INTERNET 2

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NSF

Agenda

Workshop at Clark Atlanta University

June 11, 2025 | Atlanta, GA

Join the MS-CC

Wireless info:

SSID: PantherGuest

Password: none

Pre-Workshop Survey

Register here!

MS-CC Workshop at Clark Atlanta University

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Acknowledgement

This material is based upon work supported by the National Science Foundation under Grant No. 2234326. Any opinions, findings, and conclusions or recommendations expressed in this material are those of the author(s) and do not necessarily reflect the views of the National Science Foundation.

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EVENT CODE OF CONDUCT

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Participants are expected to follow these rules at all Internet2-hosted events. Participants violating these rules may be asked to leave an event without warning or a refund, at the discretion of Internet2. In some instances, such behavior may be reported to local or federal law enforcement officers. If you believe that you or someone else has been subject to these behaviors, please contact the Internet2 Ethics Hotline immediately at (877) 842-6829 or send a message via the web at www.reportlineweb.com/internet2.

Pre-Workshop Survey:

https://bit.ly/3Fz0pHH

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Agenda Overview

Day 1	
Now	Welcome & Opening Remarks
Next	MS-CC Overview & Cyberinfrastructure (CI) 101
Early AM	Preparing the Next CI Professionals
Mid AM	Inter-Campus Collaboration Panel
Lunch + Networking	
Early PM	Funders & Regional Networks Panel
Next	Digital Humanities Panel
Mid PM	Art and Technology (Tour Museum)
Next	Group Photo, Reflections & Day Close
Late PM	Networking Continues

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Welcome

Dr. Charlene D. Gilbert, Provost and Senior Vice President for Academic Affairs, Clark Atlanta University

Dr. Frances Williams, Vice President for Research and Sponsored Programs, Clark Atlanta University

Attendee Introductions

- Name
- Institution
- Role(s)

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CI 101: What is Cyberinfrastructure and Why It Matters

Jennifer Kim
CI Engineer
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THE VISION

MS-CC envisions a transformational partnership to promote advanced cyberinfrastructure (CI) capabilities on HBCU, HSI, TCU, and MSI campuses. We are advancing connections across campuses around data, research computing, teaching, curriculum development, professional development, and capacity-building.

We will learn and grow as a consortium, lifting up all participating institutions by advancing cyberinfrastructure for research and education across diverse fields, disciplines, and communities in ways that reflect the unique voices and interests of our communities.

We will engage as full contributors to the global R&E community.

Photo Credit: North Carolina Central University

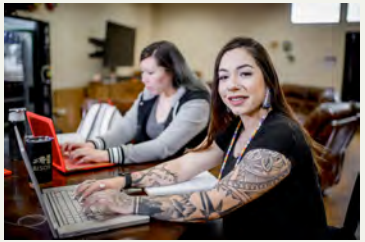

Photo Credit: Salish Kootenai College

Photo Credit: Jackson State University

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MS-CC: Coalescing HBCUs, TCUs, HSIs, and other entities

HBCUs (72)

- Alabama A&M University
- Alabama State University
- Albany State University
- Alcorn State University
- American Baptist College
- Benedict College
- Bennett College
- Bethune-Cookman University
- Bishop State Community College
- Bowie State University
- Cheyney University
- Claflin University
- Clark Atlanta University
- Coppin State University
- Dillard University
- Elizabeth City State University
- Fayetteville State University
- Fisk University
- Florida A&M University
- Florida Memorial University
- Fort Valley State University
- Grambling State University
- Hampton University
- Harris-Stowe State University
- Howard University
- Huston-Tillotson University
- JF Drake State Community & Technical College
- Jackson State University
- Jarvis Christian University
- Johnson C. Smith University
- Kentucky State University
- Knoxville College
- Langston University
- LeMoyne-Owen College
- Livingstone College
- Meharry Medical College
- Miles College
- Morehouse College
- Morehouse School of Medicine
- Morgan State University
- Morris College
- Norfolk State University
- North Carolina A&T State University
- North Carolina Central University
- Oakwood University
- Paul Quinn College
- Prairie View A&M University
- Savannah State University
- Shaw University
- South Carolina State University
- Southern University - New Orleans
- Southern University – Shreveport
- Southern University and A&M College
- Spelman College
- St. Augustine's University
- St. Philip's College
- Stillman College
- Tennessee State University
- Texas College
- Texas Southern University
- Tougaloo College
- Tuskegee University
- University of Arkansas – Pine Bluff
- University of Maryland Eastern Shore
- University of the District of Columbia
- University of the Virgin Islands
- Virginia State University
- Virginia Union University
- Voorhees University
- West Virginia State University
- Winston-Salem State University
- Xavier University

HSIs (27)

- California State University – Dominguez Hills
- California State University – Northridge
- California State University – Sacramento State
- Essex County College
- Florida Atlantic University
- Goshen College
- Housatonic Community College
- Houston Christian University
- InterAmerican University of Puerto Rico
- Los Angeles Harbor College
- Mendocino College
- Merced College
- Northern Arizona University
- Oxnard University
- Taft College
- Texas A&M University
- Texas Tech University
- The University of Arizona
- University of California – Riverside
- University of Illinois – Chicago
- University of Nevada – Las Vegas
- University of New Mexico
- University of Redlands
- University of Texas – El Paso
- University of Texas Health Science Center – San Antonio
- West Texas A&M University
- William Paterson University

TCUs (16)

- Aaniiih Nakoda College
- Bay Mills Community College
- Blackfeet Community College
- Cankdeska Cikana Community College
- College of the Menominee Nation
- College of the Muscogee Nation
- Diné College
- Fond du Lac Tribal and Community College
- Little Big Horn College
- Little Priest Tribal College
- Navajo Technical University
- Nebraska Indian Community College
- Salish Kootenai College
- Sinte Gleska University
- Turtle Mountain Community College
- United Tribes Technical College

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MS-CC: Coalescing HBCUs, TCUs, HSIs, and other entities

Affiliate – Institutional (52)

- Arizona State University
- Brandeis University
- Chicago State University
- Clayton State University
- Clemson University
- College of the Marshall Islands
- Colorado State University
- Cornell University
- Fordham University
- Fort Lewis College
- George Washington University
- Georgia State University
- Georgia Tech
- Harvard Medical School
- Harvard University
- Indiana University
- Louisiana State University
- Montana State University
- New Jersey Institute of Technology
- North Carolina State University
- Penn State University
- Purdue University
- Thomas Edison State University
- University of Alabama
- University of Alberta
- University of British Columbia
- University of California – Berkeley
- University of California – Davis
- University of California – San Diego
- University of Chicago
- University of Colorado – Boulder
- University of Delaware
- University of Illinois – Urbana-Champaign
- University of Maryland – Baltimore County
- University of Maryland – College Park
- University of Michigan
- University of Minnesota – Twin Cities
- University of Mississippi
- University of Montana
- University of North Carolina – Asheville
- University of North Carolina – Greensboro
- University of North Carolina – Pembroke
- University of Oklahoma
- University of Pennsylvania
- University of South Carolina
- University of Southern Mississippi
- University of Tennessee – Knoxville
- University of Utah
- University of Virginia
- University of Wisconsin – Madison
- Villanova University
- Virginia Commonwealth University

Affiliate – Not for Profit (30)

- American Indian Higher Education Consortium
- Air Force Office of Scientific Research
- Arkansas Economic Development Commission
- Bill & Melinda Gates Foundation
- Campus Research Computing Consortium (CaRCC)
- CI Compass
- Coalition for Academic Scientific Computation
- Edge, Inc.
- HBCU Library Alliance
- Internet2
- Lawrence Berkeley National Lab
- MARIA
- MDREN
- Network Startup Resource Center
- NTIA
- Ohio Supercomputer Center
- Pacific Northwest Gigapop
- Pittsburgh Supercomputer Center
- Regulated Research Community of Practice
- San Diego Supercomputer Center
- Sicangu Lakota Treaty Council
- South Carolina Commission for Minority Affairs
- Southern Crossroads (SoX)
- TACC
- The Quilt
- TrustedCI
- University Corporation for Atmospheric Research (UCAR)
- United Negro College Fund (UNCF)
- United State Research Software Association
- Waymark Analytics

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TIMELINE

2018

- NSF CI Empower grant Clemson, SCSU, JSU, Claflin, Morgan State
- **June** Atlanta workshop creates MS-CC

2019

- **Fall** Initial conversations with Internet2 leadership

2020

- **Summer** Dialogue with Internet2
- **December** Initial MS-CC charter Stakeholder survey 1

2021

- **March** Webinars on stakeholder survey results
- **April** Letter of Collaboration with Internet2
- **July** Proposal to NSF for pilot CoE
- **October** Pilot CoE award (2yrs)
- The Missing Millions report

2022

- **January** Stakeholder survey 2
- **June** NCAT workshop
- **July** Proposal to NSF for PoCGs
- **August** SKC workshop
- **October** PoCG award (5yrs)
- CLB retreat
- **November** JSU workshop
- **December** Updated charter adopted, CLB officers elected

2023

- **February** Stakeholder survey 3; CLB Retreat
- **March** Claflin workshop
- **May** Inaugural MS-CC Annual Meeting Student Hackathon
- **June** UMES workshop
- **September** Science DMZ & Networking for All workshop
- **September** Cyberinfrastructure Community of Practice Launched
- **October** Supplemental funding for Collaboratory in Climate Science
- **October** Cybersecurity Community of Practice Launched
- **November** Dillard and SUNO workshops
- **December** Director of Program Development hired

2024

- **January** CLASS Essentials Training
- **March** Benedict College Student Workshop
- **March** Assistant Director for Climate Science Program hired
- **April** Prairie View A&M University Workshop
- **April** Program Manager for Climate Science Program hired
- **May** Second MS-CC Annual Meeting*
- **June** MS-CC Climate and Data Science Internship begins at UMES*
- **June** Virginia Union University Workshop*
- **August** Inaugural Climate Science Research Symposium
- **August** Director of the Cyberinfrastructure Programs hired
- **October** Alabama A&M University Workshop

2025

- **Feb** Cybersecurity Hackathon at Shorter College
- **March** MS-CC Workshop at Wilberforce University
- **April** Associate Director for Research Development Hired
- **May** Third MS-CC Annual Meeting in Nashville, TN
- **June** Undergraduate Summer Research Internship Begins
- **June** MS-CC Workshop at Clark Atlanta University

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Issues include:

- The evaluation criteria of federal grant programs that prevent resource-strained HBCUs and TCUs from being competitive among larger, well-funded institutions
- MS-CC campuses not only need to advance their CI and research infrastructure; they also need to build expertise to deploy and use CI tools and implementations
- Competing priorities in supporting the campus infrastructure and limited resources and staffing needed to implement, maintain, troubleshoot, and just keep the lights on to support the campus operating.
- Assumptions that a campus has done work towards identifying STEM research and education drivers that require the use of computational and other CI resources provided by these efforts and where the training becomes necessary.

MS-CC Guiding Principles

Inclusion | Innovation | Stakeholder Value

MS-CC Purpose

- Increase access to cyberinfrastructure (CI) capabilities across academic disciplines
- Enhance communication between researchers, IT professionals, campus leadership, and between institutional members
- Support IT for research-enabled professional and career development
- Collective advocacy and partnerships

MS-CC Stakeholders

- Researchers, educators, and students
- IT/CI professionals
- Campus leadership
- Industry partners
- Foundations and funding agencies

MS-CC Origins

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Strength in Numbers. Power of Community.

- Join a vibrant community where you can collaborate, receive support, and advocate for our collective needs.
- Participate in MS-CC governance and committees.
- MS-CC organizes workshops at HBCUs, TCUs, and Internet2 events, and provides funding support for MS-CC participants.
- MS-CC facilitates community-driven experience sharing to support and raise awareness around key topics of interest to MS-CC participants.
- Participate in regional workshops about the importance of IT for Research.
- Stay apprised of funding, collaborator and community offerings.

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CI Center of Excellence Demonstration Pilot

Award # OAC-2137123

21st Century Research-Cyberinfrastructure for MSIs through the Minority Serving - Cyberinfrastructure Consortium: A phased approach to engage the Missing Millions

Award # OAC-2234326

Collaboratory in Climate Science

Supplement to
Award # OAC-2234326

CI Center of Excellence Demonstration Pilot *(Award # OAC-2137123)* **and 21st Century Research-Cyberinfrastructure for MSIs through the MS-CC: A phased approach to engage the Missing Millions** *(Award # OAC-2234326)*

Key Objectives: CI CoE Pilot

- Create a **connective and collaborative organization** that serves as a centralized hub for HBCUs, TCUs, and other MSIs to utilize for CI expertise, experience-sharing, and advocacy.
- Increase awareness, availability, and financial support for **CI professional development** for faculty, staff, and students at HBCUs, TCUs, and other MSIs.
- **Enhance communication** among researchers, university leadership, and CI professionals.

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Engaging with the MS-CC Community

- 8 Workshops

39 HBCUs (36%*) attended a workshop to date
9 TCUs (24%**) attended a workshop to date

- 2023 Inaugural Annual Meeting and 2024 2nd Annual Meeting
  41 HBCUs (38%*) attended an Annual Meeting
  5 TCUs (14%**) attended an Annual Meeting

- Monthly All Hands Meetings
  2024 YTD averaging 49 participants from 33 institutions

- **3 Communities of Practice Launched**
  - May 2023: CI Plan CoP
  - October 2023: Cybersecurity CoP
  - July 2024: IT Leaders CoP

Funded MS-CC Participant Travel, Attendance at Events

*Of all 108 HBCUs; **Of all 37 TCUs

NSF Award # 2137123 (pCoE) Accomplishments: October 2021 to October 2024

Engaging with Students

- May 2023: Student Hackathon @ Annual Meeting
- March 2024: Cyber-simulation at Benedict College
- March 2025: Cyber-simulation at Shorter College

Growing the MS-CC Community

500+ participants representing 200 organizations

Professional Development & Training Opportunities

- March 2023: ScienceDMZ, Network Testing, & Cybersecurity at Claflin
- September 2023: ScienceDMZ & Networking for All at TechEX23
- Winter 2023/2024: NSF CI Funding for HBCUs, TCUs, other MSIs
- January 2024: CLASS Essentials (AWS, Azure, GCP) for MS-CC
- May 2024: Network Technologies for Data Movement Supporting Research & Education on Campus Networks
- July-December 2024: Harvard Technology Enablement Program (pilot)
- August & September 2024: IAM Training with Cirrus Identity (pilot)
- December 2024: Network Technologies for Dta Movement Supporting R&E on Campus Networks at TechEx

MS-CC Community Surveys to Inform Activities

- 2022 & 2023: Stakeholder Pulse Surveys (Waymark Analytics)
- CI Facilitation Services (Summer 2023)
- Annual Meeting Surveys (May 2024)
- AI Survey (May 2024)

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CI Center of Excellence Demonstration Pilot *(Award # OAC-2137123)* **and 21st Century Research-Cyberinfrastructure for MSIs through the MS-CC: A phased approach to engage the Missing Millions** *(Award # OAC-2234326)*

Key Objectives: Phased Approach

- **Increase access to shared CI resources** for MS-CC organizations.
- **Increase and accelerate CI-enabled research and education capacity** at MS-CC campuses by piloting a model(s) for cyberinfrastructure development at HBCUs, TCUs, and other minority-serving institutions.
  - Initial allocation of **at least five (5) Proof of Concept Grant (PoCG) Awards** to select MS-CC institutions for funding and support for **CI strategic planning and capacity-building that advance CI-enabled education and research.**

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NSF Award

Minority Serving Cyberinfrastructure Consortium (MS-CC)

Award # OAC-2234326

Start date: 10/1/2022 Projected end date: 9/30/2027

21st Century Research-Cyberinfrastructure for MSIs through the Minority Serving - Cyberinfrastructure Consortium (MS-CC): A phased approach to engage the Missing Millions

Principal Investigator:
Ana Hunsinger,
Internet2
ana@internet2.edu

Co-Principal Investigators:

Al Anderson,
Salish Kootenai College

James Brenn,
Claflin University

Dr. Deborah Dent,
Jackson State University

Objective

- Significantly ***increase and accelerate cyberinfrastructure-centric research capacity*** at MS-CC campuses through a set of new approaches from which we can then learn and potentially frame a repeatable, successful model for cyberinfrastructure implementations on the campuses of minority-serving institutions.

Approach

- Initial allocation of ***at least five (5) Proof of Concept Grant (PoCG) Awards*** to select MS-CC institutions that allows each to perform campus specific CI assessments that drive an overall CI strategic plan and a roadmap to pioneer new capabilities that advance CI-centric research, and empower scientific advancements.
- Establishing ***teams of expert CI Professionals*** that will provide support to the PoCGs through consultation, implementation of expanded CI capabilities, and leading efforts to ensure these institutions are participating and collaborating with the broader CI ecosystem.
- ***MS-CC as a more robust effort*** so that it can be able to support future PoCGs and to support a more directed approach to ensure these institutions are participating and collaborating with the broader CI ecosystem.

