SVAI - NF Hackathon

September 2019

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Databiology Company Overview

- Global software and services company
- Providing specialist solutions for global life sciences sector
- Business hubs in Oxford, San Francisco, Hong Kong and Mexico

- Databiology's mission is to be the enterprise platform for globally distributed biomedical data, applications and infrastructure

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Our Solution: Biomedical Information Management & Process Orchestration

ANY Biomedical Data

ANY Application

ANY Compute Platform

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NF Hackathon

Objectives

- Demonstrate data and metadata import and management
- Demonstrate FAIR principles applied in Data and Analysis (APPs)

Main participant

- Juan Caballero, CSO (remotely from Mexico)

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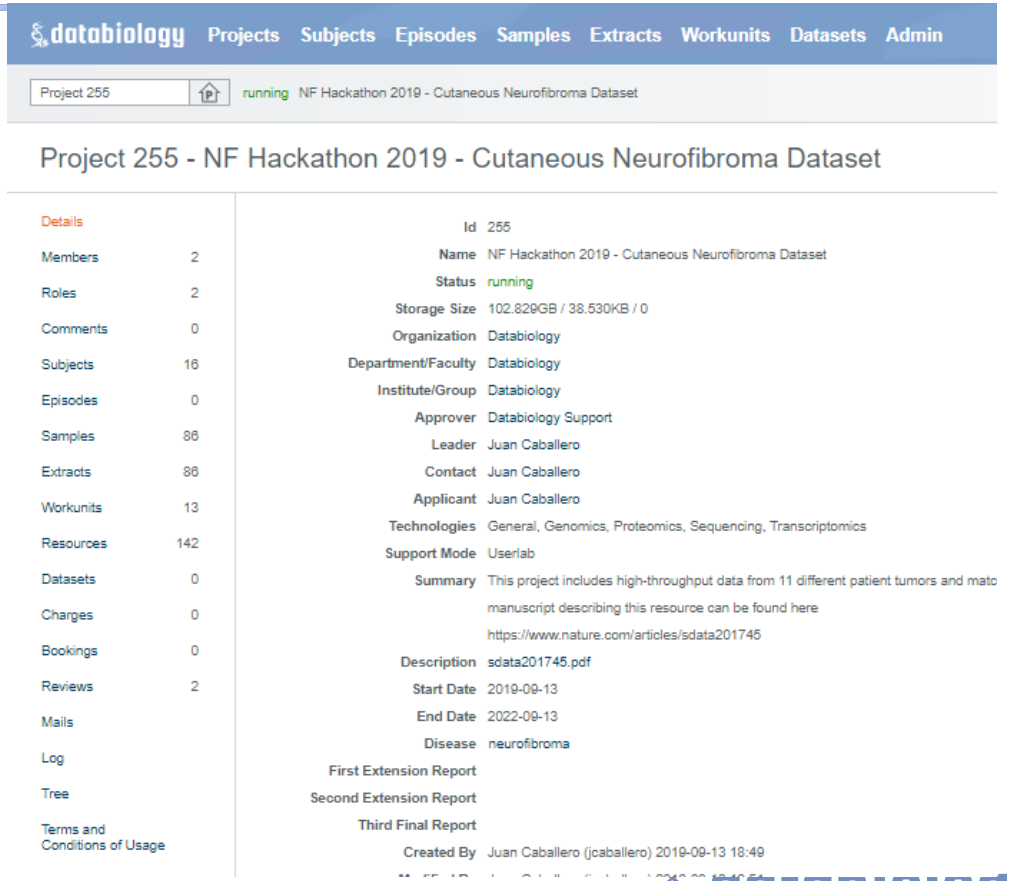
Data import

- After registration in Synapse, data was imported into our public instance https://www.lab.databiology.net/ into a private project
- Access is restricted and data is secured all the time



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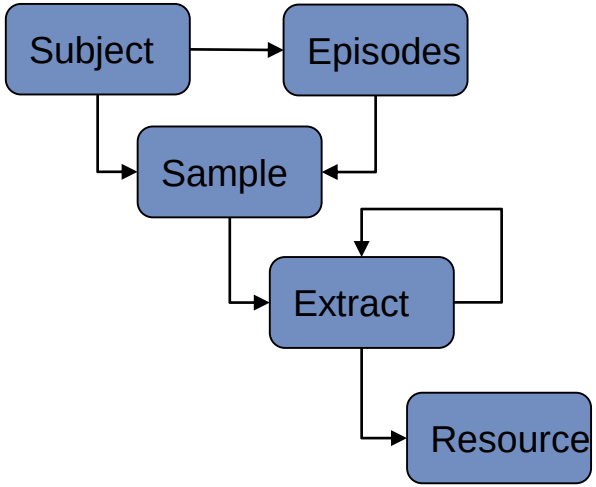
Data and metadata

