



**MINORITY SERVING-
CYBERINFRASTRUCTURE
CONSORTIUM**



MS-CC Cyberinfrastructure and Cybersecurity Workshop

Virginia Union University

June 26, 2024

WiFi: VUUGuest
pass: students

Agenda



Workshop Objectives

- Why is **Cybersecurity** investment strategically critical to your campus mission?
- What **resources** are available to support HBCU Cybersecurity development?
- How can **HBCUs collaborate with one another and with resource providers** to advance their Cyberinfrastructure and Cybersecurity?
- How can **HBCUs better prepare Cybersecurity students** for the competitive Cybersecurity workforce?

Agenda Overview

Day 2

8:00-8:45 AM

BREAKFAST

Now

Workshop Objectives

Next

Internet2 Update

Early AM

Campus Cybersecurity Priorities + Breakout Discussion

break

Late AM

**Concurrent Sessions: Strategies for Successful Grant Submissions +
R1/R2 Rising Cyberinfrastructure & Strategy**

lunch + Networking

Early PM

Cybersecurity Workforce & Education Programs + Breakout Discussion

Before 3:00PM

Workshop Wrap-up + Feedback

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Before 3:00PM

Workshop Wrap-up + **Feedback**

Workshop Resources:

<https://bit.ly/VUUWorkshopMaterials>



WiFi: VUUGuest
pass: students



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.



Internet2 Overview

VUU – Internet2 Update
June 26, 2024

Jennifer Kim, Cyberinfrastructure Engineer, 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+

