Midwest RCD Consortium Program

Advancing research computing and data in the Midwest through collaboration, training, and innovation.

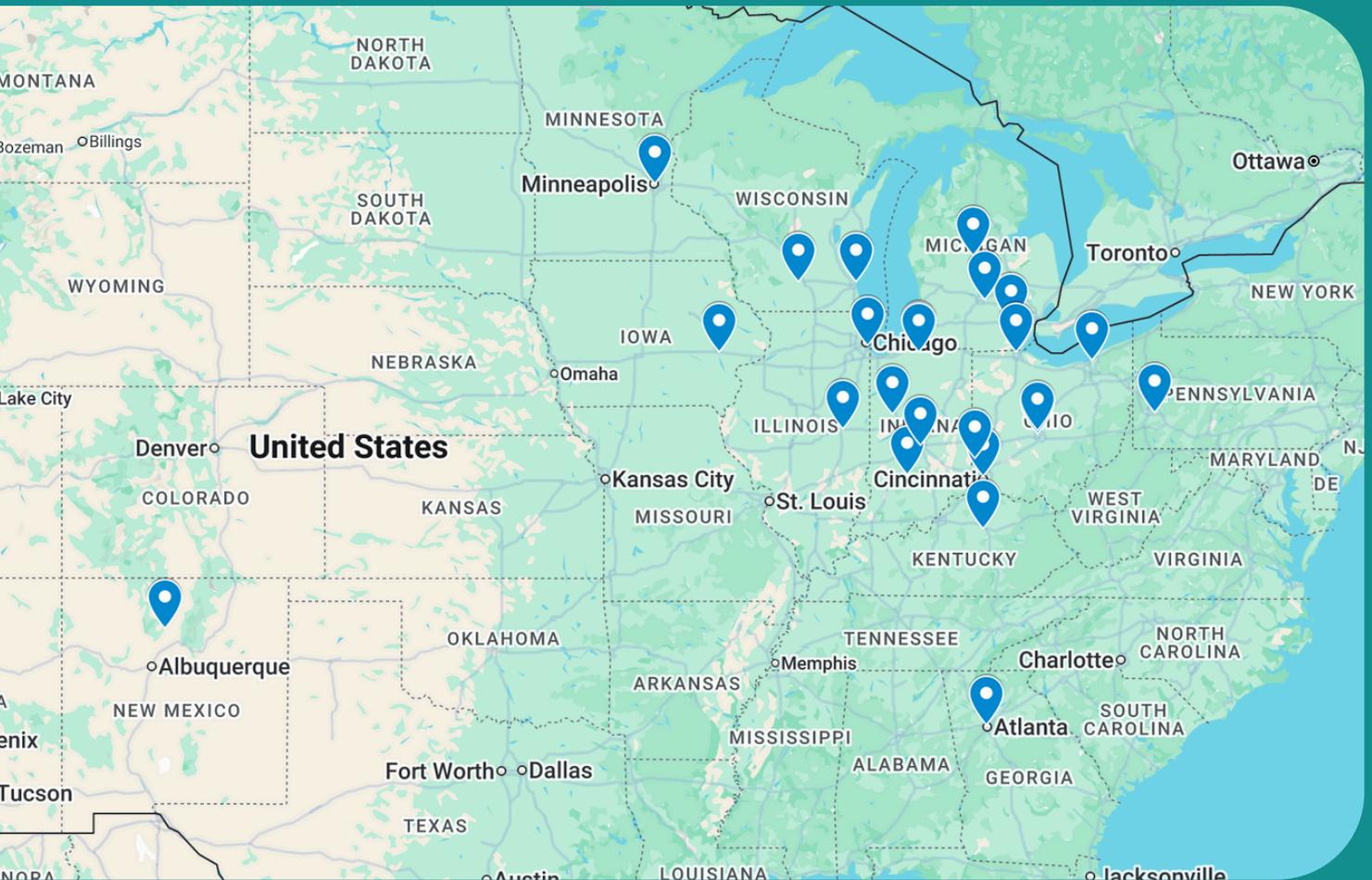# Annual Report 2024-2025

Prepared By:

Esen Gokpinar Shelton, Lead Program Manager

Member Institutions

The map below shows the geographic reach of our Consortium, with each member institution pinned to illustrate our network's footprint. A full list of member institutions is provided beneath the map.

