



UNIVERSITY
of HAWAII
SYSTEM

Information Technology Services **CYBERINFRASTRUCTURE**

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Presenter: Ron Merrill

Mission

Cyberinfrastructure's (CI) mission is to support data intensive research and scholarship at UH with state of the art resources, services and expertise

Our focus

- Advanced research computing (above the desktop)
- Data
- Science as a service
- Collaborative research

**Serving the entire UH System
Since 2014**

Hawai'i Data Science Institute

A systemwide initiative to catalyze research and training capacity in data science, computation and visualization

Audience

Students

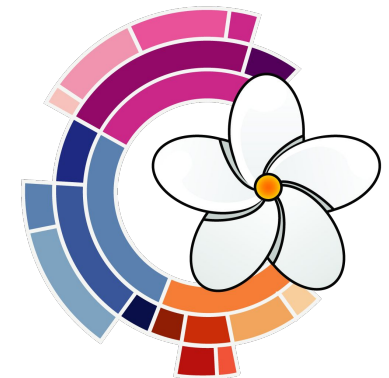
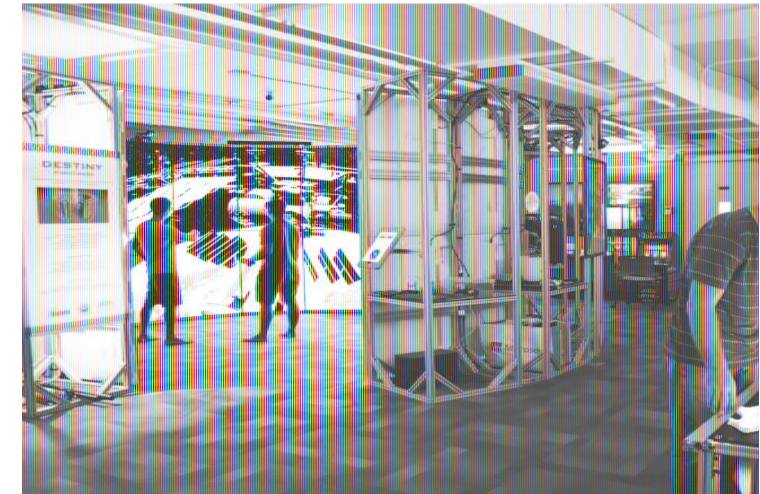
Participate in a cross-disciplinary data science curriculum

Researchers

Promote and support cross-disciplinary data intensive research

Industry

Forge partnerships with industry and government agencies



HAWAI'I DATA SCIENCE

Training and Education

Facilitate the development of data science curricula

- Data Science Certificate
 - Information and Computer Sciences - Manoa
 - Data Science - UH Hilo
- Bachelor of Science in Data Science
 - UH Hilo
 - Chaminade

Data science & CI skills training

- Open to the UH community at large
- Examples:
 - HPC & Cloud computing
 - Data Wrangling
 - Python & R
 - Visualization
 - Computational workflows



Compute Services

Koa - High Performance Computing (HPC) Cluster

FREE to use for UH affiliates

\$5.2 Million in Grant, Researcher and Institutional funds invested since 2014

Koa by the numbers

- 271 Compute Nodes
- 120 GPUs
- 7,746 cores
- 62.28 TB of memory
- Storage:
 - 50 GB per user home
 - 500 GB per lab
 - 800 TB of scratch
- 167 user active per month

