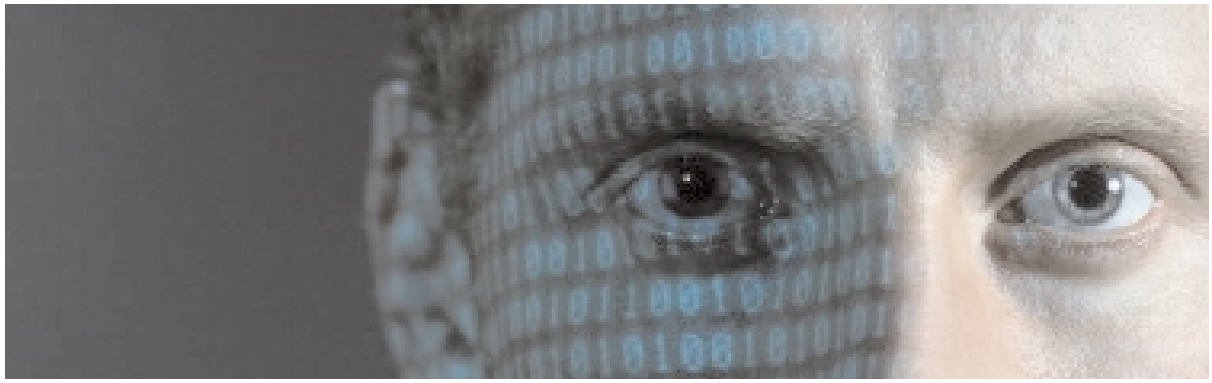
So let us make the assumption that your shop has decided that best practice IT governance is the right thing to do. How do you approach such a large set of topics without getting bogged down and making the same mistakes hundreds or thousands of shops have made before you? One way is to use a well documented, comprehensive, generally accepted best practices framework that addresses the entire set of business IT functions. COBIT (Control Objectives for Information and Related Technology) is one of the best known of these frameworks.

Originally released in 1996 by the Information Systems Audit and Control Foundation, COBIT is now in its 3rd edition and is published by the IT Governance Institute. The information is accessible through the Information Systems Audit and Control Association (ISACA). Their Web site is at www.asaca.org. Most of the COBIT documents are available for download at no charge. In addition to the PDF formatted documents, members of ISACA can also sign up for COBIT Online, a very nice Web-based reference that lets you quickly find information about each control objective. (One of my favorite features is the inclusion of "why-do-it" links to explain the reasons for including various components.) The subset of COBIT targeted at small to medium-sized enterprises is available for purchase from the ISACA Bookstore in the publication "COBIT Quickstart."

The executive summary makes the claim, "COBIT is relatively small in size." The operative word here is "relatively." I suppose over 530 pages of documentation would strike you as "relatively small" if you are used to

Continues on page 12

ROBUST OBJECTS, ROBUST SQL, AND NOW MULTIVALUE



YOU SHOULD SEE THIS DATABASE

Only post-relational Caché offers native object, robust SQL and direct access to a powerful multidimensional database – and now includes Multivalue technology, with built-in support for MultiValue Basic, data structures and queries. This enables MultiValue developers to preserve their existing application investments, plus make use of the latest Web, object and SQL technologies.

By enabling new levels of high performance and rapid Web application development, Caché has become the world's fastest growing database product. Caché easily handles the most demanding applications with scalability from one to 50,000+ users, with modest demands for hardware and maintenance.

We are InterSystems – a specialist in data management for over 25 years, providing 24x7 support to 4 million users in 88 countries.

You can see the new Caché, now with MultiValue technology, at **booth #219** at Spectrum.

InterSystems CACHÉ™
Make Applications Faster

Visit us at Spectrum, or at www.InterSystems.com

Taking the Bite Out of COBIT

Continued from page 10

dealing with government contracts or legislative volumes. It is interesting to note that even the ITGI recognizes how daunting this can be. Quickstart's description admits that "COBIT, in its complete form, can be a bit overwhelming." In my opinion, it is not the volume that makes it overwhelming, it is the tortured, pseudo-academic, third-party, passive-voice writing style that presents itself as an impediment to a complete comprehension of which the reader might be desirous. (Ahem.)

In this series of articles, I would like to introduce you to the concepts of the COBIT Framework and its use. After an overview, we will take one high-level control objective and drill down to a detailed control objective, examining its control practices. Then we will concentrate on the most critical control objectives and the COBIT Quickstart sub-set, with comments directly targeting problem areas in the typical Multi-Value shop. Some of these problem areas will, quite frankly, be more of a problem of IT department culture than anything technical.

COBIT consists of 34 high-level control objectives that are then broken down into 318 detailed control objectives. Each one of these detailed control objectives has a number of documented control practices. But don't panic! (I suppose I could have been a bit kinder and warned you to have smelling salts or some other bottle of restorative at hand.) Part of the exercise is to be aware of all of these, but to make decisions as to which ones are suited to your business and how best to implement them. These decisions are based on how IT needs to support the business functions, not on how easy or difficult it is going to be. For example, control objective AI5.12.2 (see what I meant) speaks to segregation of function in the installation of programs. If you are a medium to large company, it is generally accepted by IT professionals that developers should hand programs off to a different QA person(s) for testing. Implementation into production is done by yet another group, typically Operations. But if you are a small shop with two programmers who are the operations people and the help desk, you aren't going to do that. But you may decide to formalize the process the two follow and document it appropriately rather than just letting them do whatever feels right at the time. It depends on your situation. This is a management decision. (Don't ask the developers. They will always insist they don't have the time or the luxury to follow controls. Of course, they also insist they can't do their job without the root or administrator passwords, too. History has proven them wrong.)

IT governance is also an incremental process. No IT department can just bolt the doors and refuse to service new requests for a year or two while it changes all of its procedures in one massive effort. COBIT objective descriptions include some indicators to help you determine effort versus reward.

A framework can be defined as "a logical structure for classifying and organizing complex information." (Interoperability Clearinghouse Glossary, www.ichnet.org/glossary.htm). It tells you what to consider doing, but not how to do it. Think of it as a list of processes, each one of which may or may not be applicable to your organization at this time. Once you determine a particular control objective is appropriate for your company and the payback is worth the effort and cost, you decide how to achieve it. After all, your company is probably unique. What worked for other businesses may not work for you. That is why COBIT is a framework, not a cookbook.

The COBIT Framework starts at the top by organizing IT processes into four groups, which it calls "domains." These domains are: Planning and Organization, Acquisition and Implementation, Delivery and Support, Monitoring.

Planning and Organization addresses how the IT function relates to and supports the company's business objectives, planning the IT strategy, and determining the best IT organizational structure, staffing, and infrastructure.

Acquisition and Implementation deals with finding, developing, or buying solutions that support the IT strategy and making sure they are installed, configured, and modified correctly, in line with the defined objectives, and with the appropriate levels of security in place. This domain also speaks to the system life cycle of change requests, modifications, and testing to reduce the chances that you will break it once it is in operation.

Delivery and Support concentrates on getting the services to the users, ensuring continuous service, backup and recovery, disaster planning, security, help desk, and training. In other words, Operations.

Monitoring addresses, well, monitoring. Readers familiar with methodologies such as TQM or Six Sigma know that it is difficult to improve a process if you do not have defined, measurable criteria against which to determine how well you are doing.

Each of these domains contains a number of high-level control objectives (34 total for all the domains). Just as an example, the Acquisition and Implementation Domain has the following high-level control objectives defined:

AI1	Identify Automated Solutions
AI2	Acquire and Maintain Application Software
AI3	Acquire and Maintain Technology Infrastructure
AI4	Develop and Maintain Procedures
AI5	Install and Accredit Systems
AI6	Manage Change

For each high-level control objective, you have a Maturity Model, Critical Success Factors, Key Goal Indicators, Key Performance Indicators, Auditing Guideline, and a list of Detailed Control Objectives. The Maturity Model lets you evaluate how you are doing compared to international standards and generally accepted industry best practices. Critical Success Factors aid in implementing the necessary controls. Key Goal Indicators help you determine what the target is. Key Performance Indicators assist you in measuring how close you are to the target. The Auditing Guidelines are primarily instructions and recommendations for the Information System Auditors, both internal and external. (If you are still upset about this "controls thing," you can think of this as a pre-release of the enemy's battle plan.)

The Detailed Control Objectives (318 total) are the workhorses of COBIT. This is where we get to specifics. For example, where high-level control objective AI6 says "manage changes," its detailed control objectives talk about change request control, risk and impact assessment, emergency change procedures, and so on. Each of the detailed control objectives has a list of control practices to provide further guidance in achieving it. (So the framework is a list of lists of lists of lists? It's enough to make a MultiValue programmer's heart quiver with joy, isn't it?)

In our next visit, we'll take one high-level control objective and drill down through its components. **is**

CLIFTON OLIVER brings over three decades of in-depth experience to his work in the information industry, much of it in the MultiValue market. His expertise includes project management, technology management, application development, data warehousing, and strategic planning for information services. He was an engineer for Devcom Inc., the original team that designed and wrote the landmark Prime INFORMATION database system.

He is well-known as an instructor, speaker, and author for both technical and managerial audiences. These include being an invited lecturer on software development, project management, and business ethics for such diverse organizations as the U.S. Department of Commerce, graduate level business schools, and the Mountbatten Institute in New York.

He also served as the PICK series technical editor for O'Reilly & Associates.

News That Grabs You

Explaining RSS

BY MELVIN SORIANO

There was a time when you had to go looking for news online. If it changed, great. But that's sort of like heading down to the newsstand just to see if anything new happened. It was time for home delivery.

Then a few years back, Netscape introduced a concept where news got sent to you if it changed. It was called Rich Site Summary, or RSS, and the concept has moved well past wherever Netscape itself has gone.

Netscape initially invented the RSS format for the various "channels" on its Netscape Netcenter back in 1999. Non-Netscape Web sites began to incorporate the new format. The format should look familiar to many of you by now. It's XML.

Today you can find thousands of RSS feeds. Intriguingly, RSS might be the biggest use of XML, even above e-Commerce. Weblog writers, news agencies, governments, government agencies, and many personal and commercial Web sites are now using the format. RSS can be used with software tools in Java, PHP, Perl, Python, and other major programming languages. Many RSS viewer software and news aggregator programs work on the Web, on the desktop, even within e-mail clients. RSS has somewhat become the new standard for syndication content and metadata over the Internet.

RSS is pretty much XML used to share headlines and links to news articles. With news articles, the entire article isn't usually shared, but metadata, or descriptive information, about the article is; the metadata usually includes a URL, headline, and a summary. RSS has become an important tool for publishers because these news feeds can be used to syndicate content, and to integrate third-party content into your site.

Since it is XML, all RSS files must conform to the XML 1.0 specification, as published on the World Wide Web Consortium (W3C) Web site. I've spoken enough about RSS to probably bore you to tears but let's just remember that it's a flexible way to tag information so that it looks like HTML.

How can RSS be used? Let's look at a typical example of how a company moves into RSS.

- A publisher or company has some content that it wants to share with others.
- It creates an RSS channel for the content.
- In this RSS channel, the company includes items for Web pages they want to share.
- This new RSS channel can be read by remote applications, and converted to headlines and links.
- These links can be incorporated into other Web pages, or read in dedicated readers.
- People who read those other Web sites and readers will see the links, click on them, and go to the original site of the publisher or company.

As I mentioned, headline sharing is the most common use for RSS. So publishers tend to really like it. But RSS is also used for other purposes, by non-publishers. RSS is a very popular format in the weblog/blogging world. It's also used for photo diaries, classified ad listings, corporate job listings, recipes, critical reviews, and even for tracking the status of software packages.

In e-Commerce, RSS feeds are used as a mechanism of information delivery. For example, Amazon provides customized RSS feeds based on its Web Services platform. You can track top or preferred books in your personal news reader, or include information on your Web site about related books for sale at Amazon.

Because of all these uses, RSS has become rather popular in the last few years. You can check out sites that list out a bunch of RSS channels, such as

Syndic8.com. Yahoo news, the BBC, Amazon, Apple Computer, Wired, Rolling Stone, and CNN are among the many popular sources of RSS feeds.

As the number of RSS channels has grown, a new type of software has emerged: the RSS news reader. Unlike usenet reads, RSS news readers can be personalized more directly. Think of them as personal aggregators — they help you find and organize a list of channels that you are interested in. Once you have all of your channels, you can view any of them, using the reader's standard interface. The news reader checks for updates to the channels that you are interested in and lets you jump to URLs in the content.

Looking for more content? You can google for them by typing "filetype:rss" and some topic in a search engine. You'll get a list of ".rss" files out on the Internet with that topic.

Dedicated search engines make searching for content easier. Web site Feedster.com monitors zillions of weblogs, and lets you search through an index of log entries and view them by relevance, date, or blog ranking. Upon submitting a search, Feedster.com automatically creates an RSS feed based on your request. This can be added to your news reader, so that you can see all the recent activity on your search request, without even leaving your news reader. How easy is that?

Daypop.com will search news, blogs, and RSS feeds. It lets you track popular news within the weblog world. It provides a list of the top 40 most popular weblog URLs. Given that weblogs have come to the attention of politicians in the last election, they've become quite important to many people. Daypop.com finds the most commonly linked-to articles throughout the world. It creates a list of top words that are being used in weblogs. Lastly, it also ranks weblogs by citations, providing an index of weblogs that are popular with other webloggers. It's a search engine that essentially searches for relevancy. On top of that, you can do custom searches, too. The ranking lists and custom searches, like Feedster.com, are available as RSS feeds that you can import into your news reader.

In the next article, we'll take a look at the syntax of the RSS standard and see how easy it is to keep others updated with your information. is

MELVIN M. SORIANO works at 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. HTMMel can be contacted at mel@eriscorp.com and visited at http://www.eriscorp.com. You can always call him directly at ERIS's Pasadena, Calif., offices: (626) 535-9658.