- Data was modeled in our data schema



- The data model is flexible and FAIR-complete
- Data is indexed after import, enabling search immediately

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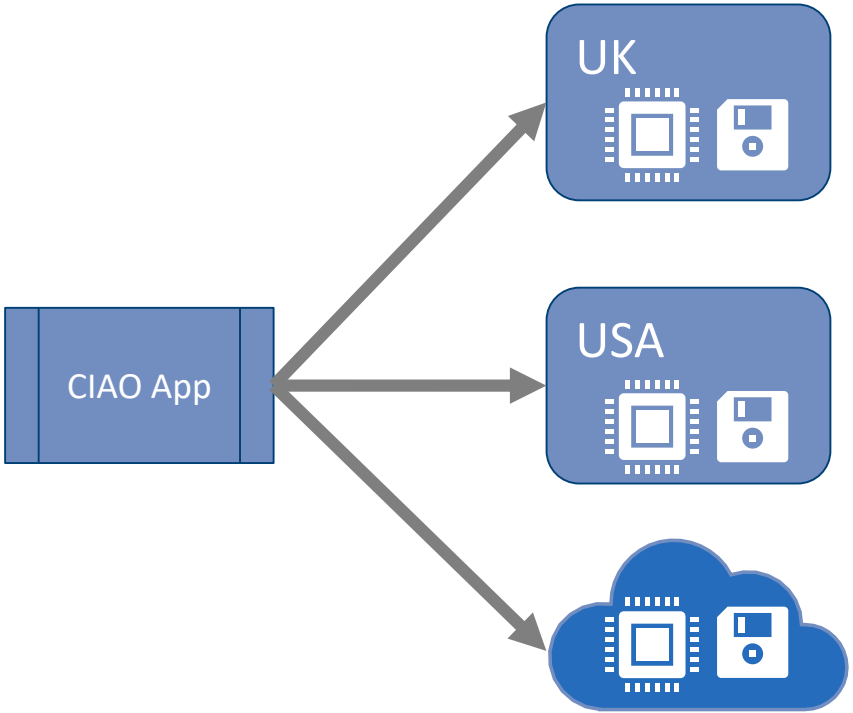
Real portable apps

- Analysis are performed with our CIAO apps (based on Docker)
- Any developer can create Apps with minimal requirements
- Apps are portable (can be run in diverse infrastructures)
- Apps are also FAIR-complete