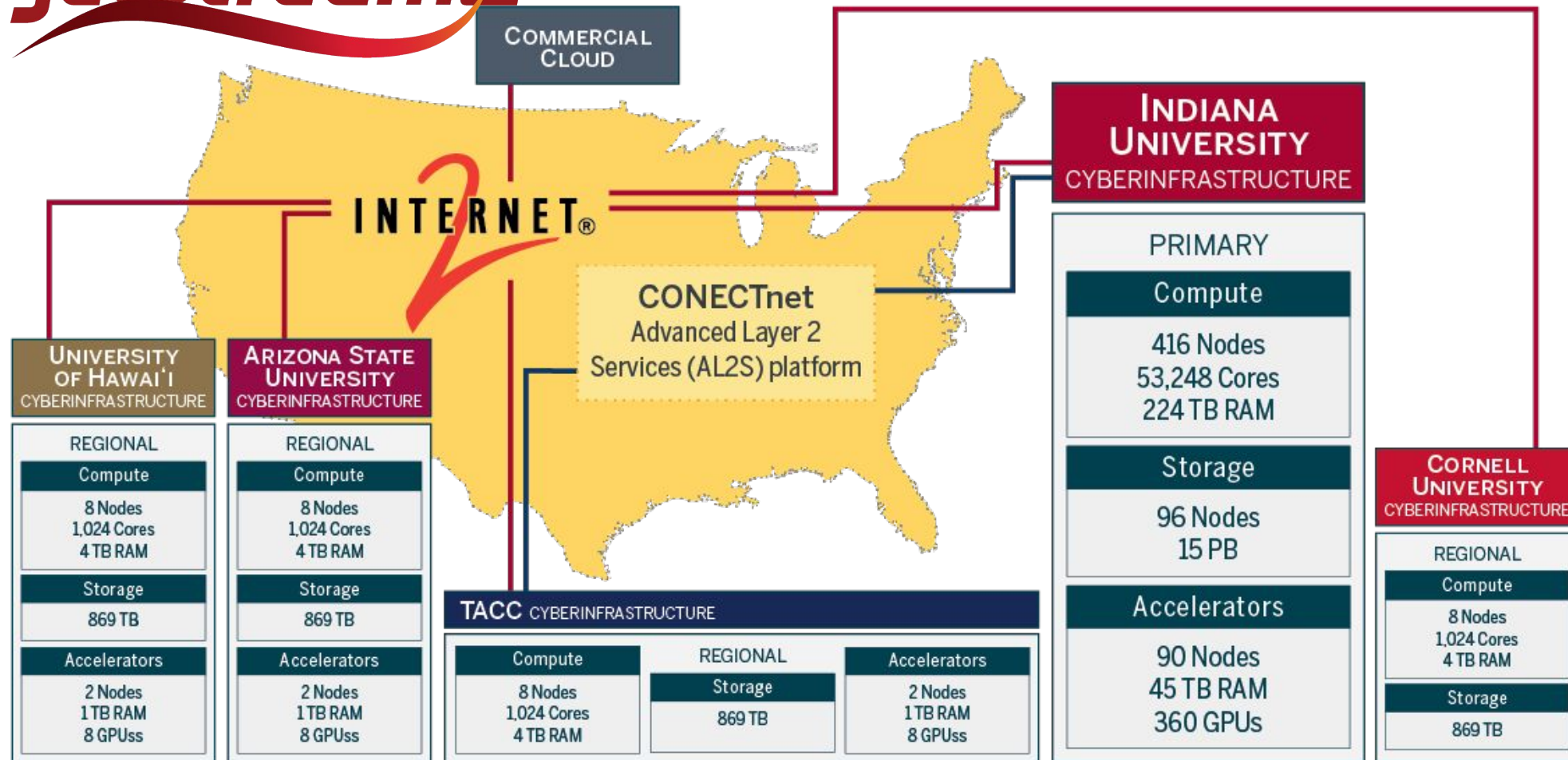
Faculty, Staff and Departments can invest in Koa by ...

- Lease community nodes on a per month timeframe
- Purchase nodes to integrate into Koa



Compute Services

Jetstream2



National Resources



- National NSF cloud computing - Jetstream2
 - UH has a regional portion of the Jetstream2 Cloud
 - <https://jetstream-cloud.org/>



- National HPC resources - ACCESS
 - We help with initial access and getting allocations to these resources and helping researcher get their codes running
 - <https://access-ci.org/>



Storage Services

Koa Research Storage

- A cheap and deep scalable storage system to meet researcher storage demands
- Appropriate for research data that is not classified as UH Protected data
- Current capacity: 2+ PB

Served in two flavors

KoaCloud:

- Dropbox like storage powered by Nextcloud
- Remote network share, sync and web client
- Leased in 1 year increments at \$55/TB/yr

KoaStore:

- Additional permanent storage for use on Koa
- Leased in 1 year increments at \$50/TB/yr



Software Engineering & Data Science Services

- Access professional research software engineers & data scientists
- Access graduate data fellows

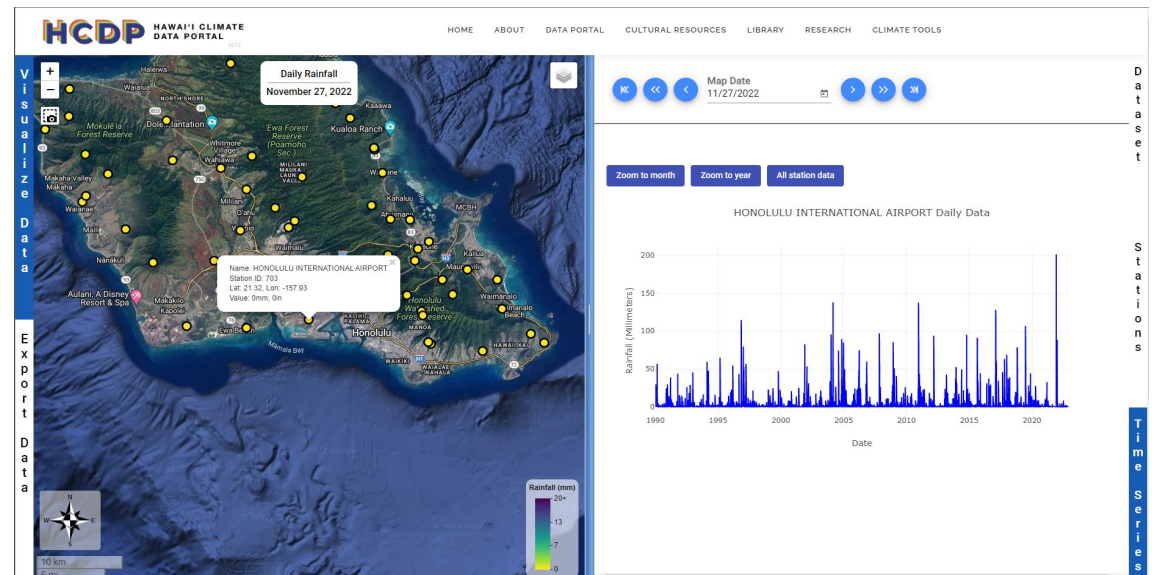
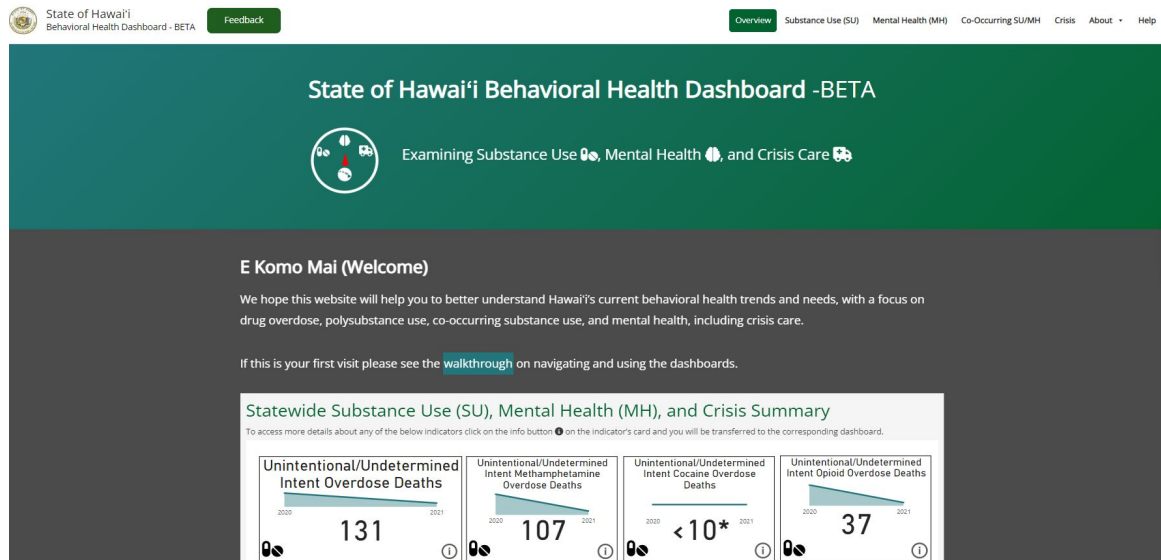
Highlighted Projects