- Case Western Reserve University
- Indiana University
- University Of Michigan
- Ohio Supercomputer Center
- Purdue University
- University Of Notre Dame
- Central Michigan University
- University Of Cincinnati
- University Of Iowa
- Indiana University Indianapolis
- Indiana University South Bend
- Georgia Institute Of Technology

- University Of Wisconsin - Madison
- Michigan State University
- Los Alamos National Laboratory
- Miami University
- Minnesota Supercomputing Institute
- University Of Chicago (including Globus)
- Ohio State University
- University Of Illinois At Urbana-Champaign
- The University Of Toledo
- University Of Kentucky
- Pittsburgh Supercomputing Center
- University Of Wisconsin-Milwaukee

Midwest RCD Consortium

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Midwest RCD Consortium

Acknowledgements

The Research Computing and Data Emerging Leaders Training Program is an initiative of the Midwest Research Computing and Data (RCD) Consortium, supported by the National Science Foundation (Award #2227627). This program is guided by a dedicated program manager and Steering Committee members (see pages 25-26 for a full member list) whose vision and expertise ensure that our efforts meet the evolving needs of the RCD community.

The collective effort of our committee and program office reflects a shared commitment to preparing the next generation of cyberinfrastructure leaders, strengthening collaboration across institutions, and building a resilient RCD ecosystem across the Midwest and beyond.

Program Office

Indiana University

Principal Investigators: Winona Snapp-Childs & Beth Plale
Lead Program Manager: Esen Gokpinar Shelton
Program Manager: Laura Pettit

Consortium Overview

The Midwest Research Computing & Data (RCD) Consortium is a growing alliance of Midwestern universities dedicated to supporting experimental, observational, and computational sciences through a variety of high-performance computing (HPC) and data resources.

Our consortium exists to serve the region's cyberinfrastructure (CI) professionals; the experts who design, manage, and advance rcd services.

By fostering collaboration, sharing expertise, and building a connected community, we empower CI professionals to navigate today's rapidly evolving research landscape.

Vision

We envision a Midwestern RCD ecosystem where CI professionals are supported, connected, and equipped with the tools and knowledge needed to advance scientific discovery. Through transparent, inclusive, and scalable collaboration, we aim to strengthen retention, growth, and innovation within the regional research computing community.

Primary Mission

- Leverage Programmatic Accelerators to Strengthen the CIP Community and Build Technical Expertise in Emerging Data-Driven Domains

Secondary Missions

- Facilitate Regional Coordination and Knowledge/Materials Exchange

- Ensure Transparent Governance and Sustainable Network Growth

Year in Review

This year was a pivotal one for the Midwest RCD Consortium as we strengthened our community, expanded our programming, and deepened our regional impact. Through a mix of collaborative events, professional development opportunities, and student engagement, we continued building the connections and resources that drive research computing and data forward.

Annual Meeting Participation Increased by Years
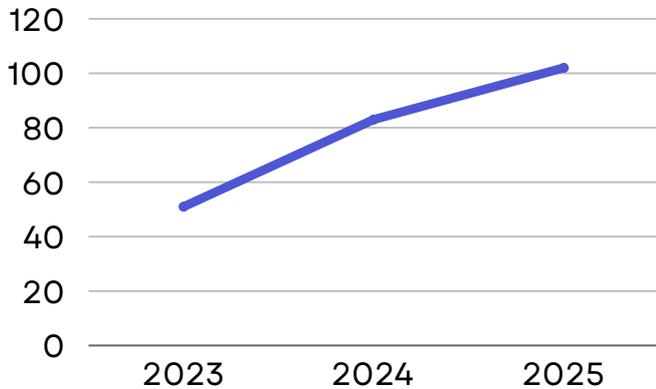
- Participation grew by 100%, increasing from 51 attendees in 2023 to 102 in 2025.

- 99% of participants rated the experience as Excellent or Very Good, underscoring the value of the meeting as a space for connection and knowledge-sharing.

Affinity Groups

We expanded to **6 active affinity groups** this year (4 new, 1 retired), fostering collaboration and shared learning across the region. Affinity groups led initiatives like the **Next Gen Data Center Workshop**, engaging 75 participants across institutions.

6
students were supported strengthening the future RCD workforce pipeline.

20+
presentations were given by consortium leaders at regional and national venues throughout the year.

Annual Network Meeting

**April 14–15, 2025 |
Case Western Reserve University**

In PY3, the 2025 Midwest RCD Annual Network Meeting brought together 102 participants from 26 Midwest institutions for two days of collaboration, learning, and community building. Designed as an open and collegial space, the meeting emphasized peer-to-peer exchange on shared challenges, emerging innovations, and best practices in research computing and data (RCD).

Attendees left the meeting with new connections, fresh perspectives, and a deeper sense of community, reinforcing the Consortium's role in fostering collaboration and advancing the regional RCD ecosystem.

**100 +
Participants**

**26
Institutions**

**15+ Technical
Sessions &
Lightning Talks**

Meeting Highlights

Interactive Workshops

The *Communicating Across Differences* workshop set the tone by equipping participants with strategies for inclusive collaboration at work.