NSF Award # 2234326 Ongoing Activities

All Proof-of-Concept Grant (PoCG) Activities

- Stakeholder Alignment toward formalized CI governance
- PoCG-funded CI Facilitator or CI Coordinator implementation

Claflin University

- R&E Facilitation informing HPC investment
- eduroam implementation

Jackson State University

- R&E Facilitation informing HPC investment
- Network Enhancement, with eduroam implementation

Salish Kootenai College

- R&E Facilitation informing conference participation, CI governance
- Virtual Lab and Network development, with eduroam implementation

Nashville HBCUs

- Chartered *Nashville HBCU CI Collaborative*
- Coordinated network development and campus CI Plans

Multi-Campus CI Collaboration

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NSF Award

Minority Serving - Cyberinfrastructure Consortium (MS-CC)

Supplement to Award # OAC-2234326

Projected Start date: 10/1/2023 Projected end date: 9/30/2025

MS-CC Collaboratory in Climate Science

Principal Investigator:
Ana Hunsinger,
Internet2
ana@internet2.edu

Co-Principal Investigators:

Al Anderson,
Salish Kootenai College

James Brenn,
Claflin University

Dr. Deborah Dent,
Jackson State University

Objective

- Develop a **Collaboratory in Climate Science** that **pairs cyberinfrastructure expertise and capabilities with ongoing climate science research initiatives**, strengthening the pipeline of faculty, staff, and students from HBCUs and TCUs with expertise in cyberinfrastructure-enabled climate science research and learning.
- Build **community-driven collaboration around climate science** across the MS-CC and key partners to develop long term education and research community efforts.

Approach

- The MS-CC Collaboratory in Climate Science will be a **campus-based effort** that focuses on local community or regional climate issues and concerns as well as workforce development.
- MS-CC will **partner with three anchor institutions**, including a climate-focused TCU and two HBCU National Oceanic and Atmospheric Administration (NOAA) Cooperative Science Centers (CSCs), to **develop campus-based events, collaboration opportunities, and summer internships** for participants from multiple HBCUs and TCUs.
- MS-CC will use its engagements to carry out **Communities of Practice to support informal collaboration in climate science and CI to identify shareable solutions in CI**, while serving as an opportunity for the broader community to communicate and share information with the MS-CC.

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JSU JACKSON STATE UNIVERSITY

SALISH KOOTENAI COLLEGE

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Panel Discussion: Cybersecurity
Threat Landscape


The Minority Serving-
The Minority Serving-


CONSORTIUM
nnual Meeting
Inaugural MS-CC Annu
Atlanta, GA
May 10-11, 2023

Strength in Numbers. Power of Community.

- Join a vibrant community where you can collaborate, receive support, and advocate for our collective needs.
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- MS-CC facilitates community-driven experience sharing to support and raise awareness around key topics of interest to MS-CC participants.
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- Stay apprised of funding, collaborator and community offerings.

Join NOW: https://www.ms-cc.org/join

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Cyberinfrastructure (CI) = IT for scholarship

Data-dependent research and curricula *increasingly require beyond-the-desktop IT resources.*

https://workingnation.com/

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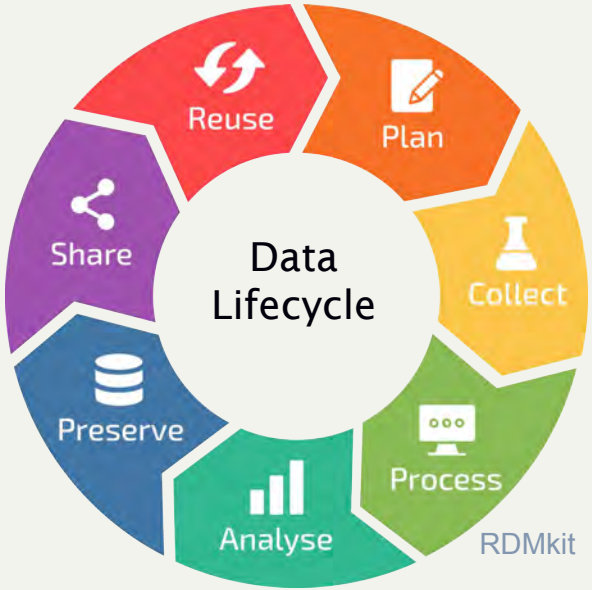
Cyberinfrastructure (CI) = IT for scholarship



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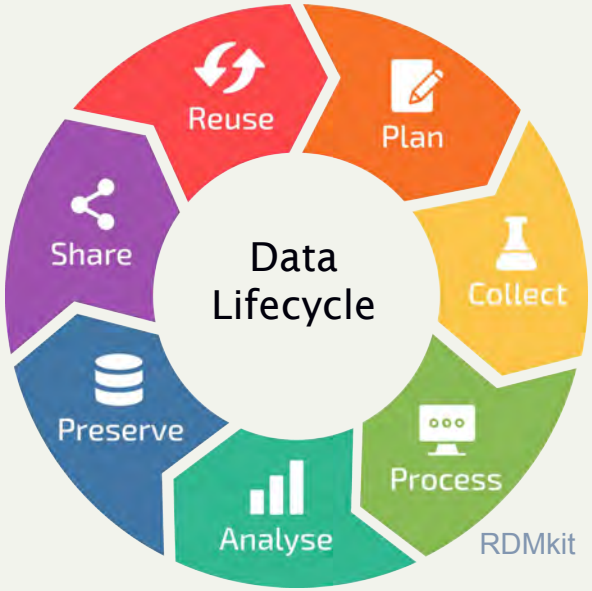
Cyberinfrastructure (CI) = IT for scholarship



- network capacity
- data storage, access, security
- software, coding interfaces
- computing capacity
- data repositories, archives
- teaching environments using the above

- **People/Learning to Apply and Deliver the Above**

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Impacts to Data-Intensive Education

- Project-based learning
- Experience with real, full-scale datasets
- Modern tools for data science and collaboration
- Large-scale and cloud computing experience
- Increased enrollment, recognizing these strengths

Access to engaging research projects and experiences.

Impacts to Research Programs

- Expanded project scale and scope
- Accelerated outcomes
- Enhanced collaboration capabilities
- New lines of inquiry
- Greater research impact

Transformative Research Outcomes and Impact

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CI Funding Programs for Campuses

May include CI as

- the primary focus (CI-**centric**)
- an expected **component** of a research-/education-centric project
- a **potential** component of a research-/education-centric project

May Cover

- equipment (e.g. network, storage …)
- effort, travel, training, etc.
- external services/products

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Federal Entities with Campus-Relevant CI Funding

- **National Science Foundation** (*all CI facets*; potential-centric)
- **National Telecommunications and Information Administration** (*networks,devices,workforce*; centric,component)
- **Department of Homeland Security** (*cybersecurity research+inf*; potential-centric)
- Other entities funding research/education programs: (component,potential)

  e.g. **NIH, DODefense**, **DOEducation, DOEnergy**, Title III, etc.

  (*software, compute, storage, facilities, incl. cloud)*

NSF Directorates

image: Kevin Thompson, MS-CC June Workshop, NCA&T

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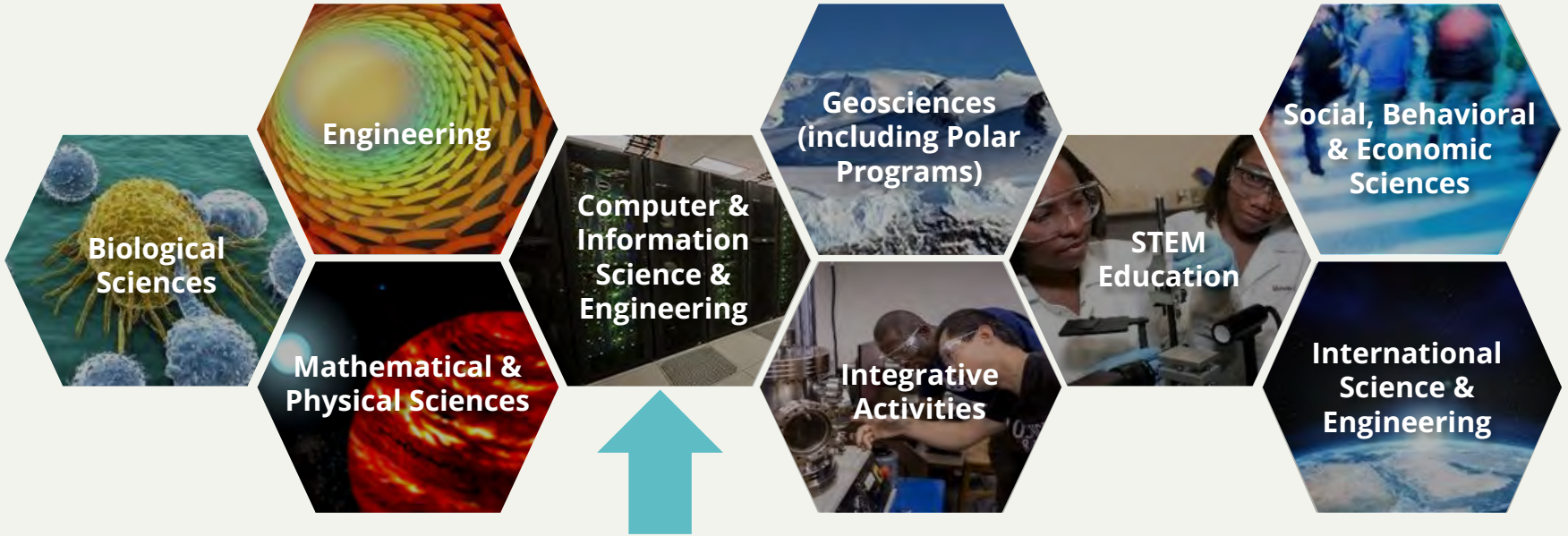

Office of Advanced Cyberinfrastructure (OAC)

image: Kevin Thompson, MS-CC June Workshop, NCA&T

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TIP Webinar: https://www.youtube.com/watch?v=8CbogUbiTI8&list=PLGhBP1C7iCOkQIS4xGK8GCjnxx02oSZlZ

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image: Kevin Thompson, MS-CC June Workshop, NCA&T

NSF CI Funding for Campuses

- Research & Education grants across directorates *potential-component*
- **CISE Office of Advanced Cyberinfrastructure (OAC)** *centric*
  - **Campus Cyberinfrastructure (CC*) Program**
  - Others, e.g. Cybertraining, SCIPE (CI users and professionals)
- Multi-track MSI-specific funding programs *potential*
  - HBCU-Undergraduates Program (EDU) *potential*
  - TCUP (EDU) *potential-centric*
- Office of Integrative Activities
  - Major Research Instrumentation (MRI) *component*
  - Mid-scale Research Infrastructure (Mid-scale RI) *component*

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CC* Example: Texas College, Planning

2022 In-PERSON NSF CAMPUS CYBERINFRASTRUCTURE PI WORKSHOP
September 19 – 21, 2022
Minneapolis, Minnesota

NSF Program Campus Cyberinfrastructure (CC or CICI): CC*

Program Area: Planning **Award Number: 2201474**

PI: Dr. Sohel H. Quazi

Project Title: CC* Planning: RE-CONSTRUCTING THE CAMPUS CYBERINFRASTRUCTURE OF A SMALL, LIBERAL ARTS HBCU IN ORDER TO MAXIMIZE STEM INNOVATION AND INTEGRATION

Dr. Sohel H. Quazi
Assistant Professor
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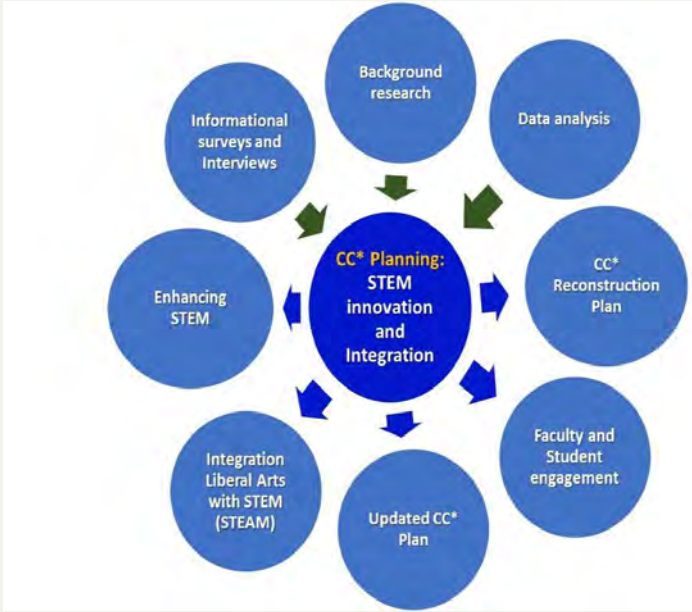

CC* Example: Langston University, Compute

NSF VIRTUAL CAMPUS CYBERINFRASTRUCTURE PI WORKSHOP
SEPTEMBER 19 – 21, 2022

NSF Program (CC): NSF 21-528 Campus Cyberinfrastructure

Program Area: CC* Compute

Award Number: 2201479

PI: Franklin Fondjo Fotou
co-PIs: Horst Severini, Abebaw Tadesse

Project Title: CC* Compute: Collaboration in Computing Infrastructure for Research and Education (CO-InResE)

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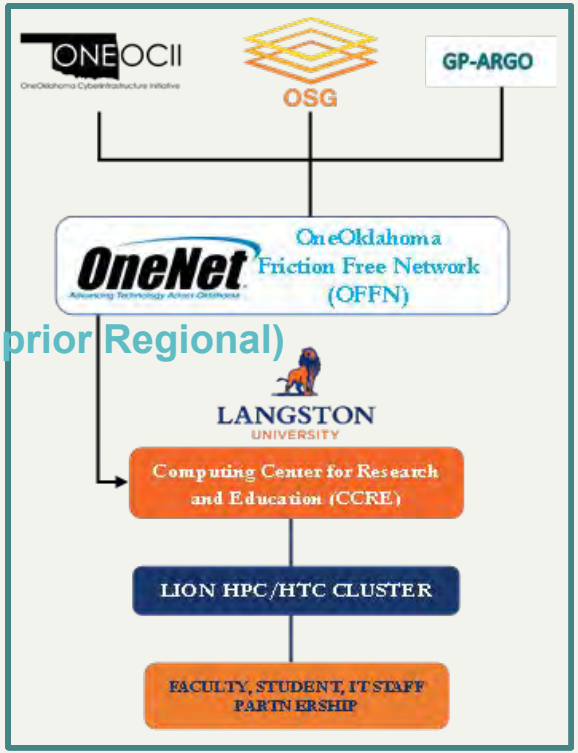

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CC* Example: Navajo Tech, Network Design (campus) + Regional

2019 NSF Campus Cyberinfrastructure and Cybersecurity Innovation for Cyberinfrastructure PI Workshop

September 24 – 25, 2019; University of Minnesota, Minneapolis, MN

NSF Program (either CC or CICI): CC

Program Area: CC* network Design **Award Number: 1827199**

PI: Jason Arviso **Co-PIs:** John Hernandez, Marla Meehl, Jared Ribble

Project Title: "Nilch' bee naa alkaa go ohooa doo eidii t'įį. Translation: Using air (technology) to learn and understand new things.

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marla@ucar.edu

Jared Ribble
Acting CIO
Navajo Technical University
jribble@navajotech.edu

And later:

CC* Regional: Tribal Consortium Research Network
connecting multiple TCUs
(NSF# 1925689)

https://www.thequilt.net/wp-content/uploads/2022/09/Arviso_NTU_Nilch_QUAD_Chart.pdf

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CC* Major Proposal Components

- **Science Drivers** (education and research use cases)
- **Campus CI Plan** (document of existing CI and strategies)
  - not required for Planning or CIRA grants
- **Project Plan** that connects the above with technical resources and human effort.
  - **Budget** and **Justification**
  - **Letters of Collaboration** from stakeholders and partners.
- Standard for NSF proposals:
  - **Intellectual Merit** and **Broader Impacts** statements
  - **Data Management Plan** and **Facilities** docs
- See the CC* solicitation and NSF proposal guidance

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Example Science Drivers

- *Network upgrade needed to migrate dated Cybersecurity computer lab hardware/OS to the cloud.*
- *Class using large GIS datasets from external repositories requires network upgrade for timely download during class.*
- *Network (and/or local data storage) to support multiple research groups that regularly move large datasets to/from collaborating institutions and/or off-campus computing resources (e.g. bioinformatics, health, weather forecasting).*

Find abstracts via "Browse projects funded by this program" on the CC* web page.

