



THE DELPHI GROUP

Building Enterprise-Class E-Business Portals

Viador E-Portal

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WHITE PAPER

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“Traditional approaches to strategy do not go deep enough into understanding customers and consumers. The disciplines required to create new products and services come out of understanding and observing human behavior and human needs.”

James Champy, at Delphi Group Executive Retreat, Aspen, Colorado, 9/00

For over twenty years, information technology has been an enabler of business strategies for many companies. Recently, portal technologies have come to the forefront by enabling businesses to provide an increasingly personalized touch to prospects, customers, and employees. By personalizing portal services, many improvements can be brought into play, particularly in an organization’s relationships with its stakeholders.

But continued improvement requires an ongoing awareness of what stakeholders are doing and how they are doing it – an awareness with richness of detail that is impractical for many organizations to achieve today. The promise of greater awareness of what customers do and of what motivates and reinforces them is a compelling vision.

Many organizations experienced in global e-business are leveraging their early initiatives with portal technology into more mature visions for capturing prospect, customer, employee and partner information and into more effective use of these information assets. Vendors are likewise extending and enhancing their products. This confluence of demand for business services at the portal and the response of innovative technologies presents portal developers today with a new opportunity to select portal components to create an integrated desktop framework.

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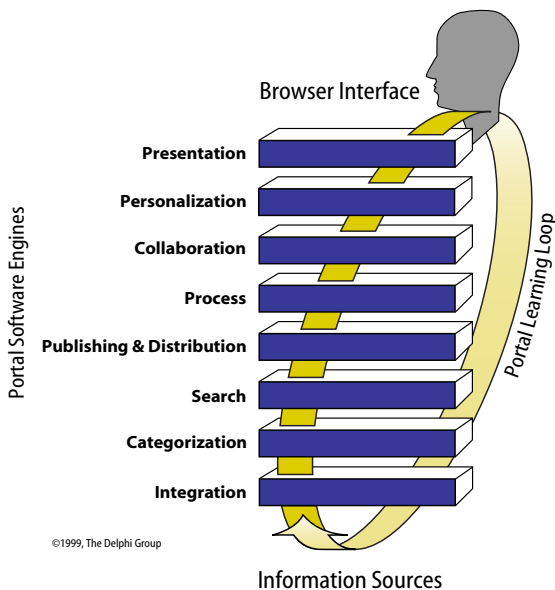
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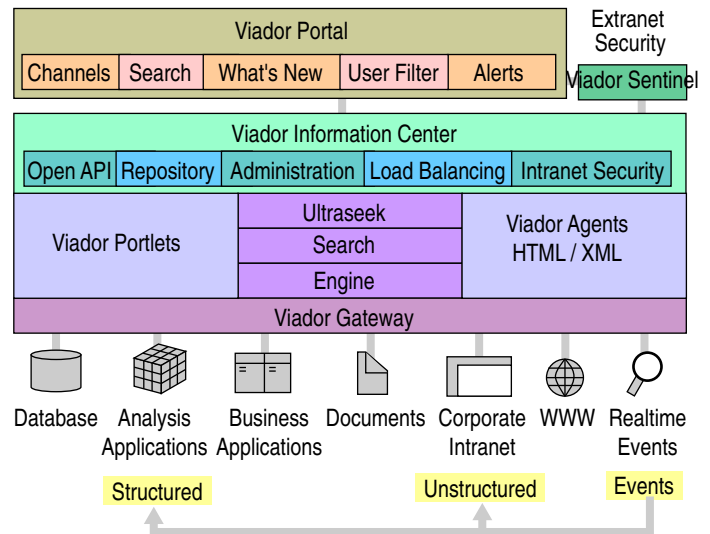
In this whitepaper, we evaluate Viador’s E-Portal Suite 6 from the perspective of the Delphi Consulting Group’s portal architecture and address the product’s ability to support the complex applications portal users seek to deploy today.

The Portal Architecture Model

Portals almost always present a personalized interface, but there is much more to a portal than personalized access and presentation. The portal is not a single technology or system, but rather a suite of technologies which, when properly integrated, provide a highly-manageable user interface to information resources, applications, and business processes. A portal’s functionality - and thus utility - will be bound by its underlying architecture and the services that architecture delivers.



E-Portal is composed of three product elements that implement the Viador e-Portal framework. Viador Portal provides user interface services; Viador Sentinel manages B2B security; Viador Information Center houses the portal repository, Viador portlets, HTML/XML services, gateway



services to corporate and external information sources, processes, and events, as well as spidering, indexing, and taxonomy services. These three product components provide a broad array of the portal services required by end users.