Keynote Address

Dr. Daniel Blankenberg (Case Western Reserve University) delivered a powerful talk on Quantum Computing in Healthcare.

Technical Sessions

Practical, high-demand topics such as AI model deployment, cybersecurity compliance, OS migrations, Globus Compute, and ICICLE tool demonstrations.

Lightning Talks

Rapid-fire presentations showcased community innovation and fostered connections.

Social Network Analysis

Demonstrated the growing reach and connectedness of the Midwest RCD community.

Networking Reception

Kicked off the event in a casual setting, giving participants the opportunity to meet peers, and build relationships that support collaboration and knowledge sharing across the Midwest community.

Impact: What Participants Said

A post-event survey revealed high satisfaction and clear impact:

Rating the Experience

68% of respondents (n=26) described the meeting as Excellent, with another 29.7% rating it Very Good (n=11).

Most Valued Activities

Sessions that combined peer knowledge sharing with technical exploration proved especially impactful.

The Lightning Talks (91.7%) and Networking Reception (90%) were rated highly, underscoring the importance of informal peer learning and professional community building.

Technical sessions on quantum computing in healthcare (83.8%), AI model deployment (82.9%), and Globus Compute (82.1%) were also well received, reflecting interest in cutting-edge data-centric methods.

Legend: Poor | Fair | Good | Very Good | Excellent

Bar chart — Poor: 0, Fair: 0, Good: 1, Very Good: 11, Excellent: 26

Smaller group sessions, like those on OS upgrades (92.9%) and cybersecurity compliance (88.9%), resonated strongly with attendees facing similar operational challenges at their institutions.

Key Takeaways

Regional collaboration matters. Attendees cited the Midwest's shared challenges and proximity as major strengths.

Peer learning works. Informal exchanges were as valuable as technical deep-dives.

Actionable insights travel home. Participants planned to apply lessons on CMMC compliance, Globus Compute, and quantum computing at their institutions.
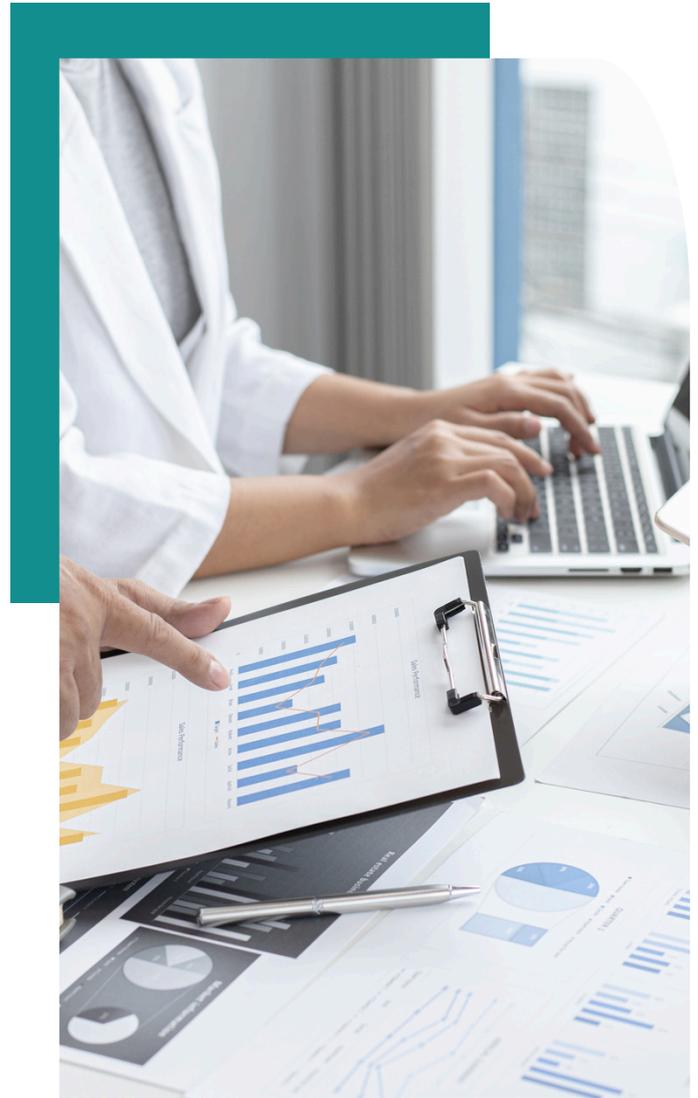
Opportunities for Growth

Looking ahead, participants expressed interest in new focus areas such as digital twin technology, open source storage, federal funding updates and regulatory frameworks.

Overall...

