Galaxy

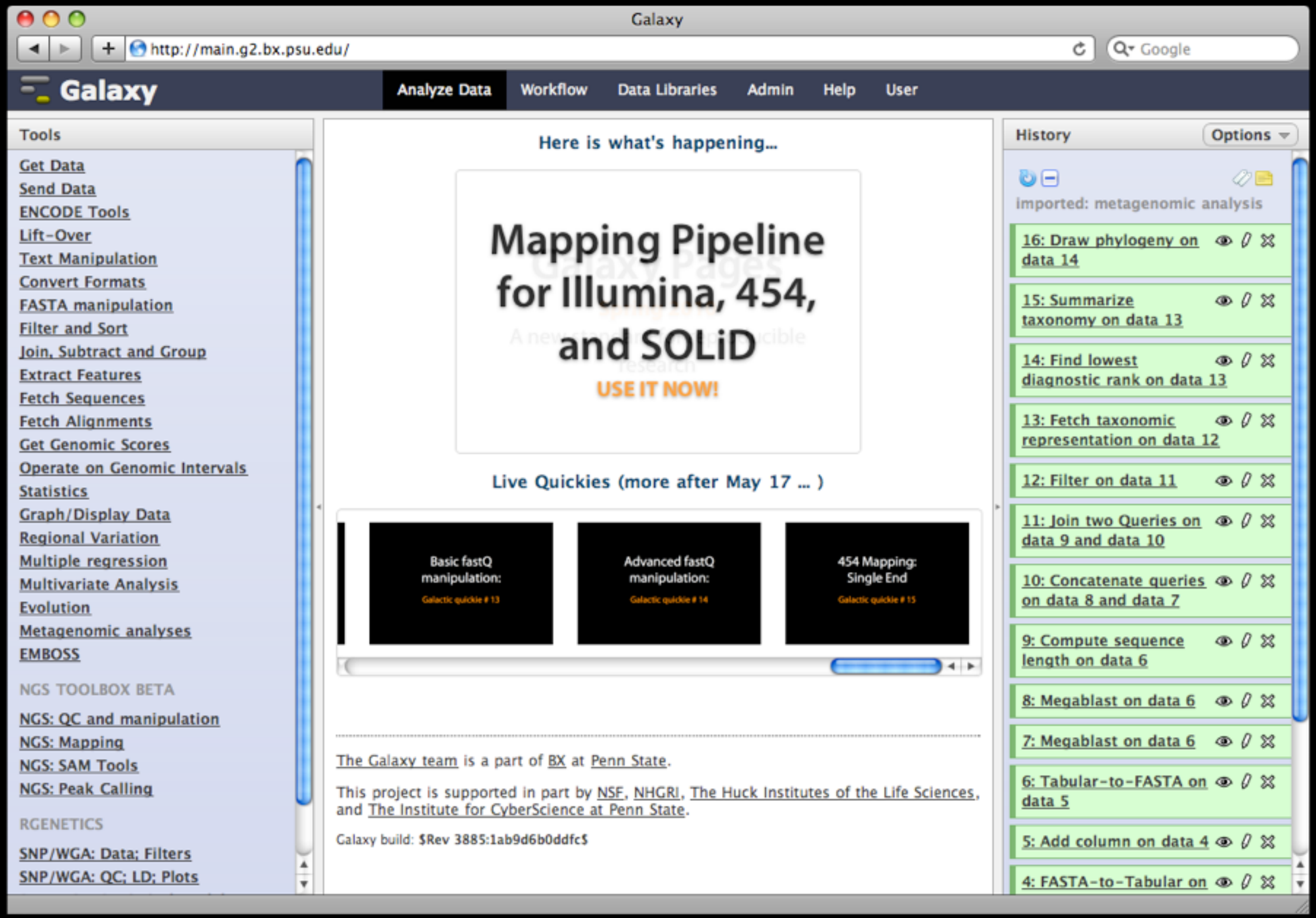
Introduction to the Galaxy platform

www.galaxyproject.org

CC BY

@jxtx / #usegalaxy

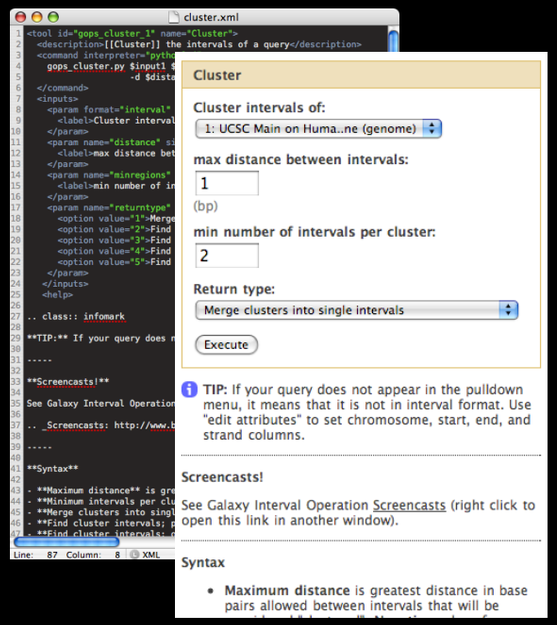
Galaxy: accessible analysis system



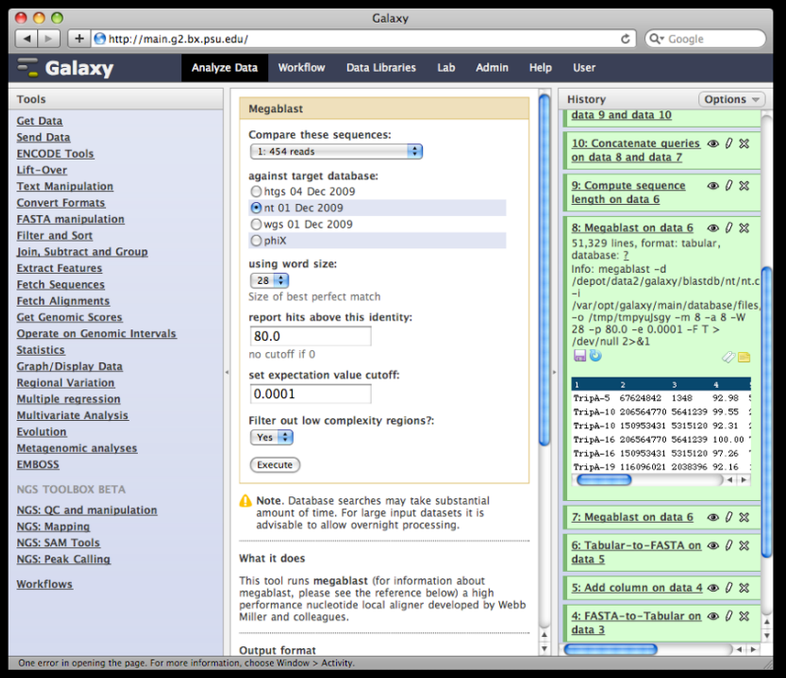
A free (for everyone) web service integrating a wealth