

COMMIT/

A DATA-CENTRIC SCIENCE GATEWAY FOR COMPUTATIONAL NEUROSCIENCE

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Partners:



INTRODUCTION ARCHITECTURE NEUSG WRAP UP



Src: <http://www.cloudtweaks.com/2011/05/the-lighter-side-of-the-cloud-data-transfer/>

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INTRODUCTION

HOW IT STARTED

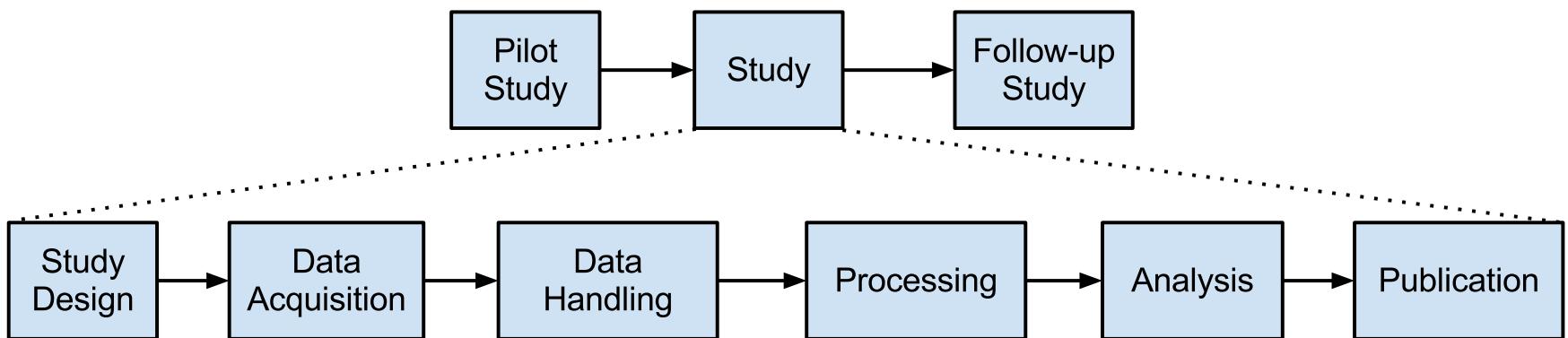
- Data- and compute-intensive biomedical data analysis at AMC
 - Medical image data analysis
 - Sequencing data analysis
- Two major research communities
 - Computational neuroscience
 - Bioinformatics
- Dutch Grid infrastructure
 - Complex for biomedical researchers
 - e-BioScience Infrastructure (e-BioInfra)

HOW IT WAS DEVELOPED

- The e-Bioinfra Gateway
 - V1: one web page for one workflow
 - V2: one workflow, user management, experiment history
 - V3:
 - User and role management
 - Popular data processing workflows (extendable)
 - Experiment management and (data) history
 - Robot proxy
 - Data staging mechanism
 - Technologies:
 - Spring framework
 - MOTEUR WfMS and DIANE pilot job framework

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BUT PROCESSING IS NOT ENOUGH



