



**MINORITY SERVING-
CYBERINFRASTRUCTURE
CONSORTIUM**



MS-CC Cyberinfrastructure Workshop

Alabama A&M University

Oct. 29-30, 2024

EDUROAM Access



Pre-Workshop Survey



MINORITY SERVING- CYBERINFRASTRUCTURE CONSORTIUM



Welcome

Dr. Daniel Wims
President, AAMU

Dr. John Jones
Provost and Vice President of Academic Affairs, AAMU

Dr. Kylie Nash
Chief Information Officer, AAMU



**MINORITY SERVING-
CYBERINFRASTRUCTURE
CONSORTIUM**



Workshop Objectives

Leslie Jones

Director of Program Development, MS-CC

Ana Hunsinger

Vice President, Community Engagement, MS-CC

Al Anderson

Director of Cyberinfrastructure Programs, MS-CC

Workshop Objectives

- What is “**Cyberinfrastructure**”?
- How is Cyberinfrastructure investment **strategically relevant** to HBCU education and research programs?
- Why is **Cybersecurity** investment strategically critical to your campus mission?
- What **resources and funding** are available to support HBCU Cyberinfrastructure and Cybersecurity development?
- How can **HBCUs collaborate with one another and with resource providers** to advance their Cyberinfrastructure and Cybersecurity?

Agenda Overview

Day 1

Now

Next

Welcome, Workshop Objectives

Intro to MS-CC, Internet 2 Overview, & CI 101 + Attendee Introductions

Late AM

Perspectives on CI Strategic Value for Education & Research

+ Breakout Discussion

CI Strategic Value for Education and Research: Perspectives and Panel

Libraries and Archives and CI

Lunch + Networking + Group Photo

Early PM

NSF CI and Cybersecurity, NTIA Funding & considerations (Lightning talks)

Late PM

Enhancing resources through regional collaborations Panel

Campus Perspectives on Funding Panel

Research and Education Networks (RENs) / CI Resources in the Region

before 5:00 PM

Day 1 Wrap-up + Feedback

Day 2

8:00-8:50 AM

Breakfast

Early AM

Campus Cybersecurity Priorities for HBCUs Panel+ Breakout Discussion

Late AM

Strategy workshop for rising R2 institutions

Research & data computing and CI Professionals

Lunch + Networking

Early PM

Cybersecurity Education Programs at HBCUs/Cybersecurity Support and Workforce Requirements Panel+ Breakout

Discussion

Before 3:00PM

Workshop Wrap-up + Feedback

Pre-Workshop Survey:



Workshop Resources:





Acknowledgement

This material is based upon work supported by the National Science Foundation under Grant No. 2137123. 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.

EVENT CODE OF CONDUCT

Internet2 and the community are committed to promoting a positive environment at our events and conferences for our members and the research and education community. Our community values fair and equitable treatment of all individuals and expects our attendees to interact professionally and respectfully towards one another. Discrimination or harassment of any type, regardless of age, gender, sexual orientation, disability, physical appearance, race, or religion, is not consistent with our values and will not be tolerated.

Unacceptable behavior includes offensive comments; deliberate intimidation, stalking or unwanted attention; inappropriate physical contact; harassing, derogatory, or demeaning conduct; or other behavior that demonstrates a lack of professionalism or respect for another individual.

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.



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MS-CC Today: Bringing together HBCU Technology Leaders

