NSF ACCESS Operations - CONECT
A discussion of the new NSF CI

David Wheeler
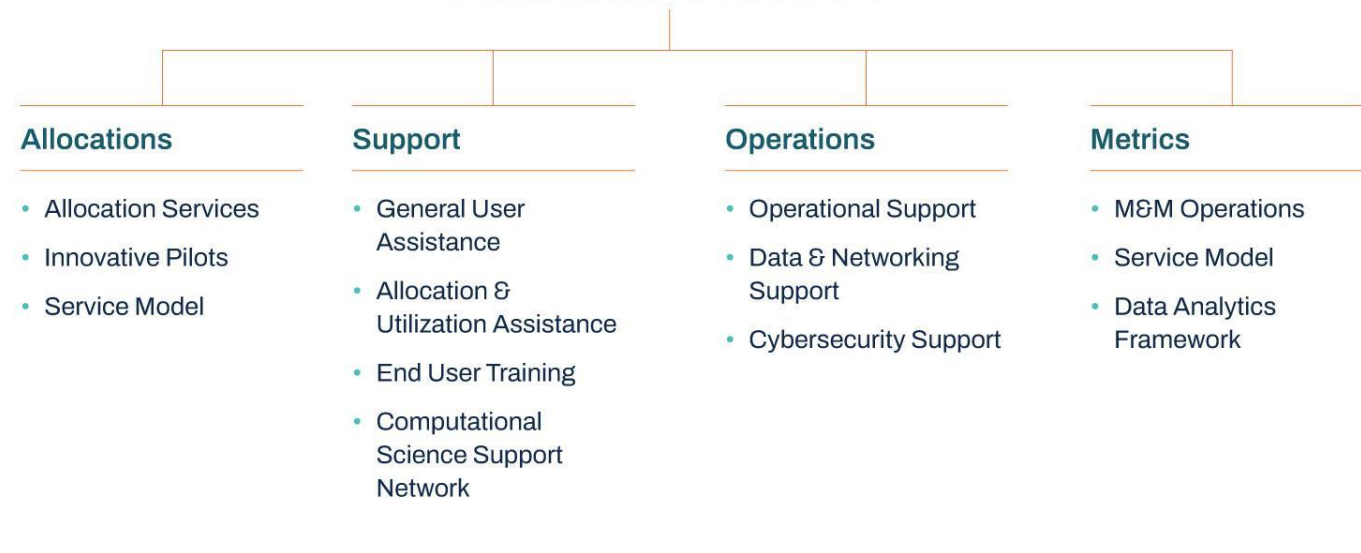
NCSA at the University of Illinois

NSF ACCESS Program Structure

ACCESS Services

Allocations
- Allocation Services
- Innovative Pilots
- Service Model

Support
- General User Assistance
- Allocation & Utilization Assistance
- End User Training
- Computational Science Support Network

Operations
- Operational Support
- Data & Networking Support
- Cybersecurity Support

Metrics
- M&M Operations
- Service Model
- Data Analytics Framework

ACCESS Coordination Office Services

Executive Council

Communications & Outreach

Advisory Board

Overview - ACCESS Allocations

- Team members at *Pittsburgh Supercomputing Center*, *National Center for Atmospheric Research*, and *National Center for Supercomputing Applications*
  - *NSF Award #2138259*

- Objectives
  - create an open, inviting, and democratized allocations marketplace
  - ensure equitable access across disciplines, institutions, and demographic groups
  - align the proposal-writing effort with level of resource need

- Continuous Improvement and Diversity, Equity, and Inclusion efforts built into the project
  - DEI Facilitator on management team to ensure diverse, equitable, and inclusive spaces and services

Allocation Opportunities

Four allocation opportunities to suit a variety of needs

- *Explore ACCESS (small)*
  - best-suited for endeavors with **light resource requirements**
    - graduate students can lead allocation for dissertation-related work with a letter of collaboration from their advisor
- *Discover ACCESS (medium)*
  - minimal effort to **perform mid-scale research** activities
    - small-scale research, growing Science Gateways
- *Accelerate ACCESS (large-ish)*
  - more **substantial resource requirements**
    - multi-grant research, Science Gateways, etc.
- *Maximize ACCESS (XL)*
  - for **large-scale research projects** with extreme resource needs
    - will largely resemble XRAC process

Proposal lengths: abstract, 1-page, 3-pages, and 10-pages, respectively.

