# Security Policy Management in Federated Systems
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THESIS DESCRIPTION

- Java Virtual Machine (JVM) security policy can be modified even by unauthenticated and unauthorized personnel in a federated metacomputing system
- Managing policies stored on each JVM in the metacomputing system doesn't scale
- Centralized policy management systems generate one-point failure
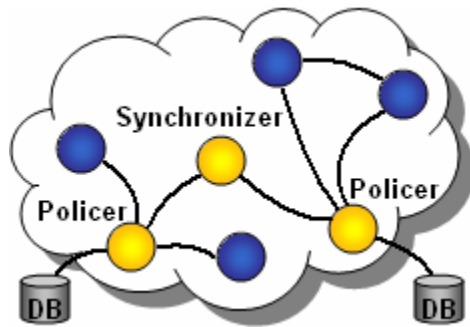
Centrally and securely managed policies but stored in multiple replicated providers are needed in metacomputing systems.

OBJECTIVE/ APPROACH

Objective

- Service-oriented security policy methodology for centrally managed, scalable and distributed policy management in metacomputing systems.

Approach

- Define data structures and storage representation for centrally managed policies
- Define policy management framework requirements
- Define security requirements for authorized administrators
- Develop the policy service provider (Policer)
- Develop the policy base synchronization service provider for replicated Policers (Synchronizer)
- Develop the policy management interfaces with enforced authentication, authorization and confidentiality
- Validate the policy management methodology and framework using the SGrid environment

SCHEDULE

1.	Literature review	09/01/06
2.	Design of data structures for policy representation	09/15/06
3.	Requirements for policy management framework	10/15/06
4.	Security requirements for authorized administrators	10/25/06
5.	Developed Policer service provider	12/05/06
6.	Developed Synchronizer service provider	01/10/07
7.	Developed policy management interfaces	01/30/07
8.	Thesis proposal	03/05/07
9.	Validation of policy management methodology in SGrid	03/05/07

BENEFITS

- Uniform authentication and authorization for all service providers
- Uniform access control for all service providers
- Ease of updating and maintaining centrally managed policies
- Consistency and integrity of policy information
- Friendly user interface to create and update policies
- Scalable policy management system
- Self-healing policy management system
- Autonomic policy management system