Computation Institute

Globus Galaxies
Platform for Science as a Service

Ravi K Madduri, University of Chicago and Argonne National Laboratory

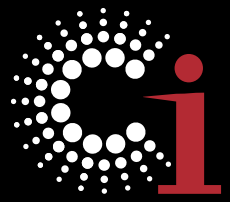
madduri@uchicago.edu

@madduri

Argonne NATIONAL LABORATORY

Galaxy

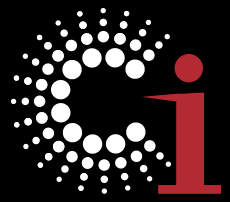
computationinstitute.org



Our vision for a 21st century discovery infrastructure

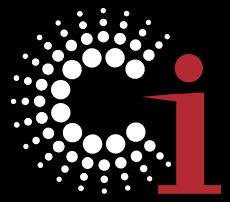
Provide **more** capability for **more** people at **lower cost** by **delivering "Science as a Service"**

www.globus.org



Science as a Service Examples

- Globus Genomics
- PDACS - Portal for data analysis services for cosmological simulations
- CVRG Galaxy – Large-scale ECG Data Analysis
- TBI Analysis – Traumatic Brain Injury Image analysis portal
- Globus Proteomics
- eMatter – Material Science Simulations
- FACE-IT - Framework to Advance Climate, Economic, and Impact Investigations with Information Technology



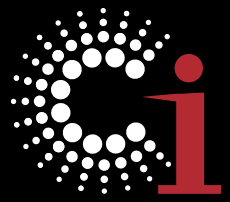
Our Science Stack

- Galaxy
  - Interactive execution
  - Creation, Execution, Sharing, Discovering Workflows
- Globus
  - Data management
  - Identity Management
- AWS, NERSc, Magellan
  - HTCondor, Chef, EC2, EBS, S3, SNS, NEWT
  - Spot, Route 53, Cloud Formation

