WRENCH: A Simulation Workbench for Scientific Workflow Users, Developers, and Researchers

Research Prototype

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https://wrench-project.org

Simulator for WMS Development

WRENCH User API

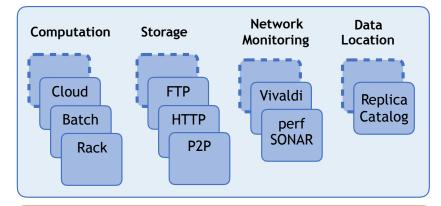
Makeflow

Moteur

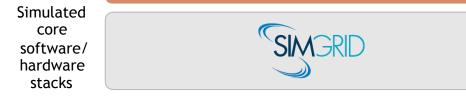
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WRENCH Developer API



SimGrid::S4U API



Pegasus

Simulated production

and

prototype WMSs

Simulated

core CI

services

MOTIVATION

- **♦ Scientific Workflow** applications are important
- ◆ But applications, software infrastructures, hardware platforms are complex
- ◆ We need a solid experimental science approach to understand all this
- → Yet real-world experiments have limited scope

OBJECTIVE

- ◆ Realize workflow execution simulation that is accurate, fast, and scalable
- ◆ Useful to
 - ◆ Domain (workflow) scientists
 - ♦ Workflow Manager Systems (WMS) developers
 - ◆ Educators

APPROACH

- → Build on the decades of research and development in the SimGrid project
- → Implement the software stack on the left