

Best Practices in Enterprise Portals

- Andy Moore 2 **Enterprise Information Portals: The Power and the Peril**
I read an article the other day on the subject of enterprise portals. The otherwise informative and interesting piece featured a graphic of a bottle labeled "Portal—The All-In-One Solution"...
- Mark Wesker, Sequoia Software 4 **Using a Portal to Solve Business Problems**
With less available capital, it has become imperative to make the right decisions when it comes to selecting and implementing business technologies...
- Nimish Mehta, PurpleYogi 6 **Solving Information Overload**
Businesspeople spend half their time looking for information. Finding it will not get any easier...
- Michael Loria, Lotus Development 8 **Knowledge Management and Collaboration**
Contemplating the impact of email today is not unlike trying to envision a world without telephones...
- Jay Weir, Hummingbird 10 **The Burgeoning Market for Enterprise Portals**
Over the past two years, since Merrill Lynch coined the term, enterprise information portals (EIP) have come a long way...
- Michael Richtberg, Citrix Systems 12 **Bringing Applications to the Enterprise Portal**
The ability to give workers ready access has become vitally important for businesses striving to be productive, agile and profitable...
- Dr. Thomas Hofmann, RecomMind 14 **Making Personalized Retrieval a Reality in Knowledge Enterprises**
Until now, tools have been built for the enterprise that focus on managing content. but little has been done to understand the needs of the user...
- Randall Eckel, Infolmage 15 **Using Portal Technology to Improve and Streamline Business Processes and Decision-making**
Today's progressive organizations have empowered knowledge workers with front line decision-making responsibility, yet have not provided the tools. As a result, they are empowered but not fully informed...
- Robert Bolds, Computer Associates 16 **Enterprise Information Portals: Portals in Puberty**
Remember that awkward time in your life when you suddenly underwent a lot of unexpected changes that affected just about every aspect of your life...?
- Tacit Knowledge Systems 18 **Power Your Portal with Real Brains**
EIPs do a good job of consolidating access to an organization's existing data and published documents. But, what happens when the answers you're looking for aren't in the portal...
- Erick Rivas, Mongoose Technology 19 **Maximize Enterprise Portal ROI**
Enterprise Portals are being deployed as an integral part of many businesses, so why aren't they managed as any other business critical software...?
- Michael Rudy, IntraNet Solutions 20 **Enterprise Content Management: Powering the Enterprise Portal**
The Enterprise Portal market has gained momentum as customers realize the advantages of simplifying Web access to the broad range of applications that their users access daily...
- Robert Duffner, BEA Systems 21 **Portals Unlock the Knowledge that Drives Business Value**
Enterprise portals are the primary aggregation and access points that enable employees, partners, suppliers and customers to more efficiently function and collaborate...
- Ennov 22 **Corporate Portals Require Complete KM Strategies**
Knowledge management can be defined as content management woven into business processes, with easy and timely access to the right information in a controlled and organized way...
- iManage 23 **Enterprise Portals: Powering Mission-critical Applications**
The Internet and World Wide Web have ushered in a business revolution, at the heart of which lies a fundamental shift in the way business is conducted...

Sponsored by



Information Today, Inc.

Special Supplement to **KMWorld** July/August 2001

Enterprise Information Portals: The Power and the Peril

By Andy Moore, Editorial Director, KMWorld Specialty Publishing



Andy Moore
Editor

Andy Moore is an editor by profession and temperament, having held senior editorial and publishing positions for more than two decades. As a publication editor, Moore most recently was editor-in-chief and co-publisher of KMWorld (formerly ImagingWorld) Magazine. Moore now acts as a contract editorial

consultant and conference designer.

As KMWorld's Specialty Publishing Editorial Director, Moore acts as chair for the current series of "Best Practices White Papers," overseeing editorial content, conducting market research and writing the opening essays for each of the white papers in the series.

I read an article the other day on the subject of enterprise portals. The otherwise informative and interesting piece featured a graphic of a bottle labeled "Portal—The All-In-One Solution." The implication, I suppose, is that portal technologies should be viewed dubiously, as one would a traveling salesman's flim-flam ... a sort of snake-oil grift preying on the hayseed rube technology buyer that stakes his future on the next big buzzword . . .

What a load of crap.

There are so many things wrong with that illustration that it's practically libelous.

I can tell you this: Portals—Enterprise Information Portals, to be formal—are the most uniquely democratic technology development that I've ever witnessed. Why? Because portals were never imposed. Nobody ever said: "Today, let them eat portal." And do you want to know why? Because people want portals. They truly do. More to the point ... YOUR people want portals.

Granted, there's a substantial amount of marketingship at work, but it's unfair to drape such a valuable and clever advancement with such a thoughtless cloak. There's greatness and there's guile here, and we need to understand the difference. And that's why we are publishing this collection of positions and practices.

When it Works, It Works

"The purpose of portals is to leverage existing applications into a better view, one that is familiar to people," reminds Bob Kruger, VP and Chief Technology Officer of Citrix, a professional services goliath that recently acquired Sequoia Software.

Portals emerged, practically from grassroots, as information workers learned (quickly, those clever buggers) to cop ideas from their home-consumer faves (such as My Yahoo!) and apply them to their workplace information view, "beginning life as a consumer application before business began to perceive its value," as The Delphi Group puts it.

Then, something not completely typical happened: business DID begin to perceive the value hidden in portals. Remember, at the time the management books and magazines were all talking about collaboration, frictionless information access, knowledge management, etc., so it's easy to imagine the reasoning that led to attempts—still ongoing attempts—to create the business equivalent of MyYahoo! in your own backyard.

"Creating portals is a good first step in leveraging unstructured information," says Nimish Mehta, CEO of PurpleYogi. "The problem is how do you use it, maintain it, keep it current." Creating a business MyYahoo! is a pretty good rough diagram for a business plan, but it's a long way from there to complete solution. And what we have learned from compiling this White Paper on Enterprise Information Portals is: we ain't there yet.

Mission Impossible

In business, knowledge is an extreme sport. Providing the gear for such dangerous play is not for the timid. The challenge for portal vendors is not so much "what is a portal?" but "what ISN'T a portal?" It's amusing to read some of the "early literature" (we're talking 1998 here) while it tried to deal with the defini-

tion question. As is traditional, the writers strained for metaphors from daily life to describe complex technologies: "A portal is like a door ..."; "A portal is a kind of gatekeeper"; "A portal is like the dashboard of a '64 Chevy Impala."

"People want portals. More to the point—YOUR people want portals."

If a portal is a door, it's not a very darn good one. Doors keep things out and restrict access from both sides. If a portal IS a door, it better be a screen door that allows the free ventilation of content to pass both ways, filtered, maybe, but only slightly restricted. The difficult trick, as Mehta points out, is to make certain that the filter understands the needs of the worker, and adjusts to keep the good stuff coming in, but avoids creating an "information landfill."

If a portal is a gatekeeper, you can keep it. The last thing a rapid organization needs is a traffic cop.

And as for the Chevy Impala ... I made that one up. I just had one of those once, and I miss it. (Although, now that I think about it, smarter people than me have tried to strain that dashboard metaphor.)

Speaking of strained metaphors: "It is as if the user is at the doorstep of a great library with well-indexed catalogs and colorful signs to help her find anything she wants, but what's the point if she has no idea what to look for or how to apply what's 'out there' to the task at hand. That's where portals fail today—they dump you in front of a flood of resources without helping you figure out what to do with them!"

—Kumar Nochur

Kumar is a buddy of mine who is not only a Ph.D., but is also smart. Kumar has developed KM and decision-support software to help people get more leverage from their corporate portals. And as you read this White Paper, you'll discover that most of the vendors in this space are doing something similar, i.e., trying to improve existing offerings by enhancing the "back-end" or the "front-end" or the "middle-ware" or some damn thing.

And I can't help thinking ... "Why do I need a Ph.D. and another product? Why can't I just buy a portal that does the job, and let's get on with it?" I mean, I've already owned up to the knowledge-sharing problem, and I bought the information-overload thing and I think there's something to this New Economy stuff, so how come my problems just get worse???

"A portal," says Bob Wesker, CEO of Sequoia Software, "is supposed to know what you don't know."

Whoa. THAT'S the challenge for the vendors and those who deploy enterprise portals—a portal has to do the impossible, and that's why it's so difficult!

Where Are We Anyway?

The Delphi Group is as—totally deservedly—respected an analyst group as you'll ever find. They have fresh research that shows that business portal software sales, which reached \$407 million in 2000, will continue its high-double-digit-growth through to 2003 and, I guess, beyond.

But they are also quick to caution that the total cost of ownership in enterprise portals hides a severe iceberg effect, meaning there's a BUNCH of stuff that doesn't meet the eye. And you don't have to be Leonardo DiCaprio to understand what that means.

On a recent syndicated business TV show, Sun Microsystems' CEO Scott McNealy admitted that "somewhere between zero and

"In business, knowledge is an extreme sport."

...not for the timid.

20% of our structured and unstructured information is Web-ready." Wow. This is SUN we're talking about, for cryin' out loud, and they are as darkly prepared as the rest of us when it comes to presenting information to users, partners and the public. Add to this: context-sensitive information requirements; revolving workforces; misaligned IT infrastructures; and just plain screw-ups.

"With multiple information and application sources, cycles get long in an enterprisewide solution," warns Sequoia's Bob Wesker. This long cycle time has created what Delphi terms an "unanticipated cost center." Not what most executives want to hear when they sign up for a solution.

But it's ultimately the moving-target nature of the beastly thing that is the problem. PurpleYogi's CEO Nimish Mehta summarizes the challenge this way: "As companies grow, they evolve ... things change. Portals must be adaptable to the concept drift that occurs as businesses progress."

"Concept drift." Great term, but an even greater problem for information delivery systems. It's bad enough when merger or acquisition forces a seismic change onto a workforce. It's easy to predict the turmoil that results from that. But what about the subtle micro-quakes at every desk in your company that quietly and irreversibly alter the momentum of your progress, every minute of every day? Can there be a fixed solution for such a slippery condition?

That's what the companies represented in this White Paper talk about every day. As recently as this spring, the Gartner Group tracked about 25 companies that have a play to make in the portal marketplace, and ranked them according to their relative status among their peers. For the record, Gartner listed exactly none of them as "leaders," or even "challengers" to take a heads-above-the-crowd position in the marketplace. But the field was filled with

"visionaries"; those who have the ability to achieve the long view of their goals, and better than half a chance to pull it off.

One of my favorite canned questions to ask during the interviews for this paper was: "Are portals for *delivery* or *discovery*?" Provocative question, I learned. It's a matter of philosophy for most, but cuts to the core of many portal products out there. What I found out: We are now at a threshold. Portals are beyond the first-gen Yahoo knock-offs that allow a level of personalization that is as rudimentary as Model-Ts were black, but not quite the sensitive and aware helpmates they are made out to be. Not yet.

The best answer to my "delivery or discovery" question was from Bob Kruger of Citrix, whose answer was basically, Who cares?: "How about both? When you're dealing with information at this level, it's much more fundamental than push or pull. Why should it matter? What matters is how you want to operate. Then it's up to the software to be adaptable."

Software that's adaptable. But to what? To the organization's perceived requirements? To the whim of the worker? To a fluid and immense universe of data sources, as near as your desktop and as remote as the Web?

That's what we set out to learn with this White Paper. The answers herein are consistent: Portals are pretty easy to understand and pretty difficult to execute. Their power is in the details, and the details can be elusive and complex. Read on. ■

Andy Moore has often been a well-known presence in the emergence of new technologies, from independent telecommunications through networking and information management. Most recently, Moore has been pleased to witness first-hand the decade's most significant business and organizational revolution: the drive to leverage organizational knowledge assets (documents, records, information and object repositories) and the expertise and skill of the organizations' knowledge workers in order to create true learning organizations. He can be reached at andym@mint.net and welcomes feedback and conversation.

Using a Portal to Solve Business Problems

By Mark Wesker, President & COO, Sequoia Software

Atight economy, disappointing corporate earnings, a wildly fluctuating stock market—we're living and working in turbulent times. With less available capital for investments, it has become imperative to make the right decisions when it comes to selecting and implementing business technologies. One technology that has the potential to maximize investment return by leveraging existing systems is the portal.

However, most portals aren't implemented just because it would be nice to have centralized access to data, but because it is mission-critical to access the information, automate a business process or connect with customers, partners and suppliers. The fact that portals can solve pressing business problems that speak to the bottom and top lines makes for compelling reasons to investigate portal solutions.

What is a Portal— And What is a Good Portal?

In its earliest incarnation, Merrill Lynch defined the enterprise information portal (EIP) as "a single gateway to personalized information needed to make informed business decisions." These early portals were predominantly internally facing, intended to increase employee productivity by reducing the effort required to find and obtain crucial information. The business driver behind EIPs was that speeding the access to up-to-date, accurate, pertinent information would increase employee productivity by reducing the time spent searching for information. This still remains a laudable objective, but it is not always a compelling enough reason for investing precious IT dollars into a portal solution.

However, these initial portals were successful, and inspired users and implementers to find new levels of portal functionality and utility. The concept of personalization grew to encompass more than just access to personal information (such as HR and benefits data) to include access to corporate information that is presented in a personalized fashion. Users could easily access the data they required on a

daily basis, and the portal would deliver that data in a meaningful way, based upon the employee's role in the organization. This type of portal could truly affect productivity by streamlining a user's interaction with back-end data. The story is getting more compelling, but what about the business problems that a portal is supposed to solve?

