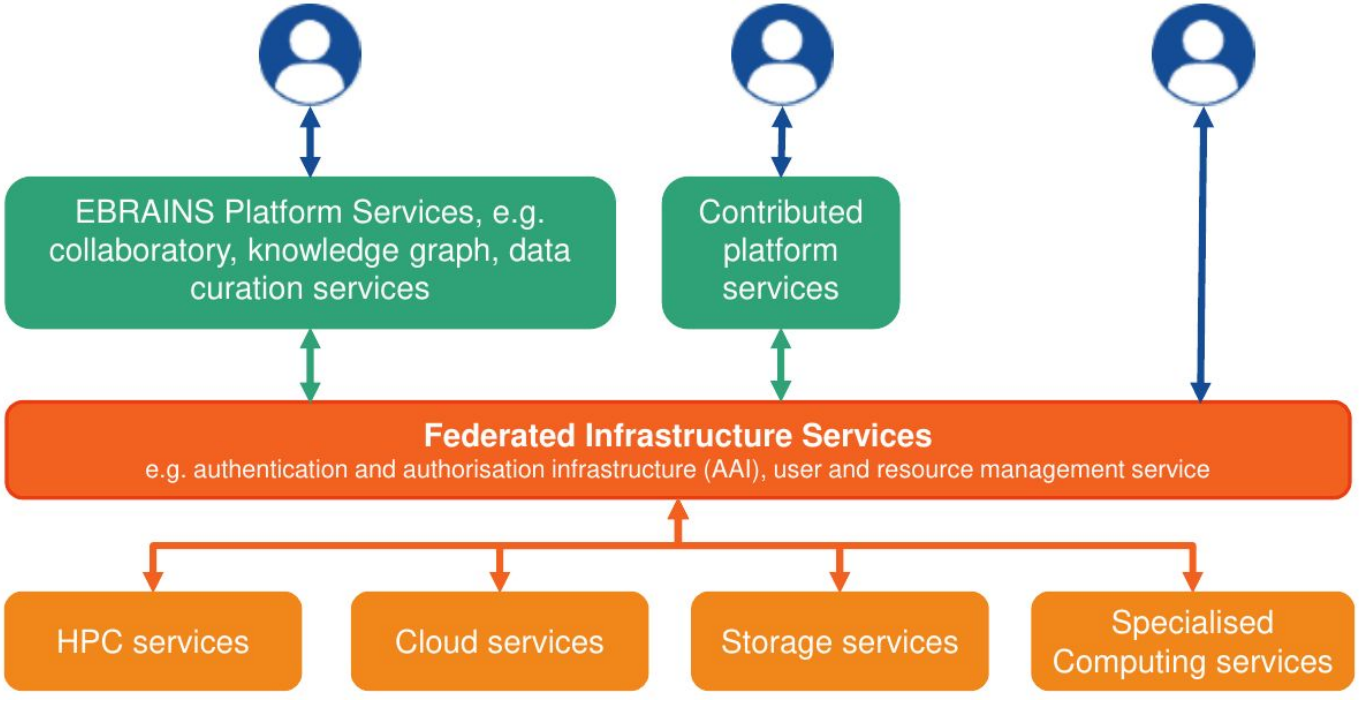
e-Infrastructure Services for EBRAINS

Dirk Pleiter (Jülich Supercomputing Centre)

