FENIX

ICEI: HPC Centres Delivering Federated E-Infrastructure Services

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The ICEI (Interactive Computing E-Infrastructure for the Human Brain Project) project is funded by the European Commission under the Framework Partnership Agreement of the Human Brain Project (HBP). The five leading European Supercomputing Centres BSC (Spain), CEA (France), CINECA (Italy), ETHZ-CSCS (Switzerland) and JUELICH-JSC (Germany) are working together to develop a set of e-infrastructure services that will be federated to form the Fenix Infrastructure.

Goals

➢ Establish HPC and data infrastructure services for multiple research communities
➢ Develop and deploy services enabling federation

Architectural concepts

- Distinctive feature of Fenix Infrastructure: Data storage and scalable computing resources are in close proximity to each other and tightly integrated
- Focus on meeting the requirements of various science communities and support for community-specific platforms
- Federation of infrastructure services to enhance availability and optimise for data locality

Key services

- Scalable Compute Services (SCC)
- Interactive Compute Services (IAC)
- Virtual Machine (VM) Services
- Active Data Repositories (ACD)
- Archival Data Repositories (ARD)
- Authentication and Authorisation Infrastructure (AAI)
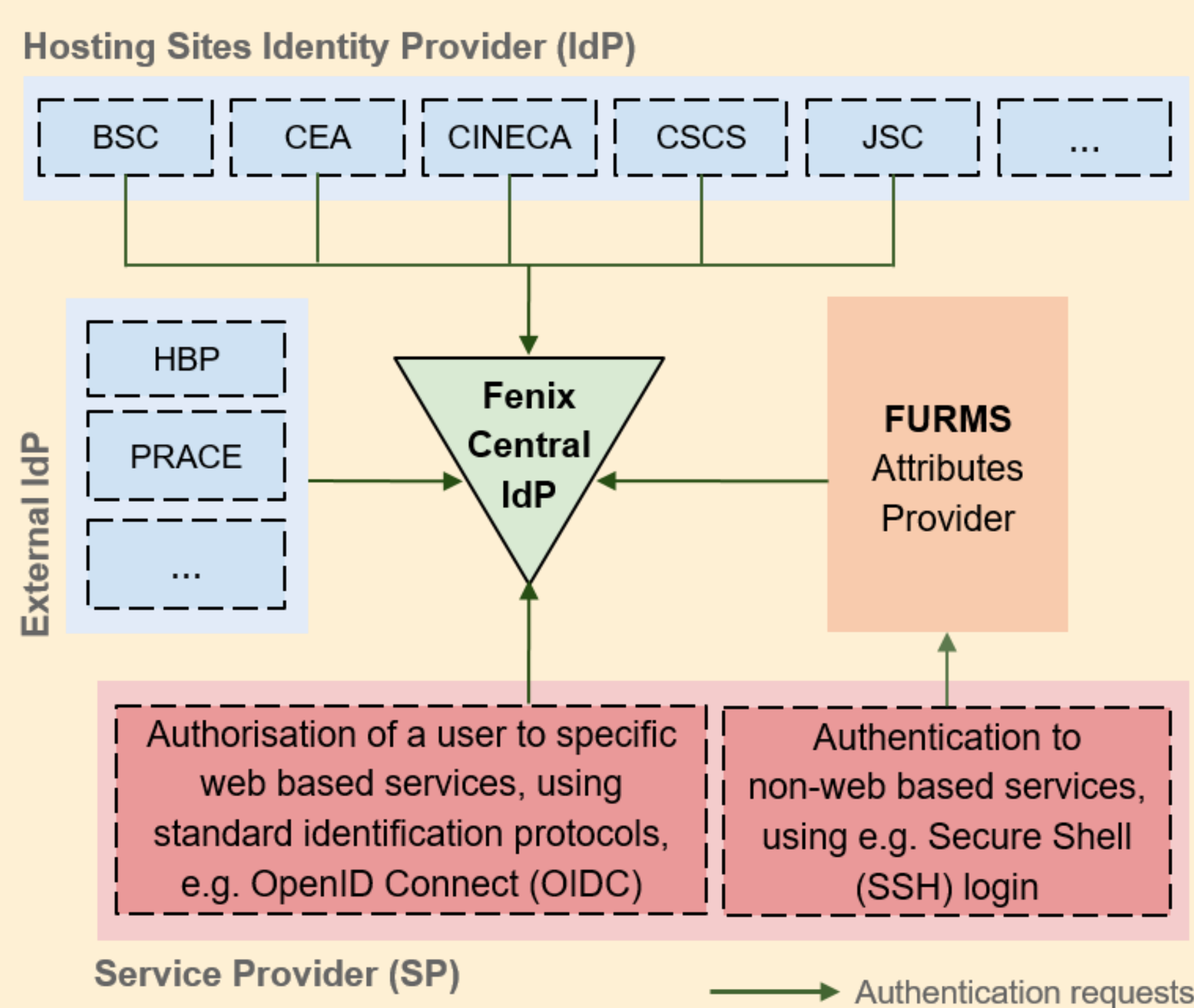- Fenix User and Resource Managements Service (FURMS)