This is where next generation portals come in. These portals speak to business problems by offering advanced features that enable B2B transactions and automate business processes. Organizations are now turning portals outward as a means of enhancing relationships with customers and partners. Many organizations see this type of portal functionality as the cornerstone of an e-business strategy that emphasizes automating and streamlining business processes, and increasing an organization's speed of execution.

One of the portal's strengths is connecting a company's decision-makers with its network of suppliers, customers, and partners. Users gain quick and easy access to information, and its presentation can be customized to meet each person's unique needs. This type of portal solution allows the rapid integration of complex, cross-enterprise business processes so the flow of information can be easily automated between organizations and their partners. The value proposition is clear—by connecting resources with those of partners, streamlining processes, and addressing common critical issues, companies can deliver value and reduce inefficiencies across the entire value chain.

This increased efficiency and focus on communication afforded by the portal enables a company to create a "virtual enterprise" where key production steps are outsourced to partners. Many organizations are implementing a corporate portal first and are then growing this solution into more of a B2B portal. By using a portal to tie in back-end enterprise systems, a company can manage the complex interactions of the virtual enterprise partners through all phases of the value and supply chain.

Linking disparate data sources and systems makes it necessary to rely on a common language or framework for an effective portal solution. XML has leapt to the forefront in this area because of its flexibility and cross-platform communication capabilities.

Essentially, a good portal should offer several important features and functions. To summarize, these are:

- ◆ adaptability to changes in business processes and technology;
- ◆ incorporation of XML as a basis for the product's logic and messaging capabilities;
- ◆ robust technical capabilities, such as business process automation and sophisticated rules evaluation;
- ◆ integration of people into the portal's design and functionality—after all, a portal serves people;
- ◆ scalability to enable the addition of users, servers, processes, and transactions—all at high performance levels; and
- ◆ easy administration and configuration.

Sequoia's portal software, XPS™, built from the ground up around XML messaging, makes it possible to access information from disparate data sources and present it via a personalized user interface. As processes and partnerships evolve, XPS can quickly incorporate these changes so that companies within the virtual enterprise can effectively collaborate and exchange information. This makes XPS an ideal tool that grows with organizations that initially require a corporate portal or those that need to connect virtual enterprise business partners.

Real Problems, Real Solutions, Real Benefits

The proliferation of packaged applications—such as ERP, supply chain management, and customer relationship management—has made integrating enterprise-wide data increasingly difficult. The rapid increase in mergers and acquisitions has left many companies with highly disconnected IT infrastructures, impeding the seamless flow of information needed for maximum efficiency. Meanwhile, the pace of today's business environment demands that information be readily available to ensure smart and fast decision-making.

The abundance of content, both inside and outside the enterprise, has made finding the right information increasingly difficult. Employees often spend more time looking for the right piece of information than actually using it, resulting in high frustration and low productivity. Further inefficiencies are found in the continued reliance on paper processes, manual approvals, and long transaction cycles.

“What about the business problems that a portal is supposed to solve? This is where next-generation portals come in.”

XPS can address each of these common business problems, while also providing additional benefits.

Work Smarter and Faster

The goal of any portal is to get the right information to the right user at the right time. XPS intelligently accesses information from back-end systems, delivers it through a personalized interface, and allows users to interact with the data—from anywhere at any time. The immediate availability of meaningful information, presented the way users need to see it, results in smarter and faster decision-making, and ultimately a more responsive and competitive organization.

Example: The Mills Corporation, a real estate investment trust that owns, develops, leases, manages and markets 12 retail and entertainment destinations, is using Sequoia's XPS to compress the amount of time it takes to sign a new tenant. They use the product to collaborate, discuss changes to documents, and work with business partners online. This eliminates a large portion of the cost formerly spent on sending documents overnight between Mills Corp. lawyers, future tenants, and their lawyers.

Streamlining the process of signing up tenants ultimately shortens the collection period for receiving lease payments and gets cash in Mills' pockets faster.

Work Your Way

XPS adapts to an organization's existing business processes without forcing changes to the business model. It also can continue to adapt over time. As processes and partnerships evolve, the product will quickly incorporate these changes so that companies within the virtual enterprise can effectively collaborate and exchange information.

The product's open, XML-pure architecture also allows for additional functionality to be snapped in as needed. Finally, the solution's scalability ensures the portal will be able to accommodate a growing user/information base while providing secure and reliable access.

Example: The EMI Group is using XPS to automate its Digital Release Management process—the workflow of digital assets associated with the creation of an album. Like most companies in the music industry, EMI's various work departments rely on disparate databases for their information. Users frequently caused delays in the process, often re-keying data to transfer information across departments and failing to meet the established release date for albums. XPS aggregated disparate applications and databases and streamlined the entire approval process. EMI was able to leverage its existing processes and applications and keep its business model intact.

Example: Information exchange is critical for those companies who elect to operate in a virtual enterprise and outsource their non-core activities to contract manufacturers such as Flextronics. Flextronics is using XPS to pull together information from its various systems—from plant-floor statistical process control systems to master production schedules located in an ERP system—into a single point of access through which Flextronics and its customers can view, update, and act on the information. Customers are alerted when potential problems such as component shortages become evident, and they are better equipped to respond to urgent situations. XPS also provides the flexibility to bring on new business partners rapidly and efficiently into the Flextronics' network in a repeatable, reliable and scalable process.

Get Started Quickly

XPS offers more robust functionality out-of-the-box than any portal application. Rather than spending time on a lengthy implementation and complex customizations, companies can be up and running quickly with a complete portal. The product's powerful features, flexible architecture, and out-of-the-box functionality reduce implementation time, and limit disruption to daily work activities.

Example: Waste Management, Inc, the premier company in North America providing comprehensive waste management service, wanted a portal that would provide critical information to its employees (such as CEO and industry news, access to a document management system, information on important events, employee directory, etc.) but wouldn't take that long to implement.

Waste Management selected XPS for its corporate portal needs. Once the environment was secure and stable, the product was deployed in just a few weeks and the employees were quickly accessing the information they needed to do their jobs.

Maximize Your IT Investments

By offering a full range of e-business components within one package, XPS gives companies the right mix of functionality at a reasonable price. By integrating information from disparate back-end systems and automating business processes, XPS allows an organization to leverage its existing technology investments. This is a cost-effective way for an organization to focus on its core competency and increase collaboration with vital partners, customers and suppliers.

A Flexible, Quick Solution

No matter what the specific business problem driving a portal implementation, it is important to choose a solution that adapts quickly and easily to the existing environment. A major factor in considering a portal is to leverage existing technologies by integrating them so they act as one system, even though they might be technically and geographically disparate. Very few portal software products offer this type of flexibility, and because it is based in XML, XPS offers the most flexibility of all.

Any organization that wants to improve access to information within and across the enterprise, streamline and automate business processes, and manage the complexities of a virtual enterprise should consider Sequoia Software's portal solution.

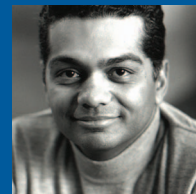
Sequoia Software

As the leading provider of XML-pure portal software, Sequoia Software (Nasdaq: SQSW) is redefining what portals do for business. Sequoia's adaptable software brings together information, processes, and people and strengthens relationships throughout the value chain. The versatility of Sequoia's XPS allows companies operating in a virtual enterprise to more effectively collaborate, work smarter and faster, and maximize their IT investments. Sequoia has an international customer base, including General Electric, Eastman Chemical, Flextronics, SC Johnson, Rock-Tenn, Waste Management, BBC, and Lehman Brothers. For more information, please call 888-820-7917.

Note: On May 1, 2001 Citrix Systems, Inc. acquired Sequoia Software. As of this date, Sequoia Software assumed the Citrix name. ■

Solving information overload

By Nimish Mehta, President and CEO, PurpleYogi, Inc.



Nimish Mehta
President and CEO

Nimish Mehta, President and CEO of PurpleYogi, joined the company in March, 2001, with more than 20 years of experience in executive management of global software businesses. Mehta most recently served as president and CEO of Impresse Corp., an enterprise software developer and provider of collaborative marketing solutions. Previously Mehta served as senior VP of the Industry & Front Office Applications Division of Oracle Corporation, where he oversaw all product development and marketing for the front office and vertical markets. His proven track record in scaling software businesses and managing operations will be a key factor in PurpleYogi's continued momentum in the marketplace.

Business people now spend half their time looking for information. And finding it will not get any easier—the volume of corporate data doubles each year while the public Web grows by over seven million pages a day. To tame this flood, companies spend billions of dollars on software designed to give their employees better access to the information they need. Such investments in enterprise portals, document management systems, and text retrieval technology give companies better ways to present information.

But such solutions are only as good as the organization of the content within them. Eighty-five percent of corporate information and an even higher percentage of public web content is unstructured, and this information is difficult to organize. Keyword search has real limitations, as anyone who has sorted through a lengthy list of search results can attest. As volume increases, manual tagging of unstructured information quickly breaks down due to its expense and inconsistency.

Without structure around information, workers struggle to locate what they need despite all the money spent to help them. An

EVP at one investment bank described its intranet as “an information landfill.” A managing director at another worried about whether “people will be able to meaningfully access” the 600,000 documents in its document management system.

A Crucial but Underserved Business Need

Only automating the process of organizing corporate information will allow business people to find what they need. Intranets, content management systems, and search engines work much more effectively when they rest on a foundation of organized information. Building such a foundation, based on a consistent and customized framework, helps businesses recoup their investments in these technologies faster.

Automated classification involves three tasks:

- ◆ Building a customized hierarchy for information;
- ◆ Classifying documents quickly and accurately into this hierarchy; and
- ◆ Presenting documents based on these classifications as users need them.

An ideal solution would automate all three tasks while allowing human judgment to guide the process when appropriate.

First-generation classification solutions have failed to address the first, and most expensive, task: building an information hierarchy. As a result, their customers must depend entirely on human labor to identify the concepts important to their business, organize them into a framework, and flesh out that framework by assembling training documents or building classification rules. These set-up costs are significant: eight employees of a syndication company spent four months building a modest hierarchy of 400 concepts within one common classification solution. Software purchased to save employee time can itself consume thousands of employee hours.

What's worse, these systems either entirely exclude human input from the classification process—as statistical classification systems do—or force every single detail of classification to be painstakingly designed by human beings—as rule-based systems do. In the first case, administrators struggle to understand their expensive “black boxes,” unable to control their behavior. In the latter, administrators suffer under the heavy burden placed on them.

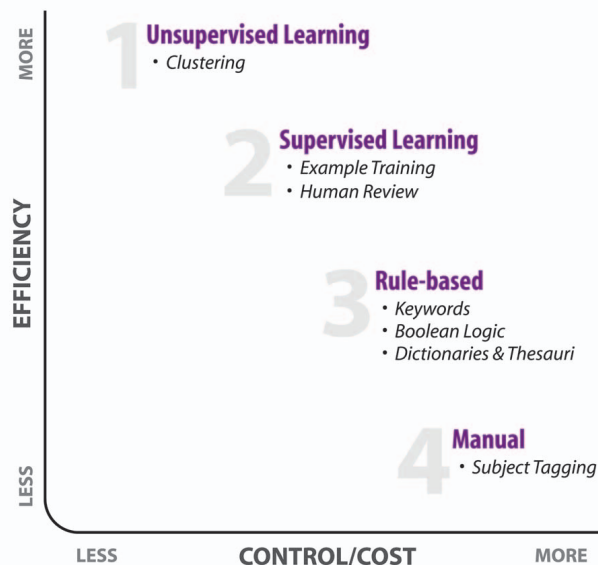
The next generation of classification technology will transcend these limitations to:

- ◆ Automate hierarchy building to reduce set up costs;
- ◆ Allow as much—or as little—human input into the classification process as desired; and
- ◆ Increase classification accuracy in the process.

Automated Hierarchy Building Reduces Set-up Costs

Setting up first-generation classification systems can be costly and time-con-

Classification Methods



Employing multiple classification methods increases accuracy and allows users to select the optimal level of control.

suming, as both the design of the concept hierarchy and the assembly of the training documents or keyword rules are left entirely to human labor. Yet these processes are key to the eventual performance of the solution.

PurpleYogi addresses this problem by partially automating the hierarchy-building process. By analyzing a sample set of documents, a PurpleYogi Discovery System™ builds a customized concept hierarchy without any human intervention in a few hours (depending on the size of the sample). Its proprietary algorithms group documents into natural categories and then organize these categories into a hierarchy. In this way, the underlying structure of the information manifests itself, saving much human effort. Using PurpleYogi software tools, non-technical people edit this initial hierarchy, combining, splitting, adding, and deleting concepts and documents as desired. The resulting hierarchy, with representative documents already resident in each node, gets a classification system up and running immediately. Alternately, customers can launch their system with one of several reference hierarchies, containing up to 12,000 concepts, that PurpleYogi has customized for individual industries.

Human Input Tailors the System to a Company's Needs

Maintaining a classification system is challenging. Concepts change meaning over time as technology and business practices evolve—documents about “microprocessor design,” for example, are very different today from what they were five years ago. And new concepts arise all the time: the newly-inaugurated “George W. Bush administration” suddenly needed to track news about the “California power crisis.” Only human judgment can decide whether and how the classification system should deal with such changes.

