

**Overview**

Portals are no longer just a nice-to-have technology – they are fast becoming a must-have technology in commercial and government environments around the globe.

IDC predicts the Enterprise Information Portal Software market will grow more than 50 percent to US \$1.4 billion by 2011.

Portals, as well as customer expectations of what portals can do, are maturing rapidly. The original concept of a portal addressed the need to publish information and knowledge to users via a Web page. Enterprises today are looking for a portal that provides more than static displays of back-end applications and information. Customers are looking to implement a sophisticated portal that provides data-level integration and secure access to fully interactive applications; customers expect to be able to share resources and information, in real time, within and between enterprises.

Customers are also demanding that portal implementations provide:

- single sign-on to a wide variety of applications
- application integration and content customization with little or no additional coding
- better security and protection of application servers
- coordinated workflow-based interaction between applications

enPortal, the industry’s only portal focused specifically on network management application integration, allows organizations to provide secure access to interactive back-end applications, implement consolidated single sign-on, and centrally coordinate interaction between applications – with little or no coding.

enPortal reaches well beyond the capabilities of existing portal solutions that focus primarily on document management, indexed searches, and static displays of data:

"Our clients have mission-critical networks," said Brett Rushton, VP of managed services at Calence, a full-service network integrator and managed service provider. "We needed a strategy to empower our clients ..., [to] provide customized information and develop recommendations on streamlining work processes. Edge’s enPortal gives us [that]."

**enPortal Architecture**

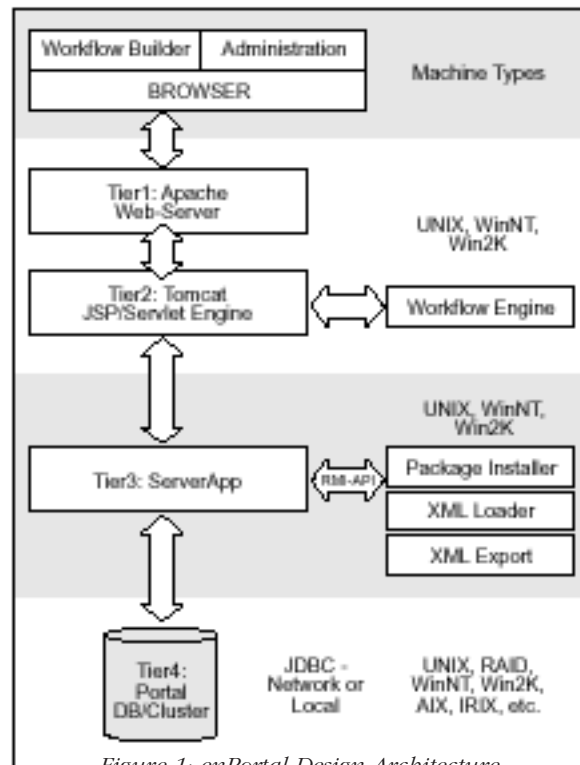


Figure 1: enPortal Design Architecture

### ***Design Architecture***

Edge enPortal is a standards-based, XML-driven portal application. enPortal was developed with Java 2 technologies to provide unparalleled flexibility, scalability, application and content protection, application interaction and complete platform independence. enPortal incorporates a multi-tier architectural model (see Figure 1). This provides great flexibility for deployment into various network configurations and is the foundation for the redundancy and scalability support.

Tiers one and two comprise the portal Web interface, web resource proxy, content filtering, and the integration engine (all discussed below). These are implemented using the Apache Web Server, the Tomcat Servlet/Java Server Page (JSP) engine and specific enPortal servlets and JSP components. Tier three comprises the enPortal core services and business object management, and is implemented within a Java application. Tier four provides persistence by storing enPortal configuration and business objects in an open, commercial, relational database. The database can be hosted on the same machine as tiers 1 and 2, or hosted separately on the network.

All components support maximum platform independence (UNIX or Windows), scalability, and overall system performance.