Leslie Jones, MS-CC, Director of Program Development

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



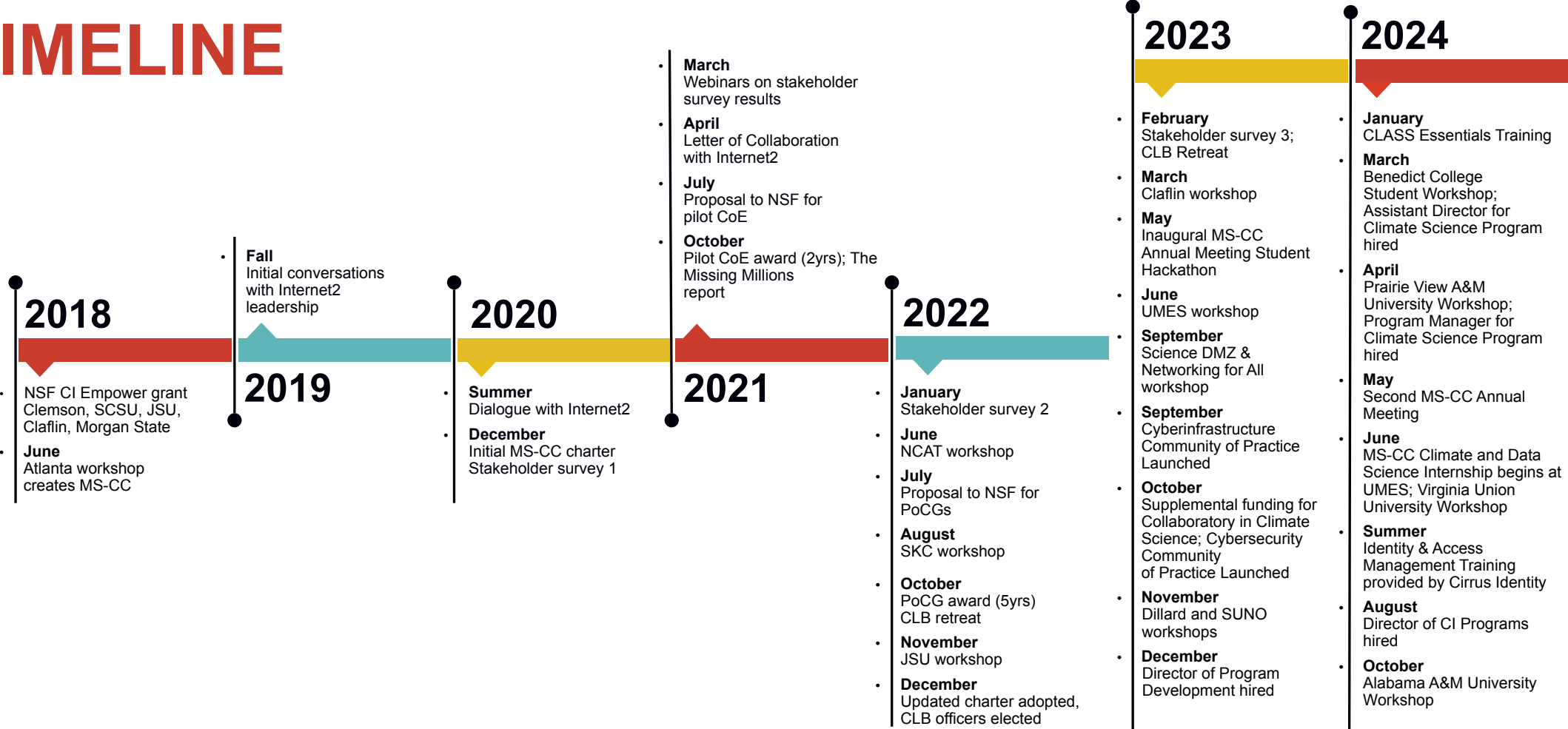
Photo Credit: Jackson State University

Cyberinfrastructure (CI) = IT for scholarship

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



TIMELINE



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 Guided by Consortium Leadership Board (CLB)

- Dr. Richard Aló, Florida A&M University
- Peter Angelos, Fond du Lac Tribal and Community College
- Joey Brenn, Claflin University
- Dr. Ming-Hsing Chiu, Dillard University
- Bobby Clark, Clemson University
- Dr. Deborah Dent, Jackson State University
- Donna Hayden, Alcorn State University
- Tom Jackson, North Carolina A&T State University
- Leah Kraus (Retired), North Carolina Central University
- Tim Warren (Retired), Tennessee State University
- Dr. Urban Wiggins, University of Maryland Eastern Shore
- Ana Hunsinger, MS-CC PI, Internet2



NORTH CAROLINA AGRICULTURAL
AND TECHNICAL STATE UNIVERSITY

DILLARD
UNIVERSITY



UNIVERSITY OF MARYLAND
EASTERN SHORE

CLEMSON
UNIVERSITY



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.

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

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

MS-CC: Coalescing HBCUs, TCUs, HSI, 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

**CI Center of Excellence
Demonstration Pilot**

Award # OAC-2137123

**21st Century
Research-Cyberinfrastru
cture 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.





NSF CI Center of Excellence Demonstration Pilot

Minority Serving Cyberinfrastructure Consortium (MS-CC)

Award # OAC-2137123

Start date: 10/1/2021 Projected end date: 9/30/2024

Objectives

- 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-relevant professional development** for faculty, staff, and students at HBCUs, TCUs, and other MSIs.
- **Enhance communication** among researchers, university leadership, and CI professionals.
- **Increase access to shared CI resources** at MS-CC organizations.

Scientific and Broader Impacts

- Advance understanding of the **benefits for shared CI across a distributed community** of minority-serving colleges and universities in a mix of urban, suburban, and rural settings
- **Advance CI capabilities** at these and other minority serving campuses
- Increase the availability of **workforce development opportunities** for researchers, professional staff, and students at HBCUs, TCUs, and other MSIs
- Increase diversity in the STEM talent pool and workforce
- Advance understanding around the importance of **multi-stakeholder consortia supporting CI**

Principal Investigator:

Ana Hunsinger,
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ana@internet2.edu

Co-Principal Investigators:

Dr. Richard Alo, FAMU
Dr. Deborah Dent,
Jackson State University



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

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

Engaging with Students

- May 2023: Student Hackathon @ Annual Meeting
- March 2024: Cyber-simulation at Benedict 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 Data 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)

Minority Serving – Cyberinfrastructure Consortium

Accomplishing More Together

By working together and in community, we strive to strengthen the student, faculty, and staff experience at HBCUs and TCUs by focusing on sustainable campus-level IT capabilities for data-intensive education and research programs.

[Join](#)

Strength in Numbers. Power of Community.

55

Historically Black universities and colleges (HBCUs)

19

Hispanic-serving institutions (HSIs)

10

Tribal colleges and universities (TCUs)

54

Affiliate organizations

**NEW MS-CC Website
Launched October 2023**

www.ms-cc.org



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.**





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

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.