Co-funded by the European Union

Conceptional Approach



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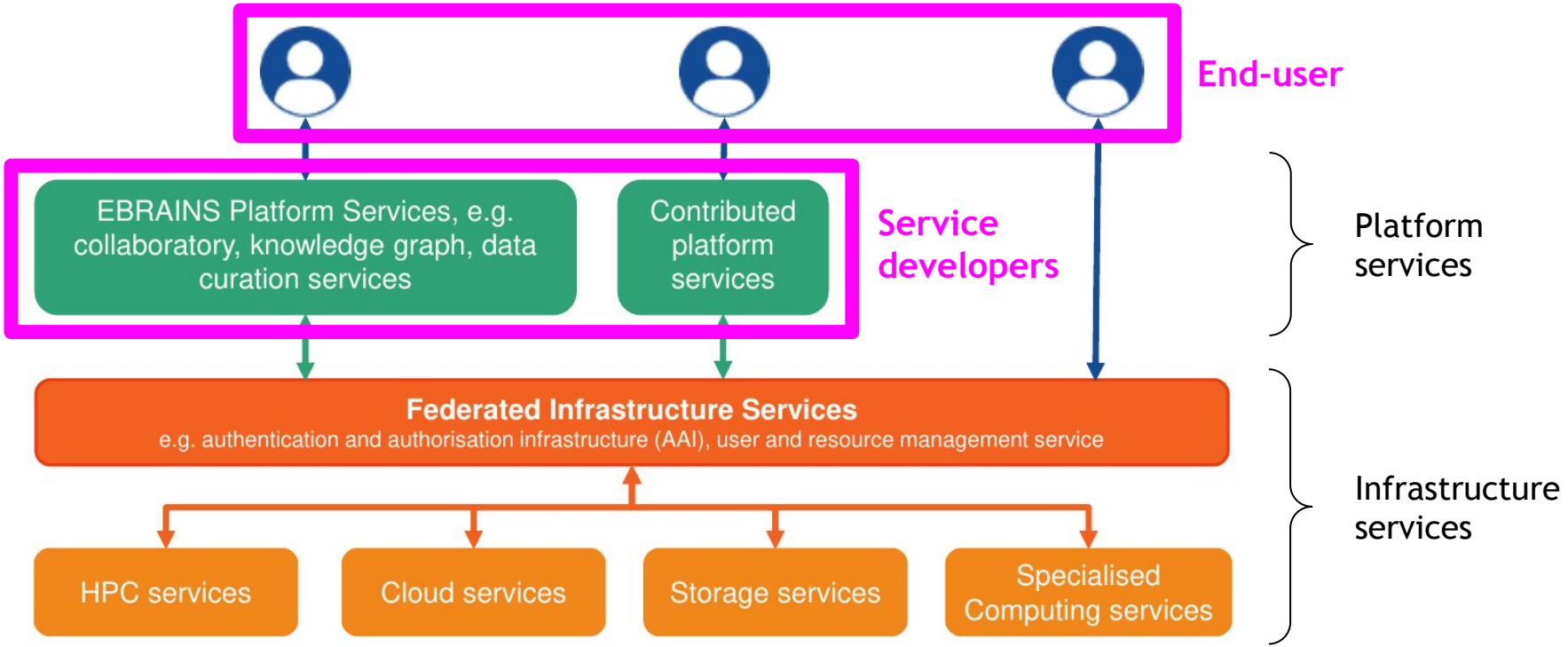
Target Audience



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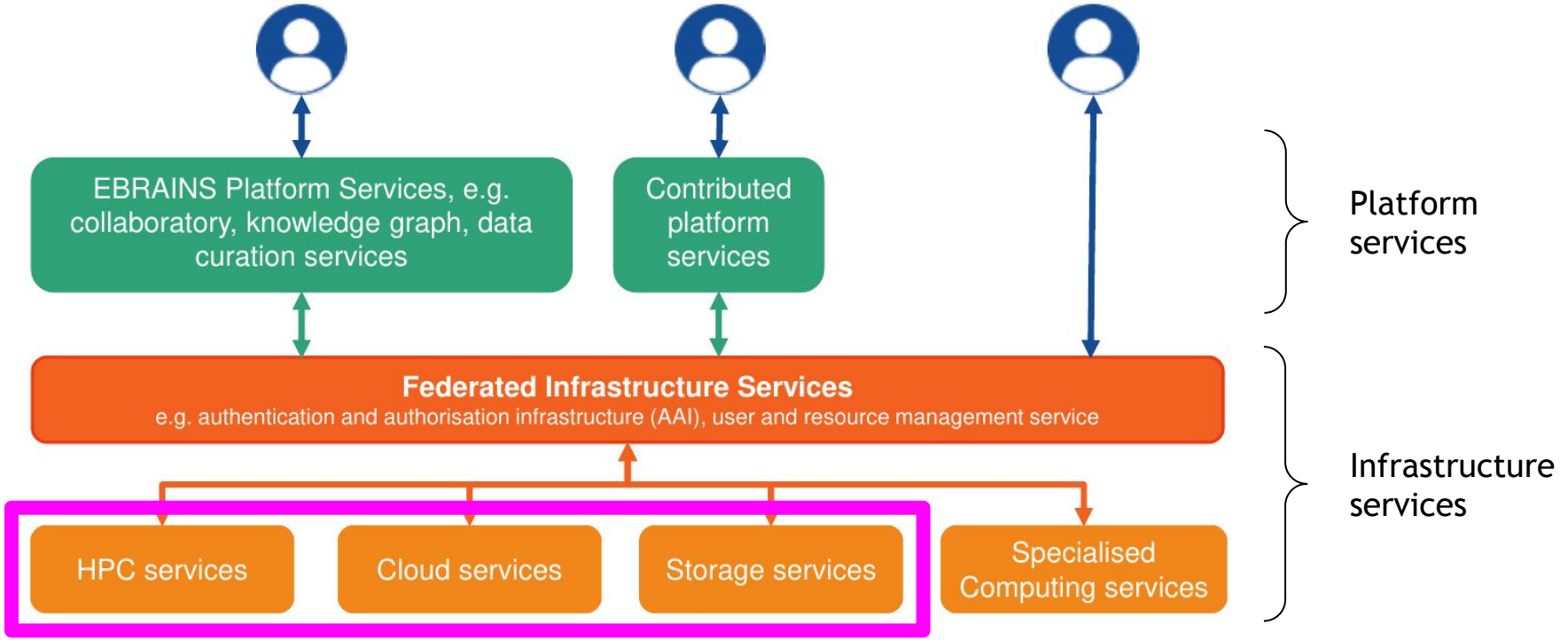
HPC, Cloud and Storage Services: Fenix/ICEI



