

Abstract

Of the Master Thesis

Authentication Framework for Application Servers Based on JAAS Specification

Student: Svetlana Dimova Stancheva, FN M21352

Major: Informatics

Specialization: Distributed Systems and Mobile Technologies

Scientific Coordinator: Boyan Bontchev, Assoc. Prof., PhD

Date: 21th February 2007, Sofia

Key Words: authentication, JAAS, Java Authentication and Authorization Service, Pluggable Authentication Module, authentication for web applications, Single Sign-On

Master Thesis Annotation: The main objective of this master thesis is to develop an authentication framework for web applications based on JAAS.

The first part of the master thesis deals with research of JAAS interfaces and the opportunities that they offer. Additionally, it contains description and analysis of the built-in authentication mechanisms of some of the popular application servers.

The second part describes the design and the implementation of an own authentication framework for web applications. Several major problems related with the integration of JAAS specification with the application servers' functionalities are being analyzed and solved:

- Determination of the user in J2EE application after authentication with JAAS where more than one principal might be added to the subject;
- Determination of the authentication mechanism via the login module stack and via the declared authentication type according to Servlet specification in conjunction;
- Configuration of login module performing some finalizing work, which should be executed regardless of which of the sufficient authentication mechanisms has succeeded;
- Enablement of the usage of JAAS for programmatic authentication from web applications for authentication to application servers.

The authentication framework can be used as a model for implementing the corresponding functionality for all application servers. It gives the applications a way

to perform their authentication in a standardized way. Additionally, it provides functionality for plugability of the authentication mechanisms. The framework is integrated with the server and is consistent with the requirements in the Servlet specification.

The master thesis suggests an extension to JAAS specification via adding a new control flag, which would make the configuring of the different authentication mechanisms more flexible.

The authentication framework project is implemented using Java 5.0 as programming language and SAP NetWeaver Application Server 7.10 as application platform.