Portal Infrastructure Impact Analysis
Web & Collaboration Strategies
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FOCAL POINT
Without careful planning, portal infrastructure services can collide with existing infrastructure, resulting in redundancy and confusion. With a proper infrastructure impact assessment, a portal can add value to existing infrastructure components and replace missing components.

CONTEXT
Although portal definitions were mostly settled in 1999, infrastructure analysts and portal project managers trying to complete business justifications are now revisiting the definition from a different angle: What is included in the portal? Is it fair to include content management benefits in the portal ROI justification? If an organization has a collaboration suite and a portal, which collaboration capabilities should be used? Determining exactly which infrastructure functions the portal should subsume is difficult, due to the overlap between portal products and separate infrastructure products and services.

Portals overlap with many other product categories (see Figure 1) due to their role as a contextual integration interface to an organization’s applications. In many cases, a portal will help fill gaps in e-business infrastructure, while in others it may simply leverage best-of-breed infrastructure. In most cases, a portal can provide 30%-50% of the functionality found in best-of-breed infrastructure, unless the portal vendor is a specialist in that category (i.e., Hummingbird EIP for content management, Sun ONE portal for directory and authentication).

By 2005+, many of these infrastructure areas will blend together and the lines between them as separate infrastructure functions will blur.

As part of an infrastructure impact assessment (Step 4 in the portal planning process; see Figure 2), every organization needs to draw a line around which infrastructure functions will be performed by the portal and which will be separate. The scope of the portal will differ for each organization, but best practices for handling the overlap indicate the following:

▲ Where an infrastructure component does not exist and is not likely to be selected in the next 12-18 months, portal evaluators should select a portal that can fill the gap and schedule regular reviews to determine if a capability will be migrated to a separate product. It should be noted that some infrastructure components can take significant time to establish even using a portal’s capabilities (i.e., content management), which may extend the timeframe 18+ months.

▲ Where infrastructure exists, it should be leveraged by the portal rather than replaced by it or duplicated. In some cases, leveraging external capabilities will still require the portal to retain an active role (i.e., directory syncing with an external master LDAP directory).

▲ Where redundant infrastructure exists (i.e., multiple workflow mechanisms, multiple content repositories), a portal can play a key front-end (user interface) or back-end unification role.

META Trend: During 2002/03, organizations will exploit portal architecture and Web services principles, layering component interfaces onto applications and data via different object models (EJB, .Net) and XML. Through 2003, Web teams will evolve as best-practice advocacy groups (e.g., Web site globalization). Through 2006, Web architects will adopt a platform approach, in which applications leverage common services that are connected, aggregated, and personalized via portal frameworks.
Even if separate infrastructure services will be utilized, the portal is not entirely “hands off.” A portal should still take an active role in connecting to the service and passing state and identity information to it.

The following are three common scenarios for dividing up responsibilities between portals and other infrastructure:

▲ **Portal does everything — the portal as application:** Figure 3 shows the original portal model (1999-2001), in which the portal acts as a standalone product. All infrastructure services are built into the product and it is generally installed on a single server. This model provided relatively good value (each of the services usually lacked industrial strength features), was quick to install, and was especially useful at a time when many organizations did not yet have any Web infrastructure standards and needed to get a portal up and running quickly. This model is no longer viable for mature organizations that tend to already have several of these infrastructure services.

▲ **Just the core — the pure infrastructure portal:** Figure 4 shows the opposite extreme: the pure infrastructure portal. In this model, an organization already has every one of the overlapping portal services and is only looking for a portal that can connect all these pieces together. In this model, the

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**Figure 1 — Portal Infrastructure Dependencies**

![Diagram showing the dependencies between various portal and infrastructure services](source: META Group)

**Figure 2 — Portal Planning Process**

1. Obtain sponsorship/determine ownership and roles
2. Analyze business drivers and expected benefits
3. Inventory features
4. Conduct an infrastructure impact analysis
5. Select product, select systems integrator, and implement
6. Conduct internal marketing and post-implementation

For additional information, see WCS Deltas 936 and 937.