Getting Involved in Allocations

Actively recruiting reviewers

- Shorter proposals ~ No travel ~ Honoraria! ~ Help your fellow researchers!
- *Fill out the form to indicate interest in reviewing requests:* go.illinois.edu/ACCESSallocations

Have suggestions for what you'd like to see in the allocations marketplace and processes?
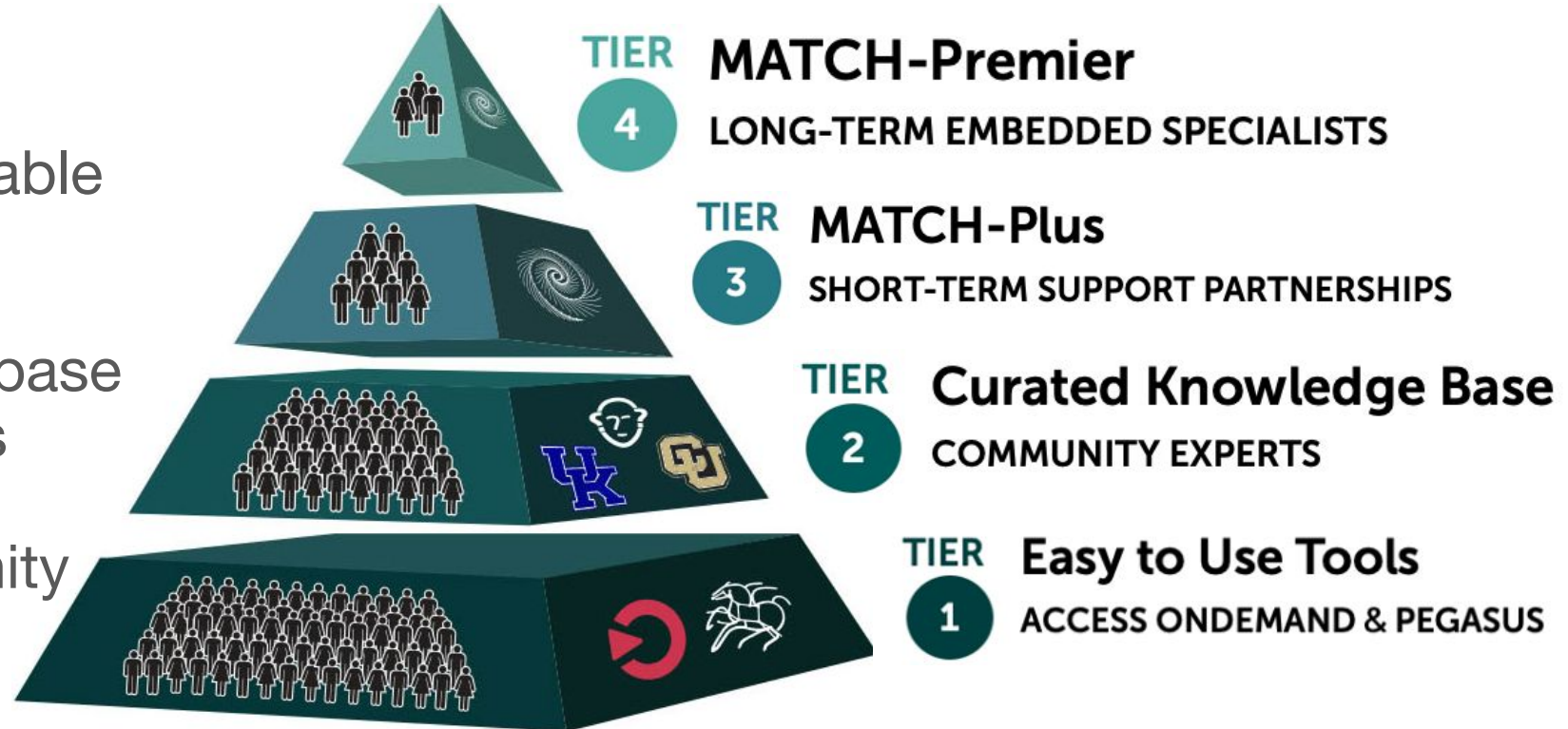
- Contact us through the same form above
- Create an ACCESS help request at support.access-ci.org

