RESEARCH DATA ALLIANCE

## Health Data Interest Group @VP19

# The usage of digital twins in healthcare for personalised care

**20th June 2022, 7:00 - 8:30 UTC – Seoul, Dragon City Venue Complex**

**Co-Chairs: Edwin Morley-Fletcher, Yannis Ioannidis**

research data sharing without barriers

rd-alliance.org

# Federation Motivation



- Practical reasons
  - Cost of centralization too high
  - Volume of data too big and sensitive
- Privacy reasons
  - Sensitive data
  - Rules and regulations
  - Competitive advantage

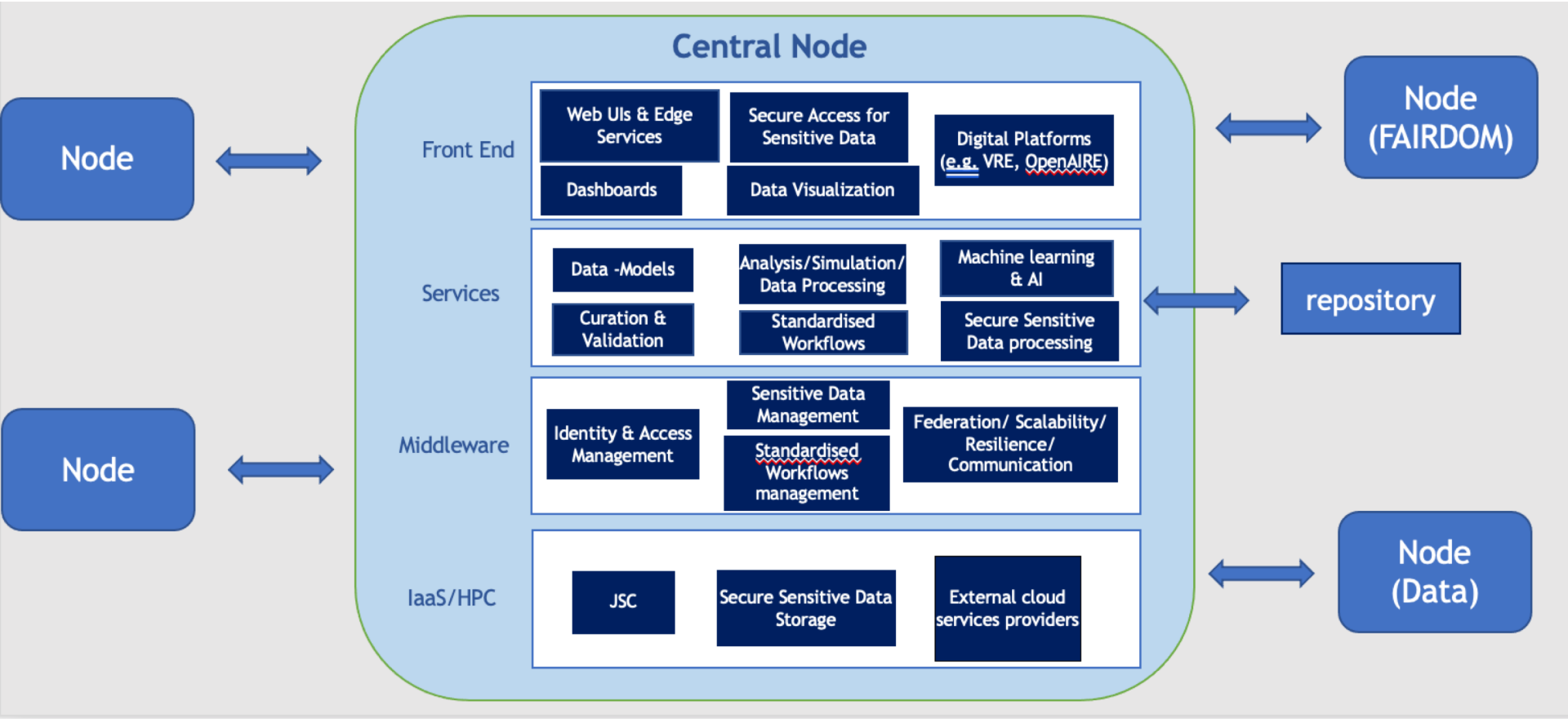
# Federated Platform



- Modelling and simulating health issues
- Exploit the experience of successful / established platforms
- Based on FAIR Principles

