

The Premier Resource for Today's Corporate & IT Decision Makers

SPRING SUPPLEMENT TO *JDJ*

IT solutions

> G U I D E

www.sys-con.com/IT

Develop Locally Run Globally

Tools and
Solutions
For the
World Class
Enterprise



Top IT Solution Providers!

- > ClearNova
- > EV1 Servers
- > Extentech
- > GraphOn
- > Hosting.com
- > Synaptris
- > InterSystems
- > JadeLiquid Software
- > MapInfo
- > Parasoft
- > PDF Tools AG
- > Quest Software
- > Verio
- > Visual Paradigm



Find the bugs. Before your users do. With JProbe® from Quest Software.

Don't deliver infested applications that die in production. Proactively find and fix critical issues before your applications reach production with Quest's award-winning JProbe Suite.

Diagnose and resolve code-level performance and memory issues so you can make your Java code work. Then, make it work faster.

Ensure "bug free" high-performing Java applications with JProbe from Quest Software. Your users will thank you.

Download our white paper, "Improved J2EE Performance and User Experience with Pre-production Testing" at www.quest.com/BugSoup



Quest Software: Evolving Custom Application Management: From Business Disruption to Business Value

Prevent chaos in production

Where's the problem? Who needs to put out the fire – a system administrator or a developer? How can we prevent this in the future? These common questions emphasize how systems management directly impacts the effectiveness of IT – and, ultimately, a company's profitability.

As application complexity increases with advances in J2EE, enterprise portals and service-oriented architectures (SOA), you face tougher management challenges. You need to triage, diagnose and resolve problems, but this puts a greater burden on developers and can cause chaos in production.

Common problems include:

- Bugs that take weeks to identify
- Loosely coupled applications that make transaction tracing in a multi-tiered environment impossible
- QA is unable to recreate production problems in staging
- Inability to correlate code changes to performance
- Inability to find the root cause of production issues

Any of the problems listed above can compromise your bottom line or your operations process. When you build your own applications, you don't have a packaged software vendor to log support calls. You need an application management toolset on hand to find problems, fix them effectively and quickly, and manage change.

Through a deep expertise in IT operations and a continued focus on what works best, Quest Software helps you meet the higher expectations you have for enterprise IT. Our J2EE application management solutions solve problems from development through production support with tools for developers, architects, performance engineers, QA, deployment specialists and production support staff.

Our products enable better code quality and optimization, improved performance and availability, and simplified change and configuration management. Since Java and J2EE

applications link existing IT systems and SOA, Quest is uniquely suited to manage multi-tiered applications throughout their lifecycle, regardless of platform or infrastructure vendor.

Keep Critical J2EE Applications Running 24x7 with Foglight® and Spotlight®

Quest's J2EE solutions provide the tools and workflow you need to keep applications running in production and fix unexpected problems almost as soon as they occur – creating a highly efficient, proactively-managed system. Foglight continuously monitors application servers and databases, detects performance degradation, then automatically alerts administrators and triggers data capture for diagnostics. Spotlight provides a real-time view of server or database performance and offers expert advice for resolution.

Diagnose Problems System-wide Down to the Line of Code with JProbe® and PerformaSure®

Quest's J2EE solutions can track a problem from an end-user transaction in production down to the line of code. JProbe drills down to diagnose and resolve memory leaks and performance bottlenecks down to the offending line of source code. PerformaSure diagnoses inefficient servlets, run-time memory leaks and slow-running SQL statements.

To learn more about Quest's J2EE solutions, please visit us at: www.quest.com/java.

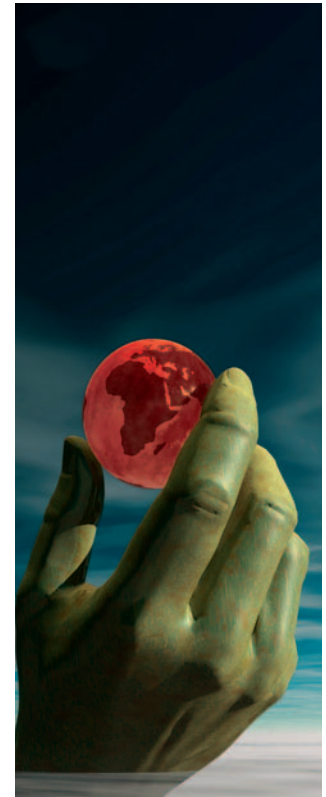
About Quest Software, Inc.

Quest Software, Inc. delivers innovative products that help organizations get more performance and productivity from their applications, databases and infrastructure. Through a deep expertise in IT operations and a continued focus on what works best, Quest helps more than 18,000 customers worldwide meet higher expectations for enterprise IT. Quest Software, headquartered in Irvine, Calif., can be found in offices around the globe and at www.quest.com. ■

Quest Software, Inc.
8001 Irvine Center Drive
Irvine, CA 92618
phone: 949-754-8000
fax: 949-754-8999
www.quest.com

SPONSOR PERSPECTIVES ON IT...

- 3> **Quest Software:** Evolving Custom Application Management:
From Business Disruption to Business Value
How to prevent chaos in production
www.quest.com
- 7> **GraphOn:** Application Publishing Made Easy and Affordable
www.graphon.com/itsg
- 9> **Synaptris/IntelliView:** Reporting Made Easy!
www.intelliview.com/itsg
- 11> **EV1Servers:** Four Steps to Web Hosting Success
The world's largest dedicated hosting provider
www.ev1servers.net
- 13> **Verio:** Verio Enables Companies To Maximize IT Business Value
Developers can enhance their businesses through partnering technologies and relationships
www.verio.com
- 15> **JadeLiquid/WebRenderer:** Seamlessly Connect the Rich Client to the Server
The WebRenderer browser SDK provides flexibility in delivering and displaying Web content
www.webrenderer.com
- 17> **Hosting.com:** Hosting Companies Missing the Mark on Customer Experience
Many companies are overselling buzzwords vs. focusing on client needs
www.hosting.com
- 19> **ClearNova:** RAD Productivity Is Now Available for J2EE & Open Source
How to simplify and accelerate the development and maintenance of your Web-based business apps
www.clearnova.com
- 21> **MapInfo:** Location Intelligence
Enabling more insightful decisions
www.mapinfo.com
- 23> **PDF Tools:** Quality Assurance in PDF – Business Critical Files
May Not Be Legible in the Future
www.pdf-tools.com
- 24> **Parasoft:** Automatically Improve Java Reliability, Functionality, Security,
and Performance with Parasoft Jtest
www.parasoft.com
- 27> **Visual Paradigm Suite:** Build Quality Applications Faster, Better and Cheaper
www.visual-paradigm.com
- 38> **Extentech Inc:** It's 1 A.M. — Do You Know Where Your Business Logic Is?
If it's locked up in a spreadsheet, ExtenXLS can bring it home
www.extentech.com



FEATURES...

- 28> **Content Globalization:** Adding Global Markets to the Content Life Cycle
What tools best help unlock the value of information globally?
- 32> **Service-Oriented Architecture:** A Unifying Mechanism for Effective SOA:
The Business Service Registry
The top seven dangers of using a non-registry based SOA revealed
- 34> **Business Process Management:** The Value of BPM Software
A business and technical perspective
- 36> **Search:** The Emerging Mobile Search Market
Survival of the fastest and the fittest

The Developer Paradox:

No time to test your code? But **long hours** reworking it & resolving errors?



Check out **Parasoft Jtest® 7.0**
Automates Java testing and code analysis.
Lets you get your time back and deliver quality code with less effort.

■ **Automated:**

Automatically analyzes your code, applying over 500+ industry standard Java coding best practices that identify code constructs affecting performance, reliability and security.

Automatically generates and executes JUnit test cases, exposing unexpected exceptions, boundary condition errors and memory leaks and evaluating your code's behavior.

Groundbreaking test case "sniffer" automatically generates functional unit test cases by monitoring a running application and creating a full suite of test cases that serve as a "functional snapshot" against which new code changes can be tested.

■ **Extendable:**

Industry standard JUnit test case output make test cases portable, extendable and reusable.

Graphical test case and object editors allow test cases to be easily extended to increase coverage or create custom test cases for verification of specific functionality.

■ **Integrated:**

Integrates seamlessly into development IDE's to support "test as you go" development, and ties into source control and build processes for full team development support.

To learn more about Parasoft Jtest or try it out, go to www.parasoft.com/Jtest



Automated Software Error Prevention

Paying Citrix Licensing and Maintenance Fees Can Leave a Sour Taste in Your Mouth.



Pick GO-Global Instead. It's the Easy, Cost-Effective, Application Publishing Solution with Complete Linux Support.

GO-Global® makes it easy to publish Windows, UNIX, and Linux applications to your corporate network or the Web for instant access from any platform and any location. You'll eliminate the excessive deployment costs and infrastructure complexities of Citrix® MetaFrame® and Windows® Terminal Services. Not to mention the high maintenance fees. Incorporating zero-footprint clients and advanced server-based technology, GO-Global significantly lowers your TCO while leveraging investments in existing applications. For a free GO-Global trial, a copy of our informative application publishing white paper, and other special offers, call us at 1.800.GRAPHON or visit www.graphon.com/itsg. GO-Global. It's the refreshing thin client solution without the bitter aftertaste.



Access to Applications Anywhere.

© 2005 GraphOn Corp. All rights reserved. GraphOn, the GO logo, and GO-Global are trademarks or registered trademarks of GraphOn Corporation. Citrix and MetaFrame are registered trademarks of Citrix Systems. Windows is a registered trademark of Microsoft Corporation. All other trademarks belong to their respective owners.

GraphOn Corporation: Application Publishing Made Easy and Affordable

GraphOn offers a simple, cost-effective application publishing and Web-enabling solution that dramatically lowers TCO and maximizes ROI by enabling instant access to Windows, UNIX, and Linux applications from any location, platform, or OS.

For the enterprise or department looking for an easy, plug-and-play solution to publish or Web-enable existing applications, an excellent alternative is GO-Global from GraphOn. Without touching a single line of code, GO-Global provides instant access to Windows, UNIX, and Linux applications from anywhere. By eliminating the complexities and heavy licensing requirements of Citrix MetaFrame and Microsoft Windows Terminal Services (WTS), GO-Global provides a fast, simple, and affordable thin-client solution.

"Enterprises and ISVs have invested heavily in Windows and UNIX applications," said Bob Peterson, GraphOn's COO. "What's more, there's a growing trend to deploy Linux on the desktop. However, tight budgets and deadlines mean they cannot always afford major reengineering projects to meet Web-enabling and remote access initiatives. That's where GO-Global comes in."

GO-Global is a server-based solution that instantly makes virtually any software application fully accessible to users on any platform and OS. The product totally eliminates the need for added software infrastructure such as Citrix, WTS, and local X servers.

"With GO-Global-enabled applications, organizations can quickly and cost-effectively reach new audiences and profit from new revenue opportunities," added Peterson. "GO-Global significantly lowers TCO by centrally publishing applications without any code changes – while at the same time leveraging existing network and management infrastructure."

Reduced Complexities, Greater Performance, and Linux Support

"GO-Global reduces the complexities of application deployment and management," said John Dilworth, GraphOn's VP of Sales and Marketing. "Unlike Citrix and WTS, GO-Global publishes only the application's GUI, not the entire desktop. This greatly increases speed and efficiency."

Dilworth went on to explain that GO-Global provides complete Linux support – a feature not available with Citrix. "GO-Global publishes Windows applications to Linux clients and UNIX/Linux applications to Windows clients. It's the ideal solution to provide Linux users with familiar productivity tools such as Microsoft Office applications."

Campus-Wide Deployment Saves 93%

Garces Memorial, a private four-year college preparatory academy, recently deployed a campus-wide GO-Global solution that centrally publishes a student information system and Office applications to older PCs that the customer did not want to upgrade – as well as to Linux desktops.

"I downloaded a free trial from GraphOn's Web site and was pleased at how easy it was to install," said Jim Pace, Data Systems Manager at Garces. "I was able to publish my first app in less than two minutes."

The campus-wide deployment proved to be equally trouble-free, not to mention cost-effective. Pace calculates that purchasing GO-Global was 93% less expensive than upgrading the hardware and software at all the desktops.

Migrating to Wireless and Linux Desktops

Garces installed a wireless solution to serve remote buildings. "With GO-Global, our wireless application access was almost instantaneous," Pace reported. "Future plans call for migrating to high-speed wireless throughout the entire school to provide universal access from laptops and PDAs anywhere on campus."

Migration to Linux desktops is also under way. "A number of our PCs are already using GO-Global's Linux client to access MS Office and other applications," said Pace. "We'll be migrating all our desktops to Linux in the near future."

Healthcare, Telcos, Government, and More

GraphOn has an impressive list of customers in a broad range of market segments such as healthcare, telecommunications, government, EDA, and more. For example, Fastrack Healthcare Systems selected GO-Global to Web-enable their applications for home health care providers.

"With GO-Global, we are now able to bring a new level of service to our customers based on the product's excellent performance," said Fastrack President Spencer Kay. Previously, the company had been using Citrix MetaFrame.

"We switched to GO-Global for a number of key reasons," explained Kay. "Citrix is a very complex product with substantial licensing requirements. With GO-Global, we're able to offer our clients a simple and cost-effective solution without the complexities and high cost of Citrix."

Focused on a Global Vision

GraphOn is a publicly-traded company (OTCBB: GOJO.OB) headquartered in Santa Cruz, California. For over two decades, the company has been an innovator and developer of cost-effective solutions that help customers access existing applications from remote locations.

"Our focus will continue to be on lowering our customers' TCO while accelerating ROI," concluded COO Peterson. "We'll continue to evolve our product solutions to meet our customers' needs as they leverage existing applications to new computing models." ■



GO-Global publishes UNIX and Linux applications to Windows desktops (at left), and publishes Windows applications to UNIX and Linux desktops (at right).

GraphOn is located at:
3130 Winkle Ave.
Santa Cruz, CA 95065

For more information, visit
www.graphon.com/itsg
or call 1.800.GRAPHON
or 603.225.3525



Don't let complicated reporting
systems do this to you....