State of Hawai'i Behavioral Health Dashboard

<https://bh808.hawaii.gov/>

Hawai'i Climate Data Portal

<https://hawaii.edu/hcdp>



Software Engineering & Data Science Services

Science-As-A-Service Platform

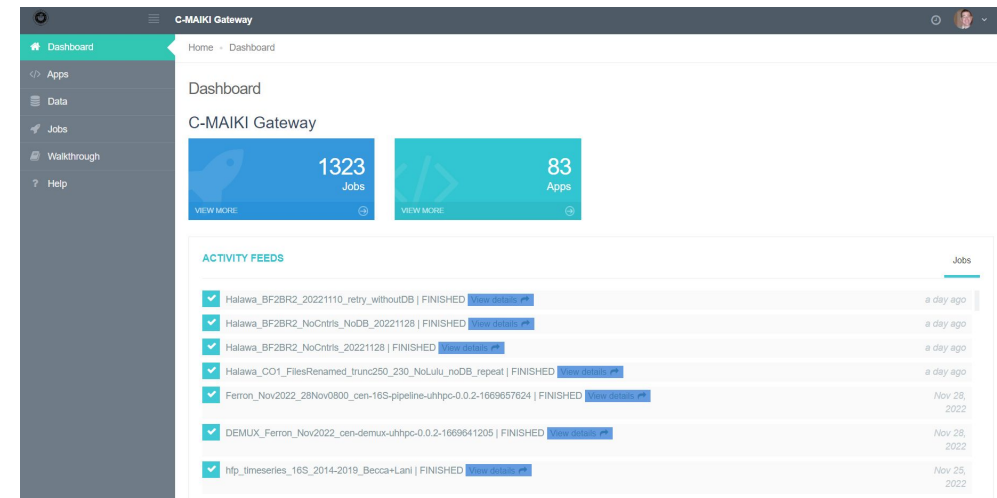
- Advanced computing end-to-end workflows
- Functions-As-A-Service (serverless/lambda)
- Streaming data
- Collaboration, data management and sharing



Highlighted Project

C-MAIKI Gateway for Microbiome data analysis

- > **1300** workflows run
- >**900K** parallel jobs on Koa
- Provides Simple Browser Access



Data Transfer Services

Help with research data movement

- Trouble moving data?
- Data transfers slow?
- Need to move a lot of data?

Globus

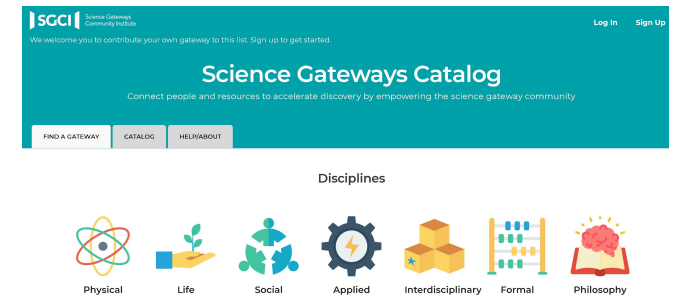
- UH System has a subscription for additional features
 - Access granted for free upon request
 - Enables the ability to share files/folder on your laptop with other Globus users
- Robust data transfer - can resume large transfers
- Can transfer from laptop to Koa, or other major resources NCAR/ACCESS etc



Soft Services

Science Gateways

- Bringing together data, software and resources related to domains or communities



Help with Data Management Plans

- Making data FAIR:
Findable, Accessible, Interoperable, Re-usable



Help with Reproducibility

- Scientific container environments to combine dependencies, data, code and results



Mahalo!

Register for Training and Koa Account

<http://go.hawaii.edu/G6V>

Contact Us

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Learn More

datascience.hawaii.edu