For this reason, we at PurpleYogi believe that classification systems should allow as much—or as little—human input into classification as is desired. A set of GUI software tools allows Discovery System administrators to monitor system performance, tweak the definition of a given concept, add and delete concepts, and even alter the classification of an individual document. With tools to adjust system performance, human administrators can balance efficiency and control, selecting the optimal mix of automation and human intervention. (See the accompanying diagram for an illustration.) In this way, human judgment supplements machine efficiency when desired and vice versa.

“Automated classification technology brings intranets to life, turning what was a passive display medium and filing system into a dynamic tool that responds to the changing needs of a corporation and its employees.”

Multiple Classification Methods Increase Accuracy

Any given classification technology has its strengths and weaknesses. Statistical classifiers, for example, are good at detecting the general subject matter of documents (“software industry,” “operating systems”), while rule-based technology is better at discriminating between concepts at finer levels of detail (“Microsoft Windows XP”). Conversely, any solution that relies on a single classification technique will fail to classify all documents with consistent accuracy.

But systems that combine multiple classification techniques can transcend the limitations of any single technique. By classifying a document in multiple ways and then comparing the results, these systems can achieve greater accuracy. Discovery Systems employ both statistical and rule-based classifiers, as well as other proprietary techniques. And they use the structure of the underlying concept hierarchy to present information grouped by topic instead of in a flat list. According to researchers from the University of California-Berkeley and Microsoft, people find information 50% faster when it is presented in this way.

The Benefits

The next generation of classification systems will help enterprises address the problem of information overload. Automated classification technology brings intranets to life, turning what was a passive display medium and filing system into a dynamic tool that responds to the changing needs of a corporation and its employees. When information moves from where it is created and travels around networks freely and effortlessly, employees can know more about what is happening in their business, how their customers

and partners are being served, and what they should do to increase revenue and profits. And they will save time and minimize rework by finding what they need quickly within the vast quantity of information available both inside and outside the company.

A variety of IT systems can benefit from integration with a classification system, including:

- ◆ Department-level document management systems (e.g., Microsoft SharePoint);
- ◆ Enterprise-scale document management systems (e.g., Documentum);
- ◆ Enterprise portals (e.g., Plumtree);
- ◆ Content management systems (e.g., Interwoven);
- ◆ Search engines (e.g., Inktomi);
- ◆ CRM applications (e.g., Siebel); and
- ◆ ERP applications (e.g., SAP).

The ability to better organize and display unstructured content either directly improves or complements all these applications.

The next generation of automated classification technology will include automated set up, the ability to apply human judgment when desired, and the integration of multiple classification techniques. While enterprises have spent billions to address the problem of information overload, the promise of these IT solutions will go unfulfilled without a powerful way to organize, classify, and present information. Only automated classification will turn the abundance of information from a curse to a blessing. ■

About PurpleYogi, Inc.

PurpleYogi creates software that automatically organizes, classifies and manages unstructured information. PurpleYogi allows enterprises to create an information hierarchy of the concepts important to their business, classify internal and external information into this hierarchy and proactively deliver information to the people who need it. PurpleYogi solutions are applicable across a range of industries including professional services, financial services, and high-technology firms. For more information, visit <http://www.purpleyogi.com>.

Knowledge Management and Collaboration

By Michael Loria, Vice President Marketing Strategy, Knowledge Management Group, Lotus Development Corp.



Michael Loria
Vice President
Marketing Strategy

Michael Loria is vice president of marketing strategy for knowledge management at Lotus Development Corp., an IBM Company. Michael has held various marketing and business development positions with Internet infrastructure, imaging and enterprise software companies, and has extensive experience in the document management, imaging and workflow industry. In addition

to marketing, Michael's extensive background includes business development, acquisitions, divestitures and strategic alliances with leading companies. Additionally, he has worked with Lotus in the development of the Lotus Notes Document Imaging program and with IBM's ImagePlus program. Recognized as a pioneer in the document imaging and management marketplace, Michael speaks at industry events around the globe. Michael earned his bachelor's degree in Business from Saint John Fisher College.

Contemplating the impact of email today is not unlike trying to envision a world without telephones. Everybody has at least one, uses it often and considers it a primary means by which to connect and communicate. What we have all come to embrace is that email provides a ubiquitous means for individuals to communicate directly with one or more people.

Email, however, does not eliminate some of the same cultural and communication problems that exist with telephone communication. Email generally requires that the parties know each other and that they directly initiate conversations. The knowledge of who to include in emails requires that those involved have some external knowledge of the relationships and skills of the parties.

Collaborative computing takes us a quantum step forward, by not only threading discussions, providing some persistence and context, but by allowing these discussions to take place in a more "public" forum. These discussions allow others, not initially included in the "distribution list," to join discussions where they feel they can contribute to the conversation. This is the first step in the corporate utilization of "organizational knowledge". An organization can now provide a platform for collaboration through messaging.

"Collaborative computing takes us a quantum step forward."

Volunteers vs. Experts

So now organizations can utilize their networks to share information, and employees can join discussions to share their experience and knowledge. So are we done? As with most technology advances, another vision is soon created that provides even

more promise—but sends us back to the drawing board.

Discussion groups and mail create an opportunity for employees in an organization to "volunteer" their information. Several challenges still persist:

- ◆ How are we sure that a person's "volunteered" information is the best knowledge in the organization?
- ◆ Who is the best person we should proactively seek out on this topic?
- ◆ If this document is the best coverage of this topic should we involve its author?
- ◆ Indeed, how do I know this is our most useful document on this topic?
- ◆ What relevant information exists beyond our organization on this topic?

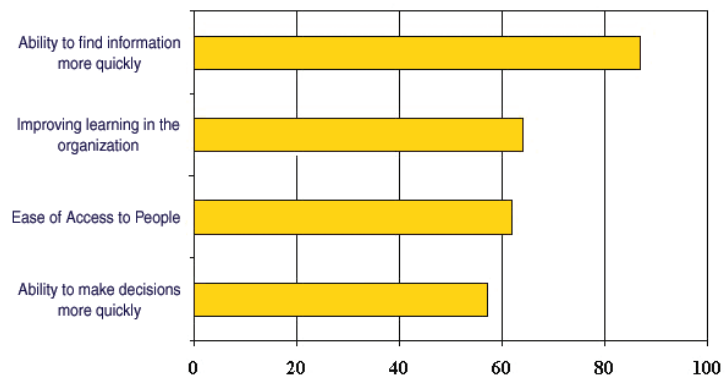
Fundamental questions persist with respect to having the confidence that the best information and the best people are involved in discussions and decision making. Of course when these questions are made in the

context of business operations, the significance is very apparent:

- ◆ We have just received a claim against our patents in Germany. Who is our best authority on German patent law?
- ◆ We need to respond to this RFP by the end of the week. Who should we put on this team to ensure that we take our best shot?
- ◆ We must have encountered this problem before! Do we have anyone who has any experience with this problem in the field?

Users view of the Strategic Benefits of KM

(responses greater than 50%)



Source: Lotus Research, KM Demand and Usage Survey of 667 KM Users and Considerers, IT and LOB decision makers, SM&L Businesses in NA (US & Canada), LA (Brazil), Europe (France & Germany) and Asia Pacific (Japan, China, Australia) – Aug – Oct 2000

During the course of a given day many such questions go unanswered. These gaps in knowledge end up in many cases as gaps in performance, missed deadlines, inferior answers, rework, and reinvention.

Research we have done at Lotus bears this out. Knowledge Management users identified the following reasons for their strategic investment in Knowledge Management.

The Technology Piece-parts

A number of technologies have emerged to focus on providing solutions to many of the problems encountered by organizations. These technologies provide the foundation for collaborative knowledge management. At a broad level they are:

- ◆ Document Management
- ◆ Workflow
- ◆ Collaboration

These technologies have gone mainstream to the extent that organizations generally understand the value proposition of each of them, can identify and describe problems they solve, and the products meet the promise they articulate. Taken individually each of these technologies provides value to organizations. However, taken together, organizations can truly begin to discover the knowledge within their organizations.

The Quest for Knowledge Discovery ? Context is Key

Collaborative Knowledge Management takes this foundation of messaging collaboration and document sharing and creates a platform for the discovery of knowledge—the identification of the experience, experts, learnings, and “prior art” of the organization.

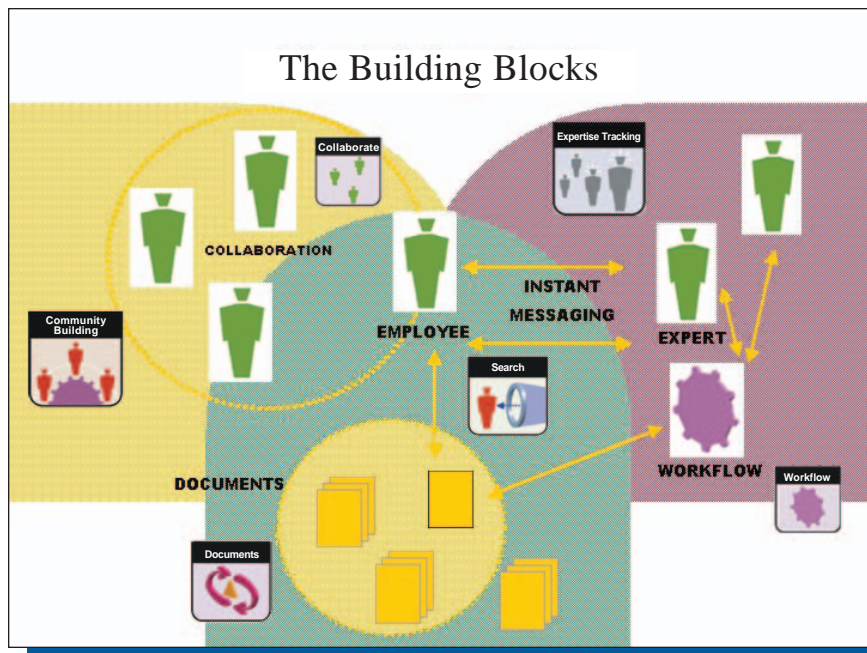
The common theme is the integration of the people, the activities, and the documents—to provide not only the content but the context in which they were created and shared. It is this focus on context that is fundamental to knowledge discovery.

To establish context, knowledge discovery must address:

- ◆ Taxonomy
- ◆ Search
- ◆ Adaptability

Taxonomy creation allows an organization to essentially inventory “what they know.” By being able to “spider” existing knowledge bases (Web sites, document repositories, email attachments, etc.) organizations create a framework for knowledge sharing. The inventory and relationship of documents and other unstructured data are essential to establishing comprehensive content and context.

Search enables people to query both within the organization and beyond. Addi-



tionally, search is not just the simple matching of indexed items that meet a given search criteria but the retrieval, ranking and evaluation of the relationship of the content and context in which those documents were created and used.

Additionally search is not limited to documents but to the “experts” that created and used them. Being able to tie the activities of individuals to searchable topics is the foundation for the organization to truly find their experts.

Lastly, adaptability is key. With virtually every interaction within an organization, every retrieval of a document, every discussion thread, the knowledge map of the organization changes. Therefore the relevancy and utility of documents and people are re-ranked to reflect these interactions and key to identifying the context in which the information is created and used.

Collaborative Knowledge Management

The promise of collaborative knowledge management is one of confidence. Confidence that decisions are being made by the most experienced people in the organization, that prior activities and projects are available as a resource and point of reference, and that the documents being shared do indeed represent those of the highest utility. By implementing a collaborative knowledge management system, organizations do gain the maximum leverage of their “experts.” First by identifying those individuals with relevant capabilities, skills and knowledge, and second by providing computing services for engagement and

“It is the focus on context that is fundamental to knowledge discovery.”

communication—both instantly and through community building.

As companies face the challenges of doing more with less, getting to market faster, driving customer satisfaction to higher levels—the attention turns to the assets that enable employees to do their jobs more efficiently. Collaborative Knowledge Management is designed specifically to meet these challenges. ■

Michael Loria oversees Lotus’ marketing strategy for Knowledge Management. This includes products such as the recently introduced Knowledge Discovery System (KDS). He can be reached at michael_loria@lotus.com and welcomes feedback and comments.

The Burgeoning Market for Enterprise Portals

By Jay Weir, Product Marketing Manager, Hummingbird EIP, Hummingbird Ltd.

Over the past two years, since Merrill Lynch coined the term, enterprise information portals (EIP) have come a long way. While some of the early promise of the portal business computing platform has yet to be realized, the growth of the market for enterprise portals has been astounding. From an emerging market value of about \$1 billion in 1999, analysts estimate a potential of between \$7 and \$10 billion by 2005. Enthusiastic market predictions aside, actual deployment and functionality of enterprise portals are advancing at equally impressive rates.

Enterprise portals have evolved from what can be thought of as a spruced up My Yahoo! or MSN for the business user, to implementation as a means of amalgamating intranets and information sources, to the current use by many organizations as a way of Web-enabling business processes. We are also seeing portals rolled out to enable employee self-service and collaborative capabilities. But portal solutions are moving fast. The next generation of enterprise portals will move beyond the primarily inward-facing model to include business partner collaboration, customer interaction, and support for such functions as procurement support. The idea of the "Workplace Integration Portal" will see organizations realizing tremendous return on investment and significant business benefit.

