RENKEI: Middleware Enabling Resource Federation for e-Science

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E-Science is a new scientific research methodology to process multidisciplinary data using advanced information technology in order to achieve new scientific discoveries. Utilizing various distributed resources, e.g. computers, storages, databases and applications, is required for e-Science, and the grid is one of the key technologies.

Many research efforts for grid technology have been done to federate distributed resources over network. However, there still exist barriers for more resource federation. For instance, it is hard to federate computers operated in grid environment and local computers that are not operated with grid middleware. There also exists a barrier between grid infrastructures operated with different middleware.

REsources liNKage for E-sclence (RENKEI) is a research and development project for new middleware technologies to enable e-Science. "RENKEI" is Japanese word meaning "federation". The goal of the project is to develop middleware to federate/share resources (computers, storages, databases and applications) distributed among multiple organizations, such as research laboratories, national computer centres and international grids. The project is organized by four groups, which develop middleware focusing on computing resource federation, data sharing, database federation and application interface, and one group focusing on building a testbed for the developed middleware. This talk presents an overview of the project and the latest results.