

Paper 184-25

**Middle-Tier Web Exploitation with Java Technologies**

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**ABSTRACT**

This paper provides an overview of middle-tier exploitation of Java technologies for developing Web applications. It starts with a discussion on the merits of middle-tier Web architectures, followed by an overview of Java server technologies, and concludes with an example that ties these concepts together.

The products and technologies covered in this paper include SAS Integration Technologies, LDAP, Java Servlets and JavaServer Pages™. To help understand these products and technologies, this paper provides a brief description for each. Common usage scenarios are provided where applicable.

**INTRODUCTION**

Over the last eighteen months there has been an explosion of software development kits (SDKs), tools, and runtime environments for middle-tier exploitation of Java technologies. This explosion has allowed for the development and acceptance of middle-tier Java Web applications.

Initially, Java Servlets were introduced as a replacement technology for CGI. A Java Servlet is a Java program hosted by a servlet engine running on the Web server. A Java Servlet benefits from the rich APIs available to Java programs, maintains state for the lifetime of the user's interaction with the Web application, and has runtime characteristics that result in improved responsiveness.

Next, JavaServer Pages were introduced as the presentation layer for Web applications. JavaServer Pages make it easy to surface dynamic Web content by combining a markup language, such as HTML, with a scripting language, such as Java, and a set of standard directives and actions. JavaServer Pages can be used stand-alone or in combination with one or more Java Servlets to build powerful Web applications.

The latest Java technology, Enterprise JavaBeans™, is being released as part of the Java 2 Platform, Enterprise Edition (J2EE™). Enterprise JavaBeans defines the component model for J2EE applications. A J2EE application may also make use of Java Servlets and JavaServer Pages.

With these new technologies, it is now possible to write portable Web applications that take advantage of the middle-tier Web architecture. This architecture provides a centralized control point that makes it easier to enforce security rules, administer the Web applications, and manage code changes. It also provides a layer of abstraction that allows heterogeneous clients (e.g. Web browser, custom application, etc.) to interface with the same application logic.

There are also advantages for the end user. First and foremost, they can have a personalized user experience. This includes customizing what they see and how they see it. Interaction with a Web application typically involves running a Web browser and one or more ubiquitous desktop viewers. Since the user is not required to install an application on their computer, they are free to run the Web application from any computer, not just their personal computer.

A business intelligence portal Web application is being developed at SAS Institute that ties all these technologies together and shows how powerful they truly are. This Web application uses SAS Integration Technologies, LDAP, Java Servlets and JavaServer Pages to present content to authorized users. The content that is available to users includes, but is not limited to, archives published to channels using the Publishing Framework, data sources, ad hoc reports, and site-specific content.

**REFERENCES**

To find this paper in it's entirety on the Web:

<http://www.sas.com/rnd/itech/papers/JavaMiddleTier.html>

**CONTACT INFORMATION**

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