Getting a Research Computing Account

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Instructor: Trevor Hall
Workshop: Quick Byte

- Website: www.rc.colorado.edu
- Helpdesk: rc-help@colorado.edu
- Slides: https://github.com/ResearchComputing/New_User_Seminar

- Survey: http://tinyurl.com/curc-survey18

RMACC Cyber Infrastructure Portal

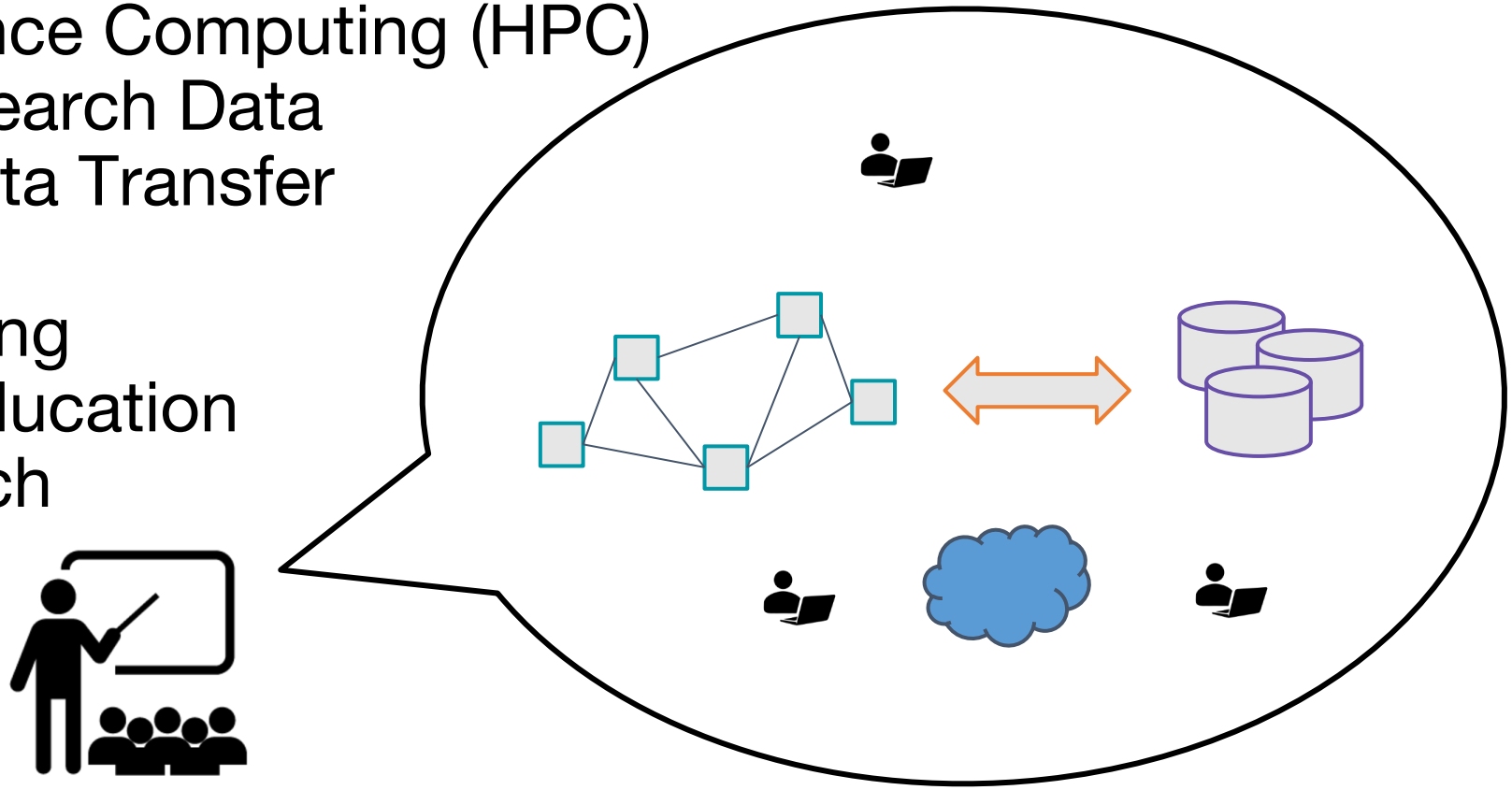
- https://ask.cyberinfrastructure.org/c/rmacc/65
- This forum provides opportunity for RMACC members to converse amongst themselves and with the larger, global research computing community.
- The “go to” general Q&A platform for the global research computing community - researchers, facilitators, research software engineers, CI engineers, sys admins and others.