S. Shahand et al., *Integrated Support for Neuroscience Research*, HealthGrid 2012

WHAT WAS MISSING

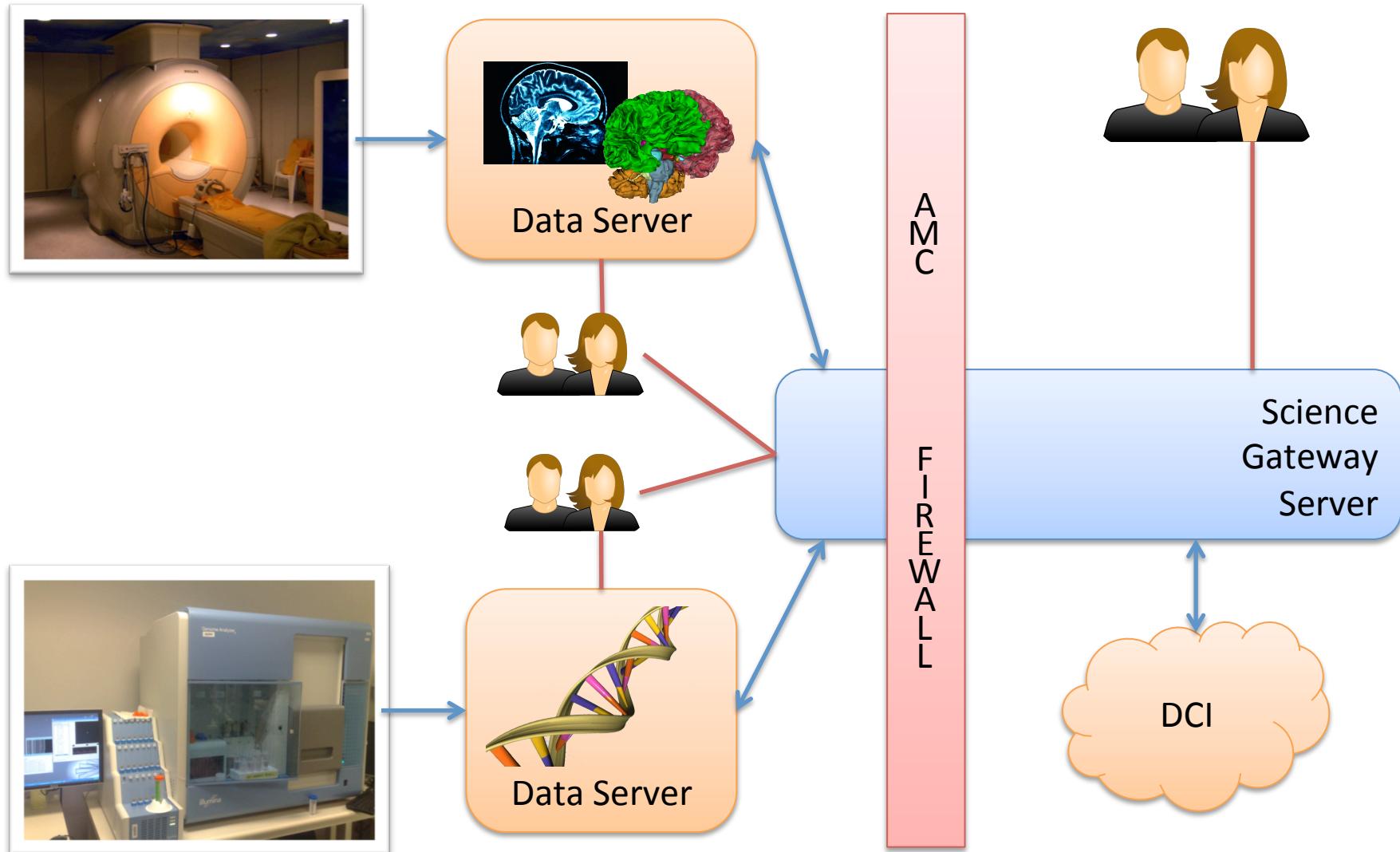
- A better data management for:
 - Automation of data preparation and transport
 - Error prevention
 - Data exploration
- Utilize more infrastructures
- Support diverse user profiles
 - Role management
 - Customizable interfaces
- Sustainability

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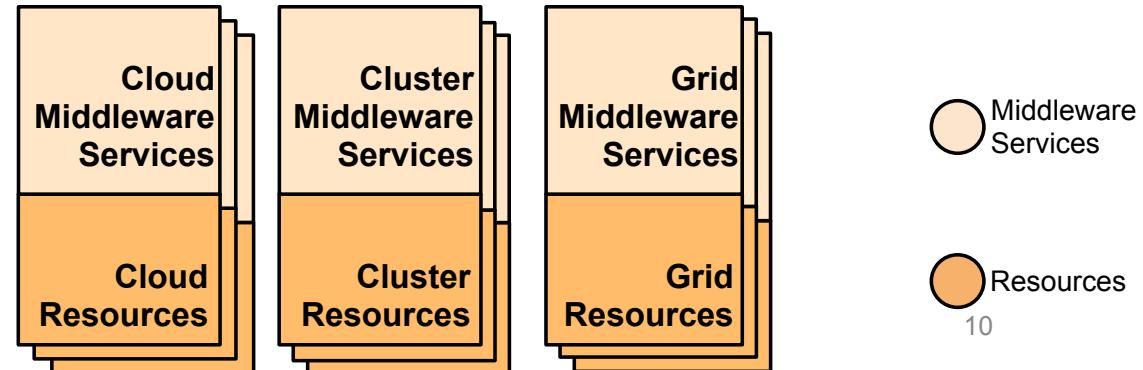
ARCHITECTURE