The Annual Network Meeting continued to be a high-value investment in peer-led professional development. It advances all four Consortium project goals, particularly by:

- Strengthening community ties
- Expanding technical capacity
- Enhancing regional coordination
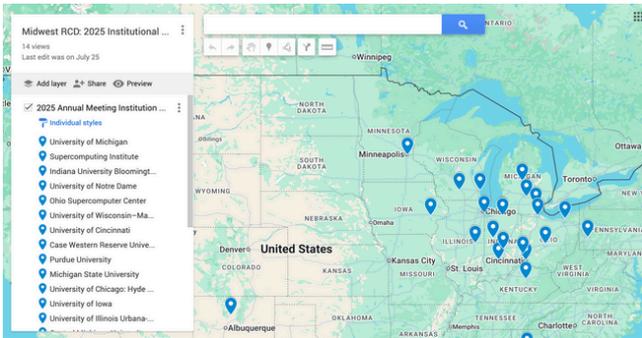- Supporting workforce development

Institutional Characteristics

Network participation has steadily increased:

- **2023:** 51 attendees from 13 institutions
- **2024:** 83 attendees from 23 institutions
- **2025:** 96 attendees from 23 institutions

Year-over-Year Attendee Percentage Comparison (2023–2025)
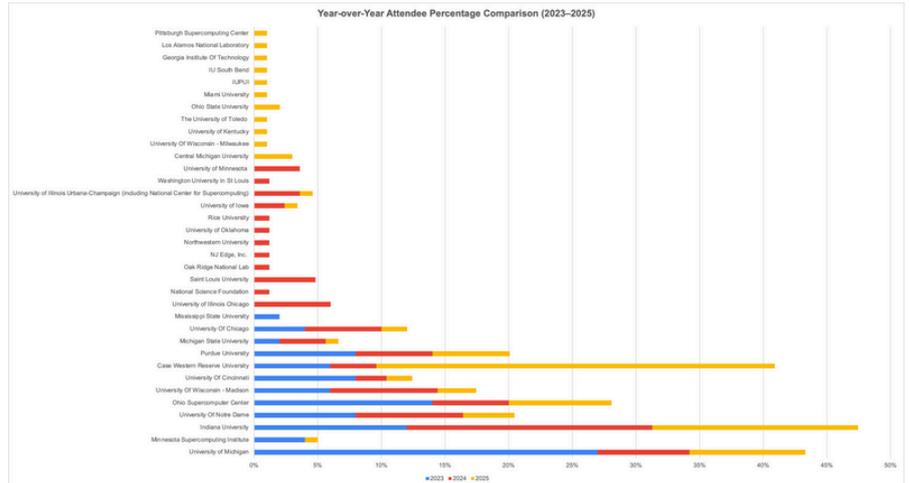
2025 Institutional Mapping:

- Case Western Reserve University
- Indiana University
- University Of Michigan
- Ohio Supercomputer Center
- Purdue University
- University Of Notre Dame
- Central Michigan University
- University Of Cincinnati
- University Of Iowa
- Indiana University Indianapolis

- Indiana University South Bend
- Georgia Institute Of Technology
- University Of Wisconsin - Madison
- Universitas Indonesia
- Hospital Israelita Albert Einstein
- Michigan State University
- Los Alamos National Laboratory
- Miami University
- Minnesota Supercomputing Institute
- University Of Chicago (including Globus)
- Ohio State University
- University Of Illinois At Urbana-Champaign
- The University Of Toledo
- University Of Kentucky
- Pittsburgh Supercomputing Center
- University Of Wisconsin-Milwaukee
- Uppsala University

Institutional Characteristics Cont.

Institutional Profile

- Public universities dominate: 56 attendees (60%)
- Private R1s also strong: 37 attendees (40%)
- R1 institutions make up ~90% of attendance. Master's & regional campuses show modest but present engagement.
- Non-university HPC centers (OSC, MSI): 8 attendees
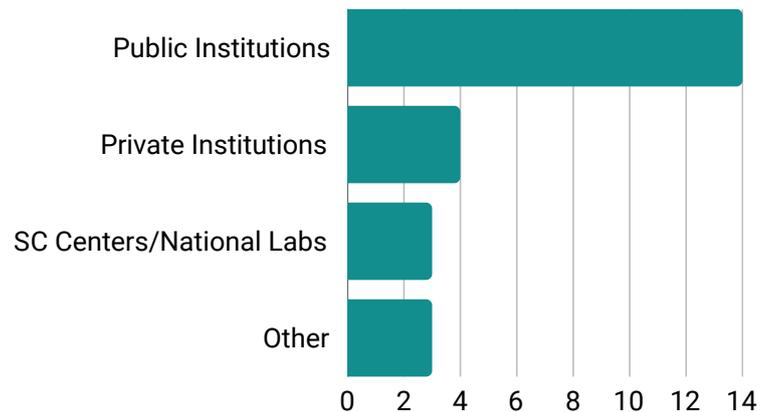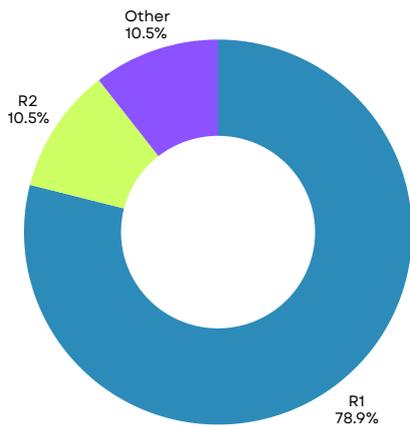