of tools, compute resources, terabytes of reference data and permanent storage

Open source software that makes integrating your own tools and data and customizing for your own site simple

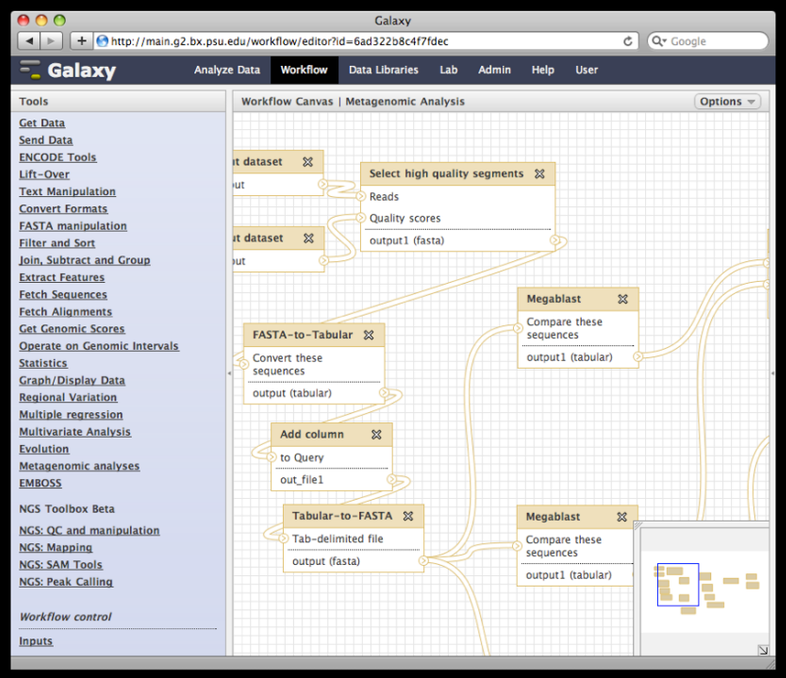
An open extensible platform for sharing tools, datatypes, workflows, ...