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GENERAL USE CASE

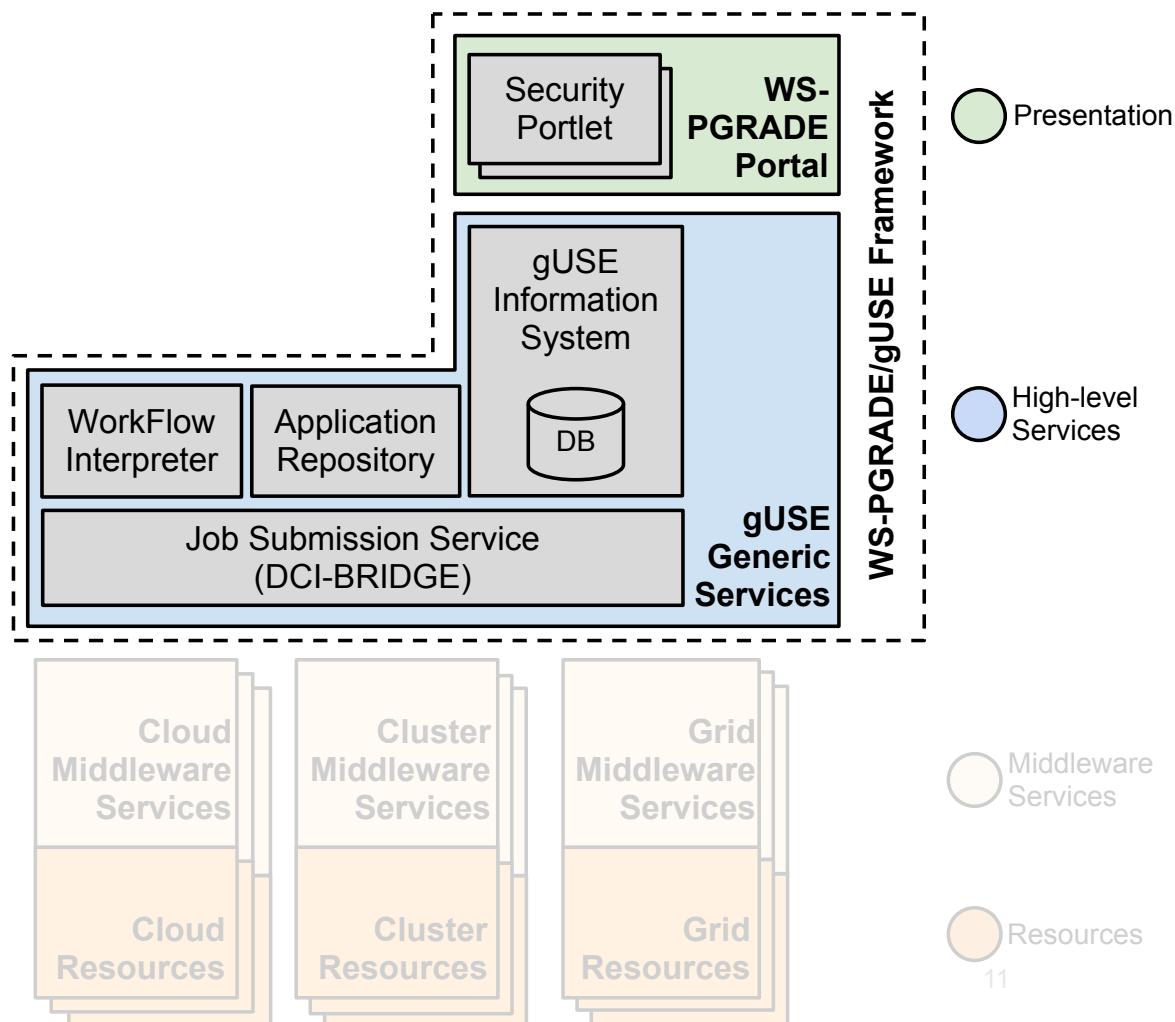