Top 5 Participating Institutions

Five institutions accounted for ~72% of total attendance (70 of 97). These may serve as regional collaboration hubs:

- Case Western Reserve (31)
- Indiana University (17)
- University of Michigan (9)
- Ohio Supercomputer Center (7)
- Purdue University (6)

Midwest RCD Consortium

Social Network Analysis

To better understand how the Annual Meeting fosters collaboration, we conducted a social network analysis of participant connections.

This approach highlights patterns of interaction across institutions and identifies opportunities for strengthening cross-institutional ties within the Midwest RCD community.
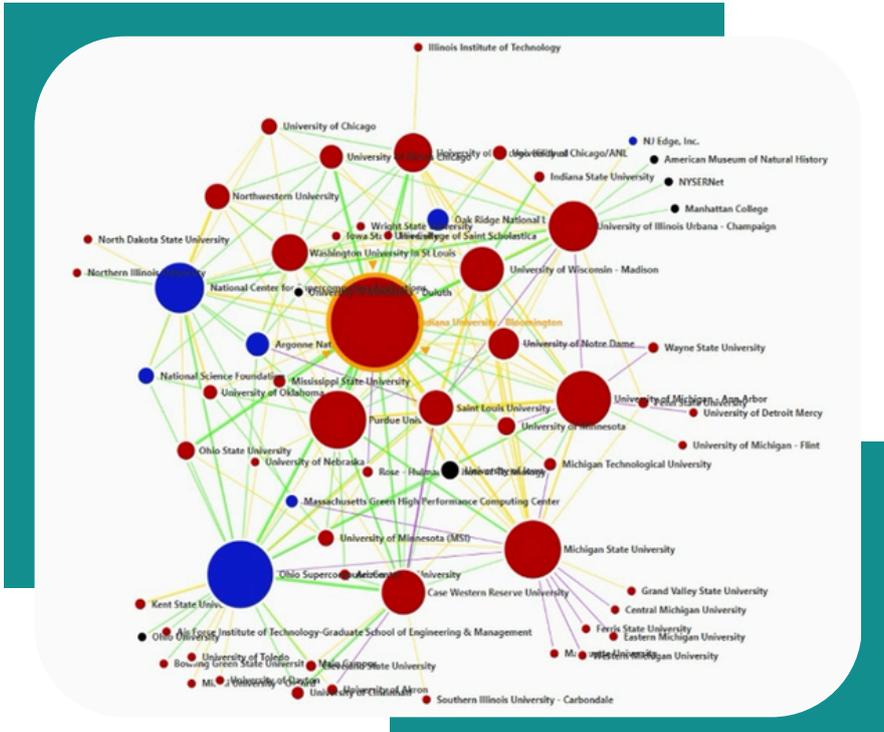
Strong Ties (green): e.g., co-authorships
Medium Ties (yellow): e.g.., committee work
Weak Ties (purple): e.g., future interest

Degree Centrality
Measures the number of direct institutional connections/who is most engaged in regional collaboration?
- Central institutions drive the network. Indiana University, Ohio Supercomputer Center, and Michigan State University has the most connections.

Betweenness Centrality:
Who has the potential to bridge isolated parts of the region?
- IU, Case Western, Ohio Supercomputer Center have the potential to act as hubs, linking others and facilitating cross-institutional collaboration.

Community Detection

What sub-networks/communities exist?

The network reveals the **five largest and distinct communities** based on modularity clustering. These communities may reflect patterns of shared research or domain focus, common funding sources or program participation, geographic proximity, history of collaboration, or institutional similarities.