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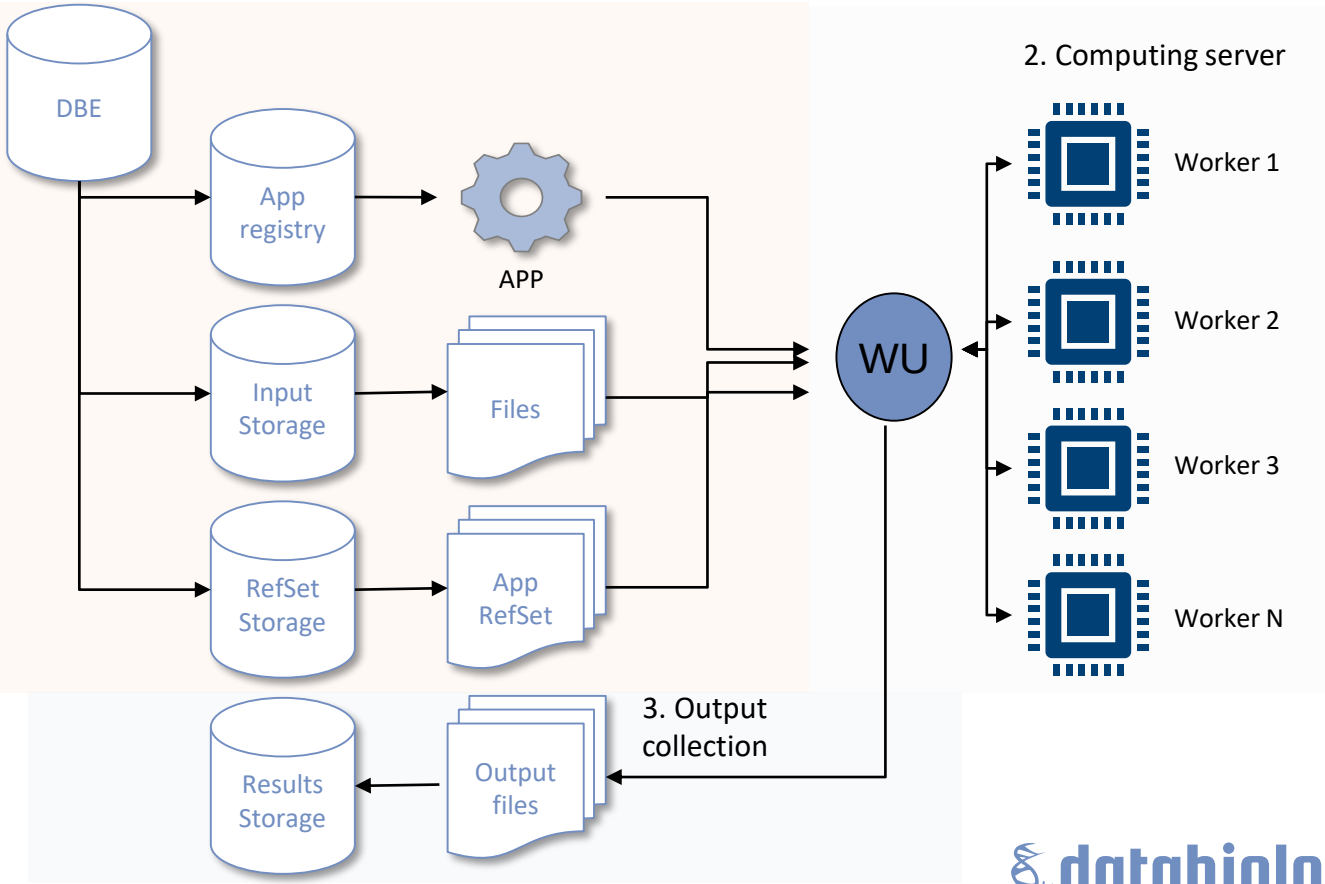
Workunits

1. App are run as Workunits, the container image is sent to the workers. Files and metadata are projected configuring the app automatically