With input from: Wendy Huntoon, 2022 CC* PI Meeting

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CC* Networking Infrastructure: Bulldog Connectivity and Research (1827127)

The **Bulldog Connectivity and Research Network (BCR net) project at South Carolina State University (SCSU)** creates a network infrastructure to accommodate **increasing research activities in STEM and non-traditional areas such as the library, visual arts, museum and the planetarium**. The campus enterprise network … supports only administrative and academic needs … Disparate silos of unconnected computing resources have supported research computing in research labs with little scalability to the evolution of research needs…

… Transfers of large datasets and instructions will be enabled under projects such as the Robotically Controlled Telescope Consortium, the NSF Partnership in Observational and Computational Astronomy (POCA), the NSF SCI-STEPS INCLUDES Project. Other areas affected include; the Physics and Chemistry computational labs for astrophysics and cancer research, the digital media lab, the historical collection and archiving Orangeburg massacre collection, applied radiation sciences lab, the Nuclear Engineering program reactor simulation lab, and the computer science security lab.

https://www.nsf.gov/awardsearch/showAward?AWD_ID=1827127

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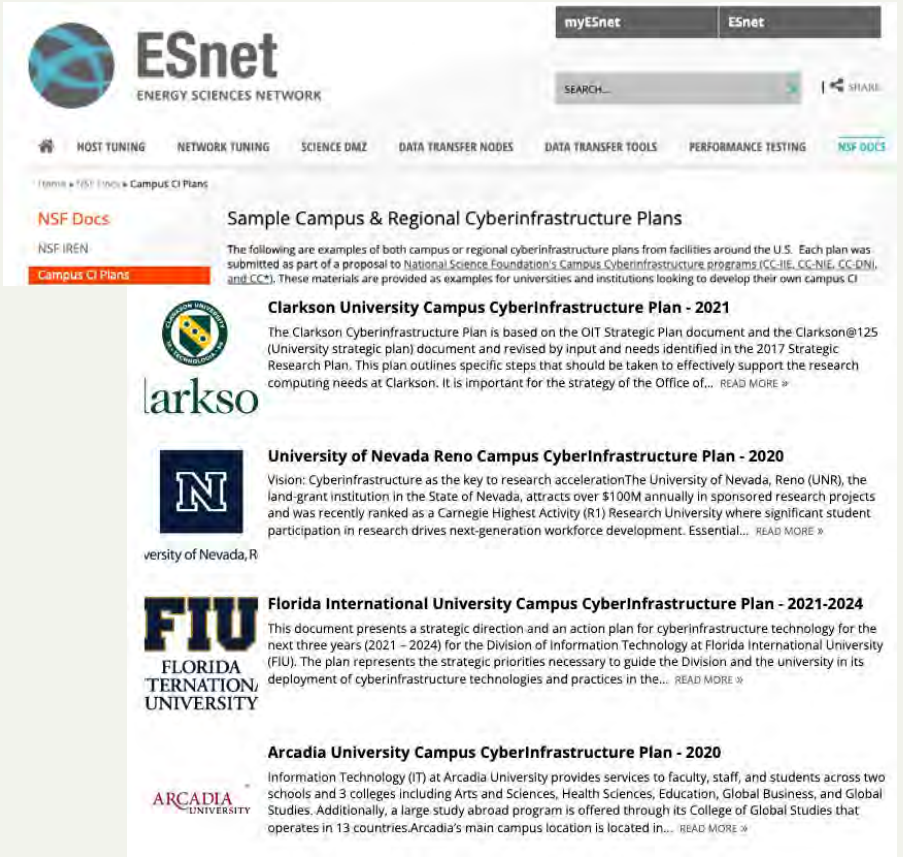
With input from: Wendy Huntoon, 2022 CC* PI Meeting

CI Plans

captures current CI capabilities and outlook, needed only for non-planning NSF CC proposals*

- **Examples from other campuses** (Esnet) https://fasterdata.es.net/nsf-docs/campusCIplanning/
- **MS-CC CI Plan Template** (MS-CC, Google Doc)
- **MS-CC CI 101 Virtual Series introducing CI Plans** https://ms-cc.org/news/virtual-cyberinfrastructure-101-series/
- **MS-CC CI Planning Community of Practice** https://ms-cc.org/community-resources/ci-plan-of-practice/
  - 3rd Tuesdays (usually), Next: *March 18April18*
  - join the MS-CC email list for updates and invites: https://ms-cc.org/get-involved/participate-in-the-ms-cc

https://fasterdata.es.net/nsf-docs/campusCIplanning

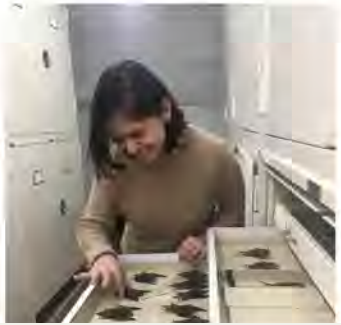


80,000 jobs, 40 billion base pairs, and 20 bats –– all in 4 weeks

By: Josephine Watkins October 26, 2021

An evolutionary biologist at the AMNH used HTC services provided by the OSG to unlock a genomic basis for convergent evolution in bats.

Ariadna Morales, a Gerstner postdoctoral fellow at the American Museum of Natural History (AMNH) from 2018 to 2020, used the fabric of services provided by the OSG consortium to single-handedly tackle her most computationally-intensive project yet. In only 4 weeks, she ran 80,000 jobs to analyze 20 bat genomes –– a task that would have taken over 4 months to complete, even on the AMNH's significant local resources.



OSG

For more info:
https://osg-htc.org/spotlights/bat-genomics.html

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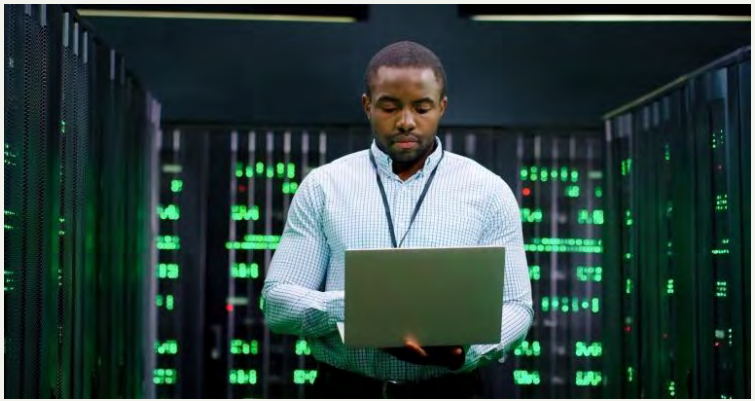
Workforce Development for Today's and Tomorrow's IT Professionals

- Research & Education Facilitation
- Network configuration for open science (Science DMZ) and data security
- Linux systems administration
- Data storage and computing systems

> "Access to technology is less [of] an issue compared to access to expertise."



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A National CI Ecosystem of Services to Support Researchers and Campuses

Domain-Specific Toolkits and Data Workflows

Science Gateways Community Institute

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A National CI Ecosystem of Services to Support Researchers and Campuses

Data Repositories & Storage

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A National CI Ecosystem of Services to Support Researchers and Campuses

Scalable Computing & Environments

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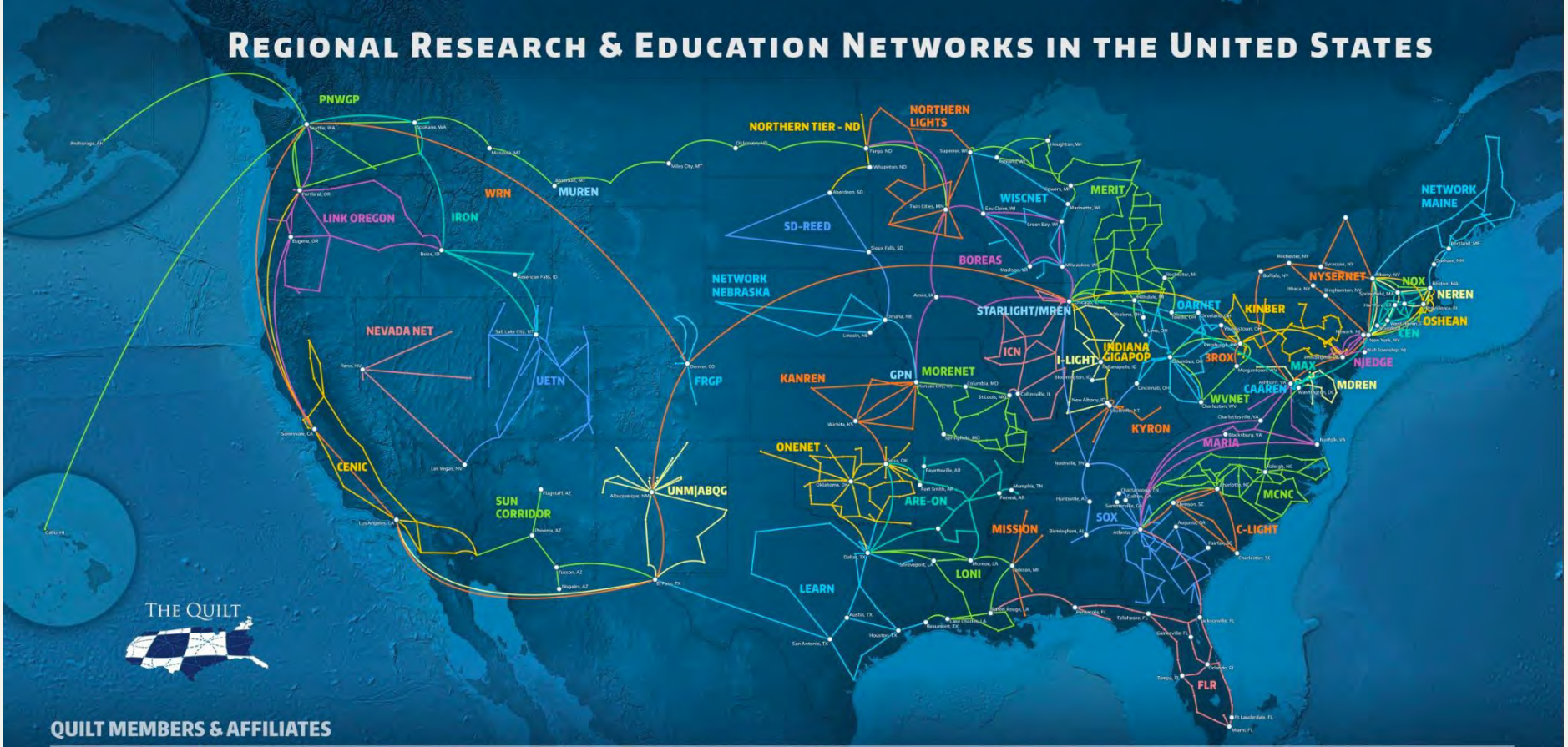
A National CI Ecosystem of Services to Support Researchers and Campuses

Training and
CI Professional
Communities

A National CI Ecosystem of Services to Support Researchers and Campuses

Regional Research & Education Networks in the United States



QUILT MEMBERS & AFFILIATES

3ROX · ARE-ON · Light R&E Network · CAAREN · CENO · CENIC · FRGP Front Range GigaPop · GPN · I-Light · Indiana GigaPOP · Illinois Century Network · KANREN · KINBER · KyRON · LEARN · LINK OREGON · NI · MARIA · MAX · MCNC · MDREN · merit · MOREnet · MREN · MCREN · NETWORKMAINE · NETWORK · Nevada Net · NJEdge · Northern Lights · nysernet · OARnet · OneNet · OSHEAN · Pacific Northwest GIGAPOP · SoX · Sun Corridor Network · uen · Information Technologies · WiscNet · WV NET

Q-v1-4-1-22

The Strategic Value of CI in Education

- **Enabling Innovative Teaching**
  - Use of advanced technologies in classrooms (virtual labs, simulations, etc.)
- **Skill Development**
  - Preparing students for high-tech careers with hands-on CI experiences
- **Collaboration & Outreach**
  - Facilitating inter-institutional partnerships and global collaboration

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The Strategic Value of CI in Research

- **Accelerating Discovery**
  - How CI resources (e.g., HPC, cloud services) drive scientific breakthroughs
- **Collaborative Research Opportunities**
  - Integrating national CI resources with local research efforts
- **Resource Optimization**
  - Maximizing research efficiency and reducing costs through shared infrastructure

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CI Value for HBCUs & other MS-CC Participants

- **Unique Opportunities for HBCUs**
  - Addressing historical resource disparities.
  - Enhancing institutional competitiveness.
- **Strategic Benefits for MS-CC**
  - Leveraging CI to boost collaborative research and educational initiatives.
- **Discussion Points**
  - How CI can help bridge the gap between high-caliber research and teaching at HBCUs.

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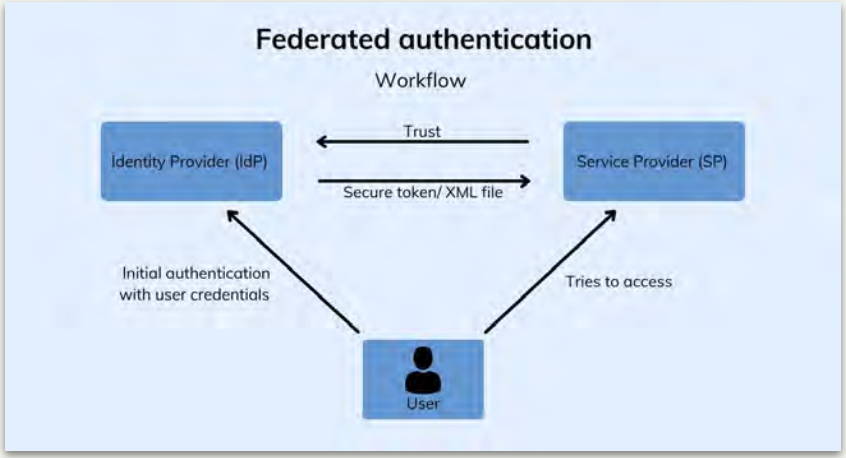
Case Study 1 – IAM Federation

- **Overview of IAM Federation**
  - What it is and how it streamlines identity and access management.
- **Impact on Research & Collaboration**
  - How IAM Federation enhances secure access to CI resources.
- **Personal Experience**
  - Salish Kootenai College's Story



Case Study 2 – Access to National CI Resources (HPC)

- **High Performance Computing (HPC) Resources**
  - Overview of national CI assets like HPC clusters.
- **Benefits to Research**
  - Accelerated computations, large-scale data analysis, simulation capabilities.
- **Personal Insights**
  - SKC’s Story using JupyterHub at OSG

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Additional PoCG Examples

- **Jackson State University - HTC 2-node cluster with UW**
  - Network Upgrades
  - IAM
  - Policy & Procedures
  - Research Data Storage
- **Claflin University**
  - CC* award to purchase HPC
  - Will be house and managed by Clemson
  - IAM
  - Policy & Procedures
  - Research Data Storage

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Future Directions & Opportunities

- **NAIRR Pilot**
  - National AI Resources
  - GPUs
- **More training initiatives such as ACCESS or PaTH**

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Conclusion and Q & A

- **Recap of Key Points**
  - Improving campus CI allows for greater research and improved educational opportunities
  - MS-CC is here to help you do that via targeted CI facilitation, future funding opportunities
- **Final Thoughts**

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Other Proposal-Development Resources from the MS-CC

CC* Proposal Consulting *no cost for HBCUs and TCUs*

- virtual meetings, proposal checklists, templates, review
- expanding into other CI-related (and non-NSF) proposal support in the future
- *email Jennifer Kim - jkim@internet2.edu*

Learn more about these and future opportunities:

https://ms-cc.org > Get Involved

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Collaboration Across Institutions: MS-CC Community Use Cases

Jennifer Kim, CI Engineer (jkim@internet2.edu)
Jessica Johnson, CI Facilitator (jmjohnson@internet2.edu)

Learning Goals

- Envision opportunities for collaboration for your campus
- Understand the value of cross-institutional CI collaboration
- Explore MS-CC examples of collaboration
- Become familiar with MS-CC support pathways

5 minutes

Icebreaker: Community Connections

Design your ideal vision for CI on your campus (e.g., a program, course, internship, lab, model, etc.). Consider the vision's:

- ***Goal***
- ***Activities and projects***
- ***Resources needed***
- ***Who benefits?***

After the timer, 1-2 people will share what they designed.

3-5 minutes

Icebreaker: Community Connections

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- ***Goal***
- ***Activities and projects***
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example

Icebreaker: Community Connections

- ***Goal:*** *Launch an introductory data science course for undergraduates*
- ***Activities and projects***
- ***Resources needed***
- ***Who benefits?***

example

Icebreaker: Community Connections

- ***Goal:*** *Launch an introductory data science course for undergraduates*
- ***Activities and projects***
  - *Students access real-world datasets from repositories*
  - *Students run code using Jupyter Notebook*
- ***Resources needed***
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example

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- ***Goal:*** *Launch an introductory data science course for undergraduates*
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  - *Open access instance of Jupyter*
  - *Training in R/Python/MATLAB*
- ***Who benefits?***

example

Icebreaker: Community Connections

- ***Goal:*** *Launch an introductory data science course for undergraduates*
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- ***Who benefits?***
  - *Undergraduate students*
  - *Faculty who are looking to incorporate computational tools in the classroom*

example

Icebreaker: Community Connections

- ***Goal:*** *Launch an introductory data science course for undergraduates*
- ***Activities and projects***
  - *Students access real-world datasets from repositories*
  - *Students run code using Jupyter Notebook*
- ***Resources needed (this includes people/organizations too)***
  - *Open access instance of Jupyter →* ***OSG/NRP***
  - *Training in R/Python/MATLAB →* ***The Carpentries***
- ***Who benefits?***
  - *Undergraduate students*
  - *Faculty who are looking to incorporate computational tools in the classroom*

Opportunity to learn best practices from other institutions that have executed similar CI goals.

Why Collaboration Matters

"Collaboration in science is essential these days because the knowledge base is so huge now […] Without collaboration, I feel many things would be much harder to accomplish.

We have a lot to learn from each other."

- Chen Weng, Whitehead Institute

Margaux Phares. Collaboration — a key part of scientific discovery. June 20, 2023.

Why Collaboration Matters in CI

- CI is an emerging, interdisciplinary field
- The CI workforce is still small and growing*
  - Thousands of professionals
  - No formal degree programs or certifications
- Collaborative models accelerate the adoption of best practices

*Virtual Residency Intro Workshop Overview. Virtual Residency Workshop 2024, Mon June 24

Collaboration Across MS-CC Institutions

- Nashville Collaborative (MS-CC POCG)

- Mississippi Research Consortium

- Salish Kootenai College and CHTC @ UW Madison

Collaboration Across MS-CC Institutions

- Nashville Collaborative (MS-CC POCG) shares:
  - CI Coordinator
  - CIO time (ABC & Meharry)
  - CI-focused training seminars

Dear VPs for Research, VPs for Academic Affairs, Deans, Faculty, Researchers, and Distinguished Guests:

Faculty research in higher education is continually evolving due to technological advancements, shifting faculty needs and expectations, emerging demands within disciplinary areas, and broader sociocultural influences. Effectively addressing faculty perspectives and requirements during these changes is essential to creating and maintaining a supportive research environment.
This seminar will present key findings from the recent faculty/researcher information technology assessment report. It will focus on critical factors influencing faculty research success, including access to campus cyberinfrastructure and satisfaction with information technology services. Additionally, we will offer actionable recommendations designed to enhance faculty research support in the context of an increasingly dynamic technological environment. To further enrich the seminar, we will also have several subject matter experts present, who will help the audience gain deeper insights into research and education information technology. Find attached the agenda for the seminar.