	Member Count	Core Members	Peripheral Members	Patterns
1	16	Arizona State, Southern Illinois, Case Western, Cincinnati, Saint Louis, Ohio Supercomputing Center	Kent State, Bowling Green, Miami (OH), Air Force Institute of Tech, Toledo, Cleveland State, Akron, Ohio Univ., Dayton	Ohio-dominant cluster with a mix of regional/state universities and major research hubs. Likely reflects **regional collaboration + state-level HPC initiatives**.
2	13	Argonne Nat. Lab, Northwestern, Univ. of Illinois Chicago, Washington Univ. St. Louis, UW–Madison, NCSA	Northern Illinois, Indiana State, NSF, Illinois Institute of Tech, North Dakota State, Univ. of Chicago	**Anchored by Illinois/Wisconsin research powerhouses and national labs**, with NSF ties. Suggests a federally funded, big research hub cluster.
3	13	Univ. of Minnesota, Ohio State, Purdue, Indiana Univ. Bloomington	Mississippi State, Saint Scholastica, Nebraska, Iowa State, Wright State, Minnesota–Duluth, Rose Hulman, Oklahoma	Dominated by **Big Ten universities with strong HPC centers**; peripheral schools connect via these hubs. Represents a **Big Ten-led collaboration ecosystem**.
4	10	Michigan State Univ.	Western Michigan, Central Michigan, Michigan Tech, Grand Valley, Marquette, Eastern Michigan, Ferris State, Mass Green HPC, Penn State	A **Michigan-centered cluster** with MSU as the anchor. Smaller state institutions connect through MSU. Indicates **state-level HPC collaboration**.
5	8	Univ. of Iowa, Oak Ridge Nat. Lab, Univ. of Illinois Urbana-Champaign	NYSERNet, American Museum of Natural History, NJ Edge, Manhattan College, Univ. of Chicago/ANL	More heterogeneous: mix of **infrastructure providers, HPC leaders, and research centers**. Less geographic, more **infrastructure-driven collaboration.**

Questions for Where We Go Next...

- How can we strengthen medium ties and help weak ties grow into stronger connections?
- Where are the gaps in support or resources across the region?
- What conditions or factors are most likely to spark new collaborations?
- How can we ensure the entire network continues to grow stronger together?

Affinity Groups

Affinity groups remain a cornerstone of the Midwest RCD Consortium, providing spaces for peer learning, collaboration, and knowledge exchange on emerging topics in research computing and data.

Active Groups

In 2024–2025, seven groups were active, with four new groups launched and one existing group formally retired. Together, these groups engaged 89 participants, reflecting both strong community interest and the Consortium's responsiveness to evolving needs.

Where Collaboration Sparks Innovation

The evolution of these groups underscores their value: they not only connect members around shared challenges but also foster innovation and collective problem-solving within the RCD community.

- **Scientific Cloud (26 members):** Our largest and most active group, focused on cloud adoption and best practices.

- **CI Value & ROI (10):** Measuring and communicating the impact of cyberinfrastructure investments.

- **NEW - Next-Generation Data Centers (8):** Active discussions on design, operations, and sustainability.

- **NEW - Globus Compute (5):** Emerging conversations on distributed computing tools.

- **NEW - Cryo-EM (8):** Growing interest in specialized applications for structural biology.

- **NEW - AI in RCD (18):** Rapidly expanding conversations on AI's role in research computing.

75 Participants

21 Institutions

10+ Technical Sessions

Affinity Group-Facilitated Events

Next Gen Data Center Workshop

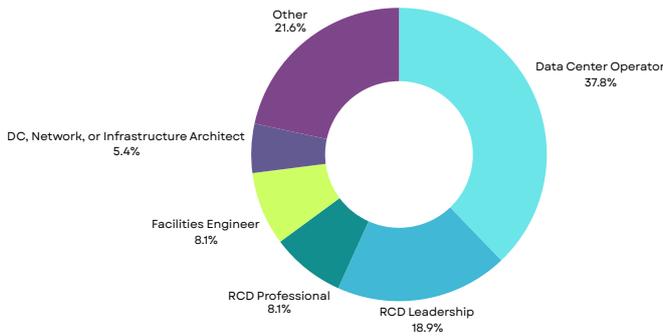February 25–26, 2025 |
Indiana University Indianapolis

Organized by the Next Gen DC Affinity Group, this workshop convened 75 participants from academia and industry, including partners from Dell, Intel, AMD, and NVIDIA, to explore emerging technologies, sustainable data center practices, and strategies for future-ready infrastructure.

Event Impact

The workshop drew a diverse audience, with 37.8% representing Data Center Operators, followed by RCD leadership, RCD professionals, facilities engineers, and others from across the community.

Feedback was overwhelmingly positive, with 76% of participants rating their experience as Excellent and the remaining 24% as Very Good.