By Leanne Green

History of MultiValue

Where Are They Now?

Two Decades of *Spectrum* Magazine: Influential People That Made the Cover

In a 20th-year anniversary celebration that began about one year ago and was inaugurated in the May/June 2004 issue, *Spectrum* magazine brings you the last of five installments in our series, "Where Are They Now?" What appeared to be a daunting research project in the beginning ("You want me to find *how many* people who are missing from the industry?"), turned out to be quite an enjoyable, reminiscent, and often refreshing walk down memory lane.

In the first installment of this series we took a look at the industry pioneers, the gentlemen who were brave enough to launch the first Microdata dealerships in the late 1970s (see *Spectrum* magazine, May/June 2004). The second and third installments reviewed 25 of the most "influential people" in PICK, as determined 15 years ago in 1989 (see *Spectrum* magazine, July/August 2004 for part 1, and September/October 2004 for part 2). The fourth installment brought back the who and why of the esteemed "Person of the Year" features, which appeared on seven covers of *Spectrum* magazine between 1989 and 1997 (see *Spectrum* magazine, November/ December 2004). This fifth and last feature remembers 17 other influential people who made the cover of *Spectrum* magazine between 1984 and 2004.

In the last five issues of *Spectrum* magazine's celebration of its 20th year of publication, we've taken a step back into history and remembered a total of 62 people that have made an impact on the PICK/MultiValue marketplace. Of these, only 11 could not be located. We encourage you to contact us at anytime in the future (editor@intl-spectrum.com), should you know of someone's whereabouts that you read about in one of our articles, or you happen to be just one of those on the Spectrum MIA list.

1984 March/April Issue

The inaugural issue of *Spectrum* magazine featured an elderly couple and two young children. The cover story, titled "Computer: Friend or Foe?," featured this generational image as the likely audience that might find a foe in the use of computers. The elderly couple was actually a pair of models brought in for the photo shoot by the art director. Thus, their relationship to the MultiValue market is non-existent, and their identities are also unavailable!

The children on the cover, however, do have a personal history with this industry. Paul Giobbi (the 14-year-old young boy) and Alex Giobbi (the two-year-old girl) are the children of Gus and Monica Giobbi, the publishers of *International Spectrum* magazine.

PAUL GIOBBI on the Cover:

Three years before appearing on the cover of *Spectrum*, Paul started his first job in the PICK market, testing dumb terminals at the age of 11 for a Microdata dealership owned by his father, Gus. He was 14 at the time the cover image was taken in 1984.

"I wasn't supposed to be on the cover of *Spectrum* that day. The fact is that I was there to babysit my little sister who was two at the time. If I recall correctly, the elderly couple that was modeling for the cover were not providing the desired image and for some reason, my parents got Alex and me to stand in with them. I guess that is when the Giobbi nepotism all started." *–Paul Giobbi*

Paul Giobbi After the Cover:

While still in high school and college, Paul held various positions for International Spectrum, ending his career there in 1994 as VP of Sales. For the next five years he served as VP of Sales for Jones Business Systems in Houston, Texas. In 2000, Giobbi and a partner bought out the PICK division from JBS, relocated to Southern California,

Continues on page 18

Where Are They Now?

Continued from page 17

and formed Zumasys, a systems integrator focusing on solutions such as email/converged communications (MS Exchange, VOIP from Cisco & Intel); access infrastructure (Terminal Server & Citrix); custom-built servers (HP, IBM and Intel), networking, and security.

Explaining the thrust of his company, Giobbi said: "I'm not out of the MultiValue market! It's like Scarface, 'Every time I try to get out, they pull me back in.' Zumasys still supports close to 10,000 D3 users, helping them to implement emerging technology solutions like 3G wireless, which allows field personnel to access their MultiValue applications from anywhere using a cellular Internet connection.

ALEX GIOBBI on the Cover:

Alex Giobbi was just two years old when she made her debut in the PICK marketplace in 1984, and by the age of 8, she said she was proficient in using a PICK system. She proudly states that she has witnessed 24 years of International Spectrum shows (one of which she attended in her mother's womb) and said, "I couldn't be more proud of my family for having created the Spectrum legacy."

Alex Giobbi After the Cover:

Like her brother before her, Alex held positions at the family business throughout her teenage years and during her college summers. Today she works as a Land Purchasing Agent with Pulte Homes Corporation out of Orange County. She lives in San Clemente, Calif., which her mother, Monica, affectionately refers to as "laundry distance away." (Alex explains: "This means it's too far for me to bring home laundry on the weekends.")

1985 July/August Issue

FRANK BROOS on the Cover:

Frank Broos, aka a "super salesman" in a superman costume on the cover of *Spectrum*, worked with AWA Computers from 1972 until 1986 in various capacities, starting as technical support manager and finishing as deputy general manager. He appeared on the cover 10 years after he introduced Microdata REALITY to the Australian marketplace in 1975. (He was AWA's sales manager then, and had become deputy general manager at the time of the Super Salesmen issue in 1985).

"The reason I appeared on the *Spectrum* magazine cover was in recognition of the arguably greatest penetration of the PICK system in the Australian marketplace." –*Frank Broos*

Frank Broos After the Cover:

Broos left AWA in 1986 and subsequently established C-Itoh Pick Systems in Australia. In 1988 he returned to AWA and took the position of general manager. In 1989, with the backing of General Automation and Sanderson Plc., Broos led a management buyout of AWA and changed the name to General Automation. In 1995, his company became a subsidiary of Sanderson Group, and he became the managing director of the Australian company. Broos retired from Sanderson in 2000, and since then has served as the chairman of Associated Computer Solutions, another Australian company focusing on MultiValue solutions (using the UniVerse environment).

1987 Nov/Dec Issue

Steve Epstein on the Cover:

In 1987 Steve Epstein, a software development consultant for scientific and engineering applications, was chosen to depict the average computer consultant in this cover image for a story about the career of PICK consulting. In a year when most consultants were earning between $45 and $75 per hour, Epstein told *Spectrum* magazine that it was time to diverge away from PICK: "This is probably the last year I'll be working exclusively with PICK. By itself, I feel PICK simply doesn't relate to the real world of computing. There's no mouse, it isn't multi-tasking, and the operating system doesn't run alongside the 'real' operating systems of the world."

Steve Epstein After the Cover:

True to his word, Epstein must have left the industry as we were unable to locate him for this article. One source, however, emailed us to report that Steve was teaching at Midland Girls' School in Los Olivos, Calif. about four or five years ago. He is no longer there (confirmed by contacting the school), and no forwarding contact information could be obtained through the school.

1989 May/June Issue

MARCIE MILLER on the Cover:

It was 1989 and Marcie Miller (then Marcie Gebauer, owner of PICK training company Discovery Computer Systems), was chosen as the cover image for the story, "Women in Computing." Depicted as the "average" super woman, super wife, super mom and super business owner, Marcie was pictured

holding her daughter, Elise, who was about one and a half years old at the time. After leaving McDonnell Douglas just one year before, Marcie had established her own PICK training company and was well on her way to a long-lasting career as a successful female entrepreneur.

"I can still remember to this day walking to my mailbox, opening it up, pulling out the May/June 1989 issue of *Spectrum* magazine, and seeing myself on the cover. Even though I knew I was going to be on the cover, I was still amazed to see myself there! It was truly one of the most exciting experiences that I've had in my nearly 22 years of being in the computer industry!" *– Marcie Miller*

Marcie Miller After the Cover:

Miller ran Discovery Computer Systems until April of 2003. Due to the poor economy, she explained that the training business was slow. She now works full time for Association of Trial Lawyers of America (ATLA), where, as a programmer/analyst, she also teaches classes and provides technical support to about 180 employees. "I am really enjoying my job because of the wide variety of tasks that I am able to do every day. It is fun to work in a building full of people after working virtually by myself for 15 years!" Miller said she still runs Discovery part-time, offering MultiValue and UNIX training at customer sites.

(The "baby" Elise is now 17, the youngest of her three daughters. Elise is pictured with her mom in the updated photo, wearing her soccer uniform. Miller tells *Spectrum* she would love to hear from old friends, students or clients, and can be reached at dscvry1@erols.com or 703-476-1418.)

1989 Sept/Oct Issue

MIKE ROBERTS on the Cover:

When Mike Roberts was chosen to participate in the article about computer professionals, he was VP, Information Systems, with San Diego, Calif.-based Figi Graphics, a gift company he worked at for 22 years.

"I appeared on the Spectrum cover with three other people as representatives of the different fields in the computer industry. We looked at what our job responsibilities were in relation to the service we provided and what issues we each faced. Today that cover would have a lot more faces on it, representing IT careers and industries that didn't even exist then. All I can say is that it was hard enough to get the four of us to smile at the same time!" *– Mike Roberts*

Mike Roberts After the Cover:

Roberts stayed with Figi for 22 years, with positions ranging from data processing manager to senior VP of Information Systems, and enjoyed the evolution at this company from "soldering terminal wires to building Web sites." He left Figi four years ago and founded Roberts and Associates, a consulting business specializing in IT and business operations management. "For over 20 years I commuted 50 miles daily in pretty heavy traffic," Roberts remembers. "Now, for most days, my commute is between my home office and the coffee machine. The biggest traffic issue is tripping over the cats."

Continues on page 20

Where Are They Now?

Continued from page 19

TERRI HALE on the Cover:

Although most of her career has been spent as an independent contractor, Terri Hale was working for Pick Systems when she appeared on the *Spectrum* cover for the story about computer professionals. She had been brought onboard by Dick Pick to ensure that the more commonly performed PICK application tasks became part of the new Advanced PICK operating system functionality (aka: Open Architecture, D3).

"I can tell you that my husband, although exceedingly proud of me [for being on the cover of *Spectrum* in 1989], was just a tad on the green side, because it wasn't him. Sorry, Jon!" *–Terri Hale*

Terri Hale After the Cover:

In the late 1980s, Dick Pick "loaned" Hale to JES & Associates to help train the PICK dealers on Advanced PICK. Hale left Pick Systems shortly thereafter and joined forces with JES owner Jonathan Sisk—both personally and professionally. At JES, she developed and taught AP transition courses to former R83 users and programmers. She and her husband also wrote the first encyclopedia, from A to Z on AP, named EPICK (with co-author Harvey Rodstein). Today Hale works for Data Systems Group in Sacramento, Calif., doing D3 training, programming, and customer support.

DIRK THAYER on the Cover:

When Dirk Thayer appeared on the cover of *Spectrum* and was interviewed for his thoughts on careers in computing, he was a systems analyst for Interactive Inc. in San Diego, Calif. The article about Thayer began, "Dirk Thayer is an unusual computer professional: he is loyal. He has been with one company for over five years." That was in 1989, and 15 years later, he is with the same company.

"I can remember wondering why the heck a magazine would choose me to be on its cover, especially since I hadn't been in the industry for very long at that time. The cover did tend to start a number of conversations. I would be at some PICK gathering and someone would just come up saying, 'Weren't you on the cover?' I met a lot of interesting people that way." *–Dirk Thayer*

Dirk Thayer After the Cover:

Although Thayer has worked for the same company for over 20 years, the company itself has evolved from Interactive Inc. to DataWorks to Epicor Software. His positions have evolved also, and include programmer, PD analyst, customer support, system administrator, pre-sales support, and IS manager. Today he holds the position of senior software engineer in the iSolutions Value Chain group with Epicor. He works mostly on integration technologies allowing the company's back office products (ERP systems utilizing MultiValue technology) to communicate with its front office offerings. (Dirk is pictured here with his five-year-old son, Bryce.)

CAROL OLIVER-PARTEE on the Cover:

When Carol Oliver-Partee was interviewed for the Sept./Oct. 1989 issue of *Spectrum*, she was the executive VP for Alert Computer Systems, a software house specializing in field service applications. She was included in this cover story on computer professionals because she had begun her career as a documentation specialist, and then evolved into other techni-

cal careers, from customer implementations to customer service to executive management. By the time the magazine was printed, she was working at Pick Systems and about a year later moved on to The Buckley School as systems administrator.

"It was such an honor to appear on the cover! I would like to appear on the cover again on my Harley. Maybe I could be an ambassador, going from state to state on my Harley and letting the world know about the MultiValue industry and most particularly about Raining Data and the vision of Dick Pick." *–Carol Oliver-Partee*

Carol Oliver-Partee After the Cover:

In 1999 Oliver-Partee went back to Pick Systems (which then became Raining Data) and simultaneously worked with Peterson Research designing a GUI front end for Oaktree School Management Software. Today she is in Palm Desert, Calif., working for Colt Security Investigative Services as CIO and vice president. "I am no longer in a MultiValue environment, and am forced to use QuickBooks for accounting," she said. "I hate every minute of it!"

1992 Sept/Oct Issue

NEILL MILLER on the Cover:

In 1992 Neill Miller was the chairman of System Builder, an Australian company he co-founded in 1982 with his brother Derek Miller, who served as the company's chief technical officer. He appeared on the cover with two other Australian businessmen, each of whom had a leading 4GL product for PICK-based applications. Miller was quite worthy of this limelight in the early 1990s, having grown the business of System Builder into an international company with OEM contracts and a dealer network that spread to almost every major country in the world including the Soviet Union, which was quite remarkable at that time.

"I was flattered to be on the cover of the magazine and felt that together with Derek

Continues on page 22

Where Are They Now?

