

# UNICORE

*HPC INTEGRATION*

JÜLICH SUPERCOMPUTING  
CENTRE



SECURE ACCESS TO  
HPC FROM WEB-BASED  
APPLICATIONS



## TECHNOLOGY DESCRIPTION

UNICORE provides a set of software components for building secure distributed and federated computing infrastructures, integrating diverse and heterogeneous HPC and data storage systems. UNICORE is used to access high-performance computing systems and high-capacity storage systems from web applications and end-user client applications. It offers easy to use and flexible RESTful APIs for batch job management, data access, data movement and computational workflows. UNICORE integrates seamlessly into existing HPC infrastructures, and provides many options for user management.



UNICORE PROVIDES A COMPREHENSIVE SET OF SERVICES AND RESTFUL APIS FOR FEDERATION AND INTEGRATION OF HPC RESOURCES



SECURE, HIGHLY FLEXIBLE, WIDELY CONFIGURABLE SOLUTION, LEAVING THE RESOURCE OWNERS IN FULL CONTROL

## AREAS

HPC | Simulations | Integration | Workflow



## COMPETITIVE ADVANTAGES

- Simplify end-user access to HPC resources
- Improve time to solution by integrating HPC into your applications and workflows
- Enable automated and reproducible scientific workflows
- Enable hybrid HPC/cloud workflows
- Leverage high-performance data transfer and a flexible security and permissions architecture

Enabling hybrid HPC/Cloud workflows



HPC backends



Storage



## APPLICATION & MARKET POTENTIAL

Integrate HPC and Cloud systems into novel, hybrid web-based applications



Connect compute and data resources across administrative domains

Create and run reproducible scientific computational workflows



## REFERENCES

UNICORE forms the backbone for the Jupyter service at Jülich Supercomputing Centre, providing user-friendly access to Jülich's world-class HPC resources  
<https://jupyter-jsc.fz-juelich.de>

The German company NanoMatch uses UNICORE as a foundation of their SimStack software for virtual materials design for organic electronics and device optimization  
<https://www.nanomatch.com>

## CONTACT

Bernd Schuller  
 Jülich Supercomputing Centre  
 Jülich, Germany  
[b.schuller@fz-juelich.de](mailto:b.schuller@fz-juelich.de)

Twitter:  
[@UNICORE\\_EU](https://twitter.com/UNICORE_EU)

## TECHNOLOGY READINESS LEVEL



Tech sheet designed and co-developed by Universidad Politécnica de Madrid

July, 2022