Architecting Enterprise Portals:
Web Services and Portal Initiatives

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Craig Roth: It has been an exciting time lately for portals. The maturity of the product offerings at this point is practically in inverse proportion to the size of the company, which makes things particularly interesting for our clients that are trying to make a strategic decision on portals right now. The companies that are making their very first steps into the portal market, and have more immature products, are unfortunately the ones that are also the largest vendors and the ones that are the most stable. The ones that are furthest along in portals are ones that are smaller and have less strategic viability at this point. That makes things very interesting for anyone doing portal evaluations.

Also, as you have seen by watching the stock market, the capital markets have pretty much dried up. What this does is puts a stop on new entrants coming into this market, so we do not think we will be seeing a lot of new players. Whatever you have out there is what’s going to exist and these guys will fight it out as the market dries up. At this point we see a lot of the vendors rushing to find safety and something solid to try and weather this storm.

Figure 1 — 2001 Business/Technology Scenario: From Hype to Reality

I would like to start out by talking a bit about the hype that has been around the portal market. There is no doubt that portals have been something that are entirely over-hyped, and it has become a buzzword. It would be good to start out by addressing some of this hype, and trying to bring each of these points down to reality and talk about what it means for portals, as opposed to what a lot of the marketing hype has been around them.

Andrew Warzecha: As we take a look at this portal space, we have been tracking during the last year more than 200 different vendors that call themselves portals. When we talk about portals from a definitional standpoint, we are talking about a software that has been designed from the ground up to aggregate content (both structured and unstructured information), expose applications, and do this within a single interface that is highly personalized, and can deliver this content in context under a secured framework.

When you start taking a look based on that definition, and whittling down these 200 or so players that have been calling themselves portals, you find that players like BroadVision or Vignette or Art Technology that were marketing themselves as portals last year, are not fitting that definition. Since that time, players like BroadVision have added portal capabilities into their offerings, as well. Interestingly enough, though, regardless of the spending issues in terms of IT budgets, portals remain very hot and we will be again, talking a little about the ROI issues as we get into this. Fundamentally, though, we have seen two drivers that seem to make this very, very hot as far as organizations that we are working with.

First and foremost is this issue of the continued acceleration of business: the fact that people are being asked to do things in a shorter time period than ever before. Counterpoint to that is the fact that the volume of information or content that people are being asked to deal with on a day-to-day basis is growing exponentially. If you consider e-mail to be a symptom of a much larger problem, you find that the average business user was spending a half an hour a day last year, an hour a day this day, and projected to be two hours a day next year, just strictly dealing with e-mail, when the bulk of those messages are not relevant to what an individual is trying do. In fact, one can argue that probably half of the e-mail that you receive is not relevant to anything that you are likely to do.
So, portals are intended to expose the relevant information, to enable people to do their jobs. And you talk about drivers in terms of doing better frontline business decisions, you talk about issues in terms of servicing clients, working on projects more effectively, introducing new products, as all being key issues.

If you take a look at this market, we have seen market numbers out there, anywhere from about $7 billion to about $14 billion, depending on which firm you are talking to about the portal market. There is little doubt in our minds that this becomes a very significant component as far as an overall corporate architecture during the next several years. However, as you look at the market today, there are many parts that come from other segments (i.e., how do I expose information from a document management system, a back-office system, a data warehouse). You look at tools coming out of, for example, the search and collaboration market, where many of the vendors in the portal space were OEM components from a company (e.g., Verity, Autonomy) or utilize categorization tools from somebody like Semio. Other players may build this inherently as part of their own offerings (e.g., Hummingbird, Sequoia).

You also have other players coming out of the knowledge management arena, like Tacit Knowledge or Brain Ranger, for example, or vertical specific-type players, for example, out of the insurance arena. It is pretty clear you have to start taking a look at a framework with different components and we will spend some more time talking about that.

Craig Roth: What you see here in Figure 1 is a listing of some of the common statements I get about portals. These usually come from management that has been just deluged with too many vendors saying they have portals out there. They are getting cynical about what portals are, and what they mean.

It is perfectly acceptable to approach this kind of market with a lot of cynicism, especially when there has been this much hype around it. But to do that, you do have to temper it with some understanding of what is underneath all that; and there are some good ideas that have come to fruition. If you do not address those ideas and your competitors do, you will be in a worse situation. On the left side, what you have is these common kinds of arguments, or cynical statements that I tend to get; on the right side, is more of the reality, in terms of what these are.

For example, one comment we tend to hear a lot is that portals are just a marketing term. Essentially, everything is a portal, so why does this even matter? Everyone just slaps the word portal on their product. The reality of it is is that portals are a specific kind of website. They are ones that address context. And while you can add that to any application, not all Web sites are portals; only ones that understand who you are and bring some sort of personalization to bear, are ones that can be considered portals.

As far as market cap goes, Andy was saying we have seen estimates between $7 billion and $15 billion for this portal market. Those are overblown. The way that those estimates get manufactured is that they essentially add up the existing market share of a whole bunch of markets that are already out there, and come up with a new market on top of it. It is not a legitimate way of calculating what the size of this market is.

The portals are a combination of a lot of other products that are out there, packaged in a particular way. Saying that the market is instantly $10 billion is not the right way of defining this market. That doesn’t mean it is not important, but those estimates have to be taken with a grain of salt.
2001 Business/Technology Scenario: From Hype to Reality

The Hype

- “Portals’ is a marketing term. Now everything’s a portal?”
- “So MyYahoo! is now a $10B market segment?”
- “Portals are a buzzword. They’ll be replaced by another fad in a few years . . .”
- “Even if it’s a good new UI idea, I don’t need a new product to do it . . .”

The Reality

- Portals must address context. Very few sites are portals.
- Portals include parts of many other segments.
- The UI and EAI best practices will remain after the hype is gone.
- There are many bases to cover (and a few new ones).

Portals will become the standard employee user interface for >85% of G2000 organizations by 2004

Abbreviations — UI: User Interface; EAI: Enterprise Application Integration; G2000: Global 2000
Portals are a bit of a buzzword at this point. I don’t know that five years from now you will be throwing the word portal on everything, and everything will have “portal” stamped on it. That doesn’t mean that the underlying concepts of what a portal is will go away. Essentially, a portal consists of some best practices in terms of how you do a user interface. The idea is: why should everyone see the exact same static interface, when they can easily be generated dynamically and give you just the information you need? And it’s also a particular type of enterprise app integration, one that gets a particular level of abstraction, and combines interfaces together. Those are best practices, and five years from now, whether you use the word portal or not, if you try to present an interface that is very static and does not exploit certain kinds of knowledge management techniques, people will simply look at it and say, “why are you doing it this way? There is a better way of doing this.”

Lastly, maybe this is some great new way of designing an interface, but do I need a product to do that? Why do you have to sell me something new? Great! My Yahoo is a great way to design an interface. I will just go and code that. You can. There is nothing stopping you from doing that, if you get the right developers, they can develop a portal out of thin air without a problem. It is just a matter of how much time you want to spend on developing things that are pretty universal and that you can buy off the shelf and not have to maintain yourself. There are a lot of things that you have to do to build a portal, from the personalization end, the rules-building end, and the rest of it. It is probably easier to just buy something that has this, though you can do it yourself if you have to.

The bottom line in Figure 1 is that we do think portals are something that will survive. It will become just a standard user interface, for employee systems and intranets and also for consumer-facing Web sites, as well (more than 85% of the Global 2000 organizations by 2004). But whether they use the word portal or not, they will survive.

Andrew Warzecha: Craig, I look at this data, for example with the announcements today with Yahoo and SAP, it looks like they are doing the best to re-define the industry to include all of ERP to make that, along with portals, a $10 billion market segment.

Craig Roth: Right. They are trying to pump up the size of that market segment, no doubt about it.

Figure 2 — Critical Issues

What we will do is start off by talking about a lot of the pieces you have to have with portals, and how to put them together. Regardless of all the different bells and whistles, there are a few core pieces of technology and functionality you are looking for in a portal. We will talk about those, and then the second part of this presentation will be giving you some pointers on how to best plan for these, how to best justify them. That is a hurdle that a lot of project managers that I talk to now are trying to leap to move their projects forward.

Joaquin Potel: One of the things we have been saying during the last two years is that we have many of those necessities for customers, suppliers or partners, and obviously employees.