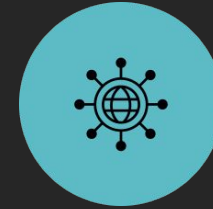
NET+ SERVICE OFFERINGS

32Tbps

CAPACITY PER LINK

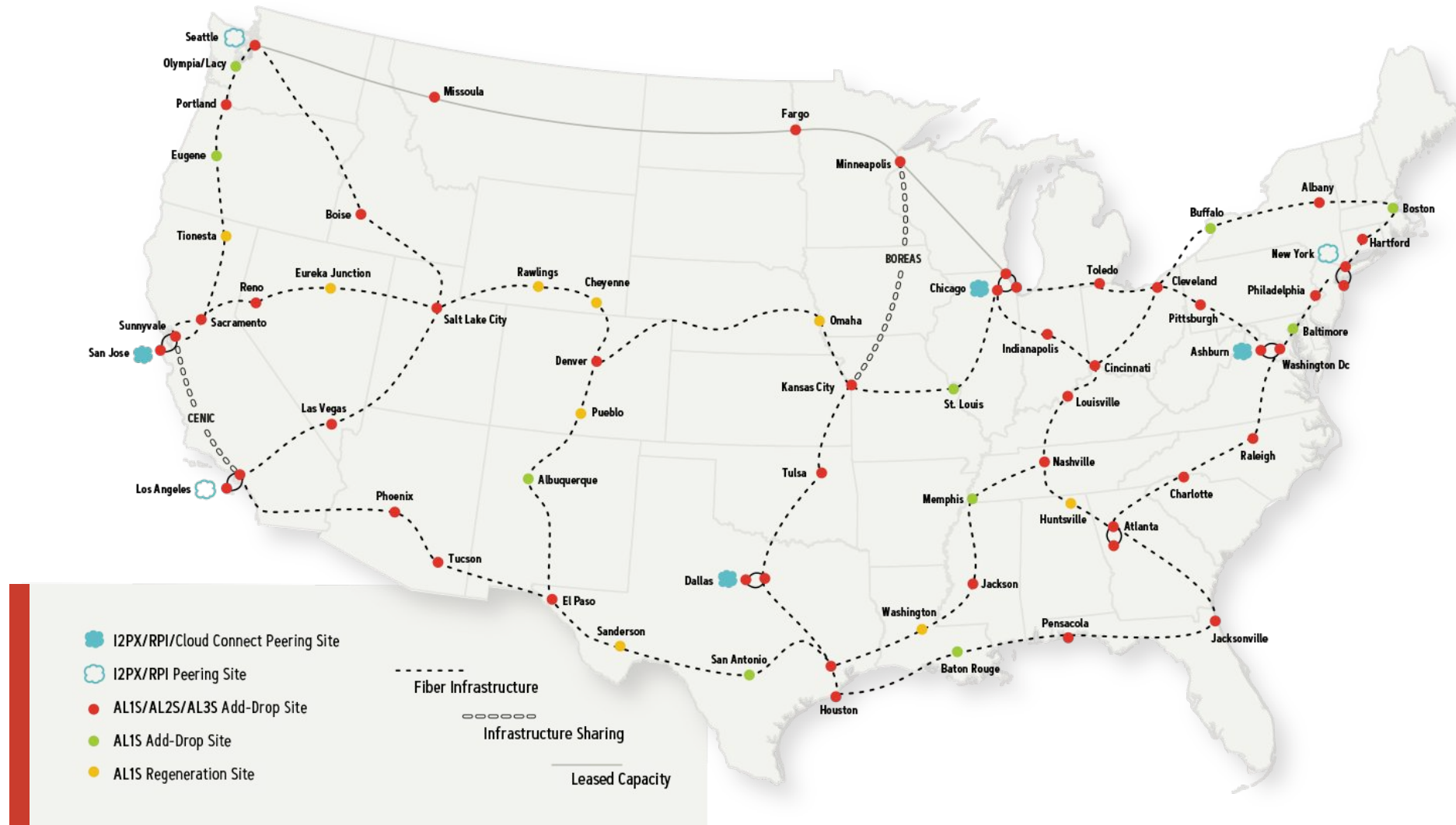


NETWORK



We're more than just a network

Internet2 Nationwide Network: A secure, stable and trusted network for R&E



REGIONAL RESEARCH & EDUCATION NETWORKS IN THE UNITED STATES

NORTHEAST REGION



QUILT MEMBERS & AFFILIATES

3ROX ARE-ON Light CAAREN CEN CENIC FLR GPN IRON KANREN KINBER KyRON LEARN LINK DREON M-RIA MC MAX MCNC MDREN merit MOREnet MREN NETWORKMAINE NEVADA NET NJEdge Northern Lights OSHEAN OneNet PACIFIC SoX Sun Common UMassNet WiscNet WYNET