Continued from page 21

Miller we had made a significant contribution to spreading the word of the PICK marketplace worldwide. I was proud to be associated with what was one of the success stories of the IT industry at that time. PICK was an exciting product and the whole ancillary PICK market was an exhilarating place to be. It was littered with exceptional people with vision and an indomitable entrepreneurial spirit." *–Neill Miller*

Neill Miller After the Cover:

In the mid 1990s, Miller successfuly merged System Builder with Unidata. He played a major role in the eventual merger of Unidata and VMark into what became Ardent Inc., listed on Nasdaq. Ardent went on to merge with Informix, which subsequently sold the entire MultiValue business including System Builder to IBM for over one billion dollars. Today System Builder is an IBM-owned and supported product with hundreds of thousands of users worldwide.

After nearly 30 years in the computer business, Miller explains that, "I needed a change." Today he spends his time in venture capital investments of start-up companies, and is also a promoter of a substantial portfolio of commercial properties. (Neill is pictured here with his three-year-old granddaughter, Sarah.)

BOB GUTHRIE on the Cover:

Bob Guthrie, who founded the successful PICK software development house Pick Products in 1979, has been a "PICK icon" in Australia. He began his computing career in the 1960s when he was an RPG programmer and then landed a job with Microdata in the mid 1970s. Shortly before appearing on the cover of the magazine, he had worked to acquire the rights of the Wizard line of application generators.

"After the death of Ken Simms, the author of Wizard, I bought the business from his estate. At the time of the *Spectrum* cover, three of the world's leading MultiValue 4GL products were being developed in Australia. This fact prompted the lead article." *– Bob Guthrie*

Excerpts from *Spectrum* Cover Stories 20 Years of Amazing Progress in IT!

1984: "The trend is apparent. In the last year, getting the right information out of a computer has been made simpler than ever. For example, a new inquiry system from Microdata, called Natural Language, uses a form of artificial intelligence to understand questions put to the computer in ordinary, everyday language. Normally, a question like: "Who beat the sales quota in Florida last year?" would confound most computer systems. But the new computer languages will maintain several dictionaries that help it interpret such questions." (Quote from the ***Spectrum*** author of the cover story, "Computers: Friend or Foe?")

Shucks, we missed the opportunity!

1985: "I think I would like to see the PICK marketplace gain the image and the reputation of IBM. I'd like to see McDonnell Douglas become the IBM of the PICK market; to carry that same image of strength and support." (Quote from Susan Davis, account manager for McDonnell Douglas in 1985, in an interview for the cover story on "Super Salesmen.")

1987: "As far as I can see, the economic outlook for the consultant in this [PICK] market is fantastic! There's much more business than there are consultants. The market is growing so fast there is an acute shortage of qualified consultants. We're making more money than ever before! (as quoted by an "anonymous longtime consultant" in the cover story, "PICK Consultants: The Glue That Binds It All Together.")

Anybody looking for a COBOL programmer?

1989: "I see salary studies that compare people that are doing COBOL work and people that are doing PICK work, and PICK programmers are typically much lower paid than somebody with four years of COBOL experience." (Quote from Kevin King, a financial systems programmer, in an interview for the cover story, "Computer Professionals Speak Out.")

Harvey's crystal ball really worked!

1992: "I have seen the future of PICK-based systems and it's full of icons, mice, bars and buttons." (Quote from Harvey Rodstein, author of the cover story, "The PICK 4GL: It Will Fizzle Without Sizzle.")

Guess what? Dick Pick was not Bill Gates (and his son isn't either).

1993: "Being a 'Pick' in the PICK business can often raise some curiosity. Many people, when they get on the phone with me or meet me at a trade show, ask, 'So, are you the Pick of Pick Systems? Aren't you a bit young? Oh, I get it. Another Bill Gates, eh?' And I just answer, 'No. And Pick Systems isn't just another Microsoft either." (Quote from Mark Pick, who was with Pick Systems at the time, in an interview for the cover story, "Top 20 Salespeople in PICK.")

Bob Guthrie After the Cover:

About five years after appearing on the cover, Guthrie sold Pick Products to General Automation and stayed on as general manager. In 2003, the Australian assets of General Automation (by then called GA Express) were acquired by Fusionware Corp., where Bob has remained in his management position.

JAMES MURRAY on the Cover:

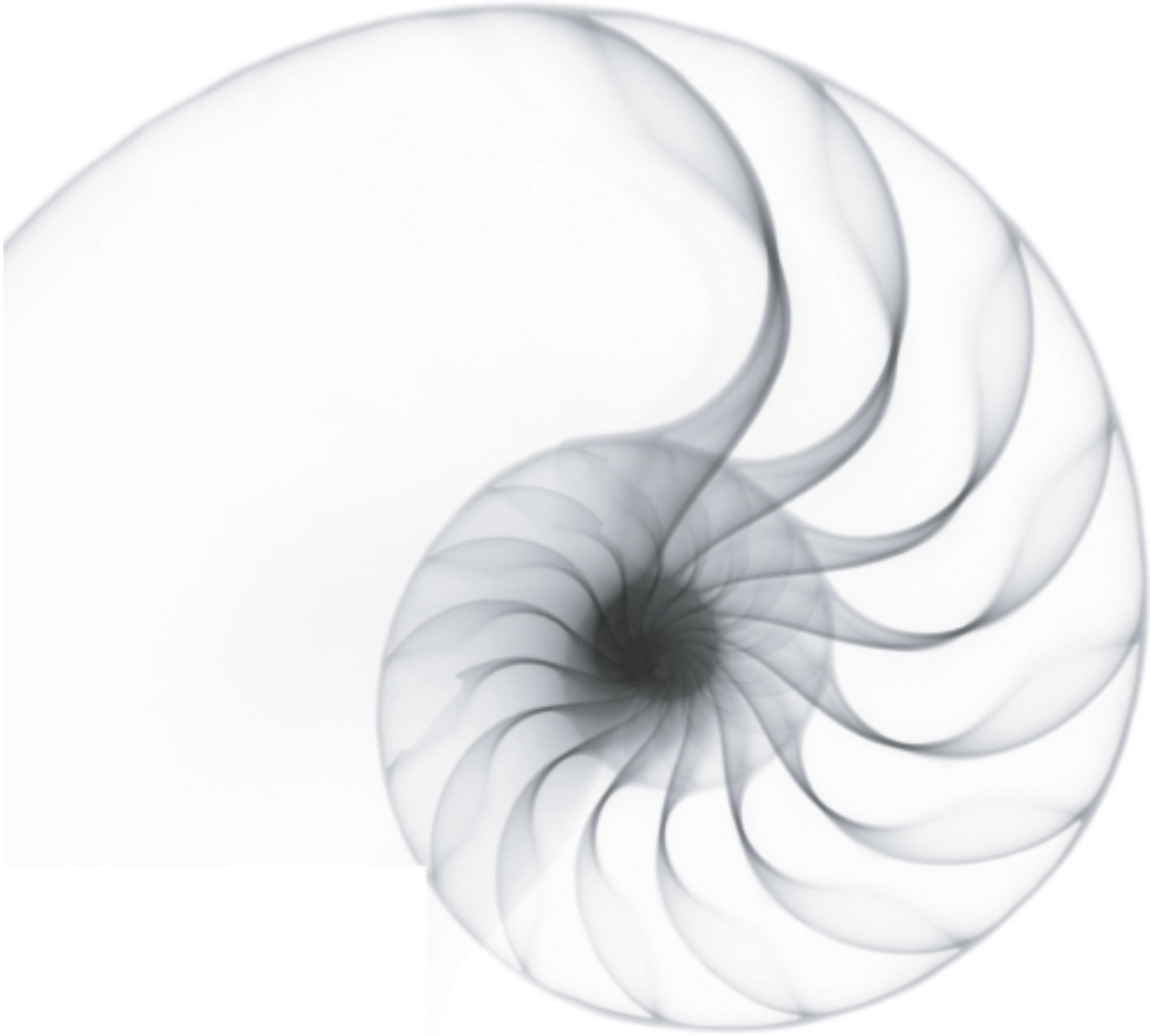
James Murray not only designed and developed the CueBic 4GL and operating system product, but also managed the business as it stretched from its early success in Australia in 1984 to huge marketing efforts in the U.S. In 1992, at the time Murray appeared on the cover of the magazine, CueBic Systems (known in the U.S. as Apscore International) was making the news throughout the industry, as he fought a legal battle with The Ultimate Corp over a lawsuit pertaining to exclusive marketing rights of the CueBic 4GL.

"At the time, I remember thinking that it was a real honor to be on the cover of our industry's most important magazine. Also, Neill and Bob turned out to be nice guys, which was a nice surprise." *–James Murray*

James Murray After the Cover:

Murray is still the CEO of Apscore International. However, over the last year he has founded a company called LivingMemory.com. After spending his time in raising capital for the venture and designing the software behind the site, Murray hopes for LivingMemory to go live early in the new year. (James is pictured here with his 10-month-old son, William.)

Continues on page 44



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

Service Oriented Business Applications:

Dissimilar Applications Working Together

My last article, "Legacy Applications Get New Life, With Service Oriented Architecture," introduced a new IT acronym, SOA (Service Oriented Architecture), as a way to make portions of your application available to business partners. This article discusses another acronym popularized by Gartner, SOBA — Service Oriented Business Applications. While at first this may appear to be nothing more than building Web-based applications using SOA standards, it is actually much more. SOBA is giving rise to another development standard, SODA — Service Oriented Development of Applications, which relies on SOA as well as building reusable components and developing and deploying in a distributed fashion.

Why bother if everything is working just fine in your current environment? If there is no need to take advantage of Web Services already in existence, remove barriers in doing business with your customers and suppliers, or attract the next crop of developers then you probably do not need to be concerned with SOBA. However, if this can benefit your organization today or in the next five years, you may want to consider moving in this direction. Let's take a look at these advantages individually.

You may already be familiar with Web Services or at least heard of them. There are thousands published that you can use. All you need to know is how to ask for information and what to do with the results. You do not need to know anything about the platform they run on. You do not need to know anything about their development environment. All you need to know is how to request information and what you want to do with it once you get it. To get an idea of publicly available Web Services (those that have been published on the Web for all to use) check the Web site www.xmethods.net. You will see such services as currency exchange, fax services, SEC filings from Edgar, worldwide white and yellow pages, country lookup of IP address, etc.

If there is no need to take advantage of Web Services already in existence, remove barriers in doing business with your customers and suppliers, or attract the next crop of developers, then you probably do not need to be concerned with SOBA.

Then there are the private Web Services. You must be invited to use these and they typically come from your customers and suppliers. A supplier may invite you to query the status of an order, track shipping status, submit an order, obtain technical support, etc. A customer may allow you to check their inventory to permit you to automatically create a replenishment order, obtain the phone number and email address of an employee, check corporate news, etc. So what would you like to invite your customers and suppliers to have access to from your computing system? Perhaps things like order inquiry, order entry or something that sets you apart from the competition.

In addition, you may find organizations offering add-on Web Services to enhance your product offering to your customers, giving you a competitive edge. These enhancements frequently require no change to your existing application. For example, you can send your financial statements to a service that will analyze them with respect to fraud indicators. Or a payables ledger can be analyzed to help determine areas of savings. Or billings can be reviewed to help view receivables/payments over time, giving you a different perspective on your business. Or internal productivity reports can be examined using analytical tools to expose hidden operational trends.

There is little question that computer students are being exposed to this technology. They will emerge from their programs knowing how to take advantage and implement Web Services, SOA, SOBA, XML, etc. New programming hires in your organization will be able to work with your existing development staff to properly integrate your legacy application to the world of Web Services and SOA, allowing you to offer SOBA to your suppliers and customers. **is**

LEE H. BURSTEIN, founder and president of Dynamic Systems Inc., has been a well known speaker, trainer and consultant for two decades. He is also co-founder and executive vice president of Guided Intelligence, LLC, offering SOA solutions for Forensic Financial Analysis and Operational Analysis as an ASP. For more information, visit www.dynamicsys.com.

BY LEE H. BURSTEIN, PRESIDENT
Dynamic Systems, Inc., Executive Vice President, Guided Intelligence, LLC.