# Abstract Architecture





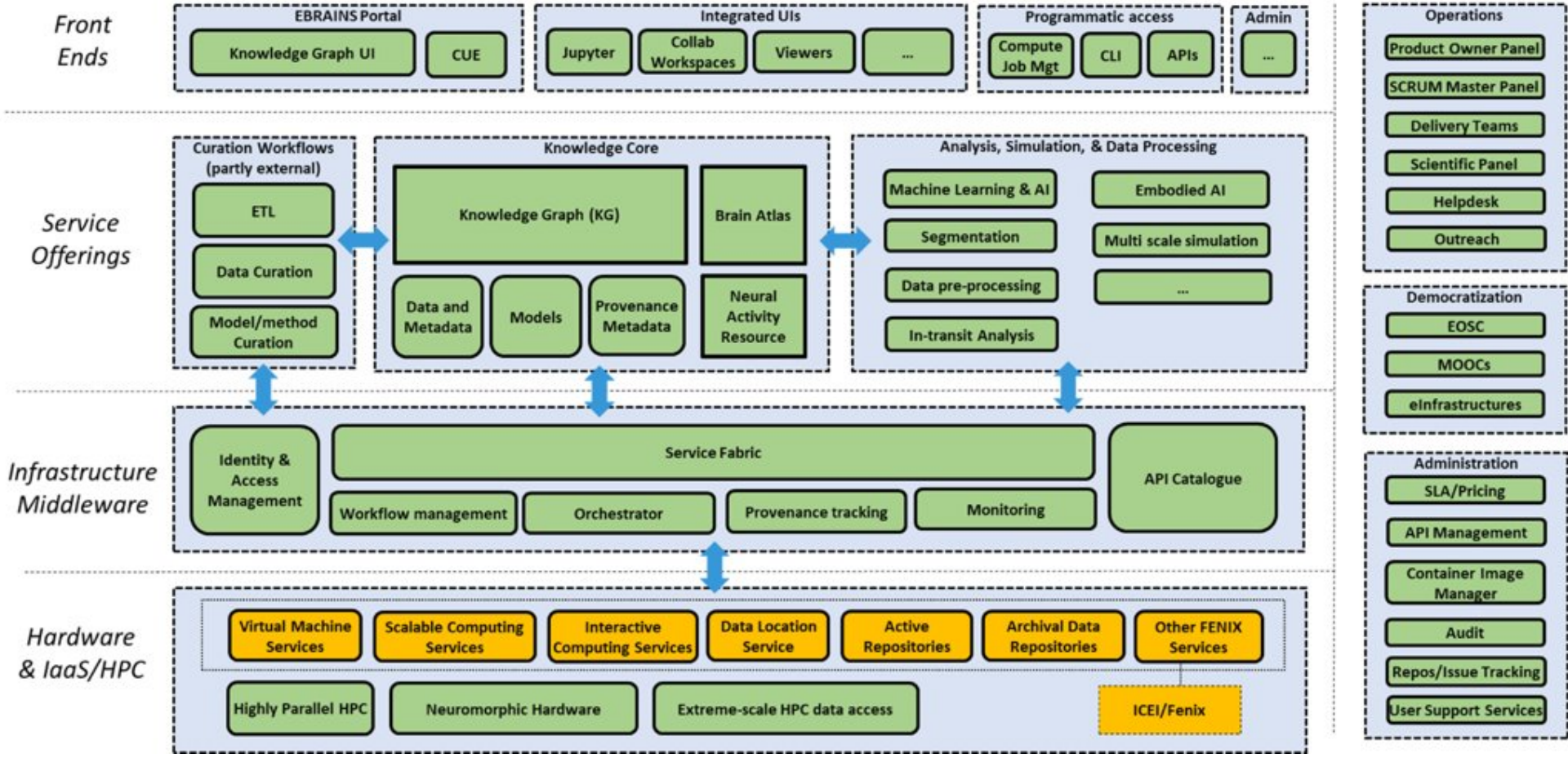
# Federated Repository



- Design
  - FAIR principles
  - Taxonomy of resources to be included
  - Policy recommendations
- Catalogue
  - Inclusion criteria and mechanisms
  - Interoperability standards
  - Gateway architecture
- Standardization
  - Data input (medatadata harmonization, interoperability)
  - Modelling (model building, formatting, semantics, annotation)
  - Model simulation (reprod, parameterization, description, execution)