Learning Goals

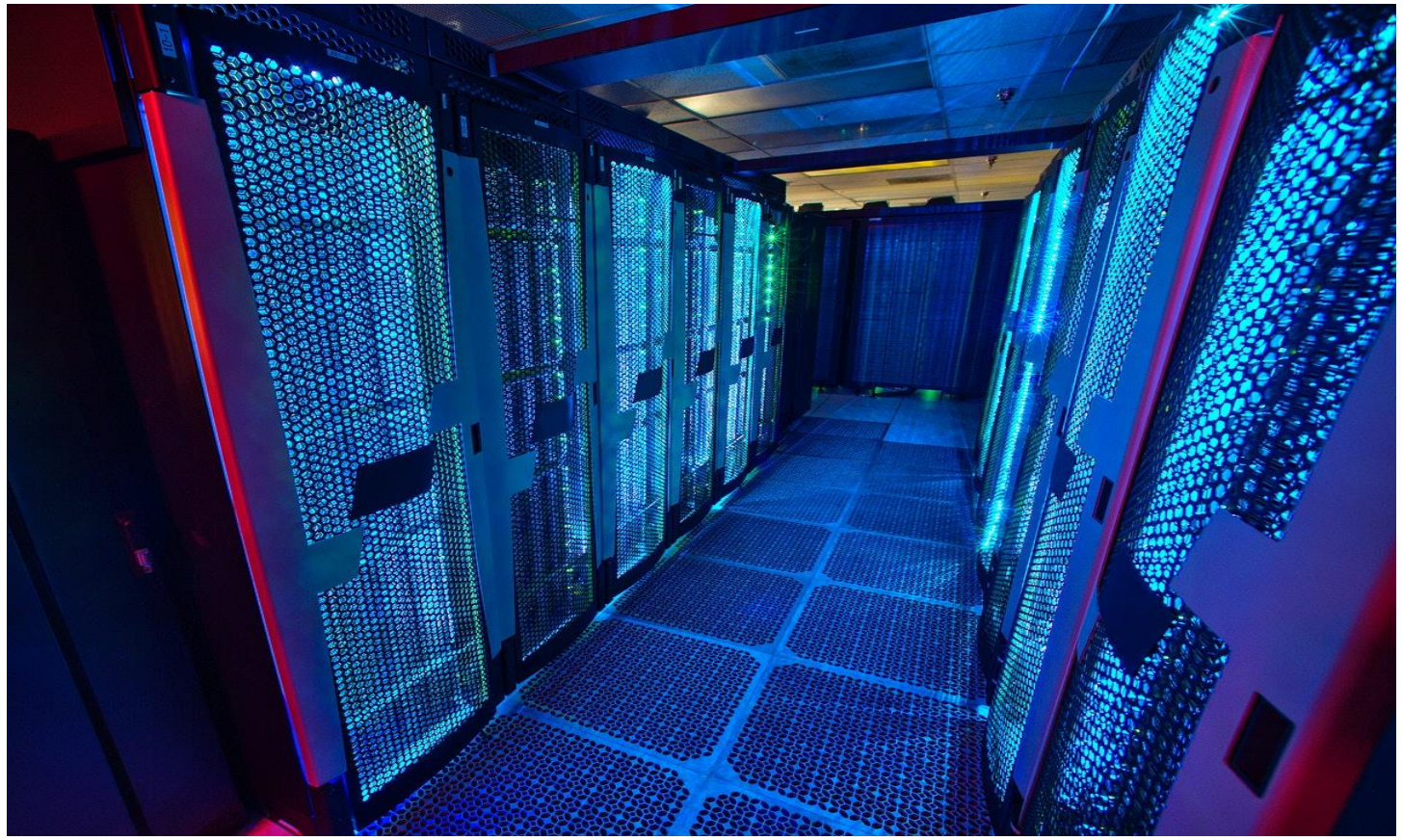
1. Understand Basic CURC Resources & the Alpine cluster
2. Getting an account & logging in