### ***Software Component Architecture***

The primary functions of enPortal are contained within five system components (Figure 2):

- Portal Request Engine
- Portal Server
- Integration Engine
- Web Resource Proxy and Content Filtering
- Portal Object Database

### ***Portal Request Engine***

The Portal Request Engine serves all requests coming from a user via a Web browser.

In fact, all external communications with an enPortal system are requested through the Portal Request Engine. The Portal Request Engine's primary responsibilities are to translate HTTP(S) requests into object requests and to dynamically translate the application-specific results into HTML for transmission to the client Web browser.

The Portal Request Engine executes within a Servlet/JSP engine; Java Servlets and JSPs are the primary components of the Portal Request Engine. The Portal Request Engine also provides an extra level of access security by verifying that the user is logged in to the system before accepting and servicing the request.

### ***Portal Server***

The Portal Server ("ServerApp") is responsible for the overall business logic of the system, enPortal's security, and the storage of system objects. These responsibilities pertain to users, roles, domains, virtual directory access, content management, and security and system/service objects.

ServerApp manages and stores system objects to a chosen object repository/database.

General access to these objects is provided through the internal enPortal system services.

This design methodology provides the flexibility and dynamic capabilities required of the enPortal framework for scalability, redundancy and fail-over support. In fact, enPortal can perform real-time adjustments for the requirements of users and the operational environment.

Access to the ServerApp core management capabilities is through Java's Remote Method Invocation (RMI) to the Application Programming Interface (API). All internal and external enPortal services are accessible through this API. The use of RMI allows for a highly flexible interface that may be distributed over any network element and across computing platforms.