We found those Web projects magically turning into portals, as they were adding personalization and new aggregation capabilities. Reality is that when the IT folks started to take a look at them, they realized they were sharing a lot of the functionality there. We can call them services; they were absolutely common to every single B2C, B2B, or B2E initiative. They all were moving toward personalization. Including
Critical Issues

- Orchestrating portal frameworks and services
- Portal best practices and planning
aggregation, searching capabilities, they were a nice value, or something that was always present. The need for a common point of entry, or sharing some security things was absolutely demanded. The first thing we have seen in the market was these kind of conversions around a common set of services that could be preferably shared between different initiatives.

We have started to see that separation between different initiatives in the B2B, B2C, or B2E environment was because of different constituents in the company addressing different solutions, but not because they could not share a common technology or a common infrastructure. At the same time, the IT organizations start wondering if they are makings tons of selections of different products in the Web space they are selecting and instantiating a new infrastructure, they are buying in and implementing Web application services. They start wondering, “Can we use or share some of this infrastructure we are buying between the different initiatives?” We think we will see a convergence of these three worlds and we expect IT organizations to start leveraging infrastructure between the three of them and definitely around 2003 or 2004. We will see a real convergence from both the business and the IT perspective in all these initiatives.

**Figure 3 — Orchestrating Portal Frameworks and Services**

In this first section of the figure, we will be talking about the role of these portal services (the services we see in common), and how we see the market evolving to provide these services in personalized views, so you can explore them from a business intelligence perspective, or an operational perspective, or for a collaboration purpose.

We will try to position application servers in the architecture and see how they fit in the big picture. As we said, if we have selected some middleware already, can we use it? What do we have? Do we have application servers, how do they fit with my portal architecture? We will talk later about the role of the EAI, because we all know portals are about integration. We say we need content aggregation, but we also want a single point of entry for all my transactional back ends. I want to access my SAP or my Siebel from a single Web user interface. Integration will be key around portals, how portals play with EAI, and how this market is evolving.

We will finish this section talking about the infrastructure impact of these portals. How these things are fitting in my infrastructure, and how they will affect it.

**Figure 4 — Defining Portal Services**

**Kurt Schlegel:** A great place to start is with the traditional question we always get from every vendor and customer, which is: what is the difference between a Web site and a portal? It all comes down to that, and a lot of people say, “Is a portal just a good Web site?” There are two real characteristics that distinguish what a portal is.

First, it is not just one static set of applications or interfaces, or content, it is looking at what type of user you are. Are you an accountant in an organization that processes expense reports? Are you a sales person that is out trying to contact different types of prospects and close them? Are you on a particular type of team, maybe a product development team, or a community that you need to work on this project with a group of other people on your task force? So, taking whatever your role is in life in your organization, or extra organizations, and assimilating those on your user interface is the personalization piece.
Orchestrating Portal Frameworks and Services

- Understanding the role of portal services
- Identifying the role of application servers
- Extending portal services via EAI
- Assessing portal infrastructure impacts

Business needs, logic and resource reusability, and time to market are driving B2* convergence

Abbreviations — B2C: Business to Consumer; B2B: Business to Business; B2E: Business to Employee
Defining Portal Services

Most portals start with a dominant mode — document publishing, decision support, collaboration, application integration, or specific LOB need (e.g., CRM, EC) — but determine all necessary services for the enterprise.

Abbreviations — CRM: Customer Relationship Management; EC: Electronic Commerce; LOB: Line of Business

Portal Functionality

- **Information Catalog Management.** Portals must provide a mechanism to organize content into categories meaningful to users (e.g., a category tree similar to Yahoo).

- **Content Management.** As portals grow in scope, the content sources proliferate. Content management becomes critical, particularly when content must flow into the portal in real time. Basic check-in/check-out becomes an important shared portal service (SPS).

- **Repository Management.** Portal frameworks must incorporate a repository to store information as well as support access to information stored in file systems and other repositories (e.g., report servers, doc stores).

- **Metadata Management.** Beyond the content itself, metadata has become a critical linchpin to assist organizations in applying a schema, or taxonomy, over large collections of information.

- **Personalization Engine.** Portals deliver a unique UI by establishing customized navigational structures, content, and application interfaces.

- **User Profile/Membership Management.** Going hand-in-hand with personalization, profile management will enable users to set wallpaper backgrounds, localization parameters, and other UI characteristics. These personalization characteristics will be available to other applications and services plugging into the portal.

- **Activity Tracking.** Monitoring on-site behavior enables recommendation engines to suggest other information and application interactions based on explicit and implicit associations made while users traverse a site.

- **Access Control.** Authentication and access controls are essential portal underpinnings. Users should expect a single sign-on capability as they interact with the spectrum of applications, content, and services.

- **Key Framework Vendors:** Viador, Plumtree, Corechange, Brio.
Second: aggregation. Being able to take all sorts of applications or content that in the past you would have to go to numerous places to find, and aggregating those all on one user interface, or at least providing links to those through one interface.

Those two real key design points around personalization and aggregation manifest themselves in the portal services. If you break down what a portal is, it is made up eight or nine key services that closely map to those key design points around personalization and aggregation. If you take a look at things like the information catalog, being able to organize your content, like a corporate version of mYYahoo, I would like to know exactly how I would like to see my layout or my interface, according to a particular catalog of life events or workplace events.

Having a personalization engine that enables me to deliver a unique UI that perhaps has a dynamic content generation or application interface and as well as doing a lot of the user-profile management, all mapped to the personalization aspect.

Then, take a look at some of these others around content management, repository management, and putting your metadata together around metadata management. And also, the access control and having a single sign-on to numerous applications, all through one portal interface, all map closely back to the idea of a portal as an aggregation point of both content and application interfaces. When we start to do these, we sort of unlock certain benefits, and probably one of the key ones there is being able to put information in front of an end user that they might not have seen before. We all have had that problem before, where “We didn’t even know that Lotus Notes database existed. It would have helped us do our job so much better.” We will get into this in a lot more detail when we get to the ROI section a little later on in the presentation.

One of the key things we need to worry about with these portal services is what type of functionality am I providing here? Both in terms of going directly to a portal vendor, and maybe you are getting the initial base amount of functionality for metadata management or content management, but in reality is it a feature function comparison with a content management specialist (e.g., Documentum, Interwoven). Chances are, it is probably not. That is one of the key design elements we need to think about: when do I need to upgrade? When is “good enough” not good enough, and when do I need to go to more of a full specialist for these types of services.

The second, and this is one of the things that we are harping on through this whole presentation, is that there has been a segmentation of portals being designed for employees; portals being designed for customers; and portals being designed for business partners. And right now, if you look at these portal services, there is very much a demarcation line between those three areas. The taxonomy of content for business partners or customers will be completely different then for employees. We do not have this transactivity yet among these portal services as we are building those across those B2C, B2E, and B2B worlds.

The best place to start is on designing some of the personalization and search capabilities. Andy, why don’t you take us through how to drill it out into those?

Andrew Warzecha: Interestingly enough, in a lot of client’s discussions that we had dating back 12 to 18 months or so ago, a lot of organizations were doing large-scale search technology purchases. Make no mistake, however, that search is not equal to portals. This means that as you look to this market, the
ability to do a search and to pull information off of disparate repositories, disparate searches, does not expose applications. It does not provide the information in context. When you start taking a look at this technology, search is just another one of the personalization components you need to consider.

You also have to take a look at things such as how you deal with categorization of the content? What type of agents, brokers, and filters can be used to make the content appear in context? And, again, you will have fundamental different requirements for your sales group versus your R&D group, versus your business partners, versus your consumers.

Figure 5 — Searching for Personalization

What you see here in this figure is one that is a lot dated, and we have put it in here on purpose, to be dated. If you look at the lower portion of the slide here, you are dealing with the vendors that have largely focused on HTML-based searches. If you move upward from there, we talk about the vendors that have largely been known for being able to crawl and aggregate information across multiple repositories.

At the upper box section here you have the vendors that have largely marketed themselves as being able to do search along with auto-categorization, and some of the vendors that have embedded some of those products in.