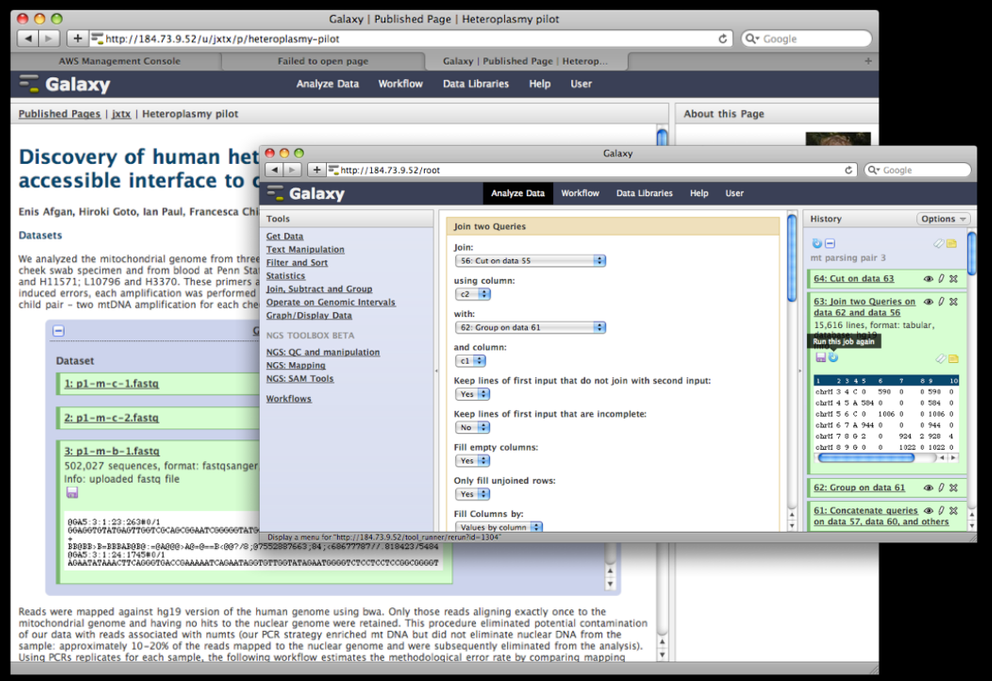
Describe analysis tool behavior abstractly



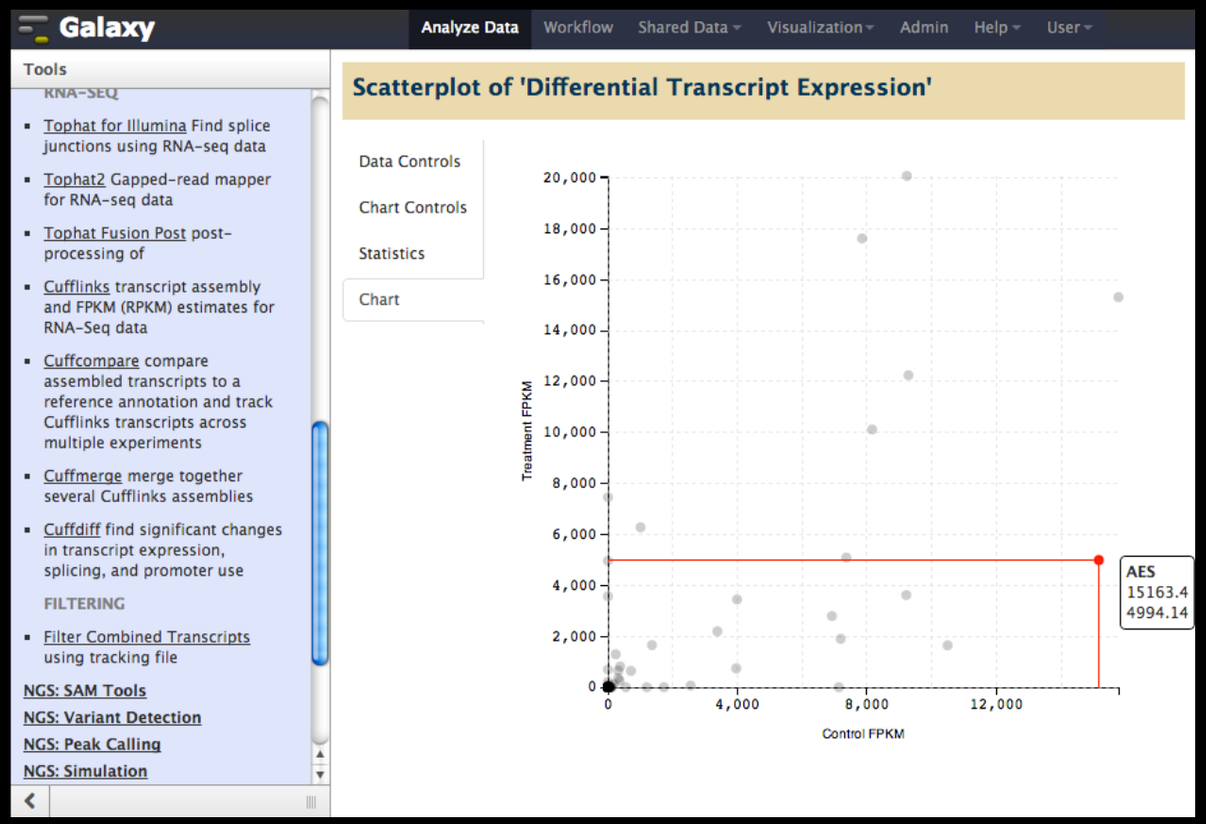
Analysis environment automatically and transparently tracks details

