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GridSpace2: Virtual Laboratory in World-Wide Web

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Impact

GridSpace2 may prove helpful in authoring computational experiments owing to its web-based and straightforward user interface. The experiments can be then easily shared by the communities internally or publicly. Also, web mash-ups that mix web content with runnable experiment and preview of relevant data files can be created.
Having the virtual experiments made available in such way they are suitable to reproduce and reuse, or can be even used as an executable scientific publications. At the same time, GridSpace2 is interoperable with existing middleware (EMI) and easily installable on top of existing e-infrastructures what makes it a potentially interesting solution for EGI community members.

Summary

GridSpace2 is a novel virtual laboratory platform enabling researchers to conduct computations on distributed computing resources of various types, from single computers, through clusters, to Grid. GridSpace2 facilitates exploratory and interactive development and execution of virtual experiments. With fully web-based user interface virtual experiments along with all data involved therein are pervasively accessible, publishable, and manageable as web resources. Owing to its extendable, open and customizable architecture GridSpace2 can span various types of computing facilities, diverse scientific software packages, utility tools and resources into a single and collaborative problem solving environment that is immersed in the World-Wide Web. This positions GridSpace2 as a platform that can supplement EMI middleware, enabling Web-based access to high-throughput computing, sharing and combining the power of grid systems. GridSpace2 has been developed and supported in the scope Pl-Grid.

URL

https://gs2.plgrid.pl

Description

In GridSpace2, virtual experiment is a workflow composed of code Snippets that are invoked on the Interpreters installed on the underlying e-infrastructure by dedicated Executors. Interpreter is an abstract notion embracing all general-purpose programming language interpreters, compilers, launchers, as well as domain-specific programming languages introduced by scientific software tools. Executor is a client of a computing facility capable of managing computations and data. Executable, in turn, represents an Interpreter as installed on a given Executor. Intentionally, virtual experiments carry information on what Interpreters are required to launch the code Snippets but without specifying the Executors, thus, the experiments are highly re-usable and multi-instantiatable: the computations can be distributed in a way and on resources of user's choice. The abstraction layers and extendable architecture of the GridSpace2 allows for plugging-in various kinds of computing back-ends as remote single computers, sites, or Grid brokers. The Interpreters and Executables only needs to be properly configured and no client software modules are required in this regard.

`GridSpace2 is accessible through a web gateway of Experiment Workbench. This web application allows for au`

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