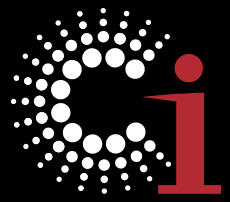
SaaS

PaaS

IaaS

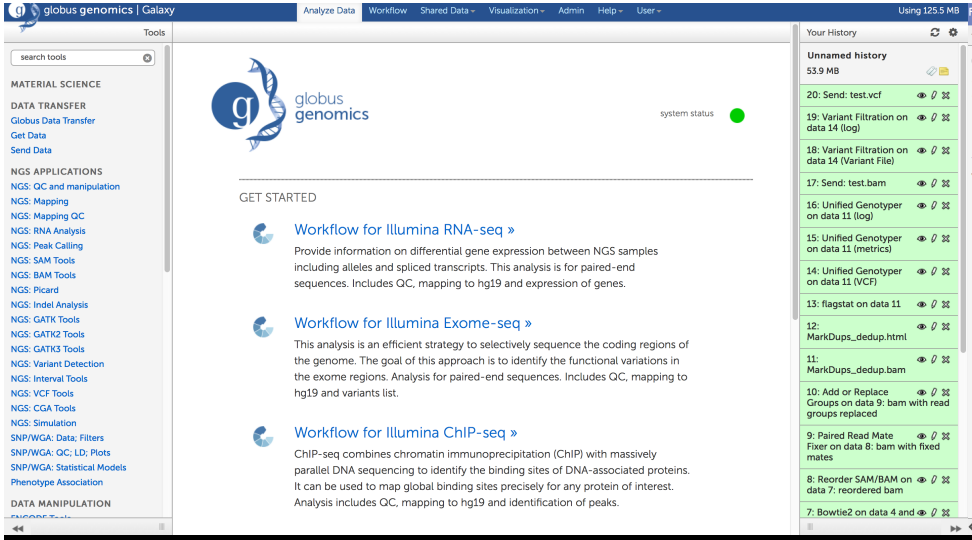


Adopting Globus Galaxies For a Science Domain

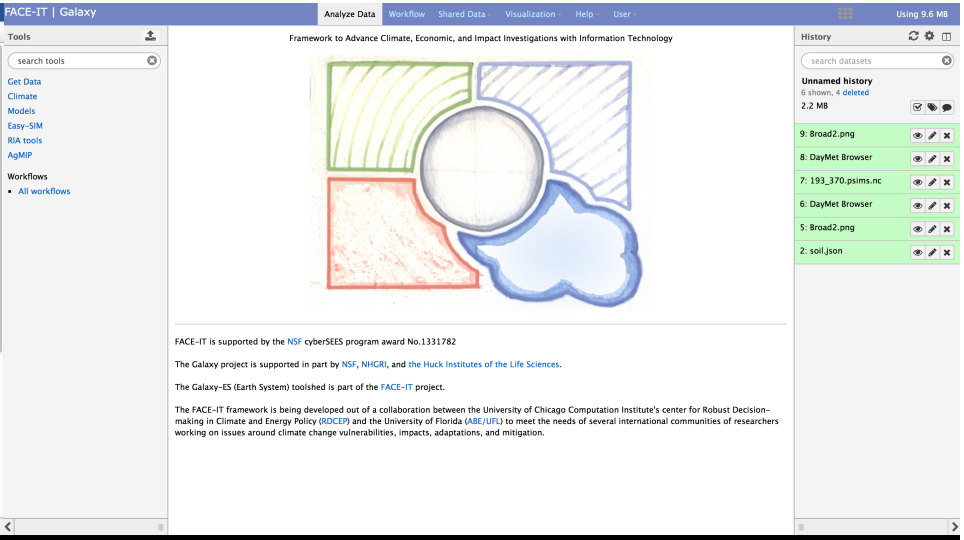


Winning Combination…

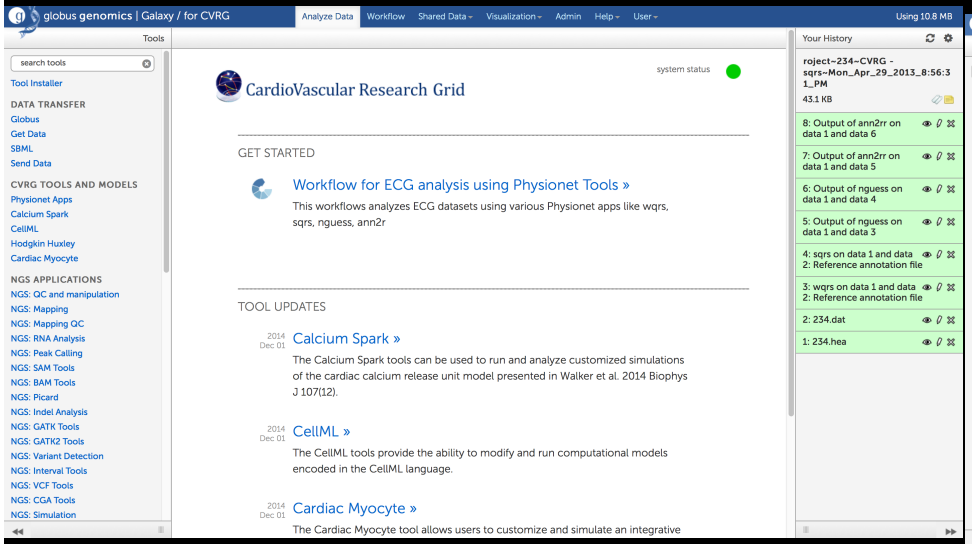
- People and their expertise
  - Computational experts working hand-in-hand with Subject Matter Experts
  - Separation of Concerns (Infrastructure Vs Science)
- Flexible, extensible platform
  - Data types, Tools, Visualization, Data providers
- Leveraging proven best practices in data management, execution management
- Community Engagement
  - Workshops, Demos



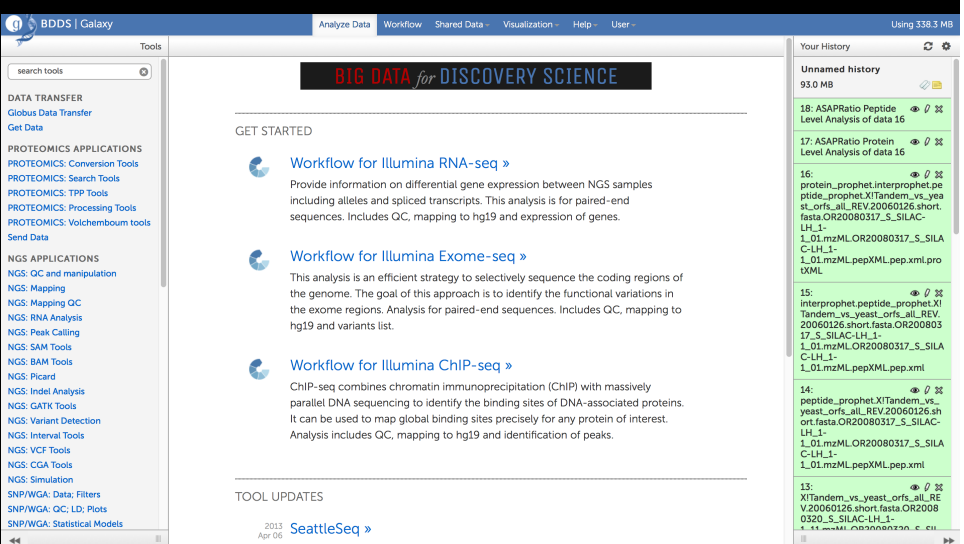
Globus Genomics



FACE-IT



CVRG



Proteomics

computationinstitute.org

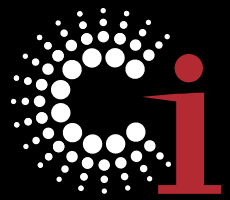
Our work is supported by:

U.S. DEPARTMENT OF
ENERGY

THE UNIVERSITY OF
CHICAGO

Argonne
NATIONAL LABORATORY

computationinstitute.org



Thank you!

@madduri