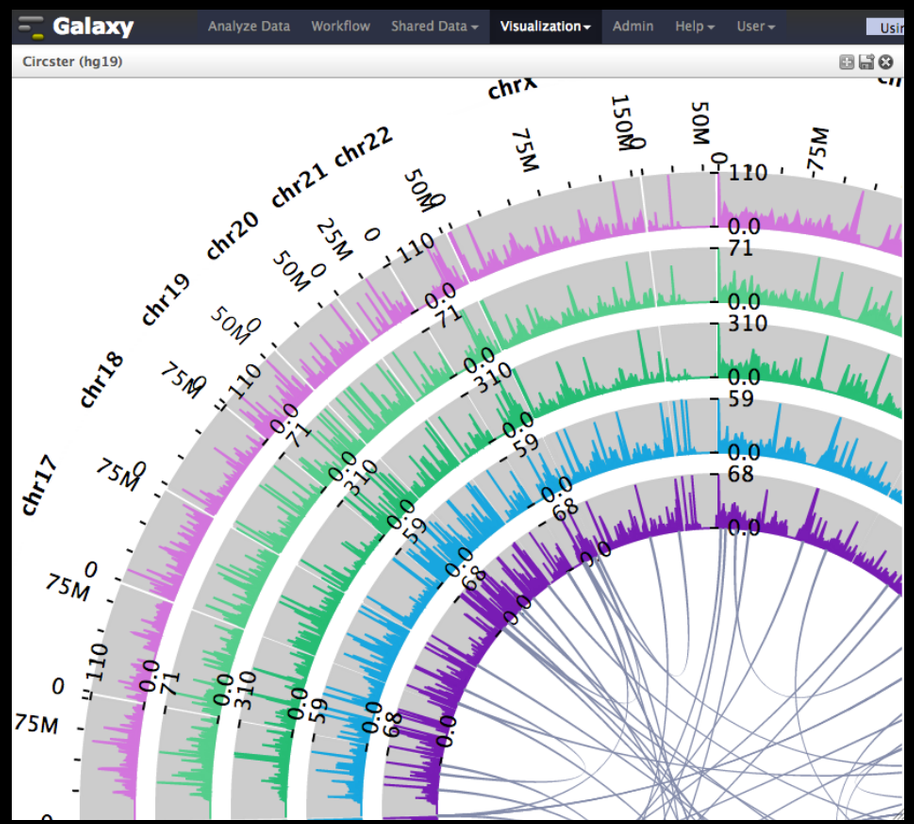


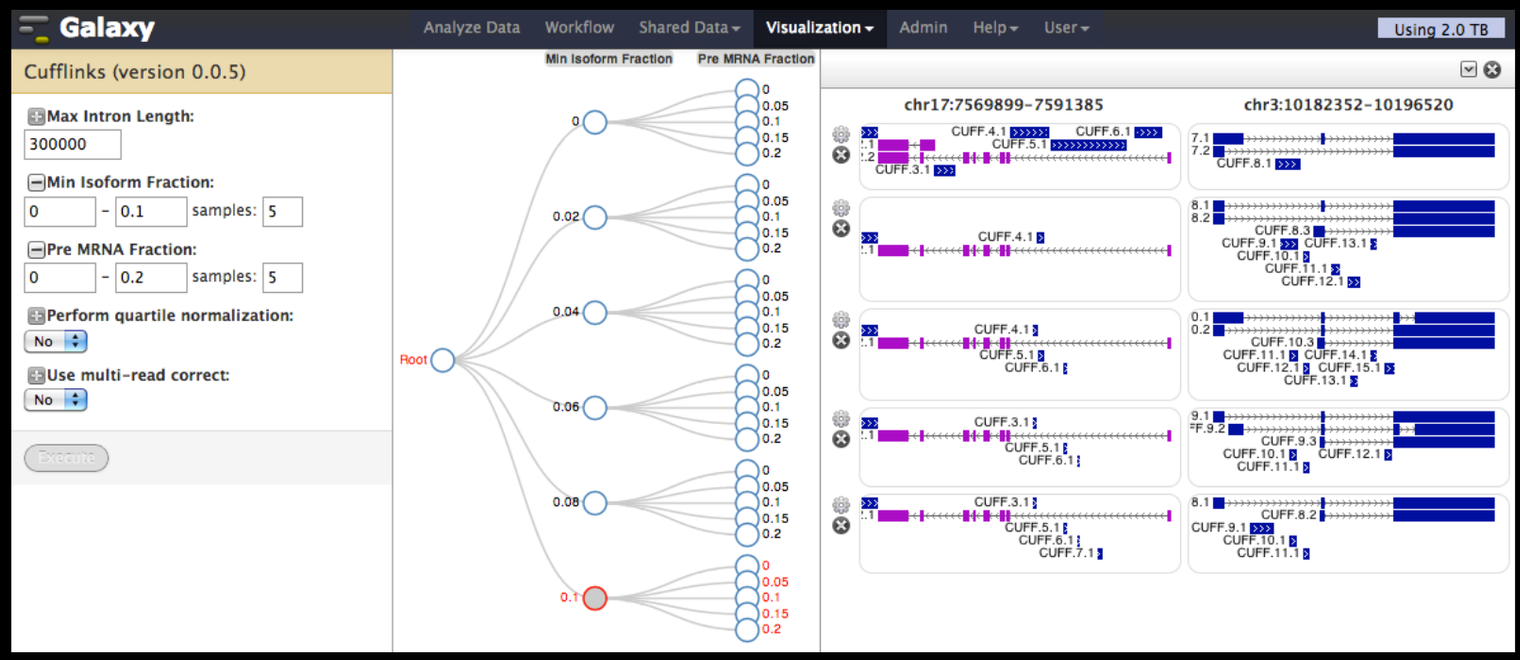
Workflow system for complex analysis, constructed explicitly or automatically