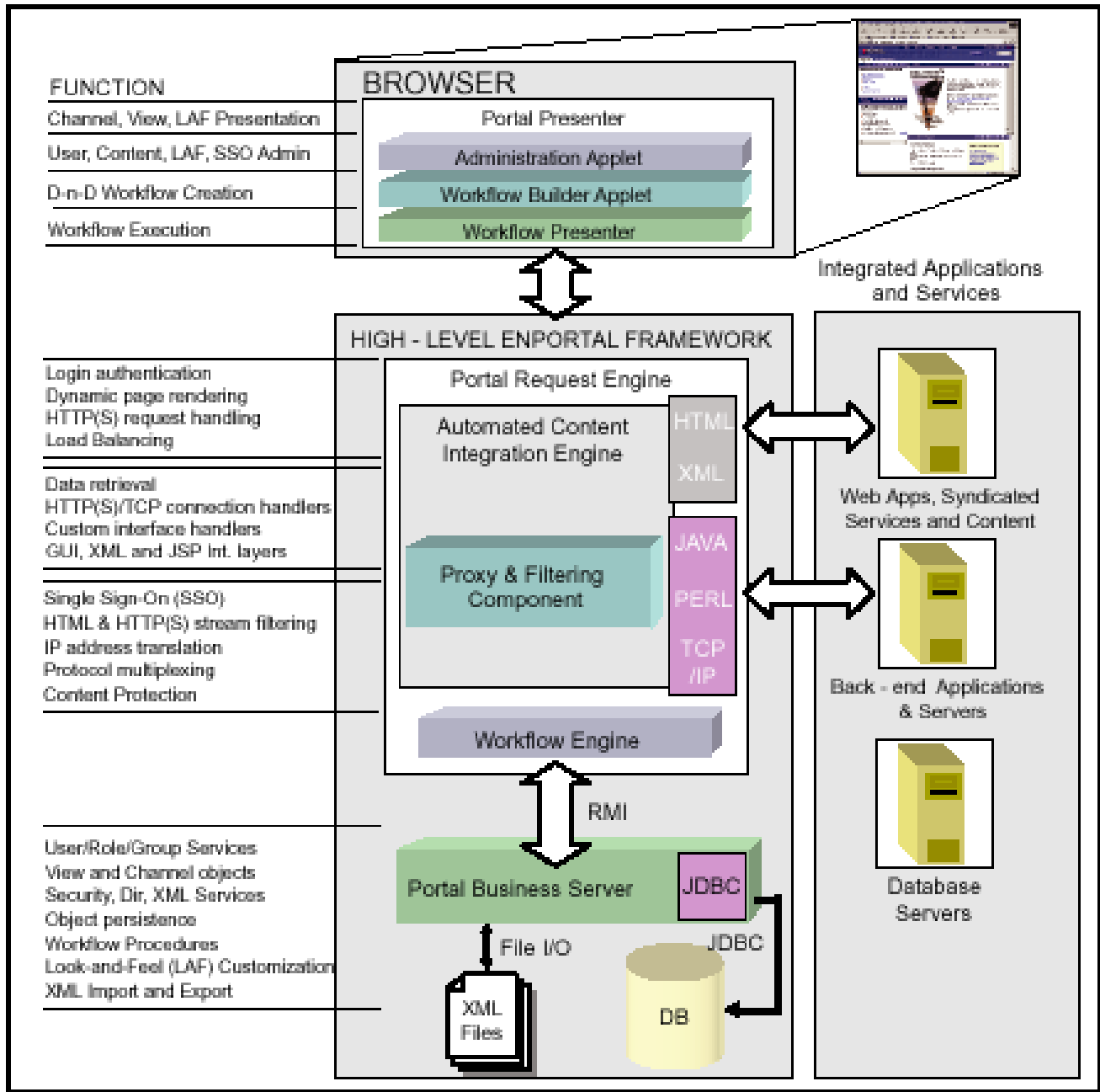


Figure 2: enPortal Software Component Architecture

### ***Integration Engine***

The Integration Engine allows new content Channels to be created and integrated into an enPortal system at runtime. The Integration Engine consists of a Channel classification model and a set of Request Handlers that are implemented as Java Servlets or JSPs. Request Handlers are the public web interfaces into enPortal Channels that service the Channel requests being made from web browser clients. The Integration Engine provides an external interface through the Portal Request Engine that allows HTTP(S) requests to be sent to any plugged-in visual Channel.

Upon receipt of a request to render a content Channel, the Integration Engine retrieves the specified Channel (if security allows it) from the Portal Server and calls the specified Request Handler to render the Channel content.

### ***Web Application Proxy and Content Filtering***

The Web Application Proxy and Content Filtering function facilitates the delivery of and interaction with existing HTTP(S)-based content. It is responsible for applying Single Sign-On (SSO) rules to the retrieval of external HTTP(S) requests, and for manipulating the resulting data streams being returned from an integrated application for control and data customization. The HTTP(S) stream manipulation support within enPortal is both extensive and configurable, and is available as a Proxy Channel. A potential example of the use of this function is the removal of an image from an HTML stream as enPortal delivers the HTTP(S) stream to the browser client.

### ***Portal Object Database***

The enPortal Database is a JDBC-compliant RDBMS, and it supports Sybase SQLAnywhere, Microsoft SQL Server Oracle, and MySQL. The enPortal Database handles mapping between the object-based data model used within enPortal and the relational database model that stores the actual content.

### ***Core Features/Capabilities***

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The five core software components of enPortal combine to provide advanced capabilities and significant benefits – many of which are unique to enPortal and not possible through other portal offerings.

enPortal offers a vast array of portal-solution features and functions (see "Additional Features" below). The core features/capabilities of enPortal include:

- Content Retrieval and Integration
- Advanced Security
- Single sign-on
- Proxy Technology
- Workflow Technology
- Dashboard Views

### ***Content Retrieval and Integration***

To get the most out of a portal, customers need the ability to integrate new content elements quickly and securely. Customers also need the ability to enable partners and other third parties to organize application services, multi-media streams, and web-based utilities into any number of user views – without complex software development.

To meet the challenge of integrating, controlling, protecting and multiplexing fully interactive back-end applications and content into a virtual portal desktop over private and public networks, Edge developed the Content Retrieval System.

An integral part of enPortal, the CRS detects, modifies, stores, and disseminates information being retrieved from web applications integrated through the enPortal framework. The CRS is designed to incorporate any number of fully interactive dynamic applications into a portal page view. From an administrative perspective, CRS manages user access and control to fully interactive applications and web content based on user, domain, and role.