Principal Investigator:

Ana Hunsinger,
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ana@internet2.edu

Co-Principal Investigators:

Al Anderson,
Salish Kootenai College
James Brenn,
Clafin University
Dr. Deborah Dent,
Jackson State University



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



**SALISH KOOTENAI
COLLEGE**

Multi-Campus CI Collaboration





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

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.

Principal Investigator:

Ana Hunsinger,
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ana@internet2.edu

Co-Principal Investigators:

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James Brenn,
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Dr. Deborah Dent,
Jackson State University



SALISH KOOTENAI COLLEGE 

www.ms-cc.org



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Internet2 Overview

AAMU – MS-CC Workshop: Campus Technology, Cybersecurity,
& Research Computing Support

October 29, 2024

Ana Hunsinger, MS-CC

MS-CC Award # OAC-2137123, Award # OAC-2234326

Internet2 Core Components in Support of R&E



COMMUNITY

Internet2 is a community providing cloud solutions, research support and services tailored for R&E.

Our trusted, secure network empowers higher education, research institutions, government entities and cultural organizations.

330+

HIGHER EDUCATION MEMBERS

100+

COUNTRIES & RESEARCH NETWORKS CONNECTIONS

80,000+

COMMUNITY ANCHOR INSTITUTIONS

500+

NET+ SUBSCRIBERS

50+

AFFILIATE & GOVERNMENT MEMBERS

800G+

WAVELENGTHS OF NETWORK CAPABILITY

1000+

INCOMMON PARTICIPANTS

50+

INDUSTRY MEMBERS

BY THE NUMBERS

1100+

EDUROAM SUBSCRIBERS

50+

COMMUNITY GROUPS SHAPING PRIORITIES

50+

CLOUD SCORECARD PARTICIPANTS

750+

NET+ CLOUD CONTRACTS

46

REGIONAL & STATE NETWORKS

20+

NET+ SERVICE OFFERINGS

32Tbps

CAPACITY PER LINK



NETWORK



We're more than just a network



Network Infrastructure Topology | May 2024

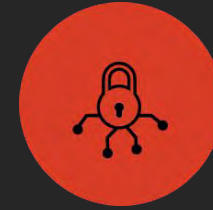
This map represents all 50 states and five major territories of the U.S. The Internet2 network infrastructure extends across the contiguous U.S. and, through a global fabric of research and education networks and exchange points, interconnects with locations in Alaska, Hawaii, Guam, Puerto Rico, and 100+ countries worldwide.