Researcher Support Services - MATCH

Shelley Knuth, Alana Romanella, Dylan Perkins (University of Colorado Boulder)
Ewa Deelman, Mats Rynge (U. Southern California)
John Goodhue, Julie Ma, Andrew Pasquale (MGHPCC)
James Griffioen, Vikram Gazula, Tony Elam, Joel Adams (Univ. Kentucky)
David Hudak, Alan Chalker (Ohio Supercomputer Center)

https://support.access-ci.org/

- Enable innovative research through equitable and scalable support
- Four tiers of support
- Tools, growing knowledge base
- Match-making with experts
- Student engagement
- Engagement from community
- CSSN incentives

TIER 4 — MATCH-Premier — LONG-TERM EMBEDDED SPECIALISTS

TIER 3 — MATCH-Plus — SHORT-TERM SUPPORT PARTNERSHIPS

TIER 2 — Curated Knowledge Base — COMMUNITY EXPERTS

TIER 1 — Easy to Use Tools — ACCESS ONDEMAND & PEGASUS

What Can Researchers Expect from ACCESS Support Services?

- Knowledge base – documentation, tutorials, code templates
- Consultation support through MATCH-Plus and MATCH-Premier
- ACCESS Support Portal: https://support.access-ci.org
  - Open a ticket via a webform
  - Ask.CI Q&A Forum – get help from the community
  - Allocations support
  - Events, News and Outage reporting via Affinity Groups
- Continuation of monthly PSC series through spring 2023

Opportunities for Engagement

- ACCESS CSSN Community Participation Program (CCEP)
  - Earn **travel support rewards** by contributing to the ACCESS Knowledge Base, joining committees, becoming a mentor

- Advisory committees – forming now!
  - CCEP Committees
  - MATCH-Plus/MATCH-Premier Steering Committees

- Join our mailing list and apply for the CCEP!

  https://support.access-ci.org/cssn

- Pegasus, OnDemand, MATCH-Plus and MATCH-Premier

  pilots – opportunities for researchers, resource providers,

  consultants, mentors and students!

- Listening tours - we need your feedback!

Community Engagement Program

ACCESS Operations - CONECT
COre National Ecosystem for CyberinfrasTructure

Principal Investigator
- Tim Boerner (NCSA)

