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How to Conduct Cloud-Based Student Labs in Your Classroom

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How to Conduct Cloud-Based Student Labs in Your Classroom

Dr. Russell Thackston & Dr. Ryan C. Fortenberry

About Us

Dr. Russell Thackston, Assistant Professor

- Department of Information Technology, GSU
- Research focus: Cloud Computing

Dr. Ryan Fortenberry, Assistant Professor

- Department of Chemistry, GSU
- Research focus: Theoretical Astrochemistry

Agenda

1. What is cloud computing?

2. How can we use it in the classroom?

3. How much will it cost?

What is Cloud Computing

Short answer...
Computers you rent and access over the internet.

Web Servers

High Performance
Computing (HPC)

"Big Data"
Analytics

Facebook

GMail

Folio

GEORGIA
SOUTHERN
UNIVERSITY

Georgia's large-scale, small-feel research university

Web Servers

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Cloud Computing in the Classroom

Why?
- Money
- Ad-hoc or unusual uses

How?
- Amazon, Google, Microsoft
- Generic or custom images

What you won't learn today...

- How to build web pages.
- How to get a domain name.
- How to transfer files, which varies between computers.
- How to use specific software, such as PSI4.

Amazon AWS

1. Sign up for a free account (your students can too!)
2. Create a "virtual machine" based on a Marketplace image.
3. Copy website files to the server.
4. Go live!

AWS Demo

Our Research: PSI4

- Computational chemistry software
- Suite of *ab initio* quantum chemistry programs
- Designed for efficient, high-accuracy simulations of a variety of molecular properties
- Free!

PSI4 on AWS

1. Sign up for a free account (your students can too!)
2. Create a "virtual machine" based on the PSI4 community image.
3. Copy your input files to the server.
4. Run the calculations.
5. Download the results.

PSI4 Demo

Cloud Pricing Models

- Compute time
- Storage
- Data transfer
- Licensing

Pricing Demo

https://cloud.google.com/products/calculator/

Questions?
Comments?