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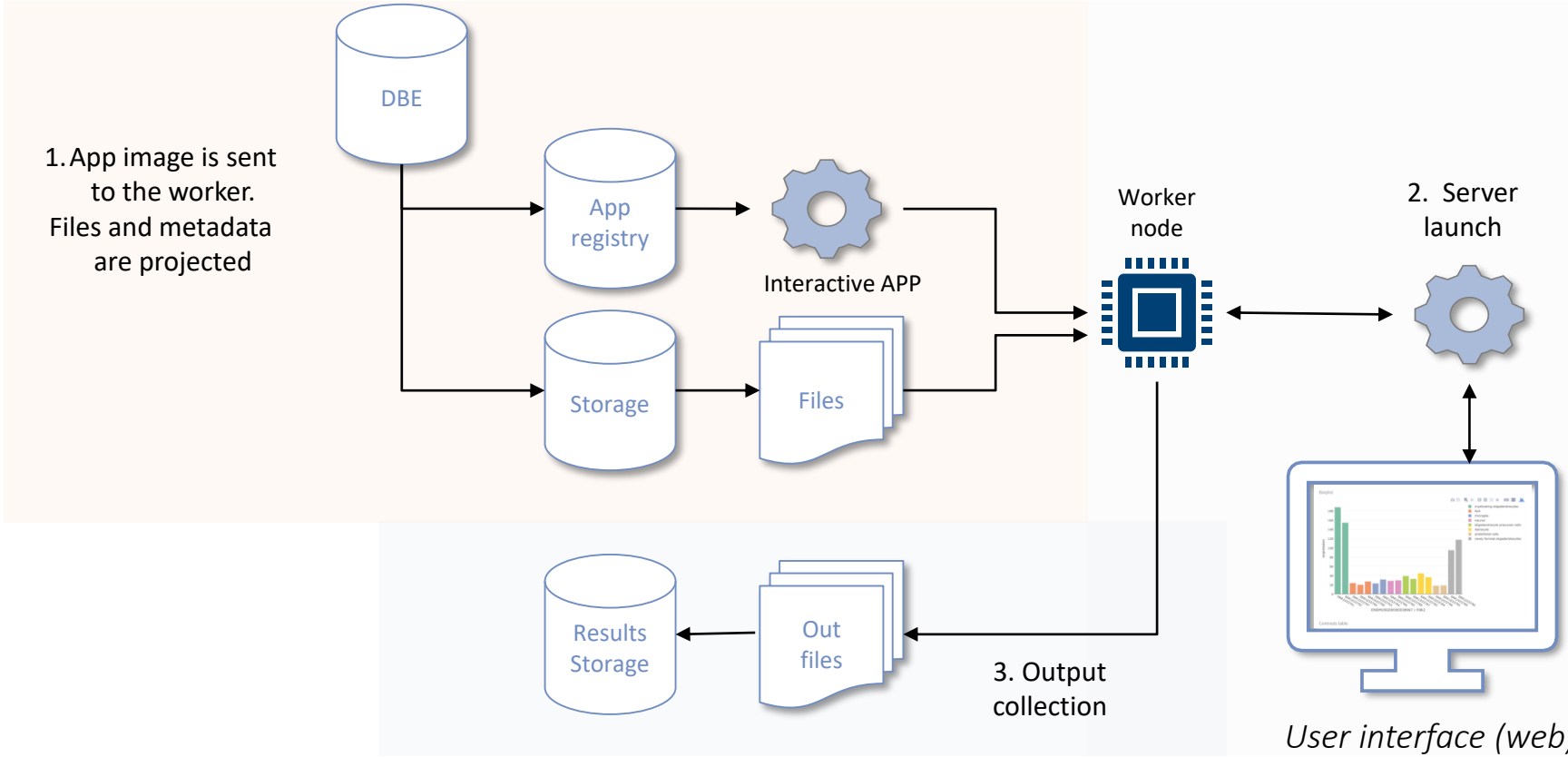
Interactive App



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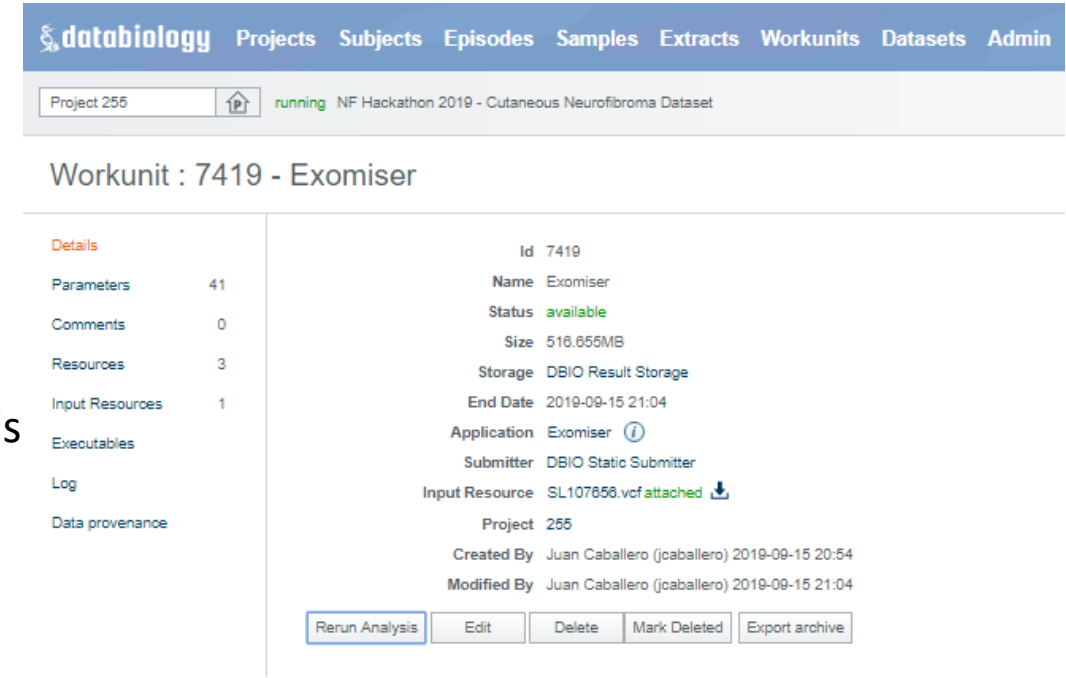
WGS data analysis

- VCFs were analyzed with Exomiser, prioritizing genes related to HP:0001067 (Neurofibromas)
- All analysis were performed in a Workunit, keeping record of data inputs, parameters, app version, infrastructure, etc., making the analysis FAIR and reproducible.



