Free Beer Today

How iPlant + Agave + Docker are changing our assumptions about reproducible science

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BOSC 2015

This is a whale free conference.

It has been

1

presentations since the last incident

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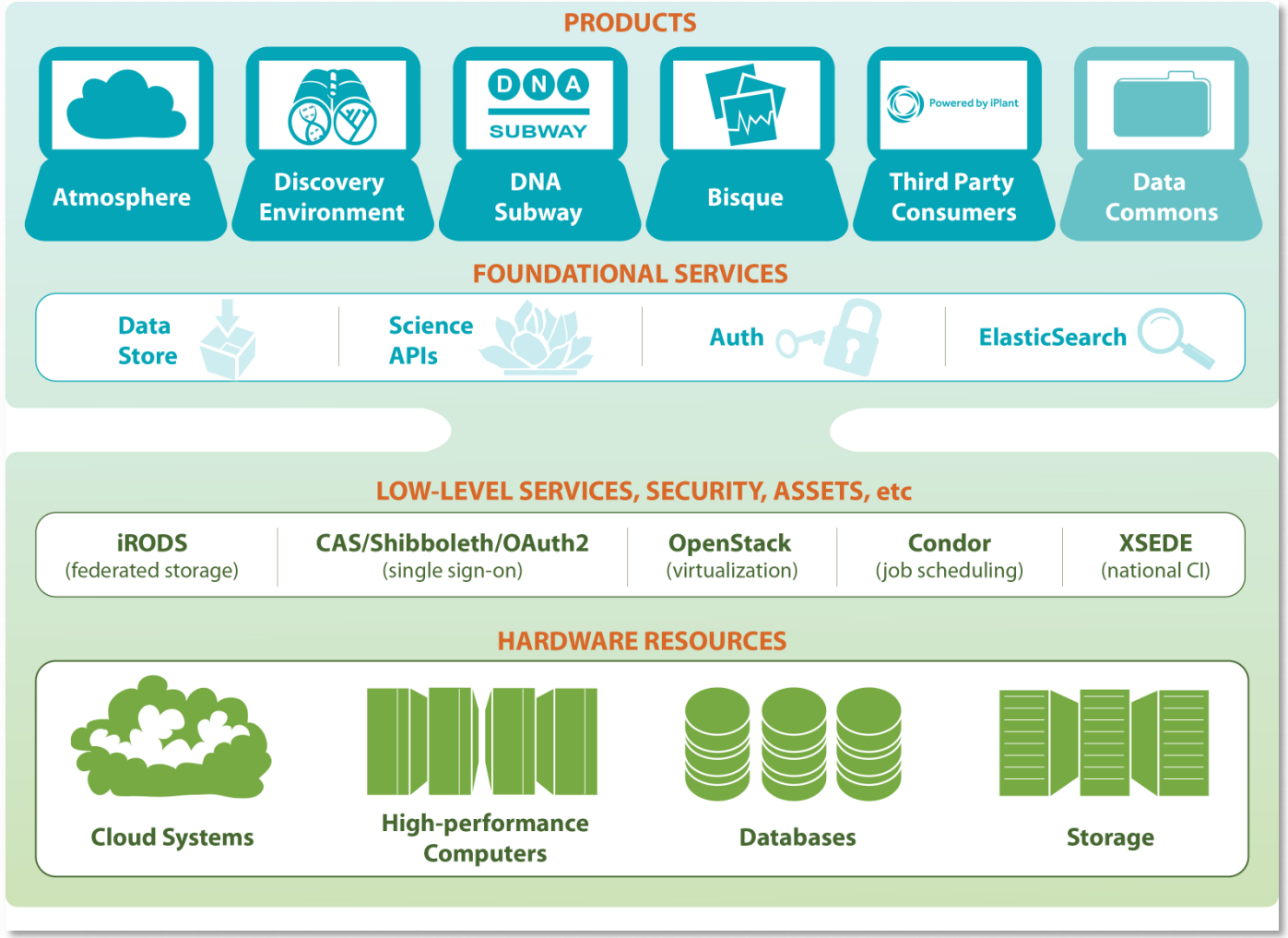
What is iPlant?