Co-Principal Investigators
- JP Navarro (ANL/UChicago)
- Derek Simmel (PSC)
- Winona Snapp-Childs (IU)
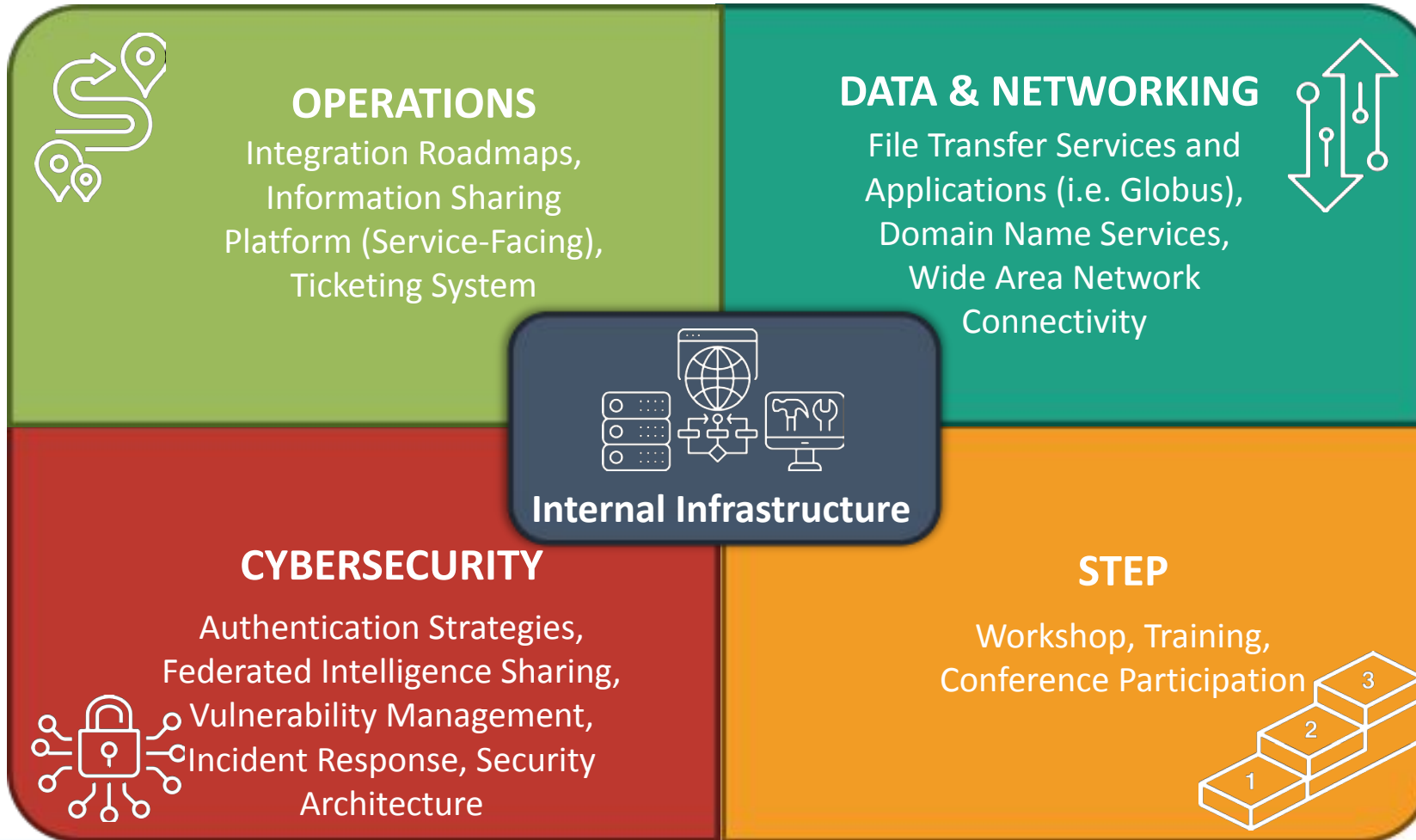- Alex Withers (NCSA)

Deputy Project Director
- Leslie Froeschl (NCSA)

ACCESS Operations

OPERATIONS
Concierge Integration Experts, Information Sharing Platform (People-Facing)

DATA & NETWORKING
Data Transfer and Networking Support Engagement, Performance Measurement and Optimization

Community Services

CYBERSECURITY
Cybersecurity Governance Council, Trust Groups, Resource Provider Participation

STEP
Mentorship, Community, Broadening Representation

ACCESS Operations

OPERATIONS
Integration Roadmaps, Information Sharing Platform (Service-Facing), Ticketing System

DATA & NETWORKING
File Transfer Services and Applications (i.e. Globus), Domain Name Services, Wide Area Network Connectivity

Internal Infrastructure

CYBERSECURITY
Authentication Strategies, Federated Intelligence Sharing, Vulnerability Management, Incident Response, Security Architecture