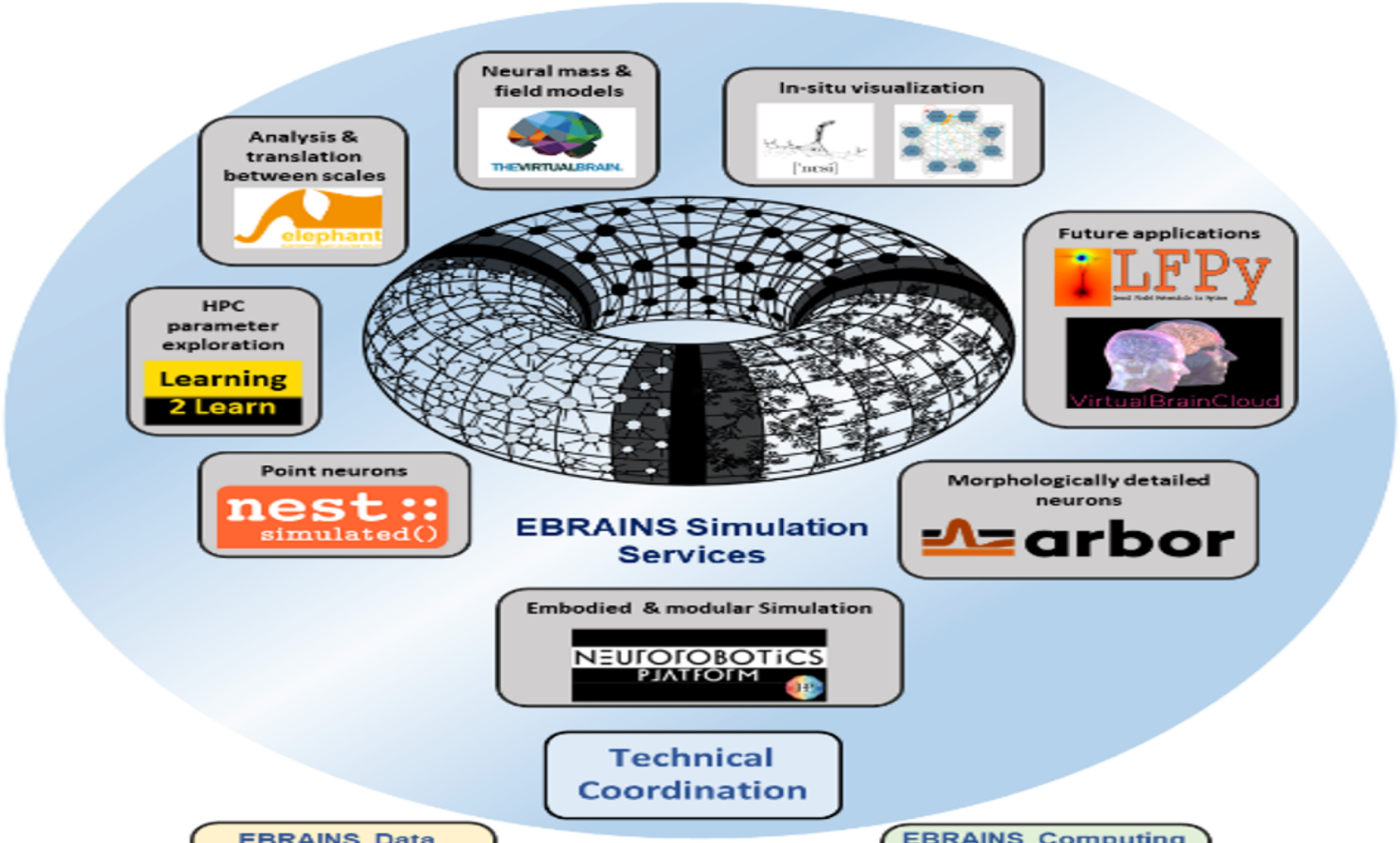
# High-Level Architecture (for brain)