The update on Figure 5 is that the bulk of the vendors you will find in the middle box here, Verity, Fulcrum, Lotus/IBM, Inktomi, all have added categorization components with their own offerings; that if you look at this segment, they have capability that leverages them in the higher box, though many of the vendors I have just alluded to are not perceived as doing that today. There is little doubt, as you talk about the importance of search technology, that ability behind it, to help categorize the content based on the terminology that your organization and your partners and customers are used to using, as they are discussing your products and your corporate culture becomes absolutely critical. Again, to bottom line Figure 5, search in and of itself is a component of what is required in the personalization area of a portal, but search does not equal a portal, in and of itself.

Figure 6 — Web Application Servers Weigh In

Joaquin Potel: We mentioned before that companies were starting to think, “I am making a lot of decisions around the Web infrastructure.” Portals have not always been good at of leveraging some of these. At the same time, in the first-generation portals, we see all them creating one-stop solution, because you could just run a portal out of the box. But the reality is that they were introducing vertical stovepipes with proprietary middleware, proprietary infrastructure, for every single portal initiative. When you try to ask some of the questions I get from customers (“is nine portals too many portals?” or “is five too much?”), the answer is that it depends. Reality is that five different infrastructures just for portals sounds like too much.

We are moving into these second-generation portals, so clients are wondering how to leverage the existing infrastructure. At the same time, portal vendors are realizing there is no huge value on redeveloping what is already there. If you ask vendors how much money they have to spend on trying to make their portal scalable to do things like load balancing or single sign-on, or state and session management, you realize that they could preferably have leveraged an application server.
Pricing continues to be the biggest problem/challenge for search technology. Search engine vendors will move under $100/seat only in large-scale (thousands of seats) implementations. Multiple sources typically incur multiple per-seat charges (e.g., each Notes, Web server, and database connection). Infoseek charges per number of documents indexed, and Microsoft is “free” (though not scalable).

Verity, Fulcrum, Dataware, and Excalibur (more recently) provide the most comprehensive connectivity to heterogeneous sources; still, the facilities could be improved (indexing, updating indexes, and administering the distributed indexes). Each is adding autocategorization facilities during the next six months. Infoseek has recently added this facility. Sovereign Hill, a more recent competitor (with government experience), will play here as well. Search application vendors become more attractive during 1999 (Y2K implications on resource and $$$ constraints) and for complex multisource jobs (Plumtree leads; Autonomy and Relevance — by way of Documentum acquisition — follow). Microsoft is a player here, purely due to low price (free) of the search engine within Site Server.

Lotus and IBM are flip-flopping their engines (Lotus is dropping Verity’s engine from Notes). Currently, Domino Extended Search is a nonperformer ($30/seat, no Web client, poor performance, no real added value over aggregation). Users should wait for post-R5 improvements before investing.
Web Application Servers Weigh In

▲ Most 1st-generation portals are driven by UI and interaction management design points

▲ Application servers include maturing Web services to deal with scalability needs

▲ Look for portals to exploit Web application servers to satisfy scalability and growing EAI demands

*Web application servers have become the foundation for portal scalability, availability, and robustness*
The way we see this market evolving is a common set of infrastructure, where companies have to make decisions on the kind of Web system services they will support. I am a Java shop, or I am going to go for more of the COM model, or the Microsoft environment, understanding what portal services they will need and how they will deliver those portal frameworks we are mentioning. You have the personalization, the search, the categorization and all these services in the top of it. And building vertical portlets on top of the portal that deliver the business solution. I have an application portlet or a collaboration portlet.

This kind of architecture is beneficial for everybody; end-users can leverage existing infrastructure, but also for portal vendors, in terms of going to market and focusing on the personalized access instead of the middleware part.

We expect more and more of the portal vendors to focus and leverage these application servers and messaging to be the foundation for scalability, availability, and reliability that you need to run your corporate Web sites. This defines how portal architectures will evolve during the next two years, and we will see later in the presentation how the different vendors are approaching this kind of market.

Figure 7 — Portals Meet EAI

Craig Roth: There are some specific pieces of that infrastructure that Joaquin was talking about that Web application servers sometimes provide or at least integrate with. One of the changes that I have seen recently in the marketplace is more of an emphasis being placed on the EAI part of portals. The first set of portals that came out were heavily focused on integrating with the content management market, and the vendors had to either overlap or eventually figure out that maybe they need to work with, or partner with a lot of the content management vendors to get the content down to the portal.

When companies look at the application integration part of this, they realize that enterprise app integration is part of the infrastructure that I need to build this portal. What we have seen is a lot of sticker shock from project managers that are starting to price out their portals, looking at how much it will cost, how many resources they need to build this, and how long it will take. And they look at the final answer and say, “Wow, I thought that all a portal is, is just gluing a bunch of interfaces together. How tough can that be?” And you have this huge price behind it.

You can build portals in that way if you want to, just saying that all the portal is, is pointing to a bunch of other HTML pages and pasting them all into this window. But that is not the right way to be building a portal. To do a portal properly requires deeper integration than that. That means getting at not just the interfaces, and trying to essentially screen-scrape them, but trying to get at the data itself, trying to interface with these applications and exchange profiles with them and say, “What sort of information would these people be interested in?” It becomes extremely inefficient right now to just try gluing a bunch of presentations together, because every portal then has to go through essentially 10 assembly (or “presentation”) engines before it can build the interface. And then, in the long term as you build newer applications, you keep having to build essentially a complete interface just to have it screen-scrape to put into the portal, instead of just building toward the portal in the first place.

What a lot of the portal vendors have realized is that as they went through the efforts of trying to get deeper and deeper integration into ERP packages, CRM packages, operational collaborative packages, etc., they were re-writing EAI. That is what the EAI vendors (e.g., NEON, TIBCO) are trying to do. Why don’t
we try leveraging some of that? And that is why you see events like the NEON acquisition that occurred with Sybase and it makes a lot of sense, because that EAI is a strong part of this whole story.

On its own, EAI just helps two systems communicate. It helps you translate things from one application format into the other. It does not specifically say what those two applications will talk to each other about, just that they can talk. Portals give them something specific to talk about. Things like: “here is what a user profile looks like. Let’s come to an agreement on this so you can exchange information based on this profile, when that person logs on.” Or “when someone presses the customize button, or the edit button, what features do you want to display to me?”

There is kind of a contract that has to occur between the portal and the applications they are talking to. That includes things like shared objects, like the user profiles that I have mentioned, or how I am going to pass a password to you. It includes method invocations. There are a certain set of methods you must implement in return to the portal when it asks you what customization features you have. Is it possible to minimize your interface or not? And things like how the interface will be returned to the portal. Is it this fully rendered HTML interface that I have to squeeze into a box that might have a whole 640 pixel-wide banner on it or frames? Or are you returning me raw XML that I can reformat? That would be the best choice, probably, because it is the most reusable. You have to try to figure that out.

Essentially, the value of a portal is increasingly not as much all the little features that it has, it is a certain level of aggregation that is of use to you; a certain level of abstraction above all your systems and it is a whole set of the different partnerships that it takes to integrate all this information together. That is a lot of what you are paying for out of a portal. Successful portals are ones that will move beyond presentation services; look for a lot of collision between the EAI and the portal markets in 2002, like we have already seen with Sybase.

**Figure 8 — Assessing Portal Infrastructure Impacts**

EAI is just one piece of that infrastructure that I have highlighted here. In Figure 8, we give a quick overview of some of the other infrastructure impacts that we see when we are talking about portals.

From the database point of view, there is a lot of work to be done by the database administrators, in terms of how you connect, do joins on databases that include profiles over here, transaction history over there, content in a third location . . . how can I put all these things together to figure out what it is that I should present? This is important in B2C sites, and somewhat in B2B, as well.

The security aspect of it can be very important, depending on what kind of portal you are doing, especially if you are trying to create some sort of employee portal that has a work at home characteristic or a B2B portal. Trying to get that security mechanism in place so that people can dial up from home and access their work systems, or that employees can get into your systems points to a lot of the various VPN vendors that are currently out there.

Directory is often a very critical part, and something that a lot of portals fail on. A lot of companies do not have an easy way to create an employee directory; to do one query to find out who someone is in any division or department, and who they work for and what their role is, etc. Maybe assess what their skills are, so you can line up training for them. For a lot of companies, that alone is a very serious problem, and buying a portal product is not going to help you solve that problem — it still exists.
Portals Meet EAI

EAI provides mechanisms for enabling systems to talk to each other, but doesn’t specify what they will say.