Pervasive sharing, and publication of documents with integrated analysis







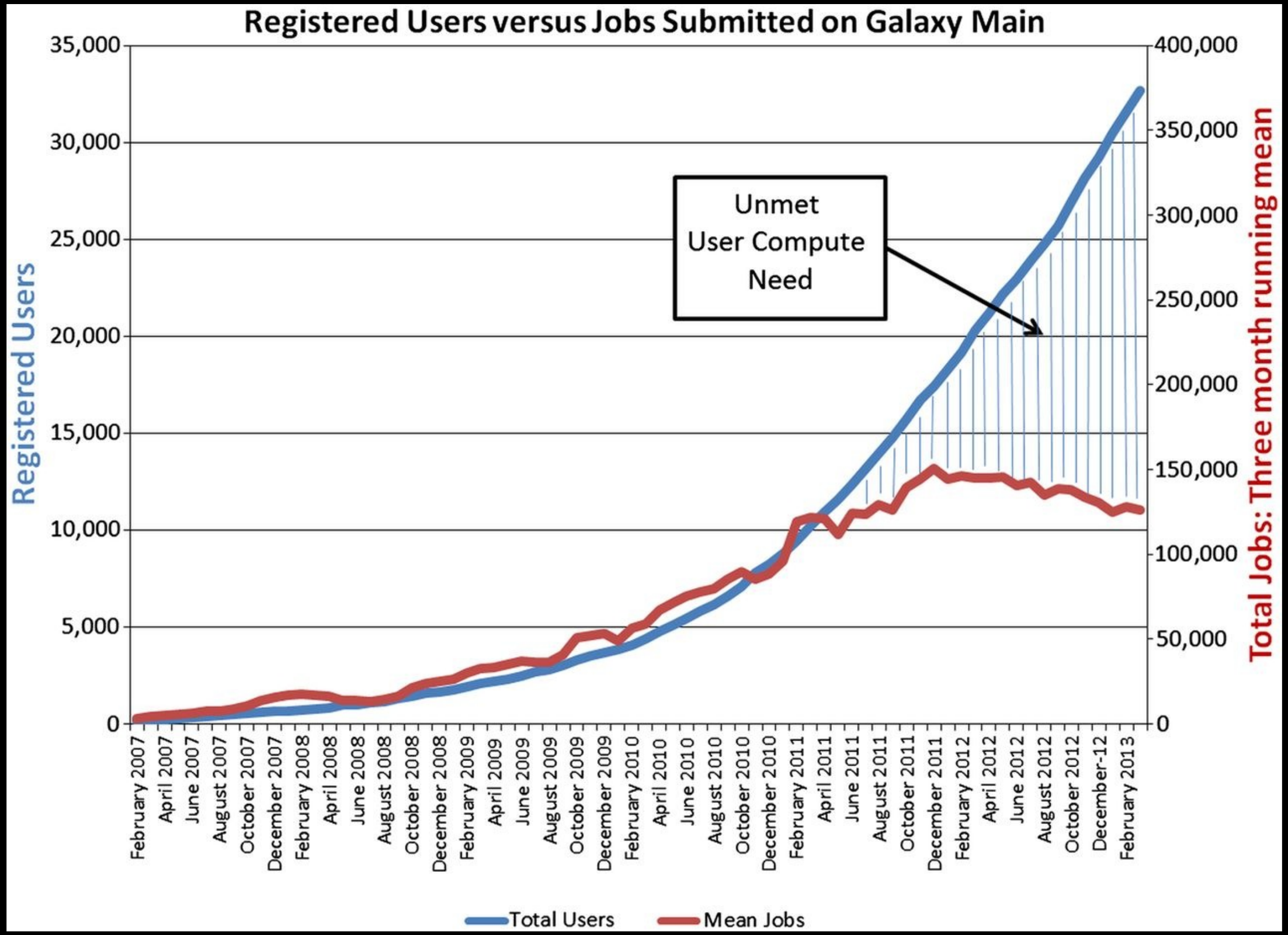
Visualization and visual analytics

Ways to use Galaxy…

Galaxy is available as a free (for everyone) web server integrating a wealth of tools, compute resources, terabytes of reference data and permanent storage:

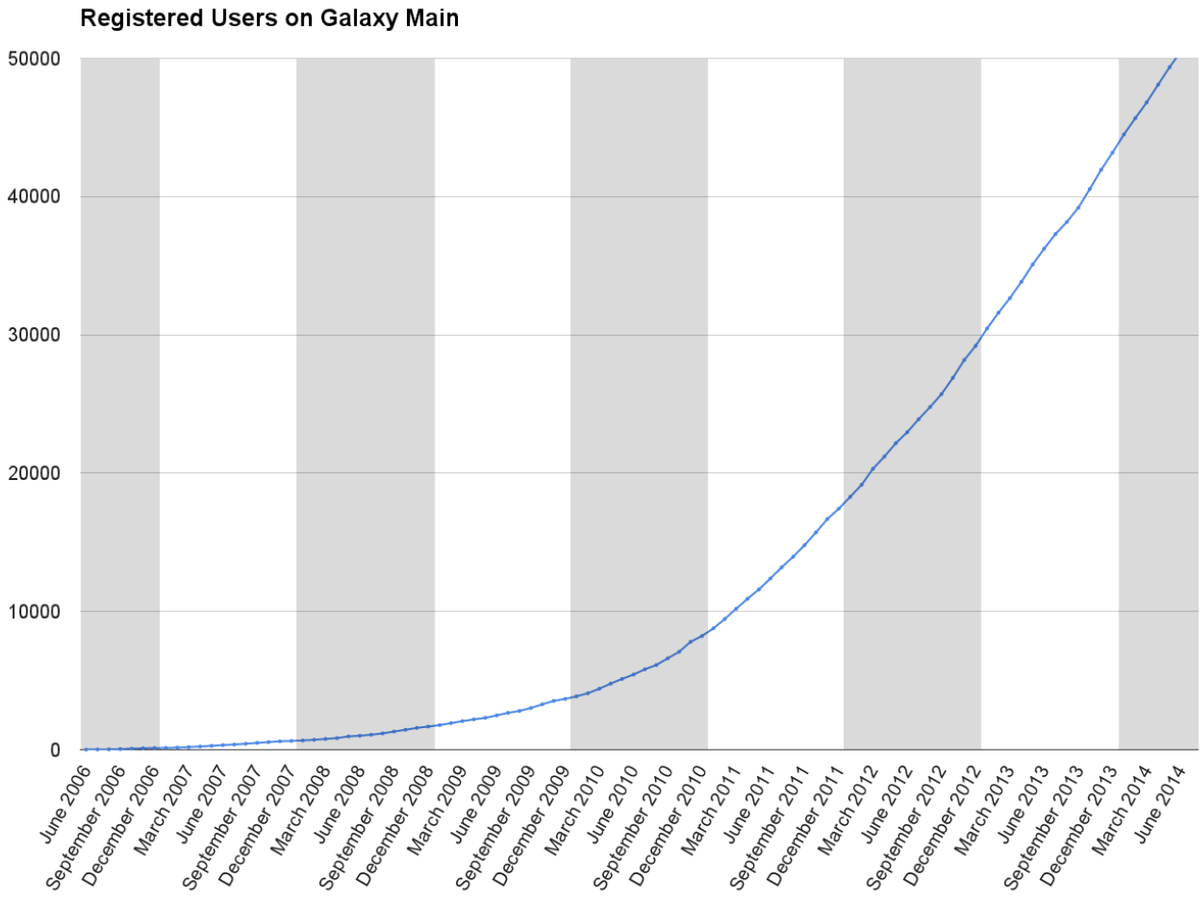
http://usegalaxy.org

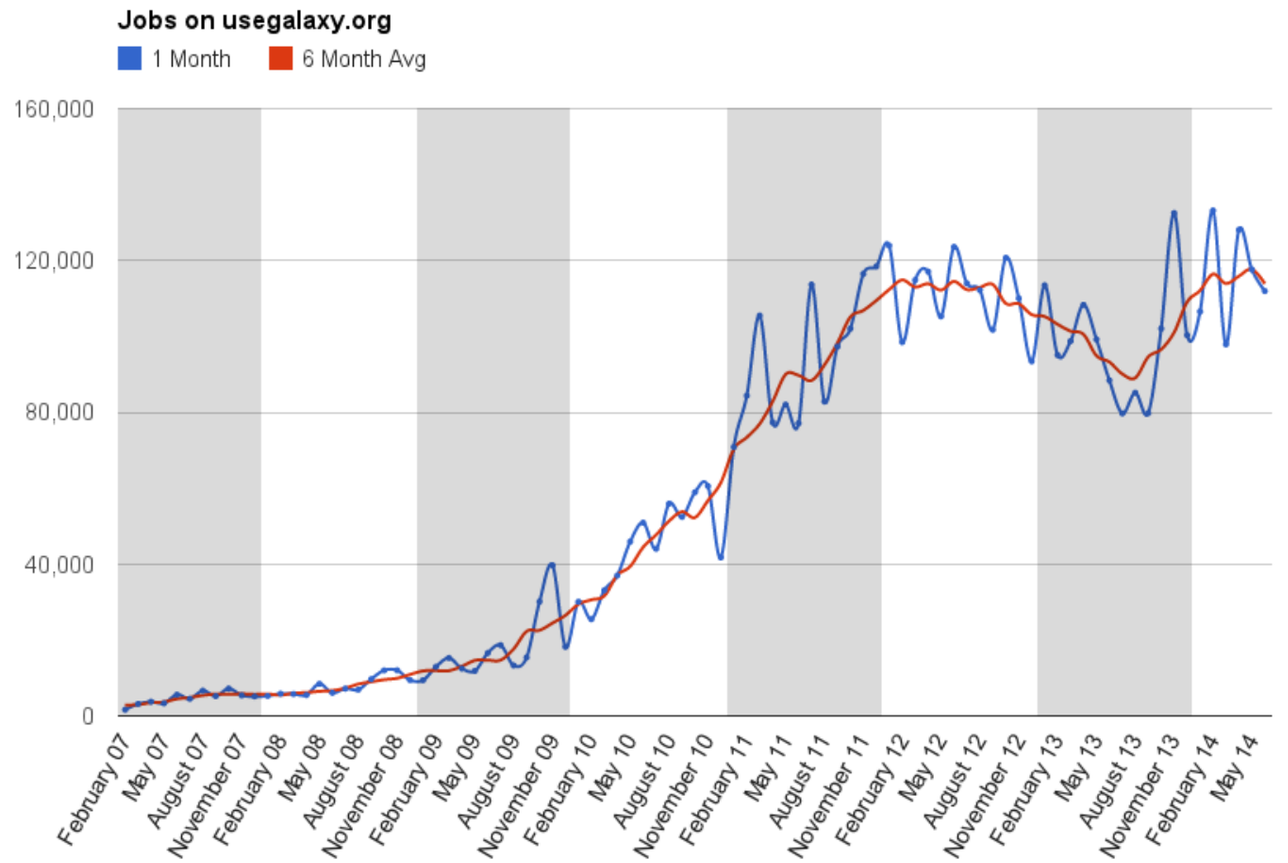
However, ***a centralized solution cannot support the different analysis needs of the entire world!***