....migrate to

*Intelli***VIEW**

- Hassle-free deployment • Unique stitch-to-fit approach
- Spreadsheet like interactivity for business users
- Uncomplicated licensing • Report creation services
- Attractive pricing

Wanna check us out ?

visit <http://www.intelliview.com/itsg>
to download evaluation software or
email itsg@intelliview.com

IntelliVIEW: Reporting Made Easy!

"We needed a reporting solution that is easy to integrate into our applications and provides users enough functionality to analyze information themselves without depending on IT. With IntelliVIEW, we met all our reporting requirements."

– Dennis Skopaz
NEXT Consulting

"IntelliVIEW gave us the diversification we wanted for our users while allowing them presentation flash. IntelliVIEW is truly a hands-on easy to use product at any user level."

– LeRoy Kindig
Florida State Hospital

"IntelliVIEW is by far one of the most promising Reporting products that I've seen in the market today. Their commitment to continuously improve their product in leaps and bounds is evident."

– James F. Koopmann
Database Specialist
Pinehorse, Inc.

IntelliVIEW

3031 Tisch Way, Suite 1002
San Jose, CA 95128
www.intelliview.com/itsg
or email: itsg@intelliview.com

Have you faced a situation where your reports pose more questions than answers?

- How can I reduce the reporting workload of my IT staff
- Could I painlessly integrate a reporting solution into my application
- Can my static reports be made interactive for richer analysis
- Can my reporting solution be customized for my organizational needs

A World of Possibilities in Reporting:

With IntelliVIEW the answer to all these questions is YES.

IntelliVIEW is a simple easy to use reporting tool that can be used by IT Managers to integrate interactive reports into their .NET/ Java/ COM Applications. The drag and drop report creation interface enables Report creators to create reports in a jiffy. Reports can be integrated into web applications seamlessly using a "single-click publishing" mechanism.

IT can now give business users the power to interact with their reports. Users can perform powerful analytics including pivot tables, drill down, custom computed-columns, time series reports on real-time data without needing any help from IT. Thus freeing valuable IT resources for critical enterprise issues.

Create – Share – Analyze:

IntelliVIEW

Designer - With IntelliVIEW Designer report creation is as easy as it can get. The Designer allows you to connect to any relational database, build queries for data extraction, design reports and publish them to the web for sharing and analysis. The ad-hoc query builder and the drag and drop report creation interface allows you to create reports without any complex programming. Reports can be published to the web using a simple publishing interface.

IntelliVIEW SDK (Software Development Kit) consists of a set of components that can be deployed on any web/ application server. The SDK accepts 'publish' requests from the IntelliVIEW designer and 'view' requests from the IntelliVIEW Report Analyzer. The SDK can be deployed on Java as well as Microsoft .Net platforms.

IntelliVIEW Report Analyzer is reporting client that allows business users to view & analyze reports. Any user who is familiar

with a spreadsheet will feel comfortable using the Analyzer and can perform powerful analysis within a matter of minutes. The analyzer is capable of drill down analysis, chart creation, printing and export of reports to various formats including PDF, HTML, XLS, etc.

Synaptris Reporter is the reporting portal that has all the analysis tools and functionality needed to connect to database, create and analyze reports within one web-based application. It allows for extended analysis, reporting and content management. The Reporter also provides robust security features that protect reports and information at the user or group level.

Features of the IntelliVIEW suite:

- Interactive report viewer
- Real-time reports from multiple databases
- Integrates with other applications
- Internet/ intranet ready
- Highly scalable (hundreds of users)
- Pre-defined as well as free-form reports
- WYSIWYG reporting
- Drill down reports & charts
- Scheduling engine
- Output to multiple formats



Benefits of the IntelliVIEW Suite:

- Reduce IT workload
- Highly customizable
- 24x7 support
- Uncomplicated server based licensing
- Low TCO

Uncomplicated licensing:

Unlike other reporting tools, the IntelliVIEW Suite has a very transparent and linear licensing model that supports and encourages scalability.

The IntelliVIEW SDK and the Synaptris Reporter are available on server based licensing terms, thus reducing the TCO to extremely affordable levels. ■

Nothing beats our racks

Absolutely nothing



EV1servers.net
an ev1.net company

CARRIER CLASS DATA CENTERS

- Highly Secure Guarded Facility
- 24/7/365 Network Operations Center
- 24/7/365 Technical Support
- Redundant Conditioned Air Systems
- Redundant Fiber Entry Points
- Multiple Uninterruptible UPS Systems
- Multiple 1250 KW Generators Onsite
- VESDA Early Warning Smoke Detection

Robert Marsh, Head Surfer

START YOUR OWN WEB HOSTING BUSINESS TODAY!

from **\$299*** **Dedicated Server**

Dual Xeon 2.4 GHz
2 GB RAM • 2 x 73 GB SCSI HD
Remote Console • Remote Reboot
2000 GB Monthly Transfer Included

Instant Activation!

23,000+ Servers and Growing!

1-800-504-SURF | ev1servers.net

PLESK7
RELOADED
Preferred Control Panel

IP Compliant. Price subject to change. Quantities Limited.
*Per month. Set-Up fees apply. See web site for complete details.

EV1Servers:

Four Steps to Web Hosting Success

The world's largest dedicated hosting provider



Since 2000, I've had the good fortune of working with over 15,000 EV1Servers customers, including enterprise managers and small business owners, software developers and multi-player gamers, content providers and community forum operators.

Ongoing interactions with these dedicated web server users have helped shape our direction. I would like to think that we have also contributed to our customers' success. Many of them have expanded from one single server to dozens – or even hundreds – during the course of our partnership.

I have often heard that web hosting is a commodity business in which three factors – pricing, bandwidth and disk space – are all-important. While we have always strived to be competitive on these fronts, it's the factors below that have made a real impact on our ability to maintain long-term customer relationships.

Home Safe Home

Earlier this year we invested \$15 million into building out our second data center, a telco-grade facility with redundant UPS, generator backup, smoke detection/fire protection systems, not to mention 24/7 camera surveillance and armed guard patrol.

Our grand opening was attended by customers from 18 states as well as Canada, Mexico, Germany and England. Several placed orders on the spot for full racks of Dual Xeon servers. We had planned to take our visitors to the Houston Rodeo, but so eager were they to move in that they spent the evening instead at our data center.

Clear Connection

One of the most popular areas on our website contains our network utilization graphs. We have 19 Gigabit Ethernet links – and counting – through six backbone providers. Their fiber connects to our facilities at redundant entry points.

Of course, there is more to our network than speed and reliability. FireSlayer, a system that combines commercial and proprietary Denial of Service filtering technology, has intercepted more than 700 attacks per month since its early 2004 rollout.

Freedom of Choice

Although EV1Servers was a relative latecomer to the web hosting market, we became the world's largest dedicated web server provider within two years. I attribute much of our success to two concepts we pioneered: giving customers instant access to newly ordered servers,

and allowing no-questions-asked cancellation at the end of any monthly billing cycle.

Having won customers by delivering service when they want it, our 2004 focus has been on providing service how they want it. We've introduced new solutions ranging from load balanced clusters to low-cost storage. We've added remote reboot and remote console capabilities to over 20,000 servers. We've even developed an automated system that allows users to reinstall their operating system and server management software of choice at no cost.

You've Got a Friend at EV1Servers

It goes without saying that we provide 24/7 support by phone, email, IRC, live chat, etc. Who doesn't, at this day and age? What sets us apart is that "customer service" is not just a nameless, faceless entity at EV1Servers.

I would venture to say that we are second to none within the industry in terms of accountability and accessibility. All members of our management team – including myself – participate regularly in our customer forum. We even make our management team mailing list publicly available, so that any customer is able to contact us at any time.

If you're a user of third party web hosting services, I encourage you to be no less demanding than EV1Servers' customers have been over the years. By making your needs known, you are helping to create a better hosting environment for your business. And if you are service provider catering to either an internal or external constituency, keep in mind that you succeed only when the needs of your user base are met.



Robert Marsh is the CEO and Head Surfer of EV1Servers, the world's largest dedicated hosting provider with over 20,000 servers under management. The company's data centers are home to over 1 million websites and its network accounts for over 1.5% of all US Internet traffic. Robert was recently named Houston Small Business Person of the Year by the US Small Business Administration, and Houston/Gulf Coast Area Entrepreneur of the Year by Ernst & Young. ■

WE HELP YOU DELIVER THE WHOLE PACKAGE

VERIO SUPPLIES THE BEST TECHNOLOGY, RESOURCES,
AND EXPERTISE TO SUPPORT YOUR SOLUTIONS



When you partner with Verio, you can deliver complete solutions for your customers' business needs. As your trusted expert advisor for managed hosting, we support your application development with our managed services and infrastructure from state-of-the-art Verio data centers.

As a viaVerio® partner, you'll enhance your solutions portfolio and add value to your business by gaining access to our suite of global products and services, including managed storage and security. You'll also gain peace of mind in knowing that Verio is backed by the financial and operational excellence of NTT Communications, the world's largest telecommunications company.

BUILD YOUR BUSINESS BY PARTNERING WITH THE MANAGED HOSTING INFRASTRUCTURE EXPERTS.

Nothing turns on the power of the Internet like Verio products and services.

CALL 888.283.9997 today to find out more about how a viaVerio partnership can complete your business offering. Or visit: www.verio.com/partners/

Power. Performance. Results.

VERIO
An NTT Communications Company

via VERIO
Business Partner

Verio, viaVerio and the Verio logo are trademarks and/or service marks of Verio Inc. in the United States and other countries. All other names are trademarks or registered marks of their respective owners. ©2005 Verio Inc. All rights reserved.

Verio:

Verio Enables Companies To Maximize IT Business Value

Developers can enhance their businesses through partnering technologies and relationships

As companies increasingly serve customers online, deploy more Web-based business tools, work to secure their enterprises and meet regulatory rules, one thing has become critical: Ensure their online presence and operations are based on rock-solid business solutions and state of the art infrastructure.

Enter Verio. A wholly owned subsidiary of NTT Communications (NTT Com), nearly half a million customers trust their business' Web site and online operations to Verio, a company consistently recognized for innovation in products and services as well as delivery. For developers and other partners, Verio offers complementary services to help meet clients' business needs.

Verio's Goals Are Its Partners' Goals

Verio works to ensure that channel partners, such as application and Web developers, meet the business and technology requirements of customers. Whether for a mid-market or larger global enterprise, Verio delivers managed services and hosting solutions that enable developers to offer complete solutions.

Verio meets these needs by simplifying the choices and deployment of managed hosting solutions, and all offerings are accompanied by the technical support and expertise that organizations of all sizes demand. Verio believes that its partners' success is a critical component of its own success and has developed industry-leading programs tailored to the business models of a full spectrum of business partners.

"Partnering with Verio enables SoftSource to fulfill our customers' complete business needs, from consulting, software architecture, and application development to hosting and managed services," said Preston Jones, vice president of sales and operations for viaVerio® partner SoftSource Consulting. "Our Fortune 1000 clients expect the stability and scalability built into our applications to be carried on with Verio to meet customer performance demands."

Verio products and services are recognized for solving real business problems. *VARBusiness* magazine for example ranked Verio offerings among the Top 100 "Midmarket Products of the Year." The *Web Host Directory* consistently names Verio a top provider in its monthly spotlight.

"I've been on both sides of the table, meaning both business and technology. I knew my company would be a success if I could offer customers a unique marriage of the two by really listening to them, understanding their business and helping solve their problems," said

Carol Thorney, president and CEO, Thorney Solutions and a viaVerio® partner. "As I looked at how I would execute this strategy and provide solutions to end users, Verio presented itself as the perfect partner. The Verio relationship has allowed me to provide my customers with development and infrastructure expertise, as well as hosting, security and disaster recovery solutions."

Thorney Solutions' customers see the benefit as well. "Verio offered Smith Whiley a single source for remote backup, managed firewalls and a managed archive storage solution," said Princess Sally Smith, operations manager for Smith Whiley & Co., and a Thorney Solutions client. "Smith Whiley clearly benefits from the Thorney-Verio relationship with bundled pricing under one contract bill, and with fewer administrative tasks, I have more time to focus on my business. Thorney Solutions has been a lifesaver for Smith Whiley, and without Verio included in the mix, we would not be able to so easily deal with the compliance and business continuity requirements demanded of a financial services firm."

Verio products and services are backed by the financial strength of NTT Com, the world's largest telecommunications company, providing customers and partners with unparalleled innovation and reliability.

Getting Started with Hosted Services and Solutions

viaVerio® Hosting Partners join forces with the world's leading Web hosting and services provider to enhance their portfolio of solutions for clients, as well as add value to their business. viaVerio® partners gain access to Verio's suite of global hosting products and managed services to support customers.

"Verio partners benefit from a range of partnering strategies to fit their business needs," said Mike Mazur, director of channel sales for Verio. "Whether it's building a solution suite or taking their business to the next level, the viaVerio® partner program helps partners get the results they demand."

Developers can learn more about the viaVerio® Partner Program, including the performance, stability and scalability of Verio's managed infrastructure services to complete customer business needs, by phoning, 1-888-283-9997 or emailing verio_partner@verio.net. More information can also be found at www.verio.com/partners/.

Verio, viaVerio and the Verio logo are trademarks and/or service marks of Verio Inc. in the United States and other countries. All other names are trademarks or registered marks of their respective owners. ©2005 Verio Inc. All rights reserved.



Verio
8005 South Chester Street
Suite 200
Englewood, Colorado 80112

www.verio.com

WebRenderer™



Standards compliant embeddable web browser component

WebRenderer is a cutting edge embeddable Java™ web content rendering component that provides Java applications and applets with a fast, standards compliant HTML and multimedia rendering engine. WebRenderer provides a feature-packed API including complete browser control, a full array of events, JavaScript interface, DOM access, document history and more.

Why WebRenderer?

- Standards Support (HTML 4.01, CSS 1 & 2, SSL, JavaScript, XSL, XSLT etc.)
- Exceptionally Fast Rendering
- Predictable Rendering
- Scalability (deploy in Applications or Applets)
- Security (based on industry standard components)
- Stability and Robustness

Embed WebRenderer to provide your Java® application with standards compliant web content rendering support.

To download a 30 day trial of WebRenderer visit
www.webrenderer.com

JadeLiquid™
Software

Copyright JadeLiquid Software 2004. JadeLiquid and WebRenderer are trademarks of JadeLiquid Software in the United States and other countries. Sun, Sun Microsystems, the Sun Logo and Java are trademarks or registered trademarks of Sun Microsystems, Inc. in the United States and other countries. All other trademarks and product names are property of their respective owners.