EIP: Current Deployments

As mentioned, enterprise portals are being rolled out currently to primarily internal users. Organizations are using portals for a variety of reasons. Some of the typical current implementations are outlined below:

Project/Role Focused: Many portals today are project or role focused—designed and deployed as either pilot projects or to solve a particular pain. For example, a portal might be deployed to help members of a project track tasks, collaborate, and access required information resources.

Departmental/Line of Business-Driven: There may be certain departments in the organization that are innovators—perhaps the marketing department wants to begin

developing best practices, enhance CRM efforts, or increase collaborative efforts via a portal. Regardless, certain departments want to begin leveraging some of the benefits of portals.

Regional Focused: In large organizations especially, portals are being rolled out on a regional basis. Big companies might roll out portals to their east coast-based operations and have a completely separate portal for their west coast facilities. The portal is being used to address regional problems of information access, management and application integration.

Intranet Amalgamation: Again, as discussed earlier, many organizations see portals as a way of combining their intranets. Marketing, sales, manufacturing, finance, human resources, and other lines of business have deployed their own intranets—organizations are looking to increase knowledge sharing, so they are deploying portals as kind of a super-intranet, or, you may have heard this one, an intranet on steroids.

"The next generation of portals will move beyond the primarily inward-facing model."

Inward Facing/Self-Service: The fact is that the vast majority of portals are inward facing, designed and deployed to internal audiences: self-serve applications; information sharing; amalgamation; and application integration rolled out to the company and maybe a few select business partners.

The real trend is that most portals are small-scale at the moment. This is due in part to the immaturity of the solution—organiza-

tions are testing the waters—and in part to scalability issues. That is, current portals simply can't handle the volume of traffic required to roll them out to hundreds of thousands of customers and employees. But that is changing—fast.

Next-Generation Portals

Analysts estimate that within two years, portals may be the business-computing platform. Outlined below are some of the probable EIP deployments:

Large-scale Deployment: The evolution of portal deployments into much larger implementations that accommodate tens and hundreds of thousands of users.

Customer and Partner Facing: B2B and B2C initiatives will be added to the current inward-facing deployments.

Global Focus: EIP deployments on a global and enterprise scale will replace regionally focused ones.

The "Super Portal": One problem we're creating for ourselves by rolling portals out today on a regional and departmental basis is that we're using all kinds of portals. It's not rare for a large organization to work with three or more different portal vendors, in separate regions or departments. The notion of the Federated Portal is emerging—portals that are capable of amalgamating different portals. As portals are used today to amalgamate intranets, some organizations will need a portal to amalgamate their portals...

Workplace Integration: A rapid evolution of the application integration capabilities in portals is certain. Currently, we have the ability to bolt-in applications on an interface or emulation basis. The future of integration of business systems in portal environments is much more focused. The customization of information extraction and presentation—rather than simply providing an emulation window, notifications and alerts—will emerge, along with other advanced integration functionality.

Wireless Access: As use and acceptance of WAP devices and other technologies develops, portals will need to increase their device independence. Hummingbird and some other portal vendors have certain basic wireless capabilities today, but down the road, portals will need to be accessible and useable by different devices.

Hummingbird EIP: Providing the Building Blocks for Next Generation Portals

Hummingbird EIP is a fully customizable web-based workspace that provides a single point of access to all business-critical information and resources, including structured and unstructured enterprise data. Beyond providing an interface for accessing and viewing information, the Hummingbird EIP works by connecting users to content in

context, enabling them to quickly process, filter and act upon information from any enterprise source.

Meeting the Requirements of Technology and Business

Hummingbird EIP was designed from the beginning to satisfy the different needs of both IT professionals and line of business users.

For knowledge workers, Hummingbird EIP enables enterprise agility and helps achieve maximum competitive advantage. For IT departments, its ease of implementation and administration guarantees a rapid and substantial return on investment by cutting costs associated with developing customized systems and providing a solution that is faster to deploy and easier to maintain.

Knowledge Worker Benefits

- ◆ Single Login
- ◆ Unified Search
- ◆ Personalization
- ◆ Application Integration/Centralized View
- ◆ Collaboration
- ◆ Information Technology Benefits
- ◆ Openness
- ◆ Security
- ◆ Scalability
- ◆ Openness

It is increasingly important for solutions to be deployable and accessible across a variety of platforms and devices.

With a platform, application, and device-independent architecture, the Hummingbird EIP allows for maximum flexibility. Hummingbird EIP is deployable on both UNIX and Windows NT and accessible from PC, laptop, and even wireless devices.

Another element of "openness" is the ability to extend the investment in existing technologies. With its e-Clip (XML and Java plug-ins) architecture, organizations are free to bolt in data sources, mission-critical applications, and even other information systems without the need for the custom programming or tedious interfacing traditionally associated with integration tasks.

Security

As with any Internet solution, security issues are paramount. Organizations need to know that their information, data sources, and mission-critical applications are safe from unauthorized access.

Hummingbird EIP is ideal for both users and IT administrators. Hummingbird has developed a technology called Common Authentication Protocol (CAP) Server that delivers the single login model to Hummingbird EIP. By entering a single password and username, users gain access to all data sources, applications, and collaborative tools they would normally have in a client/server network environment. From an administrative standpoint, user authentication is

managed through existing security profiles (LDAP, NTLM, ADS, NDS, etc.), eliminating the need to create and maintain additional security accounts for users. Built-in encryption and support for standard authentication models minimize required security maintenance.

Scalability

A key benefit of the enterprise information portal is that it is capable of increasing staff efficiency and effectiveness. Time savings attributable to the centralized environment of the enterprise portal are significant. However, without a scalable architecture, increased efficiency turns quickly into insufficiency.

Hummingbird EIP was built from the ground up to be a true enterprise strength solution. This allows organizations to implement with confidence, knowing that their portal server can accommodate not only thousands, but hundreds of thousands of users if need be.

Search and Categorization

Rapid access to information is the basis of enterprise portals. However, because organizations, over time, have gathered so much information in so many different formats, providing this access is not an easy task. Hummingbird EIP provides a proven, unified solution that allows users to find both structured and unstructured data from all databases, repositories, and file systems, both internal and outside the organization.

Hummingbird EIP doesn't just find and display information. Rather, it presents content in context by automatically generating business taxonomy and categorizing results into commonsense groupings—by source, relevance, topic, or concept. Users can even define custom agents that monitor sources and repositories to automatically collect relevant information and send notifications to alert the user of content additions and updates.

Application Integration

It is critical for enterprise portals to access other internal and external applications. This functionality ensures that users will be able to not only retrieve and view information, but to act on it. For example, users may want to perform analysis on some sales data they received, or delve into a monthly performance report. They'll need immediate access to business intelligence and reporting tools to do this work and may even require collaboration tools or facilities to publish and distribute their findings.

Hummingbird EIP provides users with a centralized, unified, and consistent environment for interactions with all applications. The integration services greatly simplify both enterprise deployment and interactions for the end user, thereby reducing costs and implementation time.

*"Current portals simply
can't handle the volume...
But that is changing fast."*

Personalization

Personalization within enterprise portals allows users to assemble the elements they need in the way that makes most sense to them. Similar to the concept of consumer portals such as My Yahoo! and MSN, the idea is to create a personal website with all the required and desired elements. However, besides choosing from things like local news feeds, stock tickers, sports scores, horoscopes, and weather reports, users can add such components as mission-critical applications, department-specific data sources, business intelligence and reporting tools, and collaborative features.

Hummingbird EIP also incorporates a variety of unique features that allows users to create their very own web-based workspace. Users can build multi-page environments to customize the portal to their individual needs and provide for maximum productivity gain. Moreover, users can develop and choose from various themes that provide a personal or corporate look and feel, as well as the ability to apply platform-specific interfaces for desktop PCs and palm devices. This allows users to access EIP content regardless of what device they are using or where they are located.

Collaboration and Feedback

One of the great benefits of enterprise portal solutions is the unequaled collaborative capability they make possible. Imagine being able to instigate immediate action to correct a misinformed decision as a result of your own analysis and findings. Think of the cost savings of organizing an online conference to review concepts for an upcoming advertising campaign, rather than arranging for ten attendees to fly to the main office for the day. By enabling this type of on-the-fly collaboration, enterprise portals present tremendous opportunities for increasing bottom-line benefits.

Hummingbird EIP provides a comprehensive feedback loop that allows users to rank pages, features, and functions, and make recommendations. Additionally, the Hummingbird EIP facilitates real-time messaging by providing users with the ability to send messages to other online users. ■

Bringing Applications to the Enterprise Portal

Application Access in the Digital Economy

By Michael Richtberg, Director, Product Management, Portal Products, Citrix Systems, Inc.

In today's fast-paced global marketplace, the ability to give mobile, distributed workers ready access to the applications and data they need for sound decision-making has become vitally important for businesses striving to be productive, agile and profitable. The popularity of Web-based computing, combined with the need to expedite information access, has spurred adoption of enterprise portals. In their fullest manifestation, these company Web sites aggregate, personalize and serve applications, data and content to users, while offering management tools for organizing and using information more efficiently. In some companies, portals have replaced the desktop, providing a virtual workplace with the ease, convenience and ubiquity of browser-based access. Portals also deliver ROI benefits from faster, easier information access, including increased worker productivity, more effective decision-making and greater IT efficiency.

True desktop replacement means a portal needs to offer a full complement of information resources. Business applications are, arguably, the most vital category of information that workers need to access for planning, decision-making and execution. They also typically represent a major investment—and often a competitive advantage—that the corporation should continue to use when moving to a Web-based system. From the standpoint of productivity, application access via the portal is needed so users are not forced to switch back and forth between the browser and the desktop to do their work. With a split browser/desktop system, it is more difficult to locate and coordinate material from various sources. Users are also typically tied to the desktop device because it provides key applications that may not be accessible via the browser.

All these business drivers make a compelling case for including existing and upcoming applications in the portal implementation. However, to date, few applications have been developed specifically for Web-based delivery. Although it is possible to use existing applications by re-engineering them for Web publication using HTML, scripting, Java and other proprietary means,

this approach is time-consuming and expensive, and may delay portal implementation. Likewise, these implementations may have reduced interactivity or may not be feasible because the "download and run" model is too resource-intensive.

How can interactive, legacy applications be Web-enabled for inclusion in enterprise portals without requiring re-engineering that can significantly delay and/or dilute ROI from the portal implementation? And how can these applications be more efficiently managed, deployed and supported to augment the cost benefits of a portal?

Server-based Application Delivery and Management

The most compelling answer to the second question is server-based computing, a key enabling technology for portal implementations that also reinforces the portal concept of information aggregation. Analogous to an enterprise portal, which centralizes comprehensive information resources and serves them via a Web browser, server-based computing centralizes applications on a server and deploys them to users via a single interface. Just as an enterprise portal improves user productivity through single-point information access, a server-based architecture enhances the overall efficiency of a portal solution through single-point application administration.

In the server-based computing model, application processing, administration, support and deployment are based 100% on a central server. Users view and work with the application interface, sending keystrokes and mouse movements over the network to the server and receiving screen updates, files and other data. Because processing takes place on the server, any device becomes a thin client and only minimal data travels across the network, resulting in greatly improved application performance and security.

This architecture enables application access on virtually any device, including wireless and handheld communication devices and information appliances, running on a

wide array of platforms. Device and platform flexibility helps to fulfill the promise of Web computing as the ideal model for today's mobile workers, who can move seamlessly from one device to another and receive a consistent, personalized information set, including applications.

Citrix Systems, Inc. offers server-based computing products that help organizations gain efficiency and reduce Total Cost of Application Ownership (TCA). When used in conjunction with a portal solution, Citrix® MetaFrame™ application server software reduces costs for portal administrators by enabling centralized application rollout, personalization, administration and security. Specifically, Citrix application serving technology delivers cost benefits by:

Reducing TCA through single-point management. Citrix centralizes application administration, support and deployment, enabling IT staff to implement rollouts and upgrades and conduct troubleshooting and training from the server farm rather than having to visit each desktop.

Speeding up ROI on new applications. Users are able to access new applications and upgrades as soon as they are installed on the server.

Permitting the most diverse set of client platforms to benefit from the portal. Citrix Independent Computing Architecture (ICA®) technology, which provides the architecture underlying the Citrix application serving environment, supports Windows®, Macintosh®, UNIX® and Web operating platforms. This allows users to continue using their current devices, or choose inexpensive thin devices.

Supporting application deployment via any connection, with minimal bandwidth demands. The advent of wireless communication devices that incorporate Web browsers will undoubtedly generate user demand for portal access. Citrix ICA enables application access over wireless networks as well as more traditional wired LANs and WANs with very low bandwidth requirements.

Fast Web-enablement of Applications Delivers Immediate ROI

Returning to the first question about how to adapt legacy applications for portal-based access, there is a unique product that helps companies quickly launch comprehensive enterprise portals—and quickly begin reaping their benefits—by Web-enabling existing Windows, UNIX and Java™ applications without rewrites. With this approach, applications are not converted to HTML or another language; rather, they are delivered in their original form with full functionality intact. In addition, the user interface remains the same, so there is no need for user retraining on the application. Organizations can also tailor the applications each user receives, and

personalize the browser and content around these applications.

This product, Citrix NFuse™ application portal software, works with Citrix MetaFrame to deliver existing, interactive, server-based applications via a portal. While MetaFrame provides server-side command and control of applications, NFuse instantly “Webifies” those applications, helping to create a central, online virtual workplace that promotes user efficiency and leverages a company’s investment in proprietary and off-the-shelf applications.