Leveraging the national cyberinfrastructure for biomedical research

LeDuc, *et al. J Am Med Inform Assoc doi:10.1136/amiajnl-2013-002059*





And those trends continue…

bit.ly/gxyStats

Alternatives to the public service

1) Local installation

2) Cloud Computing

Local Galaxy Deployment

Galaxy is designed for local installation and customization... just download and run

Pluggable interfaces to compute resources, easily connect to one or more existing clusters

Ideally, allow users to take advantage of whatever computational resources they already have access to.

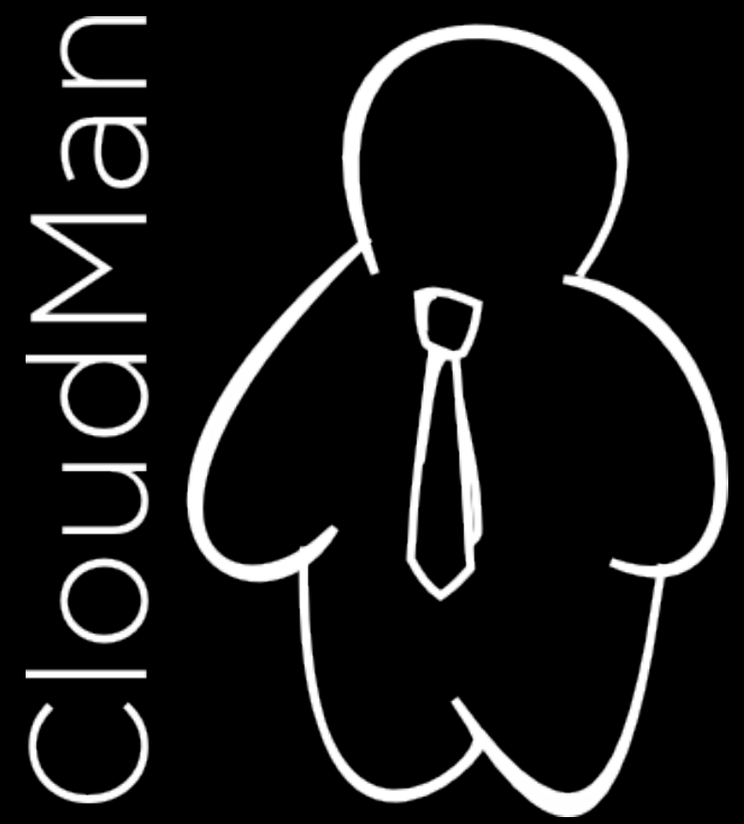
More than 60 known public Galaxy servers

Ballaxy for structure based computational biology,
Cistrome for regulatory sequence analysis,
Genomic Hyperbrowser: statistical integration of genomic data,
GigaGalaxy: integrating workflows published in GigaScience,
Pathogen Portal:comparative analysis of host response to pathogens,
...

Dozens of large scale private Galaxy instances

Welcome to **Galaxy** on the Cloud(s)

CloudMan: a general purpose deployment manager for ANY cloud



amazon web services™

nectar

Google Cloud Platform

iPlant Collaborative™

Atmosphere

Enis Afgan, Dannon Baker

Summary

Reproducibility is crucial to computational research, but currently poorly implemented

Galaxy is one platform that seeks to make computational analysis more *accessible*, *transparent*, and *reproducible*

It can be used as a free web service (http://usegalaxy.org), installed locally, or deployed in a cloud environment