



Red Hat Web Application Framework: An Overview

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Abstract

The Red Hat Web Application Framework is a mature open source web application development framework built with J2EE technologies. This whitepaper gives an overview of the Web Application Framework's features and capabilities.

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What is the Red Hat Web Application Framework?

The Red Hat Web Application Framework is a platform for writing database-backed web applications in Java. Applications leverage Web Application Framework APIs to enable the authoring of persistent structured data and to retrieve and display the data as content. The framework also integrates services such as search, versioning, and permissions into its basic objects, enabling applications to leverage framework services with little or no extra work.

Web Application Framework domain layer models basic concepts such as users, groups, and permissions and has been proven and refined on hundreds of production deployments. A user interface (UI) framework, a UI component library designed for the rapid development and reuse of web user interfaces, and a powerful object-relational persistence engine are also part of the framework.

This technology is the result of years of experience developing data-centric web applications for clients such as Dunkin' Donuts, Siemens, Deutsche Post, The World Bank, Oracle, Hewlett-Packard, MIT, WGBH, and Carrefour. It is a one-stop platform for building applications with compelling UIs and feature-rich foundations.

Why use the Red Hat Web Application Framework?

Open, Standard Architecture

The Web Application Framework reduces the amount of time, effort, and resources required to develop and maintain data-oriented web applications. Moreover, the framework is an open architecture based on commonly accepted standards (e.g., Java, XML, XSLT, JAAS, Servlet, JSP, JDBC) and technologies (e.g., Junit, Ant, Log4j, Saxon, Xalan, Xerces, Lucene), enabling any experienced J2EE developer to rapidly learn the system.

The Red Hat Enterprise Applications engineering team constantly evaluates new technologies on the dimensions of maturity, capability, and standards. Current technologies being evaluated include JSF, JDO, EJB 2.0, Jabber, JSPTL, Struts, and JSR 168 (Portals). When a technology meets Red Hat's criteria, the technology is adopted in the framework and Red Hat provides a migration path for customers using the Web Application Framework.

This best-of-breed approach to adopting and integrating technologies enables customers to focus on solving their business problems. Thus, adopting Web Application Framework as the standard development infrastructure for data-oriented web applications is the best way to ensure that development is not locked into a proprietary, dead-end architecture. This approach dramatically reduces technology churn and risk since Red Hat's engineering team assumes the responsibility of identifying the appropriate technologies, integrating the software, testing these technologies, and providing migration paths for existing customers to the latest technology.

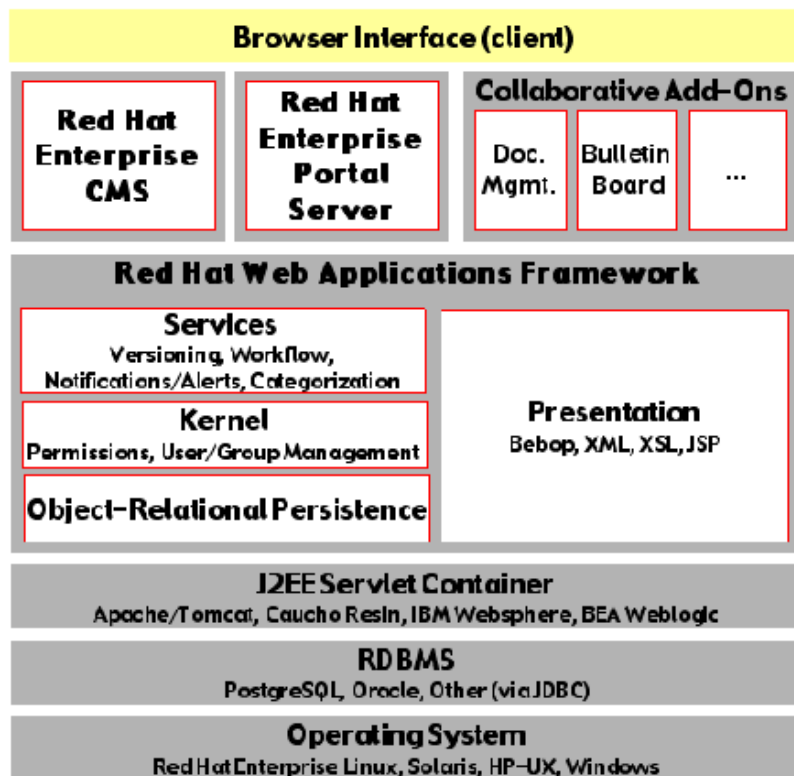


Figure 1 – Red Hat Web Application Framework

The Web Application Framework is typically deployed in an n-tier architecture and uses proven, standard technology. At its base, the framework runs on any operating system with a modern (1.3.x or later) Java environment. The persistence engine supports Oracle 8i, Oracle 9i, and PostgreSQL 7.2.x, and the entire system runs in any standards-compliant servlet container, including Apache Tomcat 4.x, Caucho Resin 2.1.x or later, and WebSphere 4.0.4 or later. By using standard technologies, the framework can be easily deployed within existing enterprise infrastructures, leveraging existing hardware, software, processes, and people.

Relevant Domain APIs

Virtually all data-oriented web applications have a common set of basic requirements. These requirements include user management (e.g., secure user login, password recovery), group management, and permissioning. The Web Application Framework includes all of this functionality, refined through hundreds of production deployments, freeing developers to focus on the needs of their specific application.

In addition to a basic set of services, web applications typically have two other important similarities: they store important data in a relational database and they interact with users via a web-based user interface. A sophisticated object-relational persistence layer automatically manages how Java objects are stored in the database. The persistence layer, by generating optimized SQL from metadata, drastically reduces the amount of effort required to model and refactor database schemas or support additional database architectures.

The Web Application Framework also includes a component-based web presentation framework, Bebop, that enables developers to extend existing UI components or build new components that can be reused throughout an application. Bebop also interoperates with JSP and XSLT, enabling developers to choose the most appropriate technology for a particular business problem.

Finally, a breadth of domain services such as versioning, categorization, and full-text search is provided. Any application written on top of the Web Application Framework can transparently and immediately take advantage of these basic services.

All of these systems have been used in production environments, a process that has refined APIs, identified subtle bugs, and improved performance and scalability. In addition, Red Hat dedicates documentation, QA, and scaling resources to continuously test and improve the quality of the framework.

Web Application Framework has an open, documented set of APIs that also makes it possible to upgrade the platform. This enables developers to upgrade their development platform to obtain the latest performance and bug fixes, features, and documentation.

Community

Red Hat is committed to the open source community model of development. Web Application Framework is open source, which gives developers maximum flexibility in understanding and extending its capabilities. The community around Enterprise Applications enables future versions of the Web Application Framework to leverage the lessons and code built by other developers for other projects. Red Hat Enterprise Applications engineering team continuously merges code contributed by community members, code developed for Red Hat professional services engagements, and our customers.

Summary

Red Hat Web Application Framework is an open source, Java framework for building database-backed web applications. By continuously adopting and integrating the best open source Java technologies into a common, cohesive platform, the framework enables businesses to reduce the time and effort required to deliver sophisticated web applications.

For more information about Red Hat Web Application Framework or open source applications available for the Web Application Framework, please see our website at <http://www.redhat.com/software/rhea> or contact us at +1 866-273-3428 x41005.