REGIONAL RESEARCH & EDUCATION NETWORKS IN THE UNITED STATES

SOUTHERN REGION



QUILT MEMBERS & AFFILIATES



HISTORICALLY BLACK COLLEGES AND UNIVERSITIES NETWORK CONNECTIVITY

- | | | |
|---|--|--|
| 1 Tennessee State University, TN | 36 Coppin State University, MD | 71 Houston-Tillotson University, TX |
| 2 Clark Atlanta University, GA | 37 Morgan State University, MD | 72 Jarvis Christian University, TX |
| 3 Morehouse College, GA | 38 University of Maryland, Eastern Shore, MD | 73 Paul Quinn College, TX |
| 4 Morehouse School of Medicine, GA | 39 Harris-Stowe State University, MO | 74 Prairie View A&M University, TX |
| 5 Spelman College, GA | 40 Lincoln University, MO | 75 Southwestern Christian College, TX |
| 6 Tuskegee University, AL | 41 Alcorn State University, MS | 76 Saint Philip's College, TX |
| 7 Albany State University, GA | 42 Coahoma Community College, MS | 77 Texas College, TX |
| 8 Fort Valley State University, GA | 43 Hinds Community College, MS | 78 Texas Southern University, TX |
| 9 Savannah State University, GA | 44 Jackson State University, MS | 79 Wiley College, TX |
| 10 Alabama A&M University, AL | 45 Mississippi Valley State University, MS | 80 Virginia State University, VA |
| 11 Alabama State University, AL | 46 Rust College, MS | 81 University of the Virgin Islands, VI |
| 12 Bishop State Community College, AL | 47 Tougaloo College, MS | A Miles College, AL |
| 13 Golden State Community College, AL | 48 Bennett College, NC | B Oakwood University, AL |
| 14 H. Council Trencham State Community College, AL | 49 Elizabeth City State University, NC | C Stillman College, AL |
| 15 J. F. Drake State Community and Technical College, AL | 50 Fayetteville State University, NC | D Talladega College, AL |
| 16 Lawson State Community College, AL | 51 Johnson C. Smith University, NC | E Selma University, AL |
| 17 Shelton State Community College, AL | 52 Livingstone College, NC | F Arkansas Baptist College, AR |
| 18 Philander Smith College, AR | 53 North Carolina A&T State University, NC | G Shorter College, AR |
| 19 University of Arkansas at Pine Bluff, AR | 54 North Carolina Central University, NC | H Delaware State University, DE |
| 20 Charles R. Drew University of Medicine and Science, CA | 55 Saint Augustine's University, NC | I Interdenominational Theological Center, GA |
| 21 Howard University, DC | 56 Shaw University, NC | J Morris Brown College, GA |
| 22 University of the District of Columbia, DC | 57 Winston-Salem State University, NC | K Paine College, GA |
| 23 Bethune-Cookman University, FL | 58 Central State University, OH | L Hampton University, VA |
| 24 Edward Waters University, FL | 59 Wilberforce University, OH | M Norfolk State University, VA |
| 25 Florida A&M University, FL | 60 Langston University, OK | N Virginia Union University, VA |
| 26 Florida Memorial University, FL | 61 Cheyney University of Pennsylvania, PA | O Virginia University of Lynchburg, VA |
| 27 Kentucky State University, KY | 62 Lincoln University, PA | P Bluefield State College, WV |
| 28 Simmons College of Kentucky, KY | 63 Allen University, SC | Q West Virginia State University, WV |
| 29 Dillard University, LA | 64 Benedict College, SC | R American Baptist College, TN |
| 30 Grambling State University, LA | 65 Claflin University, SC | S Fisk University, TN |
| 31 Southern University and A&M College, LA | 66 Clinton College, SC | T Lane College, TN |
| 32 Southern University at New Orleans, LA | 67 Denmark Technical College, SC | U LeMoyne-Owen College, TN |
| 33 Southern University at Shreveport, LA | 68 Morris College, SC | V Meharry Medical College, TN |
| 34 Xavier University of Louisiana, LA | 69 South Carolina State University, SC | |
| 35 Bowie State University, MD | 70 Voorhees College, SC | |



QUILT MEMBERS & AFFILIATES



NETWORK CONNECTION TYPE

- Unknown
- Regional R&E
- Internet2

CONNECTION TYPE

- City Pair
- State-to-State Pair
- via REN Network Collaborator
- Internet-connect Point

TRIBAL COLLEGES AND UNIVERSITIES NETWORK CONNECTIVITY



- 1 Iisagvik College, BARROW, AK
- 2 Dine College, TSAILE, AZ
- 3 San Carlos Apache Tribal College, SAN CARLOS, AZ
- 4 Tohono O'Odham Community College, SELLS, AZ
- 5 Haskell Indian Nations University, LAWRENCE, KS
- 6 Bay Mills Community College, BRIMLEY, MI
- 7 Keweenaw Bay Ojibwa Community College, BARAGA, MI
- 8 Saginaw Chippewa Tribal College, MOUNT PLEASANT, MI
- 9 Fond du Lac Tribal and Community College, CLOQUET, MN
- 10 Leech Lake Tribal College, CASS LAKE, MN
- 11 Red Lake Nation College, RED LAKE, MN
- 12 White Earth Tribal and Community College, MAHNOMEN, MN
- 13 Aaniiih Nakoda College, HARLEM, MT
- 14 Blackfeet Community College, BROWNING, MT
- 15 Chief Dull Knife College, LAME DEER, MT
- 16 Fort Peck Community College, POPLAR, MT
- 17 Little Big Horn College, CROW AGENCY, MT
- 18 Salish Kootenai College, PABLO, MT
- 19 Stone Child College, BOX ELDER, MT
- 20 Cankdeska Cikana Community College, FORT TOTTEN, ND
- 21 Nueta Hidatsa Sahnish College, NEW TOWN, ND
- 22 Sitting Bull College, FORT YATES, ND
- 23 Turtle Mountain Community College, BELCOURT, ND
- 24 United Tribes Technical College, BISMARCK, ND
- 25 Little Priest Tribal College, WINNEBAGO, NE
- 26 Nebraska Indian Community College, MACY, NE
- 27 Institute of American Indian Arts, SANTA FE, NM
- 28 Navajo Technical University, CROWNPOINT, NM
- 29 Southwestern Indian Polytechnic Institute, ALBUQUERQUE, NM
- 30 College of the Muscogee Nation, OKMULGEE, OK
- 31 Oglala Lakota College, KYLE, SD
- 32 Sinte Gleska University, MISSION, SD
- 33 Sisseton Wahpeton College, SISSETON, SD
- 34 Northwest Indian College, BELLINGHAM, WA
- 35 College of Menominee Nation, KESHENA, WI
- 36 Lac Courte Oreilles Ojibwa Community University, HAYWARD, WI