The portal manages information sources and the categorization of information, applications, and content to enhance and improve user work processes. To do this, every portal must consider nine base elements of functionality: integration, categorization, search, publishing and distribution, process, collaboration, personalization, presentation, and a portal learning loop.

Integration

The success of most e-business portal implementations depends on integrating the data and applications needed by the user, including structured and/or unstructured data, into a virtual single repository. The wide array of potential information sources, the breadth of user requirements, and the unpredictability of the information needs at any given point in time present recurring challenges that are not responsively addressed by traditional application development and maintenance cycles.

The challenge portals face is to create the network of information sources required to support the specific, day-to-day business and operations requirements of the portal's users and to do so responsively and flexibly. At the same time, portal products must offer developers robust integration services and tools that enable customers to effectively establish integration points and manage that integration over time. Viador's approach is to support reusable modules, which are called portlets.

Viador E-Portal is based on a flexible framework for integration, which delivers five standard APIs.

- The Customization API (which includes both server-side and client-side components) allows developers to create a customized user interface.
- The Repository API allows dynamic access and modification of repository objects.
- The Portlet Builder API allows developers to register portlets with the Viador repository.
- The Data Feed API enables the integration of search engines and provides native access to Lotus Notes, M/S Exchange, and IBM IM45.
- The Security API provides security services and integration support for external security modules.

Viador E-Portal provides SQL and legacy integration — to both internal and external information sources. The Viador Information Center, a Java-based portal server, provides interfaces to a variety of data sources including relational databases (Oracle, IBM DB2, Sybase, Informix, ODBC, and Microsoft SQL); non-relational databases (Oracle Express, Microsoft OLAP, IBM DB2 OLAP, SAP BW, and Hyperion Essbase); unstructured documents (M/S Office, Adobe, HTML/XML); as well as Business Intelligence reports against both Viador and

third party data. Integration with message queuing technology is also supported.

Through its partnership with Mercator, Viador is able to integrate a variety of ERP applications (e.g., SAP, PeopleSoft). In addition, Viador provides content and document source integration for popular systems such as Documentum, domino.doc, Open Text Livelink, and PC DOCS. Enterworks' Virtual DB allows users to get at multiple legacy databases (e.g., IMS, VSAM, etc.) and present a single, unified result set. The Information Center also handles user security and session management.

Portlets for Integration

Viador E-Portal portlets offer a ready way to extend integration services. There are three function-specific kinds of portlets: content portlets, productivity portlets, and application portlets.

Content portlets engage both public and proprietary information sources, with individual portlets enabling a "packaged" connection to syndicated content (e.g., NewsEdge, iSyndicate.) Productivity portlets support office productivity tools such as calendars and email. Application portlets deliver integration to packaged applications like SAP, BAAN, and PeopleSoft.

To nurture the portlet collection, Viador established a portlet Web site (<http://portlets.viador.com>) that enables developers to download portlets already inventoried or to submit portlets they develop.

Categorization

The most significant benefit that categorization brings to the portal is information context. But, the business portal has a significant design challenge - creating a context that reflects and supports the organization's way of doing business.

Within each organization, elements such as current operations practices; management initiatives; corporate history, structure and culture; available professional resources; and learning requirements build a context for working with information. Successful portal designs effectively reflect the knowledge map for the organization in the category structure of the portal.

The Viador E-Portal framework is designed to support a range of new generation search and intelligent agent technologies. These technologies, including tools from leading developers such as Autonomy, Inktomi, Inxight, and Semio, help users establish categorization rules and automatically produce content hierarchies. To support the creation of business-centered context in the flow of portal information, the portal administrator creates subject areas (channels) and grants access rights based upon role or job. E-Portal Suite extracts information from structured data and automatically places it into the channel taxonomy created by the administrator. In addition, objects with existing metatags can be analyzed automatically and categorized based upon the metadata.

Search

The Search component of the Portal Architecture provides a centralized facility for identifying and accessing specific information items within collections available at or through the portal.

There are four guides to the design and development of the business portal search facility: comprehensive indexing; metadata access; full-text access; and concept-based search. Viador E-Portal embeds the Inktomi UltraSeek Search Engine to provide full text, metadata, title, and natural language searching. Object security is maintained during searches, so only authorized users see

documents. Viador E-Portal users can search databases, reports, HTML text, and documents from a single search interface.

Searches may be saved, categorized into the taxonomy, or published (either by the user or administrator.) E-Portal also offers optional native support for the Verity search engine and the Data Feed API enables integration with other search engines.

Publishing and Distribution

The Publishing and Distribution component of the Portal Architecture supports creation, authorization, inclusion in portal content collection(s), and distribution of structured and unstructured information in multiple online or hardcopy formats.