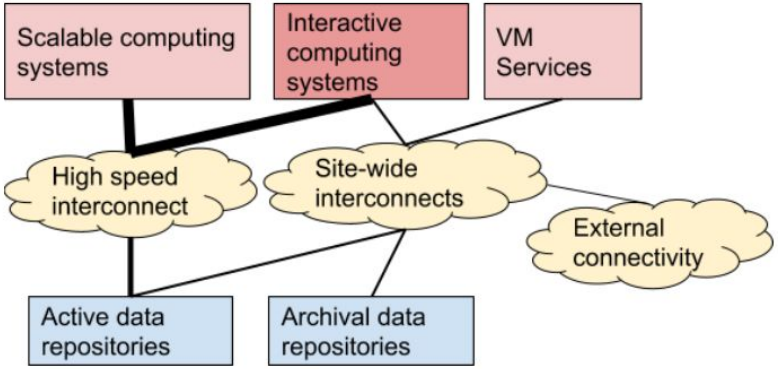
Fenix Resource Providers

- Partners providing resources today/soon
  - Barcelona Supercomputing Centre (Barcelona, ES)
  - CEA (Bruyeres-le-Chatel, FR)
  - CINECA (Bologna, IT)
  - CSCS (Lugano, CH)
  - Jülich Supercomputing Centre (Jülich, DE)
- Extensible to other sites
  - Not limited to supercomputing centres