CURC Resources Include:

- High Performance Computing (HPC)
- Storage of Research Data
- High-Speed Data Transfer
- Data Sharing
- Cloud Computing
- Training and Education
- Secure Research



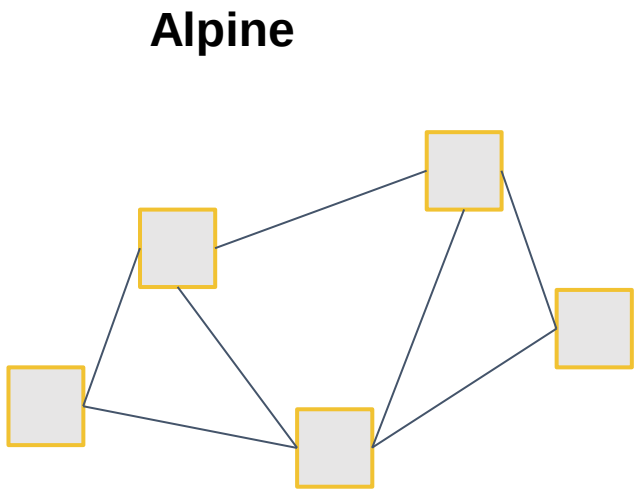
Primarily known for:
High Performance Computing (HPC)



What can / use HPC for?

- Solving large problems that require more:
  - Memory than you have on your PC
  - cores/nodes/power than you have on your PC
- Jobs that require hardware you may not have:
  - High Performance GPU computing
  - Specific Operating System
- Visualization rendering

HPC Cluster: Alpine

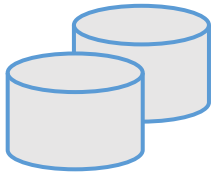


- Alpine is the 3rd-generation HPC cluster at CURC, following:
  - Janus
  - RMACC Summit

- Alpine is a heterogeneous cluster with hardware currently provided by CU Boulder, CSU, and Anschutz
- Access available to CU Boulder, CSU, AMC and RMACC users

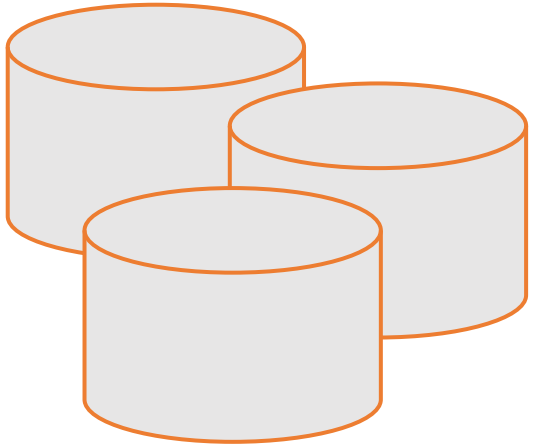
Storage at CURC

Core



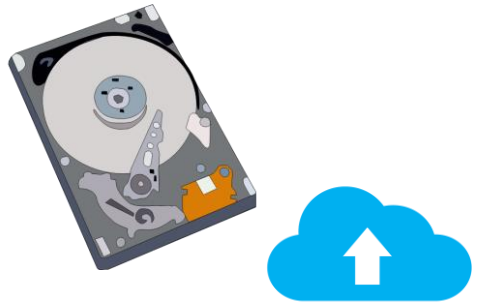
- Included with RC account
  - /home
  - /projects
  - scratch space