In short, this Web-enablement technology allows companies to immediately begin receiving both tangible and intangible returns on their portal implementation. With NFuse as a key part of their portal solution, customers can:

- ◆ Continue to use the business applications they have already spent money to acquire/develop. Citrix application servers support Windows, UNIX and Java applications, enabling NFuse to provide portal-based access to the most widely used business and productivity solutions.
- ◆ Instantly integrate and publish virtually any application into a standard Web browser while retaining full application interactivity and eliminating time-consuming, costly application rewrites;
- ◆ Avoid user retraining on existing applications because the user interface stays the same;
- ◆ Personalize the delivery of applications to individuals or groups based on login identity;
- ◆ Create a seamless Web environment with an intuitive interface for users by using the same applications they already understand; and
- ◆ Leverage the powerful management and security features of Citrix MetaFrame application server software.

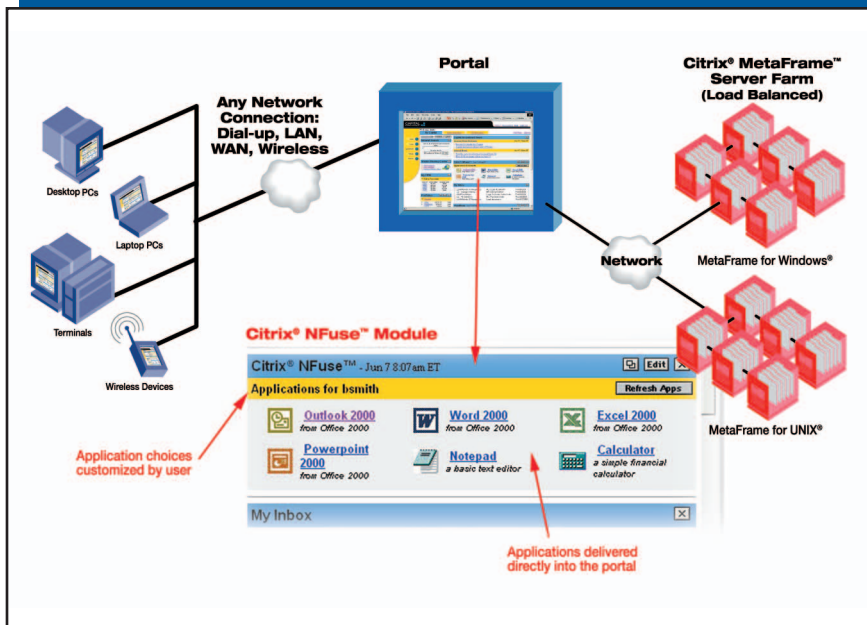
Support for Corporate Portal Solutions

Citrix NFuse supports and complements leading portal solutions, such as the Citrix XPS™ product (via the acquisition of Sequoia Software), giving them the capability to incorporate published interactive applications in their offering. This enables portal solution providers to offer customers comprehensive access to all the tools, information and applications they need. Citrix also supports many other portal products through alliances with the other industry players.

Case Studies

Merrill Lynch

One of the world’s leading financial management and advisory companies, Merrill Lynch sought a simpler way to provide application access to its Jacksonville, Florida facility’s users when they were working from



Citrix NFuse software enables instant personalized delivery of existing Windows, UNIX and Java applications to be integrated and published into a Web environment for access on any device running a standard browser.

home, the road and other company offices. Employees were frustrated by the difficulty of connecting remotely, and IT staff was spending an unacceptable amount of effort to configure and support remote desktops.

Merrill Lynch turned to Citrix NFuse to create an intranet-based corporate portal. Interactive applications, including inquiry tracking and email, have been integrated and published to a secure Web site, where they are accessed by more than 500 users via a Virtual Private Network. The personalization capabilities of NFuse allow Merrill Lynch to tailor applications and information to specific users, including partner firms.

The benefits Merrill Lynch has achieved with its NFuse portal include cost and time savings from eliminating remote desktop configuration, improved application access, and the ability to share specialty applications among different offices.

ProTier

ProTier, a New Orleans-based Application Service Provider (ASP), offers Independent Software Vendors a customized application hosting solution for their customers. To differentiate itself from other ASPs, ProTier needed to efficiently deploy custom hosted applications to end users via a Web portal. ProTier is using Citrix NFuse to integrate and publish applications to its Web portal from which hundreds of end users access their applications via a Web browser.

Using NFuse benefits ProTier by providing rapid application deployment over the Web without re-engineering, a significant reduction of bandwidth requirements, and successful fulfillment of Service Level Agreements. As ProTier’s exclusive deployment platform, NFuse has greatly im-

proved the ASP’s ability to deploy hosted applications through the Web.

Conclusion

Citrix application portal and application serving technologies help make enterprise portals a fiscally attractive proposition for companies. By enabling the reuse of existing applications and infrastructure in the portal environment, offering application access from wireless as well as wired networks and devices, and providing a server-based architecture proven to reduce computing costs, Citrix strengthens the value proposition of portals and makes their implementation easier, faster and more successful. ■

About Citrix

Citrix Systems, Inc. is a global leader in application serving software and services that extend the virtual workplace everywhere by providing secure, reliable access to applications and information, and a consistent user experience, on any device or network connection. Citrix solutions enable organizations of all types to deliver business applications to users with greater manageability, flexibility and cost-effectiveness. The company’s products, including Citrix MetaFrame application server software, Citrix NFuse application portal software and Citrix Independent Computing Architecture (ICA), a core application serving technology, have been widely adopted by the corporate mainstream to achieve key business goals. More than 100,000 organizations, including 99 of the Fortune 100, use Citrix software. Headquartered in Fort Lauderdale, Florida, Citrix markets its solutions worldwide through value-added resellers, system integrators, consulting firms and OEM licensees. Citrix is traded on The Nasdaq Stock Market™ under the symbol CTXS and is part of the Standard & Poor’s 500 Index.

For more information, please visit the Citrix Web site at <http://www.citrix.com>.

For information on Citrix NFuse visit: <http://www.citrix.com/products/nfuse/default.asp>; Or call 800.427.9269

Citrix®, ICA®, MetaFrame™ and NFuse™ are registered trademarks or trademarks of Citrix Systems, Inc. in the US and other countries. All other trademarks and registered trademarks are the property of their respective owners.

Making Personalized Retrieval a Reality in Knowledge Enterprises

By Dr. Thomas Hofmann, Chief Scientist, RecomMind Inc.

"Information needs vary from person to person," says Dr. Thomas Hofmann, founder and chief scientist at RecomMind, an information management and retrieval company in Berkeley, CA. "Until now, tools have been built for the enterprise that focus on managing content but little has been done to understand the needs of the user. Two people in your enterprise with different needs type in the same query, why should they retrieve the same results? This illustrates the fundamental problem in information retrieval and management." Until now, enterprises have spent significant resources on the content side of the equa-

tion: loading, parsing, understanding, retrieving, filtering, and delivering content but have ignored the most important component in the enterprise: the user.

Personalized Retrieval

The next evolution in enterprise information retrieval and management will come from tools that incorporate context into information retrieval. Context comes from understanding the user and the value of the information sources they seek. By understanding and interpreting information from personal profiles, RecomMind solves this

problem by tailoring information results to the end user. "Everybody is used to seeing long lists of results but what people want are results that are relevant to them," adds Dr. Jan Puzicha, RecomMind's CTO. "Without understanding and incorporating user data into search, there is little context for the results."

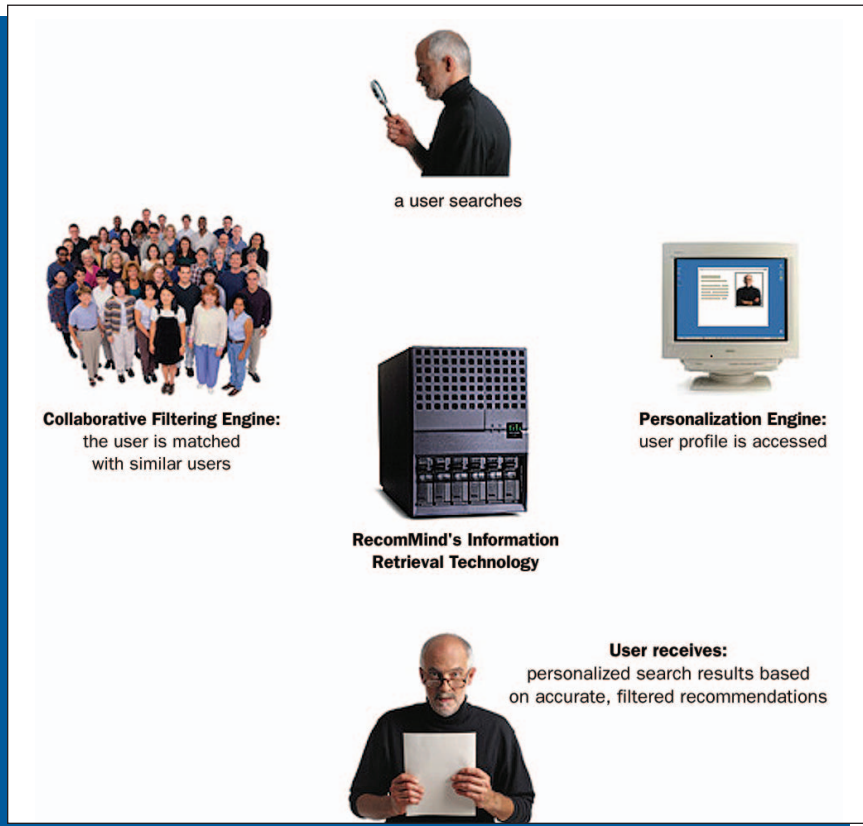
"Until now, tools have been built for the enterprise that focus on managing content but little has been done to understand the needs of the user. Two people in your enterprise with different needs type in the same query, why should they retrieve the same results?"

User-based Recommendations

When searching for information, most people in an enterprise pick up the phone and start dialing until they find the person who points them to the source. Picking up the phone works because the value of information is defined by users, not by how many key words are in a document. Incorporating this knowledge into search practices is the key to improving search results. RecomMind does this by first linking an individual with similar people who share a common interest, and then incorporating this data into information retrieval and management. For each search, the user also retrieves results that others have found useful.

Even though we know that information retrieval should focus on the user, the industry has not made strides to incorporate user context into information retrieval and management. Until now, the focus has been purely on content. The next generation of tools for enterprise users will be focused on better understanding those users and meeting their individual needs. ■

Dr. Hofmann is the Chief Executive Officer and Chief Scientist of RecomMind. He is one of the leading experts in machine learning and has a strong background in artificial intelligence and computational statistics. Dr. Hofmann has pioneered statistical methods for information retrieval, text mining, and user modeling. He can be contacted at thomas@recommind.com and welcomes feedback and conversation.



Using Portal Technology to Improve and Streamline Business Processes and Decision-making



Randall W. Eckel
Chief Executive Officer

Randall W. Eckel, a co-founder of Infolmage, has been Chief Executive Officer of Infolmage and a member of the Board of Directors since 1992. Mr. Eckel is a recognized expert in collaborative and knowledge management solutions delivered through the framework of enterprise portals and is regularly quoted in trade and business publications.

By Randall Eckel, Chief Executive Officer, Infolmage

Today's progressive organizations have empowered knowledge workers with front line decision-making responsibility and expect them to make good decisions—yet organizations have not provided the tools to enable knowledge workers to be effective. As a result, they are empowered but not fully informed.

With the advent of corporate and enterprise information portals, businesses gained tools to help knowledge workers aggregate, access and navigate through data from internal databases, internal document repositories and Web sites. As the technology has evolved, navigation has become more sophisticated, content more relevant, and interfaces more user-friendly and intuitive. Even accounting for these advancements in portal technology, portals remain passive presenters of information—allowing information and applications to “coexist” but not much more.

With traditional corporate or information portals, knowledge workers must manually and mentally transform their data into useful information that can be acted upon. A typical business function within a traditional corporate portal, such as finding information relevant to a customer inquiry, requires users to navigate through multiple pages and perform separate searches, sorts and filters to get related information from each data source. Nowhere in this process is the ability to collaborate with others for insight and experience.

Gather More Information and Experience in Less Time

The ability to make a sound business decision involves identifying and locating

information, collaborating, analyzing and taking action. Each task represents a significant commitment of human capital, with all of the associated expenses. Multiply these expenses by the number of functional areas and business processes in an enterprise, and the benefits of improving and streamlining the decision cycle become apparent.

What's needed is a collaborative decision management solution within an enterprise portal architecture that delivers more relevant information and experience to the user in less time. In other words, an enterprise portal that represents the convergence of collaboration, knowledge management and business intelligence. Such a portal accesses content from disparate data sources, synchronizes information around a role, process or project, allows users to collaborate with subject matter experts throughout the decision network for insight and experience, and extends the portal to the value chain both inside and outside of the firewall.

“With traditional portals, knowledge workers must manually and mentally transform their data into useful information that can be acted upon.”

Enterprises possess tremendous intellectual capital. The challenge has been, and continues to be, providing access to that capital and capturing it for development of best practices and shared learning. We believe that users should be able to create new or ad hoc workspaces focused on a specific topic, decision or project, populate it with relevant information, invite others

to participate, and effectively share information. The decision-making process is now collaborative and interactive. Pre-packaged workspaces, designed for specific roles or tasks within an enterprise or for vertical markets, should also be available, and we call these Collaborative Decision Applications (CDA).