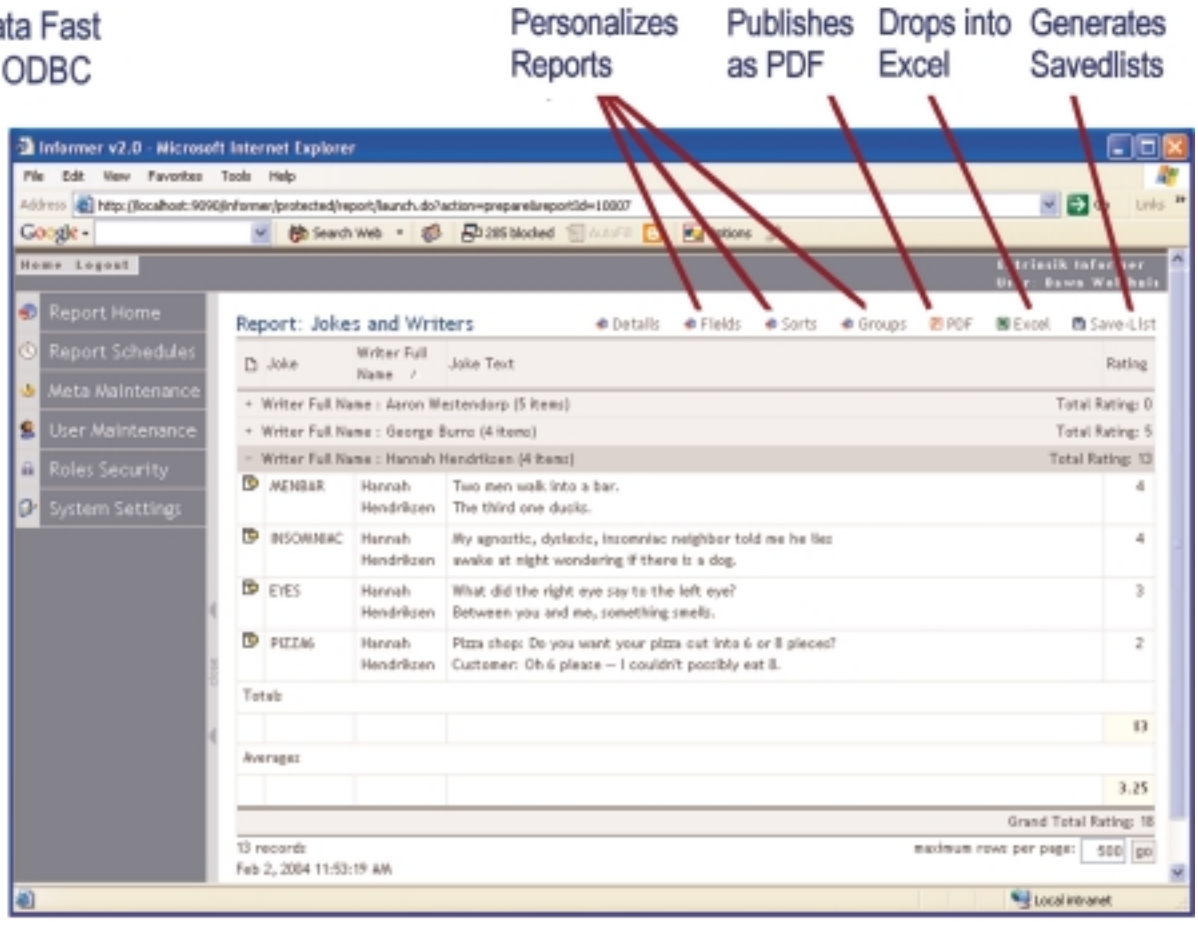
entrinsik

Informer

"Fantastic! Informer is exactly what I've been looking for - intuitive for business users with a technology platform to make IT (that's U2) happy!"

— Dawn Wolthuis, Industry Analyst
President, Tincat Group, Inc.

- Retrieves Data Fast
  No Need for ODBC
- E-mails Reports
- Schedules Reports
- Friendly Dictionaries
- Role-based Security
- Handles Multivalues
- Includes Data from Multiple Files with On-the-Fly Joins



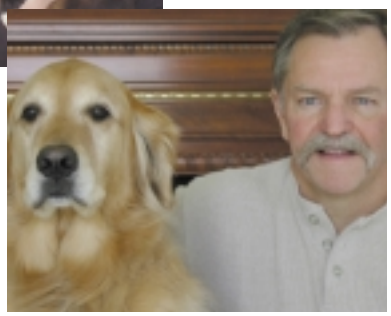
Web-based Reporting for UniVerse™ and UniData™

www.entrinsik.com | 1-888-703-0016 | sales@entrinsik.com

UniVerse Dynamically Hashed FILES

Tuning Parameters

BY JEFF FITZGERALD AND PEGGY LONG



In our last article we introduced the concepts and theory used in the design of dynamically hashed UniVerse and UniData database files. Although implemented quite differently, the objective of these structures, which are generally called "dynamic files," is to expand the size of the file as data are added in order to prevent the serious performance degradation that can occur when overflow is excessive.

This is the sixth article in our series describing database file theory, structure and maintenance considerations. In all of our articles we have emphasized the need to minimize overflow because of the huge impact it has on performance. With the advent of dynamic files in 1987 many Prime INFORMATION users believed that dynamic files would solve the overflow problem and completely eliminate the need to do regular file maintenance. We quoted one of the INFORMATION spokesmen as saying, "This is a performance release." His reference was to Release 7.0 of INFORMATION, which was the first release to support the dynamically hashed file structure. For database administrators who never performed file maintenance it truly was a "performance" release.

You could expect this to be the case with UniVerse and UniData dynamic files as well. In application, dynamic files have eliminated the fearfully long chains of overflow that could occur when "statically hashed" files were not resized when needed; but the concept that they are "maintenance free" is certainly a misconception held by many database administrators. When dynamic files were first introduced, we responded to those who touted the "maintenance free" litany with our question, "If dynamic files need no maintenance why are there so many tuning parameters?"

In this article we will discuss the tuning parameters for dynamically hashed UniVerse files. We will review the defaults and discuss the theoretical considerations to be considered when tuning dynamic files for better performance. Additionally we will describe the information provided by the ANALYZE.FILE utility as well as how and when to use the RESIZE and CONFIGURE.FILE utilities to change file parameters.

Let's take a look at each of the six UniVerse dynamic files parameters. We will save the discussion of UniData dynamic files for a later article in order to stay within our editor's suggested "file" size.

But, before we discuss the parameters we need to describe how a dynamic file is created. The UniVerse command CREATE.FILE will prompt for the file name if not provided on the command line. The next prompt is for TYPE. If the response is either the number "30" or the word "DYNAMIC," a dynamically hashed file will be created. This is a bit inconsistent with the use of the meaning of TYPE. For statically hashed files the response to this prompt selects the hashing algorithm, TYPES 2 through 18. However, if the number "1" or "19" is entered a directory structure is created instead of a hashed file.

The RESIZE command can also be used to convert a statically hashed file to a dynamically hashed file. The RESIZE command will accept either the number "30" or the word "DYNAMIC."

Six Dynamic File Tuning Parameters

MINIMUM.MODULUS — If we were creating a statically hashed file with CREATE.FILE we would be asked to enter the modulo, the number of groups. When creating a dynamic file the modulo will default to 1 unless the MINIMUM.MODULUS parameter is included on the command line.

From on-line HELP:

MINIMUM.MODULUS

Specifies the minimum modulo of the file. This keyword takes an integer argument greater than one. This value is also the initial value of the modulo of the dynamic file.

This parameter can have a significant impact on performance. But, we will save that discussion until we have described all six parameters.

Hashing Algorithms — There are two hashing algorithms that may be used with dynamic files. These algorithms are named GENERAL and SEQ.NUM for "sequential numeric." Static files reference the hashing algorithms as TYPE. The hashing algorithm can be specified when the file is created via the use of the words "GENERAL" or "SEQ.NUM" on the command line. If neither is specified, the file will default to the GENERAL hashing algorithm.

From on-line HELP:

GENERAL — Specifies that the general hashing algorithm should be used for the dynamic file. GENERAL is the default.

SEQ.NUM — Specifies that a hashing algorithm suitable for sequential numbers should be used for the dynamic file. You should use this hashing algorithm only for records with IDs that are mainly numeric, sequential, and consecutive.

CREATE.FILE and RESIZE allow you to specify the hashing algorithm for dynamic files.

GROUP.SIZE — According to the documentation, static files may have a SEPARATION, the size of the buffer in units of 512 bytes, between 1 and 8,388,608. Interesting. Creating a file with a separation of 8,388,608 would produce a 4 GIG buffer. We have never tried to do that! The default separation is 4, a 2,048 byte buffer for dynamic files. However, dynamic files don't use the term "SEPARATION." Instead the size of the buffer is called "group size." The parameter GROUP.SIZE allows the buffer size to be set to 2,048 or 4,096 bytes — a separation of either 4 or 8.

GROUP.SIZE 1 sets the buffer to 2,048 bytes and

GROUP.SIZE 2 sets the buffer to 4,096 bytes.

Are you wondering why a group size of "1" is 2,048 and a separation of 4 is 2,048? It might be just a little something to keep things interesting because file maintenance can be a bit on the "dry" side but we believe the real reason is that the design for UniVerse dynamic files is based on the Prime INFORMATION model. There was no such parameter as SEPARATION in INFORMATION static files. All static files used a buffer of 2,048 bytes. When dynamic files were introduced, the option of using a larger buffer was added but only for dynamic files. In those days the disk drives were formatted into "tracks" much like the "tracks" on an LP record (remember those?). Each track was subdivided into 9 "records" which could hold 2,048 bytes each. The "normal" size of a buffer was one physical disk record, therefore a group size of 2 would mean two physical disk records.

GROUP.SIZE may be specified with the CREATE.FILE and RESIZE utilities. It is NOT available via the CONFIGURE.FILE utility. The on-line HELP for GROUP.SIZE is wrong.

When we create or resize a static file, the parameters to set the hashing algorithm, modulo (number of groups) and separation (number of bytes in each buffer) are specified. When creating a dynamic file, the hashing algorithm is specified by the use of either GENERAL or SEQ.NUM. The buffer size is specified by GROUP.SIZE {1|2} and the modulo is set via the MINIMUM.MODULUS keyword. When these keywords are not used, the file defaults to GENERAL, GROUP.SIZE 1 and a modulo of 1 (one group).

Reminder: Dynamic files are implemented as directories containing two files, one is the primary data file, called DATA.30, and the other is the overflow file, called OVER.30.

LARGE.RECORD — The use of the term "large record" in the UniVerse database file context means the data record is larger than the buffer defined by the sepa-

Continues on page 28

HASHED FILES *Continued from page 27*

ration. For example, if the separation is 4, the buffer is 2,048 bytes in size. If a data record is greater than 2048 bytes it is called a "large record." It is also stored differently than smaller records. Imagine a record that is 3,100 bytes long. In a static file, UniVerse would chop off the last 2,048 bytes and place that "chunk" in the overflow area of the file. The first chunk of the record, the smaller fragment would be written into the primary buffer with the offset to where the buffer size chunk is located. In effect, this gets the "lumps" out of the primary buffer.

With dynamic files, the user may specify the number of bytes in what is to be considered a "large record." But with dynamic files, only the record ID and the offset are written into the primary file. There is no fragment of data in the primary data file, DATA.30. The entire data record is written into the OVER.30 file.

The default for LARGE.RECORD is 80% of the buffer size, which is 1,628 bytes for a group size of 2,048 bytes (80% of 2,035 bytes, allowing 13 bytes for overhead). LARGE.RECORD may be set using CREATE.FILE, RESIZE and CONFIGURE.FILE. It may be set as a number of bytes or as a percentage. For example:

LARGE.RECORD 1600 would set the large record size at 1600 bytes and

LARGE.RECORD 80% would set the large record size to 1628 bytes.

SPLIT.LOAD — The ratio of the number of bytes stored in a file to the capacity of the file is called the "load." For example, imagine a file with one group and the size of that group is 2,048 bytes. Let's use 2,000 bytes for this discussion. If we place 1000 bytes in the group we could say the group is 50% full or we could say the load is 50%.

With each addition and deletion to/from a file, UniVerse calculates the load. A parameter called SPLIT.LOAD defines at what point the file should split. The default SPLIT.LOAD is 80%. In our example, 80% of 2000 is 1600. When the byte count in our file is greater than 1600 the group will split and a second group will be created. In theory, half of the data records will be moved to the new group. The modulo is now 2. The capacity of the file has doubled, let's call it 4000 bytes (ignore the additional 96 bytes, they are not all usable). The number of bytes in the file needs to exceed 3200 to cause a group to split and create another group yielding a modulo 3 file. The load is calculated on the entire file, not on an individual group. It is common for a dynamic file to have groups in overflow and the load be less than the split factor.

To set or change SPLIT.LOAD, use CREATE.FILE, CONFIGURE.FILE or RESIZE.

MERGE.LOAD — There is another parameter called MERGE.LOAD which causes the file to decrease in physical size when data are deleted. The default is 50%. Again, the load is calculated on the entire file, not the individual groups. In our example let's imagine that most of the data are purged from our modulo 3 file which has the capacity of holding 6000 bytes. If there are 2400 bytes of data in the file the load will be 40%. This is less than the default MERGE.LOAD factor. In theory the last group in the file will merge with the first, meaning data in group 3 will move to group one and the third group will be deleted.

To set or change MERGE.LOAD, use CREATE.FILE, CONFIGURE.FILE or RESIZE.

Changing Parameters

Through changing some of the UniVerse dynamic file parameters you can potentially reduce overflow, conserve disk space and reduce system overhead, which will result in faster system performance. That sounds good. So how do you get started?

We start by looking for opportunities where setting MINIMUM.MODULUS might be used to reduce unnecessary splitting and merging. Such processes where new dynamic files are created and populated or transaction files are populated and cleared are good cases to consider. The amount of time saved by pre-allocating the file can be huge.

ANALYZE FILE EXAMPLE

```
ANALYZE.FILE EXAMPLE1 STATS

File name . . . . . EXAMPLE1
Pathname . . . . . EXAMPLE1
File type. . . . . DYNAMIC
Hashing Algorithm . . . . . GENERAL
No. of groups (modulus) . . . . 18 current ( minimum 1, 0 empty,
                                             5 overflowed, 1 badly )
Number of records . . . . . 774
Large record size . . . . . 1628 bytes
Number of large records . . . . 1
Group size . . . . . 2048 bytes
Load factors . . . . . 80% (split), 50% (merge) and 79% (actual)
Total size . . . . . 55296 bytes
Total size of record data . . . . 29948 bytes
Total size of record IDs . . . . . 5600 bytes
Unused space . . . . . 15652 bytes
Total space for records . . . . . 51200 bytes

                    Number per group ( total of 18 groups )
                    Average     Minimum     Maximum      StdDev
Group buffers. . . . . 1.39           1           4        0.76
Record . . . . . 43.00          18          62       12.56
Large records. . . . . 0.06           1           1        0.23
Data bytes . . . . . 1663.78        459        7580     1495.27
Record ID bytes . . . . 311.11      129         442       88.69
Unused bytes . . . . . 869.56       168        2000      654.56
Total bytes . . . . . 2844.44      2048        8192        0.00


                    Number per record ( total of 774 records )
                    Average     Minimum     Maximum      StdDev
Data bytes . . . . . 38.69           19        6155      221.27
Record ID bytes . . . . . 7.24        1          25        3.82
Total bytes. . . . . 45.93           20        6180      221.93
```

In a small experiment to quantify the "cost" of splitting we created a dynamic file using all of the defaults — a modulo of 1. We wrote a BASIC program which wrote 50,000 records of 500 bytes each into the file. The total elapsed time was 883.46 seconds. The file split to a modulo of 15,671. We were the only user on an HP UNIX computer.