INTERNET2 & REGIONAL RESEARCH & EDUCATION NETWORKS (REN) IN THE UNITED STATES



SECURITY

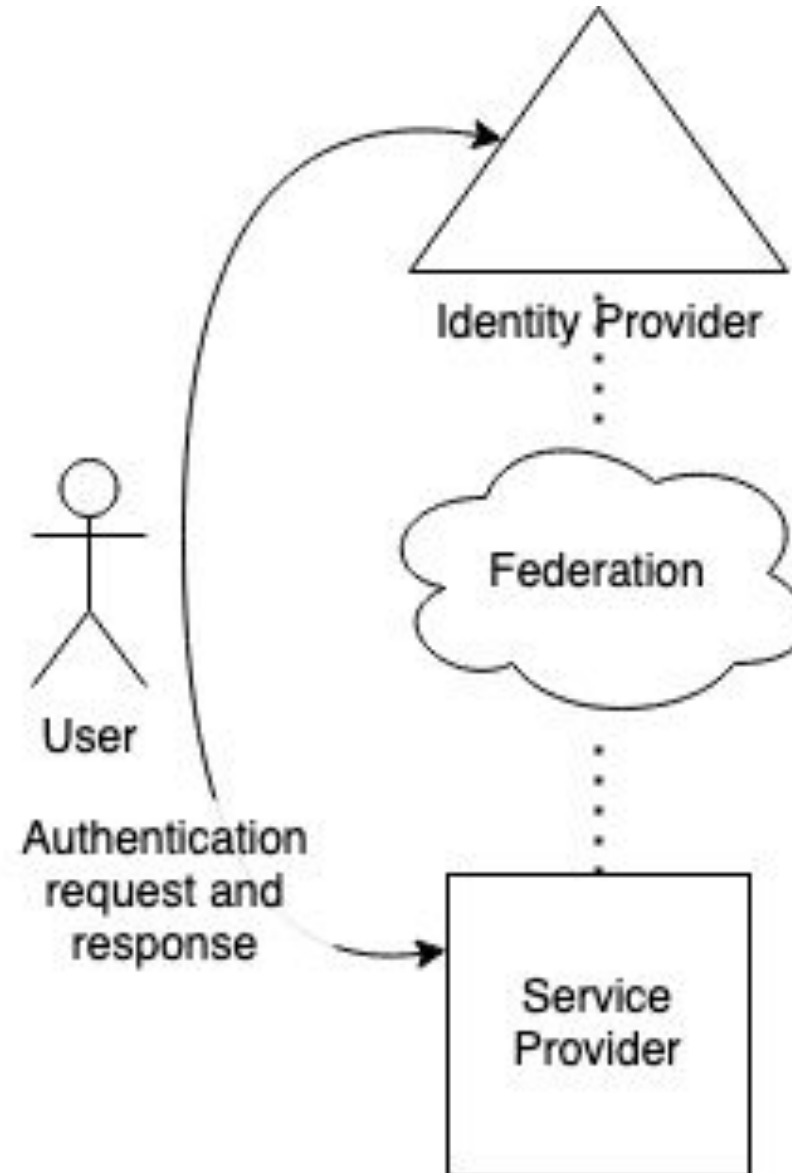


The Identity and Access Challenge

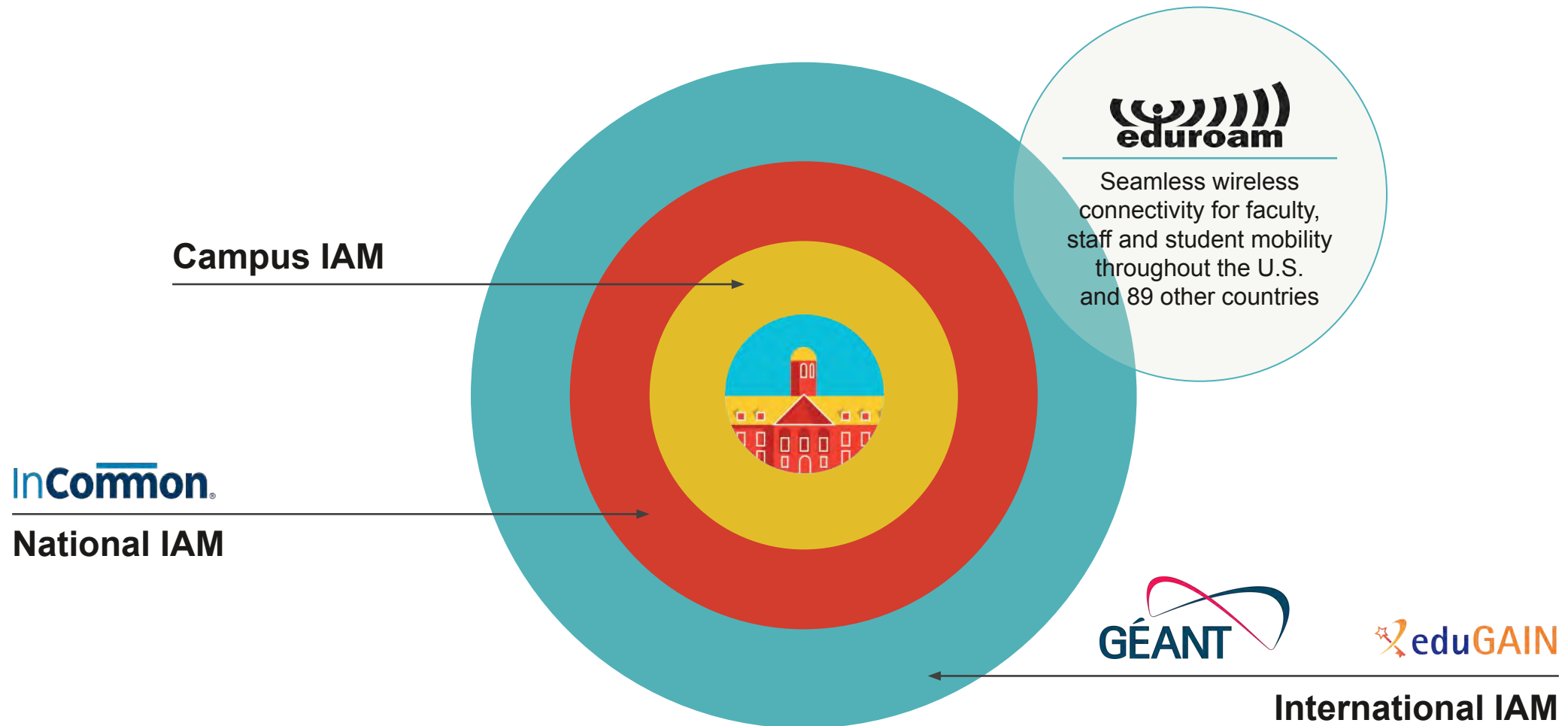
If you provide a service, you want many people from many institutions to use that service.

If you support an organization, you want your users to be able to access a wide variety of services in an efficient way with their work identity.

So how do you find (and trust) one another at scale? Federation.



Identity Management: Locally, nationally and internationally



Global High-speed, Roaming Wi-Fi Service: For researchers, students and staff wherever they are located



All of your institution's users have seamless, secure and fast internet connectivity across campuses and millions of access points across the globe using your home institution's credentials. And you save precious resources by not provisioning guest Wi-Fi accounts.



Find out more about InCommon Federation and eduroam:

www.incommon.org



CLOUD



what
**MATTERS
MOST**
for your
cloud
services?



