CYVERSE

Transforming Science Through Data-driven Discovery

Atmosphere Overview

Intro Cloud Computing

NSF

THE UNIVERSITY OF ARIZONA

TACC
TEXAS ADVANCED COMPUTING CENTER

CSH
Cold Spring Harbor Laboratory

UNCW

Welcome to Atmosphere

Custom Cloud Computing for Life Sciences

What is Cloud Computing?
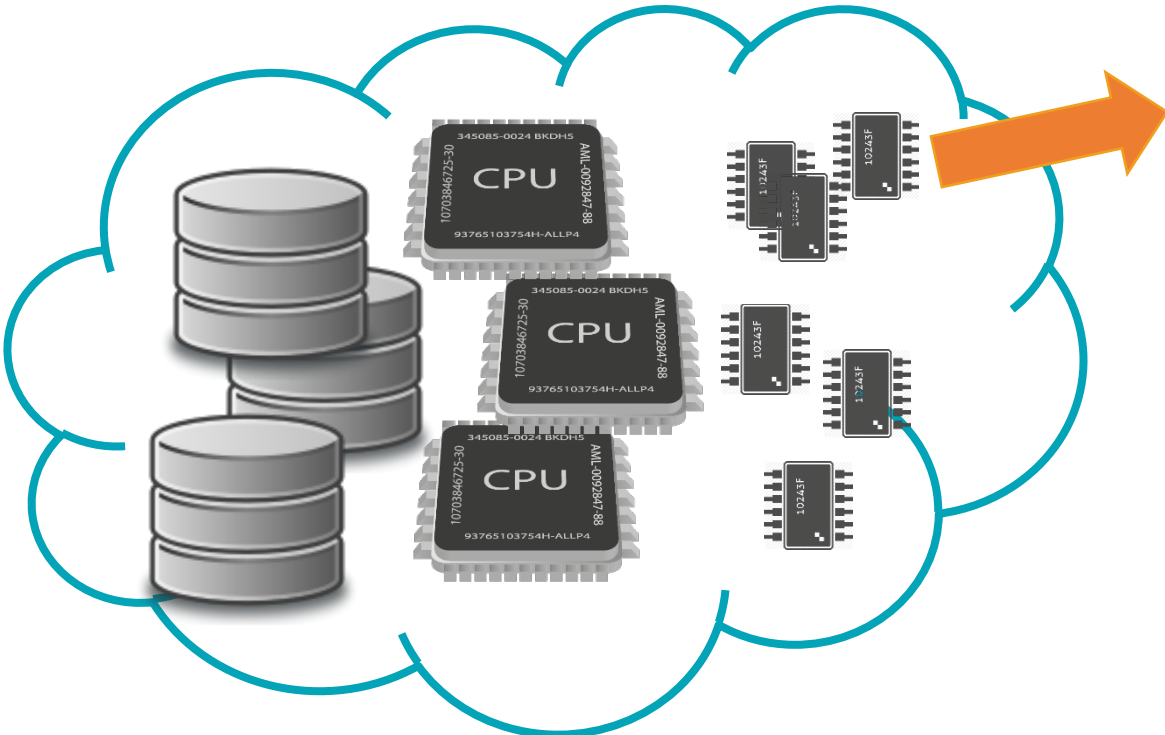
Yet another round of jargon

What is Cloud Computing?
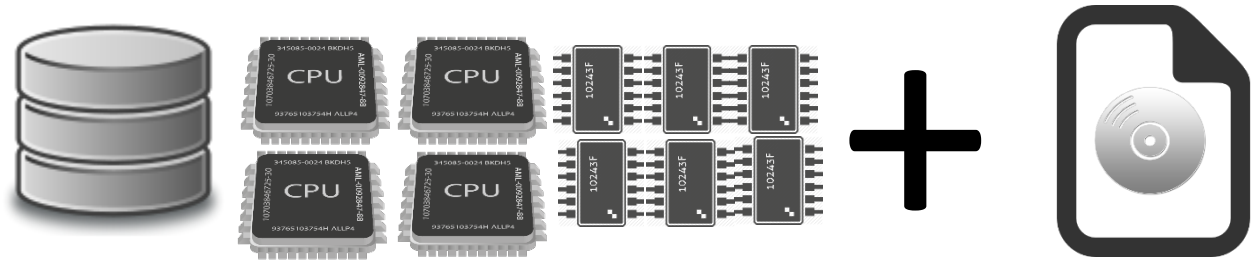
Important concepts: Image

Image (file)

Original system

Document(s) (file)

Complete clone (files/data)