STEP
Workshop, Training, Conference Participation

Internet2 Enabled Network

CONECTnet

- Layer 3 VPN provisioned over Internet2
- Deterministic troubleshooting and data reporting
- Transitioning former manual provisioning to OESS configured overlay
- Provides ease of deployment and operational convenience
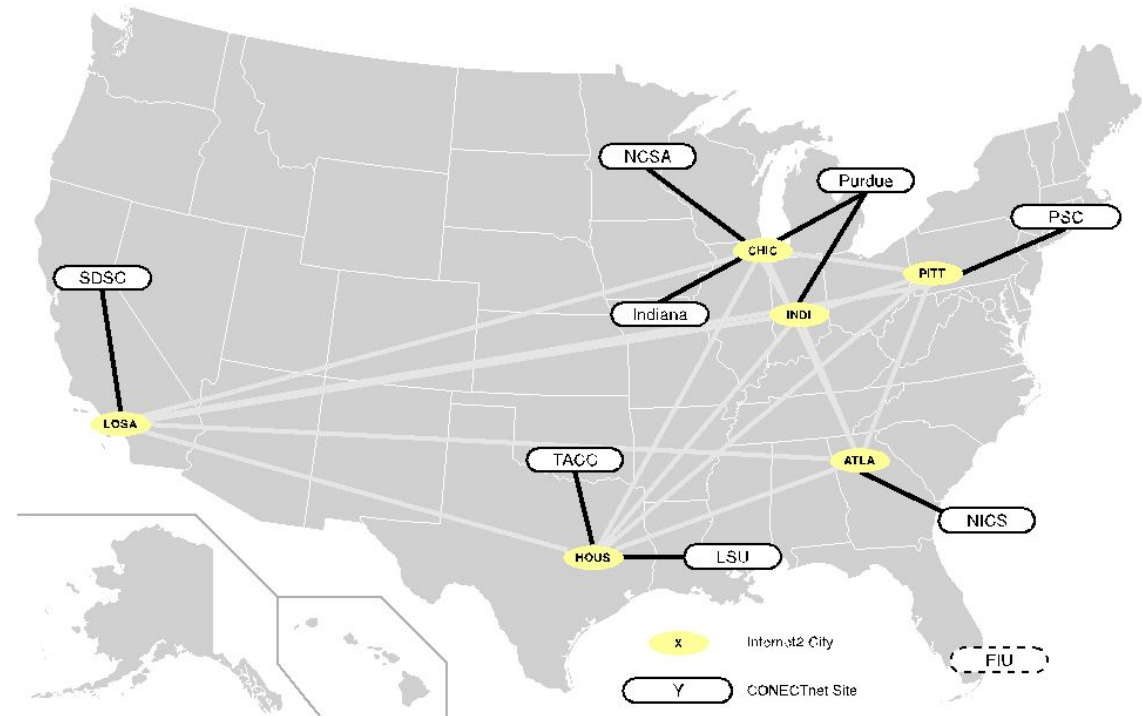
# Roadmap - ACCESS Allocated Production Compute/Storage/Cloud

- A roadmap is a tailored set of tasks/activities that take a class of cyberinfrastructure to a specified operational status
- Performed by the resource operators in coordination with ACCESS
- Result of this process is ACCESS Allocated Production status
- Defined by operational status stakeholders
- Used with a specific class of cyberinfrastructure
- Performed by each owner/operator of resources in the class
  - Some elements are one-time tasks while others are ongoing activities
- When completed the resource achieves the specified operational status