Terms &
Pricing



Peer
community



Speed of
Deployment



Service
Vetting



Vendor
Management



Accessibility



Security



Services
Integration

NET+

A Trusted Ecosystem of Tailored Top-Quality Cloud Solutions



1100+ active NET+ subscriptions

600+ institutions subscribe to at least one NET+ service

140+ institutions have contributed to at least one NET+ service evaluation

20+ NET+ cloud services in the portfolio



CLASS: Cloud Learning and Skills Sessions



CLASS fills the gaps in training for cloud and research computing. The program accelerates the adoption of best practices in research computing and data in the cloud and provides professional development for research computing and data professionals.

More info? class@internet2.edu
Visit us at <http://internet2.edu/CLASS>

Some Participating Organizations

American Indian Higher Education Consortium
DePaul University
Florida International University
Grinnell College
Harvard University
Indiana University
Jackson State University
Michigan State University
Missouri University of Science and Technology
Northwestern University
Oregon State University
Princeton University
Purdue University
Rensselaer Polytechnic Institute
Rice University
Stanford University
State University of New Jersey-Rutgers
Texas Tech University
University of British Columbia
University of California, Berkeley
University of California, San Diego
University of Delaware
University of Florida
University of Richmond
University of South Carolina
University of Utah
University of Virginia
University of Washington
University of Wisconsin-Madison



COMMUNITY



The heart of who we are and what we do

Snapshot for today

Institutions at workshop:

Alabama A&M University
Alabama State University
Clark Atlanta University
Fisk University
Georgia State University
Jackson State University
JF Drake State Community & Technical College
Meharry Medical College
Spelman College
Stillman College
Tennessee State University
Tuskegee University

Internet2 members: Alabama A&M University, Clark Atlanta University, Georgia State University, Jackson State University, Meharry Medical College

Internet2 network connectors in the region: SoX, MISSION

eduroam subscribers: Alabama A&M University, Georgia State University, Jackson State University

NET+ subscribers: Jackson State University (Panopto)

InCommon Participant: Georgia State University



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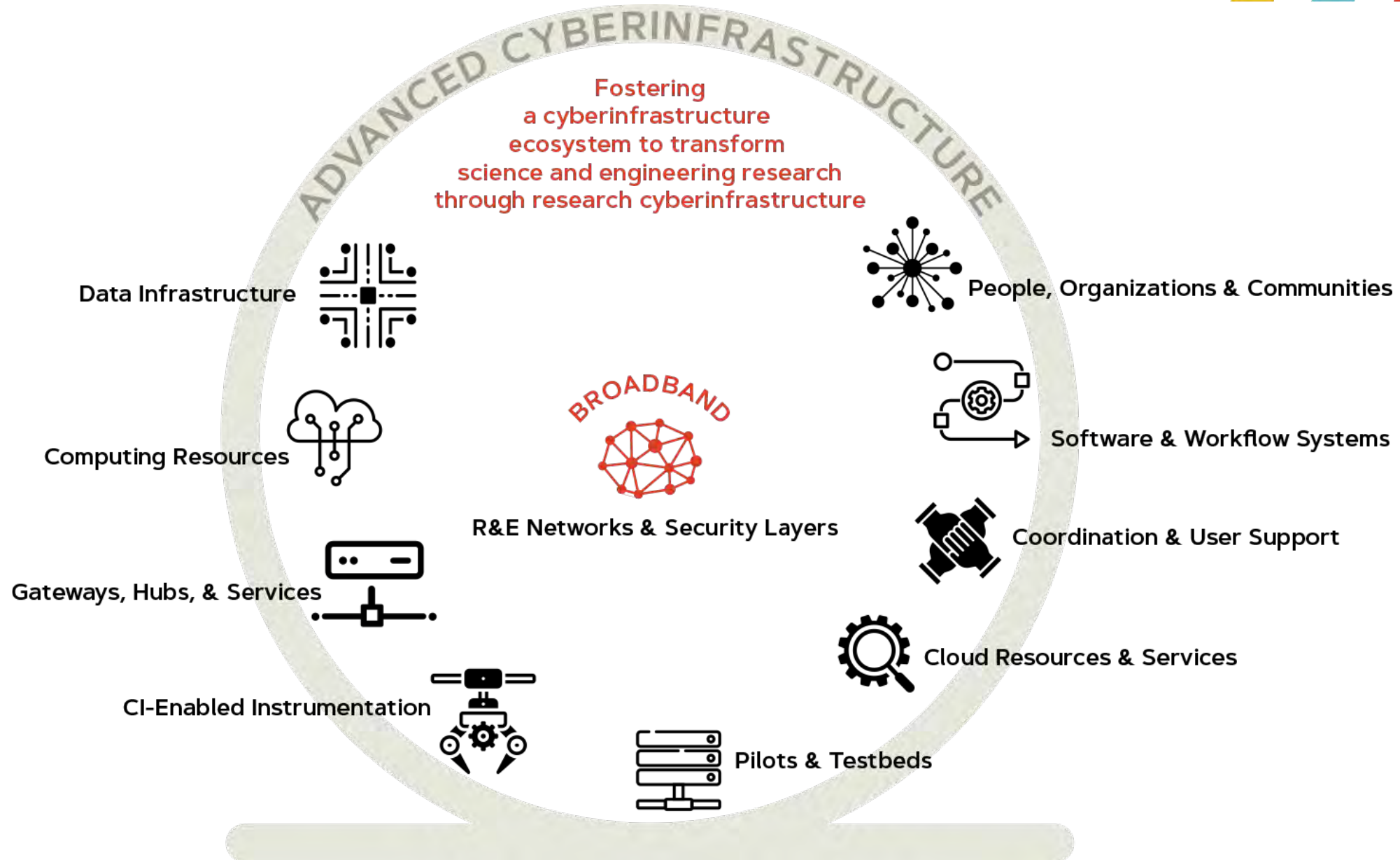
CyberInfrastructure 101