www.iplantcollaborative.org

- iPlant's mission is to build the Cyberinfrastructure to support ~~plant~~ biology's Grand Challenge solutions
  - Funded by the National Science Foundation as a $50M "five year mission" to build a virtual organization of experts in ~~plant~~ biology, computing, statistics, etc.
  - Long term focus on sustainable food supply, climate change, biofuels, ecological stability, etc.
  - Renewed in September 2013
- Led by U. of Arizona, TACC, and Cold Spring Harbor Labs; Hundreds of participants globally - Working group members at >50 US institutions, USDA, DOE, etc.

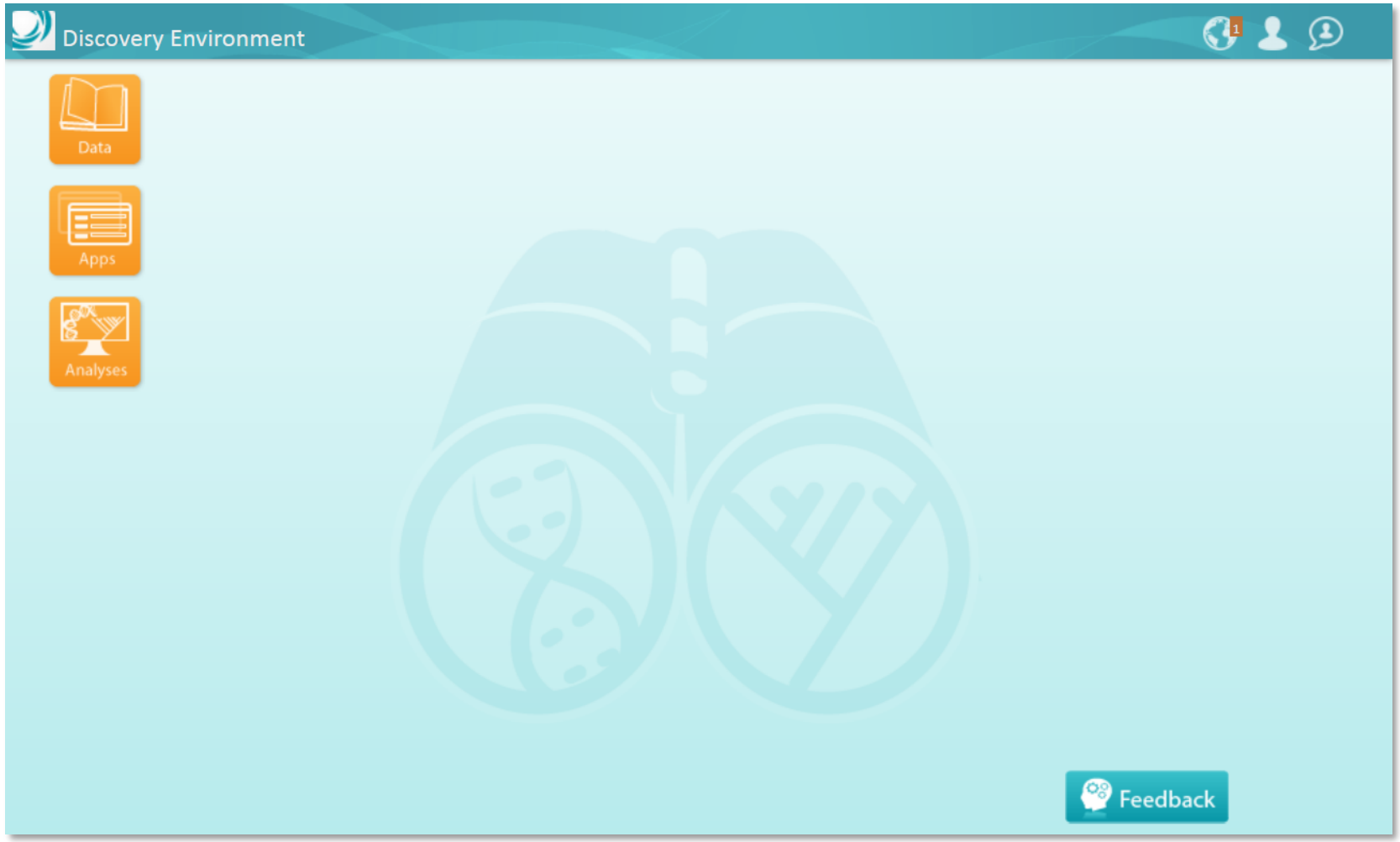
iPlant Cyberinfrastructure



- Web-based user interfaces for accessibility
- API level services for CLI and third party services
- Hardware resources built on the national cyberinfrastructure

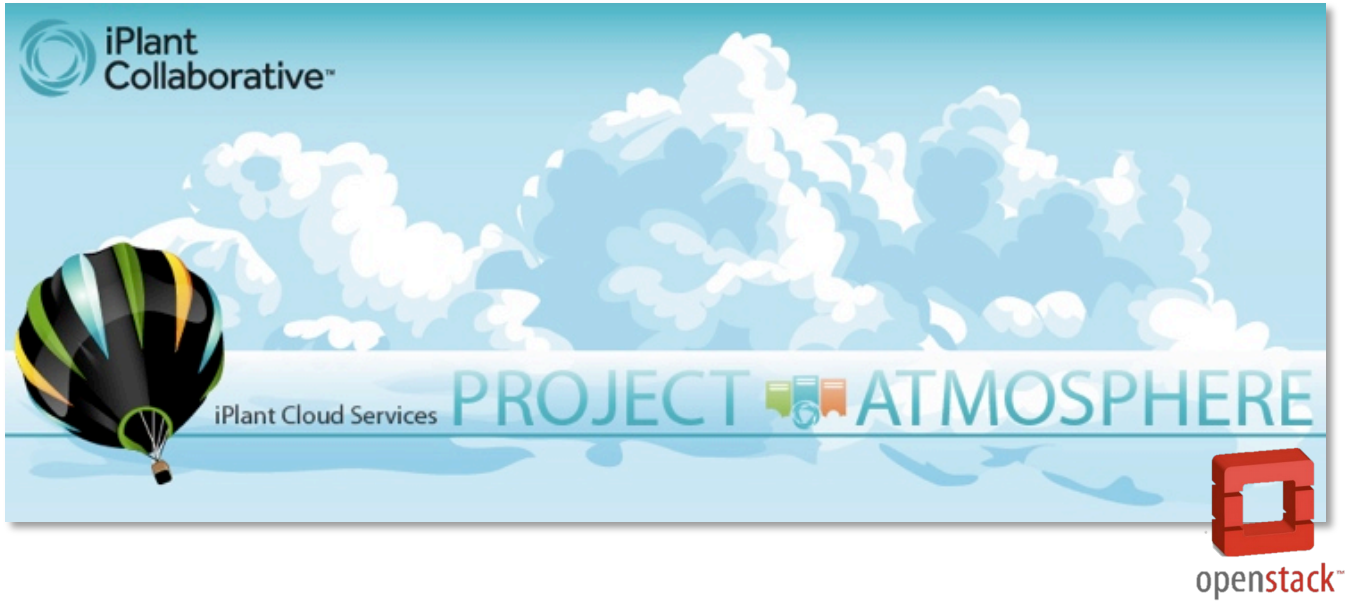
Discovery Environment

de.iplantc.org



Atmosphere

atmo.iplantc.org



- Largest, easiest to use open cloud for Life Science
- Choose an existing image or customize
- Instances up to 16-Core/128 GB RAM
- Share your image with selected users, or make them public