Pie chart:
- Data Center Operator 37.8%
- RCD Leadership 18.9%
- RCD Professional 8.1%
- Facilities Engineer 8.1%
- DC, Network, or Infrastructure Architect 5.4%
- Other 21.6%

Sessions that combined practical insights with technical depth were especially impactful:

- **Cooling, Power, and Data Centers (Dell)** was the most favored session (83.8% of respondents mentioned it as valuable)
- **Sustainability & Power Density Panel**: 64.9%
- **Facility Operations & Capacity Planning Panel**: 59.5%
- **Campus RFI Projects & Vendor Panel:** 56.8%
- **Breakouts on Storytelling**: 45.9%
- **Breakouts on Modular Data Centers**: 35.1%
- **Networking Reception**: 64.9%

Event Satisfaction Rate:

Excellent

76%

Very Good

24%

Key Takeaways

The urgent need to address rising power density and cooling demands, especially through innovations like liquid cooling and OCP hardware.

A shared institutional struggle with space, funding, and infrastructure constraints, highlighting the importance of cross-campus collaboration (e.g., with IT, research, and facilities units).

The growing impact of AI workloads on data center needs, underscoring the urgency of future-proofing strategies.

A desire to stay connected to peers facing similar operational pressures and to learn from each other's infrastructure planning and procurement approaches.
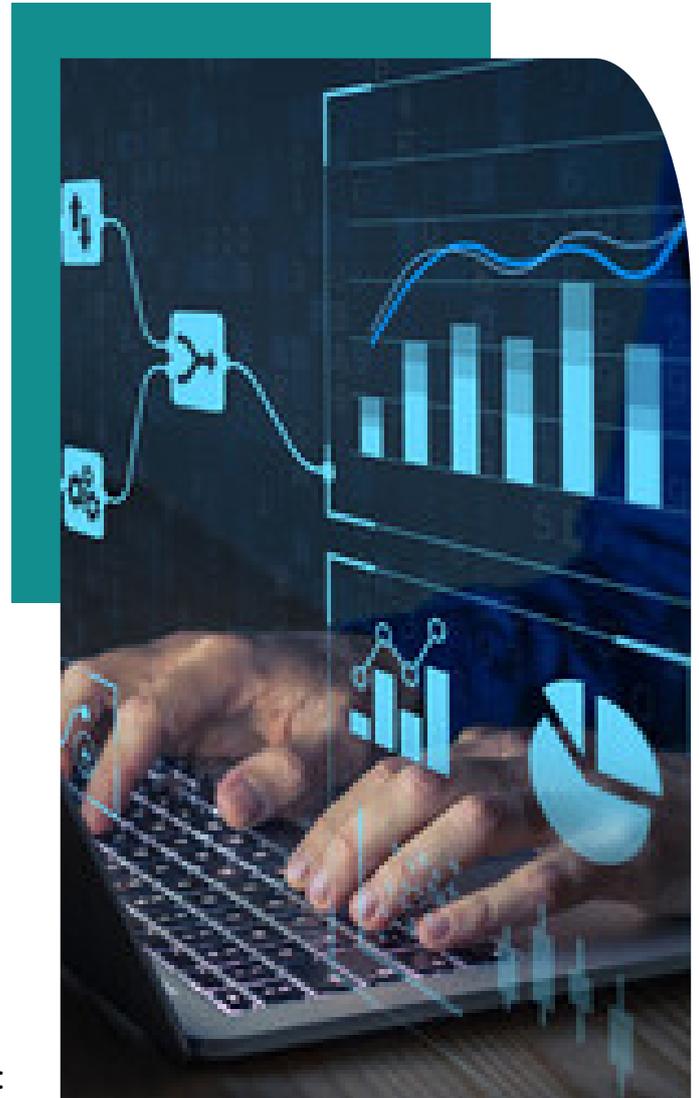
Opportunities for Growth

There is clear momentum for continued engagement:

73% of respondents rated their interest in a follow-up workshop as "Highly Interested" (5 out of 5)

Suggested future topics included:

- Data center retrofits, high-density upgrades, and infrastructure migration case studies
- Workforce development, including staffing models and skill gaps
- Cross-vendor compatibility and technology demos
- Power utility collaboration and strategies for capacity expansion
- Post-adoption outcomes and cost-sharing strategies.

Student Experience Program

This year, the Midwest RCD Consortium expanded its Student Experience Program, welcoming **six students** from four institutions into a unique mentorship and professional development opportunity. Since its launch in PY1, the program has supported ten students, building a future talent pipeline for the cyberinfrastructure (CI) workforce.

Each student was paired with a senior community leader, receiving one-on-one mentorship that extended beyond technical skills to include career planning, networking, and professional growth. Students also conducted interviews with RCD professionals, reflecting on diverse career paths and the values that shape them.