Portals give them something to talk about:
- Objects (e.g., shared understanding of user profiles, passwords)
- Method invocations (e.g., What customization capabilities do you have? What services do you wish to register?)
- Interface returns (clean; partially rendered or XML data)

Successful portals move beyond presentation services; look for portal and EAI vendor collision through 2002

Abbreviation — XML: Extensible Markup Language
## Assessing Portal Infrastructure Impacts

<table>
<thead>
<tr>
<th>Database</th>
<th>Messaging</th>
</tr>
</thead>
<tbody>
<tr>
<td>Unification of content repositories a challenge; content repositories require optimization for BLOBs</td>
<td>Unified profiles and analytics require communication across disparate systems, which in turn may require a messaging backbone</td>
</tr>
<tr>
<td><strong>Security</strong></td>
<td><strong>Transaction Processing</strong></td>
</tr>
<tr>
<td>Employee portal focuses on authentication and authorization; Internet access of portal introduces need for encrypted data and published security/privacy statements</td>
<td>Personalized applications with high usage rates (e.g., 100+ simultaneous users) will require an optimized TP monitor</td>
</tr>
<tr>
<td><strong>Directory</strong></td>
<td><strong>Network</strong></td>
</tr>
<tr>
<td>Directory integration is a critical need for employee portals</td>
<td>Internet-based portals must assume slow network speeds</td>
</tr>
</tbody>
</table>

*Enterprise portal efforts will live or die based on the quality of the infrastructure that supports them*

---

**Abbreviations** — TP: Transaction Processing; BLOB: Binary Large Object
Messaging could be another one, so some sort of communication across disparate systems usually requires some sort of hub-and-spoke architecture, getting back to some of the EAI stuff we talked about.

If you are doing a very transactional portal, especially some sort of B2C portal, then often the transaction processing backbone can make or break that entire portal.

And, networking is affected by this, as well. If you are trying to do some sort of VPN or dial-from-home employee portal, that puts a lot of stress on the networking.

The point in listing all these is that it is not the portal product’s responsibility to provide all these things for you. If you are going to stress some part of this infrastructure, it is assumed you have something else that makes that work, whether it is a good VPN product or a good transaction processing system, or that you have good database administrators and a good way to put these databases together. That is something that, if you do not have that in place, no matter how much you spend on the portal, it will still wind up failing.

**Figure 9 — Orchestrate Portal Frameworks and Services**

Let’s summarize this whole section. The first thing we talked about was the portal hype, and the idea that despite the fact you have heard an awful lot of hype about portals, the concept underneath it is sound, and it is going to become a best practice in organizations by 2004. We talked about architecting the portals based on some solid infrastructure and the Web system services on top of that, so application servers will play a strong part there.

This next point we will be talking a bit more about coming up, about the software giants coming into the portal marketplace and changing the landscape a lot in a couple of years. The business impact of this: application server-based portal frameworks will provide a lot of that infrastructure, and provide value by simplifying the architecture; not having five separate stacks of app servers and infrastructure when you have five portals. Simplify that, and therefore reduce a lot of the risk and reusability that you have between these portals.

We have now done a quick overview of the elements of this portal. Let’s start off by talking about the best practices and planning around portals.

**Figure 10 — Portal Best Practices and Planning**

In this figure, there is a picture on the right side that we use to try and distinguish some of what Andy was talking about earlier, between the 200 portal vendors that are out there, and the ones that are worth concentrating on as frameworks.

Most of those vendors fit into that bottom category, the targeted frameworks. This is if what you are trying to do, 80% or 90% of that functionality is found in one product. All you are trying to do is content management. All you are trying to do is ERP, or just business intelligence. You can often use one of those kinds of systems with their portal interface to then be your portal. As you try to do more with that portal, integrating content into it, integrating collaboration, lots of different kind of applications, that is when you wind up moving higher up in the stack, in terms of complexity and functionality - that is where you have
the standalone frameworks, which include companies like Plumtree, Epicentric, Viador, Corechange, DataChannel. And then ultimately, at the very highest end, the application servers, which can be used to build any Web application, let alone any type of portal. These include the companies, obviously, like an IBM, Oracle, Sybase, Sun, or Microsoft.

What we will be talking about in this section, then, is how you sort through a lot of the vendors in these different categories, how you go about justifying and planning for these portals, where the market is going. We will also talk about some of the recent announcements by some of the larger vendors in this area.

**Figure 11 — Best Practices**

**Andrew Warzecha:** As you start looking at this, we have been talking a lot about the technology side, but bottom line is if you go back to what is required to roll out these things successfully, you find yourself very quickly caught into a bunch of the people and process issues associated with this. In terms of planning these types of environments for portals, it is absolutely critical you take those into consideration. In fact, we would argue that, as you are looking at deployments, that a lot of the failures we saw and what the knowledge management’s movements four to five years ago, are essential best practices that you need to be leveraging today.

For example, on the planning side of this, first and foremost, when you talk about sponsorship and ownership, this has to be part of the business side of things, not technology. IT cannot own these initiatives. The reason for that, is if you look at what is required to make these things successful, you have the technology and the people and the process issues, are kind of the three cornerstones related to this.

In that regard, IT has only control over one-third of those items. The people and the process issues have to be dealt with on the business side. Business buy-in has to be there and ownership has to be on that side of the equation as well.

Obviously, you also need to show tangible business benefit to the individual constituencies you are trying to serve. The requirements for the sales group are fundamentally different than the marketing group, than the R&D group, than your customer base. They have different applications, different types of content, different needs to have this material personalized. Are we talking about whiteboarding-type capabilities? Are we talking about the ability to provide a virtual project-oriented environment?

One of the best practices we have seen about this is, how you minimize your risk from an IT perspective, and know which parts of your organization can you get the biggest bang for the buck with? Or, how to identify that low-hanging fruit. And we are seeing, increasingly, numerous systems integrators and services companies helping organizations with this.

It is specifically players like Accenture, KPMG, PricewaterhouseCoopers, K-Solutions (which was a group that spun off of KPMG), Groundswell, and Unitas as being some of the guys that we are increasingly finding helping organizations identify these (i.e., how we map out strategically where we deploy first). The fact is, what we are talking about is a fairly high-level exercise. You can look at doing this on a simplistic basis as far as identifying, first, the different business groups in your organization, the constituencies you will need to serve.
Orchestrate Portal Frameworks and Services

- Despite portal hype and the gold-rush mentality of vendors, the portal concept is sound and will become fundamental to most organizations by 2004

- Architect portals based on a solid set of infrastructure and Web system services

- Software giants’ entrance into the portal marketplace may significantly change the vendor landscape through 2003

**Business Impact:** Application server-based portal frameworks will add value by simplifying architecture, reducing vendor risk, and improving reusability
**Portal Best Practices and Planning**

- How should organizations justify and plan for portals?
- Where is the portal market going?
- How do recent portal announcements from vendors fit into this market?

**Organizations should look toward portal frameworks based upon application server services for the best combination of features, performance, and reliability**
**Best Practices**

**Planning**
- Sponsorship & ownership
- Analyze drivers and expected benefits
- The “low-hanging fruit”
- Infrastructure assessment

**Selecting products**

**Costs & justification**

**Implementation**
- People and process

*KM has ceased to exist as a product category, but the best practices of KM are more essential than ever for organizations*

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**Abbreviation** — KM: Knowledge Management

- Typical CM costs
  - Licenses = $450K
  - Services = 3x-7x licenses
  - Annual maint. = 18%-22%

- Typical portal costs:
  - Licenses = $100K-$300K
  - Enterprise deals = $2-5M

- Justification
  - Efficiencies
  - B2B hard dollars

- Organizations must begin treating this technology as strategic infrastructure and justify it accordingly


**Research References** — EBS Delta 887, 30 Nov 1999: “Navigating and Collaborating on Knowledge”


EBS Delta 1032, 29 Jan 2001: “Justifying the B2E Portal”

WCS Delta 942, 13 Sep 2000: “Role-ing Out the Content Organization”


Second, the next column in the spreadsheet, what are the business pain points that these guys are dealing with? What content do they need access to? What business problems are they dealing with?