Outcomes:

- Gain insights from the faculty/researcher information technology assessment report.
- Understand faculty experiences and satisfaction with current information technology services.
- Identify challenges faculty face due to limited information technology support or inadequate cyberinfrastructure.
- Discuss effective strategies and opportunities for enhancing faculty research productivity.

Collaboration Across MS-CC Institutions

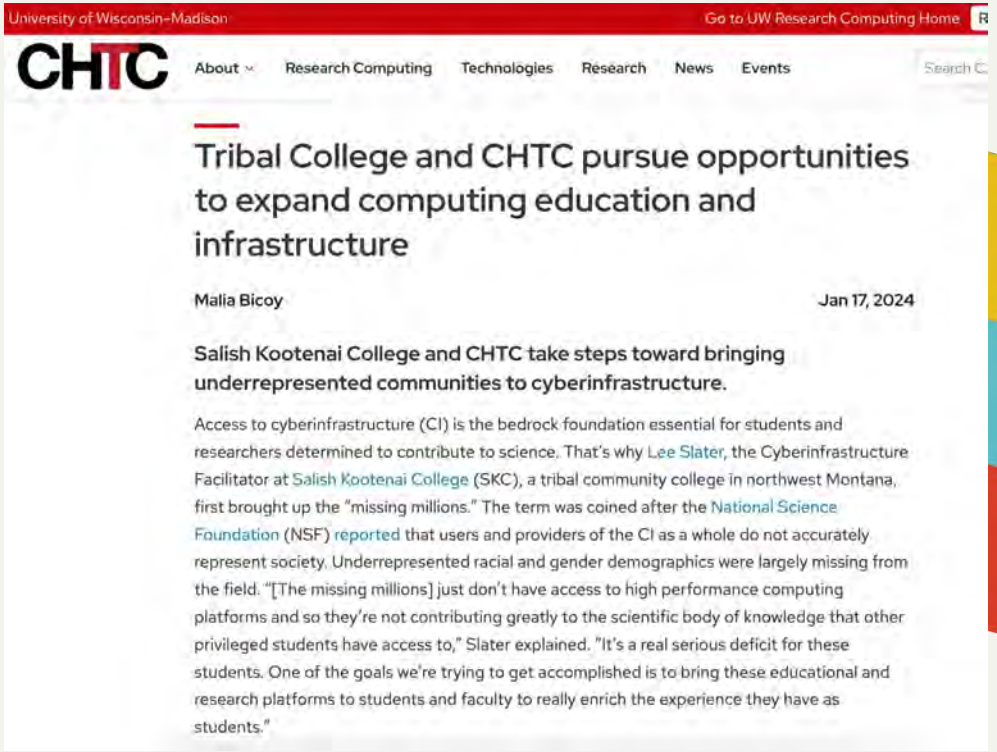
- Mississippi Research Consortium (MRC)
  - Mississippi High Performance Computing Conference
  - Shared connectivity via MissiON

Collaboration Across MS-CC Institutions

- Salish Kootenai College and CHTC @ UW Madison
  - Access and training for a web platform for JupyterHub for students and faculty

SALISH KOOTENAI COLLEGE

CHTC



University of Wisconsin–Madison Go to UW Research Computing Home

CHTC About Research Computing Technologies Research News Events

Tribal College and CHTC pursue opportunities to expand computing education and infrastructure

Malia Bicoy Jan 17, 2024

Salish Kootenai College and CHTC take steps toward bringing underrepresented communities to cyberinfrastructure.

Access to cyberinfrastructure (CI) is the bedrock foundation essential for students and researchers determined to contribute to science. That's why Lee Slater, the Cyberinfrastructure Facilitator at Salish Kootenai College (SKC), a tribal community college in northwest Montana, first brought up the "missing millions." The term was coined after the National Science Foundation (NSF) reported that users and providers of the CI as a whole do not accurately represent society. Underrepresented racial and gender demographics were largely missing from the field. "[The missing millions] just don't have access to high performance computing platforms and so they're not contributing greatly to the scientific body of knowledge that other privileged students have access to," Slater explained. "It's a real serious deficit for these students. One of the goals we're trying to get accomplished is to bring these educational and research platforms to students and faculty to really enrich the experience they have as students."

Collaboration Across MS-CC Institutions: Networking

- Nashville Collaborative and GA Tech (SoX)
- Facilitating engagement with institutional REN for specific support or service exploration

Collaboration Across MS-CC Institutions: Compute

- Jackson State University and UW Madison
- Claflin and Clemson

Honorable Mention
Swarthmore College and Lafayette College *(non-MSI)*

How MS-CC works to encourage collaboration:

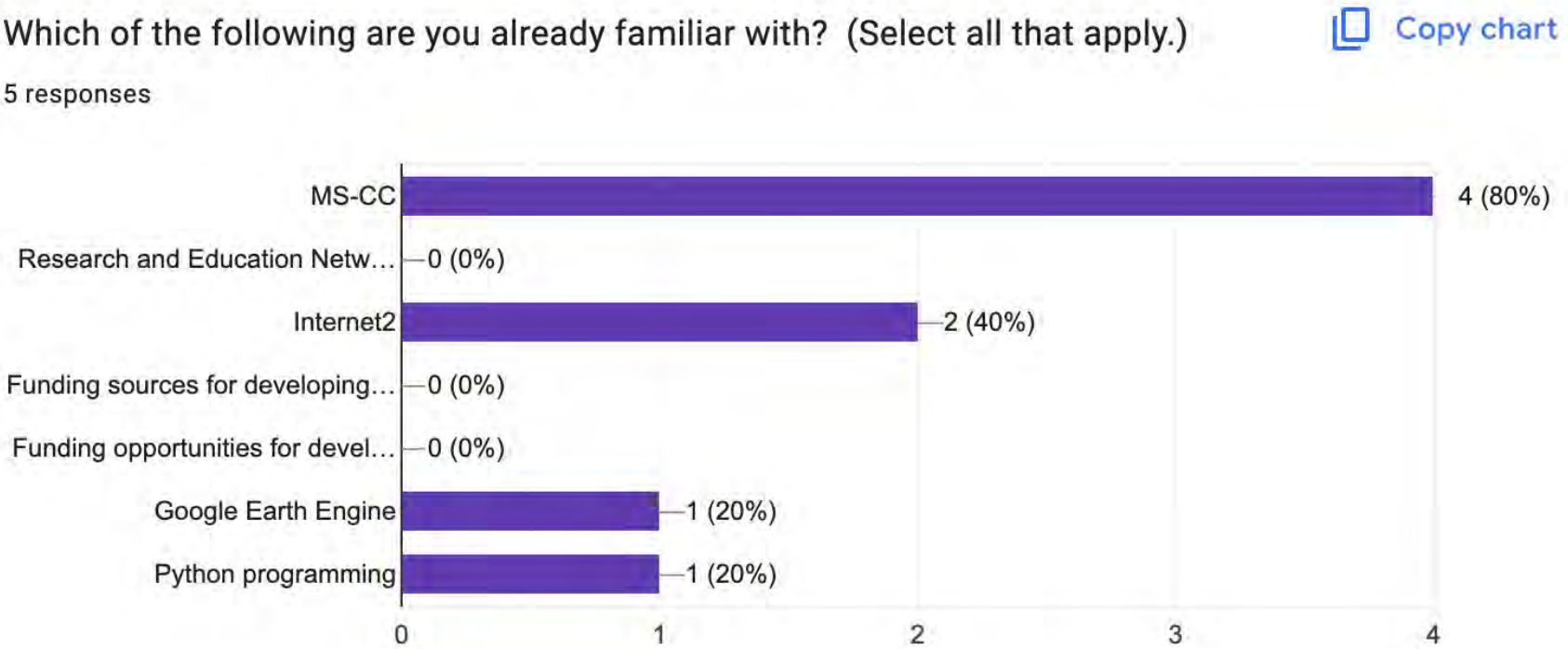
- Communities of Practice: CI Planning, Cybersecurity, and IT Leaders
- Student Internship - cross-institutional mentors
- All Hands Meetings
- Annual Meetings
- Campus Workshops
- Facilitated introductions

Overall, serving as a neutral bridge for institution-to-institution partnership

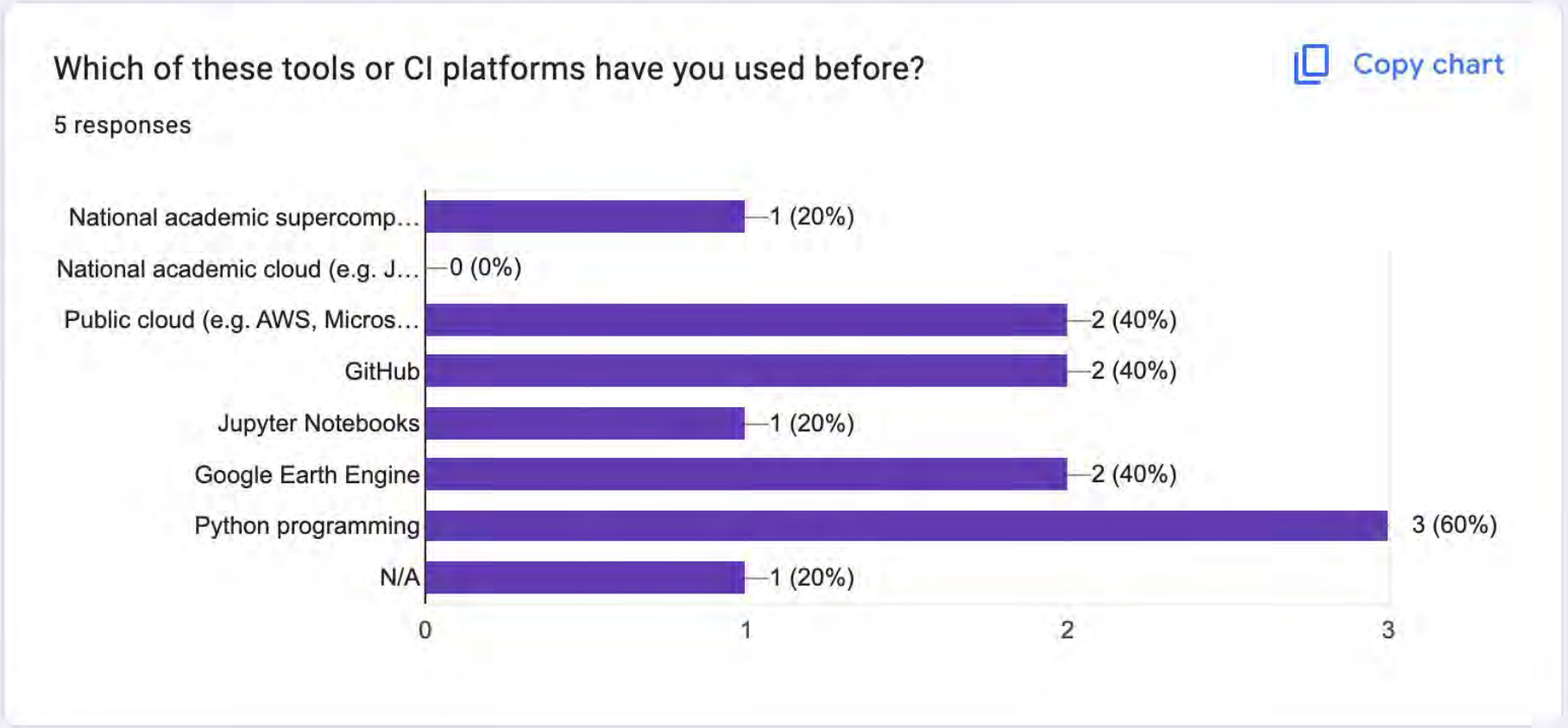
Other Opportunities for CI Collaboration Across Institutions

- NSF ACCESS-CI platform
- University of South Carolina's 'Train-the-trainer' model through their *Cyberinfrastructure Training Lab*
- Campus Champions
- Campus Research Computing Consortium (CaRCC)
- Ask.CI

Pre-Workshop Survey:



Pre-Workshop Survey:



Break

CI Quick Poll:

https://bit.ly/CAUCIQuick

Workshop Resources:

https://bit.ly/CAUMaterials

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INTERNET2

NSF

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Inter-Campus Collaboration

Moderator: Dr. Mila Turner, Assistant Professor, Clark Atlanta University

Panelists: Dr. Jung-Ho Lewe, Professor, Georgia Tech; Dr. Keith Hollingsworth, Professor, Morehouse College; Dr. Olu Olatidaye, Professor of Engineering, Clark Atlanta University

INTERNET 2

MS-CC

NSF

LUNCH

Until 1:00 PM

WiFi:
SSID: PantherGuest
Password: none

Join the MS-CC

https://bit.ly/JoinMS-CC

INTERNET2

NSF

MS-CC

Aligning with Funders and Networks: Resources to Expand Research Capacity

Moderator: Jennifer Kim, MS-CC

Panelists:

Natalie Palmer, Vice President, Southern Crossroads (SoX); Senior Director, SoX IT Engagement, Georgia Tech

Sanju Timsina, HPC Facilitator, ARCTIC (Georgia State)

Kenneth Bota, Senior Director of Grants, Research and Development, PROPEL

Aligning with Funders and Networks:
Resources to Expand Research Capacity

Natalie Palmer
Vice President, Southern Crossroads (SoX)
natalie@sox.net

MS-CC Planetary Resilience Workshop:
Tools, Training, and Collaboration
Wednesday, June 11, 2025

SoX Southern Crossroads

Georgia Tech

Introductions

Natalie Palmer

Vice President, Southern Crossroads

Senior Director SoX IT Engagement, GA Tech

Joy West

Assistant Treasurer, Southern Crossroads

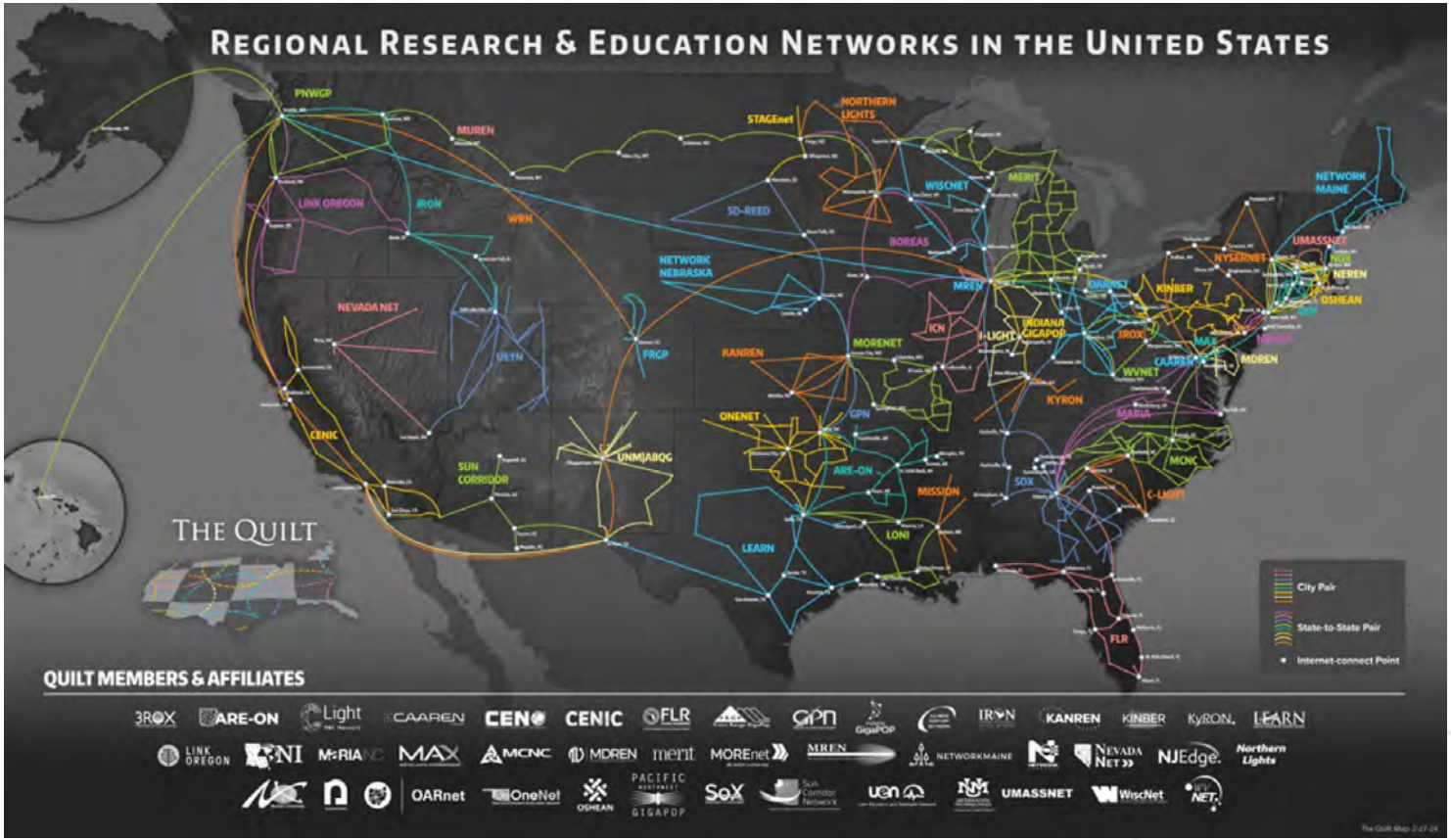
Director Research Ed., Outreach & Strategic Support, GA Tech

SoX Southern Crossroads

Georgia Tech

What is a REN?