User access and communities

- Community-specific allocation mechanism based on peer-review
- Brain research community through HBP (25% of resources)
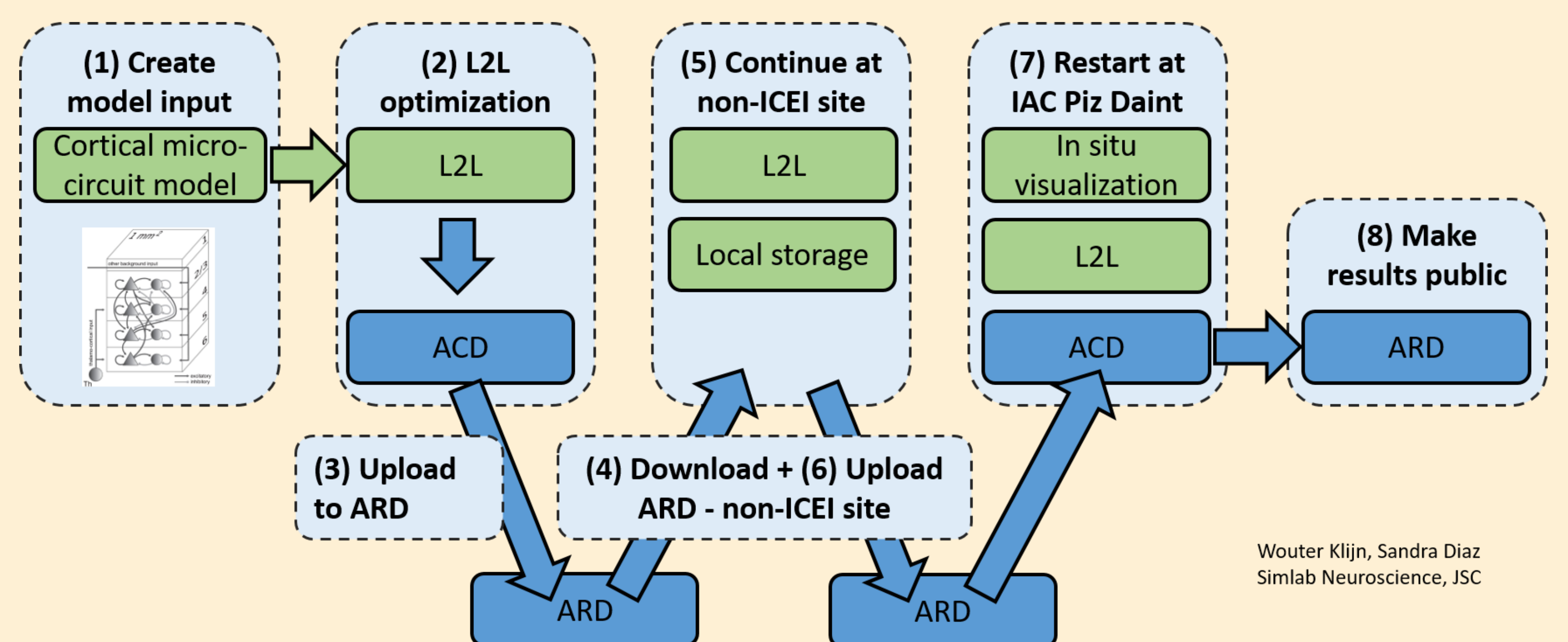- European researchers at large through PRACE (15% of resources)

Access to services of 5 leading European Supercomputing Centres

Fenix AAI

User example of workflow within ICEI/Fenix

Wouter Klijn, Sandra Diaz
Simlab Neuroscience, JSC

ICEI Demonstrator: Learning 2 Learn (L2L) of a cortical micro-column with reprocessing and long term archiving

Status and outlook

➢ Timeline: January 2018 - March 2023
➢ Current status:
  - Science/Use cases and architecture defined
  - Procurement of equipment started
  - Initial services provided at CSCS (SCC, VM, ACD/ARD)

➢ Next steps:
  - Deploy equipment at all sites
  - Realise federated infrastructure services

Barcelona Supercomputing Center
Centro Nacional de Supercomputación

ETH zürich

CSCS

CINECA

EPFL
ÉCOLE POLYTECHNIQUE FÉDÉRALE DE LAUSANNE

JÜLICH Forschungszentrum

cea