Al Anderson, MS-CC, Director of Cyberinfrastructure Programs
also, a Recovering CIO® (from a Tribal College)



“Cyberinfrastructure”

Information Technology (IT) to Advance Your Campus's
Data-Driven Research and Education Programs



People Power

- Datacenter
 - Technicians: Maintain and troubleshoot hardware
 - Engineers: Design and optimize data center infrastructure
 - Plumbers: Liquid cooling manifolds
 - Electricians: Powering up the room and racks
- Operations/Networking/Security
 - System Administrators: provisioning and monitoring nodes
 - Network Administrators: Ensure reliable and secure network operations
 - Security: Protect systems from cyber threats
- Account Management and Accounting
 - Creation and maintenance of groups and individual accounts, along with resource accounting
 - Accountants: Manage financial records and budgets.
- User Support
 - Technicians: Provide front-line technical assistance to users.
- Scientific Support
 - Research Scientists: Collaborate on scientific projects and data analysis
 - Technical Consultants: Offer expertise in specialized scientific domains
- Communications
 - Manage internal and external communications
 - Scientific and technical writers for publications and manuals
- Project Management
 - Oversee project timelines and deliverables and assist in project planning and execution.
- Education, Training, Workforce Development
 - Develop and conduct training sessions and workshops for academics and professionals
- Business Office & Administration
 - Proposals, finances, procurement, coordination
- Librarians
 - Data ingestion, curation, and management
- ...

IT Infrastructure

- The Actual Network Hardware
 - Switches, routers, firewalls, fiber optic lines, copper lines
 - Software to monitor and protect the network
- Servers for various services (can be cloud based)
 - High performance computing (HPC)
 - High throughput computing (HTC)
 - Data storage node (DTN)
- Identity Access & Management (IAM)
 - How do you log in and access stuff?
- Policies & Procedures
- User Support
- CI Plan to help guide development
- Network Diagram

Data & its Lifecycle



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*



REGIONAL RESEARCH & EDUCATION NETWORKS IN THE UNITED STATES



QUILT MEMBERS & AFFILIATES





Network Infrastructure Topology | May 2024

This map represents all 50 states and five major territories of the U.S. The Internet2 network infrastructure extends across the contiguous U.S. and, through a global fabric of research and education networks and exchange points, interconnects with locations in Alaska, Hawaii, Guam, Puerto Rico, and 100+ countries worldwide.



A National CI Ecosystem of Services to Support Researchers and Campuses

Networks,
Data Transfer,
& Security



Domain-Specific
Toolkits and
Data Workflows



Training and
CI Professional
Communities



THE
CARPENTRIES

THE QUILT



InCommon[®]



Pew
Research
Center



CaRCC
Campus Research Computing Consortium



Red Hat
Training



open storage network

Data
Repositories
& Storage



Scalable
Computing
& Environments

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.”





You Don't Have to Do it ALONE

MS-CC's Programs and Community Can Help You

- Connect with other campuses.
- Learn from each other's endeavors.
- Identify opportunities for shared resources and funding.
- Develop CI capabilities in your students, faculty, and staff.
- Develop a CI strategic plan.



Navigate the CI Ecosystem

- Learn from CI experts.
- Leverage services to enhance CI on your campus.
- Connect your students and faculty with off-campus resources.
- Participate in the broader CI ecosystem.



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Thank you!

Al Anderson, MS-CC, Director of Cyberinfrastructure Programs

aanderson@internet2.edu



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Attendee Introductions

Name, Institution, Role(s)



**Break & Group Photo
Until 10:25 AM**

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Workshop Resources:





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CI Strategic Value for Education and Research: Perspectives and Panel

- **Dr. Kylie Nash**, CIO, AAMU
- **Sonya Satterfield**, Assistant VP of Technology Services, Alabama State University
- **Dr. Rhonda Jackson**, AVP Distance Education, AAMU



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Libraries and Archives and CI

- **Roderick Wheeler**, Assistant Computer Lab Manager, Tuskegee University Libraries
- **Melissa Burel**, Junior Programmer, BookSystems, Inc.