JadeLiquid Software/WebRenderer: Seamlessly Connect the Rich Client to the Server

The WebRenderer browser SDK provides flexibility in delivering and displaying Web content

With the number of J2EE based Web infrastructures growing at a phenomenal rate there is a need for presentation layers to display complex Web based content.

The challenge for client-side Java applications is to display this rich Web content in a meaningful way. Java does not have a standards compliant Web content rendering engine built into the J2SE SDK. This poses a challenge for Java developers with a requirement to display rich Web content.

Desktop Java Re-Emergence

Traditionally Java developers have looked to other programming languages to facilitate development of rich-client applications due to a lack of Web content rendering support. This is no longer necessary as Java has moved forward in leaps and bounds on the desktop. The desktop Java re-emergence has been driven by a number of factors, one being the emergence of rich client vendors providing frameworks to display Web content in a meaningful way.

WebRenderer provides such a framework through an embeddable browser SDK. WebRenderer is different from traditional non-standards compliant Java browser components due to its use of underlying browsers such as Mozilla, Safari and Internet Explorer to deliver Web content rendering.

The WebRenderer design paradigm is focused around not trying to reinvent the wheel by implementing every Web standard, as this had already been done by the Mozilla foundation, Microsoft and Apple.

WebRenderer leverages Internet Explorer, Mozilla and Safari browser technologies by providing access to the three world leading browsers across multiple platforms.

The Challenge

The challenge in rendering Web content comes by virtue of the number of Web standards starting with HTML, CSS 1, JavaScript and SSL. Then there are the new-age standards such as XHTML, XSL and CSS 2. Any capable Web rendering engine must support the latest standards as the proliferation of J2EE based architectures have provided richer content than ever before to the client.

Because WebRenderer is a layer above Mozilla/Internet Explorer/Safari, it supports all common Web standards and provides the most reliable Web content rendering available.

The Cost of Rich Clients

The cost of implementing a custom client utilizing an embedded browser SDK is low. Legacy content from Web infrastructures does not have to be modified, thus providing the flexibility of a normal browser with the power of a rich client.

Through Web content rendering Java rich client applications can capitalize on existing J2EE and Web resources / infrastructures to deliver a distributed rich client application without modifying data or sources.

The WebRenderer browser SDK provides flexibility when delivering and displaying Web content. Through WebRenderer the rich client can control almost every aspect of the Web content display and navigation experience.

Business Benefits

- WebRenderer has a low cost of ownership.
- Significant time-to-market savings over developing in-house Java browser components.
- WebRenderer enables developers to concentrate on the end product.
- Cost and time savings of embedding WebRenderer lead to high ROI.
- WebRenderer is tried and industry tested.
- Component reusability significantly speeds up future developments.
- WebRenderer is the leading Java browser component and the only standards compliant Java Web content rendering component available.
- Reuse of existing web infrastructure such as server-based legacy Web content generation and delivery

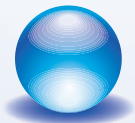
WebRenderer is available for a free 30 day trial at:
www.webrenderer.com.

JadeLiquid Software
301 Sandy Bay Road
Sandy Bay, Tasmania
Australia, 7005

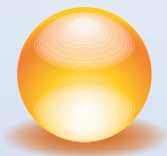
For more informatuon, visit:
www.webrenderer.com
Call +613.62266274

H S T I N G . c o m

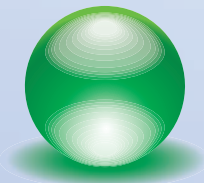
THE FIRST NAME IN HOSTING



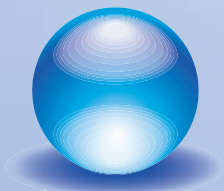
Developers!



Developers!



Developers!



We Love Them!

SERVE. SUPPORT. SECURE. STORE.

www.hosting.com

Hosting.com: Hosting Companies Missing the Mark on Customer Experience

Many companies are overselling buzzwords vs. focusing on client needs

With competition in the web hosting industry becoming more and more rigorous, companies must continuously find new and innovative ways to bring value to potential and existing customers. While almost all hosting companies claim expertise in areas of "hardware provisioning", "infrastructure" and "uptime", those that are leading the pack are focused on the total customer experience. Successful hosting companies use the inherent strengths of their technical staff to create new and innovative solutions. These solutions are ideally customized to meet the customer's ever-changing needs.

Optimizing a customer's experience within a company is not an easy task. The needs of clients change, often on a daily basis, and fluctuate as widely as their industries vary. Keeping up with these changing demands can be daunting, but ultimately validates and solidifies a company's significance to its client.

This desire to continuously adapt and innovate is what innately drives the technology industry and should, in the end, drive hosting companies to succeed in the eyes of their customers. However, it's not just putting a new spin on featured products or services, it's taking the product several steps further – almost to the edge – of what customers might expect.

For a hosting company, this might mean not just throwing another SQL box at a latency issue to solve a problem, but providing SQL tuning and optimization to identify root causes and create better efficiency. Reporting simple statistical information on web traffic is not enough. It's imperative to partner with experts who can provide services such as Pay-Per-Click Fraud identification. This identification has a potential to save hosting customers thousands of dollars each year.

Why focus on the individual needs of the customer? It's Marketing 101 – customers want stable, reliable and trustworthy companies with recurring success in their space. They also want their hosting company providing service well ahead of what they could ever imagine – proactively solving problems that hopefully will never enter their realm of thought.

It has been proven in industries across the board that it costs much less to keep existing customers than to recruit

new customers. Therefore, why not create the best, most comprehensive and innovative experience for your customers? It's the creation of this experience that many companies fall short of delivering. However, it's this type of understanding of customer's needs that, in due course, will differentiate one hosting company from the thousands competing globally.

Thus, a customer-centric strategy to providing products and services will, if executed properly, lead to future marketing success. A recruitment strategy highly directed toward adding value to customer experiences will lay the groundwork for effective word-of-mouth marketing. Satisfied customers tell their friends, colleagues and associates about their positive experience with their hosting company.

How might a company begin with a program such as this? It helps to promote a supportive environment in which employees are encouraged to take ideas to the edge. Ask employees to identify ways in which they believe customers might respond better. Encourage employees to better understand the customer's individualized business needs by asking questions. This aspect is critically important. It is not enough for support staff to answer a question, solve a quick problem and then hang up the phone. Take this opportunity to talk to the customer about what more they might need in their hosting environment. What do they feel is currently lacking?

At the end of the day, continuously evolving hosting companies that are identifying new solutions, and understanding the customer, will see the greatest customer retention. Creating this culture now among support and technical staff will reap the greatest rewards for hosting companies in the near future. ■

About the Author

Jonathan Erwin is V.P. of Sales and Marketing for Hosting.com, a managed hosting provider headquartered in Louisville, KY. He is a 15-year veteran of sales and marketing for early stage and rapid growth technology companies. He brings his expertise in selling collaborative communication, development and Internet technologies to the development and implementation of Hosting.com's global sales and marketing strategy.

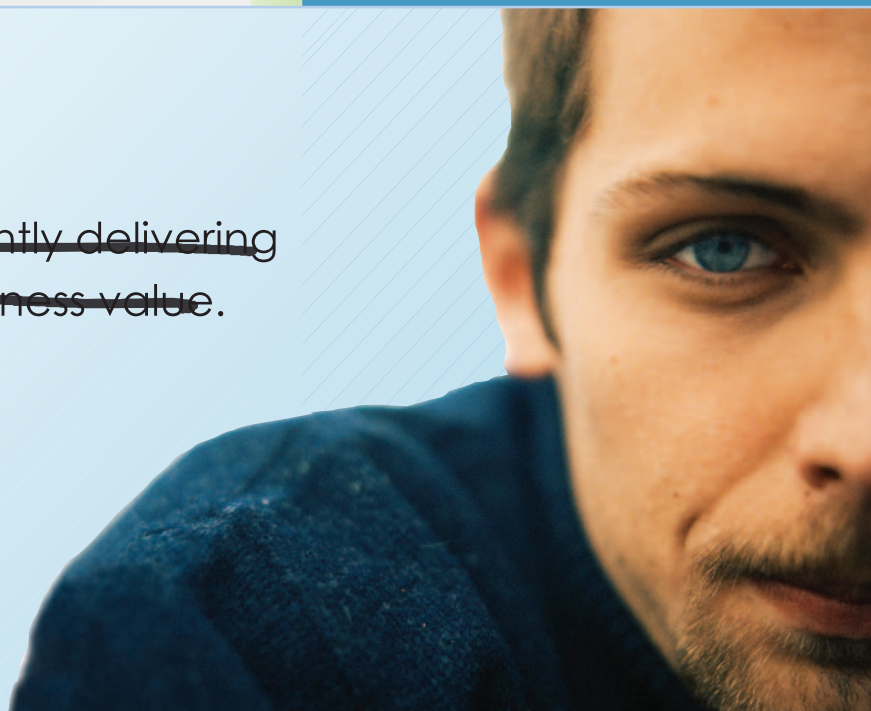
HOSTING.COM

Hosting.com
P.O. Box 70309
Louisville, KY 40270
www.hosting.com

Think ~~Java development is complex & overengineered?~~

~~Think~~ **again.**

~~I want to be known for consistently delivering applications and providing business value. That is why I use ThinkCAP.~~



ThinkCAP™

ThinkCAP 6.0 simplifies and accelerates the development and maintenance of J2EE-based web applications by 50%.

~~ThinkCAP's Visual Workbench and integrated MVC framework bring high productivity to corporate application developers (those with PowerBuilder, RPG, or Oracle-like skills) while letting J2EE programmers build reusable business logic & components using their tools of choice. The result is productivity for the whole development team.~~

~~Because of features such as Smart Data Binding, Visual Page Flow, and seamless Hibernate/Castor support, your team focuses on value added functionality—not low-level “plumbing.” ThinkCAP integrates over 20 open source projects providing a practical mix of high productivity, robust functionality, and standards support.~~

Download a free trial version or view a demo at www.clearnova.com.

CLEARNOVA
Deliver Web Applications at the Speed of Business

Highly Productive Visual Workbench

Actions-based MVC Framework

Page Flow Designer & Generator

Easy to Learn Event Model

Advanced Data Aware Components

Forms, DataViews, Queries, Navigations

Workflows, Graphs, Treeviews, Grids, Tabs

Multirow Updatable DataViews

Extensible Browser & Server-side Validation

Point & Click Smart Data Binding™

Service Flow Designer for Web Services/SOA

Content Management & Workflow Engine

Platform Independence: Any Java Server/OS/IDE/Database

Integrated Role-Based Security

Seamless Integration with over 20 Open Source Libraries

Team Development with CVS Support

ClearNova: RAD Productivity Is Now Available for J2EE & Open Source

*How to simplify and accelerate the development
and maintenance of your Web-based business apps*

*With ThinkCAP,
you don't need to
be a J2EE expert
to build business
applications.*

*Up to 60% of COBOL
developers and 40%
of 4GL developers
will not make a
successful transition
to Java and RAD
tools can drastically
help the chances
of success.*

*— Source: Gartner
Group in Application
Development Trends,
May 23, 2005*



ClearNova Inc.
1000 Windward
Concourse Parkway
Suite 275
Alpharetta, GA 30005
phone: 770-442-8324
fax: 770-442-5975



To learn more about
ThinkCAP, go to:
www.clearnova.com/

J2EE Development Is Too Complex

J2EE is powerful yet very complex. While it provides reliability, scalability, and security, those benefits are achieved slowly and at high cost. It's well known that Java suffers from a lack of high-productivity development environments. Existing tools are designed for J2EE programmers and are not geared toward business application developers. As a result, many developers who were productive in 4GLs such as PowerBuilder or business languages such as COBOL or RPG find themselves essentially locked out of building J2EE web applications because of the steep learning curve of traditional low-level Java coding.

The result is that developing robust Java-based business web applications is expensive and time-consuming. Consider that almost all J2EE web projects suffer from one or more of the following problems:

- Inability to meet the needs of the business on time
- Labor-intensive development resulting in long development cycles
- Architectures consisting of a fragile mix of frameworks, code, libraries, XML files, and scripts
- Need for highly skilled (and expensive) J2EE programmers
- Extensive re-training of existing client-server and mainframe developers
- Over-engineering of applications because of "résumé building"

There is a better approach.

With ThinkCAP, you don't need to be a J2EE expert to build business applications. ThinkCAP extends the power of J2EE by making it widely accessible to a broad developer audience. ThinkCAP's Visual Workbench provides over 15 easy-to-use designers for developing pages, page flows, forms, multi-row data views, queries, charts, portal components, web services, process flows, and much more. Instead of writing "plumbing" code, ThinkCAP lets developers concentrate on value-added business functionality.

ThinkCAP: Deliver at the Speed of Business

ClearNova's ThinkCAP offers a proven way to rapidly build business applications that meet schedule, cost, and skill constraints. With it, you can build web applications in half the time as traditional J2EE development.

ThinkCAP includes a powerful visual design environment and web framework, usable by both J2EE experts and non-experts, which dramatically simplifies and accelerates building robust web-based business applications. With its highly visual workbench and fully integrated MVC web framework, ThinkCAP significantly cuts development complexity and time. As a result, developers write less code and deliver more functionality.

Designed to be usable by developers with 4GL, COBOL, and RPG back-

grounds, ThinkCAP leverages ClearNova's years of experience in delivering real-world business applications. ThinkCAP brings high productivity to prototyping and building transactional web pages, application page flow, content management, data persistence, web services, and data binding.

In addition, ThinkCAP's open design, use of over 20 open-source projects, and MVC architecture means that it is powerful and flexible enough to satisfy the needs of experienced J2EE developers and architects.

Well-Architected Framework and Reusable Components

ThinkCAP includes an advanced MVC framework for driving web applications and portals. It delivers a wide array of ready-to-use data-aware visual controls, connectors for data access, and services for ease of development. In real-world application development, ThinkCAP's application "assembly" approach is simpler and over twice as fast as writing code. Using pre-built, pre-tested components also reduces overall project risk. Pluggable, reusable ThinkCAP components are available at every level of application development and developers can easily add their own components and make them available to the entire project team. ThinkCAP provides the best of both worlds: productivity and standards-support.