DCI: DISTRIBUTED COMPUTING INFRASTRUCTURE

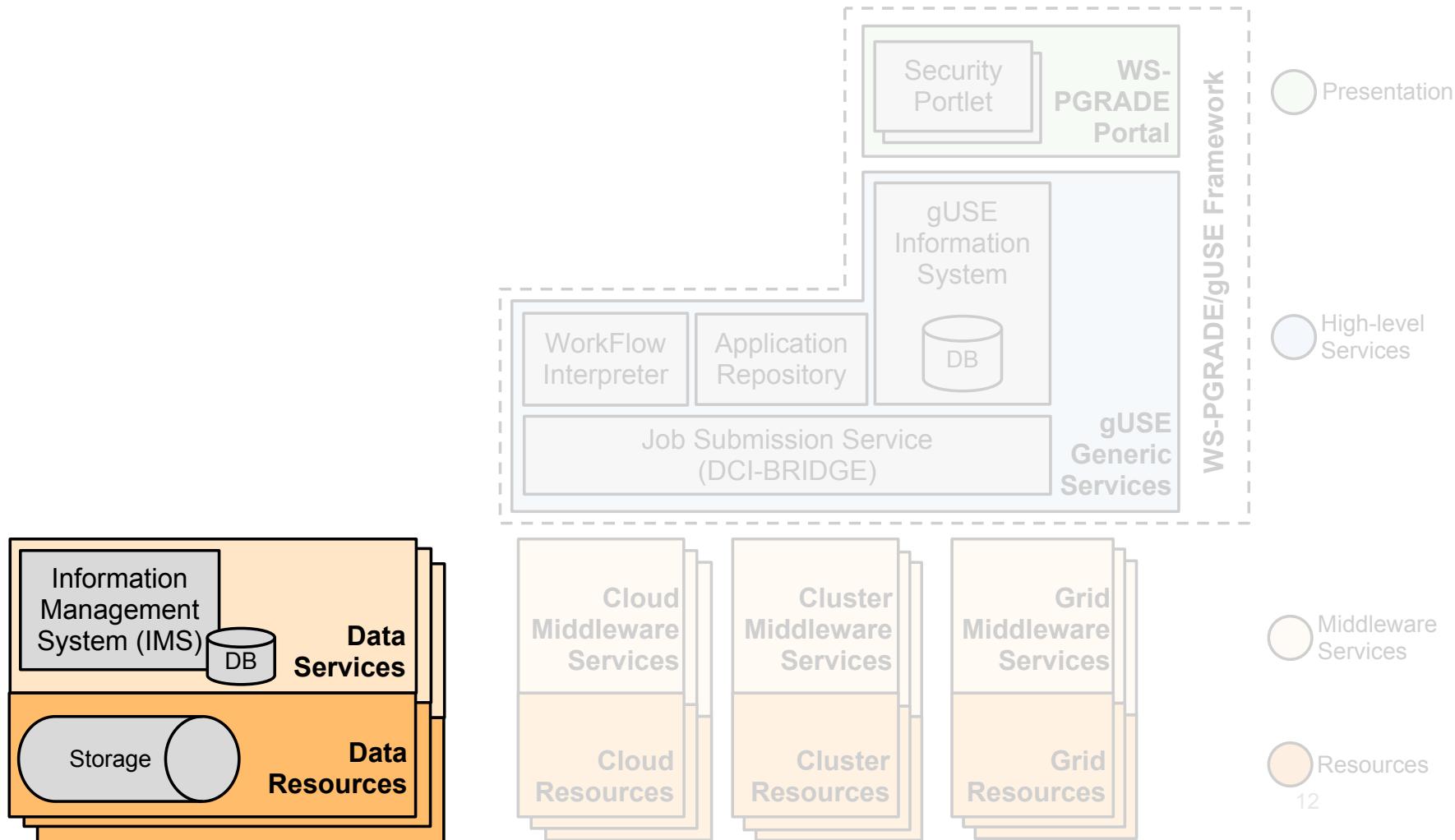


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WS-PGRADE / gUSE