Column number three in the spreadsheet ends up being: what technologies are we going to need to provide them to help resolve these business problems? Do we have it in-house? If we don’t, what is it likely to cost us from a ballpark perspective? And again, we are not talking about getting down into finite dollars; we are looking at high-level orders of magnitudes here.

And then, lastly in this analysis, ends up being what business managers are willing to work with us in these individual line of business areas. Who will help make us be successful, knowing that two-thirds of what is required has to come from their side of the equation on the business side, and knowing that we are likely to have some bumps in the road during the initial deployments. In addition, is this individual somebody that can act as a peer and sell this out to their constituents or through their peer managers across the enterprise.

What you come away with this type of an analysis is, which areas can we get the biggest bang for the buck? Where can I solve the biggest business problem with the least amount of effort, the least amount of cost, with somebody that will help us guarantee its success? If you do this right, people will be banging on your door, and it is a matter of following your original plan and strategy for rolling this out, versus having to tie into specific areas and fight off, areas that may require a lot more risk associated with the deployments.

This also follows through on the selection of products, and I would argue increasingly we are finding that many of our clients are selecting the products, and then aligning with an integrator specific to the product. We would argue that that is the proper way to do it, unless you want to have somebody help map out this type of a strategy.

Bottom-lining this particular area, knowledge management, in general, has ceased to exist as a product category, but the best practices of knowledge management are more essential than ever for dealing with these people and process-related issues. We have seen a huge increase in knowledge management-related requests about the people and process side to this technology since January 1 of this year. It is almost like somebody turned a light switch, in terms of the importance of the people in the process side tied with the portal technology on a deployment basis.

**Kurt Schlegel:** Before we move to Figure 12, I want to underscore what Andy said on Figure 11 around the people and the process. Those are terms that get thrown around in any technology discussion, but we have done a lot of cost-benefit analysis around portal deployment, and it is just undeniably true that the most successful portal deployments are a case where the people and the process was done right. Both in terms of what Andy said around designing the content upfront, to making sure the workflow is automated and the business processes are done accurately, to how end users typically do their job, but more so on the willingness of the end users to use these portal options or alternatives. Alacrity is the first word that comes to mind in determining how useful the portal is going to be.

The cost-benefit studies we have done in our client base, we have seen those successful companies that alacrity has been there. The end users wanted to use these tools. Typically that is bad, first because the existing work process that they had was so fundamentally flawed or problematic that this was a great alternative. We need to get people banging on the doors and using these. If you provide a portal option, but you still supply all the three, four, or five other ways of doing whatever job function or task, we have
not gained any ground or saved any cost here. We need to sort of push people toward using this as the single vehicle for doing their job.

**Figure 12 — Enterprise Portal Justification**

We have been doing quite a bit of work lately going into accounts and performing a cost benefit study or analysis on their portal deployments. There have been a few organizations, maybe with enlightened management, that have said, “Everything that the vendor says sounds like it will be true; go ahead and spend that multimillion dollar project cost. No real reason to do a cost benefit ROI study for me, I trust ya.” But those have definitely been few and far between. The vast majority of upper management requires business justification of: why are we doing this and why are we investing so much in the portal?

If we take a look at Figure 12, there is a graphic on the right side, which is a roulette wheel that offers various alternatives in how to justify a portal. The point we are trying to make here is: choose your poison. There are eight or nine different ways you can justify a portal. Don’t do more work than you have to do to get the thing justified, but there are different ways to justify if they are probably going to map to particular situations.

For an example of that, the first thing on there on the roulette wheel is the “guesstimation” category. What do we mean by guesstimation? That is probably the most common or frequent way to sort of justify a portal, is to say, “well, how much time am I saving on a weekly basis searching for information, that right document or that right presentation, or finding the right person in my company who does this or that?” And every company we go into can say, “It’s 30 minutes a week, or two hours a week,” and you can put some sort of dollar value of employee time on there and come up with a number that says “this is the value of the portal.”

The trouble is, when you show those type of numbers, they are guesstimates to upper management that do not directly tie back to some sort of financial statement or cash flow statement of the company. They usually tend to discredit those, because they are guesstimates. Even the ones that do tie back to — we have seen that time and time again where you interview the sales force, and they can say, “I could close X number of more deals per year, at $100,000 average sales price because I had the portal.” How much of that do you attribute to the portal? Those guesstimates tend to be discredited. I definitely think it is important to do those, without a doubt, but you need to look to other methods that might be a little bit more tangible, at least in the short term.

Specifically, the next one is by stage. What we are talking about there is that you do not have a lot of benefits immediately out of the box. Usually, your costs are quite high. By stage, we mean you need to do typical discounted cash flow analysis here, you will have upfront costs, but we need to look at during the next year or the year after that, and sort of a three- or four-year planning horizon what type of positive cash flows are we going to get as a return? And probably the best place to look in the short term is some of the low-hanging fruit; some of the particularly screwed-up processes that we have out there. Let me give you a couple of examples.

One of the ones I thought was most appropriate was a managed healthcare organization that was sending letters out, particularly to some of their senior citizens that are customers, with information about their prescription supply, etc. If these senior citizens had questions about that, they were going to call the call center. And they call that call center, and those people at the call center might have been very willing to
help them, but they had never seen these letters before, and they had no idea what they were. They had to say to these old people “can you read me the letter you got?” With a portal, they could have access to the call center system, the customer information file, and a content database of letters sent.

From a process standpoint is very easy for a business manager to look at that and say, “The new model is definitely better than the old model. Let’s go for that.”

We definitely recommend looking at some of those low-hanging fruit options around broken business processes.

And spinning the wheel there, going toward the bottom one that is organizational positioning, one of the other big things we have seen is mergers. All sorts of organizations (e.g., energy companies, pharmaceutical companies, banks) are merging and buying each other up like gangbusters. This has enormous impacts when it comes to trying to figure out, “what is my company? What products and services do we have? Who are the staff? How do I locate people?” The portal is a great way to sort of accelerate getting over that merger hump that inevitably happens in any large organization that usually takes years, if not 6-12 months, to work itself out.

Craig Roth: The other thing you can do is organizational comparisons.. A lot of times I have seen portals justified just on the basis of, “we are in this industry. Here is what a few of our competitors that say they have saved”. You can look for public articles in “Information Week” or whatever, that say that they have saved $15 million in the first three years on their portal — then we should just do the same thing.

Kurt Schlegel: Good point, Craig. That has been done in almost every account that I have been to, they have done that task. To roll through this roulette wheel a little quicker now, cost avoidance. If there is any big application development work that is being done, or on the front burner, potentially that can be made a little more efficient through the use of a portal or more of an EAI integration.

We definitely like the idea of piloting a group as your poster child. This is sort of related to the low-hanging fruit, but instead of having an enterprise deployment right away, you are probably going to roll this out to one particular small group within your organization. Have a great success story, and use those as your poster child. That may be enough just to justify an enterprise deployment on its own.

The bottom line we are trying to make here is that portals are enabling technologies. It is not a particular tool. It is a framework that enables you to do all sorts of things. Like other enabling technologies (databases, networking technology), they are not necessarily always done with a hard ROI calculation. There are numerous approaches that can be used, and I find what works quite a bit is quantifying what the costs are, and putting a price tag on it and just bringing that back to the business manager as the line-of-business units and saying, “What is that worth to you? Is this worth a million dollars?” No? “Is it worth $500 thousand?” Maybe. And getting them to justify the portal in that sense.

Andrew Warzecha: By the way, in terms of cost for this, what can you expect to be paying for this? Those of you that may be interested, getting into the game is somewhere between about $100K and $300K. Enterprise-wide deals that we have been seeing going down for the past six months (e.g., Ford, Boeing, Proctor&Gamble), you are looking at somewhere between about $1 million to $5 million in terms of enterprise-wide licenses for a Fortune 50 type of company.
Enterprise Portal Justification

- How “hard core” is management about ROI calculation?
- Does your company do baselining?
- Does your organization have a formal process for determining ROI?
- Does your organization have written business goals or architectural principles that can justify the portal?
- Will a hard-core method such as “low-hanging fruit” help you “win” automatically?
- How have other infrastructure and architecture groups justified their efforts?