The Proof Is in the Application: Two Examples

1. Using ThinkCAP, ClearNova recreated the functionality of the Java Pet Store application in 447 lines of code – barely 25 percent of Microsoft .NET's best effort – and dramatically lower than pure J2EE coding. And it took one developer just three days to build it.
2. Carlson Wagonlit Government Travel needed a thin-client web application to replace its existing client/server system. Estimates for code-centric development exceeded one year and a team of almost 20 developers. With ThinkCAP, Carlson went from design to completion in under three months using a team of ten people and delivered over 200 highly transactional web pages. The application is used today by the U.S. State Department and the Department of Interior.

Putting the Focus Back on Business Applications

ThinkCAP has many benefits, but the critical point is ThinkCAP allows organizations to put the focus back on business functionality instead of low-level coding. With its singular focus on simplifying and accelerating web application development, ThinkCAP opens J2EE-based web development to a broader team of developers than ever before. As a result, ThinkCAP allows organizations to reduce project risk, leverage existing IT skills, shorten project timelines, and deliver on-time and within-budget. ■

**OUR
CUSTOMERS ARE
DEMANDING
THE POWER OF
LOCATION
INTELLIGENCE.**

Apply Location Intelligence to your applications

Leverage hidden assets in your data

Empower your customers to make better decisions

Show your customers the power of Location Intelligence

Be a hero.

Be Location Intelligent™

To learn more about
Location Intelligent
developer products, including
free evaluations, visit
www.mapinfo.com/developer

1.800.FASTMAP (327-8627)



MapInfo: Location Intelligence

Enabling more insightful decisions

"Location Intelligence enables organizations to reach their performance targets and provides a critical addition to a company's operational processes. Organizations today that fail to embrace location as a business context and technology will fall behind competitors and not be effective or efficient in their daily operations."

— Mark Smith, CEO and Senior
Vice President of Research
at Ventana Research

Your company collects enormous amounts of information. Data that tells you a lot about the "who," the "what," the "when" and the "how many." Whether you realize it or not, that data contains a hidden asset you can't see in a spreadsheet or chart that can provide you with a significant competitive advantage.

The "Where"

Organizations are realizing the power and benefits of including Location Intelligence in their day-to-day operational and analysis tools. This additional capability has benefits such as:

- Helping employees make more informed decisions
- Improving customer services
- Augmenting facility and asset management
- Enhancing planning and organizational responsiveness

MapXtreme® 2004, for the .NET development environment, and MapXtreme® Java, for Java developers, make possible the development of map-enabled applications. Each provides a single environment for deployment of applications to either the desktop or the web. And they comply with both IT and geospatial industry standards ensuring interoperability.

MapXtreme 2004

Designed for Windows® programmers who are familiar with the Microsoft® .NET development environment, the MapXtreme 2004 SDK works with a number of languages including VisualBasic.NET, C#, Visual C++ and ASP.NET. It fully integrates with VisualStudio. NET and uses drag and drop functionality to facilitate rapid application development.

MapXtreme Java

Completely 100% Java, MapXtreme Java has the key advantages of scalability, multi-platform support and write once, run anywhere saving development time and cost. MapXtreme Java comes with a set of visual and non-visual JavaBeans™ that speed application development because they can be used with visual IDEs such as Borland® JBuilder,™ Oracle® JDeveloper, or Sun® ONE Studio. Developers can use the standard drag and drop and set properties mechanisms to add objects to their applications.

MapX Mobile

MapX Mobile helps organizations seeking to improve the efficiency and productivity of their mobile workforce by enabling the

creation of map-enabled applications for Pocket PC powered devices. A mobile workforce can receive, view and analyze data wherever critical decisions are made. MapX Mobile has built in GPS support and enables complete customization via standard development languages such as embedded C++ and .NET.

MapXtreme 2004, MapXtreme Java and MapX Mobile provide you with the tools needed to easily incorporate mapping technology into your applications. These capabilities help you present data in easy to understand formats. Join your colleagues who enable Location Intelligence across their organizations.

Learn more at www.mapinfo.com/developer.

Who is Location Intelligent?

A Major Financial Services Firm – enabling their customers to find ATMs and vendors around the world by phone or website.

A Leading Reinsurance Provider – visualizing risk exposure.

U.S. Department of Commerce – analyzing trade statistics visually at ese.export.gov.

Several Major Telecommunications Providers – helping customers determine which services are available by location.

A Transportation and Delivery Firm – employing an internal application that enables their sales representatives to develop quotes more accurately and quickly.

A Major European Solutions Provider – offering a web-enabled vehicle tracking and telematics solution.

South Florida Water Management District – providing citizens, scientists, teachers and students access to a vast amount of information about the Everglades at glades.sfwmd.gov.

And many, many more.

About MapInfo®

MapInfo enables organizations to become location intelligent through the use of software, data and professional services. Location intelligence helps organizations:

- make more insightful decisions by visualizing information such as sales territories and store performance;
- lower costs through operational efficiencies and better management of assets;
- increase revenue through better site selection and product/service offerings;
- improve customer service through self-help and easy to understand visuals;
- see where the threats are and where the opportunities lie. ■



To learn more about
Map Info, go to:
MapInfo.com

Are you using PDF technology in your daily business?

Do your requirements go beyond the standard features offered by your current PDF products?

World leader in PDF programming technology



PDF Tools AG has spent years addressing your needs and is proud to offer the newest line of PDF tools designed for customers relying on PDF technology for their critical business processes:

The 3-Heights™ family of PDF programming components

PDF Tools AG is a world leader in PDF programming technology, delivering reliable PDF products to international customers in virtually all market segments.

PDF Tools AG provides server-based software products designed specifically for developers, integrators, consultants, customizing specialists and IT-departments. Thousands of companies worldwide use PDF Tools AG's products directly and tens of thousands more use the technology indirectly via our growing network of OEM partners. The tools are easily embedded into application programs and are available for a multitude of operating system platforms.



Contact:
pdfsales@pdf-tools.com

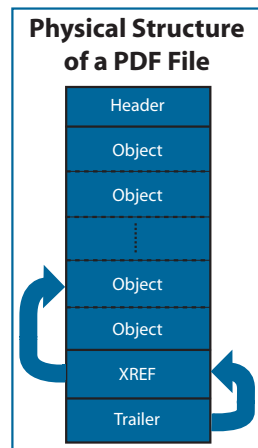
or visit us at:
<http://www.pdf-tools.com>

pdf-tools.com:

Quality Assurance in PDF – Business Critical Files May Not Be Legible in the Future

If you bake a cake, you start by checking the “best before” date on the cake mix, smelling the milk to ensure it’s still good, and looking at the eggs when cracking them open. If any of the ingredients are bad or have reached their expiry date, you won’t use them. In comparison, how many companies check the PDF documents they receive from external (or other internal) sources before entering them into business processes, where the cost of failure is considerably higher?

PDF is the preferred processing and archiving format for millions of business documents that have to be retained and reproducible for years. But it is alarming how few users are aware of the potential quality problems with PDF or analyze the quality of their PDF documents. PDF files that are created and processed in your daily business can contain corruptions that allow the documents to be viewed and appended today, but may hinder or wholly prevent their reproducibility in the future.



It may astound you, but many PDF creators systematically produce corrupt PDF files, i.e. every PDF file they create is corrupt. This applies not only to free creators, but also several well-known and popular commercial creators and applications.

Corruption can creep into a PDF file in several ways. There are endless possibilities with the semantics of imbedded files (fonts, Java script, XML's) and object attributes. These corruptions can be caused by creation, manipulation, or conversion processes. Another common cause is a file being

truncated when it is transmitted. The physical structure of a PDF file (see picture) is quite different from its logical document structure. First the header is read, which identifies the file as PDF, then the trailer. The trailer points to the cross-reference table, which then points to the objects containing pages, fonts etc. If the end of the PDF file is truncated, the trailer is incomplete and the process breaks down before the document can be read.

It is possible to view some slightly corrupt PDF files with a PDF reader. Adobe® Acrobat for example can repair certain minor errors “on the fly” to make the PDF files viewable. It however does not analyze the entire file and cannot repair most types of corruption. The future legibility of the PDF files is not guaranteed with this process.

The logical approach to guarantee the future legibility of PDF files is to

Quality Assurance in PDF

- Hidden corruption may make PDF files illegible in the future
- Several commercial and free creators systematically produce corrupt PDF files
- Viewable today does not mean viewable tomorrow
- PDF files can be analyzed against corruption
- Analysis tools can be easily integrated into business processes

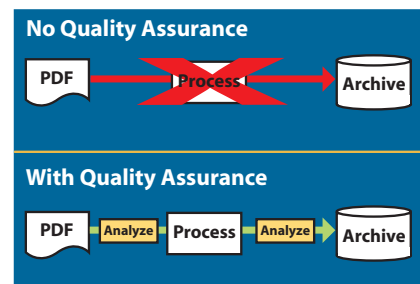
properly analyze the files before they are entered into a business process. Corrupt files could be immediately identified and repaired or replaced. Once the business process (which could include a number of PDF manipulation and conversion functions) is completed, the output can again be analyzed to ensure that it is still valid.

Is this analysis really necessary? Let's put the question differently. Take for example older financial statements that were archived in PDF format. If you cannot quickly reproduce those statements when the tax auditor visits, how much effort will it cost you to reconstruct them?

Despite the necessity, there are relatively few analysis tools available for PDF documents. This is primarily due to the in-depth knowledge of PDF required to produce such a tool. pdf-tools.com first developed a PDF analysis and repair tool for internal quality assurance, i.e. to test and confirm the quality of the PDF documents that our own tools were creating and processing. The 3-Heights™ PDF Repair Tool is now available on the market in API, Shell and Desktop versions for both Windows and a variety of Unix platforms. The tool analyzes and repairs PDF files, and can recover information out of irreparable PDF files.

Integrating a PDF analysis and repair tool into your business

process is a lot easier than you may think. Investigating the possibilities today could save a lot of headaches and considerable effort in the future. If you would like learn more about analyzing and repairing PDF documents, or about the 3-Heights™ PDF Repair Tool, please visit www.pdf-tools.com or contact: pdfsales@pdf-tools.com. ■



PDF Tools AG
Geerenstrasse 33
8185 Winkel
Switzerland

phone: +41 43 411 44 50
fax: +41 43 411 44 45
pdfsales@pdf-tools.com
www.pdf-tools.com

Parasoft:

Automatically Improve Java Reliability, Functionality, Security, and Performance with Parasoft Jtest

Parasoft Jtest is an automated Java unit testing and coding standard analysis product that improves Java code reliability, functionality, security, performance, and maintainability. To prevent common Java errors and security vulnerabilities, Jtest checks whether code complies with 500+ Java development rules and automatically corrects many reported violations. Rules can be customized without coding, and user-defined rules can be created graphically or automatically. To expose reliability and security problems within each unit, Jtest examines each class, then generates and executes JUnit test cases designed to achieve high coverage and expose uncaught runtime exceptions. To expose functional errors, Jtest provides fast and easy ways to add and execute realistic user-defined test cases-- including a test case sniffer that automatically generates functional JUnit test cases by monitoring a running application, a graphical test case editor with data source and range value support, a graphical object editor, and features for extending, modifying, and verifying automatically-generated JUnit test cases. To ensure continued functionality, Jtest's automated regression testing identifies problems introduced by code modifications.

Jtest improves Java code quality throughout the software lifecycle and improves productivity across the entire team. Developers can use it to test code as they write it, and QA team members can use it to identify critical problems before an imminent release/deployment deadline. Jtest integrates with complementary Parasoft products to provide automated system-wide testing solutions for Web applications, Web services, and other n-tier systems. Moreover, Jtest works as part of a comprehensive team-wide Automated Error Prevention solution that reduces delivery delays and improves the quality and security of complex, multi-language enterprise applications.

Using Jtest for "Test as You Go" Daily Development

During implementation, developers can use Jtest to automate the "test as you go" strategy. To make this testing as painless and unobtrusive as possible, Jtest integrates seamlessly into development IDEs and automates key testing tasks—including complex tasks, such as intelligent JUnit test case design, that no other

product can automate. As soon as you complete a new class, you click the Jtest IDE button. Jtest then analyzes code in two ways.

First, Jtest verifies whether code complies with development rules for preventing functional errors, security vulnerabilities (including SQL injection and suspicious/malicious code), performance problems, and pitfalls specific to technologies such as JDBC, EJB, JSP, servlets, and so on. Many violations can be corrected automatically, so code can be significantly improved in just seconds.

Second, Jtest automatically generates and executes JUnit test cases designed to achieve high coverage, expose uncaught runtime exceptions and memory leaks, and describe the code's current behavior. Test findings are reported as a prioritized task list, so you don't need to waste time wondering where to start or what to do next. You can use Jtest's Quick Fix verification to convert automatically-generated test cases to functional test cases, which can also be leveraged for regression testing. Even if you never review or verify test cases, Jtest will assume that the current outputs are correct, save a snapshot of the class's current behavior, and report behavior changes caused by future modifications. Moreover, if you want to extend the automatically-generated test suite to improve coverage or verify specific functionality requirements, Jtest provides easy ways to express and verify even the most complex test cases. Test cases can be added automatically (using a test case sniffer that generates functional JUnit test cases by monitoring a running application), graphically (using a graphical object editor and a graphical test case editor with data source and range value support) or programmatically (by modifying or extending standard or automatically-parameterized JUnit test cases). When methods reference external resources, Jtest's robust stub functionality allows developers to mimic realistic behavior while writing a minimal amount of code. It even provides special tools for testing database interactions; with these tools, you can easily recreate a local test database on your desktop, then run test cases with extremely realistic data.

Using Jtest to Clean a Large (Multi-Million Line) Code Base

Jtest is equally adept at testing large complex code bases as it is at testing

individual classes. At this level, Jtest runs unobtrusively in the background, without requiring any human guidance. A designated Jtest server machine automatically scans the team's source code base, then 1) identifies code that does not comply with critical Java development rules proven to make immediate and significant improvement to code reliability, functionality, security, and performance, and 2) designs and executes JUnit test cases designed to achieve high coverage, expose uncaught runtime exceptions and memory leaks, and describe the code's current behavior. Test findings are prioritized according to severity, so it's easy to determine where you should focus your resources. Many problems can be corrected automatically using Quick Fix.