Research and Educational (regional and/or state) Network that is a principal aggregator of network traffic for the U.S. research and education community

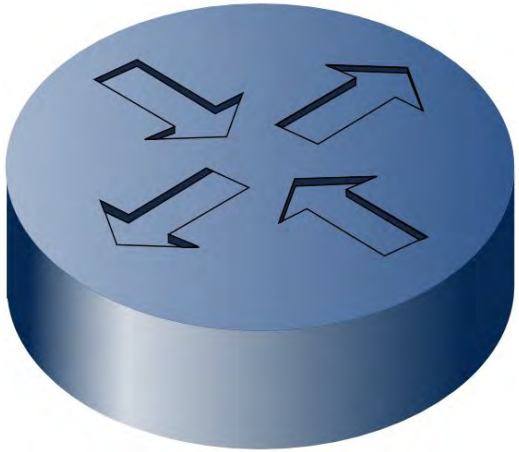


SoX

Southern Crossroads

Georgia Tech

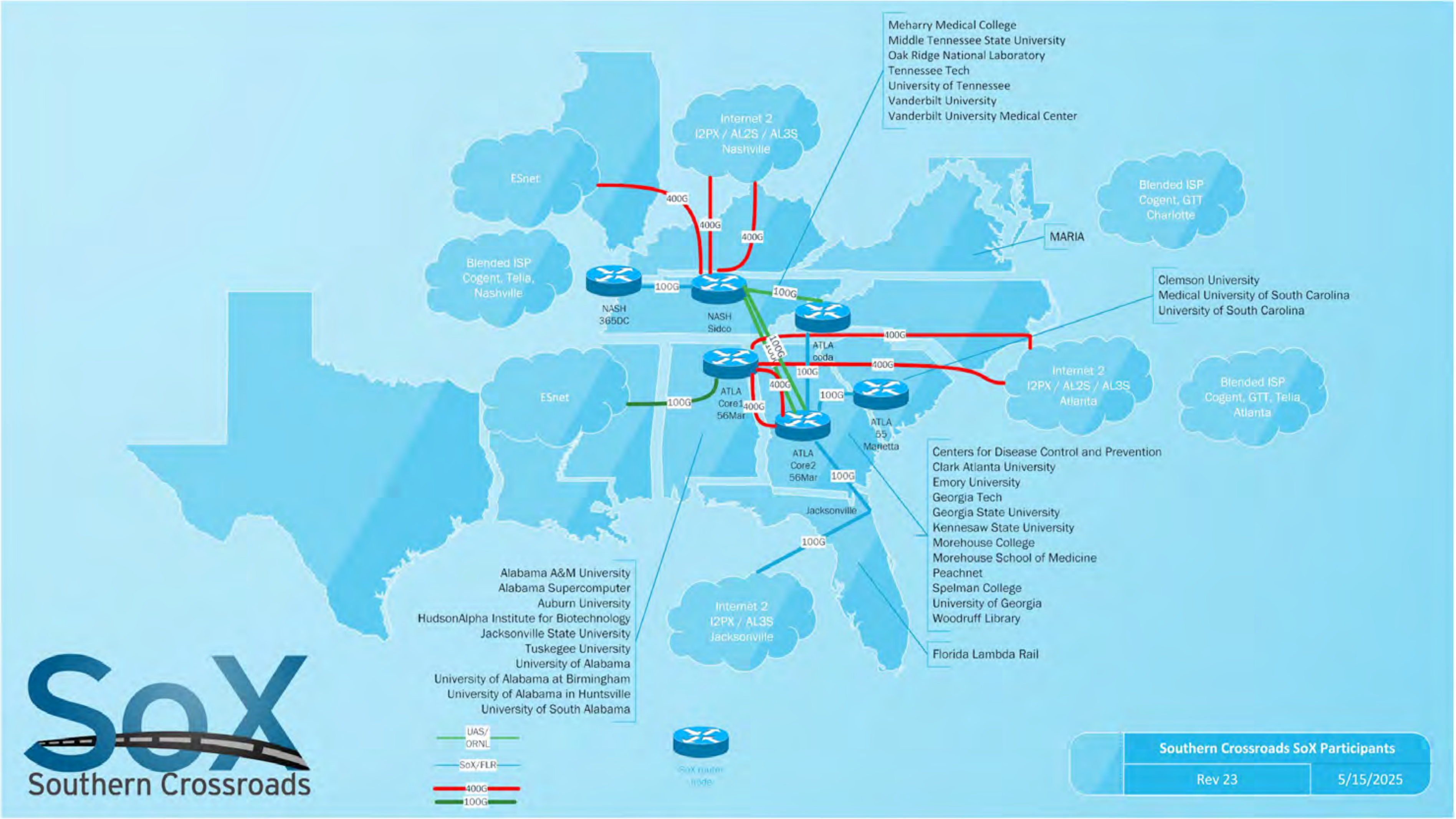
SoX
Southern Crossroads



ESnet
ENERGY SCIENCES NETWORK

INTERNET2®

THE QUILT



Meharry Medical College
Middle Tennessee State University
Oak Ridge National Laboratory
Tennessee Tech
University of Tennessee
Vanderbilt University
Vanderbilt University Medical Center
Internet 2
I2PX / AL2S / AL3S
Nashville
ESnet
400G
400G
400G
Blended ISP
Cogent, GTT
Charlotte
MARIA
Blended ISP
Cogent, Telia,
Nashville
100G
NASH
365DC
NASH
Sidco
100G
Clemson University
Medical University of South Carolina
University of South Carolina
ATLA
coda
400G
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ESnet
100G
ATLA
Core1
56Mar
400G
400G
100G
Internet 2
I2PX / AL2S / AL3S
Atlanta
Blended ISP
Cogent, GTT, Telia
Atlanta
ATLA
55
Marietta
ATLA
Core2
56Mar
100G
Centers for Disease Control and Prevention
Clark Atlanta University
Emory University
Georgia Tech
Georgia State University
Kennesaw State University
Morehouse College
Morehouse School of Medicine
Peachnet
Spelman College
University of Georgia
Woodruff Library
Jacksonville
100G
Alabama A&M University
Alabama Supercomputer
Auburn University
HudsonAlpha Institute for Biotechnology
Jacksonville State University
Tuskegee University
University of Alabama
University of Alabama at Birmingham
University of Alabama in Huntsville
University of South Alabama
Internet 2
I2PX / AL3S
Jacksonville
Florida Lambda Rail
SoX
Southern Crossroads
UAS/
ORNL
SoX/FLR
400G
100G
Southern Crossroads SoX Participants
Rev 23
5/15/2025

Georgia Tech

NSF

SoX Southern Crossroads

Campus Cyberinfrastructure Regional Awards

NSF Award #2018811

CC* Regional: Promoting Research at Small Colleges in Alabama through Network Architecture Enhancements

Alabama A&M University

University of South Alabama

NSF Award #2201548

CC* Regional: Promoting Research and Education at Small Colleges in the Atlanta University Center and at Tuskegee University through Network Architecture Enhancements

Atlanta University Center Robert W. Woodruff Library

Clark Atlanta University

Morehouse College

Morehouse School of Medicine

Spelman College

Tuskegee University

NSF Award #2346630

CC* Regional Networking: Advancing Research and Education at small colleges in Rural and Metropolitan Alabama and Tennessee through IT Architecture Enhancements

Alabama State University 1867

Jacksonville State University 1883

Fisk University 1866

Meharry Medical College Worship of God Through Service to Mankind 1876 Nashville Tennessee

Tennessee State University Nashville

Advanced Research Computing Technology and Innovation Core

ARCTIC

Georgia State University

About ARCTIC

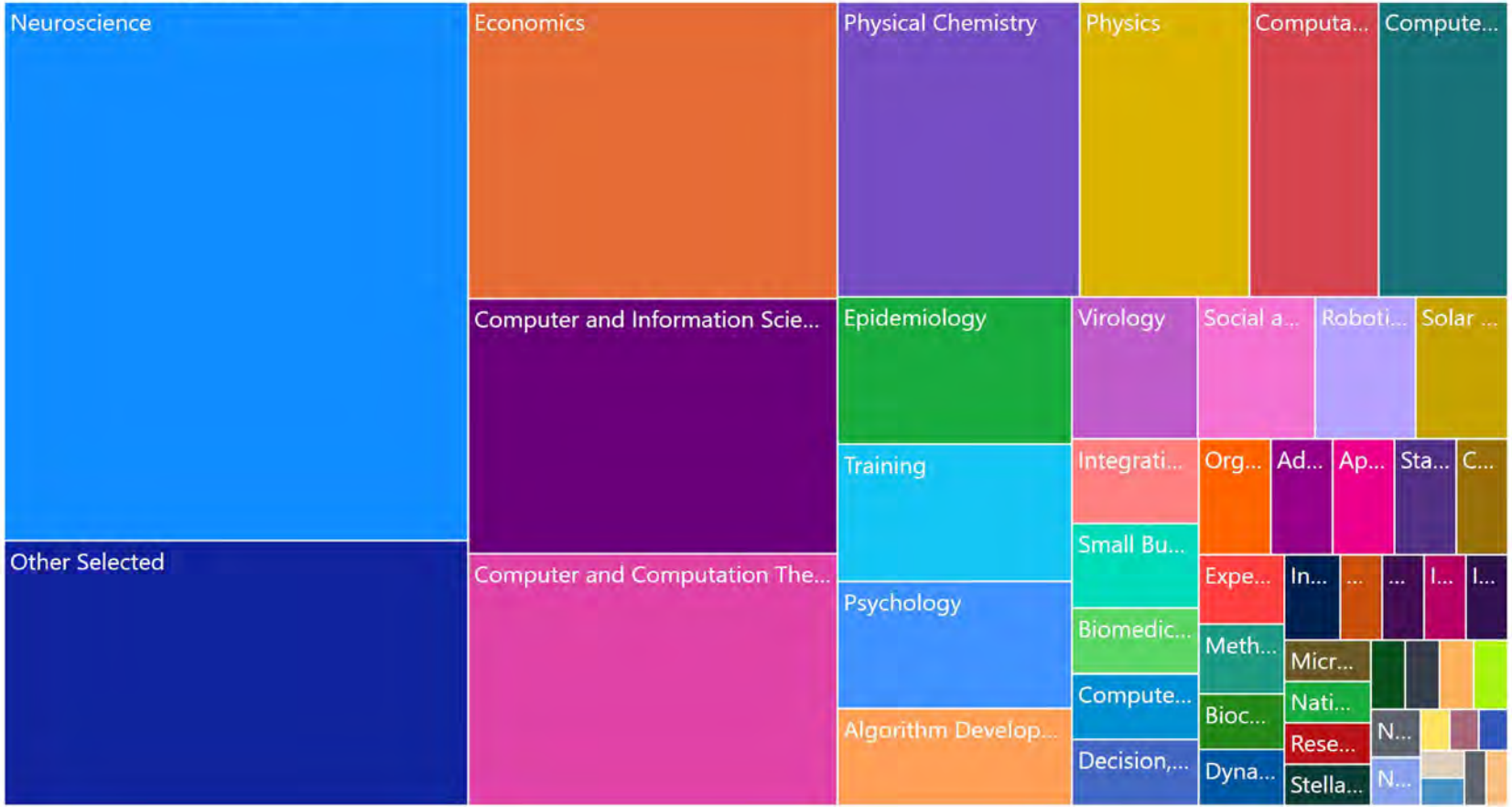
- Established in 2020
- Funded by National Science Foundation (NSF) Major Research Infrastructure (MRI) Grant (2019) and NSF CC* Grant (2024)
- 75 Million CPU hour capacity
- 1.5 Million GPU node hour capacity
- 70 TB total system memory
- Federated identity management using CILogon
- https://arctic.gsu.edu

User Group Distribution by Field of Science

Current usage
145+ PI (Groups)
550+ Active users

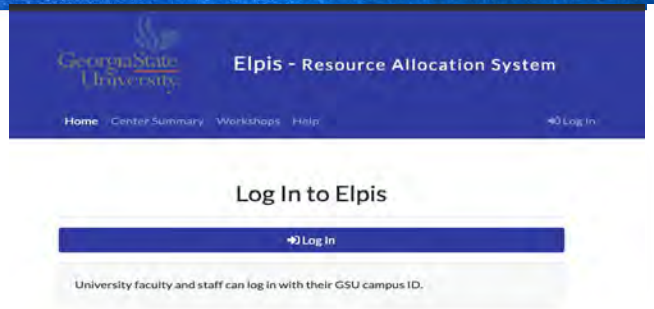
Active Users Distribution by Field of Science

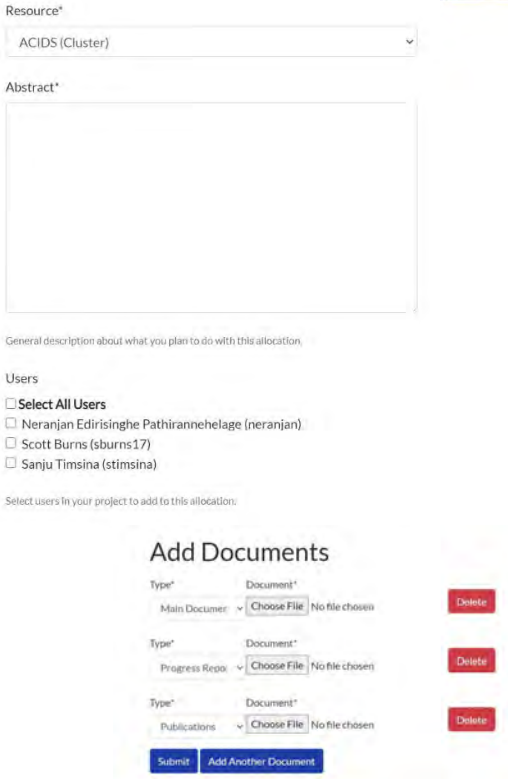
Sum of User Count by Field of Science



Getting access to ARCTIC Infrastructure

1. Management portal : https://elpis.rs.gsu.edu
2. Authenticate using CILogon through your institution IDM
3. Become a PI in ARCTIC system by submitting a research proposal
4. Reviewed by allocation committee





Documents needed

https://arcwiki.rs.gsu.edu/en/policy/resource-allocations#required-documents

Required Documents:

- Main Document
  - Covers scientific background, research objectives and justification
  - 3 page max
- CVs for PI and CoPIs
- Code Performance and Scaling
  - Covers claims of code performance
  - 2 page maximum

Sample at https://arcwiki.rs.gsu.edu/elpis/proposal.pdf

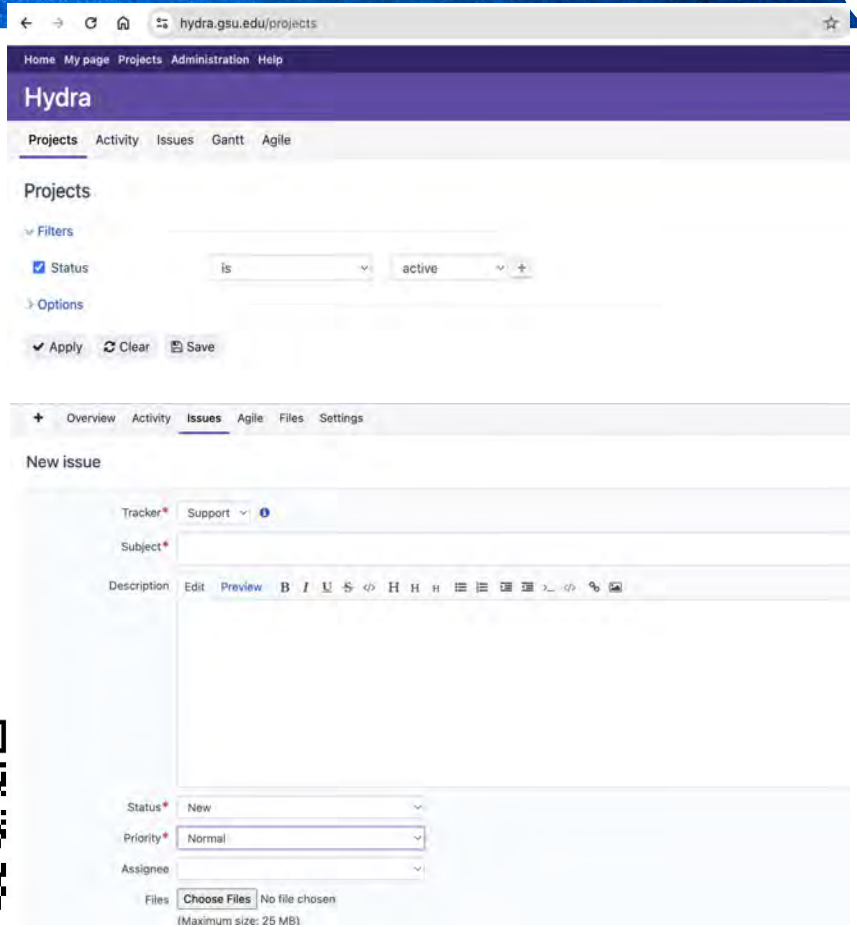
Allocation Approval Process

1. No limit on computing resource requests and scratch (runtime) space
2. Long term storage allocations are limited to 1TB
3. Additional long term storage can be purchased at $200/TB/3 years
4. Requests are reviewed quarterly by the Resource Allocation Committee
5. Committee may recommend internal review with cybersecurity in some cases
6. All allocations are for 1 year period
7. Progress report is needed for renewal