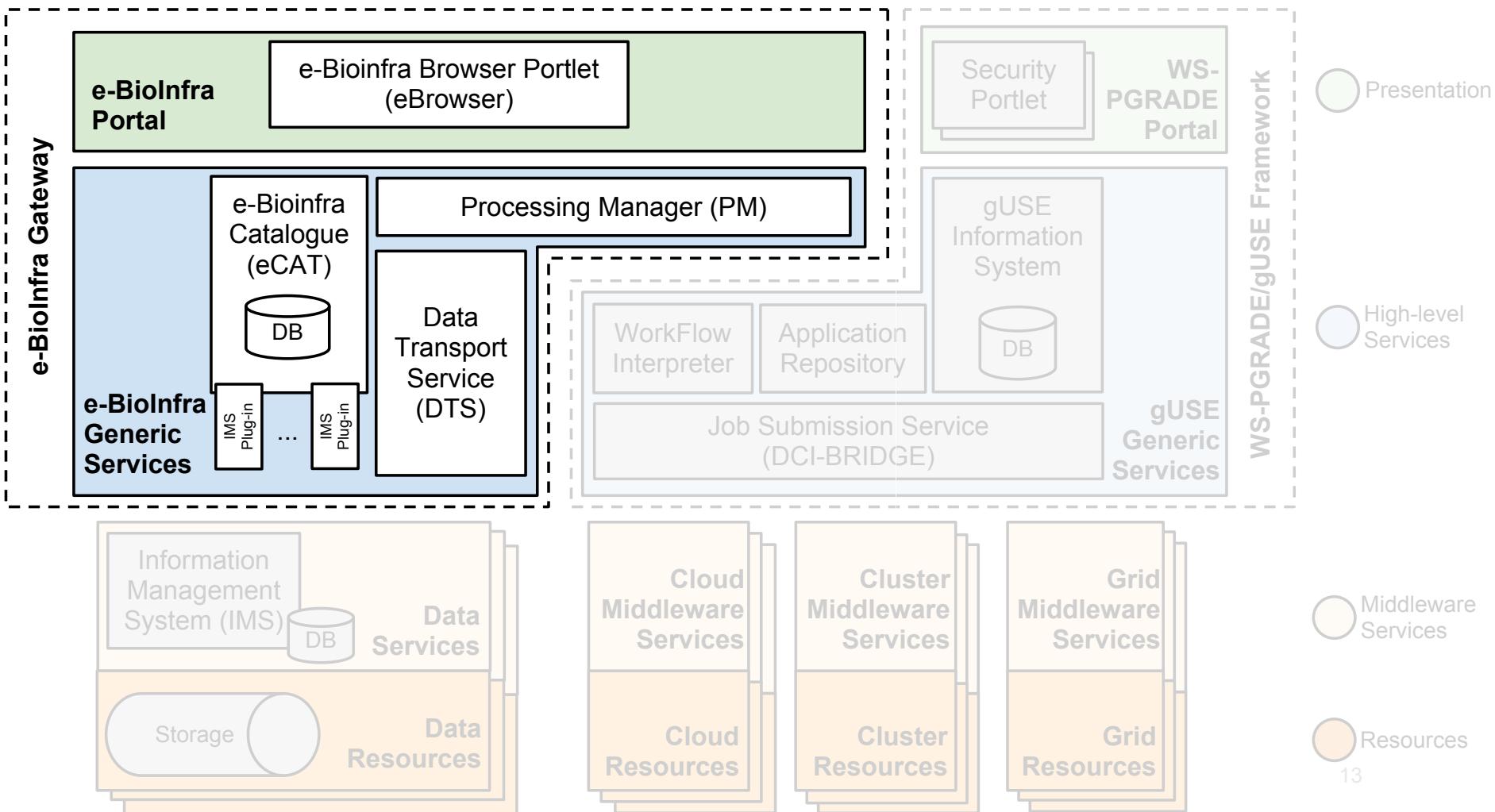


BIOMEDICAL RESEARCH DATA STORE

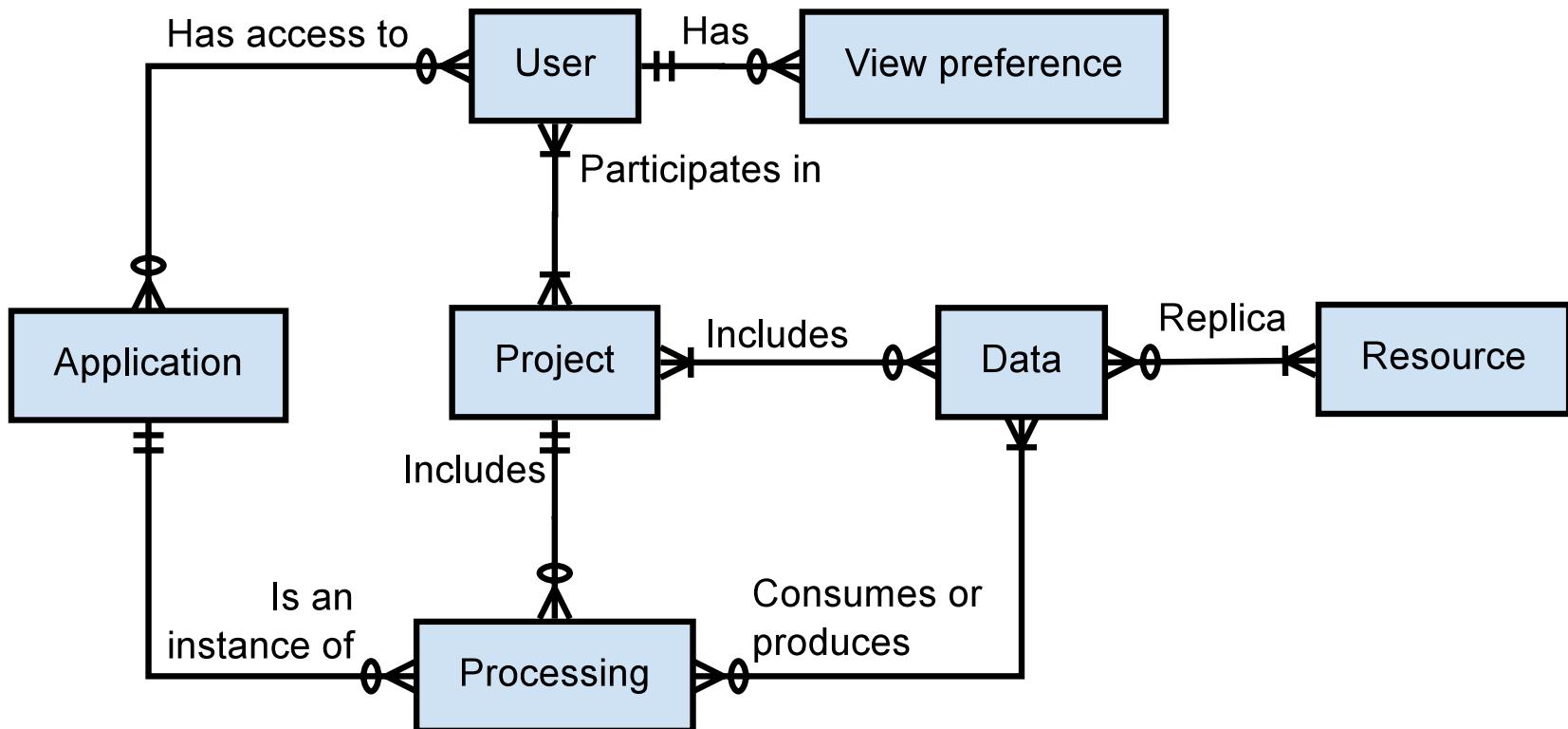