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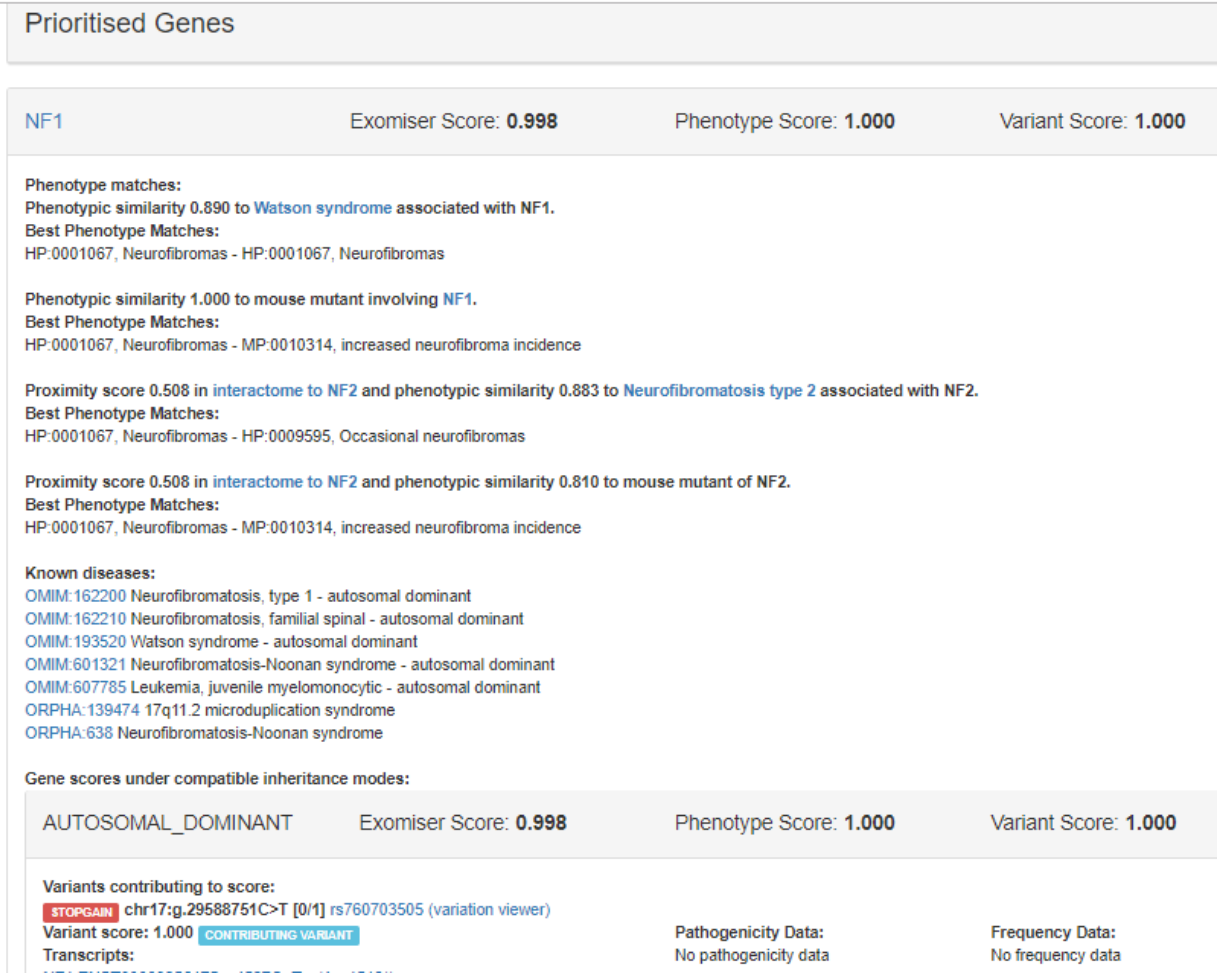
Example output



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Metadata is projected

- Besides data transfer, metadata is also projected into the running container, facilitating complex analysis

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