Human Brain Project

JÜLICH Forschungszentrum

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

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

Co-funded by the European Union

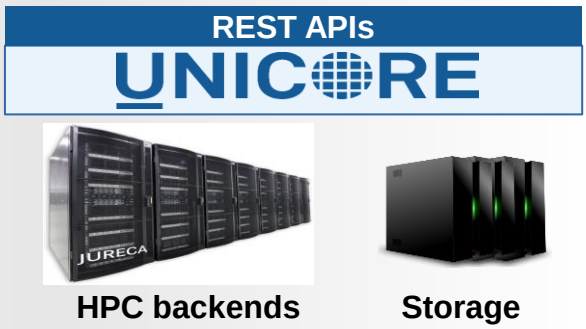
Human Brain Project

JÜLICH Forschungszentrum

COMPETITIVE ADVANTAGES

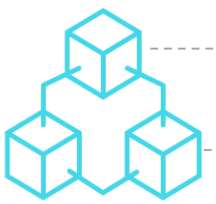
- Simplify end-user access to HPC resources
- Improve time to solution by integrating HPC into your applications and workflows
- Enable automated and reproducible scientific workflows
- Enable hybrid HPC/cloud workflows
- Leverage high-performance data transfer and a flexible security and permissions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

Enabling hybrid HPC/Cloud workflows



APPLICATION & MARKET POTENTIAL

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



Connect compute and data resources accross 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

TECHNOLOGY READINESS LEVEL

1 2 3 4 5 6 7 **8** 9

Co-funded by the European Union

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