Source: META Group
value of the portal is the personalization services, site creation capabilities, role/context management, and prearranged partnerships to integrate all the pieces. Few organizations have reached this level of maturity. By 2007, leading organizations will have evolved to this model.

- **Hybrid model:** Figure 5 shows a sample hybrid model, the most common model during 2002-06. In this model, some infrastructure pieces are already present in the organization and need to be linked in while the portal fills in the remaining gaps.
Content Management (CM)
Content organization and dissemination was the first opportunity tackled by portal vendors. This has ensured a tight relationship with content management tools, which empowers business users with the ability to create/capture content, approve it, and manage its life cycle. This includes content tagging, template-based creation, workflow, personalized retrieval, access control, versioning, content distribution, and repository management. Most portals include basic content management capabilities, but we recommend using third-party content management tools for advanced capabilities (i.e., complex workflow, archiving, versioning). Through 2003, we expect portal vendors to continue to add content management functionality. By 2004, portal vendors will turn their attention to other technologies and leave increasingly complex features to content management players.

Implications of Using a Portal’s Built-In Capabilities
A portal can provide built-in content functionality by either acting as a mini content management system with its own repository, or by simply utilizing a crawler to find and point to content stored across an enterprise’s shared drives. Portals that are good at content management can generally provide 60% of the functionality of a separate CM product. They generally skimp on workflow, tagging, aging, and distribution. Using a portal’s built-in content management can provide quick ROI and is much better than no content management at all. But using a portal’s content management features will result in missing the more sophisticated features. Organizations must assess the value that sophisticated content management features will have to determine if built-in capabilities are enough.

Implications of Leveraging a Separate Product
Most portals provide connectors to common CM products that enable the portal to query the content management system for relevant content, perform “in place” editing of content being viewed on the site, and provide a view into content workflow (i.e., submission, approval, inbox notification). Standalone packages likely to be integrated include Interwoven, Documentum, and Vignette. We increasingly see integration with Stellent and, in 2003, expect integration with Microsoft Content Management Server to be common. Although using a separate CM product provides the most functionality, it can increase costs substantially because a high-end content management solution alone has costs similar to those of a portal.

Directory
To personalize, a portal requires information on who users are and what they should see. Identification of roles is essential for context functions, such as personalization, configuration of workspaces, or process orchestration. Although many organizations without directory strategies have been forced to use the portal as a repository of identity information, by YE03, most organizations will find that the basic identity management

![Figure 5 — Hybrid Model](image-url)
capabilities of leading portal products are insufficient. Organizations should anticipate this dynamic and treat
the portal as just one participant in an enterprise-wide identity management infrastructure.

**Implications of Using a Portal’s Built-In Capabilities**
Portals can provide a basic capability to manage a directory, assign roles, assign access to groups of users,
and make changes. They generally will not try to undertake sophisticated actions, such as delegated
administration or federated directory management.

**Implications of Leveraging a Separate Product**
Organizations should focus on building an identity infrastructure service layer for multiple applications to halt
or slow the proliferation of credential stores across the enterprise. Keeping identity management separate
from the portal enables a common administration group responsible to handle identity across other systems
(i.e., ERP, collaboration) as well as the portal. It also enables a common view for users who may utilize
applications separate from the portal, but need the same context available to them. The portal will still need to
maintain additional portal-specific information on each user separate from the directory, such as which
portlets they want to see. Best-of-breed players include any number of LDAP-based directories (i.e., Sun
ONE directory, Novell Directory Server), as well as Microsoft Active Directory.

**Single Sign-On**
To aggregate multiple applications screens onto one page, a portal must possess SSO capabilities to avoid
multiple logons. By 2004/05, portal players will have stepped out of the SSO wars, leaving this capability to
infrastructure and user management vendors.

