On Certificate Issuance and User ID Management in the NAREGI Grid Middleware Integrating the Shibboleth

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The National Institute of Informatics (NII) and nine supercomputer centres in Japan constructed a grid environment and started pilot grid operation using the NAREGI grid middleware. Nine supercomputer centres provide each computational resource for the grid environment. NII operates a certificate authority and manages intensively user IDs of grid users for grid certificate. With drastic increase of the number of grid users at starting production grid operations, it is expected that the certificate issuance service will unravel. The paper presents a system for certificate issuance and user management integrating the Shibboleth. By using the Shibboleth ID federation mechanism, the system simplifies the certificate issuance service and reduces the cost of the user ID management. In the proposed system, the certification authority becomes a service provider in the Shibboleth system, and each supercomputer centre provides the certificate authority with user ID of system accounting. Also, we discuss a MICS (Member Integrated X.509 PKI Credential Service) profile playing an important role in the proposed system.