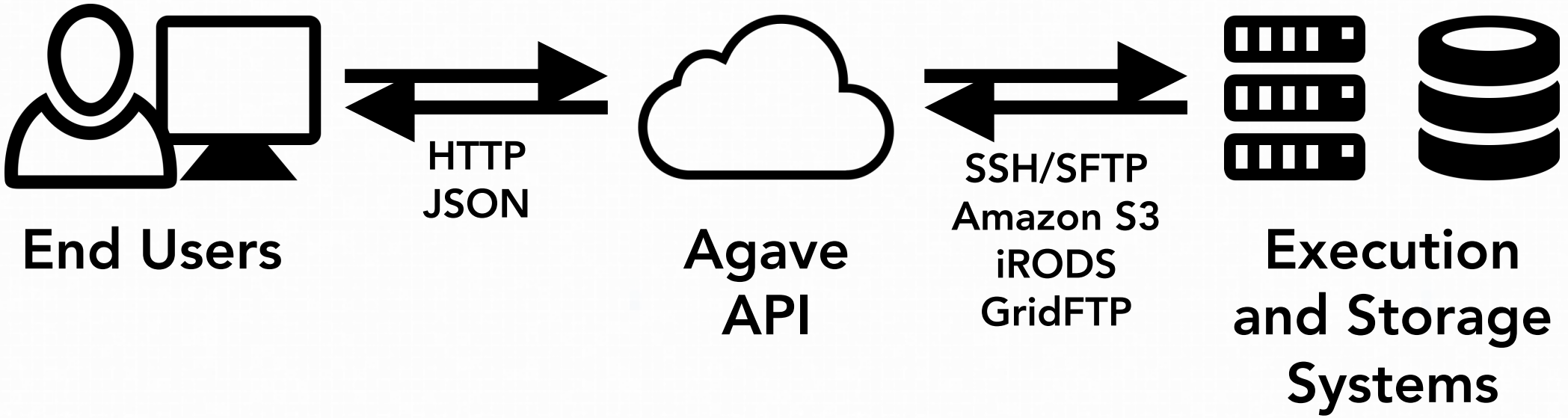
What is the Agave API?

agaveapi.co

- Science-as-a-service platform
- Use your own compute, and storage resources (or iPlant's)
- Clone existing apps and register your own
- Share your apps and access them through the DE

What is an API?

Application programming interface



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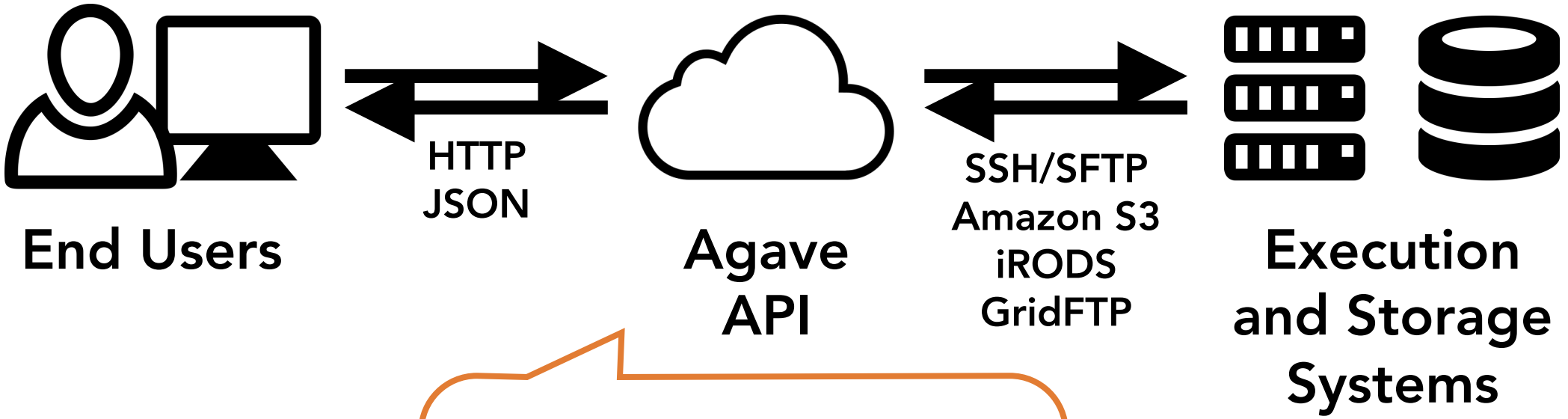