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LUNCH & Group Picture

Until 12:55 PM

EDUROAM Access



Join the MS-CC

<https://bit.ly/JoinMS-CC>

CI Quick Poll:



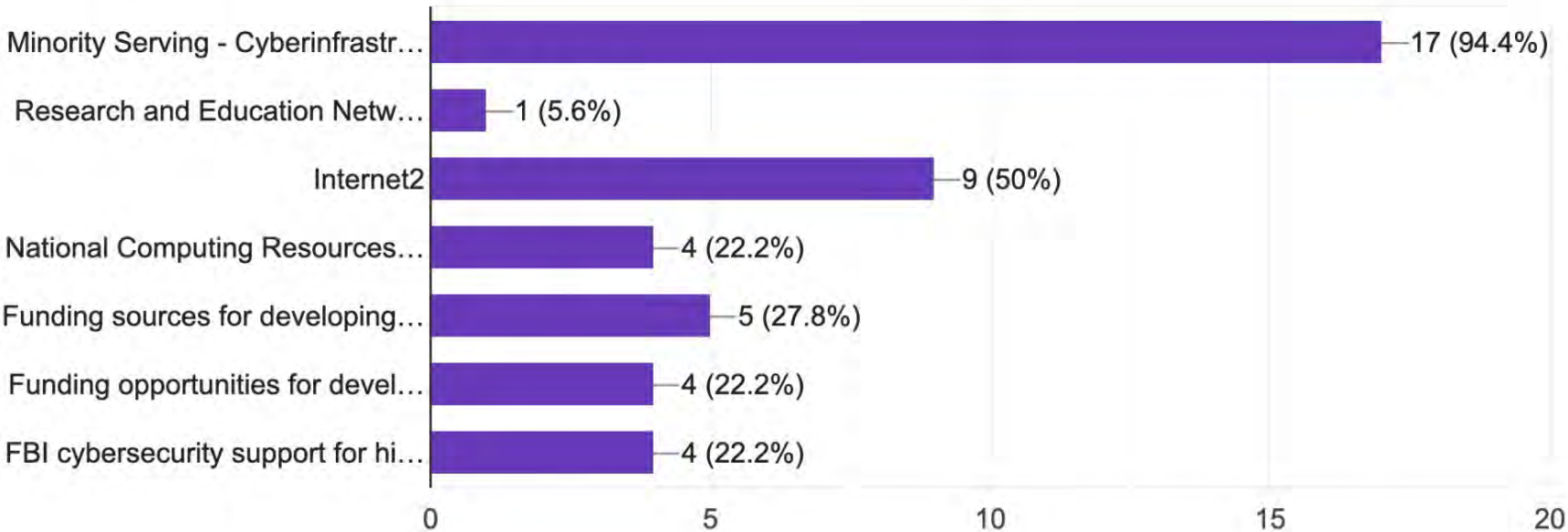
Workshop Resources:



Pre-Workshop Survey:

Which of the below are you already familiar with?

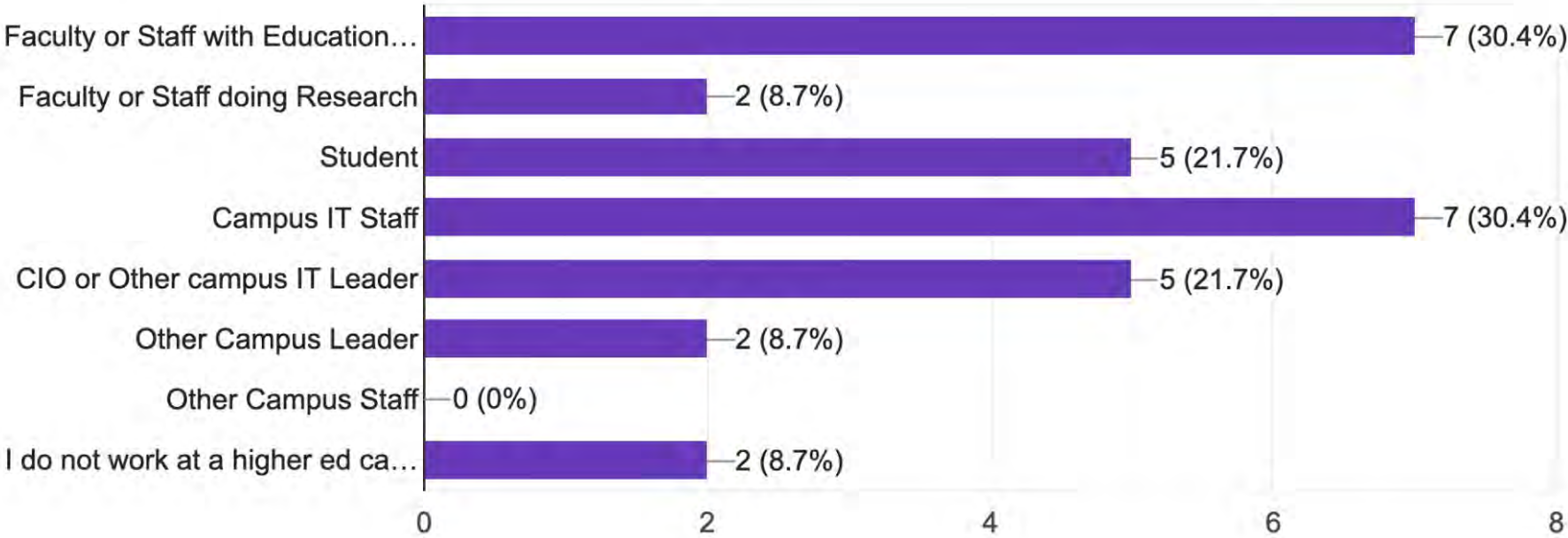
18 responses



Pre-Workshop Survey:

What best describes your role(s) on campus?