**Money-Winning Portal Justification Techniques**

- Guesstimation
- By Stage
- Cost Avoidance
- Organizational
- Low-Hanging Fruit
- Enabling Technology
- Piloting

Organizations should justify employee portal expenditures as enabling infrastructure — hard ROI calculations should utilize a staged approach

**Abbreviation** — ROI: Return on Investment
Kurt Schlegel: And that is not even counting the full-time equivalents (FTEs) to do all the content management and develop your gadgets or Web parts, or whatever it may be. There is a lot of cost here, and it can be steep.

Figure 13 — Portal Futures

Craig Roth: We have already talked about a number of these. First, looking at how this market will play out, we see that the sleeping giants have awakened. These are the larger platform players (e.g., Microsoft, IBM), that are starting to make movements into this area. They were a bit late to the picture, and in each case they have taken at least their first step — a solid step toward their strategy in this market. That puts them a few steps behind companies that have been doing this for a while, but they add stability, and they have more of an end-to-end solution that they can offer, because they own so many other pieces of this puzzle. We do think they will be large players in this market, and that they will start moving into the second- and third-generation portals sometime next year and in 2003.

We have talked about the convergence between the B2B, B2C, and B2E markets so I won’t talk too much about that. We have already said that right now it is still fairly segmented between those two with some products being able to bridge them to a certain extent. It will be about 2003 before I feel comfortable recommending a single product that will work across all three of those needs.

And application servers are weighing in. It has to do with the scalability, reliability, and manageability issues. We have seen a lot of the players in this market starting to — even if they are not application server companies themselves — at least align with some application servers. Creating themselves as either Web parts/digital dashboard and going with Microsoft then and MTS for all the scalability, or writing themselves as EJBs and taking advantage of the clustering and the state and session management that you get out of an application server.

These markets are still maturing. A lot of these dynamics are things that will be resolved around 2003. If your management is the type that is looking for a very stable market and requires that before they make any decision or strategy in this, then you are probably looking at another year or so before you get an approval on a project like this.

Figure 14 — The Collaboration Kings: Lotus and IBM Portal “Strategy”

Joaquin Potel: The first thing you can say about IBM is that they have been doing a lot of things in the portal space, probably too many things. They were feeling around — probably around the entire year of 2000, about the EIP initiative. K-Station from Lotus. Everyplace and pervasive computing portals. A lot of different initiatives without real coordination behind it. They have many things to offer, but not a coherent set of products or services together.

Since IBM formed a group to control or to coordinate all these portal initiatives, everything has started to look slightly better. Obviously they delivered K-station — it has been on the market for some months now, but K-station was a vertical approach to the collaboration portal market. It does not try to be (though we have heard some confusing messages around it) it was not trying to be a portal framework or a
### Portal Futures

**The Sleeping Giants Awaken**
- Platform players have been relatively silent
- Huge market dominated by sub-$15M players
- Giants will awaken during 2002/03

**B2C, B2B, and B2E Converge**
- Separation due to resource issues, not technology
- Single framework is ultimate goal
- Convergence will occur in 2003

**App Servers Weigh In**
- Breaking scalability ceiling has been difficult
- Scalable, manageable infrastructure exists — use it
- Expect most portals tied to app server by 2002

*These markets are still maturing — expect many dynamics to be resolved by 2003*

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**Abbreviation** — CM: Content Management
The Collaboration Kings: Lotus and IBM Portal “Strategy”

- While Lotus focuses on K-station & Discovery Server, IBM’s actions are broader — confusing overall IBM/Lotus alignment

- K-station tactically targets the collaborative portal market at a reasonable price

- WPS will remain as the IBM portal framework with EIP as a set of integrated services under it

IBM/Lotus is a potential portal leader, but must clarify its portal strategy

**Abbreviations** — BI: Business Intelligence; WUI: Web User Interface; ERP: Enterprise Resource Planning
transactional portal, or a BI portal. It was strongly focused on increasing collaboration, putting real-time technologies with information sharing together to increase collaboration in intranets.

As a result of all this work of coordination, IBM finally announced and released a month ago, WebSphere Portal Server. WebSphere Portal Server is the portal framework in the IBM side. It is licensed on the top of the application server as we were defining in that previous architecture we showed, and it tries to be the general approach to the portal market. The good news is that now they are coordinated, so K-station, and K-station portals can run on top of a WebSphere Portal Server. And as we mentioned, Portal Server exploits WebSphere application server as a foundation for scalability and reliability.

So, bottom line is that IBM is finally getting it. We do not expect the same level of maturity in the IBM side that you will find with some of the specialists such as Plumtree or Epicentric or some of the other folks that have been around for some time. But definitely, they have an opportunity because they are architected in the right way to have a strong role in the portal market during the next two years.

**Figure 15 — The Collaboration Kings: Microsoft Portal Confusion**

**Kurt Schlegel:** In many ways, Microsoft has been the sort of secret participant, or in some ways the wizard behind the curtain. There have been a great many expectations about what Microsoft was going to be doing with this market. They have been talking about Tahoe for some time, and now that the SharePoint brand is out with the SharePoint Portal Server and to a lesser extent the SharePoint Team Server, they have kind of tipped their hand as to what they want to do with this market.

Unfortunately, however, they have also succeeded in confusing a lot of people. Not the least of which are probably many of the Microsoft people themselves.

SharePoint is not a portal product in the same way that any of the other products we have been talking about today are. SharePoint, the portal server, is very much a server; it is a back-end product. It can fit into a portal environment, but it is not much of a front end.

The front end is Digital Dashboard or any of the other kind of development tool that you might use, or more recently, Plumtree, which will be providing many of the front end kind of services. It is not likely that SharePoint, at least in the short term, will be replacing many of the other portal products, but it is more the question of what all these other portal products are going to do to live together with SharePoint? Microsoft, with its position in the marketplace, will be doing a lot to push this stuff through. It is taking a very large place in the architecture and it is not likely to be going away in the short term in any way.

We don’t have time to be talking about how SharePoint fits together with a lot of the other components within the Microsoft environment, so if you do have questions about how it fits in with InterDev, Visual Studio, Site Server, Exchange or any of those other things, please schedule a follow-up conversation with one of the WCS analysts.

The bottom line for Microsoft and SharePoint is it is not going to make a huge impact in the short term. It will have a big impact in the medium term, and then eventually, it will have to be molding itself to where Microsoft wants to take itself in this marketplace, which in typical Microsoft fashion, is going to be evolving along with the market itself.
Figure 16 — The Web Application Server Vendors

Joaquin Potel: We said before they will play here, but one of the problems the Web application server vendors have is that this market is becoming kind of a commodity. The Web application server market has matured a lot since the beginning of these products, and what we are finding now is that when you take a look at what IBM with WebSphere can give you up against the BEA, there are different levels of maturity and different supports of some companies (e.g., EJB). We pretty much have seen them converging to the same place. We can say the same about SilverStream or Bluestone or some of the others. All of them feel the need to move up and emphasize business values. If we take a look at what they have been announcing for the last year, almost all them, BEA definitely, IBM, but also others have been announcing personalization engines. They are starting to deliver components in the Java world - it is Java components in the top of this Web application server to deliver personalization, or content management, light content management solutions. Or integration with the big content management players like Interwoven or Vignette to deliver portal solutions and try to integrate content with transactions. CRM, approach to e-commerce. They are completing that middleware part to be a complete e-business framework.

We expect Web application servers to keep on doing the same. Through developing new products like in the case of IBM with WebSphere Portal Server, to applications some strong candidates to dominate now in the market is some of the specialists that Jeff will probably mention later, but definitely these vendors that have the power of strong middleware, and reliable middleware will move upwards, trying to give value and end-to-end solutions. They want to have the same out-of-the-box functionality you expect from some of the specialists.

Figure 17 — Enterprise Portals: Where Are the Specialists?

Jeffrey Mann: Suffice to say, there are quite a few other players aside from the ones that we have already talked about, many of the big names. Many of them are listed over on the right. I would also include vendors like Sybase with their portal products. There are also some European vendors like Mediapps, Reef, .Tridion, as well as Gauss. There are quite a few different vendors and we expect that there will continue to be a lot of movement in this area. There will be more mergers and acquisitions. In fact, there was just one announced today. One of the bigger changes happened as SAP acquired TopTier earlier this week, and they announced a strategic marketing arrangement together with Yahoo. In many ways, this is two vendors who have been trying to make a splash in the portal market and so far have not been able successfully to do it. SAP has a lot of credibility within the corporate market, but very little pizazz when their mysap.com workplace has not been very successful at all.