There are three common services provided by this architectural layer: authoring, approval and posting, and maintenance. The goal is to support the timely creation and flow of information in the organization while minimizing portal infrastructure and administrative support.

Viador E-Portal provides decentralized publishing and distribution services. Authors are able to publish documents to the portal repository (maintaining native format support) and portal administrators can similarly publish corporate information. Objects in the repository can be pushed to groups or channels in native, PDF, or HTML format. When coupled with presentation-layer filtering and alert services, this push approach can be used to support straightforward document-centric routing applications.

Process Support

As portal focus expands from information accessibility to e-business management, robust process support becomes critical. Anyone who has re-

searched new car information on the Internet or taken advantage of travel reservation web sites is familiar with the transition from a model centered on information delivery to a model supporting commercial transactions. While this is an easy transition conceptually for the commerce site, the longer run challenge is to create a robust infrastructure for process support.

Increasingly, portals need process automation capabilities (such as those found in today's commercial workflow software) to monitor predefined process flows. Viador addresses this need in three ways.

In simpler applications, the product's native support for event triggers (and email or pager notifications) allows developers to structure processes and workflows based upon changes in object status or object availability. This "state change" model of work management is particularly appropriate for "route and approve" applications.

For more complex processes, an optional workflow engine can be embedded in applications. The process engine records information about activities to enable users to audit and analyze historical events from the perspective of the process as well as "activity agents" within the process. It also allows monitors to be embedded in processes, permitting developers to create focused, process-specific metrics and milestones that can be refined over time to provide rich, detailed process information.

In addition, developers can craft workflows through its set of five framework APIs.

Collaboration

With Collaboration capabilities, portals expand from passive information kiosks to new forums for organizational interactions between employees or,

increasingly, among employees, customers, partners, and other stakeholders. In short, collaboration services aid the management of both explicit and tacit knowledge.

Collaboration should be evaluated, focused, and supported from three levels: the corporate or enterprise level, the project-function level, and the interest-group level. Collaborative communication can occur asynchronously (e.g. threaded discussions and team rooms which centrally collect all documents, work schedules, etc. for a particular team) and synchronously (e.g. chat forums).

Viador's portlet architecture provides an integrating mechanism to other applications that support interactive collaboration (e.g., SiteScape, Lotus Notes.) This approach enables enterprises to reuse their existing skill, software, and infrastructure assets within the portal for collaboration purposes. Currently, the inventory of portlets available includes integrated calendar, E-mail and messaging, collaboration and web conferencing.

Personalization

Personalization is a critical portal element as it provides effective individual information management, which leads to productivity enhancements. Personalization has become a necessity because the volume of information available in the Internet-enabled business environment has outstripped the capacity of the individual to organize and process it.

Personalization at the portal offers a new value proposition at two levels: users can select to display/not display particular categories or channels of content; and users can control the placement and prominence of the content displayed.

Business portal applications should provide tools to enable individuals to personalize their portal's

content by centralizing, managing, and prioritizing the delivery of information on a job-function or interest basis.

Viador Portal manages the interface to any information objects that can be uploaded from the user's workstation and also provides administrators with broad customization of the user preferences, including colors, fonts, banners, screen real-estate management, document presentation, and Web links.

Viador's customization API enables a flexible interface environment. Constructed upon this API, PageBuilder enables developers to manage the screen as well as access to services and repository objects through a straight-forward drag and drop interface. The Viador Administrator enables the definition of user roles and monitoring of user access, plus it establishes user-based security criteria and profiles, which may be used to effect personalization.

Presentation

Presentation is the portal architecture component directly responsible for the "single point of access" that users find so compelling. Because the portal is accessing many kinds and channels of information, and because this all has to fit comfortably in a small display space and still support "zero-training" operation for users, there is little room for design or development error.

Viador's Portal—using either a standard Yahoo-like display interface or the familiar Windows Explorer model—offers an interface that provides a variety of screen and information management services with customization at the user and the channel level. Point and click access is available not only to repository objects, but to channels, portlets and searches.

More importantly, Viador offers programmer-less customization through PageBuilder. With its drag and drop approach to page construction, PageBuilder lets users personalize their screens and data objects, apply filters, and manage other presentation elements without scripting or programming.

E-Portal Suite offers mobile, wireless portal access through SprintPCS, which uses WAP servers to deliver WML-formatted documents to PCS phones. Future services will extend support to additional carriers and cellular phones, as well as to PDAs and other mobile devices using XSL stylesheets.