Copied Document(s) (file)
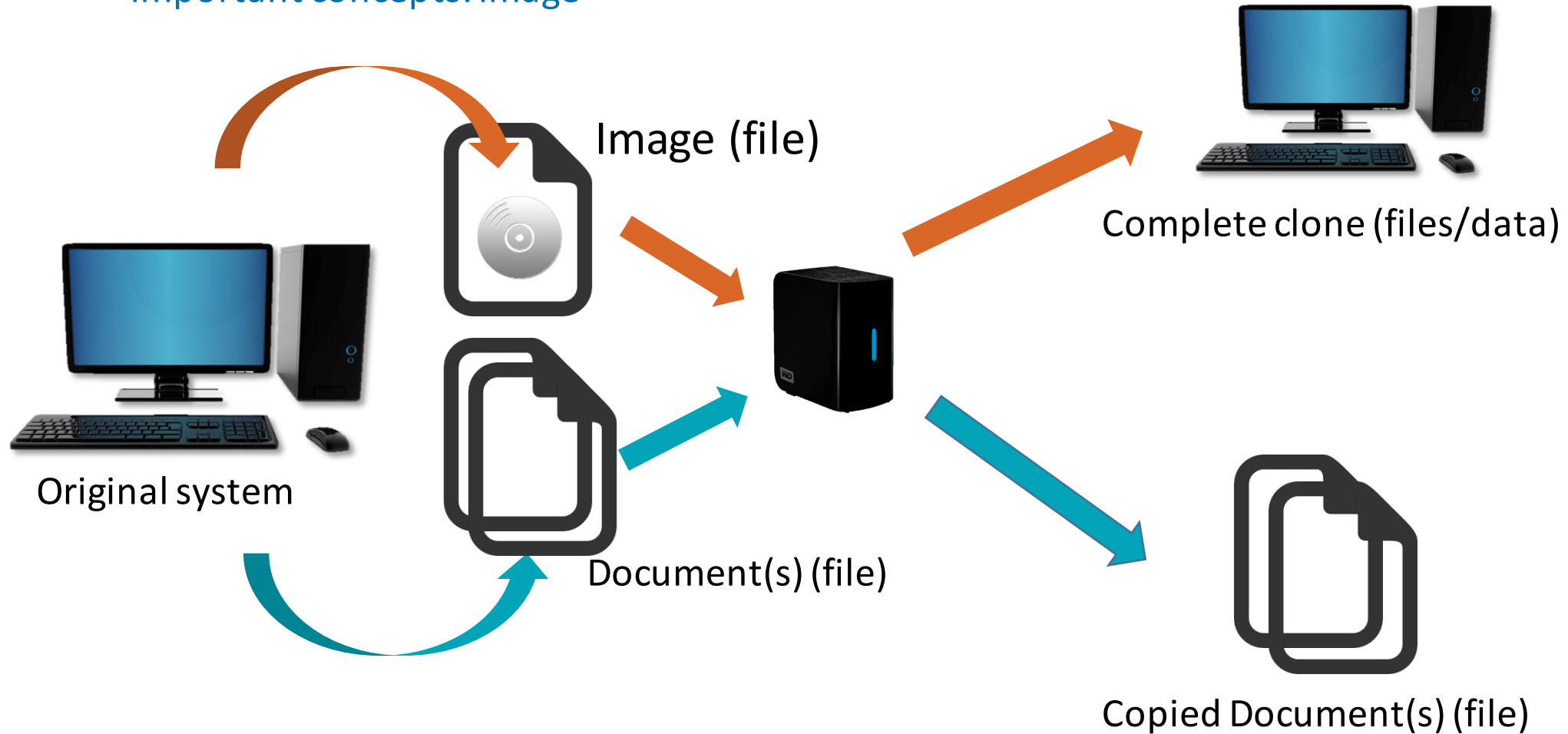
What is Cloud Computing?

Important concepts: Instance

(Disk + CPU + Memory) + (Image)

