SUMMARY

of the Master Thesis

Application of Kerberos protocol
for authentication of users
to application servers

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Key Words: Kerberos, SPNego, GSSAPI, JAAS, SSO, Authentication for web servers, Integrated Windows authentication

Objective of the master thesis: Application of Kerberos protocol for authentication against application servers via integrated Windows authentication.

Tasks:

- Examination of the main features of the Kerberos protocol and the approaches used by it for solving the main problems in providing secure authentication.
- Examination of the GSSAPI programming interface and the JAAS specification in the part regarding authentication of users.
- Examination of the SPNego protocol for authentication of users.
- Implementing a JAAS login module based on the SPNego protocol.
- Implementing a simple Web application used for testing the login module. The login module must authenticate the users registered in a Windows domain when accessing the test application. The test application displays the name of the authenticated user. The displayed name is the one used for logon to the Windows domain.
- Examination of the cases when this authentication approach is applicable depending on the JDK versions, the different web browsers, etc. Examination of the problems during configuration and application of this authentication approach.

Annotation of the master thesis:

The first part of the master thesis focuses on:
- Kerberos protocol
- GSSAPI programming interface used to integrate Kerberos into applications
- SPNego protocol used in the fundamentals of the integrated Windows authentication with Kerberos

The second part describes the implementation of the login module.The main chapters are:
- Design of the implementation
- Description of the main class implementing the login module and its relation to the other classes in the library

- Examination of the specifics during configuring the 3 machines in the authentication scenario using the login module
- Description of the tests done by using the test application
- Examination of the main problems when this specific Kerberos authentication scenario is used.

Conclusion:

The master thesis completes the specified tasks. It offers a solution to the problem of applying Kerberos by using SPNego protocol. The library offered here provides a specific JAAS login module. This library was designed, implemented and tested on the SAP NetWeaver Application Server 6.40. The description of the library does not depend on the specific platform used during the tests of the login module. The master thesis makes a suggestion of a future improvement and extension of the library. It offers a creation of an abstract login module following exactly the features described in the exposition of the master thesis. By extending this abstract login module the programmers developing software for other servers will be able to integrate the same authentication mechanism to their specific platforms.