**Implications of Using a Portal’s Built-In Capabilities**
Portals can pass user ID/password information to applications that they access. They provide basic
information for provisioning application access to users, but fall short of the security and provisioning options
of a standalone provisioning vendor — particularly around the handling of multiple domains, delegated
administration of access rights, and session sharing across partner sites. Portals generally should not be
enlisted to perform SSO duties, except those from vendors with a core competency in SSO (e.g., Netegrity,
Novell, Sun).

**Implications of Leveraging a Separate Product**
As with directories, an existing SSO capability should be leveraged by the portal, because it offers better
identity management capabilities and security. Indeed, if applications are spread across servers and clusters,
a separate SSO product will be essential. Best-of-breed players include RSA, Netegrity, and Sun.

**Application Server**
Portals can leverage the runtime execution engines of application servers to provide their clustering, data
connection pooling, and distributed business logic management, or utilize their own capabilities.
Organizations are increasingly architecting around a combination of a common application server beneath
their applications and a common portal framework that they all surface through. The application server and
portal form a platform — the lowest common denominator of a new operating system used to build and deploy
application functionality. By YE02, leading organizations will have moved 25%-35% of their applications to a
platform model. By 2004, 45% of architecture teams will define common platforms, increasing to 60% by 2006
(see WCS Delta 1065).

**Implications of Using a Portal’s Built-In Capabilities**
A portal either runs on an application server or does not — this is not a deployment choice. Portals that run on
an application server include the additional overhead of purchasing, installing, and maintaining a general-
purpose application server, but they also assume the proven scalability characteristics of that application
server and provide a robust environment for extension of the portal’s capabilities. Portals can often call out to
applications running on an application server even if they are not running on one themselves. This will work
more easily if the platform of the portal (Microsoft or Java) is the same as that of the application being called.

**Implications of Leveraging a Separate Product**
Leveraging a separate application server is the preferred method of architecting a portal. Indeed, after years
of resistance, most portals are moving to run on industry-leading application servers (IBM WebSphere, BEA
WebLogic, or Microsoft .Net). This is because, in practice, Global 2000 companies have preferred to use
general-purpose infrastructure that they have already paid for, trust, and have management processes
around rather than proprietary application server engines. Plumtree has remained the last viable holdout of
the proprietary application server strategy, and has succeeded (and will continue to succeed) by investing heavily in its infrastructure and using its language independence as a differentiating factor to organizations with both Microsoft and Java development in-house.

Collaboration
Collaboration services provide methods for synchronous and asynchronous communication. These services include e-mail, instant messaging, e-surveys, discussion groups, shared workspaces (teamware), shared calendaring, whiteboarding, and co-browsing. By YE03, leading portal vendors will all have basic collaboration facilities built into their products and basic linkages to enterprise collaboration suites (i.e., IBM and Microsoft). By 2005, most enterprises will demand full coordination with their chosen collaboration suite (see WCS Delta 1092).

**Implications of Using a Portal's Built-In Capabilities**

Some portals provide ready-to-use components of popular collaboration services (generally discussion groups and e-surveys), which are useful if the organization does not already have a standalone alternative. A few portals offer a free version of third-party collaboration components. Some organizations have used the portal's collaboration capabilities even though they also have a separate product as a standard, which is not recommended because it stresses help desks, users, and developers.

**Implications of Leveraging a Separate Product**

Although any portal could provide one-click access to collaboration products, synergy is not realized unless context can be shared between the portal and the collaboration component. Only if state and personalization information can be transferred between them will this be truly useful. Ultimately, organizations will find that a complete contextual collaboration infrastructure — separate but leveraged by the portal — provides more value than locking collaboration functionality inside the portal. Best-of-breed players include IBM and Microsoft for suites, and other players for individual services (i.e., eRoom for team rooms, Zoomerang for e-survey, PlaceWare for Web conferencing).

Usage Tracking
Tracking what users are doing on a Web site provides valuable feedback on which messages are working and which are being ignored. This is most important in B2C portals, where the marketing department needs this information for strategic planning. For B2E, this information guides portlet development to areas needing improvement or promotion.