SUBMISSION PERIOD	USERS NOTIFIED	ALLOCATION BEGIN DATE
Jan 15 thru Feb 01	March 15	April 1
Apr 15 thru May 01	June 15	Jul 1
Jul 15 thru Aug 01	September 15	Oct 1
Oct 15 thru Nov 01	December 15	Jan 1

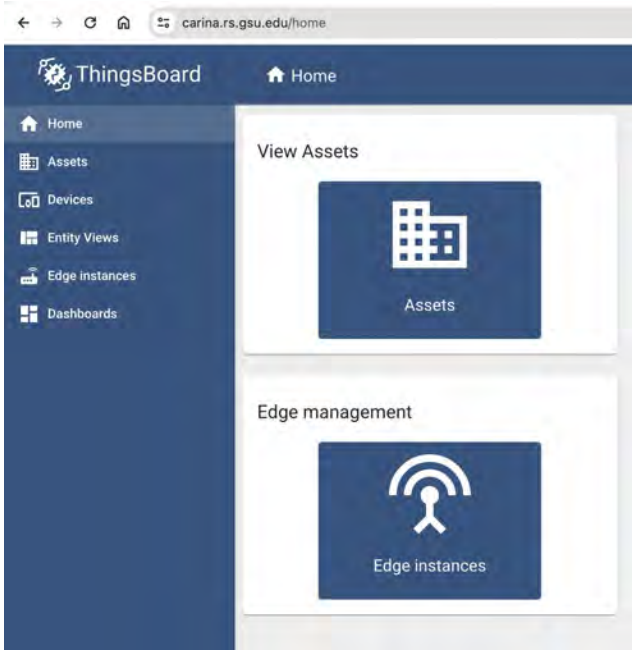
User Support

- Users can create ticket through https://hydra.gsu.edu/
- For users working in multiple projects, they can select the project they want to create the ticket for.
- Long term Collaborative Hands-On Support for Selective Projects.
- Consultation Appointments - https://outlook.office365.com/owa/calendar/ARCTIC@mygsu.onmicrosoft.com/bookings/



Additional Research Support

- Containerized Custom application deployment and management on k8s
- CI/CD pipeline setup for easy deployment and maintenance
- IOT data collection and management
- Cloud-native data storage
- Provide resources for Educational purposes(For Eg; Class, Training)



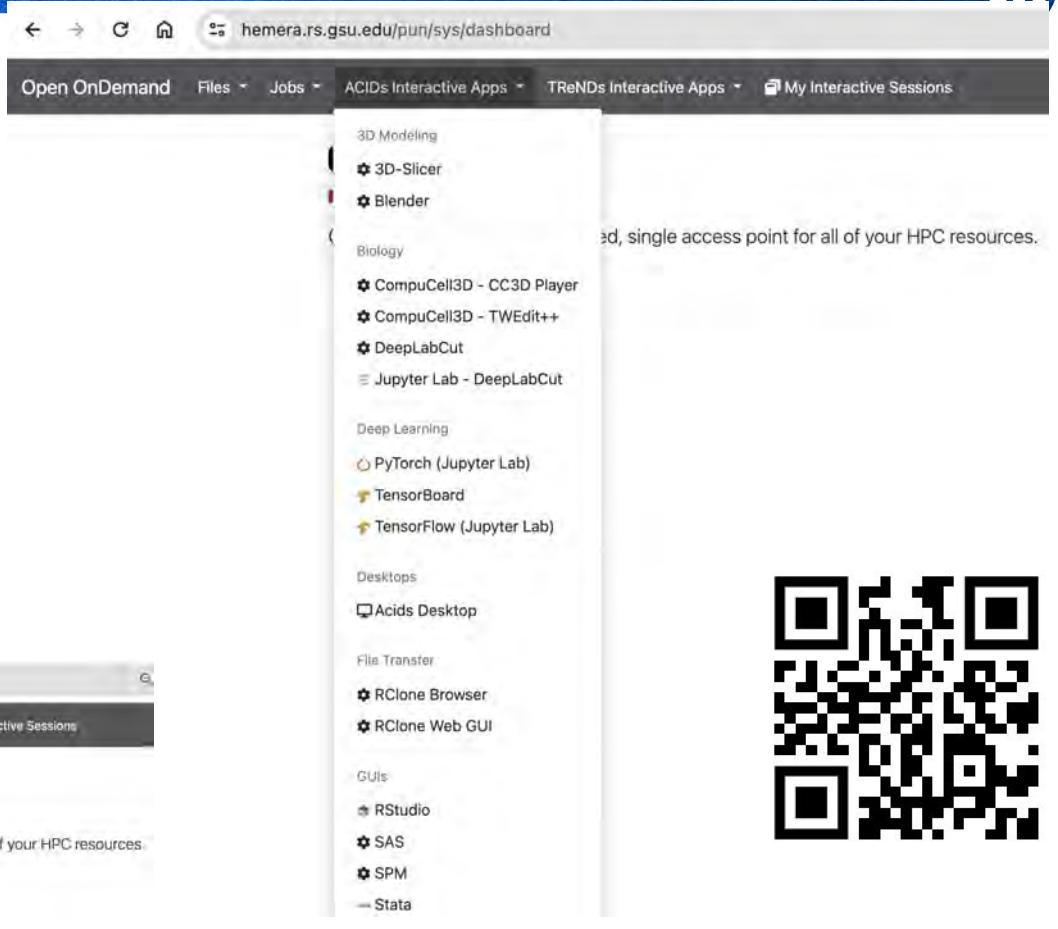
File Transfer

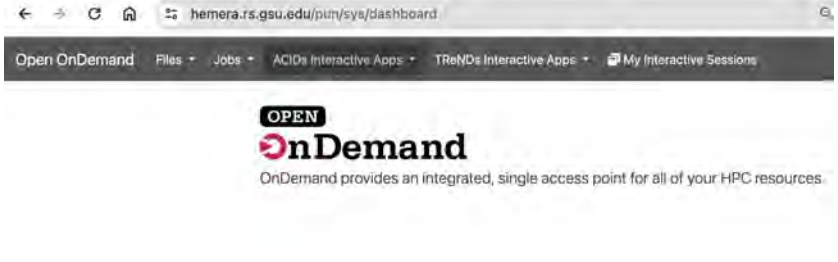
- Using Globus
  - https://arcwiki.rs.gsu.edu/en/data-transfer/globus/transfer-from-personal-to-scratch

- File Storage Location
  - Scratch location (Shared by all users)- Runtime Space
  - Home folder(25 GB)
  - Work folder(50 GB) - Long-term storage (iRODS)
  - Project folder(200 GB startup. Can request more) - Long-term storage(iRODS)
  - https://arcwiki.rs.gsu.edu/en/iRODS/Storage

Accessing the system

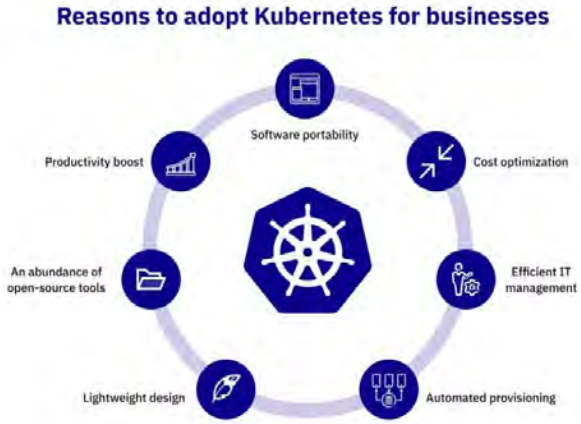
- Hemera provides remote web access to cluster resources.
- Lower the barrier to entry
- Support multiple applications,
- Interactive access and batch job submission





Proflex-CI NSF CC* Award

- Reproduceable science – old code does not break and produce same results when run on new hardware
- Complex workloads that does not fit into rigid cluster architecture
- Not just High-performance computing , but support entire research computing life cycle
- Infrastructure
  - Kubernetes bases container management
    - NVIDIA H100 , L40S GPUs
    - All Flash Object storage
    - 100Gbps Ethernet high speed interconnect

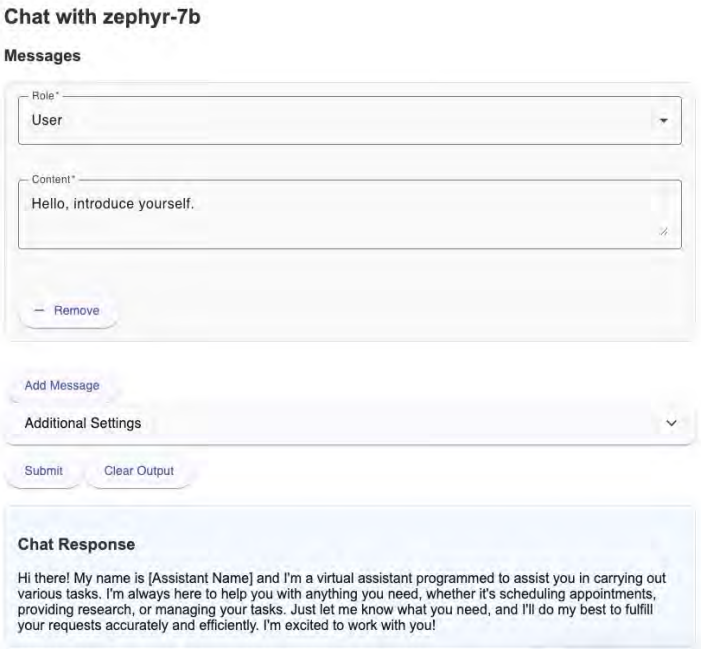


Callisto (Jupyter Notebooks)

- Support interactive teaching learning
- Available to every member of GSU community
- https://callisto.rs.gsu.edu
  - On-campus or VPN
- Run a JupyterLab instance
- Log in with your GSU credentials

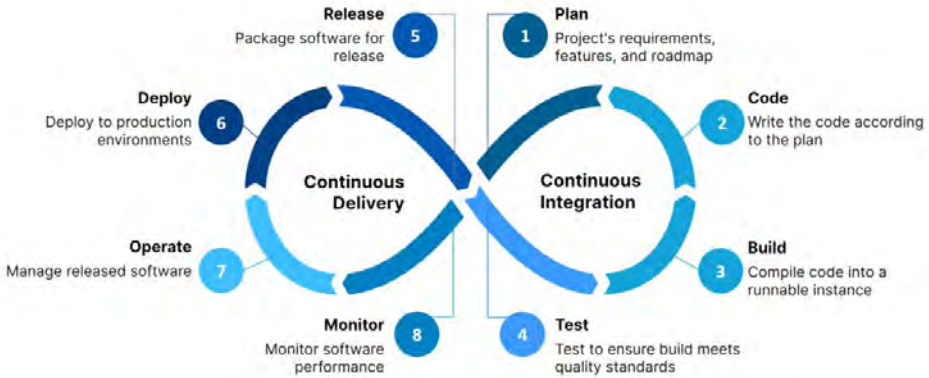
LLM Models via Proflex

- Choose LLM models from the list to work with your desired LLM models.



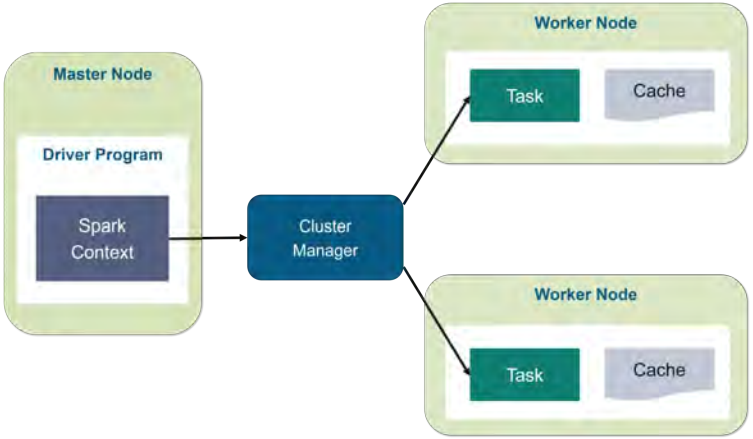
CI/CD application deployment

- Code Integration
- Trigger Build
- Build and Compilation
- Automated Testing
- Deployment



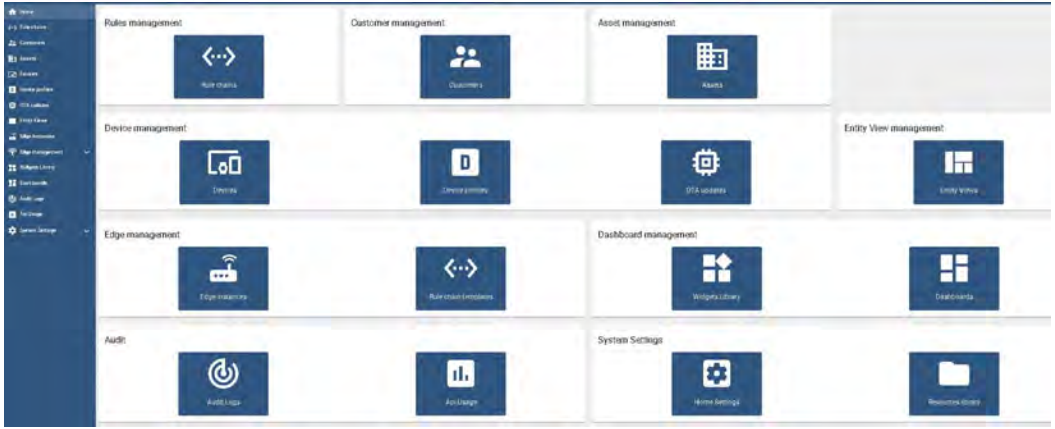
Data intensive computing with Spark

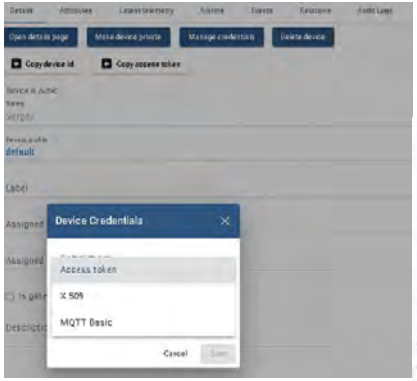
- Spark is Distributed computing framework
- Dynamic spark cluster creation on k8s
- 1024+ CPU cores and 6TB+ memory
- Submit spark jobs through API remotely



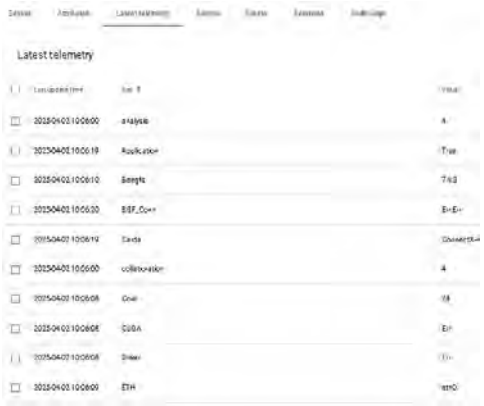
PROPERTY	VALUE
File	s3a://csc404s245/AIA-MVTS-Spark-Processor.py
Args	-d, /app, -f, arctic-config.ini, -s3, True, -s, param-exp-calc, -precon, True, -n, aia-mvts-exps
Name (--name)	aia-mvts-exps
Driver Cores (--driver-cores)	2
Driver Memory (--driver-memory)	25G
Number Of Executors (--num-executors)	20
Executor Cores (--executor-cores)	5
Executor Memory (--executor-memory)	20G
Python files (--py-files)	https://dmlab.cs.gsu.edu/code/proj.zip
Archives (--archives)	
Additional files (--files)	https://dmlab.cs.gsu.edu/code/arctic-config.ini
Additional JARs (--jars)	
--conf spark.dynamicAllocation.enabled	true
--conf spark.dynamicAllocation.maxExecutors	70
--conf spark.kubernetes.container.image	harbor.rs.gsu.edu/spaceweather/pspark-w-swtoolkit:0.0.1-Dev
--conf spark.hadoop.fs.s3a.path.style.access	True
--conf spark.hadoop.fs.s3a.impl	org.apache.hadoop.fs.s3a.S3AFileSystem
--conf spark.kubernetes.authenticate.driver.imagePullSecrets	regcred
--conf spark.kubernetes.authenticate.driver.serviceAccountName	lighter
--conf spark.kubernetes.driver.service.deleteOnTermination	True
--conf spark.hadoop.fs.s3a.aws.credentials.provider	org.apache.hadoop.fs.s3a.SimpleAWSCredentialsProvider