For example, a sales associate using a CDA for sales teams and customers can have workspaces for clients, opportunities and prospects. These deliver synchronized customer-specific information from structured data sources such as accounts payable and receivable, CRM and ERP systems, and unstructured data sources including documents, discussions, news groups, information feeds and e-mail. These workspaces can easily be shared among the entire account team—both inside and outside the organization.

The ideal portal incorporates all of the functionality and performance associated with mature enterprise information portals and introduces a level of capability that elevates the portal to a tool that improves an enterprise's business intelligence, knowledge management and collaboration abilities—effectively turning these formerly independent capabilities into a core competency for business. ■

About Infolmage

With the patent-pending Infolmage Federated Portal Architecture™, Infolmage Decision Portal speeds the decision-making process at all levels of the organization and provides unmatched interoperability and scalability in the enterprise portal market. Infolmage enables business intelligence, knowledge management and collaboration across the value chain. Certified by BenchmarkQA, Infolmage enterprise decision portal software supports three million users through a network of federated portal servers. As the first vendor with certified results showing global scalability, Infolmage offers multinational organizations the ability to collaborate throughout the enterprise regardless of the number of users. Founded in 1992, Phoenix, Ariz.-based Infolmage has offices across the United States and is online at <http://www.infolmage.com>.

Enterprise Information Portals: Portals in Puberty

By Robert Bolds, Solution Manager, Knowledge Management and Portal, Computer Associates International, Inc.

Remember that awkward time in your life when you suddenly underwent a lot of unexpected changes that affected just about every aspect of your life? The upside of these changes is that they are part of the maturing process.

According to most analysts, we are out of the early adoption stage of portal technology, so it's appropriate to say we must be in portal puberty. The signs are there: most vendors are beginning to stabilize on a host of common features and functionality; standards organizations are already complaining there are none; some companies are buying and implementing portals for unknown reasons; and the education and litany of portal buzz (this article included) has grown at

a geometric rate. This article discusses how to gain business value by unleashing the often overlooked collaborative capabilities of Enterprise Information Portal (EIP) technology.

Understanding the Enterprise Information Portal Value Proposition

Portal technology is defined in various ways, but a practical means of understanding the value of portal technology is by examining significant usage. Significant because, at a practical level, if the capability isn't used to derive business value, no business benefits can be realized. The trick is to turn features and functionality into practical business benefits. The follow-

ing table provides some common features and functionality of portal technology and the associated business benefits.

However, there are downsides to these capabilities. As stated previously, if discretion in how to use them is never realized, the benefits can be very easily turned into confusion. The real value then is not in having a portal with the most bells and whistles, but in realizing the benefit by capitalizing on the features that will provide the most value from the investment. In doing so, however, there must be a common level of understanding in order to facilitate the benefits.

“We are out of the early adoption stage of portal technology. . . we must be in portal puberty.”

Common Features

Business Benefits

Search

Quick access to hidden information to **facilitate business processes.**

Categorization

Ability to organize information assets by business process, group, or job category thus **promoting access to relevant information.**

Query, Reporting & Analysis

Better decision support as well as information dissemination and sharing.

Integration of information and applications

Ability to access through a single interface, all applications and information required for **increased job throughput.**

Publish & Subscribe

Maturation of business processes by collaborating with others, sharing information, and **improving business performance.**

Personalization

Arranging the interface to meet an individual's needs and desires for **increased job productivity.**

Defining the Corporate Semantic

A common level of understanding is a key goal in deriving tangible business benefits. This is a process that involves corporate standards, common and well-defined business processes and enterprise meta data and, more importantly, meaning. With a corporate semantic, a common understanding of business terms and processes exists at every functional level within the organization. This occurs when the portal and its underlying infrastructure supports context. In understanding the business grammar and the semantic structure of an organization, it becomes vital to help every person within the organization to obtain the necessary information to do their jobs and develop meaning from that information in the proper context. This translates into the portal being a context provider. As a context provider, then, the portal must provide the proper context through a well thought-out strategy. That strategy should include these logical constructs:

“Defining the EIP as a context provider is the key to realizing business value.”

◆ *Business integration vs. information integration or application integration.*

Integrating information and applications are first steps to support business integration. A portal can support application and information integration but the weakness at this point can be a lack of providing business context, or meaning, to the information. Business integration is the *integration and translation* through the meta data layer of information and applications to provide context.

◆ **Process Integration.** In addition to providing context, the portal solution should support process integration. Process integration includes workflow, categorization and taxonomy services. These services provide the foundation for context. Information with workflow, categorization and taxonomy equals context.

◆ **Application & Information Integration.** This is a strict reference to source systems from which information is generated. It also includes the data administration layers, such as cleansing, transformation, and extraction.

◆ **Enterprise Meta Data Repository.** Meta data is vital as the mechanism for context. The repository should not include every piece of information that exists, only the information that will be utilized to provide meaning. The repository then becomes the “single version of understanding,” not just the “single version of the truth.”

Defining the EIP as a context provider is the key to realizing business value and benefit because it provides knowledge workers with a single personalized interface that facilitates what they do—with meaning. In this manner, context will determine meaning.

Enabling Context through an Enterprise Information Portal

By utilizing the key layers identified previously, the portal becomes an enabling solution for all knowledge workers, whether they are internal employees, customers or partners. But achieving the technical requirements needed to enable context to be unlocked from within the portal is no small task. However, these requirements for enabling context also drive business benefit. One of the first requirements is the need for **role-based content**. Role-based content means that the scope of content provided through the portal to an individual user is relevant for defining business benefit. A prime example is providing too much information through the portal, such as syndicated content, thereby overloading knowl-

edge workers with irrelevant information. Role-based content requires relevant information.

The next requirement is the need for **task-based knowledge**. This differs from role-based content in that task-based knowledge is collaborative information that helps define additional value beyond any particular role. For example, if a material analyst analyzing usage patterns for a particular assembly notes a high quantity of rejected assemblies through the portal, collaboration through a threaded discussion—or via published findings in the workgroup with QA and purchasing—might reveal that a new vendor was selected. This task-based knowledge would then be instrumental in helping the analyst recommend that the cheaper vendor was actually costing more due to poor quality parts.

Another requirement is the need for **quality in context**. This requirement extends through every layer of the information infrastructure and into the portal. Quality of content through the integration layers, and residing within the repository, will produce proper interpretation of content. The interpretation of content on the basis of quality context produces better decision support, improved workflow and consistent benefits.

Standardization is another requirement for enabling context. Standardization extends not just to information but to processes, as well. According to Barry Boehm and Victor Basili, “Disciplined personal practices can reduce defect introduction rates up to 75%,” ([Pursue Better Software, Not Absolution for Defective Products](#), Software Engineering Institute). The principle here is that standard processes can reduce mistakes, resulting in higher operational efficiency. This is one of the primary goals of enterprise information portals.

The final requirement is that of **unification**. The notion of unification is the result of all the above requirements being fulfilled. It further implies that none of the requirements are mutually exclusive

because the inter-relationship between the factors will provide additional benefit. Unification of the common technology features, the strength of the collaborative nature of the enabling requirements, the integration of knowledge to create context and the interaction of the worker with the portal all combine to produce tangible business benefits.

Summary

Puberty is that maturing stage where many factors come together to produce a more experienced, mature and productive adult. By understanding the value proposition of portals we can understand not just the technology, but also the business benefits that can be realized by enterprise information portals. And it doesn’t stop at this point, because the technology in and of itself won’t produce benefits. Using the technology to enable context, we can derive business benefits by creating a corporate semantic through the integration layers, resulting in meaningful business value for every knowledge worker. The requirements for achieving this goal are to provide knowledge workers with role-based content and task-based knowledge to improve business processes. Additionally, the quality of context and standardization must be considered to produce increased operational efficiency. The combination of these requirements results in a unified, collaborative work environment. The benefits of the portal are not just inherent in the technology itself, but can be found to produce business value and benefit by creating business context and meaning through a planned, strategic infrastructure. ■

Computer Associates International, Inc. (NYSE:CA) delivers the software that manages eBusiness. CA’s world-class solutions address all aspects of eBusiness process management, information management, and infrastructure management in six focus areas: enterprise management, security, storage, eBusiness transformation and integration, portal and knowledge management, and predictive analysis and visualization. Founded in 1976, CA serves organizations in more than 100 countries, including 99 percent of the Fortune 500 companies. For more information, visit <http://ca.com>.

Power Your Portal with Real Brains

By Tacit Knowledge Systems

Enterprise information portals (EIPs) can do a good job of consolidating access to an organization's existing data and published documents. But, what happens when the answers you're looking for aren't in the portal? Can you still find what you're looking for, and find it in a timely way? Or, do you revert to inefficient, ad-hoc processes like e-mail spam to find the information you need?

Most organizations are using EIPs to increase access to information and to improve organizational efficiency. However, the Delphi Group estimates that 42% of corporate knowledge remains locked inside of employees' heads. Paper documents comprise another 24% of corporate knowledge. To circumvent these limitations, companies are pushing their employees toward publishing more of their information. This path only leads to another roadblock—convincing employees to find time for creating documents.

Easy Access to Documents and Data Isn't Enough

The process of authoring documents is not only time-consuming and laborious, but meritocratic organizations send the wrong message, preventing employees from actively contributing their knowledge. Even when incentive systems are in place to motivate users to create and share content, the information tends to be less than complete for several fundamental reasons:

- ◆ It is impossible to capture the complete context and details of any project or business issue into a document. Omitted information may not have seemed important to the author, but could be critically important to someone else.
- ◆ There is a delay between the time business activities occur and the time a person can summarize those activities or ideas into a document. Therefore, the very latest development breakthrough or the most current project status will never appear.

- ◆ Not all information can be shared publicly. The sharing of sensitive information is limited to the right set of circumstances and a certain set of people. This type of information usually never gets published, and the opportunity to gain further value from the information is completely lost.
- ◆ Tacit knowledge is very difficult to capture. Properties such as instinct, feel, taste, and smell enable people to solve problems or make decisions, but codifying this knowledge is nearly impossible.

"People are necessary to transform information into results."

Unlock New Wealth From Your Company's Expertise

Complex problems with urgent deadlines are solved most effectively and quickly when the right information and the right people can be accessed. While an EIP can make information more accessible, equally important is making people's expertise available. People are necessary to transform information into results. Until now, organizational fluidity, geographical barriers, and complex management structures prevented people from effectively finding and connecting with each other.

An EIP with integrated access to corporate expertise dramatically increases user productivity and effectiveness. However, automation is the key to successfully harnessing employee intelligence—the tracking process for "who-knows-who" and "who-knows-what" must be automatic, non-invasive, and continuous. Automation ensures the most current information is always captured, without burdening users.

One rich and untapped source of corporate knowledge is e-mail and the documents sent through e-mail. E-mail is already the backbone for corporate communications—an Accenture study shows that the average U.S. manager sends and receives 220 e-mail messages per day. The use of e-mail as a source for systematically cataloguing employee expertise eliminates the need for people to specifically create documents about what they know.

Harvest Private Knowledge and Maintain Privacy

The notion of mining knowledge in e-mail often raises a privacy concern with users. These concerns are eased only when users see that they have complete control of their information and choices over what is shared. At the same time, an employee's private knowledge remains critically valuable. How can the organization tap this resource without breaching privacy?

Tacit uses a contact-brokering model, balancing access to private information with privacy. The system matches requests from information-seekers with subject-matter experts based on encrypted, private information. The system then forwards the request to the knowledge-provider. Until he/she contacts the information-seeker, the identities of matched experts remain anonymous.

Achieve Success More Quickly

The installation of an EIP is a large undertaking. On average, EIP launches require six to 12 months of detailed planning and integration work. However, Tacit can help you deploy Expertise Automation in just a few short weeks, with full expertise searching capabilities available at launch. As a result, you can implement expertise technology while preparing your full EIP implementation, without waiting for full project completion.

With expertise-location technology in place, your EIP expands into a unified gateway to all of your organization's information resources, including people. Thus, you can instantly find answers wherever they exist in the organization for better decision-making, enhanced service to customers, and increased competitive advantage. ■

About Tacit Knowledge Systems, Inc.

Tacit is the pioneer and leader in providing Expertise Automation solutions. Tacit's products—KnowledgeMail® and Tacit ESP for Portals—automatically and continuously inventory the skills and talents of your entire organization. With Tacit, people can instantly find and connect with the expertise they need to make decisions, solve problems, and serve customers. Customers such as HP, JP Morgan, Texaco, and Morrison & Foerster are using Tacit to gain efficiency, profit, and competitive advantage. For more information, visit www.tacit.com.

Maximize Enterprise Portal ROI

By Erick Rivas, President and Chief Executive Officer, Mongoose Technology, Inc.

An enterprise portal is the most pervasive application in the enterprise—it touches everyone and every data source. Without Portal Lifecycle Management, enterprise portals can quickly become the most complex and expensive application in the enterprise.