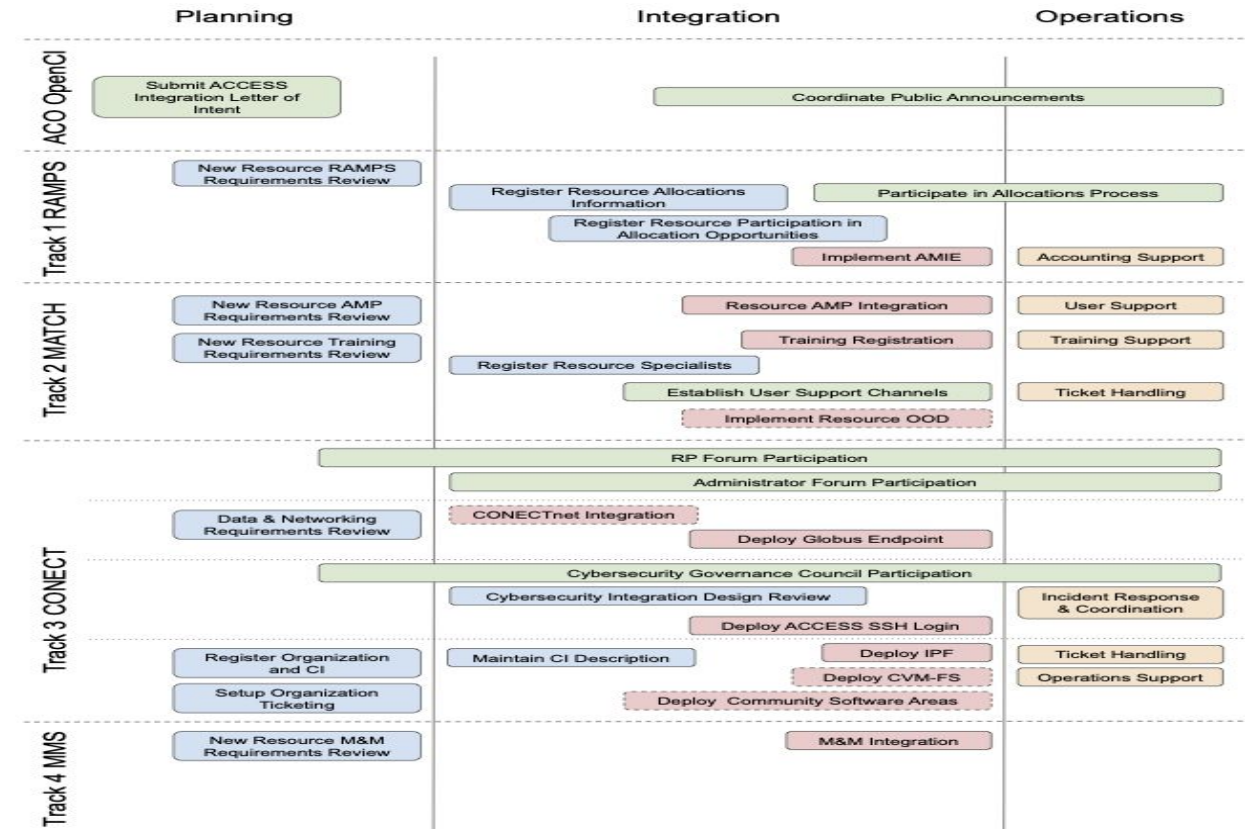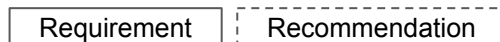# Roadmap - ACCESS Allocated Production Compute/Storage/Cloud

- Performed by the resource operators in coordination with ACCESS
- Result of this process is ACCESS Allocated Production status

Key

Colors for task types

| Coordination | Technology | Support |
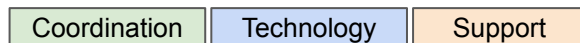
Borders for requirements

| Requirement | Recommendation |

STEP-1: 2-week introductory experience
Join us for a dynamic two week experience in Miami, FL in May!

STEP-2: Full-time for the summer
After STEP-1, you'll be eligible for STEP-2! This is a full-time, paid summer program (in-person + virtual)