**Implications of Using a Portal's Built-In Capabilities**

Although some portals can provide basic information about which portlets are being used, most lack useful functionality for tallying profiles to usage and forming conclusions (i.e., which portlets are used by marketing versus operations, if executives are using the portal, when most call center personnel use the portal).

**Implications of Leveraging a Separate Product**

Some involvement from the portal is necessary because Web logs alone do not contain portal-specific information, such as which portlet was used. The portal needs to provide portal-specific information to the usage-tracking tool by using beacons to call out large-grained activities. Best-of-breed players include WebTrends, Accrue, NetGenesis, and Hyperion.

Enterprise Application Integration (EAI)
EAI products provide prewritten integration into common application packages, sometimes aggregating several detailed functions into a useful abstraction of them. They also handle transport of the messages and conversion of data types. Through 2003, we expect a flurry of partnerships between portal and EAI vendors, akin to the content management and syndication portal partnerships of a few years ago.

**Implications of Using a Portal's Built-In Capabilities**

A portal can work well using its own connectors and without an EAI package, but some organizations prefer the messaging architecture and more extensive integration that EAI products provide. Portal APIs provide their own mechanisms for connecting to applications for display in small areas of the interface. Generally, the connection to the application is done at an interface level through HTTP, though some portlets go deeper and connect to business logic through direct APIs. In 2003, Web services will become a common way for portals to access applications without EAI in cases where the hub-and-spoke messaging architecture that EAI provides is not needed.
Implications of Leveraging a Separate Product
The value added by EAI occurs when the visualization in the portlet is substantially different from the application itself (i.e., combination of multiple systems), or if a portal does not have ready-made adapters into the necessary systems and an EAI system can fill in for it. A portal must specifically support (via a technical partnership) a given EAI package to leverage it. This support means that the portal and EAI vendor have written a layer on top of the EAI system to take the EAI system’s integration components, leverage the portal's profiling information, and render it in a human-readable user interface. Best-of-breed players include Tibco, webMethods, SeeBeyond, and Vitria.

Process Automation
Process automation (a.k.a. “workflow”) guides a user through a process that requires multiple steps, each of which may need to take place in a separate application. In 2002, process automation will become the next “must have” feature in portals as enterprise application vendors (e.g., SAP, PeopleSoft) push their process automation capabilities as a core competency. In 2003, process automation will become a standard service of portal frameworks. These will be tightly coupled with EAI and IEI (inter-enterprise integration) capabilities by 2005 (see ADS Delta 1134 and EBS Delta 1151).

Implications of Using a Portal’s Built-In Capabilities
Portals often provide process automation around content submission, but generally avoid business process automation that involves application access. Notable exceptions include ATG’s Scenario Server and vendors that also offer process automation products, such as SAP and Sybase. Process automation is best left to separate products unless the portal vendor has a core competency in process automation (distinguished by tools that enable business analysts to graphically depict and alter workflows, and include an approval cycle for process changes).

Implications of Leveraging a Separate Product
Unless a process automation product has been specifically integrated into a portal product by the portal vendor, it will not be feasible to leverage it in the portal other than by providing one-click access to it. EAI products often include a process automation layer that utilizes their underlying application connection capabilities (i.e., webMethods Workflow, Tibco BPM, SeeBeyond e*Insight Business Process Manager, IBM WebSphere Business Integration, Sybase Business Process Integrator Suite), though workflow can also be purchased that is independent of the EAI mechanism (i.e., SAP, Savvion BusinessManager, FileNET, HandySoft).

Bottom Line
Portals overlap many infrastructure services. Portal project managers must conduct an infrastructure impact assessment before purchasing a portal that determines which infrastructure functions the portal will subsume and which it will link to.

Business Impact: Leveraging existing investments will be key to the success of projects attempting to introduce a new form of personalized Web interfaces (portals).