Next we deleted the file and recreated it using the MINIMUM.MODULUS keyword and set it to 15,671 which pre-allocated the required disk space. We ran the same program again and it completed in 367.15 seconds. The pre-allocated file was populated in 40% of the time it had taken to populate the file where splitting was required. This is more than 2.4 times faster and the only difference was the use of the MINIMUM.MODULUS parameter.

For a transaction file that is purged and repopulated frequently, setting the minimum modulus so that the file does not contract to a modulus of 1 and then expand again may improve performance. The selection of a minimum modulus could be based upon an average file size for the life cycle of that particular file.

The second opportunity that can substantially reduce overflow in a dynamic file is changing the hashing algorithm. But, this is not a simple process given only the tools supplied by UniVerse. Of course we use our file maintenance utility, FAST c/s, to do this; but here is a technique you can use to determine if testing the other hashing algorithm is worth the effort.

Which files are updated and/or read continuously by the majority of the users? If you could improve performance for one or two processes, which processes would you select and what files are used by those processes? Once you have a prioritized list of target files, use the UniVerse command: ANALYZE.FILE filename STATS LPTR to produce a statistical report and send it to the printer. In our example of the file called EXAMPLE1, notice the line in the first section of the report labeled "No. of groups (modulus)." Our file has "0 empty, 5 overflowed, 1 badly." The 0 (zero) empty is a good sign. This means that all of the 18 groups contain at least one data record. The 5 overflowed means there are 5 out of 18 groups that have one overflow buffer each attached. The "1 badly" is a badly worded and misleading choice of words. When there is a group that has more than one buffer of overflow attached, ANALYZE.FILE will use "badly" to describe it. In this file the largest group is 7580 bytes which means there are at least 3 buffers of overflow attached to one of the groups. That would seem to indicate that at least for the one group, performance would be poor. But, notice the last section of the report called "Number per records." This is supposed to list the average, maximum and minimum sizes. Notice the Maximum column reports Data bytes for one record as being 6155. This report says that the LARGE.RECORD size is 1628 bytes, the default. It also says that there is one "large record." So, we can assume that there is a 6155 byte record in the file.

Continues on page 30

We investigated using a UniVerse query:

```
LIST EXAMPLE1 BY.DSND SIZE TOTAL SIZE;

LIST EXAMPLE1 BY.DSND SIZE TOTAL SIZE 02:05:42pm 08 Dec
2004 EXAMPLE1..  Length...

TEST.LIST          4,807
SQL.KEYWORD        361

...
              =========
               17,387 TOTAL
```

We agree that there is ONE record greater than 1628 bytes but we do NOT agree that it is 6155 bytes. UniVerse appears to be counting the unused space in the large records overflow buffers as "data." Notice that the second largest record is only 361 bytes.

SIZE is an I-descriptor that uses the LEN function on @RECORD. This is very handy when looking for large data records.

Our mission is to determine if the SEQ.NUM hashing algorithm will produce better results. If we create another file using the SEQ.NUM parameter and copy all of the copy into it, we can then use ANALYZE.FILE and compare the statistics. We will look at the "overflowed" number to determine which has the smallest number of "overflowed" groups as well as the number of "badly" groups. Next we will look at the statistics for "Data bytes" per group. We want to use the hashing algorithm that produces the statistics where the average, minimum and maximum are closest. In the idea file these three numbers would be equal, meaning that each group contains an equal number of bytes.

But we still have not answered the question as to whether testing the alternate hashing algorithm is worth the effort. Our technique is to calculate the % standard deviation, which simply divides the standard deviation by the average. But, because we must distribute records and hope the byte count per records is homogeneous we will use the "Number of records" per group data for our calculation of %SD. To calculate %SD, use the StdDev number (221.27) as the denominator and the Average (38.69) as the numerator. 38.69/221.27 = .17 x 100 = 17%, the %SD.

Given the statistics for the file with the alternate hashing algorithm we would calculate the %SD of data records per group. The file with the smallest %SD would be the winner, which would mean that there was less variance of number of data records per group, more even distribution, and the hashing algorithm that produced the smallest variance would be the preferred hashing algorithm.

For the SPLIT.LOAD, MERGE.LOAD and GROUP.SIZE parameters there is no meaningful statistical analysis we can perform to give us an indication that we should make a change. However, there is substantial theory suggesting when making changes is appropriate.

The SPLIT.LOAD parameter defaults to 80%. This value works to maintain the physical size of the file to be less than 80% full. In a number of experiments (by the authors) it was noted that as the SPLIT factor was increased, throughput time increased and as this factor was decreased, throughput time decreased. This behavior is explained when viewed as a function of overflow. As the SPLIT factor increased, overflow increased. As the SPLIT factor decreased, overflow decreased.

These results were readily accommodated in the theoretical model. When the SPLIT factor is low, more space is available in each group, therefore the probability of overflow is decreased. The reverse is also true. When the SPLIT factor is high, less space is available in each group for additional data and the probability of overflow would increase.

It is tempting to lower the SPLIT factor until throughput time for a particular task could be minimized. There are, however, two other interactions that must be considered. The first is the physical size of the file. As the SPLIT factor is lowered, the groups in the file become more sparsely populated because the number of groups has increased. The file will occupy more physical disk space. Second, as the file is spread over more and more disk space, more I/O will be necessary to read the additional physical space and the amount of data accessed with each "read" will be smaller. The effect of the increased I/O due to the increased use of physical space was observed during experimentation when the SPLIT factor was set extremely low.

In choosing the SPLIT factor, a compromise must be made between oversizing the file and increasing I/O and the cost of overflow. If performance is critical for a certain file and changing the SPLIT factor can improve performance for a given process, then the change is recommended. However, a larger physical file is slower for processes which SELECT, LIST, and SORT the file. For interactive, random access, reducing overflow tends to improve performance.

The MERGE.LOAD parameter defaults to 50%. If the SPLIT.LOAD is changed, you should probably consider changing the MERGE factor also, keeping them separated by 20 to 30 percentage points. Setting the SPLIT and MERGE factors high will tend to increase overflow but will conserve disk space. A low setting will avoid overflow but at the expense of large physical files with sparsely populated groups. Setting SPLIT and MERGE too close together creates excess overhead where there is little opportunity to realize any performance gains via the splitting and merging operations.

The parameter GROUP.SIZE may be set to 1, a 2048 byte buffer or 2, a 4096 byte buffer. When most of the data records in a file are close to or greater than 1600 bytes, using the larger buffer could possibly improve performance. Increasing the buffer size to match the physical I/O system is regularly suggested but we have no empirical evidence that this improves performance. Once the buffer is available in memory, UniVerse searches sequentially within the buffer for the specified data record. If the buffer is larger, then more search time will be needed, assuming the buffer is close to 80% full.

Remember from our example that the average data record size was substantially skewed because of the existence of one very large record. This is a good example of when NOT to use average record size to decide if the GROUP.SIZE parameter should be changed. If you were to only look at that one statistic you might increase the group size when there is no good theoretical reason to do so. GROUP.SIZE cannot be changed with CONFIGURE.FILE.

When dynamic files were first introduced we were intrigued by the idea that we might be able to set LARGE.RECORD small enough so that ALL of the data records would be written into the OVER.30 file. Our reasoning was that only the IDs and the offsets would be written into the DATA.30 file which could remain very small and we would have created a database where the location of all record data was indexed — the offset would specify the disk location and we would have a "direct access" file. We thought this would be a great way to improve performance. We tested this theory and it was VERY wrong. Performance was much slower. Most likely this was caused by the excessive overhead because it insured that every "lookup" would have to read two buffers, the primary file buffer and the overflow file buffer.

CONCLUSIONS — The best performance is achieved through reducing unnecessary overhead such as disk I/O and CPU usage. Performing desired tasks in the most efficient way produces the best results. Dynamic files provide a number of parameters through which these objectives may be pursued.

Reducing overflow improves performance because unnecessary disk I/O is eliminated. Through "tuning" the SPLIT.LOAD and MERGE.LOAD parameters, experimenting with both hashing algorithms, and setting LARGE.RECORD optimally, overflow can be minimized. But, care should be taken when changing these parameters to not cause the physical size of the database to be excessive.

Reducing unnecessary overhead will reduce CPU usage. Setting MINIMUM. MODULUS appropriately will eliminate the overhead of splitting and merging that may occur with transaction and work files which are purged and repopulated during some update processes. Enlarging GROUP.SIZE could reduce overhead necessary to look up the location of large records.

Dynamic files are more complicated and more accommodating than statically hashed files. Through the use of the parameters the database administrator has more control over the behavior of the file than with static files. Dynamic files do not accumulate excessive amounts of overflow when neglected. However, the splitting and merging of dynamic files insures that there is more overhead associated with their use. **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.

new products

MITI Announces Release of MITS Version 5.3, Showcasing the New MitsWeb Dashboard

Reynolds and Reynolds Incorporates MitsWeb Dashboard Technology

Management Information Tools Inc. (MITI), developer of MITS, the leading online analytical processing/business intelligence (OLAP/BI) software for the MultiValue database market, has announced the highly anticipated new release of its MITS Business Intelligence Suite. MITS Version 5.3 will be officially released in January 2005, and will incorporate the new MitsWeb Dashboard option, along with enhanced functionality, stability and security.

MITS is a powerful business intelligence solution that offers advanced dynamic and interactive data reporting. Utilizing MITI's own Hypercube technology, MITS takes information in a company's computer system and makes it quickly and easily accessible to decision-makers. Now MITI has taken the technology a step further with MitsWeb Dashboard.

MitsWeb Dashboard enables users to have information at their fingertips as they've never had before. It allows the user to assemble a Dashboard made from MitsWeb Dashboard "objects" showing "key metrics" about their organization. Residing on a small amount of space on the computer screen, MitsWeb Dashboard can be set up to periodically poll for fresh information that continuously informs the user rather than requiring them to run a report or take valuable time researching issues. Information may be displayed with an unprecedented degree of immediacy.

"The MitsWeb Dashboard enhancement brings MITS to a whole new level of functionality," said Pat Gilbrough, president of MITI. "The ability to make users aware of key metrics in their specific area of responsibility greatly empowers them to be on top of activity in their organization. Productivity will increase as employees are made aware of key activity."

For example, the MitsWeb Dashboard may be used to show how many transactions are being entered today versus the same date and time last year; dollar volume totals; trends; differences; counts; ratios, among many other variations. These metrics may be presented in charts, as a single number, as a grid of numbers and factors, or even as images. MitsWeb Dashboards support building fully customized dashboard objects through the use of a highly flexible report processing engine. These custom objects have full access to MITS report data and can use custom logic to show highly condensed sets of information, such as color indicators to highlight key metrics (e.g., if lower than a 10% profit margin, show a red dot). All dashboard objects can be links to the underlying MITS Flash Screens and/or MITS Detail Displays. When linked to a MITS Flash Screen, the user may then perform OLAP analysis with the standard interactive reporting functionality provided with MITS.

The MitsWeb Dashboard may be used to show how many transactions are being entered today versus the same date and time last year; dollar volume totals; trends; differences; counts; ratios, among many other variations.

As a proven solution, the MitsWeb Dashboard has been incorporated into The Reynolds and Reynolds Company's (NYSE:REY) new ERA® XT Advanced Reporting software application. This new application is being included in new and upgraded ERA XT dealer management systems. More than 10,000 automotive retailers use the Reynolds ERA system to run their dealerships. Reynolds has begun its roll out of the ERA XT Advanced Reporting application, which includes MitsWeb Dashboard.

"With the MitsWeb Dashboard, Reynolds ERA XT Advanced Reporting offers valuable insight into our dealers' business performance, giving them dynamic reporting capabilities that provide a near-real time view of critical metrics," said Ron Lamb, senior marketing director, Platforms and Services for Reynolds and Reynolds. "The dashboard technology saves dealerships time with its easy click and point interface while delivering access to business critical information at their fingertips."

"In its first implementation, MitsWeb Dashboard was incorporated into the Reynolds ERA XT Advanced Reporting application, and it has been a resounding success," said Fred Owen, MITI's vice president and general manager. "MitsWeb Dashboard is groundbreaking technology that adds even more capabilities to the MITS tool set, transforming how information is presented to the user and making it even easier to take advantage of company data. The fact that Reynolds is utilizing MITS and MitsWeb Dashboard in its ERA XT software really underscores the benefits of this technology."

MitsWeb Dashboard is available as an optional addition to MitsWeb. MITS Version 5.3 also includes the following user-friendly features:

- Evaluation Hypercubes no longer have to be regenerated when MitsServer is activated
- String Search added to Identifier Lookup Feature in Select Exploration
- Complete enhancement of all HTML forms to support standard Cascade Style Sheets for User Interface Modifications
- Added Firefox Browser Compatibility
- Enhanced MitsWeb Session Security and Support for XP Service Pack 2 (XP2)
- MITS Implementer / Reseller may now select Features of MitsAdmin to be available to users
- Enhanced Column Maintenance and Column Set Maintenance
- Enhanced Column Functions created on the fly
- Flash Screen Libraries may be flagged as read-only, allowing resellers to distribute and control standard flash screen reports with their OLAP offering.

