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Managing deployment and activation of Web Applications in a distributed e-Infrastructure

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The gCube framework is a flexible tool for managing e-Infrastructures. Its enabling technology, i.e. the lower layer gluing together the e-Infrastructure resources, has been recently extended to feature the management of Web Applications. This work was stimulated by a use case expressed by the FAO community calling for the design and implementation of a solution to inject Web Applications (by means of WAR archives) into the existing gCube-enabled infrastructure, namely D4Science. Initially designed to remotely instantiate/remove Web Services and Java Libraries on a single and specific remote hosting environment, the gCore container, the gCube deployment technology has been largely empowered to manage virtual platforms. The virtual platform is an extendible model for transparently interfacing a potentially unlimited number of hosting environments. The resulting gCube enabling technology is capable of dynamically instantiating platforms (along with their resources) compliant to such a model. When new software designed to run on a specific platform is detected, a virtual image of the target platform is created, then the software is moved to the remote server and deployed and activated there. Following their activation, newly running units (what they really are depends on the concrete hosting environment) and their entry points are published in the gCube Information system. In such a way, they are discoverable both by humans and interested clients. Importantly, from being part of the gCube Deployment Model, Web Applications can be uploaded once and deployed many times, shared across multiple Virtual Organizations and Virtual Research Environments. The first implementation of virtual platform targets the Apache Tomcat container by building on top of its Client Deployer library and interfacing the Tomcat Manager service.

Duration (90min sessions)

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Primary authors: Mr MANZI, Andrea (CERN); Mr SIMI, Manuele (ISTI-CNR); Dr PAGANO, Pasquale (ISTI-CNR)

Presenter: Mr MANZI, Andrea (CERN)

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