NETWORK CONNECTION TYPE

- Commercial
- R&E

CONNECTION SPEED

- <1 Gbps
- 1 Gbps
- 1.1 - 10 Gbps
- 100 Gbps

CONNECTION TYPE

- City Pair
- State-to-State Pair
- Internet-connect Point



QUILT MEMBERS & AFFILIATES



SECURITY

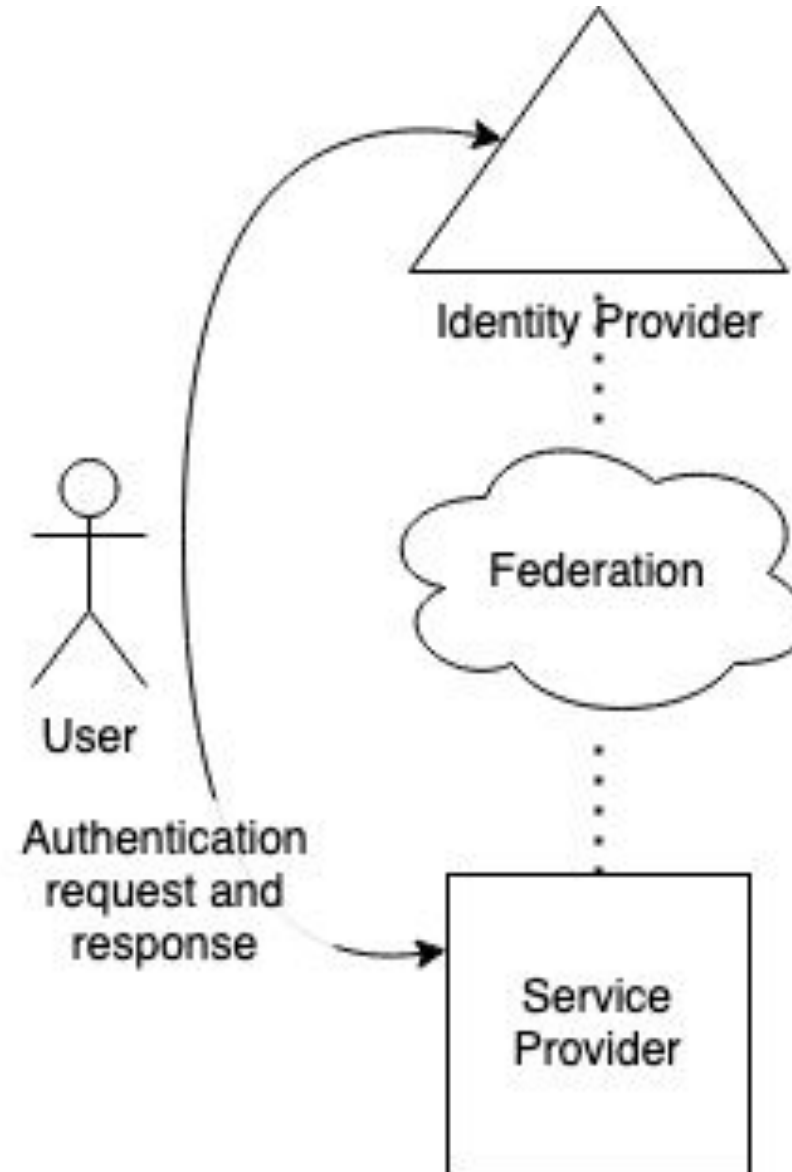


The Identity and Access Challenge

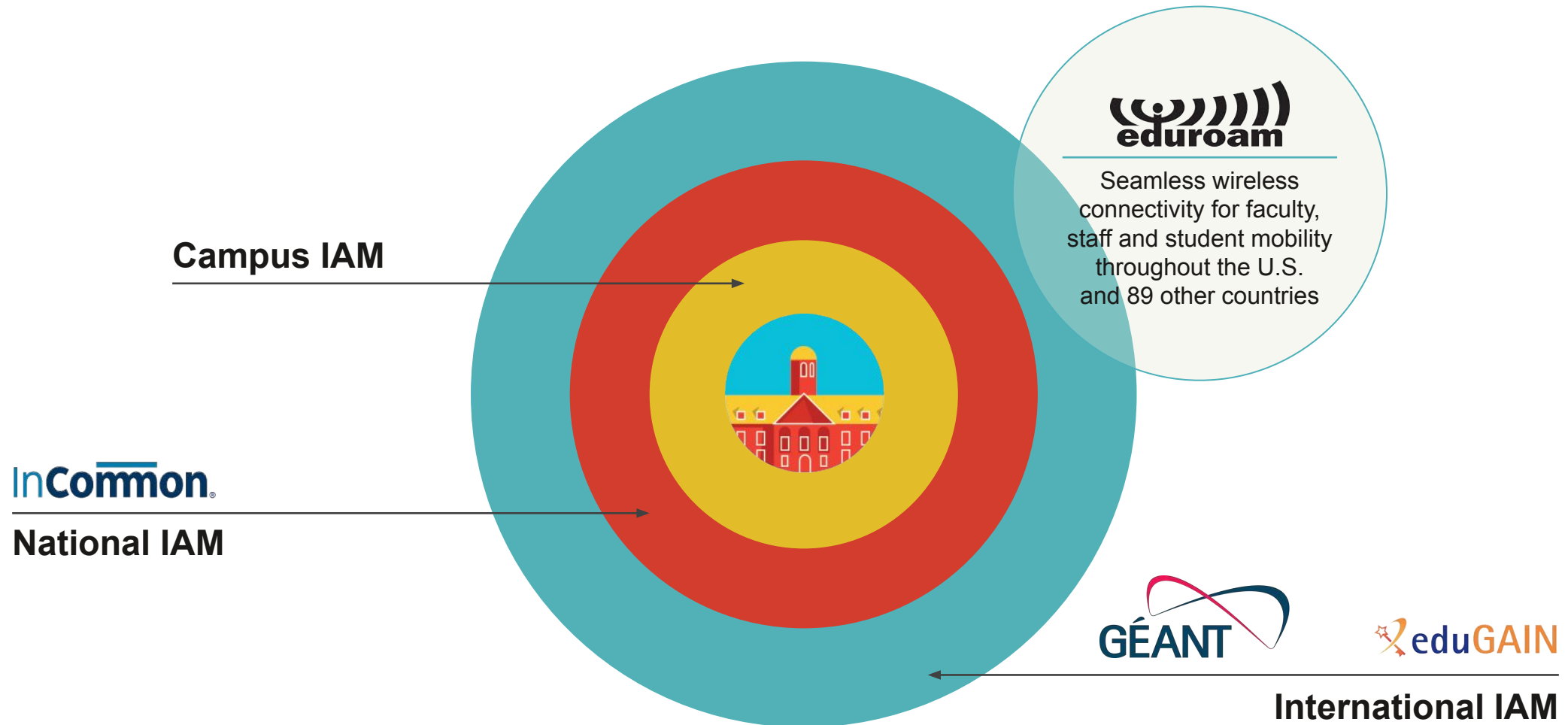
If you provide a service, you want many people from many institutions to use that service.