For more details about MITS Version 5.3 and the new MitsWeb Dashboard, contact a MITS Authorized Reseller or visit www.mitsonline.com.

newsmakers

GA Services Reorganizes Sales Force to Insure Continued Growth in 2005

Company Promotes Long-time Industry Veteran Sherwood King to Director of Sales and Adds John Curl as Director of Multivendor Services

GA Services, LLC (www.gasllc.com), a premier services and support provider in the open systems marketplace, has reorganized its sales and marketing organization to insure continued growth over the next several years. Sherwood King, a 30-year industry veteran with a background in sales, marketing and sales management, was promoted to Director of Sales. The existing sales force will now report to King, who will continue to focus on company growth in traditional open system markets. In addition, John Curl has joined the company as Director of Multivendor Services. He has over 30 years experience in the services industry in various sales and executive positions. In his new role, Curl will focus on new business development and general service sales in addition to multivendor services.

Both sales directors will report directly to George Harris, president and CEO of GA Services. "We are very excited about these changes, and we feel that this will allow us to focus on new business without impacting our growth in our traditional marketplaces," Harris said. "This will enable GA Services to quickly address the company's new services initiatives and its quest to become a powerhouse in the expanding multivendor services industry."

To support the anticipated new business growth, Donna Glasgow, Manager of Sales Administration, has increased her staff so that GA Services will continue to provide the excellent level of customer service its existing customers currently enjoy. GA Services has also moved into its new headquarters in Irvine, nearly doubling its warehouse, depot and dispatch areas.

About GA Services

GA Services, LLC offers seamless product and service solutions to manage all aspects of information technology. From professional IT consulting and design, to integration and implementation, to services

management, GA Services offers cost-effective solutions that combine many years of experience with proven abilities in critical areas such as client, network, server and storage technology. GA Services is headquartered in Irvine, Calif., with sales and support throughout the United States. For more information, visit www.GASLLC.com or call (949) 752-6515.

Management Information Tools Dissolves MITS Reseller Agreement With IBM

MITI Brings All Activities Related to Management Information Tool Software (MITS) In-House and Expands Services

Management Information Tools Inc. (MITI) announced that it has terminated its agreement with IBM Corp. that allowed IBM to resell the MITS online analytical processing/business intelligence (OLAP/BI) software products. The agreement was in effect for nearly four years. MITI plans to consolidate all MITS-related activities in-house, enabling it to provide the best service to its resellers and customers in the future.

Pat Gilbrough, president of MITI, said that although MITI values its close working relationship with IBM, the company has made a strategic decision in anticipation of the expansion of its services. "We appreciate all the time and effort that we have spent with IBM U2 personnel," Gilbrough stated. "As our MITS product greatly extends the value companies have in their UniVerse- or UniData-based systems, we expect that our relationship with IBM U2 will continue in an informal and jointly beneficial way."

Since MITI was already handling most of the service functions related to MITS, customers will see few changes as a result of the end of the IBM agreement. MITI will be continuing MITS-related activities as they are now and expanding its services. Those services include:

MITS Worldwide Support
MITI has handled MITS support in North America since 2002. Australia MITS Support is now established to focus on support in Australia and New Zealand.

MITS Engineering
Continual enhancement and development on all MITS software components.

MITS Product Activation
MITS Product Activation and Fulfillment will continue to be performed by MITI.

MITS Training
MITI's training program will continue and be expanded, with regularly scheduled quarterly classes in the U.S. as well as additional classes now being held internationally.

MITS Marketing
MITI handles all marketing and press-related issues in regard to MITS.

MITS VAR Integration Services
MITI Professional Services continues to grow and has been actively creating MITS Hypercubes for resale by VARs.

MITS Application Support for VARs
A very successful program in which MITI helps sell, install and support MITS systems for VAR customers, MITS Application Support for VARs will continue and be expanded.

MITS VAR Interaction
MITI will continue a close working relationship with its VARs.

MITS On-Line Product Ordering for VARs
The new MITS Partner On-Line Order System is now in place to expedite MITS VAR Order Processing.

With many businesses looking for a competitive edge that will enable them to effectively analyze and use company data, business intelligence tools such as MITS, which offers advanced dynamic and interactive data reporting, are becoming more in demand. MITS, utilizing MITI's unique Hypercube technology, is a powerful OLAP solution that takes information in a company's system and makes it quickly and easily accessible to decision-makers. "The business activity revolving around the MITS product has continued to grow from year to year with 2004 being the most successful yet," Gilbrough said. "We are proud to report that we have many very successful MITS resellers throughout the world. These resellers have greatly benefited by offering the MITS product either in addition to, or in conjunction with, their existing products. As MITI moves forward, our focus will be to show how other IBM U2 / MultiValue VARs can profit by their involvement with the MITS product."

About Management Information Tools, Inc.
Based in Seattle, Wash., Management Information Tools Inc. (www.mitsonline.com) is the developer of the MITS Online Analytical Processing/Business Intelligence system that incorporates technology allowing the creation of OLAP Hypercubes and a data warehousing environment on a company's existing host computer. MITS systems are firmly entrenched in a wide range of industries: distribution, manufacturing, vehicle dealership, healthcare and services, to name a few. MITS is available on many MultiValue databases, including UniData, UniVerse, D3, jBASE, and mvENTERPRISE, and may be ported to other MultiValue databases in the future. ■

OpenInsight for Linux

An Overview

Revelation Software recently released a Linux version of its flagship product, OpenInsight. In this article we take a look at that offering. The look, feel, and capabilities of the product are virtually identical to the Windows version. This article focuses on why the product will be useful to you.

Why Linux?

Three things motivated Revelation to implement a Linux version of its software: location, location, location.

Look at our location in the business world — small to medium-sized businesses, where equipment is retained for years, where stability and reliability are prized, where high software cost is intolerable. Look at the types of applications we typically support — back office, point of sale, or factory floor. These are applications that are not tightly bound to Microsoft Office; these are the applications with the most pressure and least risk for migration off the Microsoft desktop.

Look at our location in the spectrum (pun intended) of developers: mainstream products have taken a factory approach, dividing tasks into smaller, more specialized pieces. This leads to large teams of people with small sets of skills. These factory teams are cost effective where labor is cheap and flexibility is not important. These factory team jobs are now heading to India and China. Revelation targets craft developers, small teams of smart people. Small teams respond quickly when they are needed and cost nothing when they are done; in essence they are the just-in-time suppliers of the software industry. Revelation and the other MultiValue products offer a cost and performance mix that matches the needs of the craft developer. Linux offers an environment and a philosophy that is compatible with the craft programmer. Linux is a natural location for today's Revelation developer.

Look at the location of the new developers in application development. They are looking at Linux, often from outside the U.S. They glaze over when they see anything else. As early adopters of the PC, when “real” work was done on big iron, many PC developers received condescend-

BY MIKE RUANE, REVELATION SOFTWARE

ing comments from establishment workers. Look at the PC platform now. The Linux world is where the early adopters in application development gather today. Linux is a natural location to find tomorrow's Revelation developer.

In short, the Linux world is a place of great opportunity for us.

What's the Big Deal?

So we concluded that Linux offers opportunity. This is not new news. MultiValue products have been on Unix and now Linux for some time. The big deal is that the desktop environment is growing usable. "Linux runs the Web" has been the rallying cry for the Linux community for some time. The flip side of that coin is that people have been using Web browsers from their Windows desktop because moving to a Linux desktop was too painful. The big deal is that the Linux desktops are almost there. A Microsoft Office power user will not be satisfied, but the desktop is good enough for most people. Windows will remain good enough, too. Apple has transformed itself to be a cool skin atop Linux. Desktops are becoming commodity software. There will be no compelling reason for users to switch or to stay on any particular platform except for the drag imposed by their legacy software. As a software vendor we want to be comfortable in either place. Revelation has long been geared toward the PC desktop user. We predict a long period of transition as our customers evolve to this commodity desktop environment. Thus, our Linux implementation is designed to enable customers to deploy in a pure Windows, pure Linux, or mixed environment.

How Does It Work?

Java has made the "Write once, run anywhere" promise for years. The trick is to compile your code to platform neutral bytecodes, then write platform specific virtual machines to execute the bytecode. Revelation has always been an interpreted environment. Thus, moving to Linux meant writing a Linux version of our interpreters. For the non-visual components, reading records, running programs, executing queries, etc., this is straightforward. The hard part is the last bit, the GUI running on the desktop. We turned to Mainsoft Corporation, which sells Visual MainWin, a set of libraries to map Windows API calls onto Unix system calls. These libraries let us use one code base for both Windows and Linux, and we run more or less "native" on each. The non-visual pieces seem faster on Linux, while the GUI rendering seems slightly slower on Linux than on Windows. This is partly a reflection of the fact that the Windows GUI is tightly bound to the kernel, while the Linux GUI is managed by an X server. Because we are using the same code base for both versions, OI for Linux is largely running code that has been tested and debugged since the first OpenInsight release was issued over ten years ago. Because we are using Visual MainWin's libraries, the code that would have been new for Revelation is instead running within a mature set of components. The bottom line is that OpenInsight for Linux works well because it sits atop mostly mature code.

So Why Not Go Straight to Java or .Net?

If you need to implement in those technologies, go ahead. OpenInsight will support you. We provide JOI, Java for OpenInsight, which builds MultiValue friendly, ultra-thin-client Java Forms. Alternatively, it is easy enough to implement Web Services via our CGI interface. Web Services consume XML, a delimited data format that is almost a cousin to the MultiValue data storage model. If you can do Web Services, then you can do .Net.

However, reaching out to these technologies moves you away from the ultra simple, ultra low-cost implementations, which are the hallmarks of MultiValue databases.

OpenInsight for Linux offers a MultiValue friendly way to rapidly deliver a modern look and feel for your application, without preventing the use of other methods. You can cost effectively use OpenInsight to prototype in our multi-value friendly GUI

Continues on page 36

Continued from page 35

before committing to an expensive project in a different technology. Revelation's goal is to make every step a productive step in the right direction, even if it is not the final step.

What Does It Look Like?

It looks a lot like OpenInsight for Windows. The following screenshots were taken from a Red Hat Fedora KDE Desktop:

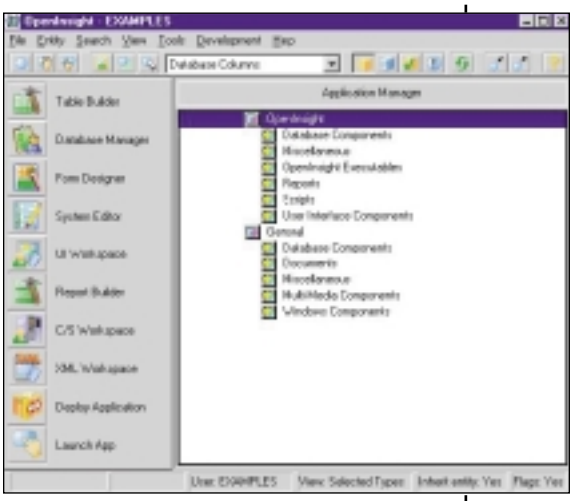
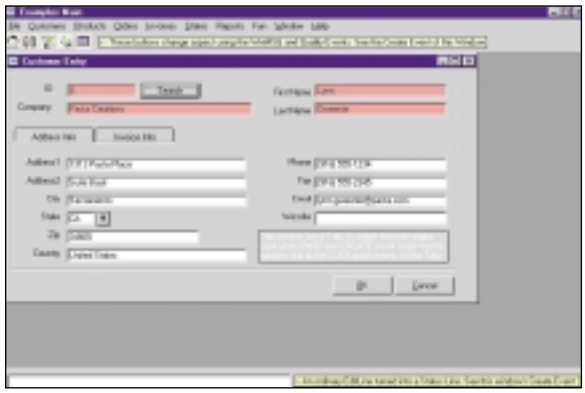


FIGURE 1 - The Application Manager

FIGURE 2 - A Screen in the OpenInsight Examples Application



If you have seen OpenInsight for Windows, you know that these windows look the same in the Windows version. To a Linux purist, the Windows look and feel is incorrect.

If you need to satisfy that person, it is possible to adjust the look and feel of the OpenInsight Windows. However, in the world of the commodity desktop, the Windows look and feel is completely acceptable. See the Linspire version of Linux for a good example.

Conclusion

From the PC to the various Windows desktops, and now to the Linux desktop, Revelation Software has evolved to satisfy the desktop user. OIL is the latest refinement of the product, reflecting our belief that the Linux desktop is maturing. OIL is implemented in a manner that supports a gradual transition of desktops from Windows to Linux. Equally important is the fact that Revelation, like all MultiValue products, embeds the small team, low-cost philosophy that is at the heart of Linux.

Some of us will be pulled toward Linux by the opportunities, some of us will be pushed there by customer requirements, and some will commute between Windows and Linux for a long time. OpenInsight for Linux and/or Windows, builds on the strength of MultiValued architecture and years of GUI experience to let you move your application where you want, when you want, without losing that low-cost footprint that you need to survive. **is**

This article will deal with the SB+ tools, file creation and deletion.

When most files are created they are divided into two separate sections, a data section and a dictionary section.

The information which defines the data characteristics is contained in the dictionary section and the raw data, such as phone number and zip code, is stored in the data section.

File Creation

To create a file in SB+ you need to go to "Tools > File Create/Delete >". Create a new file and you will get the file creation screen (Fig 1).

```
Create a New File
File Name                 Dan
Description               Dan's Master file
Number Of Fields             10
Number Of Records           100
Ave Length Of Record        100
Use Global Dictionary No
```

`FILE NAME` - Enter a unique name for the file. You should make the name meaningful and short as it will be referred to frequently. The name should relate to the data which will be stored in the file. The maximum recommended length for a file name is 20 characters. Do not use a name which contains spaces or the special characters +-/*:<>=\^ or a name which exists in the Master dictionary.

`DESCRIPTION` - Enter a meaningful description as this will be used in documentation which SB+ can generate. It is recommended that the maximum length be 25 characters.

