

# WORKS'10 Hot Topics discussion

DCIs interoperability at workflow level

J. Montagnat, CNRS



# Achieving DCIs interoperability

- Increasingly needed
  - Distributed computing technologies maturing and no single-solution-match-them-all
  - Intercontinental scientific collaborations (genome sequencing, LCG...)
- Middleware interoperability level
  - Security layer (X509 / GSI / Network of trust)
  - Middleware services interoperability: few successes (GridFTP protocol), but not so many broadly used standards (e.g. OSG / EGI work on interoperability)



# Achieving DCIs interoperability

- Interoperability from top
  - Multiple grid submission facilities (SAGA...)
  - Workflow-based applications
- Workflows as abstraction to DCI
  - Workflow system = workflow language + workflow execution environment
  - Provides a programming model
  - Shields the user from the infrastructure details
  - Can implement transparent inter-operability



# Different grain of interoperability at workflow level

- Hierarchical (nested) workflows
  - Interface between multiple engines
- Multi-grid application services
  - Multiple submission and data management interfaces (invasive for the workflow system)
  - Or grid bridge: transform submission requests (non-invasive)
- Language-level
  - Pivot language

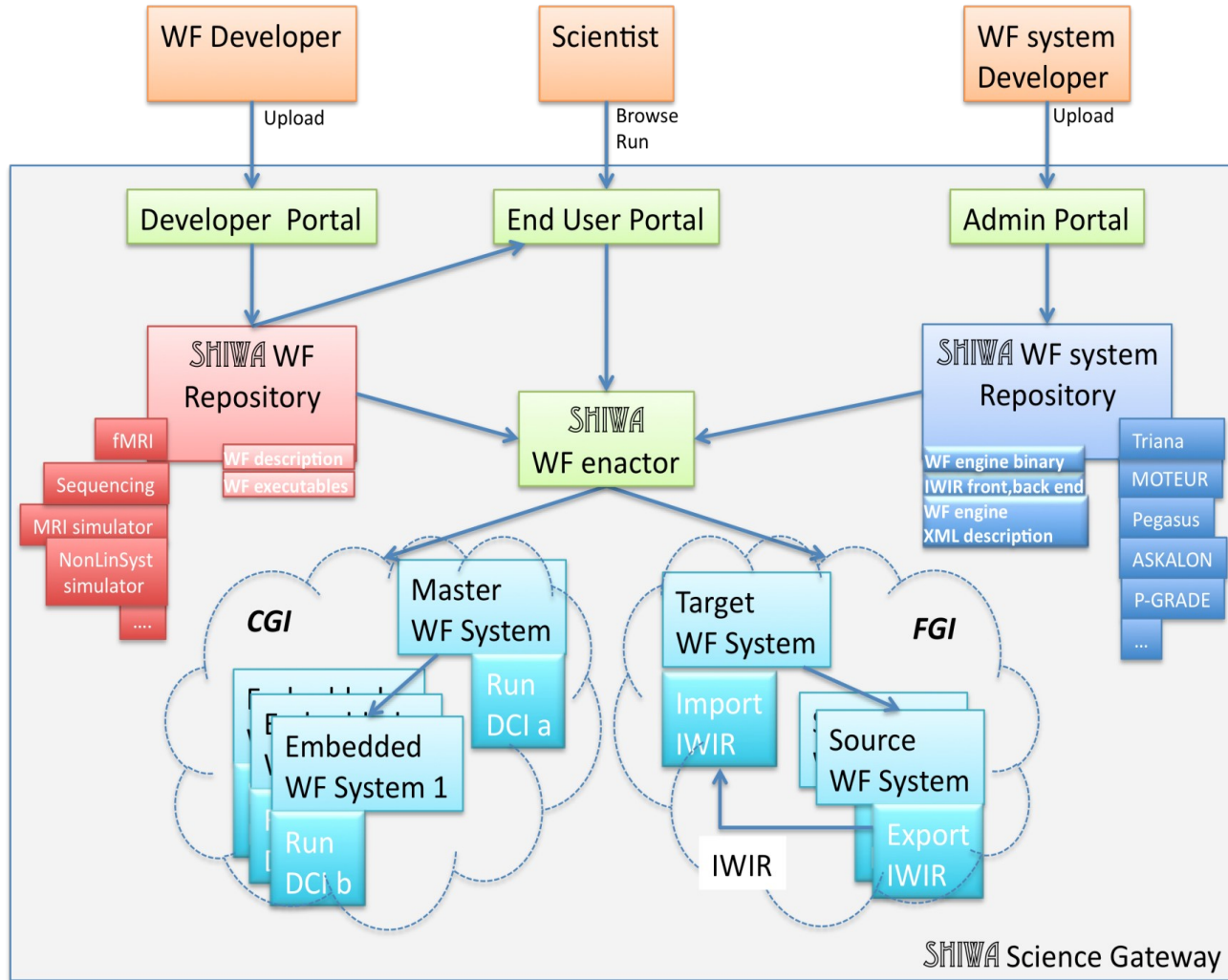


# SHIWA EU project

- Two years project (July 2010 – June 2012)
- Objectives:
  - To enable developing, publishing, searching and sharing workflows inside and through Virtual Research Communities (VRCs)
  - To achieve coarse- and fine-grained interoperability
  - To support VRCs in design and implementation workflows to run in-silico experiments
  - To improve interoperability among Distributed Computing Infrastructures (DCIs) at workflow level
  - To simplify access to DCIs to run workflows on multiple DCIs



# SHIWA platform



DCIs interoperability at workflow level