Reduce Development and Maintenance Costs

Enterprise portal software follows an iterative and incremental lifecycle similar to that of other enterprise software—design, assemble, deploy, and manage. For business-critical applications, most companies rely on an integrated development environment (IDE) tied to an application framework. The IDE provides tools and mechanisms for seamlessly automating tasks and deliverables within each phase of the lifecycle. To improve collaboration, the tools are organized by role so that a non-programmer can build displays and assemble applications from a library of reusable components developed separately by programmers. The benefits of Portal Lifecycle Management are similar to those realized in the software engineering lifecycle. A portal IDE helps manage complexity in design, speeds development and deployment, and reduces maintenance costs. In an enterprise portal, these benefits are amplified by the many display, business logic, and data access components that must be maintained. The table below presents the features and benefits of Mongoose PortalStudio™ against

the Portal Lifecycle Management checklist from the Delphi Group white paper “The Hidden Cost of Portal Ownership.”

Plan for Growth

As companies rush to deploy enterprise portals, some are tempted to select a portal solution that is based on proprietary technology because they are promised a solution within days. Many soon regret the limitations of a closed platform and the cost of ongoing maintenance.

A vendor-neutral portal framework allows the integration of e-business applications and data sources from many vendors through readily available connectors. The ideal framework provides system-to-system services for B2B integration and content aggregation, system-to-person services for portal access and management, and person-to-person services for web community and online collaboration applications. XML mapping tools and open API's should be provided for integrating custom applications and data sources. The framework should operate on a variety of platforms, with industry-leading Java 2 Enterprise Edition (J2EE) application servers. It should provide role-based security, and enable the portal to be rendered on browsers, mobile phones and PDAs.

Produce Real Communities

Reed's Law says the value of the enterprise portal grows exponentially with the



Erick Rivas
President and CEO

Erick Rivas is President and CEO of Mongoose Technology. Mongoose is setting the benchmark for Portal Lifecycle Management - the ability to cost-effectively design, assemble, deploy, and manage an enterprise portal within a single Environment. Mongoose PortalStudio™ is a visual portal authoring environment for the rapid development of customized e-business portals. Mongoose

PortalStudio Server™ is a J2EE™ and XML-based portal framework for easy aggregation and maintenance of e-business applications, and Mongoose RealCommunities! adds person-to-person services for enabling effective web communities and online collaboration.

The company counts BEA Systems and eBay among its customers and offers its e-business solutions through OEM and consulting partnerships including Iconix, SSI, eKnowledgeCenter and others.

number of people who effectively use it. Community applications can help identify expertise, coach a new user, share knowledge, and reward customer loyalty. While many of these applications are available today, they exist as point solutions. Having person-to-person services built into the portal server provides the infrastructure to produce real communities of purpose. These online communities share several measurable characteristics:

1. Is there a necessary shared purpose that we accomplish together?
2. Does each member have an identity? Can we tell who's who, even when anonymous?
3. Are we able to share information and ideas that fit our purpose?
4. Can we build trust? How do we know it's safe to deal with others in the community?
5. How do we form reputations? What lets us build status?
6. Have we created ways to work together in small groups?
7. Is our environment a shared space that is appropriate for our goals?
8. Do we know who belongs in our community and who doesn't?
9. How do we govern behavior so that it supports our shared values?
10. Is there a system for exchange of ideas, knowledge, support goods, and services?
11. Can we express our group identity? Are we aware of what others are doing right now?
12. Do we have ways to review our history and track our evolution?

Portal Lifecycle Management, an open portal framework, and communities of purpose are three ways to maximize enterprise portal ROI. ■

Erick Rivas can be reached by email at Erick.Rivas@mongooseotech.com

For product information, email info@mongooseotech.com or visit www.mongooseotech.com

Portal Lifecycle Management Checklist

Delphi Criteria	Benefits	Mongoose PortalStudio™
Component-level Management	Enable Reuse across portals; Manage complexity; Minimize maintenance cost	Portal components encapsulate display, business and data access logic; Components designed then assembled within an integrated development environment
Library Services	Easily find reusable components; Maintain software integrity	Role-based access to component services; Privileges to modify, copy, or assemble components; Track dependencies between components
Iterative Development Process	Automate lifecycle of validation, deployment, and modification; Simplify and accelerate maintenance	Lifecycle process reflected in the development environment; Components reused and managed across overlapping, iterative lifecycles; Individual components modified and deployed without conflict
Visual Development Environment	Facilitate the rapid design, assembly, deployment and management of portals; Reduced errors with Visual validation of the portal design	Development Environment Integrated with Portal Framework; Visual design masks complexity; Point-and-click assembly of display, application logic, and data access layers
Separate Application and Presentation Logic	High degree of personalization; Flexible development and deployment platforms	Portal components defined separately from how they are displayed; Information and applications presented based on context: user, group, roles, location, display device, etc

Enterprise Content Management: Powering the Enterprise Portal

Enterprise Portals Provide Personalized Access to Information Assets

By Michael Rudy, Vice President of Business Development, Technology Alliances, IntraNet Solutions, Inc.

The Enterprise Portal market has gained momentum as customers have realized the advantages of simplifying web access to the broad range of applications that their users access daily. According to the Delphi Group, 60% of the world's 2,000 largest companies either currently have an enterprise portal or will be building one in the next six months.¹

By offering single sign-on, personalized web interfaces, and connectors to the most common applications, enterprise portals offer consistent, optimized access to a broad range of corporate information assets. These assets can be roughly divided into two enterprise application categories:

- ◆ enterprise content
- ◆ all other enterprise applications.

Enterprises Generate and Manage Multiple Types of Content

Concurrently, many companies have launched initiatives for organizing content throughout their enterprises. META estimates the content management market to total \$10 billion by 2004, and of this \$10 billion market, \$6 billion will be spent on business-to-business and business-to-employee content management.² Enterprise web content management systems provide the means to organize, approve, and publish a broad spectrum of content, promoting greater leverage of a company's intellectual assets. Together, enterprise portals and web content management systems

empower business users to fully utilize the information assets of their corporations while greatly increasing efficiencies.

An enterprise-strength content management system should be capable of managing the three most common categories of content. These are:

- ◆ **Business Content.** Unstructured content is characterized by all of the operational, non-database content that drives a business. Analysts have reported that the majority of total corporate content falls into this category. Typically unstructured content includes text documents, images, spreadsheets, presentation materials, and may also include drawings, reports, email, video and audio. The business purpose for moving unstructured content to an enterprise content management system is to maximize the information exchange, use and reuse of this important business property.
- ◆ **Structured Content.** Generally considered the domain of the database systems, structured content also has significance to enterprise content management systems. As organizations increasingly use the structured information format of XML, content management systems are now expected to store XML formatted documents and manage XML tags as metadata, another structured format. Structured content may also be extracted from other enterprise systems, such as ERP systems, and entered into the content management system. For example,

B2B catalogs are maintained by the content management system, but data for these catalogs is often pulled from the part description housed in the ERP application.

- ◆ **Web Content.** Unstructured and structured content exists independently of a web site, but may be published to one or many sites. Web content, however, is content specific to a web site, and has no useful purpose outside of the web site. Typically, web content includes the output from HTML editors or multimedia tools, web formatted images, and web page configuration information. Additional categories include informative and collaborative content, such as company news, joke-of-the-day, threaded discussions, community topics, and shared group folders.

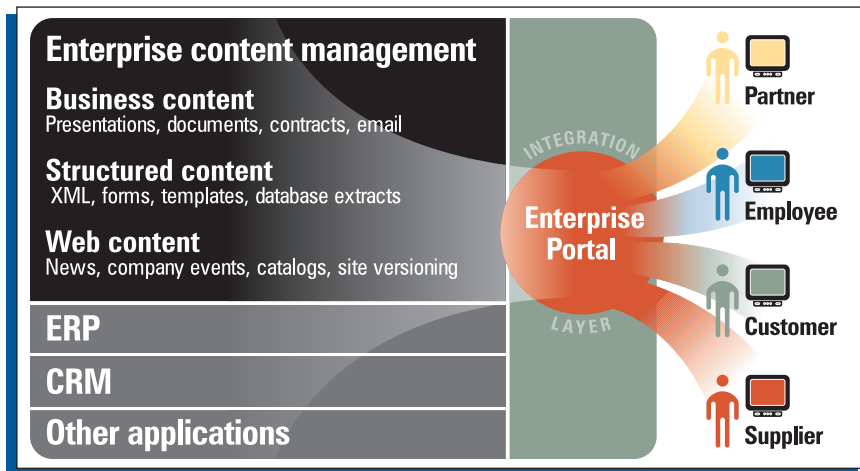
The successful content management implementation provides end-to-end content management for these different types of content, from creator to ultimate consumer. Business-critical content management applications such as this require integration with authoring tools, version and workflow management, translation to web formats, web page layout, and distribution through standard, mobile, and wireless browsers.

Together, Enterprise Content Management and Enterprise Portals Increase Efficiencies

The greater the maturity of the content management implementation throughout an enterprise, the faster the enterprise portal can deliver an investment return. If the content management system can aggregate a broad range of content, then the value of connecting the content management system to the corporate portal extends across this broad range. When the content is managed from end-to-end—from creator to consumer—and when the portal is involved in that end-to-end process, the portal user is able to integrate every phase of the content lifecycle into their portal experience. When IT managers find enterprise portal and content management solutions competing for the same project dollars, they should ask themselves, "what will be the value I deliver if I don't have content management as part of my enterprise portal solution?" ■

¹ The Delphi Group, as reported by *eCompany*, May 2001

² META Group, 2000.



About IntraNet Solutions

IntraNet Solutions® Inc. (www.intranetsolutions.com), headquartered in Eden Prairie, Minn., offers Web content management solutions for rapid deployment of scalable business web sites. The company is recognized by end-users and industry analysts for its ability to meet the unique requirements of these sites and lists more than 1,500 customers worldwide on its customer roster, including Merrill Lynch, Agilent Technologies, Cox Communications, Sun Microsystems, Qwest Communications, Target, Hewlett-Packard, Yahoo! and Ericsson Telecom AB. The company has more than 475 employees and maintains offices throughout the U.S., Europe and Australia.

Portals Unlock the Knowledge that Drives Business Value

By Robert Duffner, Director of Product Marketing, BEA Systems, Inc.

Enterprise portals are the primary aggregation and access points that enable employees, partners, suppliers and customers to more efficiently function and collaborate. According to META Group (Dec. 2000 report), portals will help reduce the cost and implementation time for customer relationship management, commerce chain management, and employee knowledge management strategies. These customer-focused business strategies drive the creation of new business value, which is key to competitive differentiation.

However, to realize this potential, business must shift away from traditional approaches to portal deployment, approaches that stifle integration and growth. Business should adopt the perspective of a portal environment that is designed and built on e-business platforms.

World-class e-business infrastructures require a common portal environment and Web transaction platform—at BEA this is known as an e-business operating system—to help ensure seamless integration, growth without pain, rapid deployment, and high performance. Moving away from standalone portals and applications eliminates the risk of overlapping functionality and the inefficiencies caused by intra-company communication breakdowns. Smart, efficient knowledge sharing can only enhance organizational performance and customer value.

The Role of Enterprise Portals

History has shown us that each major computing paradigm—mainframe, client/server, Internet—was accompanied by an associated user interface. Mainframe computing had scripting language, client/server computing had Windows, and Internet computing had the Web browser. As we approach the next computing paradigm—Web Services—a new interface will be borne and evolve to harness its power.

Web Services are designed to take advantage of new Internet standards for exchanging data and facilitating dynamic communication between disparate hardware systems and software programs. In short, Web Services make it possible to build bridges between systems that otherwise would require extensive development efforts. Using a portal interface, businesses will be able to improve agility

and even to transform themselves into new kinds of enterprises.

There's little coincidence that the burgeoning enterprise portal market is heating up [\$1.5 billion business in 2002 according to Giga Information Group] at the same time as industry experts claim Web Services is the next computing paradigm. In fact, IDC estimates the market for infrastructure software and services that simplify integration of business processes will approach \$50 billion by 2005. META Group (Dec. 2000) predicts that by 2005 the portal market will evolve into the new standard user interface built atop back-end services.

As enterprise portals increasingly become the Web interface, or dashboard, for control and management of Web Services, businesses must re-consider the criteria for evaluating enterprise portal products. To meet future business needs, enterprise portals should have an underlying structure with these four elements: presentation, personalization, framework, and integration.

Presentation

A portal's value lies in its ability to present desired content in a usable format. Enterprise portals must support multi-channel access and pervasive computing, to include access through mobile devices and support for instant communication. The portal must deliver rich, interactive presentation layouts, such as dynamic HTML pages, and a consistent look and feel across all applications. As an example, BenefitsCorp's B2E portal provides account executives self-service access to retirement plan account data and email from mobile personal digital assistants and PCs so that they can do their jobs more efficiently, more responsively, and more cost-effectively.

Personalization

Personalization not only enhances sales effectiveness for customer-facing applications, it boosts efficiency and comfort levels among business users. BEA WebLogic allows businesses, such as Citigroup's Worldwide Securities Services organization, to build and integrate content management systems and registration applications that collect information provided explicitly by users, as well as implicitly by tracking behavior.



Bill Coleman
co-founder, chairman and CEO

Mr. Coleman is co-founder, chairman and CEO of BEA Systems, Inc. founded in early 1995. Mr. Coleman brings to BEA over 27 years of high-technology experience with particular emphasis on software development. Prior to BEA, he held various management positions at Sun Microsystems, Inc., including: founder, vice president, and general manager of SunIntegration Services; vice

president of system software overseeing SunOS, Solaris, and related products; and co-founder of Sun Federal, Inc. Mr. Coleman began his career in the U.S. Air Force as chief of satellite operations in the Office of the Secretary of the Air Force. Mr. Coleman has a bachelor's degree in computer science from the United States Air Force Academy, and a master's degree in computer science and computer engineering from Stanford University.