Yahoo has got the pizazz, has got the mindshare, but there is very little credibility with the corporate marketplace. They are trying to rub the corresponding qualities off on each other. SAP has made the acquisition of TopTier; a technology provider in the portal space, which also has a big relationship with Baan. They will make some other interesting relationships as Baan is now going to be re-selling an SAP product, an interesting development.

There will be a lot more changes going on among these specialists. We are also going to continue to see different kinds of categorization. Some of the ones we talked about before: the frameworks that are targeted and some of the more generalized products. There are some portals which I hesitate to call portals
Microsoft has taken the lead on simple first-generation intranets
  ‣ Mostly internal development based on IIS and Site Server

Tahoe’s promise has been delivered under the SharePoint brand
  ‣ But SPS is not a full portal

Plumtree’s deal gives Microsoft a consistent story to tell
  ‣ It is a short term win-win

Microsoft and Plumtree will be a dominant combination for 12-18 months until Microsoft’s true portal product strategy emerges

Abbreviation — COM: Component Object Model
The Web Application Server Vendors

Application servers are extending their value to portal frameworks, providing a platform for add-on services and components
- Personalization engines
- Content management
- CRM and e-commerce

While not as functionally rich as out-of-the-box alternatives, the application server enables more complex/scalable best-of-breed solutions for B2C and B2B

Application server vendors have potential for long-term portal leadership, but must improve integration and ease of implementation
Enterprise Portals: Where Are the Specialists?

- Moving from vertical solutions to application and content delivery frameworks
- Getting more sophisticated and less tactical
- Emerging, high-risk markets
  - Frenzied M&A expected; few will survive
- Virtually hundreds of players
  - Some are portals into their own product suites, others striving to be extensible portal frameworks
  - Many linked to a single architecture (DNA, J2EE, . . .)

By 2003, specialized portal players will adopt open standards and continue to differentiate with domain knowledge

EP Marketplace: Which Ones Will Survive?

<table>
<thead>
<tr>
<th>Plumtree</th>
<th>DataChannel</th>
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<tbody>
<tr>
<td>Epicentric</td>
<td>Viador</td>
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<tr>
<td>Corechange</td>
<td>Hummingbird</td>
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<td>Gauss</td>
<td>Brio</td>
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<td>Autonomy</td>
<td>Microsoft</td>
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<td>Sun</td>
<td>IBM</td>
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<td>BEA</td>
<td>Lotus</td>
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<tr>
<td>BroadVision</td>
<td>Vignette</td>
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<td>ATG</td>
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Abbreviations — J2EE: Java 2 Enterprise Edition; EP: Enterprise Portal
because all they are is an interface into a specific product area. Whether it is a CRM product or a data configuration, or a data navigation tool, the others are much broader.

There are lots of players here, there will continue to be some specializations, more focusing around standards frameworks. That makes things like architectures even more important.

**Figure 18 — Enable a Portal Domain Architecture**

**Kurt Schlegel:** First, there is no question that somehow, someway you will have to justify your portal from a cost-benefit or a business justification in some way. We went through a whole bunch of alternatives there, our recommendation is don’t do more work than you have to. There is a whole bunch of choices that fit what type of corporate culture or position you guys are in.

Second, you definitely need to be looking for future stability in the portal market, no question; but we do not want that to delay any type of decisions you will make. You want to be building open and flexible frameworks, and we do think you want to be working with the solutions that are available today, and not waiting on vendor promises. We do think the benefits of the portal market are real, so we do not want to have you frozen, waiting for this thing to shake out.

Third, analyzing the existing Web solutions against your overall portal plan. You will have to do a build-versus-buy decision at several levels and tactical iterations are probably going to be needed. The name of the game there, as usual, is more often than not you will be buying your solution with a little bit of building or tailoring on the back end and make it apply to your organization.

Long term, organizations that have a portal infrastructure in place by this year we do believe will have a competitive advantage longer term by 2003 and 2004, based on their ability to improve productivity, reduce costs, and build relationships with customers. Yes, portal is a hyped term, but that the meat underneath is definitely worth investing in.

**Figure 19 — Architecting Enterprise Portals: Aligning Web Services and Portal Initiatives**

**Craig Roth:** Here is what you should be doing, in terms of portals. First, looking at portals as an architectural issue, not just “we have a specific portal for our department that we are trying to put up, and let’s pick a product.” This should be treated as an architectural issue. What you want to do is plan from the top down, looking at what the end users will need, and what functionality you need, but build them from the bottom up, starting with infrastructure, application servers, looking at what fits on top of it, and can provide you the reliability and the scalability that you need.

Second, replace the “one size fits all” interfaces. Don’t have static interfaces that force everyone to look at the exact same information in the same way. Use portals to display that information in context for that individual.

And then, lastly, try to look at what sort of tangible business value you can get out of this. Use application servers for the foundation of the strategy, look at people and process issues around it, and then justify it as a cost of doing business, but be very careful to look at what those costs are and be realistic about that.
Enable a Portal Domain Architecture

- Justify portals based on hard and soft ROI measures — based on corporate culture

- Look for future stability in the portal market, but act today with as open and flexible a framework as possible to meet immediate competitive needs

- Analyze existing Web solutions against your overall portal plan — a build versus buy decision must be made at several levels, and tactical iterations will probably be needed

**Business Impact:** Organizations that have a portal infrastructure in place by 2001 will have a competitive advantage by 2003/04, based on the ability to improve productivity, reduce costs, and build relationships with customers
Architecting Enterprise Portals: Aligning Web Services and Portal Initiatives

Transformation
Steps

- Treat portals as an architectural issue, rather than a product selection issue
  - Plan top-down from the end user’s point of view, and build from the ground up with infrastructure

- Replace “one size fits all” interfaces with portals that display in-context content for the individual
  - Prepare content and interfaces to be surfaced as components that can be tied into the portal
  - Evaluate portal vendors based on needs and constituency

- Tangible business value must be realized
  - Use application servers as the foundation for your strategy
  - Address people and process issues, not just technology
  - Justify creation, publishing, aggregation, and personalization technologies as a cost of doing business
Andrew Warzecha: A couple of resources that may be beneficial for the people listening in on this call in looking at the people and process issues as well as case studies as far as what other organizations are doing. Number one, there is a very good guide called “Knowledge Management, a practical Web-based approach” that is published by Addison Wesley. One of the authors is Alden Globe. This is a how-to type publication, 100 pages in length, with check-off lists to walk you through a high-level access.

Another one is a publication written by users out of the UK called “Knowledge Management Review” (www.km-review.com). And then lastly, there is the Knowledge Management magazine (www.kmmag.com). All three of those are chockfull of practical and actual case studies. I would also steer you to a couple of the vendor sites, particularly like a Plumtree or an Epicentric, not specific to their product, but because of the case studies that are out there that you may be able to use as part of the justification process.

Craig Roth: I would also mention that we have a kit from SPEX (a META affiliate). SPEX has done a rather detailed kit evaluating the different vendors across all the criteria that we recommend. If you are trying to do that fine-point spreadsheet analysis of where each one rates in every category, and how do you weight it, and which one has the highest score, it can give you a jumpstart on doing that sort of thing. I would look at www.checkspex.com to get to that.

Q & A

Q: I am wondering what you might have to say about how IBM will move forward with Lotus, given their recent positioning of WebSphere as their portal strategy? Lotus Notes, in particular.

Andrew Warzecha: The strategy that Lotus has been recently briefing us on, as far as this centralized portal group now, which is being run by a gentleman by the name of Larry Bowden, is that the K-station portal will be focused on business-to-employee and light business-to-business requirements. The WebSphere portal server will be focused on doing robust business-to-business and business-to-consumer type access. We have seen a more unified message coming out of the different IBM groups. The existing EIP product from IBM, they finally admitted, is not a portal per se, but an integration layer. And this is just one of the other components that will be rolled into these environments. All this is intended to run on top of WebSphere, at least purporting to run on top of WebSphere. That is the kind of the high-level answer we have been getting from the IBM briefings that we have had recently.