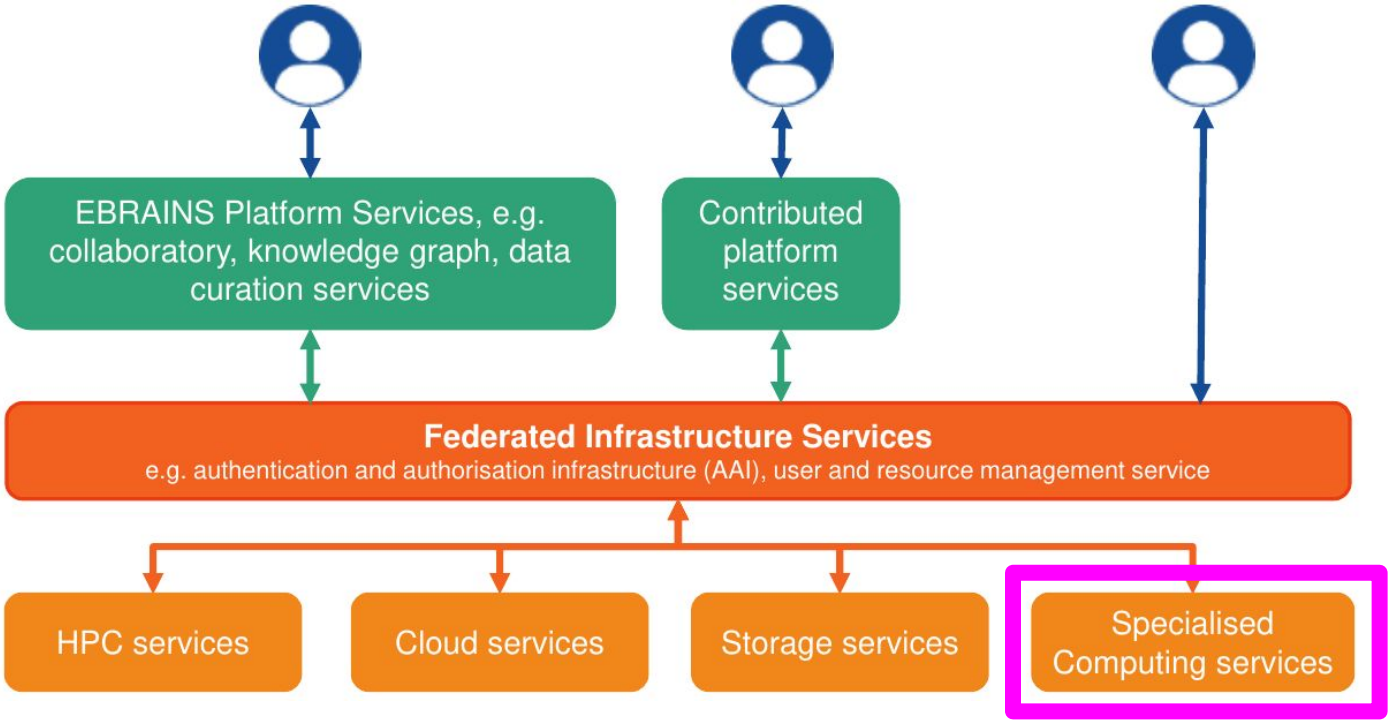
Key Fenix Services

- Computing services
  - Interactive Computing Services
  - Scalable Computing Services
  - Virtual Machine Services
- Data services
  - Active Data Repositories
  - (Federated) Archival Data Repositories
- Data Mover Services, Data Location and Transport Services

- Federation services
  - Authentication and Authorisation Services (AAI)
  - User and Resource Management Services (FURMS)