Integration

Traditional EAI, and next generation integration technologies, are vital to architect portals and back-end applications on a common, standards-based platform. Enterprise portals must integrate with myriad databases, ERP systems, inventory and accounting applications, third-party systems, and Web servers. This integration greatly reduces operating costs and accelerates delivery of new applications.

Framework

The ultimate test of a portal is whether it provides business users with the tools to be as effective online as offline. IT departments can delegate administrative responsibilities to line of business managers based on logical groups or regions, and specified privileges. In turn, these managers establish rules-based entitlements for customers, partners and staff. The result is a set of tools that managers use to restrict access, control behavior and encourage action based on each person's role.

Conclusion

Enterprise portals require continuous enhancements and additions. This requirement means open and flexible e-business platforms, which evolve with an organization's needs, scale with its growth and support a broad range of knowledge-based and transaction-based applications, are a must. ■

About BEA

BEA Systems (Nasdaq: BEAS) is one of the world's leading e-business infrastructure software companies, with more than 10,000 customers around the world. BEA WebLogic E-Business Platform is the de facto standard for more than 1,900 systems integrators, ISVs and ASPs to provide solutions that fast-track and future-proof e-businesses for high growth and profitability. Headquartered in San Jose, Calif., BEA has 92 offices in 32 countries. Contact BEA at Tel: 408-570-8000, www.bea.com, or Sales@weblogic.com.

Corporate Portals Require Complete KM Strategies



Emmanuel Ifrah
Chief Executive Officer

Having previously worked with Ernst & Young and SFR (a leading telecom company in France) in financial control positions, Emmanuel Ifrah has been the CEO of Ennov since its creation in 1999. Mr. Ifrah received a M.B.A. from the H.E.C. Graduate School of Management (Paris).

Ennov provides complete knowledge management solutions that focus on tight control of corporate information and processes. The solutions combine state-of-the-art workflow and document management with powerful audit and quality assurance modules. Ennov is releasing its corporate KM portal in 2001.

By Ennov

Knowledge management (KM) can be defined as content management (CM) woven into business processes. KM is intended to provide people with easy and timely access to the right information, in a controlled and organized way. While corporate portals may seem like a simple way to achieve this objective, a portal implementation should be approached within the context of a comprehensive knowledge management strategy.

Such an approach requires an elucidation of your short and long-term goals and also an understanding of how the key elements of KM, such as information flows and content management, will fit into your corporate portal.

Optimizing Your Processes; Short Versus Long Term Goals

Almost anything that happens in a company that may result in a financial loss has an associated business process: a customer complaint, a development project, or even a travel request. KM aims to make business processes easier and quicker, but also more traceable and controlled. Sometimes these goals can come into conflict and managers must decide whether the short-term or long-term goals are more important.

Take an example of a bank whose asset managers have always responded to back-office errors by calling or e-mailing downstairs to request correction. This is a very simple process and accomplishes the task more quickly than entering the error into a workflow management application. However, when there is a problem in a large transaction, it is critical that the bank find the source of the error with speed and precision, and it is here that KM saves a company time and money.

Processes in Your Portal

Your portal will normally include a To-Do list and a "My Projects" section.

These can either be embedded together into one portal or separated, with the To-Do section on a general home Intranet page and the My Projects portal on its own. Avoid trying to stuff too many applications or too much information into one page, but also avoid cluttering your desktop with too many portals. In any portal, the employee's tasks should be automatically updated with changes occurring in the workflow application.

"How do the key elements of KM, such as information flow and content management, fit into your corporate portal?"

Information Flows

Among the psychological challenges associated with defining the rules and architecture of a KM solution is the need to think in terms of information flows rather than corporate hierarchy. This means that discussion groups, document access, and workflow participation must be organized in a way that reflect everyday business practices. An example of this principle is that the CEO's assistant must have nearly equal access to company information as the CEO himself, which may give the assistant greater information access than others in higher positions.

Content Management in Your Portal

When choosing a search solution, you should first write down exactly which search

functions are critical or desired for your company. Some companies may want to search only by meta-data; others may want full-text search of their files, or even semantic search, which gives results that are related to your search query but not necessarily containing the keyword in the search. For instance, when one searches for "Knowledge Management" using a semantic navigator, one can find related documents on portals, workflows, etc. regardless of whether they contain the keywords "Knowledge" or "Management."

As for other aspects of content management, one should be notified in the portal whenever a document that concerns him/her has been changed, updated, or archived.

Communication Functions in Your Portal

Putting one's e-mail inbox on the home portal is standard. However, other communication tools such as chats and discussion groups require more anticipation and analysis. Some companies may choose to have companywide discussion groups and chats, whereas others may choose to designate individual chats and discussions for particular departments, projects, or offices. It is important to remember that the objective of KM is to capture and utilize information, not just create it, so organize your free communication forums in a way that is searchable and usable by your employees.

There are many ways to structure a portal, but the important themes that should run throughout the portal and the overall KM solution are integration, organization, searchability, and traceability. As a general rule, make sure that you prioritize and stay focused on achieving your objectives, without getting lost in the endless possibilities. ■

Enterprise Portals: Powering Mission- critical Applications

By iManage, Inc.

The Internet and World Wide Web have ushered in a business revolution, at the heart of which lies a fundamental shift in the way business is conducted. Despite the transformations that are underway, stiff competition is forcing businesses to implement collaborative business solutions that integrate internal systems and leverage existing technology to harness the knowledge and data that resides across the enterprise and among suppliers, partners and customers.

Web sites provided companies an entry to the development of content and exchanges that span the supply chain; portals offer next-generation electronic collaboration, content and commerce. The enterprise portal is a personalized, single point of access for the internal and external user where the company's Web channels come together—the Internet, intranet, extranet and marketplace exchanges—to exploit the cumulative information, knowledge and data that will enable greater business efficiencies.

The Portal Advantage

In its most powerful form, the corporate portal is a platform for global companies and enterprises with extensive supply chains to integrate mission-critical applications such as Customer Relationship Management, Supply Chain Management, eProcurement, workflow management, knowledge management, business intelligence, exchanges and eCommerce. Unifying disparate and diverse applications, users, and information sources in a single environment that is personalized, efficient, and easy to use is complex, but the top-line benefits can be enormous.

Tomorrow's market leaders must distill mission-critical knowledge from specific transactions and disseminate it across broad, cross-functional business processes for reuse by workers around the world. This interactive, collaborative process contributes immeasurably to the combined organizational expertise of the enterprise.

Productivity improvements as the amount of time spent accumulating and

aggregating business-critical information from disparate enterprise sources is dramatically reduced.

Smarter business decision-making as enterprise knowledge is leveraged through advanced data aggregation, powerful search mechanisms, and automated notification and content publishing based on business rules.

Stronger customer, supplier and partner relationships when doing business with your company is personal, convenient and rewarding.

User Considerations

There are several key architectural considerations for creating a successful enterprise portal: user platforms and interface, infrastructure, scalability, openness, security and simplicity. Information served by the portal needs to be accessed via a comprehensive set of electronic touch points, including the Web, e-mail, desktop applications like Office 2000, support for mobile and WAP-enabled devices, enabling the user a range of choices to access and interact with data.

Portal technology, in and of itself, is not a panacea for the enterprise. The potential for top-line gains is significant, but only if users embrace it. The Web-induced information explosion underscores the importance of providing user personalization and access control.

Openness

Portal technologies that support open standards can be easily integrated into a company's existing infrastructure. The portal needs to be operating system—and web server—neutral so that enterprises can host it on the platform of choice. Support of J2EE and .NET interfaces for integrating the business logic with other backend servers are important for interoperability. It is also important that the portal software makes extensive use of XML for data-aggregation and XML-based standards like XSL/XSLT for user-interface customization.



Max Panjwani
President and Chief Executive
Officer, iManage

Mr. Panjwani's career spans more than 15 years in executive management, software development, sales and marketing. His vision for using the Internet to harness the power of human capital through collaboration was the genesis for the founding of iManage, Inc. in 1995. iManage is now a leading provider of e-business content and collaboration software platforms and applications.

Under his leadership, iManage has experienced phenomenal growth. In fiscal year 2000, iManage's revenues rose 62 percent. After successfully taking the company public in November 1999, Mr. Panjwani continues to position iManage as the leader in the emerging enterprise content and collaboration marketplace.

Security

Security is a primary concern for all collaborative applications. It is essential that the portal provide ways to encrypt data and documents sent over a public network. Optimally, the enterprise controls the filtering of information, to create "collaboration sandboxes," where only certain users or groups can gain access.

Scalability

The current business climate and economy demands that enterprise technology have the capability to adapt to changes in the user base, and integrate with the most demanding applications.

Simplicity

Paramount to fulfilling its mission-critical role is the time it takes to deploy, manage and administer the portal technology. A modular approach provides the greatest flexibility for building content, collaboration and commerce functionality and adapting the level of complexity as users ramp up the learning curve and their needs grow. Out-of-the-box user interfaces have been designed to minimize user training by using familiar metaphors, such as the Web and e-mail.

Organizations that realize now the value of collaboration throughout the extended enterprise will gain a competitive advantage on their competition. In the long term, however, collaboration will define nearly every aspect of global business. Collaboration will no longer be a luxury or ancillary business function, but rather it will be *the* new core competency that binds the business world. Visionary organizations that embrace collaboration as the next major phase in the business evolution of the Internet will be the market leaders of tomorrow. ■

iManage, Inc.

iManage's WorkSite solution provides an e-business platform and applications that simplify and enrich business-critical collaboration work across the value chain. iManage WorkSite drives new business efficiencies for enterprises by empowering them to create key links among employees, customers, suppliers and partners.

For more information on any of the companies who contributed to this white paper, visit their website or contact them directly:



BEA Systems, Inc.
2315 North First Street
San Jose CA 95131
Phone: 800-817-4BEA or 408-570-8000
Fax: 408-570-8901
E-mail: info@bea.com
Web: www.bea.com



InfoImage
4000 N Central Ave, #2300
Phoenix AZ 85012
Phone: 602-234-6900
Fax: 602-234-6950
E-Mail: info@infoimage.com
Web: www.infoimage.com



Computer Associates

Computer Associates International, Inc.
One Computer Associates Plaza
Islandia, NY 11749
Phone: 631-342-6000
Fax: 631-342-6800
Product Info: 800-225-5224
Info: http://ca.com/products/info_request.htm
Web: http://ca.com/products/jasmineii_portal/



IntraNet Solutions, Inc.
7777 Golden Triangle Drive
Eden Prairie, MN 55344
Phone: 800-989-8774
Fax: 952-829-5424
Web: www.intranetsolutions.com/kmworld



Citrix Systems, Inc.
6400 NW 6th Way
Fort Lauderdale FL 33309
Phone: 954-267-2463
Fax: 954-267-3014

8890 McGaw Road
Columbia, MD 21045
Phone: 888-820-7917
Fax: 410-715-6835
E-Mail: info-columbia@citrix.com
Web: www.citrix.com



An IBM Company

Lotus Development Corp.
1 Rogers Street
Cambridge, MA 02142
Phone: 800-828-7086 or 617-577-8500
Fax: 617-693-5562
E-mail: sales@lotus.com
Web: www.lotus.com/km



Mongoose Technology, Inc.
1300 Hercules, Suite 130
Houston, TX 77058
Phone: 281-461-0099
Fax: 281-461-0505
E-Mail: info@mongooseotech.com
Web: www.mongooseotech.com



Ennov
50 Broadway, Suite 1500
New York, NY 10004
Phone: 212-363-6356
Fax: 212-363-6862
E-Mail: info@ennov.com
Web: www.ennov.com



PurpleYogi, Inc.
201 Ravendale Drive
Mountain View, CA 94043
Phone: 650-988-2000
Fax: 650-988-2159
E-Mail: info@purpleyogi.com
Web: www.purpleyogi.com



Hummingbird Communications
1 Sparks Avenue
Toronto, Ontario M2H 2W1
Phone: 77-FLY HUMM
Fax: 416-496-2207
E-mail: getinfo@hummingbird.com
Web: www.hummingbird.com/kmworld



RecomMind Inc.
1001 Camelia Street
Berkeley, CA 94710
Phone: 510-558-7895
Fax: 510-525-2351
E-Mail: info@recommind.com
Web: www.recommind.com



iManage, Inc.
2121 S. El Camino Real, 4th Floor
San Mateo, CA 94403
Phone: 650-356-1166
Fax: 650-627-8751
E-mail: contact@imanager.com
Web: www.imanager.com



Tacit Knowledge Systems, Inc.
990 Commercial Street
Palo Alto CA 94303
Phone: 650-251-2000
Fax: 650-251-2010
E-mail: info@tacit.com
Web: www.tacit.com

Produced by:

KMWorld Magazine
Specialty Publishing Team

Kathryn Rogals
207-338-9870
kathy_rogals@kmworld.com

Paul Rosenlund
207-338-9870
paul_rosenlund@kmworld.com

Andy Moore
207-236-0331
andy@dotcontentstore.com

For information on participating in the next white paper in the "Best Practices" series contact kathy_rogals@kmworld.com