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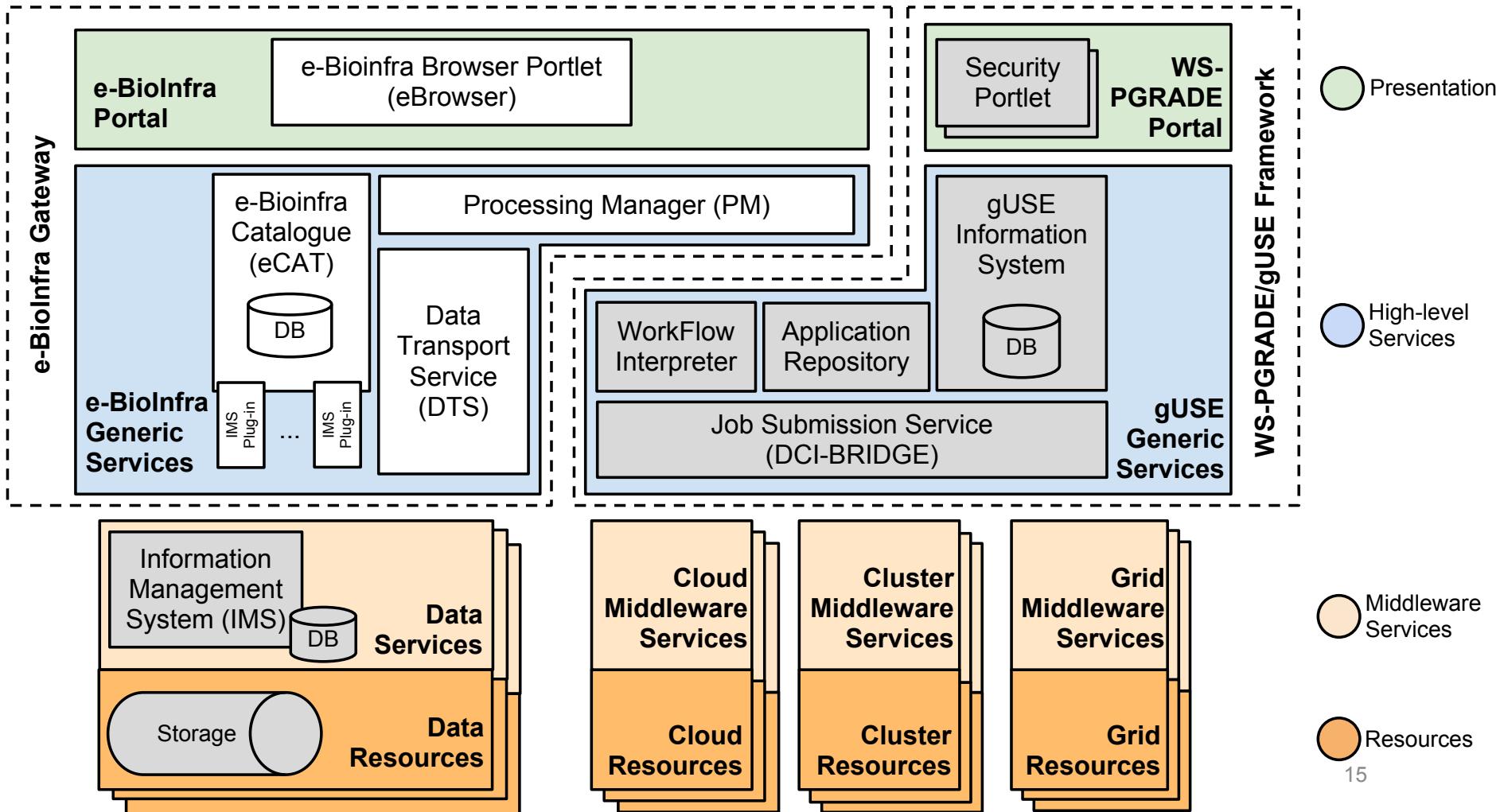
NEW E-BIOINFRA GATEWAY