CyVerse Cloud

128.196.34.158

Atmosphere Instance (virtual machine)
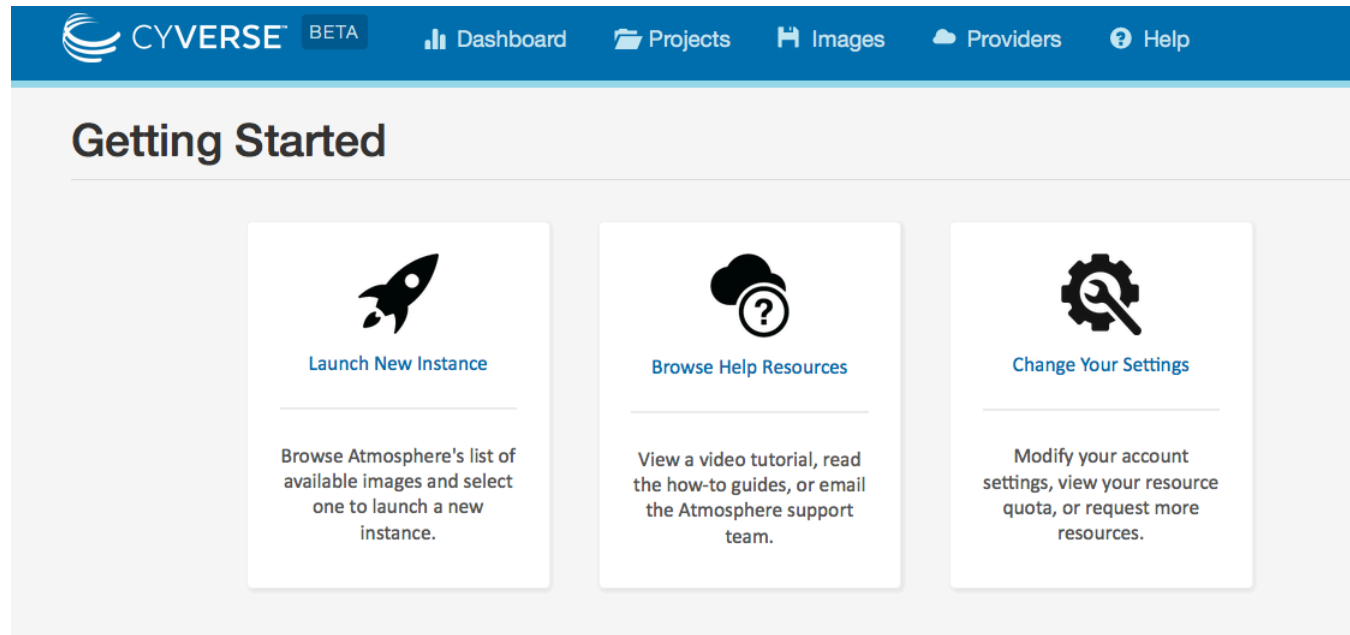
What is Cloud Computing?

Yet another round of jargon

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Largest, easiest to use cloud for Life Sciences

- Choose an existing image or customize

- Instances up to 16-Core / 128 GB RAM

- Access via shell or VNC

- Share you image with selected users, or make them public

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Benefits

Get Science Done	• Work in an on-demand Linux environment (most bioinformatics)
	• Collaborate with students and colleagues on the same instance
Reproducibility	• Make data, workflows, and analyses available in a public image
	• Access previous software version and images
Productivity	• Multicore high memory images to run multithreading applications
	• Move your analyses from your laptop to the cloud

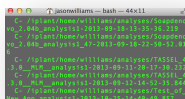# Atmosphere Overview

Connecting to your instance

Windows
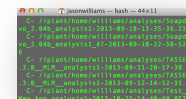
Mac

Linux

VNC Viewer

VNC Viewer

VNC Viewer

PuTTY

Shell/terminal

Shell/terminal

VNC Viewer: www.realvnc.com/download/viewer

PuTTy: www.putty.org

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User perspectives and possible applications

Bench Scientist

- Learned how to use the shell and how to work with Linux

- Mastered using R to develop plots for his manuscript

Bioinformatician

- Launches an image and has full SUDO access to customize
- Developed a software with numerous R and Python library dependencies
- She updates it regularly by making a new image

Core Facilities

- Linked several atmosphere instances with Apache Hadoop

- Worked with CyVerse to import existing Amazon image

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Key things to remember when you try this yourself

- Images do not have automatic access to your Data Store
  - Use Cyberduck to access the Data Store
  - Use iCommands
- Users have monthly allocation limits
  - Terminate, or stop instances not in use
  - If a larger allocation is needed, contact support
- All data on terminated instances will be destroyed
  - Use Cyberduck or iCommands to transfer data off the instance
  - You may also create an EBS Volume (see documentation)

Where to go from here:

Learning Center

- Get Started Guide
- Tutorials and Videos
- Documentation

Upcoming Events

- Workshops
- Webinars

Keep asking: ask.iplantcollaborative.org

Detailed instructions with videos, manuals, documentation in Learning Center

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THE UNIVERSITY OF ARIZONA

Parker Antin
Nirav Merchant
Eric Lyons

TACC TEXAS ADVANCED COMPUTING CENTER

Matt Vaughn

CSH Cold Spring Harbor Laboratory

Doreen Ware
Dave Micklos