authentication systems
apps jobs files
notifications metadata
postits

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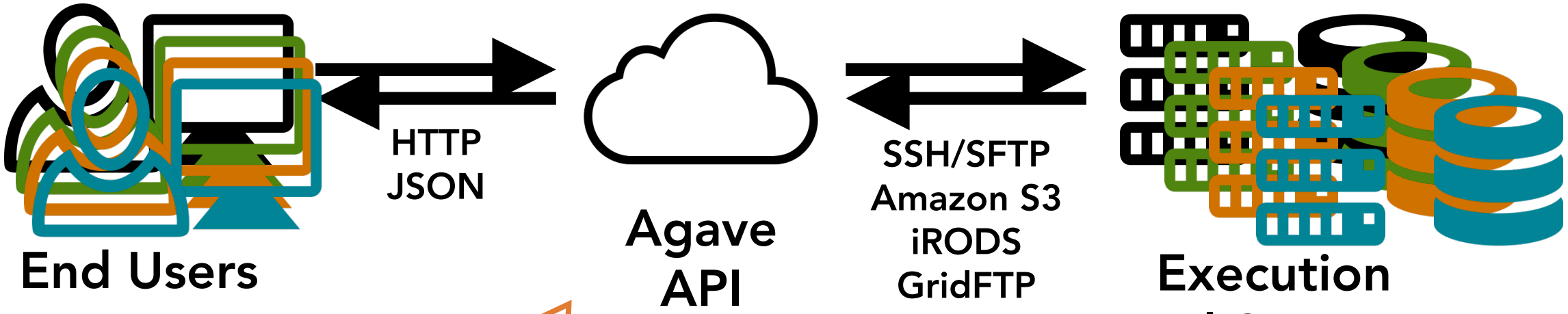
Application programming interface



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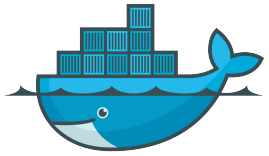
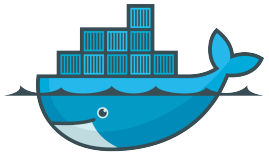
bit.ly/agave-togo

bitbucket.org/
taccaci/foundation-cli



Docker

Friend of developers… and users



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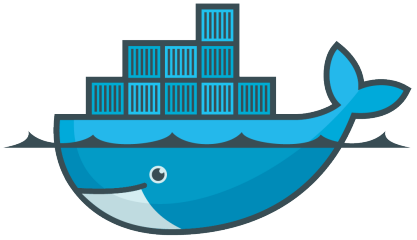
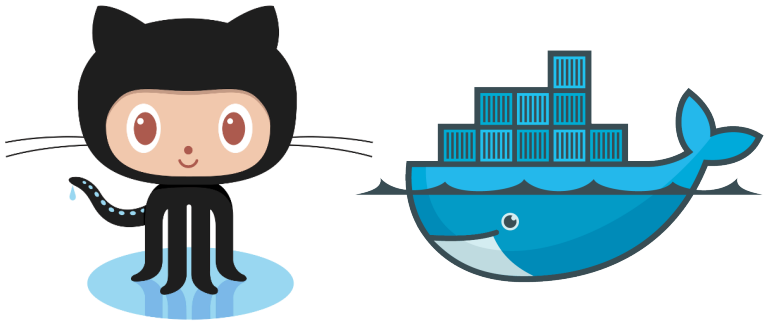


WHAT'S YOUR
POINT?

DID

Reproducibility

technology + convention



- open source
- version control
- app distribution
- runnable code
- sample data
- automated testing

- version control
- job provenance
- sample data
- platform integration

- fine-grain sharing
- cloud/cluster execution
- graphical user interface
- platform integration

Reproducibility

Is this is good as it gets?

…Nope

- More Docker support on advanced computing resources
- iPlant Data Commons
- Single click workflow re-execution
- Better OS support in Docker
- https://docs.docker.com/articles/dockerfile_best-practices/

Thanks!

Slides available at github.com/johnfonner/presentations

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iPlant Collaborative™

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