Using Jtest to Automate Realistic Functional Unit Testing

Jtest's groundbreaking test case sniffer automates realistic functional unit testing, which detects when code changes/additions break key application functionality and traces problems to specific lines of source code. The sniffer automatically generates realistic unit-level test cases for any executable application or module—including stand-alone applications or applications running on application servers. Just exercise the running application, and the sniffer automatically creates JUnit test cases with real data that represents the paths that were taken through the application. No coding or scripting is required. To ensure that unintentional functionality changes are exposed immediately after they are introduced, run the generated regression test suite nightly.

Facilitating Team-Wide Quality Improvement

Jtest improves productivity team-wide by helping team members leverage one another's test settings, related files, and test assets (test cases, objects, etc.). To ensure that all test-related work is reused and that no team member reinvents the wheel, Parasoft Team Configuration Manager automatically manages the sharing and updating of standard team test settings and files across all team Jtest installations. One Jtest "Server Edition" is installed on a central team machine, where it automatically scans and tests the team's shared code base in the background each evening, then emails the manager and responsible developers if any problems are detected. In addition, Jtest is installed on each developer, QA, and architect desktop, where it can be used to interactively test code or review/repair problems identified by the Jtest Server installation. To help your team monitor progress toward your quality goals, Jtest reports data to Parasoft Group Reporting System, which collects and analyzes data from Jtest and other testing products, then organizes data into role-based dashboards tailored for the needs of managers, architects, developers, and testers. GRS provides team members fast and easy access to custom status reports that cover the project from all relevant perspectives—not just its Java code. This unprecedented visibility improves productivity, reduces costs, and reduces the risk of deploying applications with quality or security problems.

Jtest works as part of a comprehensive team-wide Automated Error Prevention solution that reduces delivery delays and improves the quality and security of enterprise applications. For teams developing Java-based Web applications, Web services, or other n-tier systems, complementary Parasoft products—such as Parasoft WebKing, Parasoft SOAPtest, and Parasoft DataRecon—are added to provide an integrated system-wide quality control solution. By using Parasoft products in concert, you can not only verify that each part of the system is secure, reliable, and functional, but also verify system-wide interactions through the automated creation of realistic functional tests.

Benefits

- Improve code reliability, functionality, security, and performance quickly and painlessly
- Obtain instant expert feedback on code quality and potential defects
- Prevent code modifications from breaking previously-verified functionality
- Perform extensive testing with minimal user intervention
- Spend less time testing/debugging and more time on creative tasks
- Reduce the risks that cause late, over-budget, incomplete releases
- Identify errors lurking in existing applications
- Optimize code review time
- Ensure that best practices are applied consistently and uniformly across the team
- Monitor overall project quality, specific project segments, and progress toward quality goals

Features

- Tests individual classes or large, complex applications
- Generates realistic functional JUnit test cases as the application or module is exercised (Requires optional Sniffer license)
- Generates intelligent JUnit test cases that expose reliability problems and security vulnerabilities
- Monitors test coverage and achieves high coverage automatically
- Provides fast and easy ways to add user-defined functional test cases and extend automated test cases
- Parameterizes automatically-generated or user-defined JUnit test cases for easy reuse (Requires optional Test Case Parameterization license)
- Automates regression testing and updates the regression test suite as needed
- Supports legacy JUnit test cases
- Identifies memory leaks
- Identifies violations of 500+ rules that improve functionality, security, performance, and maintainability
- Corrects violations of 200+ rules
- Checks an advanced set of security rules designed to identify common and critical application security vulnerabilities (Requires optional Security license)
- Allows rules to be customized without coding
- Allows the graphical or automated creation of rules for application-specific, team, and organizational rules (Requires optional RuleWizard license)
- Creates a prioritized task list after each test
- Tailors testing and reporting to suit each team's priorities and preferences
- Manages team-wide sharing of test settings and files
- Provides robust batch-mode and reporting capabilities
- Generates HTML and XML reports
- Tracks how test results and code quality change over time
- Tracks progress toward specified team quality goals
- Integrates seamlessly into the IBM WebSphere Studio Application Developer, Rational Application Developer, and Eclipse IDE
- Supports Borland JBuilder and Ant
- Integrates with CVS, ClearCase, and StarTeam

Platforms

- Windows 2000 and XP
- Solaris
- Linux



101 E. Huntington Drive
Monrovia, CA 91016
888-305-0041
www.parasoft.com

Smart Development Environment

15th Annual Jolt Product Excellence Award in the Design Tools category Winner

SDE won the 15th Software Development Magazine Jolt Product Excellence Award 2005 in Design Tools category over IBM Rational Software Architect and Borland Together Designer.



Visual Paradigm products

VisualParadigm
for UML



DB Visual
ARCHITECT



Visual Paradigm
Teamwork Server

2004 Quadruple award winning product



6TH EXCELLENCE AWARDS
6IT
Silver Award winner

Visual Paradigm helps
ACCELERATE the entire
MODEL-CODE-DEPLOY
process in a **DISCIPLINED** and
COLLABORATIVE way to **EXCEED**
customers' expectations.

sales@visual-paradigm.com
www.visual-paradigm.com



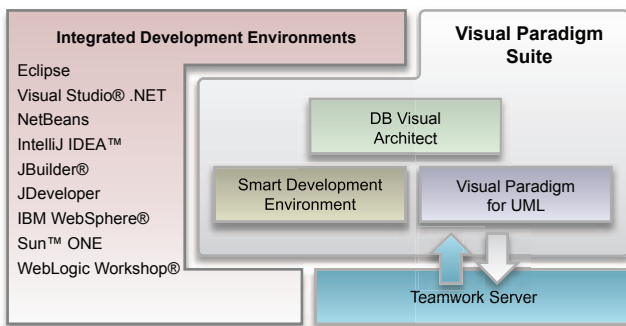
Visual Paradigm

Visual Paradigm Suite

Build Quality Applications Faster, Better and Cheaper

Do you have feelings that spending lots of money for a tool but the productivity is not as you wish? Do you find it hard to keep track on the development against the requirements? Are you feeling that it is difficult to keep your design and implementation in-sync for generate accurate documentation? If you answer yes to any of these questions, probably you are using the wrong tool!

Visual Paradigm Suite is designed to address the above issues, and more. Visual Paradigm Suite is a group of software that helps accelerates your development throughout the software development life-cycle. It provides extensive support to modeling, coding and deployment so that you and your developers can work in a disciplined way, and different specialists inside your team can work in a collaborative manner. This article will introduce different units of the Visual Paradigm Suite one by one.



Visual Paradigm for UML (VP-UML)

VP-UML is an UML CASE tools that combines professional UML modeling, advanced code engineering and excellent interoperability into a single development platform. Its easy to use interface make the modeling task become more natural thus increase the productivity. The IDE Integration capabilities transform your design into implementation. The documentation generation facilities help you to create professional report for your project.

Smart Development Environment (SDE)

SDE is a variation of VP-UML which embedded into your favorite IDE, including Eclipse, Microsoft Visual Studio .NET, JBuilder, NetBeans, Sun Studio Enterprise, IntelliJ IDEA, JDeveloper and WebLogic Workshop. With the streamlined design and development environment, developers can perform all the modeling and implementation task inside a unified environment thus greatly enhance the productivity and reduce the learning curve for the new environment.

DB Visual Architect (DB-VA)

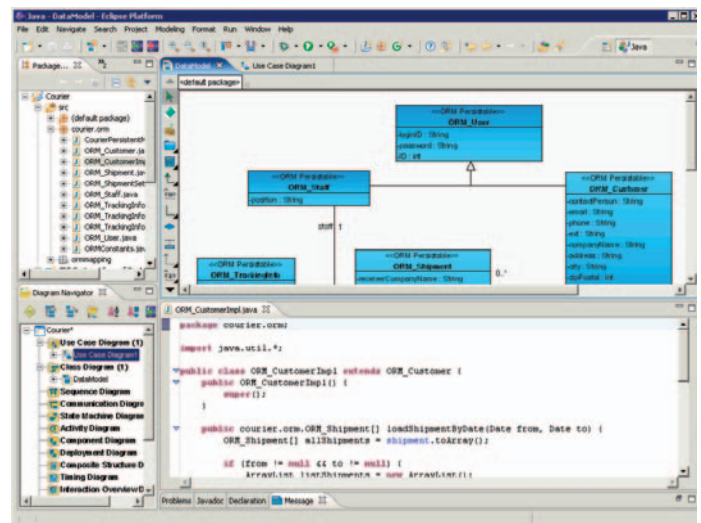
Data Persistence is one of the most important aspects in software development. DB-VA provides a sophisticated UML Class Diagram and ER Diagram for modeling the mapping between OO and Relational view. DB-VA also generates a cost-effective, reliable, scalable and high-performance object to relational mapping layer which increases the productivity and reduces the risk of developing it manually significantly.

Benefits:

- Usability does matter:**
 Productivity is never be increased by complicated application. We do concern the usability and that's why we introduce many features not just satisfying technical needs but also the user experience.
- UML 2.0 Support:**
 UML 2.0 is the major trend in software development. The improved architectural support makes it more towards the model driven approach. VP

Suite provides extensive support to UML 2.0 by cover all the diagrams and notations.

- True Integrated Development Environment:**
 VP Suites makes your favorite IDE becomes the true Integrated Development Environment by covering the whole software development life-cycle. VP Suite provides support to requirement capturing, analysis and design and the models can be generated into source code for simplifying the implementation. Changes in model or source code are always synchronized
- Sophisticated Object-Relational Mapping Generator:**
 The mapping layer generated by VP Suite incorporates prime features such as transaction support, pluggable cache layer, connection pool and customizable SQL statement. This helps developers keep away from mundane implementation work and focus on business requirements.
- Enterprise JavaBeans Support (EJB):**
 EJB enables distributed, transactional, secure and portable applications deployment. Programming in EJB is complicated task. VP Suite simplifies the EJB development. The Beans can be developed by drawing stereotyped class diagram or reversing database.
- Model Driven Development:**
 VP Suite provides a true model driven platform for your development. You can either start from creating models using class diagram or ER diagram and then generate the executable persistence layer, or perform modification on existing database at the model level by reversing the database into ER models or further transform into Class model. With our leading code generator, your persistent model will update automatically according to your modification.
- Extensive Database Coverage:**
 VP Suite supports a wide range of database, including Oracle, DB2, Cloudscape/Derby, Sybase ASE, Sybase SQL Anywhere, MS SQL Server, PostgreSQL, MySQL and more.



VP Suite is available for a free 30-day trial at
www.visual-paradigm.com



> CONTENT GLOBALIZATION

Adding Global Markets to the Content Life Cycle



by Donald A. DePalma

What tools best help unlock the value of information globally?

>> *When mankind built the Tower of Babel in its vain attempt to reach heaven, information traveled no farther than the builders' voices could carry it. The small human population on this pre-literate planet communicated its newfound knowledge from mouth to ear.*

Millennia later, billions of people create enormous amounts of new information daily. Governments spew out crushing heaps of information. Corporations increase the data they store by more than 50 percent every year. To be useful, much of this content needs to be translated into many languages and formats. The European Union alone mandates publication of Community law in 20 languages, more as it expands to the east. Multinational corporations produce websites and publish marketing collateral for dozens of languages.

Left Behind in the Original Language

Due to the flood of words, inadequate budgets, time-to-market concerns, staffing shortfalls, and broken processes, more than 99 percent of what people write, say, or generate never leaves the language in which it was created. Complicating this problem with traditional documents and software is the flood of e-mails, text messages, and blogs containing potentially relevant or valuable information.

Governments and companies wonder how to deal with these new text types entering the pool of potentially valuable – and thus translatable – items.

This article focuses on the challenges posed by this potentially global content and the tools that will help unlock this valuable information. Organizations around the world will have to employ an array of familiar software solutions and specialized language tools to increase the productivity of code developers and content authors.

Why Should You Worry about Global or Multilingual Markets?

For large corporations, offering valuable content in a variety of languages is not an option but a prerequisite of doing business across the planet. Many global enterprises mandate English for internal operational use while their market, sales, and support teams cater to international customers who prefer transacting in their own languages.

It's often tougher for smaller enterprises to justify entering foreign markets. However, depending on what they sell, they might not have a choice about dipping their toes into global business and offering up more of their information in other languages. Exports and imports already make up roughly 20 percent of the gross domestic product in the United States. According to the International Monetary Fund (IMF), world output will increase 4.4 percent this year, down slightly from 2004's 4.6 percent but higher than the U.S. economy's projected rise of just 3.9 percent.

That seemingly small 0.5 percent difference in GDP growth means U.S. firms will find that profits from their non-American operations grow up to 15 percent – or US\$45 billion. Cheaper dollars – more than 30 percent less valuable than in 2000 – will make foreign sales more profitable for U.S. firms. Meanwhile, America's Hispanic population – 13 percent of the population moving toward US\$1 trillion in buying power – typifies the largely untapped lure of targeted, multicultural marketing and its requirement for translated or at least culturally aware content.

Global Business Raises the Enterprise Bar

At first blush many organizations think that supporting international markets is just about translating websites, however this is only the tip of the global marketing and business iceberg. Any organization hoping to meet the needs of linguistically and logistically different audiences will find a range of requirements driving the localization process.

- Publish audience-appropriate content. Doing business internationally means that global organizations must have a physical or web presence and product offerings in the form that makes sense for each national or domestic ethnic market. Traditionally that has meant translating marketing materials, service manuals, and documentation.
- Deal with converging code and content. More reliance on the internet means that international aspirants will add global websites and multilingual e-mail, internal

applications, and collaborative applications to their “must-have” list. More advanced systems – customer relationship management, business analytics, transactions, support, and games – increase the demand for adapting materials to market requirements in real time (see Figure 1). Little information stays in its original form. Suppliers such as EMC report that organizations store at least 50 percent more content year over year, visibly increasing the pool of potentially valuable content.