IOT Support



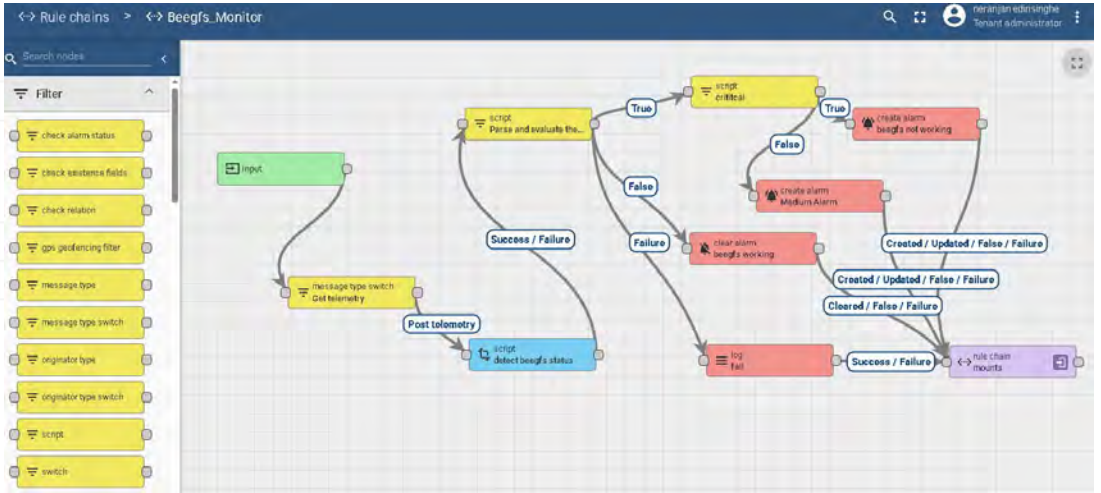



```python
from tb_device_mqtt import TBDeviceMqttClient, TBPublishInfo


telemetry = {"temperature": 41.9, "enabled": False, "currentFirmwareVersion": "v1.2.2"}
client = TBDeviceMqttClient("127.0.0.1", username="A1_TEST_TOKEN")
# Connect to ThingsBoard
client.connect()
# Sending telemetry without checking the delivery status
client.send_telemetry(telemetry)
# Sending telemetry and checking the delivery status (QOS = 1 by default)
result = client.send_telemetry(telemetry)
# get is a blocking call that awaits delivery status
success = result.get() == TBPublishInfo.TB_ERR_SUCCESS
# Disconnect from ThingsBoard
client.disconnect()

```



IOT Support

Entity name	GPU	GPU_Type	CUDA	NVML	Kernel	Core	Mem_Total	Mem_Free	IB	ETH
acidscdcn013	Err	Err	Err	Err	5.4.0-192-generic	40	62.7826	34.7808	ib0	eno1
acidscdcn014	2	NVIDIA-SMI has failed because it couldn't communicate with the NVIDIA driver. Make sure that the latest NVIDIA driver is installed and running.			5.4.0-198-generic	40	62.7826	36.638	ib0	eth0
acidscdcn015	Err	Err	Err	Err	5.4.0-192-generic	72	125.774	103.269	ib0	eth0
acidscdcn016	2	NVIDIA-SMI has failed because it couldn't communicate with the NVIDIA driver. Make sure that the latest NVIDIA driver is installed and running.			5.4.0-193-generic	40	62.7826	46.9531	ib0	eth0
acidscdcn017	Err	Err	Err	Err	5.4.0-192-generic	40	62.7826	51.8576	ib0	eth0
acidscdcn018	Err	Err	Err	Err	5.4.0-192-generic	40	62.7826	51.6898	ib0	eth0



Computational Research & Cyberinfrastructure Working Group

- Collaborative working group with multiple disciplinary.
- Graduate students, postdoc, or research scientist working with advanced data analytics, computer simulations, machine learning deep learning, or generative AI/ LLMs are welcome to present.
- Anyone with expertise on computational methods, data visualization techniques, getting results faster using high-performance computing, or research workflows are welcome to
- Open to everyone outside GSU.
- More information available at https://arctic.gsu.edu/training/

SCD (Science and Cyberinfrastructure for Discovery)

- https://easychair.org/my/conference?conf=scd25
- https://arctic.gsu.edu/training/scd/
- September 9 and 10, 2025
- On Student Centre Ballroom at Georgia State University
- Open to all students, faculty and researchers outside GSU as well.

Thank you!

Please email to arc@gsu.edu if you have any questions

Web Site : https://arctic.gsu.edu

Request PI status: https://elpis.rs.gsu.edu

Help desk: https://hydra.gsu.edu

PROPEL CENTER

Accelerated Learning for the Future of Technology

Learn Fast. Build Something Real.

RESEARCH

THE NUMBERS

When surveyed about which courses of interest that Propel Learn would be launching, students chose career readiness (70%), internship preparation (67%), followed by artificial intelligence (52%) and content creation/digital marketing (52%).

TOP 3 BARRIERS TO SUCCESS

MENTORSHIP

48%

INDUSTRY KNOWLEDGE

48%

INTERNSHIP OPPORTUNITIES

48%

CULTURE

HOW WE PROPEL

On Campus

Propel partnered with 20 institutions to distribute over $5MM in grants and scholarships to support student and faculty research.

Online

We do this through Propel Learn, the signature learning and credentialing platform for HBCU students that provides comprehensive, experiential, innovative learning experiences and future-ready career opportunities.

On-site

The Propel center will serve as an HBCU hub on the campus of the Atlanta University Center.

MS-CC
ms-cc.org

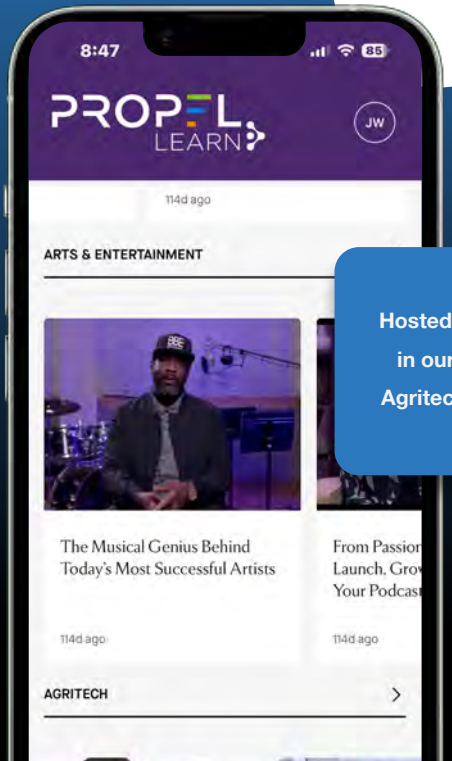
INNOVATION

HOW WE PROPEL

PROPEL LEARN

Propel Learn is the signature learning and credentialing platform for HBCU students that provides comprehensive, experiential, innovative learning experiences and future-ready career opportunities.

OUR IMPACT



Hosted more than 300 students in our Arts & Entertainment, Agritech and Health Innovation Accelerators.

100+
Students

Propel Learn registered more than 1,000 users on our platform and enrolled more than 1000 students in courses across 31 institutions.

1500+
Users

Propel has provided more than $5MM in grants and scholarships to the HBCU Community.

$6MM+
Grants

MS-CC
ms-cc.org

INTERNET 2

NSF

MS-CC

Integrating Data Tools into Humanities Research and Teaching

Moderator: Dr. Tikenya Foster-Singletary, Professor, Clark Atlanta University

Panelists: Dr. Shanee Willis, HBCU Library Consortium; Donielle Pace, Graduate Student, Clark Atlanta University; Andrea Jackson Gavin, HBCU Digital Library Trust; Shyheim Williams, Digital Humanities Fellow, Clark Atlanta University

Digital Humanities Overview

Shyheim Williams and Andrea Jackson Gavin

Clark Atlanta University Art Museum

- The Clark Atlanta University Art Galleries opened in 1996 in collaboration with the Olympic Arts Festival under Tina M. Dunkley. The Gallery was elevated to a museum around 2016 under the leadership of Maurita Poole.
- **Clark Atlanta University Art Museum's (CAUAM)** purpose is to collect, preserve, research, and exhibit fine artworks that document the role of African Americans in American history and culture.
- The Museum prioritizes the acquisition of art objects created by African diasporic artists and preserving ephemeral documents relevant to respective objects and artists.

Who

This effort is led by NMAAHC's Office of Strategic Partnerships collaborating with Museum and Archive Directors of the Clark Atlanta, Florida A&M, Jackson State, Texas Southern and Tuskegee Universities. Consortium trainings are facilitated by the George Mason University's Roy Rosenzweig Center for History & New Media, and The Compass Group, Inc. This project is made possible in part by the National Endowment for the Humanities (NEH) and the Institute of Museum and Library Services (IMLS).

What

The 5-year pilot initiative is designed to create lasting benefits to member organizations by securing the cultural legacy of HBCUs and to greatly enhance resource availability to make known the under-told history and culture of African Americans and their essential role in the story of America. A major goal is to increase understanding of the value Museum and Archives offer the faculty, students, administrators, and stakeholders of their academic institutions.

Why

Fulfilling a commitment to advance efforts to sustain historically Black institutions by remaining responsive to the expressed needs of HBCU Museum and Archive Directors for increased organizational capacity, training, development, and advocacy; to clearly align campus cultural institutions with the larger mission of the university and its constituent groups.

Impact

• Create a strong and replicable community of practice among consortium members through digital and in-person formal convenings that creates an environment for shared learning and open dialogue about best practices for increased sustainability for museums and archives among participating HBCUs.

• Create an open-source digital archive via the Omeka-S platform, composed of HBCU digitized collections for use by academic scholars and the general public in an easily accessible format. (Summer 2025)

• Produce a national traveling exhibition featuring HBCU collections, along with an exhibition catalogue designed for international distribution. (September 2025)

• Deliver professional development and skill-building training through internship and fellowship opportunities for a cohort of young professionals from traditionally underrepresented groups, generating a next-generation talent pipeline.

HBCU HISTORY & CULTURE.
ACCESS CONSORTIUM

University Museum Collections Digitized

Permanent Collection

Paintings - 277
drawings/watercolors - 150
Sculptures - 108
Prints - 242
Photos - 34
textile works - 32
Multi media works - 44
Other - 328

Digitized

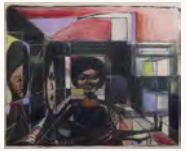
Paintings - 97
drawings/watercolors - 66
Sculptures - 40
Prints - 50
Photos - 0
textile works - 0
Multi media works - 7

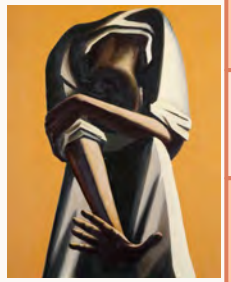
Total

~260 items currently included in the HCAC digital archive

Collections Selected for Digitization

- **Atlanta Art Annuals**
  - Objects acquired through the Exhibition of Paintings, Drawings and Watercolors by Negro Artists, also known as the Atlanta Art Annuals, is the foundation of the HCAC digitization project.
  - The Atlanta Art Annuals was an annual, juried competition crearted by Hale Woodruff in the wake of the Harmon Foundation's Negro Exhibition. The Annuals were held from 1942-1970 and attracted over 900 Black artists from across the nation.



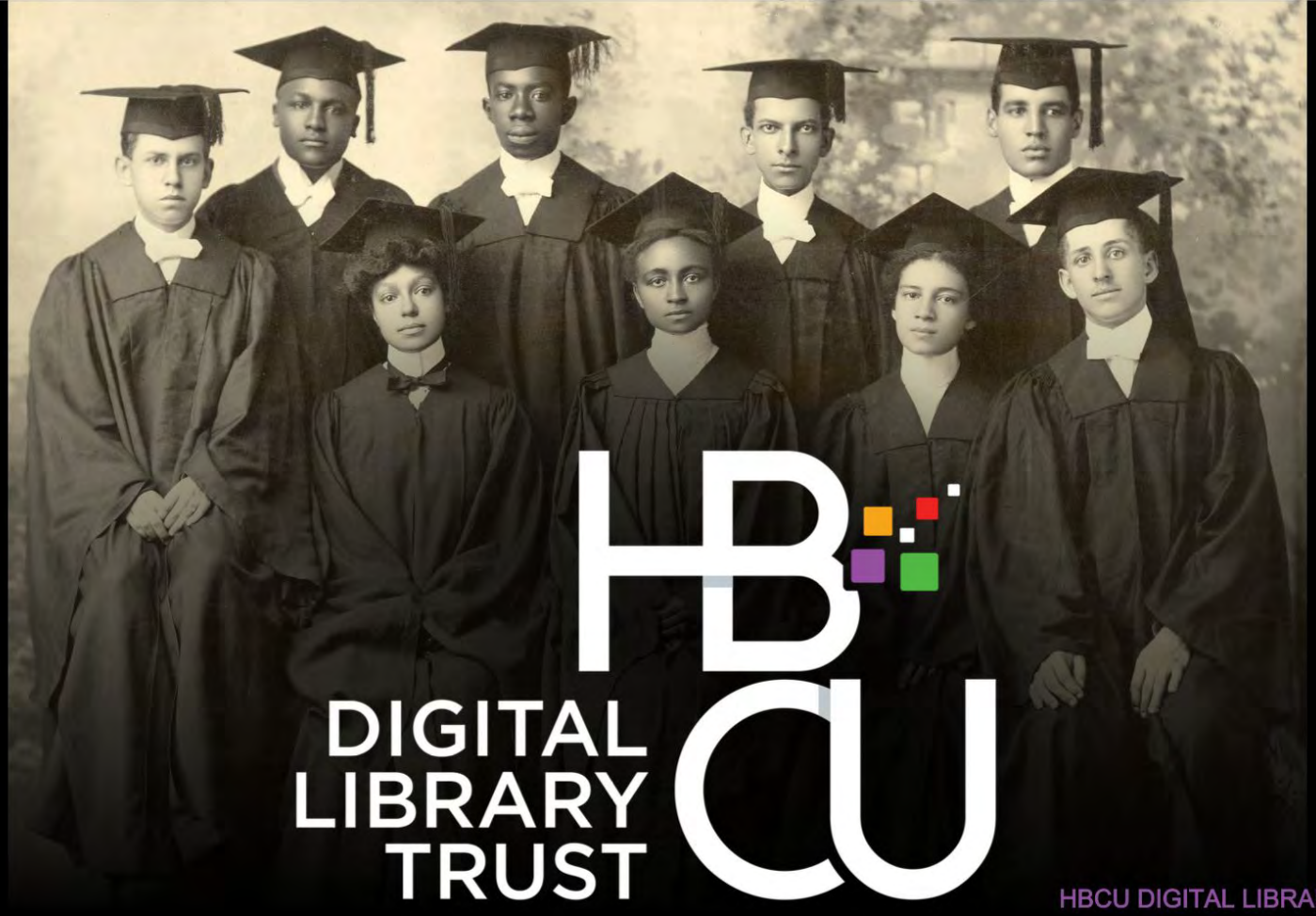


Collections Selected for Digitization

- **The *Art of the Negro* murals**
  - The Art of the Negro was selected as the deliverables for the CLIR grant to ensure conservation and digitization. Once conserved in 1996 during the Cultural Olympiad, the 2023 conservation effort improved the display of the 6-panel mural series on display in the Trevor Arnett atrium.
  - This panel, *Interchange*, centers Africa has a knowledge and culture hub for the ancient world, emphasizing the importance of the protection of these murals as counternarratives to primitivist arguments and sources of diasporic pride.

Collections Selected for Digitization

- **Featured in *At the Vanguard***
  - ***Contemporary Collection***
    - Works outside of the Annuals, particularly from our more contemporary acquisitions are also included in the Omeka-S digitization project to ensure all objects included in the exhibition are reflected in the digital item sets.
  - Private Collector's Donations
    - Likewise, select items donated to the museum from the Harmon Foundation, the Baldwin Estate and Waddell Collection are also included.



HBCU DIGITAL LIBRARY TRUST
thehbcutrust.org

Courtesy of AUC Woodruff Library

FOR US, BY US

THE EXPANSION OF HBCU DIGITAL COLLECTIONS THROUGH THE HBCU DIGITAL LIBRARY TRUST

thehbcutrust.org

HBCU DIGITAL LIBRARY TRUST

MISSION

The HBCU Digital Library Trust is a collaborative, non-profit initiative building capacity with Historically Black Colleges and Universities to digitally preserve and provide global access to their archival collections, sustain institutional, cultural, and community memory, and ensure stories are discovered, maintained, remembered and told.

HBCU DIGITAL LIBRARY TRUST

KEY COLLABORATORS

Courtesy of Quite Trill Worldwide

HBCU Library Alliance

HARVARD LIBRARY

VE RI TAS

Atlanta University Center
Robert W. Woodruff Library

Digital Repository Host and Digitization HUB

HBCU DIGITAL LIBRARY TRUST

https://h bcudigitallibrary.auctr.edu

The HBCU Digital Collection was conceived by the HBCU Library Alliance with support from Cornell University and the Andrew W. Mellon Foundation.

The HBCU Digital Library Trust seeks to enhance and expand public access to HBCU archives through generous support over 4 years from the Harvard & Legacy of Slavery Initiative.

