GridSpace2 - Comprehensive Platform for Managing e-Science Applications

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Objectives

- Provide convenient web interface for managing e-science applications throughout their entire life-cycle including prototyping, authoring, sharing, operation, and evolution
- Provide generic interface to heterogeneous computational resources including PCs, private clusters, supercomputers, grid
- Allow for specifying and publishing e-science applications in a portable execution environment-agnostic format

Solution

Experiment Workbench

As a single user entry point to the GridSpace2, the Experiment Workbench facilitates exploratory writing, running and managing e-science experiments. URL-accessible experiments and their results can be shared, published and catalogued as any other web resources.

Experiment

E-science application is composed of code fragments called snippets, expressed in either general-purpose scripting programming language (e.g., Python, Ruby, Perl, Bash etc.), domain-specific language (e.g., quantum chemistry problem specification, nanostucture description) or purpose-specific notation (e.g., for drawing plots). Snippets are evaluated by respective programs called interpreters.

Computational Resources

Behind the scenes a tremendous computational capabilities are enabled to be used by scientific applications including public e-infrastructure sites and private clusters. Depending on processing and interactivity demands the computations can be submitted to the server, cluster, grid e-infrastructure or executed within a user’s web browser.

References