

ESTECO technologies

# Distributed Execution

## Speed up your design process with smart use of your hardware and software resources.

*Executing design optimization strategies and complex simulations comes with heavy computational loads that may slow down the entire design process.*

With the ESTECO Distributed Execution technology available in VOLTA and modeFRONTIER, you can **configure, monitor and manage local and remote computing resources** and run your studies in parallel. Distribute the computational load across different platforms to streamline and accelerate your product development process.



**REDUCE  
COMPUTATIONAL  
TIME**



**MAXIMIZE  
IT INVESTMENT**



**MONITOR YOUR  
PROCESS**



**KEEP YOUR  
DATA SAFE**

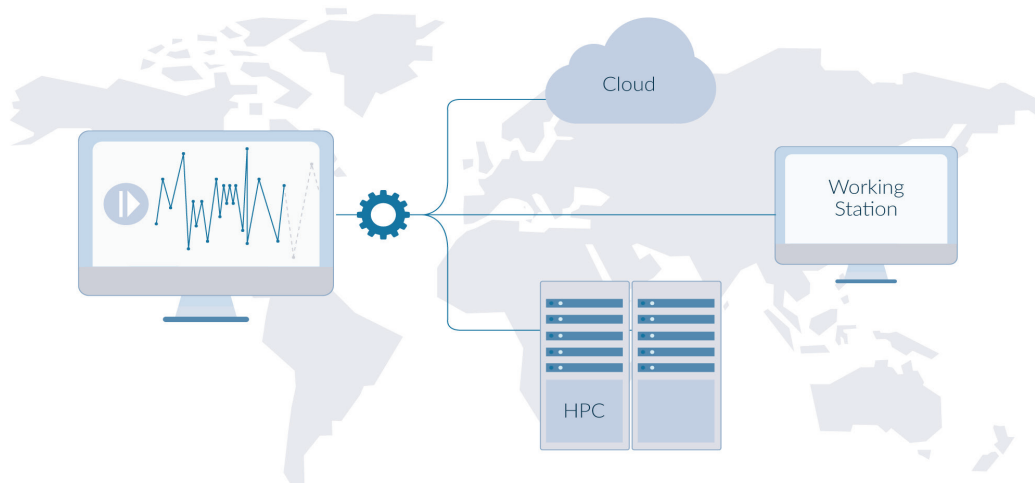


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## Exploit all available computational resources to efficiently explore your design space.

Optimization processes often require a high computational load, different OS or simulation software installed on other machines. With the ESTECO execution engines, you can automatically **distribute the workload through HPC, cloud computing, parallel execution and grid computing**. The distribution is directly managed by the IT department, while **the design team keeps working on a single and reliable machine**.

### HPC AND CLOUD COMPUTING - connect with remote resources



Distribute the process execution on remote resources. Connect with resource management systems, like LSF and PBS, and **execute your workflow on your private HPC**. Access flexible private, hybrid and public clouds and support fluctuating workloads.

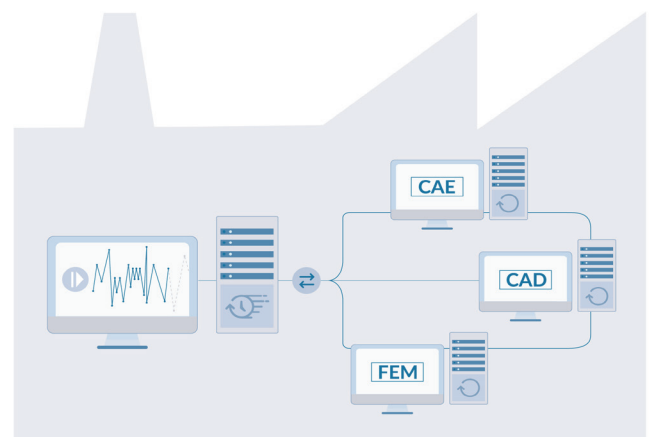
### PARALLEL EXECUTION fully exploit your workstation

Execute your workflow in parallel using all available cores of your local machine. Shorten turnaround time with **task partition** and **simultaneous design execution**.



### GRID COMPUTING access local network machines

Run your project on an integrated system of workstations. Leverage software licenses and computational resources installed on other machines and **distribute the workload on a machine grid**.



## Increase the efficiency of the entire product development process.



### Make the most of your computing resources

Connect your IT assets and save money. Make the best use of **third party software licenses**, use computational resources of other machines during off-peak hours and efficiently execute workflows requiring **different operating systems**.

### Run your processes faster

Reduce the computational time required to run simulations, explore the design space or apply optimization strategies. With the smart use of all available computing resources, you can **partition heavy workloads into smaller tasks** and dramatically reduce the overall turnaround time.



### Monitor resources and results

Monitor your project run in real time. Get a complete **view of the state of the execution** and of the usage of computational resources. Don't wait for the entire execution to be completed and **see run-time results** as soon as a task is completed.

### Keep your data in a secure environment

Communicate with distributed resources, both local and remote, through standard and secure communication protocols. **Execute your project in your own security context** and keep your data safe.



The automatic process, developed using modeFRONTIER, enabled us to use up to 400 cores for each design, significantly reducing the computational time from 10 hours to about 40 minutes.

Luna Rossa Challenge

**modeFRONTIER**

The complete solution  
for process automation and optimization  
in the engineering design process

**VOLTA**

The collaborative web platform  
for Simulation Process and Data Management  
(SPDM) and design optimization

Design better products, faster and more efficiently.  
ESTECO best-in-class engineering technologies help your company make  
the best use of simulation resources, data and processes.



OPTIMIZATION  
DRIVEN DESIGN



INTEGRATION AND  
PROCESS AUTOMATION



ENGINEERING  
DATA INTELLIGENCE



DISTRIBUTED  
EXECUTION



SIMULATION DATA  
MANAGEMENT



**EXPLORE DESIGN PERFECTION**

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ESTECO is an independent software provider, highly specialized in numerical optimization and simulation data management with a sound scientific foundation and a flexible approach to customer needs.

With 20 years' experience, the company supports leading organizations in designing the products of the future, today.

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