Smart Card Authentication and Authorization Framework (SCAF)
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Problem Description
- User credentials are not intrusion protected and are not portable
- Service-oriented computing environments are not secure
  - Mutual authentication does not scale with large number of requestors
  - Authorization is does not scale with large number of services

Smart cards are needed to provide reliable credentials for mutual authentication and authorization in Service-Oriented Environment.

Objective/Approach

Objectives:
- Select CA to support PKI infrastructure
- Define use cases for SCAF
- Define user credentials for SO Computing
- Architect SO environment for SCAF
- Design the framework for authentication, authorization, and non-repudiation
- Design a service requestor and provider to validate SCAF

Approach:
- Deploy CA to issue provider/requestor credentials
- Populate requestor credentials on smart card
- Develop and deploy SCAF in the SORCER environment
- Develop a service-oriented application: Bulletin Board
- Validate the framework with the Bulletin Board application

Schedule

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<th>Activity</th>
<th>Date</th>
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<tbody>
<tr>
<td>Background research</td>
<td>10/07/2004</td>
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<tr>
<td>Smart card implementation</td>
<td>10/15/2004</td>
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<tr>
<td>Authentication and identification</td>
<td>10/25/2004</td>
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<td>SSL endpoint implementation</td>
<td>11/15/2004</td>
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<td>Requestor authorization</td>
<td>11/30/2004</td>
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<td>Proposal presentation</td>
<td>12/20/2004</td>
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<td>Verification/CA deployment</td>
<td>12/25/2004</td>
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<td>Thesis defense and demo</td>
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Benefits

- Safeguarding user integrity, passwords are safely stored on smart cards
- Preventing credential intrusion
- Scalability for unlimited number of providers/requestors
- Cost effective with own CA
- Reliable authentication in SO frameworks
- Flexible multilayered authorization using JAAS
- Secure communication between ServiceUI and Service Provider
- Trusted zero install requestor ServiceUI with JavaCardLoginModule