- Scale to global markets and volumes. Organizations employ complex, multi-technology environments to transform information from where it was created to where it is needed. They need to do this regularly across a variety of systems; for a new product release a computer maker might have its language service provider translate 5,000 files into eight languages. Without engineering tools to adapt software, productivity aids to speed up translations, and workflow systems to manage process, this information might never reach its intended markets.
- Meet legal requirements. International business demands country-specific labeling and packaging, research trials, and Conformité Européenne (CE) compliance. These combine with technical documentation, customer support, training materials, web localization, and market analysis – all specific to a particular industry. Furthermore, local laws challenge the posting of web content, as Yahoo! found out with its well-publicized spat with the French government over Nazi memorabilia. Internal corporate policies and external realities drive companies to filter job postings for gender, race, and other verboten topics.
- Demonstrate a positive return. Most organizations struggle to prove return on investment (ROI) for international projects, although our research shows that they typically spend only one-quarter of a percent to 2.5 percent of the resulting revenue on translation and localization. Nonetheless, increased tool productivity, more content re-use, and other efficiencies are essential. Software vendors tell us that they allocate 60 percent of the cost of creating international variants to translation, and the balance to underlying engineering. When it comes to websites, the lion’s share of cost goes to

translation and verifying that things work correctly. Lowering the cost of both of these is critical.

Code-Content Dependence Complicates Market Transformations

Much data relies on transaction servers cross-bred with content, database, or other file management systems. This co-dependent relationship means that organizations must provision for simple translation, code adaptation, and complex, software-centric products and content. Even a simple translation can involve heavy-duty programming such as extracting code and complex calls to databases.

This code-content dependence shows up most vividly on the web, where companies expose their value proposition and supporting interactivity. User experience experts have found that the more interactive, informative, and helpful the site is, the “stickier” it becomes – that is, it more likely to draw and retain buyers. The rules don’t change for international websites, documentation, or marketing materials. Providing a richer experience for foreign visitors means adapting even more code and more content to meet their needs and expectations.

Needed: A Content Architecture that Speaks Global

Corporate planners assume that their core technology of databases, content management systems, and application servers can handle the role of creating and managing global content. These enterprise solutions can handle a good part of the job, but they will need specialized content development and programming tools to support the globalization of the content value chain through translation, multilingual workflow, and application remediation.

Thus, the global content value chain begins with the creation of original content. Each modification – an edit, additional detail, a file conversion – adds value to the content. More substantial modifications – a port to a mobile device, rewriting the text into a more colloquial speech form, or a full translation to another language – naturally follow. These value-adding operations comprise what we call the “transformational imperative,” a critical driver for the content value chain. As organizations extend their information architectures to embrace more countries and applications under the banner of a truly global venture, they have to transform and deliver content in the form in which it will be most useful to its audience.

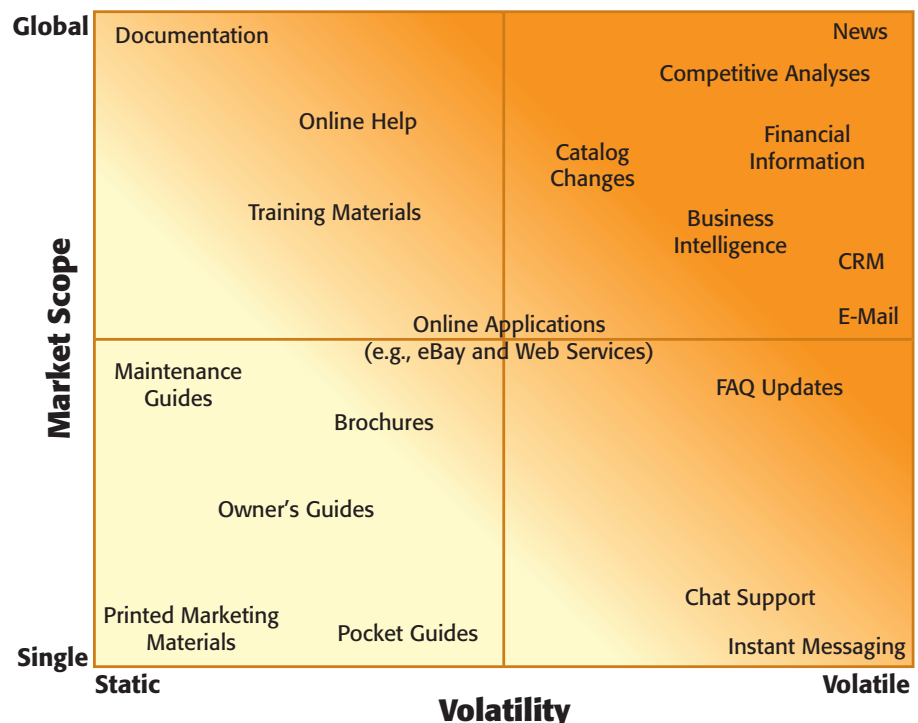


Figure 1: Corporate content likely to be translated for multiple markets Source: Common Sense Advisory, Inc.

Specialized Tools Accelerate Content Globalization

Organizations repeatedly iterate that they must better deal with the swelling volume of content and the parallel demand for market adaptation. They seek higher productivity to transform words faster and cheaper. Those wishing to make the leap to a global content value chain should:

- Enforce standards and familiar infrastructure. Make globalization-enabled software a requirement in any request for proposal (RFP) for enterprise software. Most independent software vendors (ISVs) build their database, customer relationship management (CRM), software development tools, and application server products on an evolving foundation of de jure and de facto standards like Java, .NET, SOAP, SQL, and Unicode. Created for global use, these technology building blocks are flexible enough to be used anywhere and typically support content in other languages. However, few software vendors offer developer interfaces in anything other than English, thus limiting the pool of potential developers at their customers' locations. Push suppliers to do a better job to support global enterprises.
- Start with solid source material. Create content that is clear, to the point, on brand, and flexible – and ready for translation for other markets. Success here will lead to better content re-use, a good thing in its own right. Suppliers such as Adobe, Arbortext, Macromedia, Microsoft, and Quark have optimized their products to allow rapid, easy creation and publication to various formats. Supporting these tools are language compliance checkers, software and methodologies that ensure the quality, appropriateness, or corporate consistency of content. Supplied by smaller firms such as Acrolinx, ArchiText, Smart, and Ycomm, these checkers depend on controlled or simplified languages, style guides, and glossaries that restrict or direct what authors write. Assembled into an authoring workstation, these tools support the goal of “write once, publish everywhere” global single-sourcing.
- Transform content to market needs. The process of translation takes information in one language and conveys the same details and concepts in another. Besides the huge volume of words, often inadequate budgets, and time constraints, the big challenge for translators is to get content into the form

that is most suitable for its audience.

Translators employ a battery of tools to transform content from the source to the target language. “Translation memory” (TM) from suppliers such as SDL, Star, and Trados is the most basic cross-language technology – it lets translators use previously translated work, from a specific project or from an organization-wide corpus of translated materials. Translation tool suppliers typically package translation memory with a suite of other aids, including productivity enhancers such as dictionary support, cost calculators, word counters, and often a terminology management component for creating glossaries and indexing commonly used terms. The terminology management piece could complement knowledge management, search, and

“For large corporations, offering valuable content in a variety of languages is not an option but a prerequisite of doing business across the planet”

other natural language processing (NLP) initiatives in technically savvy organizations.

Is machine translation (MT) from vendors such as Language Weaver, SDL, and Systran the magic bullet that will make more content available globally? They largely eliminate the human from the equation, using rules or statistical algorithms to generate output in other languages. The best use for MT today is as an alternative to “zero translation” – that is, not translating anything at all. Improvements in technology and quality of output will increase the use of MT in the global content value chain.

- Patch the foundation. Before developers can translate text or localize products, they “internationalize” them to ensure that a product can support the character set of a target market and adapting systems so that content authors and coders can write instructions, messages, currency, and measurements for local markets. Prepping the infrastructure of websites, corporate applications, or software-enabled products involves specialized localization tools “localization” from suppliers such as Alchemy, Multilizer, and Passolo.

This process tailors a product, software, or service to local computing, business, legal, and cultural requirements.

- Manage projects. Translation workflow management solutions from companies such as Idiom, SDL, Trados, and Transware orchestrate the enterprise-wide multilingual journey of content from author to editor to reviewer to compliance checker to web publisher – and then through the whole review itinerary again for updates and fixes. These systems complement content management systems such as Documentum and Vignette, the best of them promising to reduce cycle time, manage multiple information stores, automate tasks, and manage the constant interactions and flow of content through a complex content value chain – all with fewer

people involved. These solutions typically bundle translation memories, terminology bases, and other specialized translation tools.

Developing a content value chain strategy, discovering and formalizing the processes, and integrating the requisite tools will not happen overnight. For most organizations, this effort will be a work in progress for some time, carried out in conjunction with other projects such as knowledge management, with enterprise software suppliers, and with partners up and down the business supply chain. ■

About the Author

Donald A. DePalma, Ph.D. is the founder and president of Common Sense Advisory, Inc., a research and consulting firm specializing in the globalization, internationalization, localization, and translation industry. DePalma is an author and analyst who regularly speaks on, writes, and analyzes the on- and offline drivers of global business. His book, Business Without Borders: A strategic guide to global marketing, was published in 2002 by John Wiley & Sons.
don@commonsenseadvisory.com

Innovations by InterSystems



Real-Time Data Analytics With A Real-Fast Database.

Imagine being able to query a lightning-fast operational database in real time.

Now you can, with our multidimensional database for transaction processing and real-time analytics.

Only Caché combines robust objects and robust SQL, thus eliminating object-relational mapping. It requires little administration, delivers speed and scalability on minimal hardware, and comes with a rapid application development environment.

These innovations mean faster time-to-market, lower cost of operations, and higher application performance. We back these claims with this money-back guarantee: *Buy Caché for new application development, and for up to one year you can return your license for a full refund if you are unhappy for any reason.**

Innovative database. Guaranteed performance.

InterSystems
CACHÉ



Rapid Integration Platform Makes Applications Perform Together.

Imagine being able to get your applications to perform together as an ensemble. Easily.

Now you can, with our universal integration platform.

Ensemble is the first fusion of an integration server, data server, application server, and portal development software – in a single, seamless product. This is the complete ensemble of technologies needed for rapid integration, fast development, and easy management.

These innovations mean all of your integration projects will be completed on time and on budget, with a simplified learning curve for your IT staff. We back these claims with this money-back guarantee: *For up to one year after you purchase Ensemble, if you are unhappy for any reason, we'll refund 100% of your license fee.**

Innovative integration. Guaranteed performance.

InterSystems
ENSEMBLE

For a free copy of CACHÉ, or to request a free ENSEMBLE proof-of-concept project, visit www.InterSystems.com/Free8P

*Read about our money-back guarantees at the web page shown above.

© 2005 InterSystems Corporation. All rights reserved. InterSystems Caché and InterSystems Ensemble are trademarks of InterSystems Corporation. 5-05 ComboInno8JaDeJo

> SERVICE-ORIENTED ARCHITECTURE

A Unifying Mechanism for Effective SOA: The Business Service Registry



by Luc Clement

The top seven dangers of using a non-registry based SOA revealed

>> Service-oriented architecture (SOA) is gaining widespread acceptance as a way to map business processes and tie together enterprise applications using Web services. Without a standards-based Business Service Registry to act as the unifying mechanism, however, SOA cannot fulfill its promise. The following is a guide to avoiding the seven dangers of implementing SOA without a Business Service Registry - while at the same time, gaining a major boost in IT agility and application interoperability.

In recent years, there has been a steady migration away from non-standard legacy interfaces and toward Web services. By offering a standards-based interoperability platform, Web services allow enterprises to more efficiently integrate applications and improve the accessibility of business processes for customers, partners, and internal users. Essential for both business-to-business commerce and internal business applications, Web services are increasingly used by organizations that want to improve their responsiveness and efficiency.

Yet the exciting new capabilities offered by Web services arrive with a degree of risk. An unplanned, broad adoption of Web services opens companies to uncertainty and even potential anarchy. How can enterprise architects

make sure that the people who need the services will find them? Is there a way to ensure that developers are not wasting their time developing services that already exist? How can management ensure that services comply with technology, business policies, and application standards? Finally, how can IT and business leaders control how the services interoperate both inside and outside the firewall?

Companies need the architectural benefits of service-oriented architecture (SOA). An SOA can coherently map business processes with enterprise applications, inspire integration and reuse of applications, and foster effective governance of SOA services - often at dramatically lower costs and with less resources.

Still, enterprise architects who implement an SOA often realize that a key ingredient is missing: business service visibility and, therefore, control. If users, partners, and business analysts cannot easily find these business services and identify their attributes, the promise of SOA is largely lost. If developers cannot readily find and reuse services, they essentially don't exist.

The solution to this loss of control is a platform-neutral, standards-based method for publishing and discovering services. Using a standards-based Business Service Regis-

try, Web services can be published as SOA business services that are ready for mapping and interoperability. By publishing services information, including capabilities and policy support, the Registry becomes the overall system of record for the entire SOA. The Business Service Registry allows the standardization of activities and procedures for enabling, publishing, discovering, and managing business services across the enterprise and between trusted business partners and clients.

Discussions with numerous SOA users illuminated several problems with using a non-registry based SOA. The following are seven of the most common reported dangers of not supporting an SOA with a Business Service Registry:

Danger #1: Wasted, Ineffective Applications Caused by Misalignment with Processes

A Business Service Registry provides easy-to-use tools with which business analysts can survey an enterprise's business services portfolio and determine which are available to automate processes and address pressing business needs. Whether the application is as specific as tracking down sales leads or as all-encompassing as e-government compli-

"An SOA enables the creation of a flexible business software system that can adapt to changing business and architectural requirements"

ance or evaluating the impact of new product lines, a Registry allows analysts to measure the impact of changes in business requirements on processes and services.

Danger #2: Lack of Application Consistency and Integrity

Ultimately, the Registry's enabling role for governance of services may be its most important advantage. A Registry offers the nuts-and-bolts compliance and approval tracking process that can ensure the integrity of service governance and policies. Companies are enforcing compliance to a growing list of standards and codes, such as Basel II, Sarbanes-Oxley (SOX) and HIPAA. In addition to making sure services live up to business and technical standards, a Registry can also help to monitor and analyze changes in services for adherence to service-level agreements. SOA governance is essential to conforming to any business, industry, or security standard, and a Registry is essential for SOA governance.