23 responses



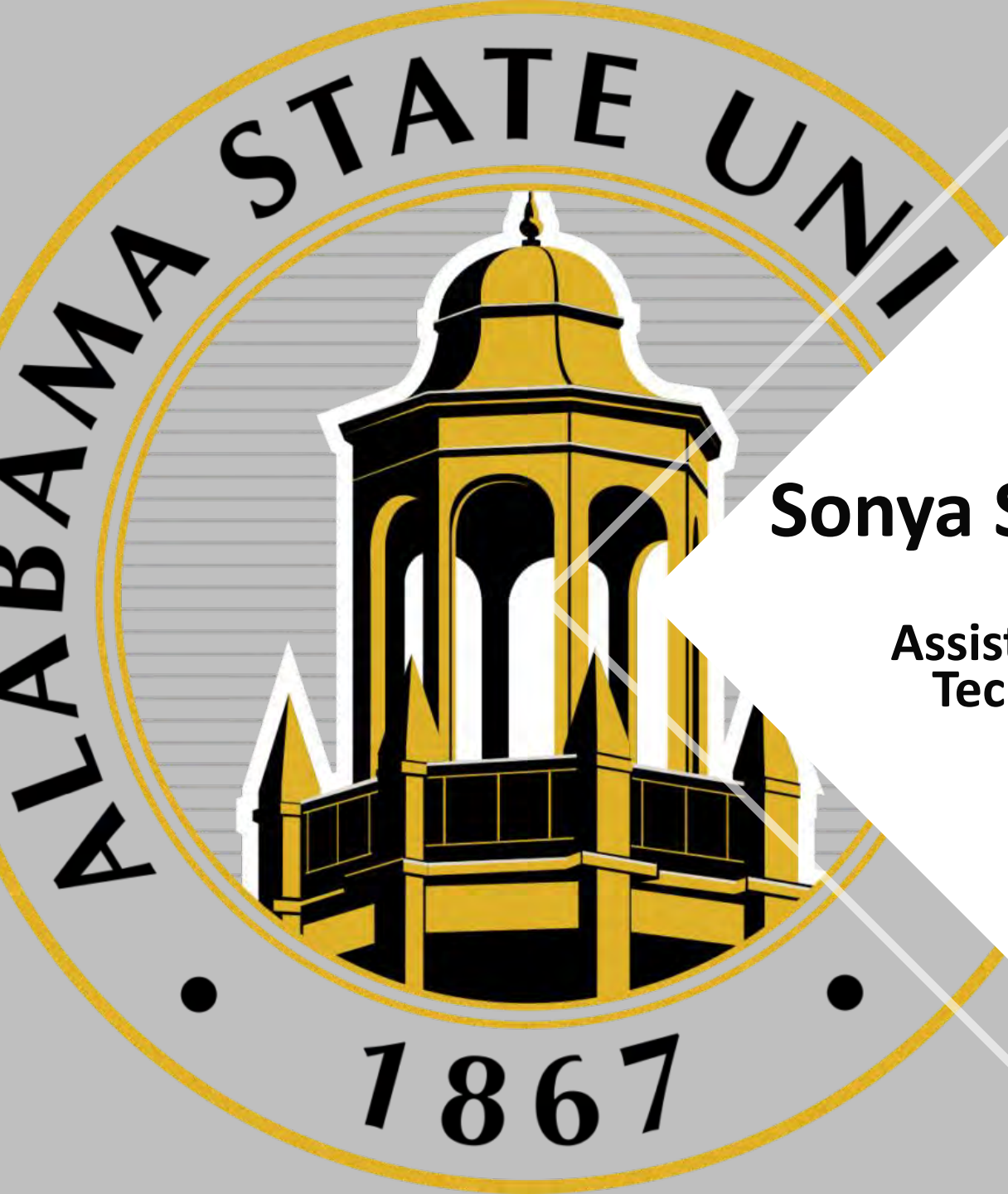


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NSF CI and Cybersecurity, NTIA Funding & Considerations (Lightning talks)

- **Amy Apon**, National Science Foundation Program Director, CISE, OAC
- **Dr. Leah Davis, Director**, Office of Minority Broadband Initiatives, NTIA
- **Azra Pepic**, Director of Grants/Sponsored Programs, J.F. Drake State Community and Technical College
- **Dr. Raziq Yaqub**, Associate professor in the Department of Electrical Engineering and Computer Science, Alabama A&M University
- **Sonya Satterfield**, Assistant VP of Technology Services, Alabama State University



Sonya Satterfield

**Assistant VP of
Technology**



NTIA - Awarded



Connecting Minority Communities Pilot Program

Grant Details

- Award Amount: \$2,999,695.37
- Grant Program: Connecting Minority Communities Pilot Program
- Awarding Agency: National Telecommunications and Information Administration (NTIA)
- Duration: 3 years
- Completion: February 28, 2025