`NUMBER OF FIELDS` - The number of fields for the file should be entered here. This number doesn't have to be exact, but you should try to be reasonably close when you enter this. If you are only creating the Data part of the file, enter 0.

`NUMBER OF RECORDS` - You should enter the approximate number of data records which the file will hold. If this will be a dictionary only file, enter 0.

`AVERAGE LENGTH OF RECORD` - You can calculate this figure by adding together the average number of characters for each field defined for the file. This needs to be an approximate figure as the file may be resized later, if necessary.

`USE GLOBAL DICTIONARY` - Enter Y if the dictionary definitions for this file are to be maintained via the Global Dictionary, a central repository of definitions. If you enter M, the dictionary for this file will be maintained as a mix of Global and Local Dictionary definition items. You should be aware that dictionary definitions created for this

Continues on page 38

file within the Global Dictionary may not be maintained from the Local Dictionary and vice-versa. Enter N if this file is to be a local file.

When you develop a new application, this is usually the first tool which you will use. Files are the heart of your system, so you should put a lot of thought into their design. A file must be created before you can use some of the other SB+ tools to develop it.

File design determines if you will have an elegant system — a system which performs well, can be easily maintained and performs well technically or an inefficient, inelegant system.

Decisions made during file design will have a direct bearing on the efficiency and flexibility of the system you are creating.

At any input prompt you may type /FC to enter the File Creation process.

File Deletion

When you need to delete a file you created in SB+ go to Tools > File Create/Delete > Delete File for the file deletion screen (Fig. 2).

`FILE NAME` - Enter the name of the file to be deleted. *Use care with this option.* Using this option will result in the loss of data. It is best to be careful now, instead of having to recover the deleted data from a backup. Do not delete a file, unless you are sure of the links between the file and possible screens, reports, menus and other SB+ processes.

`DESCRIPTION` - The description you entered when you created this file will display here for your information and may be used to help you further identify the file you are about to delete.

When you delete a file, you will be given the opportunity to delete all the processes that use this file. As a general rule you should delete these processes as they will no longer be needed, but make sure that you fully understand what you are doing before you delete the processes. If you aren't sure, err on the side of caution and don't delete the processes.

You may enter /FD at any input prompt to enter the file deletion screen.

That is it for this installment. Remember Spectrum 2005 is coming up. If you're there, come and see me at the Natec Systems booth. I will also be doing a presentation on Linux Fundamentals. **is**

Danny Passig is a senior software engineer at Natec Systems. He has 33 years experience in the IT field and is currently on the adjunct faculty at Colorado State University - Pueblo in the computer science department. Danny has done customer software development and system installations for various businesses. He has also worked for IBM as a support engineer for System Builder. Danny holds a Bachelor's Degree in Business Administration/Accounting and a MSCIT from Regis University.

RFID What Is It?

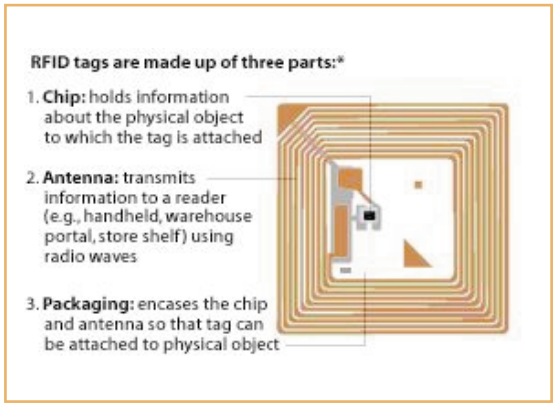
We have all heard about RFID (Radio Frequency Identification) in one form or another. Whether you have to implement it because you are a Wal-Mart or DOD supplier, or you have just seen it in a few articles.

However, most of us don't really know what it can do, how it works, or even what issues you may have implementing it. Let alone if you should look at implementing it.

If you do a quick search on Yahoo for "What is RFID," you get about 2.8 million hits. This is a lot of information to look through ... and trust me, very time consuming. Since I'm assuming you don't have the time to do all that research, here are the basics of RFID.

There are two main parts to an RFID system: the Transmitter/Reader (Interrogator), and the RFID Tags (Transponders). In this article, I'm going to focus on the RFID Tags.

RFID Tags are basically glorified bar codes. Where a bar code requires line of sight to read the data, RFID data is transmitted to a reader using RF signals. This allows the tag to be read without really having to search for a label or bar code.



BY NATHAN RECTOR

There are two types of tags you can use: active or passive.

Passive tags reflect energy radiated by a reader. Meaning they get their power from the RF waves striking them. They have no internal power source of their own. It is a little thicker than an average sheet of paper. Passive tags have an effective range of up to 30 feet (10m).

Active tags include an internal power source and transmitter. Of course, these components make the tag even larger. Some active tags are the size of a brick. However, they significantly boost the effective operational range of a tag. Active tags can have an effective range of 100+ feet (33+m).

Transmission speed and range is determined by the frequency used, antenna size, power, and interference. Readers can read between 10 and 800 tags per second, depending on the equipment and the environment.

Continues on page 40

Low frequency	125kHz	10 inches (254 mm)
High frequency	13.56 MHz	3 feet (1 meter)
Ultra-high frequency	433 MHz 868 MHz 902 to 928 MHz 2.45 GHz	up to 30 feet (<10 meters)

Many of us will be using the RFID tags in retail environments, which means we'll be using tags that supply an ePC. An ePC, or Electronic Product Code, is a standard naming scheme for items or merchandise. It is the next evolution of the UPC, or Universal Product Code, found as a bar code on most products today. The UPC provides a unique identifier for every product. The ePC provides a unique identifier for every item.

Please note, I said that a UPC is for every product, but the ePC is for every item. The ePC allows you to tag every item in a product line with its own unique code. There are several standards for ePC, each allowing you to contain more information, but the most common at this time is the ePC-96 version.

Here is an example of an ePC-96 code:
01.115A1D7.28A1E6.421CBA30A

01 - Version of ePC

115A1D7 - Manufacturer Identifier. 28 bits (> 268 million possible manufacturers)

28A1E6 - Product Identifier. 24 bits (> 16 million possible products per manufacturer

421CBA30A - Item Serial Number. 36 bits (> 68 billion possible unique items per product)

Like UPC codes, the Manufacturer and Product IDs are distributed and controlled by a central authority called EPCGlobal. You can find more information at www.EPCGlobal.org.

Now, the question is, "How do I use the RFID tag in my business?" I'll have to leave that for another article. **is**

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

BY ROBERT COLTUN

Using Basic & Perl to Send Electronic Mail Messages

It is amazing how often I've heard the following complaints from users in different organizations.

- I never know when my report finished.
- I have no idea whether my report completed successfully.
- When did my report run last?
- Why do I have to ask the administrator if the report finished?
- If only I could send the results to the client easily.

These are common problems when using legacy systems that are not designed to generate and send status messages regarding reports. There's no fast and easy way to know if the reports are finished, if they finished successfully, or even if the clients were notified of the results. Let's face it. There are still a tremendous amount of legacy systems out there. These systems have been upgraded to some extent to meet today's current needs, but the upgrades have only scratched the surface as far as correcting the problems. These systems were migrated from older versions where the operating system and the RDBMS were one and the same. All the old timers in this community remember the older versions, including:

- Microdata
- ADDS (Applied Digital Data Systems)
- Ultimate
- Fujitsu
- Prime Information (Note: One of the first variants of the PICK O/S originally developed in Fortran by Devcon and sold to Prime Computer.)

Just because you have a legacy system doesn't mean that you're dead in the water.

Legacy systems still exist because:

- They're cost-prohibitive to upgrade — the cost associated with replacing and/or redesigning the application is just too expensive.
- They're time-prohibitive to upgrade — the time needed to review and analyze all the applications may take years of work.

Just because you have a legacy system doesn't mean that you're dead in the water. There are many ways to improve the output from a legacy system. In

Continues on page 41

FREE SUBSCRIPTION

Fax this form to
(619) 515-9933
and keep
***Spectrum* magazines**
coming FREE for 1 year!!

NAME _____ TITLE _____

COMPANY _____

ADDRESS _____

CITY _____ STATE _____ ZIP _____

PHONE _____ FAX _____

E-MAIL _____ WEB SITE _____

SIGNATURE _____ DATE _____

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

1. What is your job function/title?

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

2. Is your company a (check one):

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

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

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

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

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

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

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

IS 1/05

USING BASIC AND PERL TO SEND ELECTRONIC MAIL MESSAGES *Continued from page 41*

most cases you're already working on a system that's been migrated to either a Unix or Windows environment utilizing new hardware. This was the first hurdle to cross, and it's already been completed for you.

The next hurdle is to be able to improve the flow of information generated with these migrated systems. With a little ingenuity, you can accomplish a better flow by utilizing either Basic or Perl, or a combination of both, to send electronic messages.

Perl in itself is just another programming language, like Basic. There are versions of Perl that run under Unix, Linux and Windows. The Perl language is free forming, so it allows you to document the program very nicely if you decide to. I like it because, like Basic, it contains a wide variety of instructions.

The more educated you are, the better off you'll be.

I personally write most of my scripts today using Perl, rather than using Bourne, Korn, C Shell, Sed and Awk. Let's not forget that it's wise to know the other scripting languages as well. If you work on a wide variety of systems, sooner or later you're going to come across scripts written in different languages from what you use. With as fast as this industry is growing and changing, the more educated you are the better off you'll be.

Once I became familiar with Perl running under Unix, I was amazed at its flexibility. Using Perl and the Unix job scheduler, cron, I'm able to write scripts that will not only execute applications but also send emails confirming if these applications were executed, failed, aborted, etc. This way I have data available if upper management or a client complains about missing data and/or reports. I'd rather be proactive in addressing these concerns before they become real problems.

If you'd like some sample code for sending electronic mail messages using Basic and Perl, please visit www.mount-olympus-systems.com.

Note: The Multi-purpose Internet Mail Extension (MIME) is the current Internet standard for sending e-mail messages. This is because it has the capability of sending information that contains non

US-ASCII character sets, enriched text formats, images, audio, and video. I have found that some electronic mail systems are unable to open attachments I've created using uuencode in conjunction with the Unix Mail command. I found these email systems were able to open these same attachments if they (the attachments) were generated with MIME instead. **is**

ROBERT R. COLTUN is one of the founders and the CEO of Mount Olympus Systems, Inc., the developer of Zeus Data Integration™ software. He has been working in the IT industry for over 25 years and specializes in ETL tools. He can be reached at MrOlympus@mtolympus.us.

Where Are They Now?

Continued from page 21

1993 March/April Issue

CATHERINE ANBIL on the Cover:

The 1993 issue of *Spectrum* magazine featured 20 PICK salespeople, considered to be leaders of the industry's sales pack. When Catherine Anbil was selected to this group, she had only been in the PICK industry for three years, after founding OHM Systems in 1989 with her husband, Suresh Anbil. Obviously, as a co-owner and the company's vice president at that time, her sales skills have proven effective as her company enters its 15th year.

"In October of 2003, Gus Giobbi and I were discussing the past and I reminded him that I was one of the individuals on the cover that year. He raised his eyebrows and said, 'That was you?' Obviously we all change, including you Gus! And after all, I was much 'taller' then!" *–Catherine Anbil*

Catherine Anbil After the Cover

OHM is still a strong MultiValue application provider for the manufacturing sector of JIT, Job-Shop, Repetitive, Mix Mode and discrete industries. Anbil remains a co-owner of OHM Systems USA and a shareholder in the company's R&D center in Bangalore, India, and most recently, its offshore Australia offices. Her primary role continues to be in sales and operations.

MARK PICK on the Cover:

The year *Spectrum* magazine highlighted the industry's leading salespeople was the year Mark Pick found himself at Pick Systems as the national sales manager. (Out of college, he joined General Automation, a friendly competitor to his father's company, Pick Systems. From there he joined Seattle OS, which became PickBlue, which became Pick Systems.) Surprisingly, Dick Pick was never featured on a cover of *Spectrum* magazine, but as Mark Pick explains below, that is probably a good thing:

"When *Spectrum* magazine came calling in the early nineties asking me to be on the cover, we all joked around that it was a jinx to be on the cover—similar to the *Sports Illustrated* jinx (just ask Rich Lauer). Soon after my appearance on the cover I found myself looking for a new job." *–Mark Pick*

Mark Pick After the Cover:

Mark Pick eventually became VP of Domestic Sales for Pick Systems, but said, "Soon after my promotion and my father's hiring antics of certain family members, I found myself looking for a new job and ended up at Unidata." From there he has made many career transitions, including positions back at General Automation and back again to Pick Systems (renamed Raining Data), after his father passed away and the sale of the company to private investors.

Earlier this year, Mark Pick formed a new company, Highroad Information Technology, along with two partners. Pick, who serves as the company's president and CEO, says the company focus is not primarily on MultiVaue, but specializes in computer system integration, maintenance, security, and support solutions that improve the business processes for companies of any size.

Spectrum Magazine Asks, "What is the Secret to Your Longevity in the PICK/MultiValue Market?"

Paul Giobbi: "Realizing that the value of core business applications written in PICK was so strong that people would stake their careers on it! And it is a lot of fun working with customers to protect and preserve these applications and get them to work in new environments like the Web, wireless, etc."

Marcie Miller: "Because I think that the MultiValue database is the best, most flexible, and the most fun to work with, I have simply made the choice to stay in the market! When I realized that I would have to find a full-time job, I called and emailed everyone I knew in the MultiValue marketplace. Unfortunately, not a lot of companies were hiring, so I was lucky to find such a good job with nice co-workers and two great bosses!"

Mike Roberts: "It's no secret that as long as the informational needs and processing requirements of business keep evolving, there will be a need for my services. My many years of business and PICK experience have given me the ideal background to provide these services."