PetaLibrary



- Paid Service for:
  - Storage
  - Archive
  - Sharing of research data

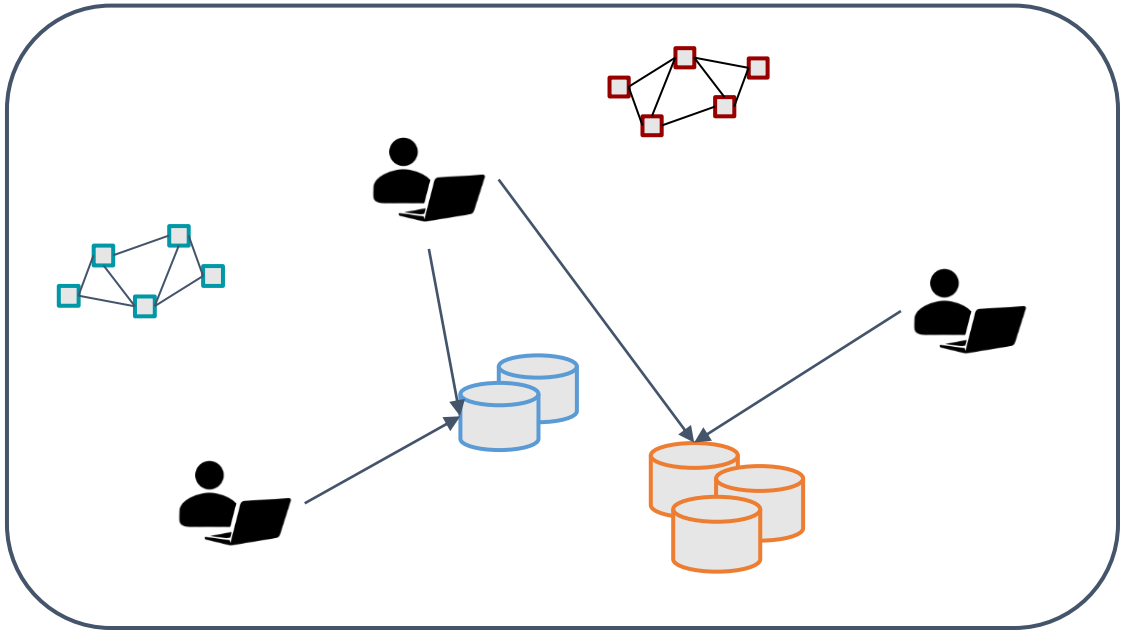
Local or Cloud



- You can download your data locally or to a variety of other cloud resources
- Cloud Foundations at Research Computing

Data Sharing: Within RC

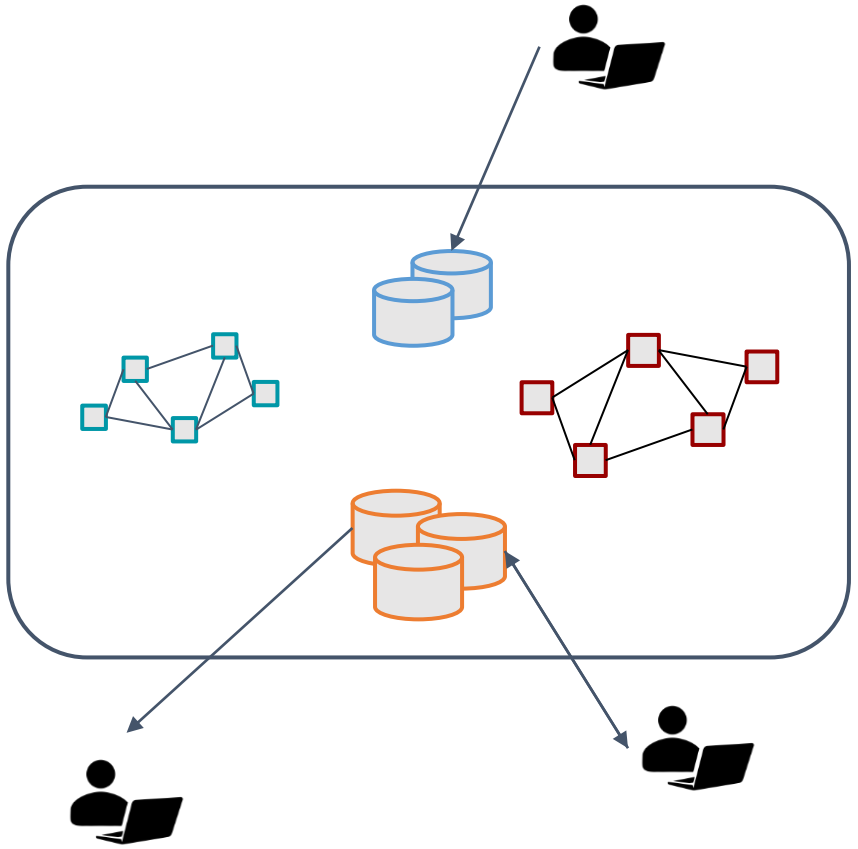
- Sharing workspaces
  - Project space
  - Scratch Space
  - PetaLibrary Space*