Learning Loops

The portal Learning Loop differs from the other architectural elements in that is not concerned with a specific aspect of information management, but with the ongoing effectiveness of the portal for its users. The Learning Loop provides feedback on how the portal is being used and how effectively it is being used. The information and observations derived are what enable portals to adapt their services in response to users' information needs and habits, hopefully in "Internet time" and not with the lags traditionally associated with modifying enterprise and legacy applications.

To be effective, the portal learning loop must be built into the information design from day one, because the parameters of each individual's requirements of the portal will change. Daunting as this challenge seems, it can be addressed at the outset by designing portal learning loops to take advantage of available and well-understood analytic tools. These tools include usage metrics (e.g., who are the portal users, where are they searching, etc.), content evaluation (identification of those information elements on the portal that are of

value to the users - and those that are not), and intelligent content management (agent technology, neural networks, natural language processing.)

While Viador E-Portal offers no automated or heuristic feedback, it supports Viador BI reports and queries. Applied against custom-designed workflows and logs available through an optional process engine, BI analysis offers the opportunity to assess activities at the process, agent, or milestone levels and to use those findings to refine the portal's behavior. In addition, the E-Portal Administrator enables definition of utilization reports and server usage audits. Used with method and insight, these data can also assist in the evolution and expansion of the portal's services.

Beneath the Portal Architecture

Every portal builds upon a foundation of existing technology within each enterprise. Lacking adequate foundation services for security and scalability, the best of portal architectures will likely result in a less-than-optimal implementation.

Security

Clearly, security is a major issue for portal developers and users. Security services within the portal should build upon existing corporate applications and not create a separate security scheme.

Viador E-Portal supports standard authentication and security services and password pass-through for single logon without development. In addition, an optional component, Viador Sentinel, provides the additional security that B2B applications require, including encryption and session level timeouts. Through its security API, E-Portal supports LDAP 3.0, NDS, NT Domains, and commercial or custom-developed security services.

Scalability

The ability of a portal's architecture - and thus its implementations - to scale reliably is a core asset for e-business applications. The load balancing functions E-Portal provides offer a means of scaling users and traffic while maintaining performance and throughput. E-Portal Suite has demonstrated the scalability of its architecture through applications in place which now support over 10,000 registered users. A large government agency implementation is targetting a registered base of 4 million users.

Load balancing is accomplished through the use of "dispatchers" (one per server) each of which utilizes multiple logical "request brokers" in a round-robin fashion to service multiple users and distribute their processing loads. With load balancing in play, scaling can be accomplished straightforwardly through the integration of additional servers and the dispatchers and request brokers those servers support. Viador is a cross-platform application that runs today across UNIX multiprocessor environments.

Professional Services Offerings

For many end-user organizations, portal development is viewed as a somewhat uncertain proposition. To ease the incorporation of portals into the enterprise infrastructure, Viador has developed its ICE (Ideation, Creation, Expansion) Methodology - an optional professional services offering. ICE is testimony to the growing awareness that the process of bringing portals into production is challenging and that customers value the kind of process and project management that makes the project shorter and less risky. They also seek to make the portal deployment experience more understandable and replicable.

ICE - a time-boxed methodology — has three phases. In the Ideation phase, Viador consultants assist customers in identifying the system objectives and prioritizing opportunities. In Phase II, Creation, standard functionality is modified and corporate personalization, security, channels and groups are set up and then iterated and refined. In Phase III, Expansion, the solution adds more mature functionality based upon experience, changing business needs, and feedback from users.

End Note

In E-Portal, Viador shows a maturing portal with increased functionality and flexibility. The company might have been anticipating what Jim Champy had to say at the Delphi Group Executive Retreat in Aspen. By paying attention to the needs of its customers and the behaviors of portal end users, Viador has fielded an architecture supporting an improved mix of internal services and best-of-breed, integrated components.

Viador Overview

Viador Inc. (NASDAQ: VIAD) has been in the enterprise software business since 1995. The company's E-Portal Suite solution leverages its core technologies in Java, application integration and data access to connect corporate users and business partners to all the business information they need to efficiently manage their businesses. Viador has received numerous industry awards including the Deloitte & Touche Fast 50, CIO's WebBusiness 50/50, CrossRoads 2000 A-List, DCI's Excellence in Business Information, Federal Computer Week's Top 10 Companies to Watch list, IBM's Solution Showcase Award, and being named to the InfoWorld 100. Viador's customers include 3Com, Charles Schwab, Federal Aviation Administration (FAA), IBM, Lucent Technologies, Nortel Networks, Shiseido, Sprint PCS and Xerox. Viador has strategic relationships with leading consulting and E-Business companies including Hewlett-Packard, IBM, Deloitte Consulting, SAP and ACS.

