RCE – Distributed, Workflow-driven Integration Environment

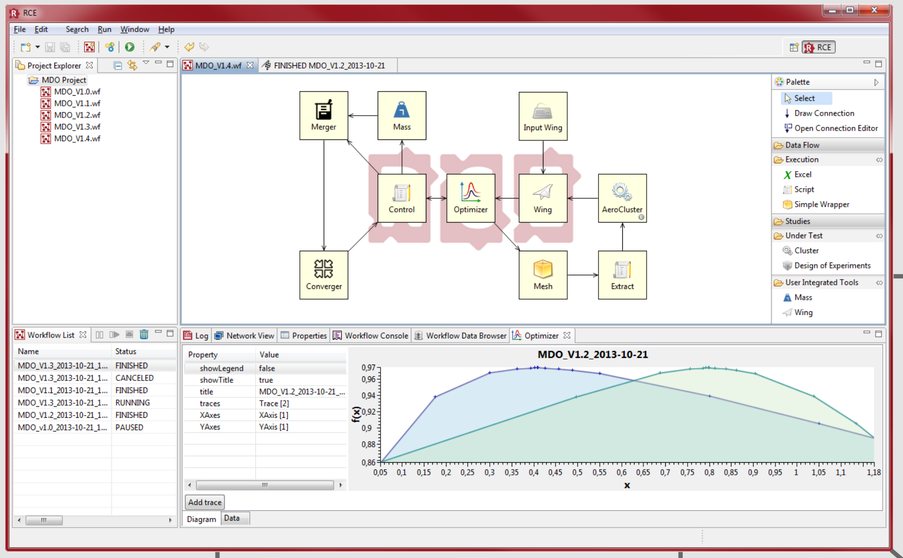
www.rcenvironment.de

RCE (Remote Component Environment) is an integration environment for scientists and engineers to analyze, design, and simulate complex systems like aircraft or satellites. It is especially suited for multidisciplinary collaboration.

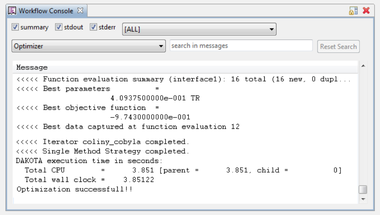
Handling complex systems requires many experts and several tools for analysis, design, and simulation. Using RCE, these tools can be shared between team members and integrated into automated, executable workflows.

RCE is extensible and supports different scientific applications with a wide range of requirements. It is open source, published under the Eclipse Public License (EPL) and built upon the Eclipse Rich Client Platform (RCP).

BUILT ON eclipse™



Integration

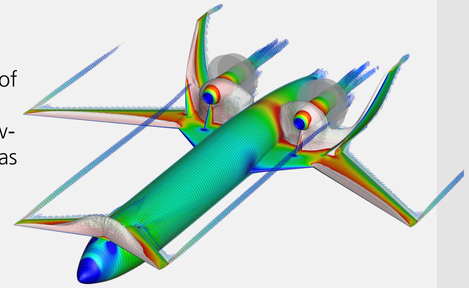


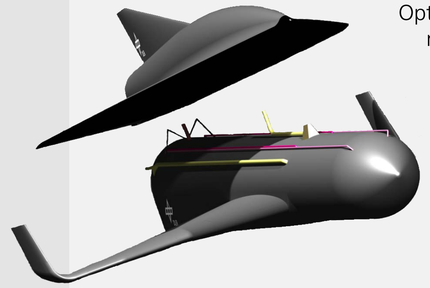
Coupling of external tools into workflows is a central feature of RCE. Each tool has to be integrated once and can then be accessed using standardized inputs and outputs.

Most tools can be integrated by configuration. Console output is merged and can be streamed to multiple users.

Applications

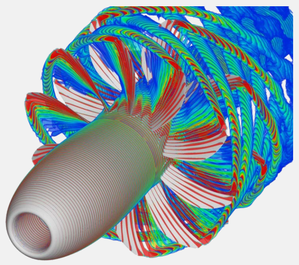
Overall design of future aircraft considering low-fidelity as well as high-fidelity methods.



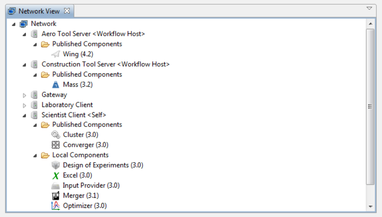


Optimization of the thermal management system of spacecraft for atmospheric re-entry, such as the Space-Liner, a concept between aviation travel and space travel for ultra fast passenger transport.

Multidisciplinary optimization of turbine blades considering aerodynamics, structure, material, and casting qualities.

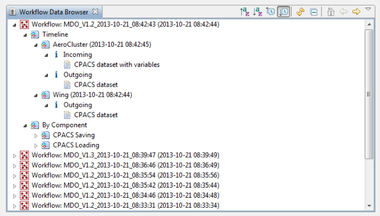


Collaboration



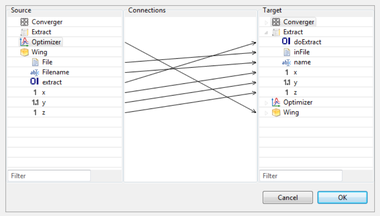
In complex analysis, design, or simulation tasks, multiple experts and tools are involved, which are often located at different sites. To support collaboration, RCE connects tool servers and clients of scientists and engineers into a peer-to-peer network.

Data Management



For scientists and engineers, result data of an analysis, design, or simulation task is essential. Results are generated by the tools of a workflow during execution. RCE collects all data from the involved tools and provides it in a graphical viewer.

Automation



Tools are coupled into workflows by connecting outputs of one tool to inputs of other tools. A tool is executed by RCE once all required input data is available. Tool and workflow execution is automated. No user interaction is required during execution.

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