*If you have purchased PetaLibrary space

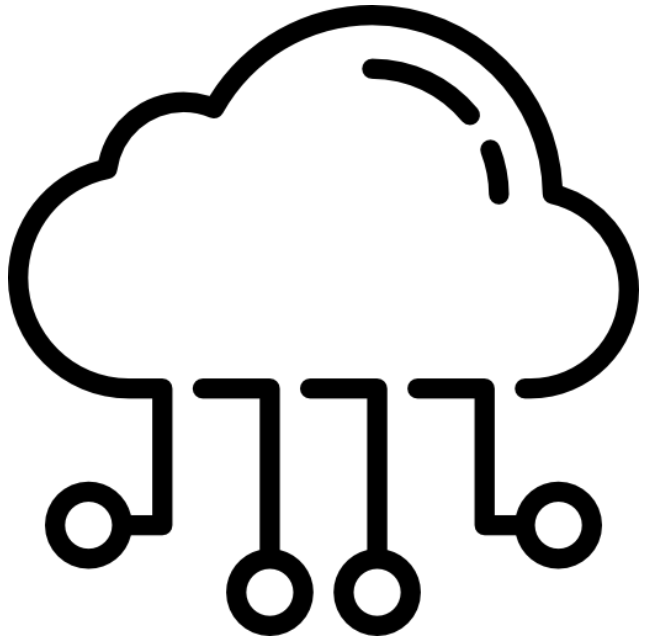
Data Sharing: Outside RC

- Globus (recommended):
  - GUI Web Application
  - Automates large transfers
  - Resumes failed transfers
  - Distributes large transfers across DTNs
  - Endpoints that can shared
- Data Transfer Nodes (DTN)
  - Internal CU network needed (VPN)
- Command line tools
  - scp, sftp, rsync, rclone



Cloud Computing

- CURC supports AWS, Azure, and GCP cloud
  - For use cases not well-supported by HPC
- Can be used as an alternative to HPC
- Can be used to enhance HPC
  - Automatic job submission, high availability, etc.



Accessing Research Computing

How to Access RC Resources?

1. **Get an RC account**
2. **Set up two-factor authentication with Duo**
3. (Inform us of any specific needs)
4. **Log in**
5. Create greatness! (responsibly)

Getting an RC Account

- **University of Colorado, Boulder users and affiliates:**
  - Request an account through the RC Account request portal
  - https://rcamp.rc.colorado.edu/accounts/account-request/create/organization
- **Colorado State University users:**
  - Request an CSU eID if you don't have one
  - Fill out account application form
  - Duo authentication
    - https://it.colostate.edu/duo-two-factor-authentication/how-to-register-devices/#register-app
- **CU Anschutz Users:**
  - Create an ACCESS-CI Account in the ACCESS user portal
  - Reach out to hpcsupport@cuanschutz.edu to receive and sign the End-User Agreement
- **RMACC Users:**
  - Create an ACCESS-CI Account in the ACCESS user portal
  - Email us at rc-help@colorado.edu and request an account. Please include the following information: your ACCESS username, your institutional affiliation, your role, your department, your first and last name, your preferred email address for communication

Demo: Getting an Account

- CU Boulder, CSU users and affiliates:
  - Request an account through the RC Account request portal: https://rcamp.rc.colorado.edu/accounts/account-request/create/organization
- AMC, RMACC users and affiliates:
  - Request an account through the ACCESS-CI User Registration Portal: https://identity.access-ci.org/new-user.html