Craig Roth: What we are looking forward to is some better integration between a lot of the nice collaborative functionality that Lotus has, that is absent out of the IBM products. Being able to do a lot of the things you see out of Notes, whether it is discussion groups or chat and things like that. Hopefully we will see some of that integrated in, as well.

Joaquin Potel: The good news, at least, is that they agreed on the portal specifications, so you will be able to exchange portal components between K-stations and WebSphere portal servers, so it is a starting point.
Q: Yes, please. I have two quick questions for you. One is, in one of the figures, you talked about collision between portals and EAI. Are you talking about collision as in collaboration? That is question number one. Question number two is, can you shed some light on the difference between a real portal versus Vignette? I am trying to figure out where this thing fits when one side we call as EIP information portal. I am trying to figure out whether this is because of the classification of B2B, B2E, or B2C?

Craig Roth: What I was talking about with portals and EAI is that it is not as much a collaboration. I guess you couldn’t call what is happening between portals and app servers in general as collaboration. It is more layers of a stack, in terms of one layer sitting on top of another. Just as portals sit on top of application servers to use that, not collaborate with side to side, but on top. That is the same thing we see with EAI. In the picture, what you have there is the common kind of hub-and-spoke architecture, with EAI being the transport mechanism. But the portal, then, utilizing that transport mechanism to enable particular forms of communication.

Q: Brio portal and Vignette?

Craig Roth: Definitely coming from different sides of the whole equation, Vignette comes with a strong content management orientation. They have come from the content management area, especially B2C-oriented content management, and have expanded to try to add a lot of the other features to build a more full-portal width, especially with V/5. Brio has come from a totally different direction, coming from the business intelligence side. Structured data, being able to get it information and databases, coming from more of a B2E angle, and then have added the other direction. They added the content management on top of that in the application access and come at it. At this point, I do not think I can ever recall getting an evaluation from a client that had both of them on the list. If it has one, it usually does not have the other, because they are coming from different directions.

Q: I am just wondering, in the framework space, do you see any attempt or set of standards that would enable interoperability between functional components of portal solutions? For example, if a vendor or a client wants to use best of breed within, for example, personalization or customization, etc., rather than going with a particular vendor or a particular product, is there any movement to try to get some standardization to enable interoperability to these functionalities across vendors?

Craig Roth: Not across all the different types of services. But in terms of content management a lot of times, there is. You can often use say, the basic content management functionality of a particular portal, or if you want to expand that, they usually enable you to plug in an Interwoven or Documentum or whatever. In that case, you can go best of breed. But in a lot of other cases, with things like the single sign-on mechanism or the EAI, sometimes personalization, you are not able to pick and choose the services.

Joaquin Potel: And in most of the cases, they would have leverage the application server behind it even when they claim to be Java 2 EE compliant. What you are seeing is that you can’t run, for example, let’s say that a WebSphere Portal Server in the top of BEA. We are not at that level yet, and again because they want to explore single services that the Web application server has given them. We still have kind of proprietary approaches to these worlds, though you have some extensibility so you could go for a better personalization server in some cases. In the case of IBM, it is still inside IBM, so you can get basic personalization from the portal — IBM personalization server with the content management, but best of breed working together in the top of platform standards, not yet.
Andrew Warzecha: Although you might be able to get the kind of result that you are looking for, you have to make a choice on the bottom by looking at an application server. You probably want to have one portal framework on the top that is the top-level, unifying framework. Then you can be going a bit further to be doing some of the content management, syndication, EAI, some of those kind of services can fit in the middle, between those two layers. In that sense, you can come close to getting a lot, or at least some of the best-of-breed capabilities, as long as you agree on some of the basic components.

Q: Yes, and I guess the question was more around rather than individual clients having to develop component-broker models or some sort of common middleware that does transformation and translation across the different products. I was wondering if the portal framework direction was trying to address some of this stuff to make it easier to plug and play, so to speak.

Craig Roth: At this point, you are pretty much locked in to a portal framework when you install that.

Kurt Schlegel: They all have a set of proprietary gadgets, eclipse, portlets, whatever you call them.

Joaquin Potel: APIs …

Kurt Schlegel: Yes, whatever you call them, that are specific to the individual products. As the market starts to consolidate, and we do start to see things polarizing around the app servers, including Microsoft, you will start to see more standards for developing these types of things. But, as it exists today, it is all over map. Everybody has their own.

Joaquin Potel: Yes, for example you have this approach from Plumtree and Microsoft. Plumtree is supporting Web parts and you can run them into both Plumtree gadgets. But, it is premature today. You are locked.

Q: Yes, for an organization that is building their infrastructure around BEA Web Logic, what viable vendors would you recommend?

Craig Roth: BEA itself is the biggest of the giants that hasn’t put out a portal strategy, per se. They have a portal API buried in there, if you take a look. But they have not been active, in terms of pushing that out to clients, or having partners implementing it. There is probably still some work to be done there. In that case then, we have seen BEA emerging as best of breed in terms of the application server, so being the case, there are products that will fit on top of it. EJB ones that will fit on top. Epicentric is one that you might want to look at there, you can look at Corechange (coming soon with their Java version), Viador. These are all ones that are built with Java. Generally, any EJB-based portal will support WebLogic and WebSphere, at least.

Q: We have a second question. You talked about B2B, B2E, and B2C converging in the 2003/2004 timeframe. The question that I have is, that all seems to be — at least the employee part of the — there is an employee portal that would live on the intranet, and it seems like right now to us, the customer who accesses portal lives on the Internet. Should we be looking at the same products or two different products there? Is this conversion going to give me one product to bring both my intranet and Internet together?

Craig Roth: At some point when it converges, you will be able to pick a single product. I am not talking from a physical point of view, just a logical point of view. From a physical point of view, I do not mean
they are physically installed on the same box, because obviously you have concerns about what goes inside and outside the firewall. But at least if you are using the same product, you can leverage the expertise in terms of that portal interface, connections to other systems, the access to the content management security, etc. Yes, that is what you would eventually be able to do. Right now, that is very difficult to do, to say that there is one product I would recommend that you can use for the B2C part of it, and the B2E part. If you have a strong tendency toward one or the other, for example, the B2E is much more important to you right now and B2C is just slightly important, then you can often pick one that optimizes the B2E and do enough work to make it work for the B2C part. If you are pretty much equal between the two, it is quite difficult right now.

Joaquin Potel: Yes, probably all the approaches we are seeing and that we have been seeing used in both sides are probably Plumtree and IBM, and IBM is immature, I mean, it has a month of life. But definitely they have started to have a single framework with different portals and solutions in the top of it for both B2E and B2C. But again, this is more what we expect the market to look like in two or three years than how it looks today.

Q: First, let me say this was a very, very useful presentation. I got a lot of information out of it. I work for Citrix Software, so I was a little bit surprised that you didn’t mention the Citrix-Sequoia acquisition, and it is what catalyzed my question. During your presentation, you used the term “application aggregation” a couple of times. It seems like you use it fairly freely in your presentation. Having read a lot of the EAI work that META Group puts out, where you talk about this concept of system-to-employee integration, if I am an end-user organization, what I am interested in doing is being able to aggregate and then integrate my client-server architected applications with my Web applications. Could you elaborate a little bit on what you mean by application aggregation, and compare it to this concept that you talk about system-to-employee — system-to-person integration.

Craig Roth: There are a lot of vendors in this space that are viable, that we did not mention as well, due to some time constraints. We encourage any client that is looking at various vendors to call up and ask us for opinions on those. In terms of application aggregation, there are a lot of different ways we look at aggregating information from different applications, and there are different levels you can do it at. There is a pure presentation level that you can aggregate with, that we do not find to be very useful. There is deeper aggregation that you can do between the actual content that is coming out of these applications. Say if you take them as XML documents and being able to cut them down and create a new presentation type out of them, that does not require it going through an assembly engine first. You can have a lot of efficiencies by doing that. That is a very common type of aggregation application. We also see things like, if you want a more sophisticated example of that, what we see in the account aggregation market. There are a lot of things going on in the financial arena, and trying to aggregate all of a consumer’s accounts across a lot of different companies. The best approaches for doing that are ones that can operate at a deeper level — they form partnerships in a B2B sort of way with the different vendors, and then aggregate the account information between them, maintaining consistent security between all them, as well. Account aggregation would be a sophisticated example that we see today of that kind of portal aggregation.