Danger #3: Difficult to Relate and Reuse Application Functionality

One of the most important roles of an SOA Business Service Registry is to expose information and applications that are redundant, conflicting, or inefficiently distributed across the organization. In short, the goal is visibility of the business services portfolio - getting users to the right applications at the right time. Visibility also enables other benefits, such as speedier development, greater application reuse, improved governance, and better business planning and management.

Without visibility, IT architects and developers can't fully grasp which applications are under construction, which could be adapted for reuse, and which components are available. Without visibility, users can't find and use the resources they need.

Danger #4: Proprietary, Difficult to Maintain Interoperability Software

A Business Service Registry that is fully compliant with standard Web services and the Web services standard UDDI interface offers the greatest flexibility in implementing SOA. Any business service endpoint can be published and located in a Registry, whether or not it is a Web service. Standards compliance is vital to

ensuring that you have the best, most up-to-date interface that delivers on-demand, location-independent interoperability.

Danger #5: No Motivation to Reuse Services

One of the most immediate ways an SOA Business Service Registry can create ROI is by helping businesses cut development costs. The key to this task lies in increasing the reuse of enterprise applications. Even in smaller businesses, applications can easily get lost in different business-unit and development-platform silos. Web services and SOA can help to make applications more readily available, but without a Registry to guide the way, it remains difficult to locate them or evaluate their usefulness.



Danger #6: Time Wasted Locating Service Information

By providing a fully annotated, service-oriented view of applications, a Business Service Registry also speeds the development cycle. A Registry provides an automated process for developing, unifying, and replacing more ad hoc procedures. It does so by identifying important versioning,

technical information, and participant information related to particular development tasks, so that projects get up and running more quickly.

By providing location and transport independence, a Registry gives business analysts and IT architects the tools they need to make sure services are resilient in a changing IT environment, while remaining consistent with changing policies.

Danger #7: No Control and Lack of Dependable Business Services

One of the key elements of visibility and reusability offered by a Business Service Registry lies in its enablement of process definition and the development of extensive service descriptions. By offering a high level of detail, the Registry does more than simply enable the ability to locate a service; it reveals the content behind a service and makes it easy for users, developers, and analysts to get a deeper understanding of business services to determine whether they've found the right service.

These same service descriptions also enable managers to better monitor and control services. Enterprises can develop metadata for services detailing everything from security and performance criteria to versioning and release notes.

These same features - enabling, approving, and certifying service descriptions - also streamline and govern the act of publishing services. In turn, this ability to catalogue and categorize an organization's portfolio of services streamlines the monitoring and management process.

A Business Service Registry creates the practical framework for letting companies manage all the information about their services, enabling monitoring and reporting for services and descriptions. The wealth of services information available and the ability to generate reports on that information is a key to effective management. Without a Registry to track services and their interrelationships, an SOA environment not only lacks coherence and control, it invites chaos.

Summary

An SOA enables the creation of a flexible business software system that can adapt to changing business and architectural requirements. A successful SOA can increase application interoperability and usage, inspire reuse of services and resources, speed application development, and improve service governance. However, such architecture requires a standards-based Business Service Registry that can expose every service and application in the enterprise. While offering the unifying power of service description, the Registry must also be flexible enough to encourage autonomy and innovation at all levels of the organization. ■

About the Author

Luc Clement is Senior Program Manager, Systinet, and Co-chair of OASIS's UDDI TC.

luc.clement@systinet.com

➤ BUSINESS PROCESS MANAGEMENT

The Value of BPM Software



by Richard Mattock

A business and technical perspective

>> Business process management (BPM), and the information technology systems that support it, are defined in many different ways. Business process management software (BPMS) is the enabling technology to define, digitize, execute, monitor and optimize global business processes. It automates the end-to-end business process, encompassing people and system activities, across multiple organizations and supporting applications and, to quote Webster, “delivers a particular and consistent result.”

From a technology perspective, that result is increased levels of straight-through processing and flawless escalation and exception management. From a business perspective, that result is lower operating costs, lower IT costs, improved customer satisfaction and increased revenue.

The Three Fundamental Concepts of Business Process Management

Since most organizations process orders, let's illustrate the fundamental concepts of BPM by using a sample process. Since most organizations process orders, we will use the order-to-cash process as an example (see Figure 1). While the individual tasks that make up this process will vary by organization, the common tasks usually include proposal generation; order management; credit operations; manufacturing and distribu-

tion; invoicing and accounts receivable operations; and electronic payment and collections.

Fundamental Concept #1: Organizations Have Very Few Core Processes

At the enterprise level, most organizations have a small number of core processes. Product design, manufacturing, customer acquisition, order-to-cash and customer support represent the core processes for some manufacturers. Each of these core processes decomposes into many sub-processes and scores or hundreds of tasks.

The fundamental point is that, with apologies to the application vendors, sales force automation, accounts payable, procurement, supply chain and warehouse management are not processes. Each is a set of activities such as a workflow or sub-process that while important, must be viewed within the context of the core process it supports. Using the order-to-cash process as an example, an organization can not realize much value with its perfect order management application when the distribution systems it uses inaccurately ships products to the customer. World-class organizations optimize the end-to-end or core process.

Fundamental Concept #2: Few Processes Are Completed Within Your “4 Walls”

Given today's virtual business models, process management is increasingly complex as it spans the extended enterprise. Few, if any, core processes are executed totally within a single company.

The combination of outsourcing, dynamic supply chain management, electronic commerce and ever-increasing government regulation dictates that the execution of end-to-end processes crosses multiple departments within your company and the full spectrum of suppliers, customers, regulatory agencies and outsourcing vendors.

These extended processes span not just organizations and people, but all the supporting IT systems and applications as well. The digital collaboration with trading partners and customers has an impact on business performance that is matched only by the challenge of managing processes that span so many organization and system silos.

From a process management perspective, the problem is not the execution of rules and workflows that are defined in an application that support the core process. Rather, the challenge



Figure 1: The order-to-cash process

is the handoff from one organization to another or from one application to another. In the order-to-cash process, a company can do a perfect job managing the customer buying experience; however, if it then turns the order fulfillment and distribution over to a third party that performs poorly, the end result is an upset customer who will dispute the bill, make calls to the support center and be less likely to make a repeat purchase. In short, a sub-process might be perfect, but the core process is far from optimal.

Fundamental Concept #3: There Is A Big Difference Between Process Automation and Process Orchestration

At this point, most application vendors are

thinking that they do a great job of process automation.

An order management application will automate the actual order, perform the necessary product configuration and manage credit verification. But, as noted above, order management is, at most, a sub-process, that while critical, delivers value only if it is a part of an optimized order-to-cash process that encompasses all the upstream activities such as proposal and contract management with the downstream activities such as credit operations, shipment, invoice generation and cash collection.

Therein lies the fundamental concept of process orchestration. Automating a single sub-process or deploying a single best-in-class application does not deliver business value. That value is realized when the end-to-end process, spanning multiple people, systems and organizations is flawlessly orchestrated. That is precisely the value that a BPMS delivers, moving far beyond automation by orchestrating the execution of the end-to-end process encompassing all workflows, enterprise integration, roles-based process participant definitions, process execution, escalation and exception handling. The handoff from organization to organization and application to application is organized, consistent and produces results that are both predictable and repeatable.

Business Process Management Software Functionality

What does a BPMS do and how does it solve the challenges? While BPMS is often termed middleware, in reality it is much closer to “topware”, sitting above and orchestrating the entire process (see Figure 2).

The creation of the Process Management Layer is a fundamental, yet evolutionary approach to the structure of IT systems. It is fundamental in that it requires the creation of logical layer in the architecture that separates the management of end-to-end processes from the underlying applications, infrastructure and data. The layer serves as both a repository of process rules and the core engine that ensures flawless execution.

Creating this layer is simply an extension of the 3-tier client/server architecture in which the user interface, business logic and data were separated. The process layer extends that design, creating a fourth tier that separates business logic from process logic, enabling vast productivity and cost improvements for processes

that span multiple organizations, systems and applications. The Process Management Layer is evolutionary in that it leverages every IT system and application that is currently in place. There is no need for a “rip and replace” strategy – the existing application portfolio remains in place and continues to generate value.

The second dimension of the “what does BPMS do” is the software functionality. It can be broken down as follows:

Process Development: This phase includes all as-

pects of designing and building robust, highly scalable process applications and enables:

1. Rapid modeling of any process, regardless of scope, regardless of complexity
2. Robust simulation of process performance prior to go-live
3. Application administration, including roles-based process participant management
4. Easy connectivity to every back-end system and application that supports the process

Process Execution: This phase includes all aspects of supervising the execution of the end-to-process.

5. Enterprise process execution, escalation and exception management through a secure, highly scalable process engine
6. Automatic creation of a customized user work environment for each class of process participant

Process Analysis and Optimization: A closed-loop process requires intuitive software to monitor and measure process performance.

7. Monitor and measure real-time process performance through easy-to-use dashboards
8. Measure historical performance against process KPIs, using advanced technology that isolates process breakpoints and automatically determines required changes

Implementing Business Process Management

The business case for BPMS deployments is extraordinarily compelling, generating savings that are significant, rapid and recurring. How should an organization get started?

Getting there must be accomplished with a well planned process that generates rapid results

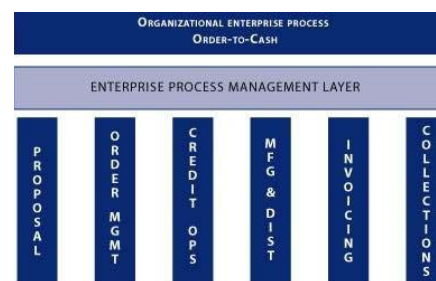


Figure 2: The process management layer

and validates the usability of this technology in your operating environment by first automating processes that are important and complex, but fall short of the mission-critical category.

The highest and fastest ROI comes from the automation of processes that have:

- High number of steps and exception rates
- Diverse array of supporting IT systems and enterprise applications
- Unnecessary work & rework
- Big payoff from faster cycle time

Once the initial process is completed and results are proven, the “move fast” edict takes hold as those results can be replicated across multiple processes. As scores of independent studies have shown, BPM deployments commonly generate 50% + improvements in process cycle time and 10 – 15% + reductions in operating costs.

The viral nature of BPM touches many parts of the organization. Once one part of the organization realizes significant ROI, other parts of the organization seek to replicate and a broad based roadmap to extend the technology across the enterprise will rapidly emerge. These projects become self funding as greater and greater ROI are realized and sustainable competitive advantage is achieved. ■

About the Author

Richard Mattock has more than 20 years of experience in defining, designing, developing and selling enterprise software. Joining Fuego in 2002 as the Director of Product Marketing, Mr. Mattock brings the Process Owners point-of-view to Fuego's product lines with his knowledge of decision sciences and process improvement. As the VP of Product Strategy, Mr. Mattock is responsible for all aspects of Fuego's product definition and delivery to market - working closely with the development and sales/marketing organizations.

> SEARCH

The Emerging Mobile Search Market

Survival of the fastest and the fittest

by Ali I. Riaz & Michael P. Brady

>> *With wireless carriers like Verizon Wireless, Sprint, T-Mobile, and Cingular now vying for each other's business in a highly competitive market, while consumers play wireless carriers off one another to get the best rate plans and features, survival in the wireless world requires wireless carriers to continually improve the quality and service of their voice offerings, while looking at mobile data services to differentiate their brand, win new customers, retain existing ones, and drive new revenue.*

Many carriers have succeeded in recognizing new revenue by selling mobile data subscription services and mobile products, such as ring tones, images and games. A typical subscription service may contain news, weather and sports along with the above commerce items. This is a great situation for content providers – they'll increase their revenue with every wireless carrier partner as content providers will continue to partner with as many carriers as possible. However, the content will no longer be a big differentiator and smart carriers see this coming, so they are looking for other tools to improve the user experience, create brand recognition and maximize the revenue opportunity from every interaction. Mobile search is just such a tool.

Mobile search is the vehicle by which con-

sumers navigate and search for content – such as Web sites, ring tones, and images – on their mobile phones, and is the most profitable way for wireless carriers to bolster the user experience and optimize their investment in other mobile data content and services.

Here are the top five parameters in a mobile search solution:

1. Personalization Engine

A good mobile search solution intelligently creates a user profile based on explicit information delivered by the user, such as address and sex, as well as implicit information gathered from analyzing query history and patterns. Taking into consideration the importance of privacy and security components, a user profile can be used to tailor search results accordingly – in effect delivering a custom search experience for each user.

At the simplest level, a personal profile ensures the user is only delivered content relevant to the handset he or she uses. From there, the use of a personal profile will further refine the search results to take into consideration the interest, location, time of day and past purchase behavior when providing the most relevant results possible. By delivering

highly personalized results, consumers are more likely to find what they want, which translates into a higher volume of ring tone purchases, image downloads, traffic and customer satisfaction.

Consider this example: Jenny Smith is searching for a new ring tone. Jenny's wireless carrier knows that she is a female college student who often purchases pop music ring tones. In addition, the carrier knows that last month, Jenny downloaded the newest Britney Spears image on her phone. With this valuable information and a good mobile search solution, Jenny's carrier is able to respond to her ring tone search with a list of the most popular music ring tones, including some Britney Spears songs. Now let's say Jenny purchases a Britney ring tone. One month later, Jenny does another Britney search. This time, Jenny's carrier will again return the most popular music ring tones, with the exception of any Britney Spears ring tone she already has. Considering the limited space available on mobile phone screens, the delivery of highly relevant search results should be a priority for all carriers.

Carriers should look for a mobile search solution with a personalization engine that analyzes the preferences and historical activity

“Mobile search is the vehicle by which consumers navigate and search for content – such as Web sites, ring tones, and images – on their mobile phones”

of each customer, and refines search results accordingly.

2. Flexibility

To stay competitive, and meet consumers' growing demand for new material, carriers need to be able to change and update their content frequently. Today's search focus on ring tones, images, and games will grow to include full length audio, video, blogging, directory assistance, and location-based services. The search solution needs to have the flexibility to support the different business models being employed. For example, a user searching on movies should get theater information, movie times, ticket availability, and the opportunity to purchase as a first priority. A good search result will also provide access

program all of his customized alerts.