Terri Hale: "Karma. There isn't anything I'd rather be doing. I'm pretty much a one-trick pony. Fortunately, there has been enough demand for the PICK product and my skill set, to feed the pony."

Dirk Thayer: "I think my secret has been flexibility. As indicated, I have held a number of varied positions over the years. This has not only allowed me to grow my knowledge base of both the MultiValue systems and alternate technologies but has also positioned me well for my current responsibilities utilizing multiple technologies to integrate our various products."

Bob Guthrie: "I'm still happy to serve the MultiValue market: it has been good for our customers and I hope we have been good for it."

James Murray: "My longevity would have to be attributed to having a vision for a groundbreaking and innovative product; commitment to its success; perseverance in the face of an avalanche of dream killers and people that 'can't' rather than 'can' do; the support of wonderful customers and the fantastic contributions of every team member that ever passed through the Apscore and CueBic Systems doors over the years."

Catherine Anbil: "The longer I have remained in MultiValue, [the more] I understand that OHM has been able to rapidly develop changes in features and functionality. We are quick to understand the change in the market and plan ahead of the demand to stay current and futuristic with our insight to the market of manufacturing, applications and technology."

Mark Pick: "It's all in the name . PICK. How could I ever leave it? I tried to leave the PICK market briefly during the sale of Pick Systems and was becoming so disgusted with the progress of the sale. I was pleased when I got a call from Gil Figueroa inquiring about the sale of the company. I found myself back doing what I know best: selling and servicing PICK customers. I guess I'm a PICKie for life!"

Bruce Randall: "I enjoyed working at Columbia Ultimate and with all the great people there. I felt I could make a difference in the public sector. I always wanted to be better and learned much about change while there. To me, the MultiValue world has been pretty straightforward (my sales viewpoint) and selling something straightforward has always appealed to me."

Bruce Randall on the Cover:

Bruce Randall was selected for this cover story on leading salespeople in 1993 because he had been leading the sales efforts for Columbia Ultimate (CUBS) for four years. For over 18 years at CUBS, Randall worked in a variety of sales roles, where he made the biggest impact in the government marketplace. Only four years after the article was published, he stepped out of sales to head the new Public Sector Division of CUBS, and remained there as the vice president and general manager until he left the company in February of 2004.

"I never thought I would show up on a magazine. Ordinary people like me don't get on the cover of magazines, so it was really a surprise, and flattering to me that it would actually happen back in 1993. That the possibility exists that it could happen again, even with a light-hearted slant, still puts a big grin on my face and my wife and kids think it is great." *–Bruce Randall*

Bruce Randall After the Cover:

Today Randall is the president of RevQ Inc., a company he started with a couple to focus on three areas: First, they are a reseller for The Intelitech Group and market "Acumen! Government" into the public sector market. Second, they provide consulting for the public sector in the debt collection arena and do some custom programming in PICK. And third, they are getting the first release of their debt collection software package (called "Revenue Results") sold into the smaller government market.

Mike Sutkowski on the Cover:

Mike Sutkowski was an obvious choice for the cover image of *Spectrum's* "Top 20 Salespeople in PICK," as he was responsible for VMark's largest revenue-producing region in North America from 1988 until the article was written in 1993. The same year he appeared on the cover of *Spectrum* he was promoted to vice president of Sales for VMark Software.

Mike Sutkowski After the Cover:

We were successful in tracking down Mike Sutkowski and found him at Massachusetts-based Sepaton Inc., where he holds the position of vice president, OEM Sales, for its data protection products. We learned that after leaving VMark, he was general manager for Data General's AViiON server channels and healthcare divisions. Next, he moved to Auspex Systems, where he worked as vice president of Sales, Eastern Region. Unfortunately, Sutkowski's schedule was such that an interview could not be nailed down in time for our deadline.

Stacey Smith on the Cover:

In 1993 Stacey Smith was pictured on the cover of *Spectrum* magazine and featured as one of only two women in the article about the top 20 salespeople in PICK. At the time, she was an "automation specialist" in the sales division for Dynix Inc., the provider of one of the leading library automation applications in the country, and had worked for Dynix for four years.

Stacey Smith After the Cover:

All of our research methods proved to be unsuccessful in locating Stacey. **is**

A Final Note From the Author

To be honest, I agreed to write this year-long series for Gus and Monica Giobbi at Spectrum not only for a fee, but partly out of a personal curiosity in the history makers of the MultiValue market and a desire to find some of the people I once dealt with in my own on again/off again relationship with this marketplace. To put my intimacy with this industry in perspective, and throw a few qualifications out there for writing this article in the first place, the Giobbis have asked me to explain my personal history in this eclectic industry.

My father, Larry Walton, was a PICK programmer in the 1970s and remains one to this day as a semi-retired consultant at the age of 70. It was his friendship and business relationship with the Giobbis that landed me my job at Spectrum in 1987, where I worked full-time and part-time for the next nine years. It was a great job for a young gal; I helped organize the Spectrum conferences in Australia and England in the late 1980s, spent many days in the ballrooms and conference rooms of our national and regional conferences around the country, and even enjoyed a few years pretending to be a good editor for ***Spectrum*** magazine until we found a professional editor in Nichelle Johnson!

My personal and brief "where are they now" story is that I left Spectrum in 1996 to pursue a teaching credential (which I received) but accidentally fell into a freelance writing gig for General Automation. This blossomed into a full-time marketing consulting business that has spanned many industries and projects. With the end of this series for Spectrum, I am also officially ending my career in high tech marketing as my husband and I prepare to open a coffeehouse in our hometown of Fallbrook, Calif.

Thanks to all of you for your help in finding missing people over the last year, for your interest in reading the stories of your peers, and for your continued support of the industry by reading 20 more years of ***Spectrum*** magazine and attending the Spectrum conferences. And thus we end this chapter in our Spectrum history books. **–LG**

mvToolChest

mvToolbox

Makes Programmers' Tasks Easy and Efficient

Reduces Repetition and Increases Productivity

The basic programming utilities supplied with MultiValue databases have not been significantly improved for over three decades. All of that changes with the new mvToolbox programming environment with comprehensive MultiValue programming tools that take the problems out of problem solving.

Over the years, programmers have faced barriers that prevent access beyond the current record, resulting in unnecessary, and time consuming, repetitive actions. Most programmers working with MultiValue databases have found it necessary to take out time from their higher priority programming duties to develop tools of their own in an attempt to eliminate at least some of the constant backtracking and repetition. But few, if any, MultiValue database programmers have the time and resources available to really address the major barriers that hinder MultiValue database productivity.

For example, standard MultiValue editors allow editing only one program record at a time. This results in repetitive edit sessions, moving in and out of programs seeking answers to question after question, and mentally attempting to join discontinuous and disjointed sections of code. When programs are written or researched, the programmer very often needs to access and view several programs concurrently.

Wouldn't it make more sense to seamlessly traverse data and multiple program records from within one edit session — without the need for multiple searches and lists to locate code or data? mvToolbox has created just such a programming environment. This MultiValue database solution will save programmers tremendous time and effort.

To explain how mvToolbox works, imagine that you are standing at the edge of a vast forest called Forest A. There are certain "problem" trees that need to be located and you will have to walk through thousands of trees to locate the trees you need to fix. Just over the hill is another forest, Forest B, that contains a number of trees that have the same problem. With conventional MultiValue programming capabilities you must complete your work in Forest A, then travel to the next location and start the process all over again. mvToolbox provides you with innovative search tools and the capability to search both locations at the same time. Bro Cope, president of mvToolbox explains, "Utilizing the powerful search capabilities of mvToolbox, programmers can do in minutes what used to take days or weeks to do."

With mvToolbox, it is possible to concurrently search across several accounts, each

with multiple files that can contain thousands of program records with thousands of code lines. The results are then viewed in work windows that provide functionality to further drill down to specific code lines. Editing these lines is a simple mouse click away. Searches take seconds or minutes — not days or weeks.

Over 450 tools and functions are integrated within mvToolbox to make the programmer's day-to-day activities easier and more efficient. Programmers work in a fully mouse-enabled GUI-like environment. This enables programmers to utilize mouse clicks to move through code and data. A built-in text editor makes changing or adding code a breeze. "Our programmers, when working solely on code generation, save 20% of their time," said one manager in San Diego, Calif.

There is no need to exit mvToolbox, as all search and edit functions are integrated and available at any time. Information that is the result of one command can be used as input to another command. A programmer can go many levels deep within programs and files and return to where he started with simple mouse clicks. The code is not just text being edited, it is viewed by the mvToolbox as a map, a source of information to provide easy mobility in and through the code.

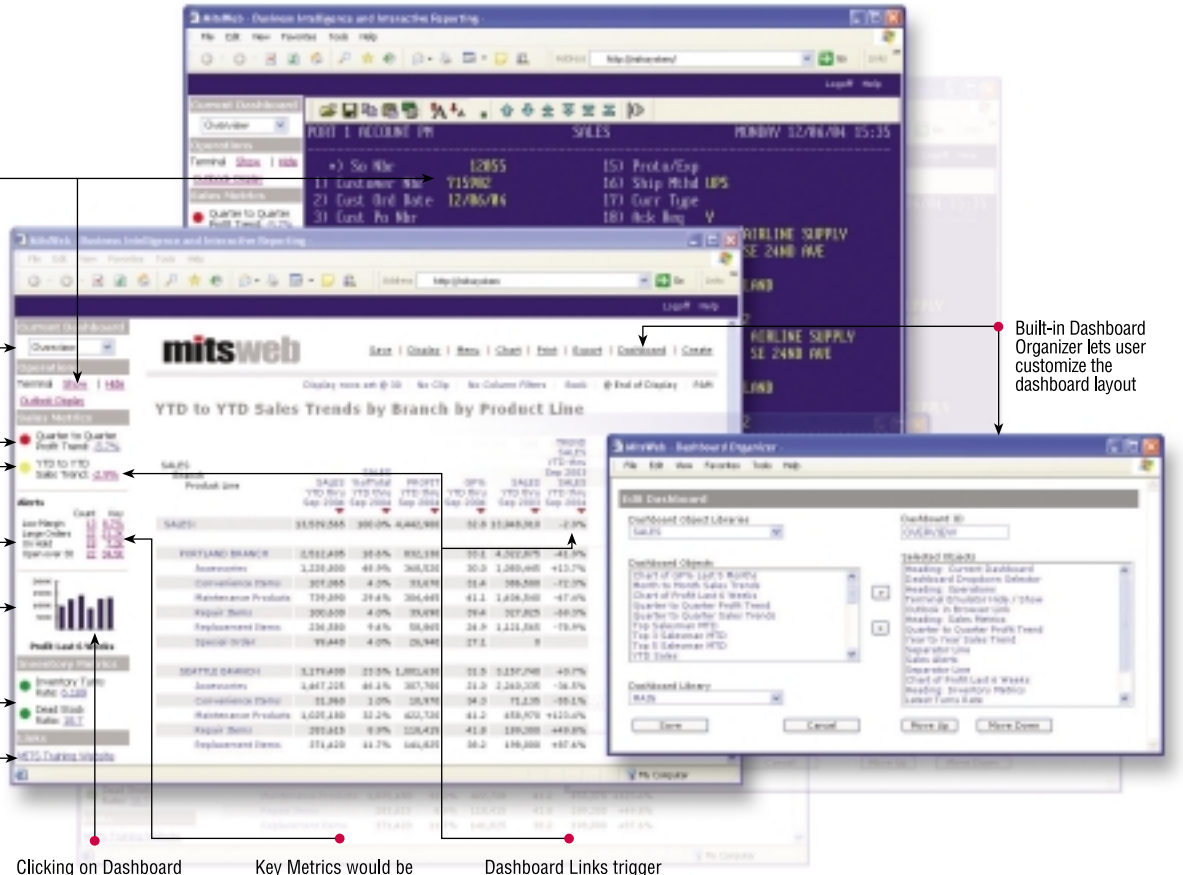
There is one feature that is worth its weight in gold. mvToolbox has four levels of error and disaster recovery. These four levels progress from recovering from coding mistakes to full disaster recovery due to server crashes and power failures. Revision controls also allow records and files to be locked and unlocked by management to prevent unauthorized changes. Revision controls also keep a permanent audit trail of changes to programs.

Another helpful set of tools and functions enables reconciling current and previous versions of programs or data. mvToolbox has the power to reconcile up to six concurrent versions and allow changes or transfers between each version. "What I expected to take eight hours to do, I did in less than one hour," said a user who needed to reconcile differences in two program records containing over 15,000 lines of code.

Whether you program daily in MultiValue databases or are an integrator making a MultiValue database compatible with other database platforms, mvToolbox pays for itself many times over. And, in the words of one veteran user of mvToolbox, "MultiValue programming is fun again!" **is**

For more information about the power of this new programming environment, go to www.mvtoolbox.com or call 888-999-7571 Ext.102. Their e-mail address is jread@mvtoolbox.com.

Introducing the MitsWeb Dashboard



Imbedded Browser-Enabled Terminal Emulator such as wIntegrate or Accuterm stays active

Quickly switch from one Dashboard to another

Conditional Alerts can switch images to show the state of Key Metrics. Green = Acceptable Range Red = Attention Required

Dashboards are groups of Dashboard "objects" organized by user or department

Built-in Dashboard Organizer lets user customize the dashboard layout

Clicking on Dashboard Chart triggers MITS OLAP Flash Screen showing Key Metrics used to create chart

Key Metrics would be updated during the day when MITS Hypercubes are configured for Continuous Update

Dashboard Links trigger MITS OLAP analysis. User can begin to explore the underlying details

MitsWeb Dashboard brings management information to a whole new level of awareness.

For more details contact MITS today at www.mitsonline.com or 888 700 6487.

a product of Management Information Tools, Inc.