STEP-3: Part-time during the school year
Looking for a year-round experience? After STEP-1 and STEP-2, you'll be eligible for STEP-3.
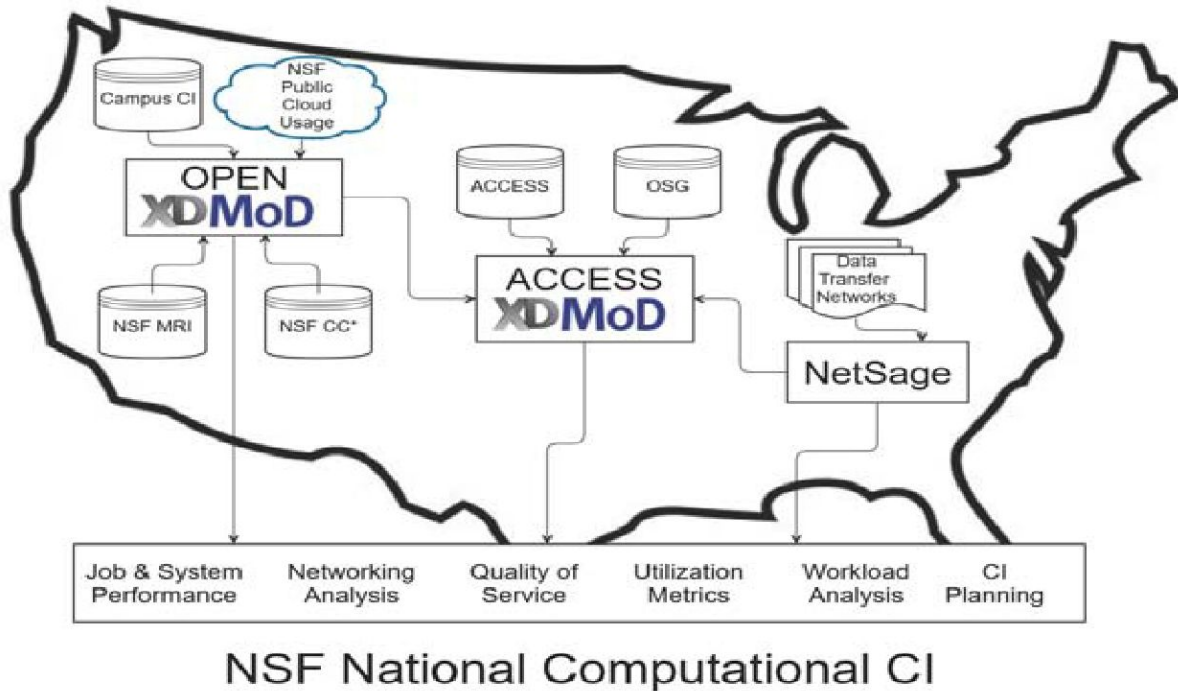
Eligibility: Students (domestic or international) enrolled at least part-time in a degree program at US-based institutions

ACCESS Monitoring & Measurement Services

Roswell Park (Furlani), Buffalo (White, Jones, DeLeon, Simakov), Tufts (Patra)

TACC (Barth, Harrell, Cawood), SDSC (Smallen), Case Western (Chaudhary), Indiana (Schopf)

NSF National Computational CI

- Continued development of XDMoD
  - Back by popular demand ☺
- Open XDMoD broader use
- New Open Data Analytics Framework
  - Jupyter Notebook, Python, etc
  - Creative, ad hoc analytics
- Analytics for National CI
- Workload performance analyses
- Network traffic leverage NetSAGE
- Application diagnose/optimize
- CI Simulator for predictive analysis
- Energy use pilot