HBCU DIGITAL LIBRARY TRUST

https://h bcudigitallibrary.auctr.edu

The Collegians, 1955,
Lane College Library Archives

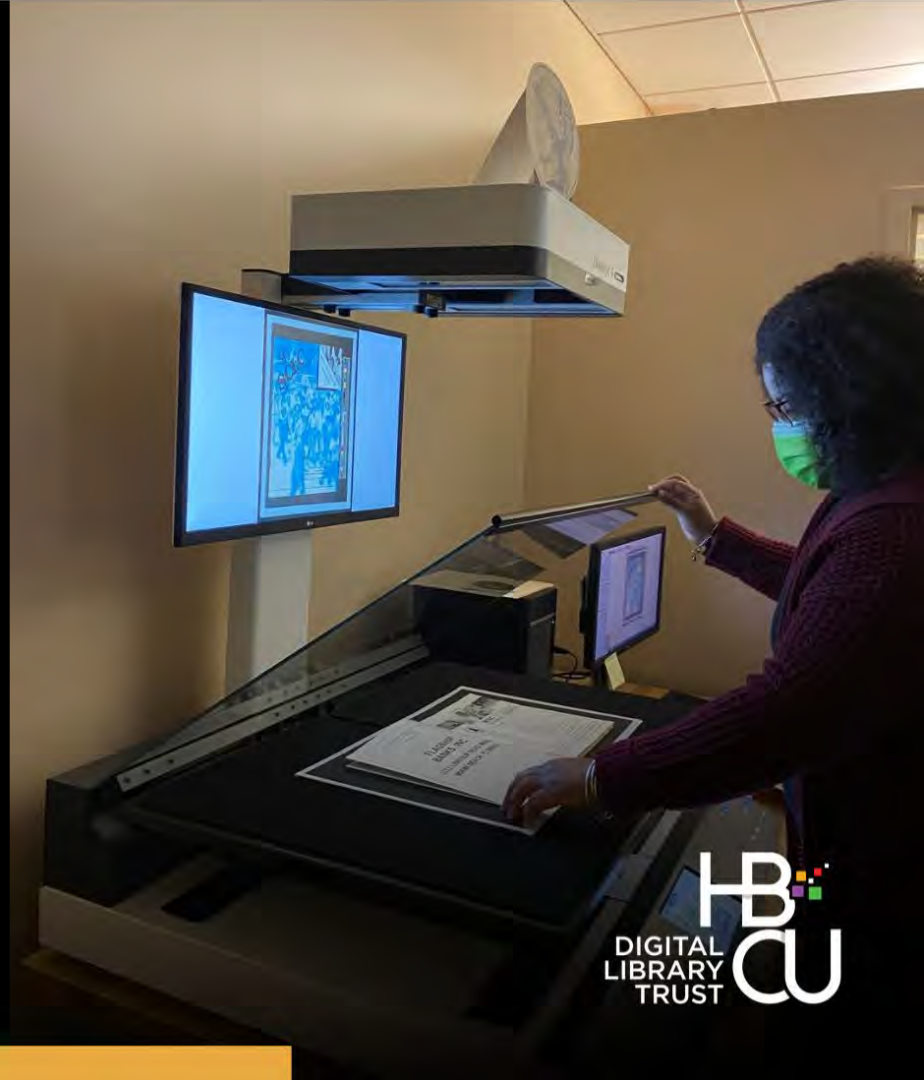
Item Description

Title	The Collegians, 1955
Date	1955
Creator	Lane College
Description	The Lanite Band is shown gathered with instruments on Lane College's campus. The Collegians band, including Samuel Pope and Julius Lartique, are shown posing for a picture with their instruments. The Collegiates were a band of Lane College students. Written on verso: Picture-B (?), Page 61. Samuel Pope, Julius Lartique
Subject	African American universities and colleges African American musicians Groups and organizations
Object Type	Black & white photographs
Format	image/jpeg
Geographic Location	Tennessee--Jackson
Repository	Lane College Library Archives
Repository Collection	Lane College Student Photographs
Identifier	lane.0057
Language	eng
Rights	Images in these collections are either protected by copyright or are the property of the Lane College Library Archives. To order a reproduction or to inquire about permission to publish, please contact lwang@lanecollege.edu or call 731-426-7593.
Source	https://www.lanecollege.edu/academics/library

HBCU DIGITAL LIBRARY TRUST

In concert with each contributing HBCU, and with trust and integrity, the HBCU Digital Library Trust will:

- Provide FREE to contributing HBCUs:
  - Shipping, digitization and metadata creation
  - Archival supplies
  - In-person or virtual assistance with selection, inventorying, packing from a traveling archivist
- Build capacity and utilize a digitization hub at an HBCU
- Significantly increase digitization of HBCU archival resources as institutions retain ownership and applicable copyright



Recognizing the immense value of collaboration, the HBCU Digital Library Trust :

- Promotes broad research, scholarship, teaching and learning by utilizing the HBCU Digital Collection
- Expands searching capabilities across HBCUs
- Builds upon the HBCU Library Alliance network to engage HBCU professionals working with archival and historical resources
- Provides professional development opportunities for HBCU information professionals to both share expertise and enhance skills, such as the Copyright First Responders Program

The Digitization Hub staff has broadened discoverability and access by:

- Digitizing over 16,500 individual pages and recordings since June 2024
- Collaboratively creating descriptive metadata for each object with HBCU library and archives staff
- Adding 7 HBCU institutional collections – containing a plethora of archival content and formats – to the HBCU Digital Collection repository

HBCU DIGITAL LIBRARY TRUST

ORIGINAL HBCU DIGITAL COLLECTION CONTRIBUTING INSTITUTIONS

Courtesy of Bowie State University

- Alabama State University
- Bennett College
- Bowie State University
- Fisk University
- Grambling State University
- Hampton University
- Lincoln University of Missouri
- Lincoln University of Pennsylvania
- Meharry Medical College
- Miles College
- Morehouse School of Medicine
- Morgan State University

HBCU DIGITAL LIBRARY TRUST

ORIGINAL HBCU DIGITAL COLLECTION CONTRIBUTING INSTITUTIONS

CONTINUED

Courtesy of Tuskegee University

- North Carolina Central University
- Paine College
- St. Augustine's College
- Robert W. Woodruff Library (Atlanta University Center)
- South Carolina State University
- Southern University and A&M College
- Southern University at Shreveport, LA
- Tennessee State University
- Texas Southern University
- Tuskegee University
- University of The District of Columbia
- Virginia State University

HBCU DIGITAL LIBRARY TRUST

NEW HBCU DIGITAL LIBRARY TRUST CONTRIBUTORS

- Allen University
- American Baptist College
- Benedict College
- Bethune -Cookman University
- Howard University
- Lane College
- Lincoln University of Missouri*
- Philander Smith University
- Tuskegee University*

Courtesy of Bethune -Cookman University

BETHUNE-COOKMAN COLLEGE

Voice of the Wildcats

"Enter To Learn" SEPTEMBER 2002 "Depart To Serve"

B-CC remembers September 11

By Erica L. Anderson
Managing Editor

Bethune-Cookman College students gathered somberly in the Heyn Memorial Chapel for a morning prayer service on Sept. 11, despite the dreary weather that threatened rain throughout the day. Students prayed for the victims of last year's terrorist attacks and a restoration of peace and solidarity to all nations.

Members of the Concert Chorale opened the service with "Glory, Glory" as reporters from local media captured the moment with pictures.

Officer Larry Edwards, a chaplain from the Daytona Beach Police Department, urged students to find comfort in God because "prayer changes things."

"The good news is that God's body was not found in the rubbage of Ground Zero," said Edwards, who helped in the recovery efforts during the first days after the attacks.

See SEPT. 11, Page 2

B-CC/John Reeves

B-CC security officers raise the flag at center mass to honor America on Sept. 11.

An attack on Iraq

By Erica L. Anderson
Managing Editor

A small metal sphere slightly larger than a golf ball pierces through the night sky and lands with a tremendous "boom" near the coast of Florida.

The impact shakes the sky and eclipses the sun with a cloud of toxic dust. Radioactive fumes penetrate the Earth, suffocating birds in the sky and choking all marine life.

Millions of fireballs shoot through the air 900 times faster than the speed of light, blinding every eye and singeing human flesh in all 50 states before you can awake from your slumber.

A nuclear bomb is a weapon of mass destruction that could destroy an entire continent in seconds. The International Institute for Strategic Studies, which is based in London, reported Iraq could build a nuclear weapon in several months if they obtained radioactive material.

See IRAQ, Page 3

Wildcats cage Wolverines

By Devon Quash
Sports Editor

The Bethune-Cookman College Wildcats football team maintained their undefeated record with an impressive 42-7 victory over Morris Brown College in Atlanta, Ga.

The Wildcats controlled the game from the beginning, opening with a nine play 59-yard drive capped off by a nine-yard touchdown run by Rodney Johnson. The 'Cats scored 20 points in the second quarter, including another long scoring drive of 10 plays for 75 yards, ending with a 24-yard strike from Allen Suber to Lamont Finnie for the touchdown. The Wildcats also scored on a two-yard run by Johnson and a pass from Suber to Erik Lash, giving the 'Cats a twenty-two point lead at the half (29-7).

B-CC continued their dominant play in the third quarter, scoring 13 points, which put the Wolverines away. After a 22-yard field goal by Daniel King, who had two field goals in the game, Suber ran for a 37-yard touchdown and put the game out of the Wolverines' reach in the fourth quarter.

Johnny Vickers commanded the fourth quarter with impressive runs, including a 47-yard romp that kept a drive alive and ate up valuable clock time. Vickers finished with five rushes for 71 yards, scoring the highest total for running backs in the game.

The Wildcat's defense was phenomenal, allowing only 130 yards of total offense for the game.

FOOTBALL, Page 7

B-CC/John Reeves

Coach Wyatt, Sr. speaks to players during the game

INSIDE

HBCU DIGITAL LIBRARY TRUST

thehbcutrust.org

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“Do You Remember Me?”: A Case Study of Jill Scott Examining the Ways Black Women *Artists* Resist the Musical-Industrial Complex’s Entertainer Construct

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STATEMENT OF THE PROBLEM

- The musical-industrial complex recapitulates and reinforces the dismemberment and objectification of Black women's voices and bodies. The musical-industrial complex only makes space for Black women who adhere to the entertainer construct—not Artists—in order to perpetuate their exploitation and commodification, thereby upholding an Americanized system that profits from the suppression of Black women's creative, spiritual, and intellectual power.

THESIS STATEMENT

- The purpose of this dissertation is to examine the ways Black women like Jill Scott use live performance to orchestrate their voice in a ritualistic space that recovers ancestral-cultural knowledge and traditions to navigate the confining and exploitative functions of the musical-industrial complex and (re)members themselves as Artist.

RESEARCH QUESTIONS

1. How do Black women use live performance as a site of ritual to evoke ancestral reverence and (re)member themselves as Artists?

2. In what ways do these performances empower Black women Artists to disrupt and challenge the musical-industrial complex and resist its entertainer construct?

THEORETICAL FRAMEWORK

- This study is framed by ritualistic revival and ancestral reverence by way of Conjure Feminism.
- Conjure Feminism is a spiritual framework that privileges Black women's ancestral-cultural knowledge and traditions. It is a survival, resistance, and liberatory praxis for Black women to examine and explore their lives outside the white gaze; its key component is spirit work by way of ritual and ancestral reverence.
- Ritualistic revival was developed by Black Arts Movement member Barbara Ann Teer. It is Black woman-centered, which combines Black Pentecostal Church practices and ancient Yoruba African ritual traditions. Black women's intellectual traditions are centered, and their transcendental knowledge is privileged as its own episteme. Its three tenets are: to educate, promote unity and harmony, and invoke a spiritual cleanse.
- The Ancestor is the key figure in Black women's creativity. Thus, Black women's creativity connects them to their ancestral heritage. Their creativity, then, positions them as genealogy mediums who transmit knowledge "between foremothers, other mothers, grandmothers, mothers, and daughters" by way of ritual practices and oral tradition.

SONG	LYRICS/SOUNDS/VOCAL NOTES/CROWD	DESCRIPTIVE NOTES	MEMO/INTERPRETATIVE NOTES	CONJURE FEMINISM: RITUALISTIC REVIVAL OR ANCESTRAL	
"A Long Walk (Groove) [Groove]"	music intro smoothly fades into intro of this song				
	crowd claps and cheers		It seems like Scott has walked on stage.	unifying—>audience is in agreement with the anticipation of Scott's performance	
	bass guitar starts then drums and other instruments join	Preparing for the song to begin.			
	background singers—> "Maybe" repeats 7x	first "maybe" is higher/med register; second "maybe" is low register--they repeat this pattern			
	"You're here..."	deep low registered voice			
	dragging and elongating each word and note	taking her time with each word and syllable	rearranging the original song		
	"Lord...Lord...Lord...have mercy on me	higher alto register—>pleading/prayer-like			
	"I really dig your company"		Is she really addressing the crowd? Signifyin'? The crowd assembled for ritual?		
	"I was blind now I can seeee"	alto voice			
	"What a king supposed to be"	low register	Her supernatural vision? Her supernatural sight opening up to deliver this ritual experience?		
	"Babay, I feel free...yeaaa"				
	"Maybe we can take a long walk"--her and background singers		Is she inviting the audience to journey with her on this experience?		
	Scott responds to "maybe we can take a long walk" with "okay" and "alright"	She's answering the background singers	Is she reassuring the audience of that this journey is going to be fine?		
	"Let's take a long walk around the park after dark..."	All in unison in high alto register	Seems like a declaration to walk in Black love; offering everyone the chance to experience Black love as community		
	"Your background ain't squeaky clean"	Background singers in high soprano register			
	addresses the crowd "Hello, DC"		DC is known as Chocolate City		
	goes back to bridge then chorus				
	"maybe we can save the nation...come on"		Black love is radical and revolutionary; inviting the crowd with her by saying "come one"		
	"come on" repeats				
	elongates and plays with "on"	jazz like note/scatting			
	end on the word "silent"	emphasizes the "t"			

Song	Ritualistic Revival/Didactic	Ritualistic Revival/Unification	Ritualistic Revival/Cleansing	Ancestral Reverence
Track 2: "A Long Walk (Groove) [Groove]"- 6:18 mins	→ Scott sings "I was blind now [pause]/ I can see (holds note)/what a king's supposed to be/baby I feel free"—**meaning—Scott is having sermonically letting the audience know about Blackness and Black men and her relation to them. Goes against the Eurocentric construction of how they stripped Black people's identity and inheritance. The pause implicates that she has made the switch of being able to know the truth.** → "maybe we can talk about Surah 31:18"… "maybe we can talk about Revelation 3:17"… "maybe we can talk about Psalms entirety."—**meaning—Acknowledging and teaching the different religions that Black people mostly practice: Muslim (Nation of Islam) and Christianity. Both scriptures Surah 31:18 and Revelations 3:17 both speak about being humble and that riches do not make you better than anyone—actually it makes you poorer than actual poor people. Psalms book which is mostly**	→ Scott begins in a slow, very low register voice with the opening two words then switches to alto voice for the rest of the lines "You're here/I'm pleased/I really dig your company"—**meaning— Scott is welcoming everyone to her performance; although the song is about a relationship, Scott is flipping it by making it her welcome for all to join her on this experience.** → Scott and background singers "Maybe we can take a long walk" (repeats 7x) Scott responds to this line with "alright" and "okay"—**meaning—Scott is offering to take the audience on a "long walk"; this long walk is a (re)membering and a (re)imagining of Blackness before colonialism and without the white gaze.** → Scott sings "maybe we can save the nation/come on" **meaning—Scott is reminding the audience that when Black people are united that revolution can happen.**		→ Scott begins in a slow, very low register voice with the opening two words then switches to alto voice for the rest of the lines "You're here/I'm pleased/I really dig your company" **meaning—This is not Scott's normal singing voice. Who is she summoning? Or who is summoning her?** → Scott sings "I was blind now [pause]/ I can see (holds note) **meaning—Uses a portion of the hymnal, "Amazing Grace," a staple song in the Black church. Connecting her to ancestral roots and the foundation of Black culture and music which were spirituals and hymnals.** → Scott sings the bridge in a jazz-like rhythm with sharp cuttings of words and notes with the background singers echoing one line or word "Or maybe we can see a movie/or maybe we can see a play on Saturday/or maybe, maybe we can roll a tree and

Group Photo & Reflections

Amanda Tan,
Associate Director of Research Development, MS-CC

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Reflection: Closing the Loop, Opening the Path

- Something you **liked** or **learned** today
- Something you wanted **more** of
- Something that could have been **better**

“We are caught in an inescapable network of mutuality, tied in a single garment of destiny.” – Dr. Martin Luther King Jr.

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Learned / Liked	More / Better
• Incorporated faculty from humanities and that department has a lot of tools that we can learn from + • Learned a lot about all of the great things that are happening at all of the HBCUs • Digital Humanities and resources for collaboration • Enjoyed learning about digital humanities • Liked that someone stated how AI is a tool • Learned about Purdue's Supercomputer • Learned language and made connections and developed partners to enhance work • Liked meeting great people • The variety of topics and also new information about CI • The conversation and interaction regarding learning about supercomputing • Making connections and collaborating ++ • Learned that their are real people working at the Propel center	• Hands on opportunities +++ • Strong recommendations for lightning talks and case studies • More hands on workshops • Talk more about the history of AI and giving more relatable examples about CI • Students to get more hands on training + • Have more interactive workshops/more hackathons + • Teach the basics of CI, especially to students • Make the resources available online for students so they can continue learning and extend the expertise to other students on their campuses • More Art • More recommendations

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Welcome to Day 2

June 12, 2024

Breakfast & Networking

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Agenda Overview

Day 2

Now	Panel: AI, Data and Cyberinfrastructure for Community Resiliency
Next	MS-CC Overview & Cyberinfrastructure (CI) 101
Early AM	Faculty Workshops: Cutting edge collaboration tools & curriculum development

Lunch + Networking

Early PM	Closing Remarks

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Panel: AI, Data and Cyberinfrastructure for Community Resiliency

Moderator: Dr. Amanda Tan, MS-CC

Panelists: Dr. Teri Platt, Professor, Clark Atlanta University; Dr. Dina Tandabany, Professor, Clark Atlanta University; Dr. Vibhuti Gupta, Meharry Medical College

Faculty Workshops: Cutting edge collaboration tools and curriculum development

Instructor: Amanda Tan, MS-CC

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LUNCH & Networking

Until 1:00 PM

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Closing Remarks

Dr. Dina Tandabany
Professor
Clark Atlanta University

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- Develop CI capabilities in your students, faculty, and staff.
- Develop a CI strategic plan.

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