Your RC Account

Access to:

1. Alpine Cluster
2. Core Storage
3. PetaLibrary Storage*
4. Open OnDemand
5. Approximately 2,000 Service Units (SUs) per month

*If purchased

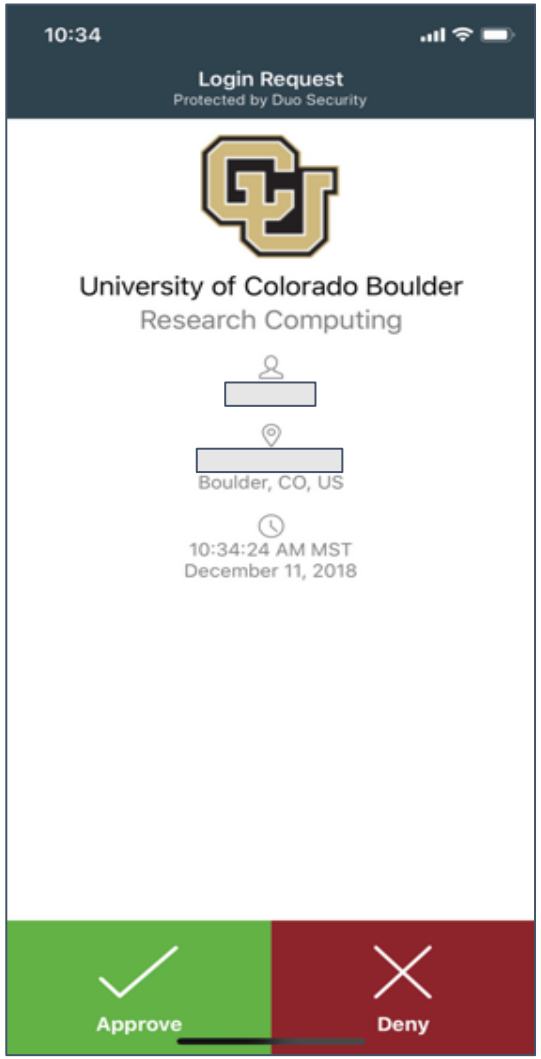
Two Factor Authentication (Duo)

- Provides an extra level of authentication
  - We are outside the firewall!
  - Valuable resources
  - Inviting, high-profile target

- Duo
  - You will receive a Duo invitation when your RC account is created

Duo Authentication

1. **Duo smartphone app (recommended)**
2. Phone Call/Text as alternatives



Demo: Logging in via Terminal

- To login to an RC login node:

```
$ ssh <username>@login.rc.colorado.edu
```

Supply your IdentiKey password and your Duo app will alert you to confirm the login

*CU and CSU exclusive (AMC available by request)

Demo: logging in with OnDemand

CURC Open OnDemand is a browser based, integrated, single access point for all of your HPC resources at CU Research Computing.

- CU Boulder: Visit https://ondemand.rc.colorado.edu.
- Other RMACC Institutions: Visit https://ondemand-rmacc.rc.colorado.edu/

Logging In

- It’s important to note that you are ***NOT*** logging into any specific resource, Alpine, Blanca, etc.

- When you log in, you land on our ***login nodes***

- From ***there***, you can access our other resources:
  - Alpine
  - Blanca
  - Petalibrary

Questions?

- **Documentation**: curc.readthedocs.io/
- **Trainings with Center for Research Data and Digital Scholarship (CRDDS)**: https://www.colorado.edu/crdds/
  - **Coming up:**
    - **RC Primer: Alpine New User Seminar (4/4)**
    - **RC Short Course: Supercomputing Spinup Part 1 – Working with Linux (4/9)**
    - **RC Short Course: Supercomputing Spinup Part 1 – Working with Linux (4/11)**
- **Helpdesk**: rc-help@colorado.edu
- **Consult Hours (Tuesday 12:00-1:00, Thursday 1:00-2:00)**

Survey and feedback

http://tinyurl.com/curc-survey18