E-BIOINFRA CATALOGUE (SIMPLIFIED)



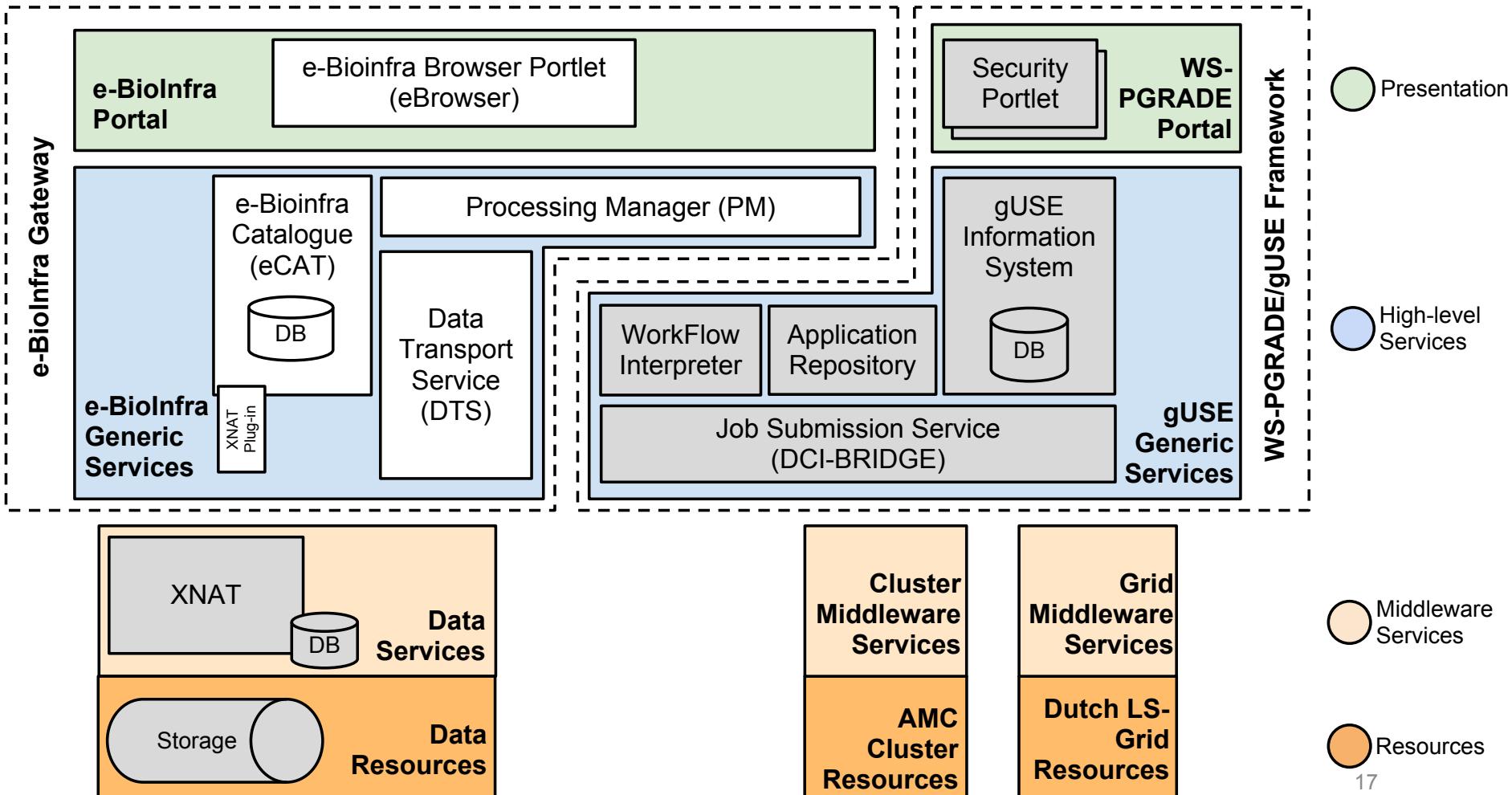
THE COMPLETE PICTURE



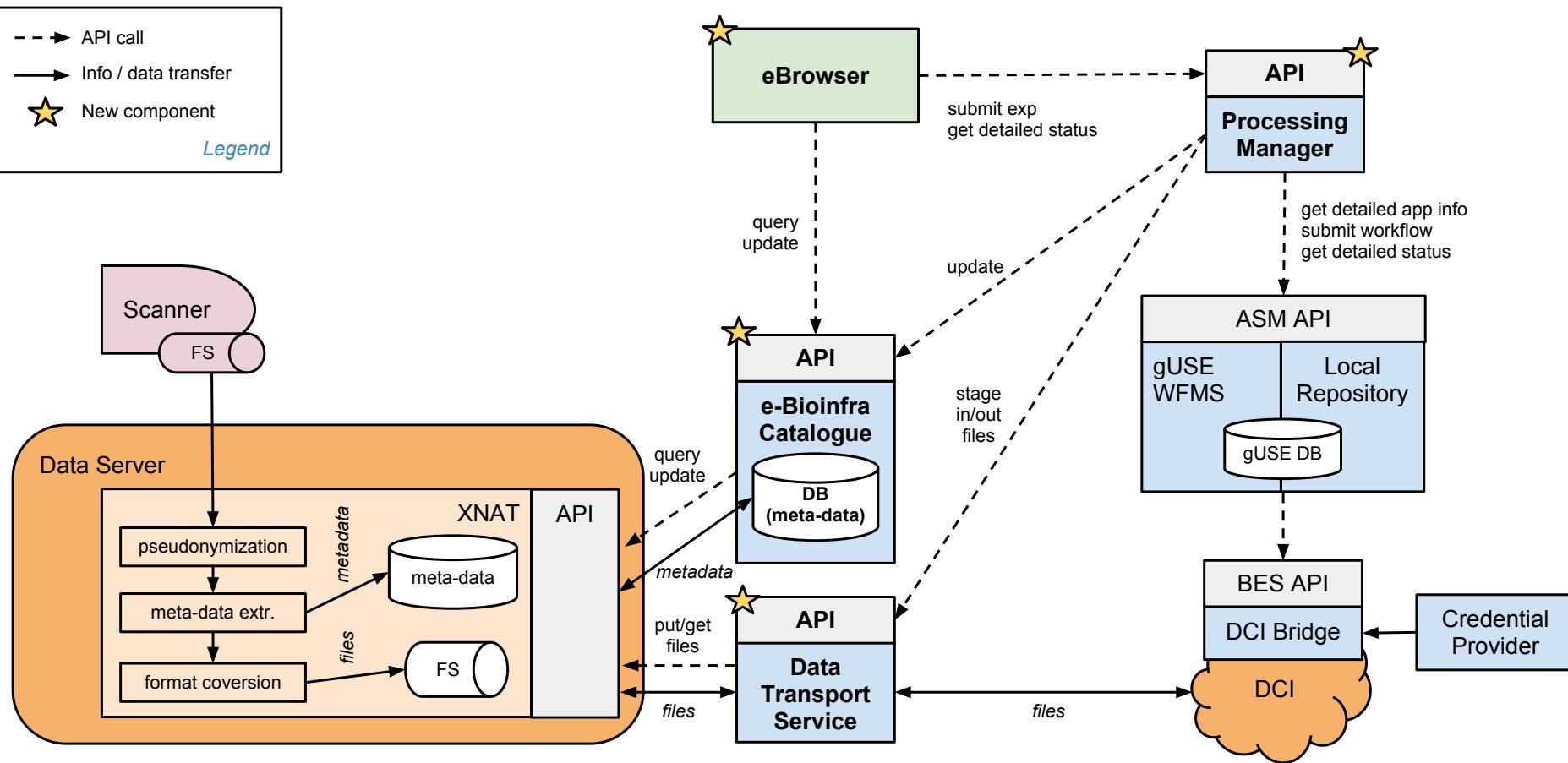
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COMPUTATIONAL NEUROSCIENCE SG (NEUSG)

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INTERACTIONS BETWEEN NEUSG COMPONENTS



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WRAP UP

REFLECT

- A better data management for:
 - Automation of data preparation and transport
 - Error prevention
 - Data exploration
- Utilize more infrastructures
- Support diverse user profiles
 - Role management
 - Customizable interfaces
- Sustainability
- eCAT
 - XNAT + PM + DTS
 - ?
 - eCAT + eBrowser
- gUSE
- Liferay + WS-PGRADE
- SCI-BUS + ?

CHALLENGES

- Synchronization issues
- Trust
- Proprietary IMS

FUTURE WORK

- Provenance (update)
- Semantics

DISCUSSION

- Suggestions? Questions?
- Thanks for your attention!
- Acknowledgement
 - Members of Biolab and BIC
 - AMC / COMMIT / SCI-BUS / HPCN UvA



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