The future of alerting has yet to be defined, but analysts predict that it will grow rapidly in the coming months. It's important that carriers select a scalable mobile search solution that can accommodate this anticipated growth. In the future, consumers will opt-in to receive alerts when traffic congestion is bad, a movie theater releases a new movie, or if a neighborhood restaurant is offering drink specials for the next few hours. To this end, carriers should select a mobile search solution that can support advanced capabilities such as location-based services, personalization, mCommerce, and multi-media search. In summary, carriers need to procure a search solution today that will meet consumers' demands in the future.

Carriers need a mobile search solution that lets them control the user experience at this granular level.

5. Similar Goals/Objectives

With powerful search providers like Google and Yahoo! moving to the mobile phone, carriers can simply add the Web search functionality to their offerings. Subscribers will click on "Google" and then conduct a search for Web content. Similar to the experience on the fixed line Internet, users becoming accustomed to the Google experience are likely to bypass the carrier's portal altogether and go directly to Google.

With other mobile search offerings, such as Fast Search & Transfer's mSearch, carriers can brand the search functions as their own. In

"Search is critical for improving the mobile data experience and carriers are recognizing the importance of search as the glue between all content and users"

to movie reviews, driving directions, a mapping service or nearby restaurants. Last, this is a perfect time to introduce any ring tones, images or games related to the movie, or as an alternative an SMS can be sent with the this information after the movie concludes.

This requires a search engine with the flexibility to index content from a variety of sources and deliver it to meet a content need, a local search need, or a commerce need.

3. Real-Time Alerting

Consumers are increasingly relying on their mobile phones as a primary source of information. To accommodate this, carriers need a mobile search solution that enables real-time alerting. Consumers are programming their mobile phones to provide alerts for information such as changes in sports scores, or when a given stock goes above a certain price. Carriers need a search solution that can monitor for changes in their content index and automatically send alerts. In addition, real-time alerting capabilities are a great way to increase customer retention – the more customized alerts a customer has programmed into his phone, the less likely he is to switch providers and re-

4. Blended Content

Today, mobile content is delivered in silos. Subscribers click on separate categories such as "Images," "Ring tones," or "Web" to find what they're looking for. Instead, carriers should look for a search solution that blends content from multiple sources, including the Web, while giving carriers the controls to prioritize their own content to meet the business models they have established. Breaking down the silos of information and providing users with a holistic view of all the content available to them will not only improve usability for the people looking for content, but also decrease the pressure on business managers to create a navigation scheme to fit the diverse interests of their entire user population.

For example, if a subscriber searches for "American Idol," some search solutions only return Web links, but a good search solution will include the carrier's own branded content in the search results. So a subscriber would see a list of the carrier's own American Idol ring tones and images, along with links to related Web sites. Carriers can even "boost" particular results to prioritize their own content first, which will ultimately increase sales.

this case, subscribers will type in a search term and results will be personalized to the user's interest, prioritized based on the business rules of the carrier. This is best for carriers who want to promote and differentiate their own brand. In the future, search solutions like FAST mSearch will also enable carriers to recognize a greater percentage of revenue from emerging mobile commerce and advertising business models.

Search is critical for improving the mobile data experience and carriers are recognizing the importance of search as the glue between all content and users. In the coming months, carriers will look to enhance the way they deliver content and will recognize the power of search to optimize the user experience, while boosting revenue and brand identity. ■

About the Author

Ali I. Riaz is Chief Operating Officer of Fast Search & Transfer (FAST), a leading developer of enterprise search and real-time alerting technologies.

Michael P. Brady is Senior Director, Mobile Solutions of Fast Search & Transfer (FAST)

Extentech Inc: It's 1 A.M. — Do You Know Where Your Business Logic Is?

*If it's locked up in a spreadsheet,
ExtenXLS can bring it home*

You don't need a whitepaper to tell you that whenever numbers and calculations are involved, the spreadsheet is the de facto standard for business applications. Ever since the invention of the graphical user interface, businesses have relied heavily on the spreadsheet as an invaluable analysis tool.

Perhaps not as obvious is the black hole that exists when it comes to the reuse, versioning, and access control of spreadsheet documents. Every single day, important work is misplaced on network drives, lost in inboxes, mistakenly deleted, or simply forgotten. Even if the files are handled well, the data behind the numbers quickly becomes out of date — which costs time and money to update and redistribute. Worst of all, vital business decisions can be made based on stale data contained in stand-alone spreadsheet files.

The business-specific formulas, charts, pivot tables, and presentation formatting of spreadsheets are simply too important to risk to this haphazard environment.

What if you could retrieve the business logic trapped in file-based spreadsheets and reuse it in dynamically generated, server-based reports?

What if you could update and expose business-critical formula logic to your Enterprise applications simply by uploading a spreadsheet to your server?

What if you could combine the interactivity of a spreadsheet containing VB macros with the data and access control provided by your J2EE server?

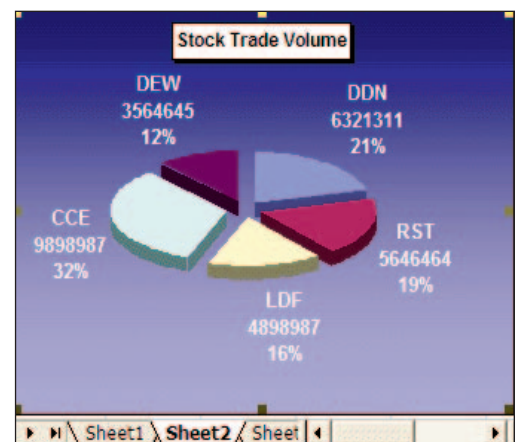
ExtenXLS does all of this and more.

ExtenXLS bridges the benefits of Java with the ubiquity and functionality of the spreadsheet, providing a powerful, supported, and scalable solution for generat-

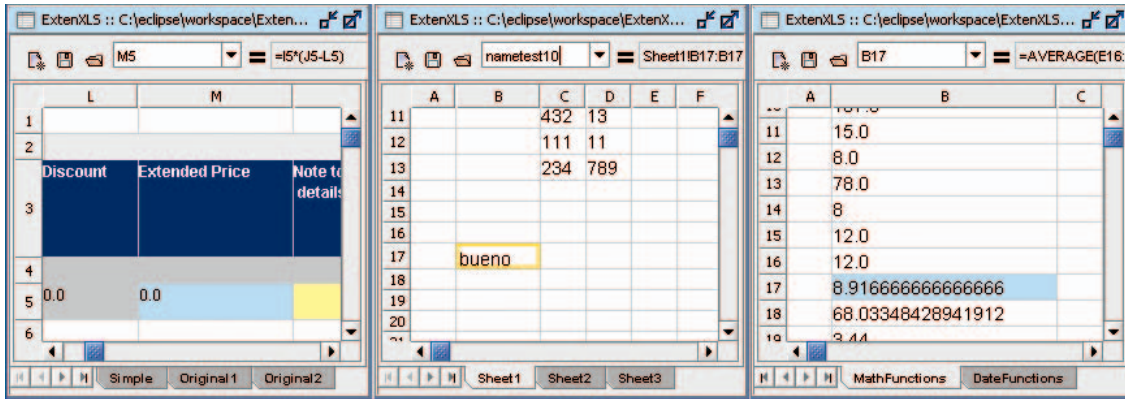
ing native spreadsheet files from dynamic data sources.

Supported data sources include: XML, EJBs, Plain Old Java Objects, and of course JDBC. Additionally, any number and type of data source can easily be used within the same report. And Power Users, designing their reports using their favorite spreadsheet program, are freed from having to train on yet another report design tool.

ExtenXLS unlocks the business logic tied up on hard drives by parsing spreadsheet files into robust, full-featured Java Workbook objects. Using XML report definition files, ExtenXLS automates data retrieval from any number of sources, executing parameterized queries and placing the resulting values into the appropriate cells of a spreadsheet. From there, ExtenXLS can convert the output spreadsheets to XML for consumption by external



An Excel chart created in Java with ExtenXLS



ExtentXLS Swing Spreadsheets with formatting, named ranges, and formula calculation. Formulas can be extracted and run on the Server, enabling reuse of business logic.

programs or to HTML for static delivery to a variety of display devices.

Managers, analysts, and other end users can view the generated spreadsheet reports within their browsers or they can download and open them using any compatible spreadsheet program.

In combination with Servlets and JSP pages, ExtenXLS streams dynamic spreadsheet files to users visiting web sites – an essential feature for organizations that are reporting in real time to a broad audience.

As a pure-Java API, ExtenXLS runs on any platform, including all J2EE servers. This flexibility and portability of ExtenXLS is a key element for any organization wishing to incorporate reporting capabilities into their heterogeneous IT environment.

Version 4 of ExtenXLS continues the Extentech tradition of high-quality, feature-rich releases. Along with huge gains in memory efficiency and scalability, ExtenXLS 4 also boasts many robust new features:

- Support for unlimited spreadsheet file sizes
- Customizable conversion of spreadsheets to XML and HTML formats
- Enhanced CellBinder functionality including Hyperlink drilldowns and JNDI data sources
- Improved GUI components for embedding spreadsheets in Java applications
- Support for explicit formula calculation control
- High performance default settings
- Improved color and pattern handling
- Flexible cross-platform installer – includes server deploy and custom install

- Row and column grouping
- New font alignment and border formatting functions
- Totally revised user manual and API documentation
- New comprehensive CellBinder API documentation
- Disk-based IO – reduces the need for in-memory storage and improves scalability

ExtentXLS is used around the world in financial analysis reports, web reporting, statistical charting, and many other applications to create feature-rich reports containing charts, formatting, text, formulas, and data. With the power to execute spreadsheet formulas within a Java program, developers are able to reuse existing business logic residing within the spreadsheet documents already available to their organizations.

For more information contact Extentech at:

Extentech Inc.
1032 Irving Street #910
San Francisco, CA 94122-2200
phone: (415) 759-5292
fax: (800) 787-6849
email: sales@extentech.com

To download your free evaluation of ExtenXLS, please visit: www.extentech.com/itsg/.

Extentech provides free pre-sales support for ExtenXLS.

If you have any questions or issues during your evaluation, one of our engineers will be happy to assist you.

EXTENXLS4™
JAVA | XLS REPORTING TOOLKIT

**For more information,
contact us at:**

**Extentech Inc.
1032 Irving Street #910
San Francisco, CA
94122-2200**

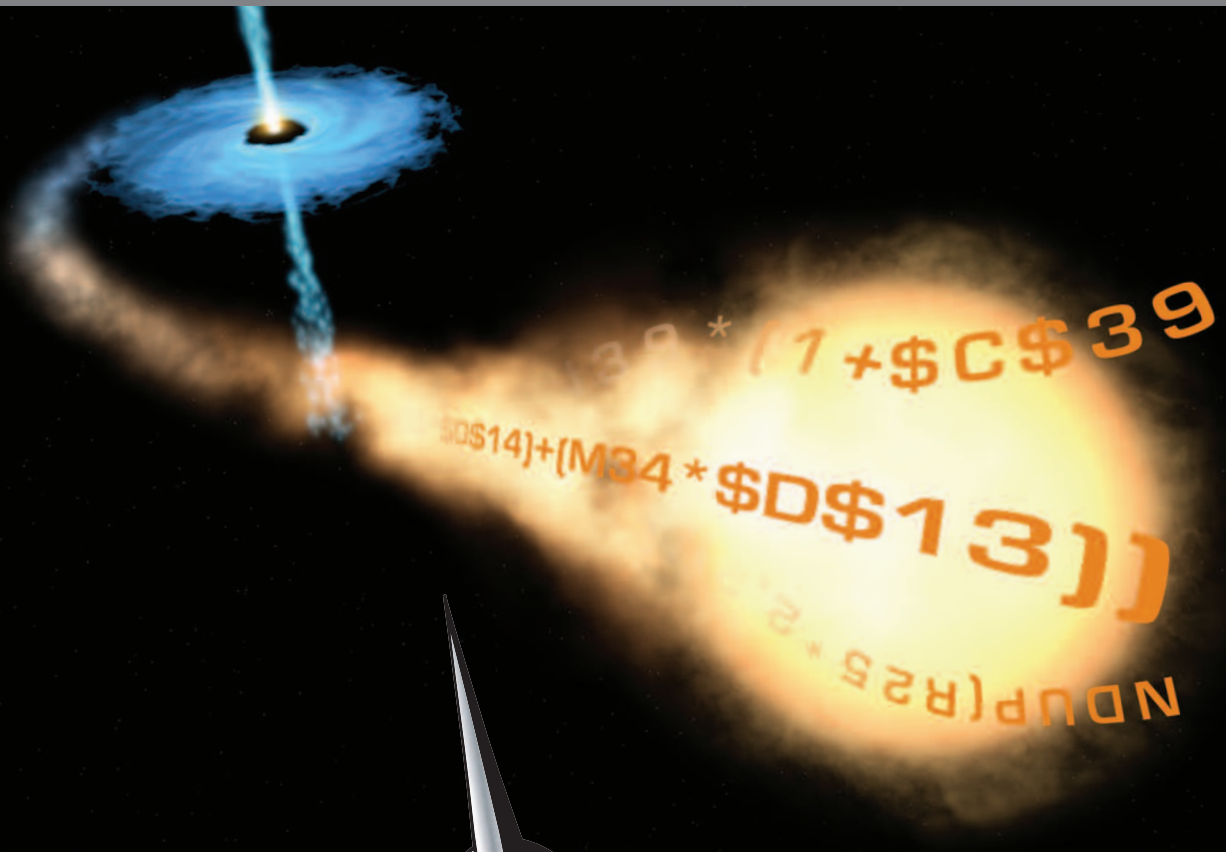
phone: 415-759-5292

fax: 800-787-6849

email: sales@extentech.com

www.extentech.com

Lurking on every user's hard drive
is the **black hole** of **business logic**...



Don't let your business

be lost in spreadsheets



Your Mission

Go where no coder has gone before
and retrieve the business logic trapped
in file-based spreadsheets.

We're Going In!

ExtenXLS Version 4 creates feature-rich
spreadsheets complete with charts, formatting,
and formulas, from any data source.

Your Solution

Equipped with the latest version of ExtenXLS
you will create dynamic, server-based reports
rescued from the black hole of business logic.

Visit Us Online

Download your free evaluation copy at:
www.extentech.com/itsg/

Java Reporting With

EXTENXLS 4™
JAVA | XLS REPORTING TOOLKIT



Call: 415-759-5292