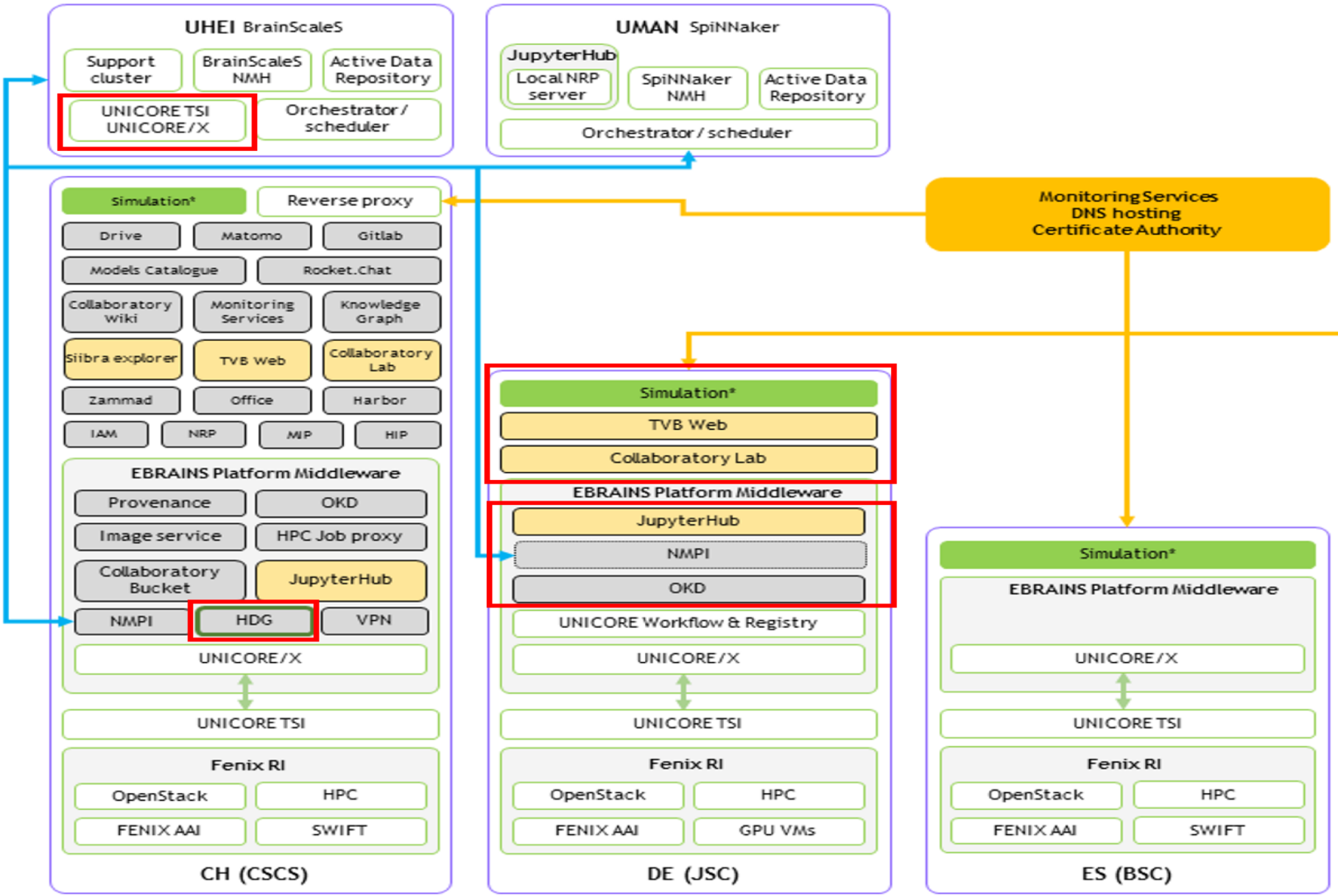


# Multi-Level Twins (for brain)





# Physical Deploymnent Complexity (EBRAINS)



# Long and Exciting Way Ahead!