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

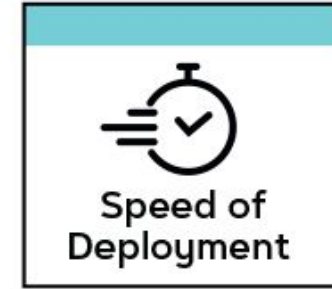




CLOUD



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



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

HBCUs at workshop:

Coppin State University
Elizabeth City State University
Fayetteville State University
Howard University
Morgan State University
Norfolk State University
North Carolina A&T State University
North Carolina Central University
Winston-Salem State University
University of Maryland Eastern Shore
Virginia Union University
West Virginia State University

Internet2 members: Coppin State Univ, Fayetteville State Univ, Morgan State Univ, University of Maryland Eastern Shore

Internet2 network connectors in the region:

- MARIA, CAAREN, WVNet, MCNC

eduroam subscribers: Coppin State University, Elizabeth City State Univ, Fayetteville State Univ, Morgan State Univ, NCA&T, NC Central Univ, University of Maryland at Eastern Shore, Winston-Salem State Univ, WV State University

NET+ subscribers: Fayetteville State Univ (Clearspan, Lumen SIP Service), University of Maryland Eastern Shore (Duo, Canvas, Google Workspace)

InCommon Participant: Morgan State Univ, NC Central Univ, University of Maryland Eastern Shore, Winston-Salem State Univ, WV State University



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



**MINORITY SERVING-
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Panel: Campus Cybersecurity Priorities for HBCUs

- **Adebisi Oladapupo**, VP for IT, Hampton University
- **Kofi Jack**, Chief Information Officer, VUU
- **Taurean Russell**, CISO, Winston-Salem State University



**MINORITY SERVING-
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Break
Until 10:25 AM



<https://bit.ly/VUUWorkshopMaterials>



**MINORITY SERVING-
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Concurrent Strategy Workshops

- **Strategies for Successful Grant Submissions**
- **R1/R2 Cyberinfrastructure and Strategy**





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**Lunch & Networking
Until 1:10 PM**





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Panel & Group Discussion: Cybersecurity Workforce Requirements and Education Programs

- **Kelsey Bretz**, Federal Bureau of Investigation
- **Grady Larsen**, Director of Sales, Richweb
- **Benjamin Gilbert**, Supervisory Cybersecurity Advisor, Cybersecurity and Infrastructure Security Agency
- **Dr. James Brown**, Dir. Center of Cybersecurity Education and Research, Shaw University



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Resources

- **Careers**
<https://www.cyberseek.org/>
- **Career pathways**
<https://niccs.cisa.gov/workforce-development/nice-framework>
- **Cybersecurity Academic Program Development**
<https://caecommunity.org>
- **Training**
<https://ics-training.inl.gov/learn/signin>



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Resources

- <https://www.cyberseek.org/>
- <https://www.caecommunity.org/>
- <https://www.nist.gov/itl/applied-cybersecurity/nice/nice-framework-resource-center>
- <https://www.isc2.org/research>

Breakout Exercise: Cybersecurity

At tables of 4-5 ... (feel free to rearrange)

- Introduce yourselves
- Identify a note-taker/reporter
- Discuss:



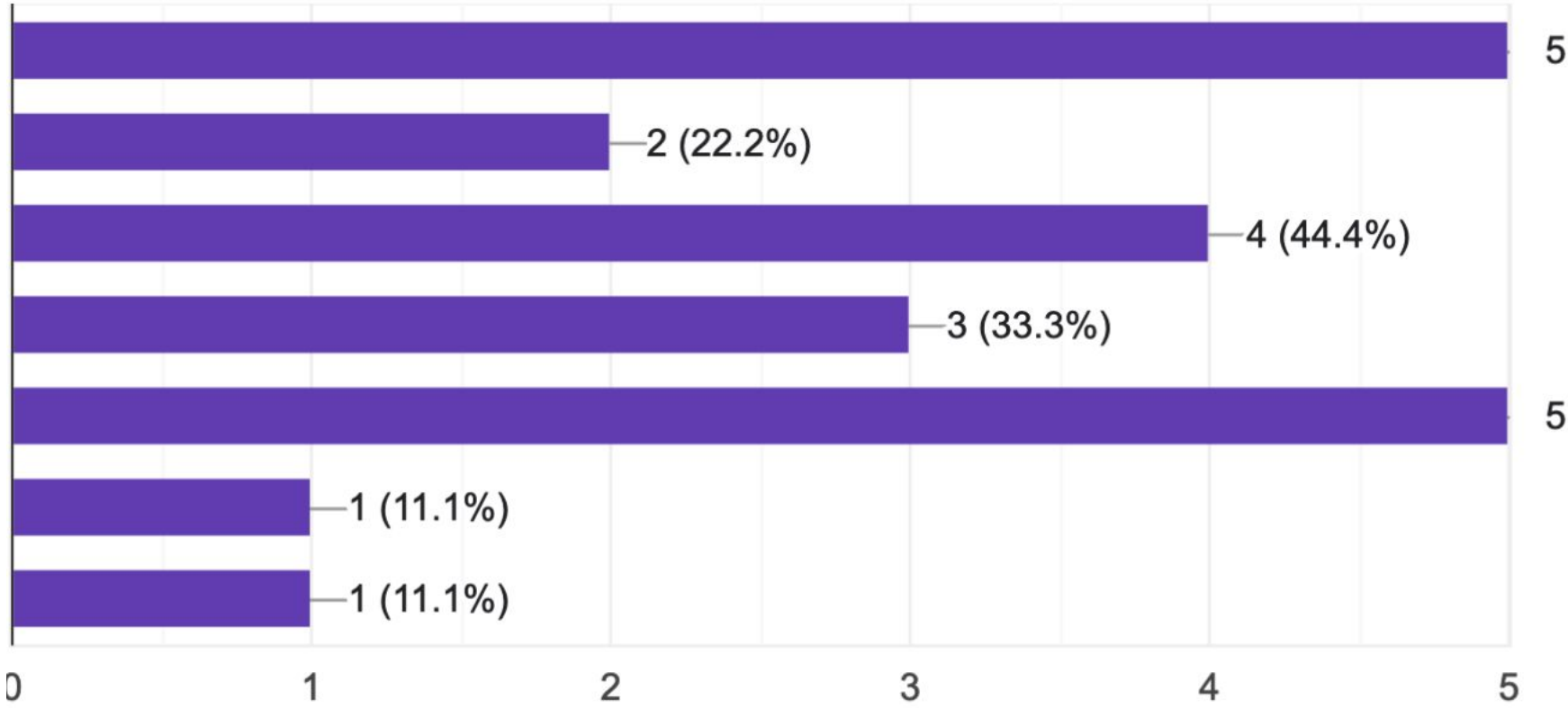
- **In what ways would you like to collaborate with other HBCU campuses around campus cybersecurity?**

Breakout Exercise: Cybersecurity

-

CI Funding Quick Poll: Which 2-3 CI Funding-related topics out of the below would you most like to learn about?

- Deeper dives into other IT-related funding
- Deeper dives into R&E Funding with research components
- Deeper dives into NSF CC* Program areas & Components
- Science Driver Development
- Campus CI Plan Development
- CI Project plans/technical details of funded HBCU awards
- CI Professional Development





Cybersecurity Quick Poll

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WiFi: VUUGuest
pass: students

<https://bit.ly/VUUCybersecurityPoll>

Feedback

Going around the room please provide one of the following:

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

Learned / Liked

-

More / Better

-

Follow-Up

-

Workshop Resources:

<https://bit.ly/VUUWorkshopMaterials>



WiFi:



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CYBERINFRASTRUCTURE
CONSORTIUM**



Post-Workshop Feedback

<https://bit.ly/MSCCVUUPostWorkshop>



WiFi: VUUGuest
pass: students

You Don't Have to Do it ALONE

MS-CC's Programming Can Help You

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



Join the MS-CC

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