Specialised Computing Services: Neuromorphic Computing



Neuromorphic Computing Systems

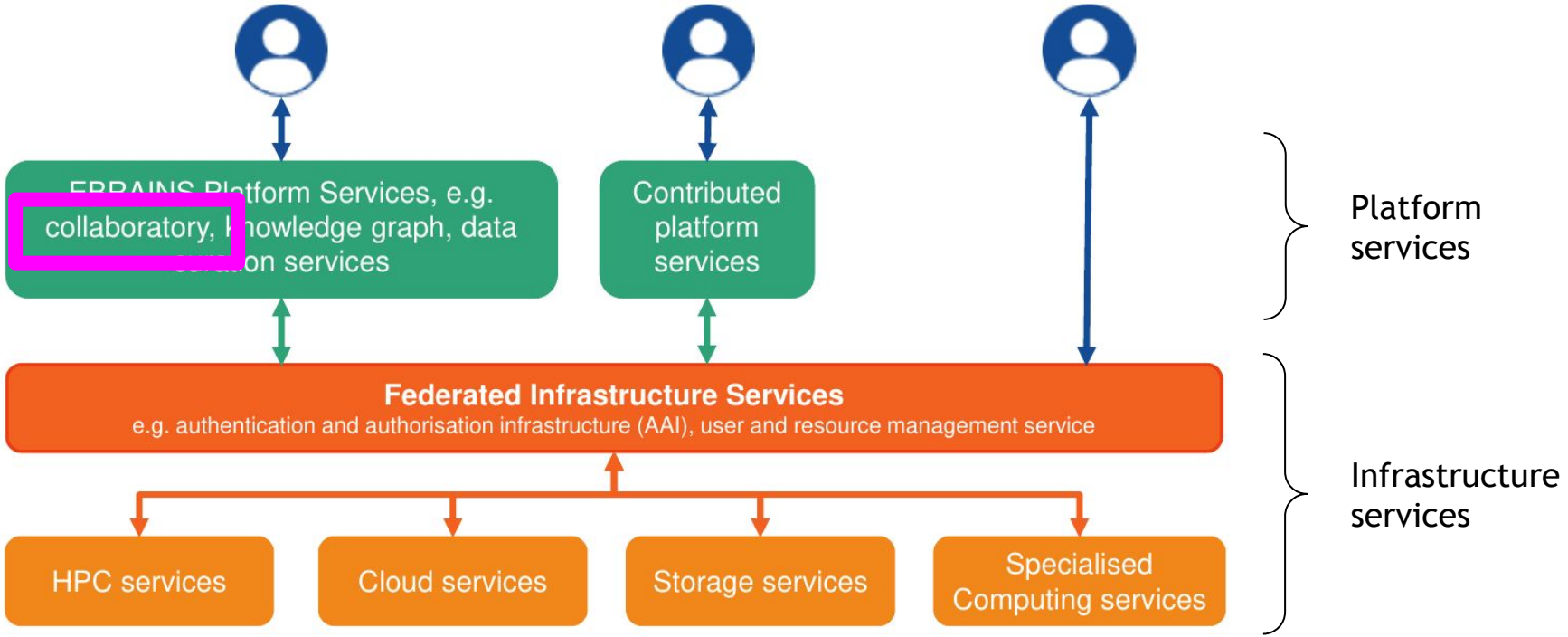
SpiNNaker at U Manchester

- Building block: SpiNNaker chip
  - Processor with 18 Arm cores
- Application-optimised communication network
- System with 1 million cores

BrainScales at U Heidelberg

- Building block: High Input Count Analog Neural Network chip
  - Analog computing devices
- Chips assembled in uncut wafer
- System with 20 wafers

EBRAINS Platform Service: Collaboratory



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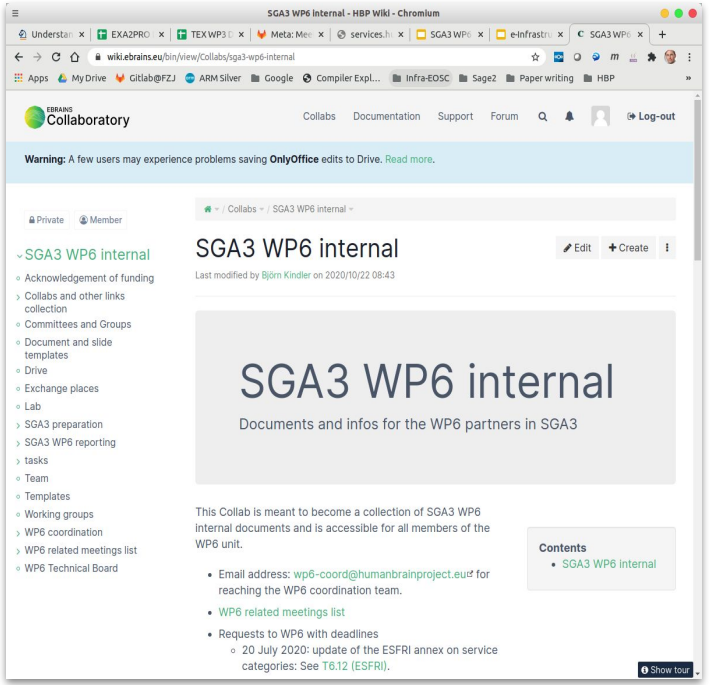
Collaboratory

- Central web-based gateway to the research infrastructure
- Provides controlled workspaces for collaboration and exchange
- Extensible framework that supports integration of Community apps



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Training Content

- Specialised computing services
  - SpiNNaker
  - BrainScales
- Platform service: Collaboratory
- HPC, Cloud and storage services
  - OpenStack
  - Scalable Computing Services (here: Piz Daint)
- Other topics
  - How to access Scalable Computing Services from the Collaboratory
  - How to get access to resources

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Workshop Organisers: WP6 EBRAINS Computing Services

- Objectives
  - Neuromorphic computing: Improved online, interactive Neuromorphic Computing (NMC) resources.
  - Federated infrastructure: Improved and adapted, operable and sustainable federated HPC, Cloud, storage and network infrastructure available to the EBRAINS community based on ICEI resources and services
  - Collaborative workspaces: Increased maturity of collaborative tools and improved integration into the infrastructure to lower the barrier to adopting the EBRAINS RI
  - ESFRI: Secured long-term sustainability of EBRAINS

Workpackage Organisation

- Task organisation
  - Technology and infrastructure development tasks
  - Infrastructure operation tasks
  - ESFRI preparation and EBRAINS Scientific Liaison Unit (SLU)
  - WP management
- Involved organisations
  - BSC, CEA, CINECA, ETHZ/CSCS, JUELICH/JSC
  - CNRS, UHEI, UMAN
  - EPFL
  - Other partners in the context of ESFRI

Contact Us

Management-Team:

Anna Lührs
JUELICH

Björn Kindler
UHEI

Maren Frings
JUELICH

Anne Nahm
JUELICH

Boris Orth
JUELICH

wp6-coord@humanbrainproject.eu

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Thank You

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