Data Analytics Framework

- Provide analytic framework for direct access to rich depository of performance and utilization data in XDMoD data warehouse
- No reliance on XDMoD web portal
- GUI Built on Jupyter notebooks
- Python and R interfaces for automated workflows and expert users
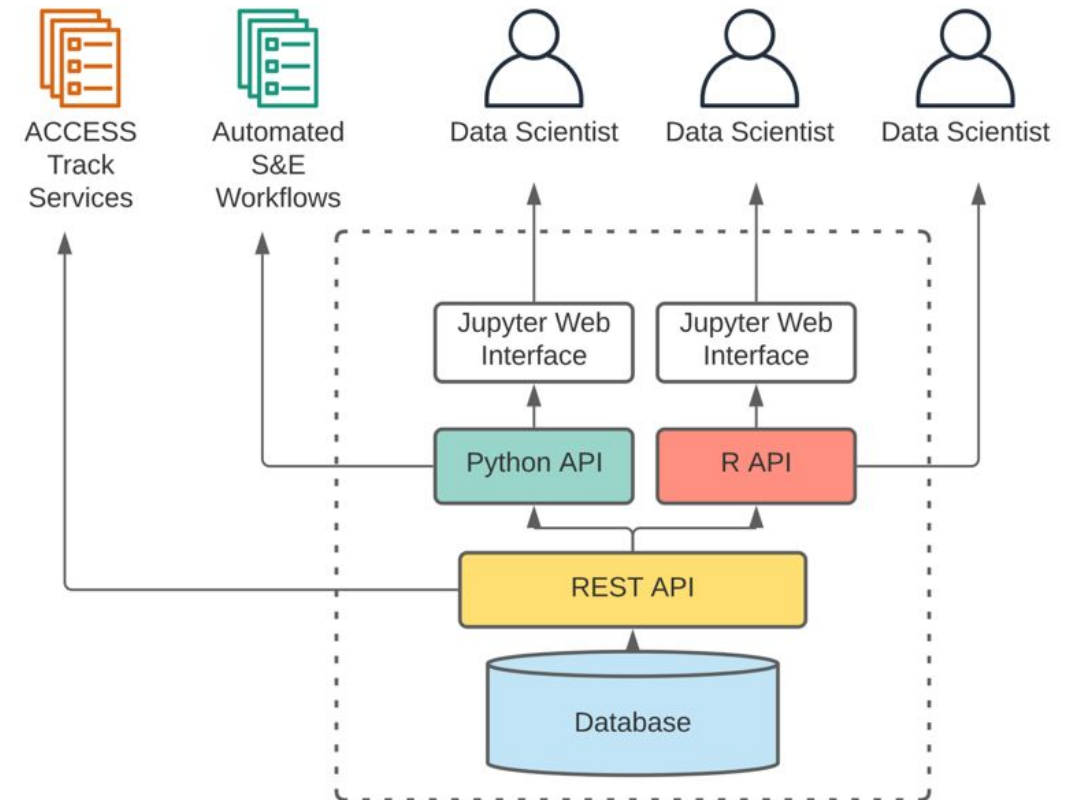
More on Monitoring & Measurement Services

- Improved integration with Open OnDemand
  - ability to leverage XDMoD directly from Open OnDemand
    - one click access to all XDMoD information/reports
    - job level efficiency metrics for each job

- Something for everyone
  - Researchers
    - job and productivity improvement with the job viewer
    - measurement of relative application performance on available resources
    - allocation procurement assistance
      - historical CI usage for individual users/projects
      - application analyses to identify optimal resources for applications
  - Administrators
    - QoS metrics to monitor resource performance
    - job and user efficiency reporting
    - detailed information about jobs, workflow and network usage to improve throughput

OpenCI ACCESS Coordination Office

PI: John Towns (NCSA/Illinois)
co-PIs: Lizanne DeStefano (CEISMIC/Georgia Tech); Shawn Strande (SDSC/UCSD)

- Deep knowledge of XSEDE

- Emphasis on seamless transition

- Facilitate shared governance via EC and EAB

- Collaboration tools to support inter-track communications

- Branding

- Coordinate outreach, DEI, and evaluation efforts across the program

- Stakeholder communications on ACCESS impact & opportunities

- Informal co-advisors from 5 large programs

ACCESS Communications & Outreach Coordination

- Establish a **unified brand and experience** for internal and external communications

- Establish and maintain **ACCESS main website**, facilitating access to service-area subsites

- Collaborate on and amplify service areas' **news and science stories**

- Enable **cross-service communications**

- Facilitate **reporting**

ACCESS Program Internal Collaboration Support

- Providing collaboration tools
  - Confluence wiki
  - Jira
  - Google Workspace: shared drive, email lists, etc.
  - all of these are in place now; some further configuration still under way

- Facilitating cross-award collaboration
  - establishing risk management process
  - establishing project change control

- Still figuring out
  - how to best "support NSF management and oversight of Service Track awards."

Q & A

http://access-ci.org