2024-2025 Student Participants

- **Abrar Hossain,** University of Toledo – Computer Science
- **Dali Nemecio,** Case Western Reserve University – Systems Biology
- **Dung Pham**, Case Western Reserve University – Data Science + Mathematics
- **Mehmed Uludag,** University of Michigan – Computer Science and Robotics
- **Nabayt Debesay Kibreab**, Youngstown State University – Computer Science + Economics
- **Tina Xu,** Case Western Reserve University – Computer Science

Program Impact

Students consistently described the experience as eye-opening, supportive, and motivating. They left with a deeper understanding of the RCD ecosystem, the importance of flexibility and networking, and the confidence that their own experiences could lead them into meaningful CI careers.

Student Voices

- The experience opened my eyes to how non-linear career paths can be. Building relationships and being open to trying new things really matters." — **Student Participant**

- "As someone without a traditional background in computer science, this experience reassured me that I belong here." — **Student Participant**

- "This experience helped me see how different the day-to-day reality of a job can be from what's in the description. I left with a clearer sense of how valuable real world experience and building connections truly are." – **Student Participant**

- "Talking with people from all kinds of backgrounds helped me realize there's no single path into RCD. That was really validating to hear." — **Student Participant**

- "I was surprised by how open everyone was about the ups and down of their paths. I learned that careers don't have to follow a formula, and that being curious and open to change really matters." -- **Student Participant**

- "I appreciated how personal and generous people were with their time. It felt like a real change, and I walked away with a deeper appreciation for the RCD field and the people who make it work." – **Student Participant**

Presentations & Publications

Throughout the year, the Midwest RCD Consortium actively contributed to advancing conversations across the community through presentations, publications, and collaborations. Our members shared insights at major conferences and workshops like PEARC25, highlighting emerging practices, research findings, and lessons learned from our regional initiatives.
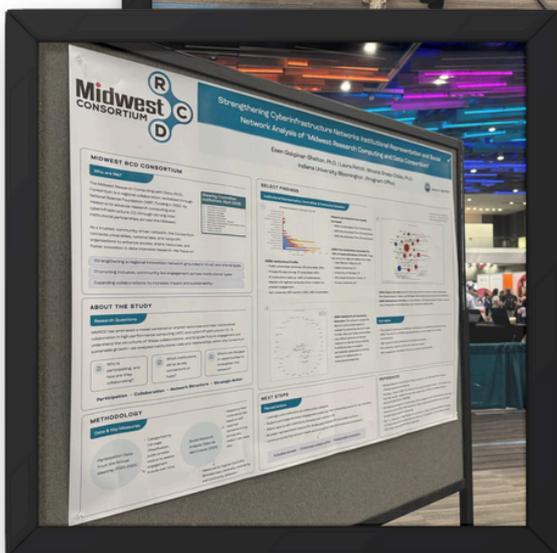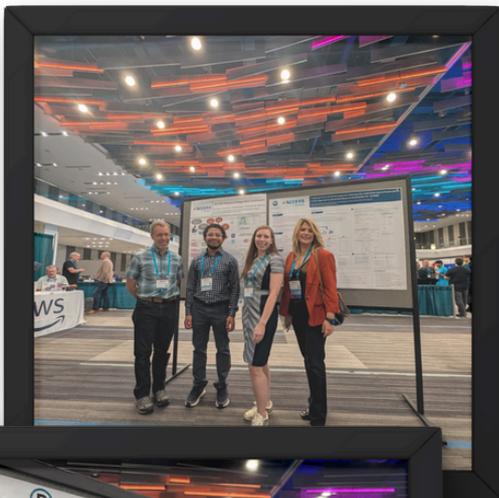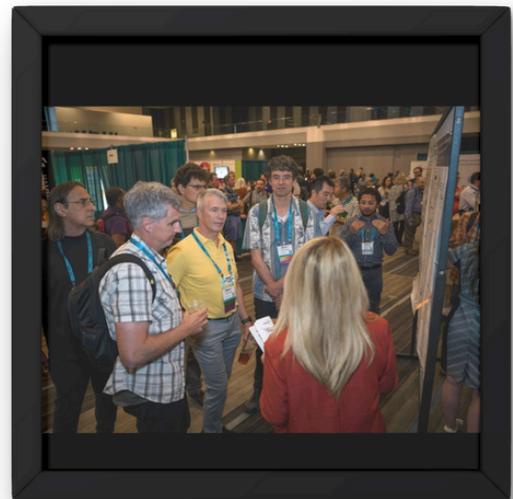
Below are a few selected highlights of our presentations and publications where the Consortium's work was featured.

- Gokpinar-Shelton, E., Pettit, L., Snapp-Childs, W. (July 20-24, 2025). **Practice and Experience in Advanced Research Computing (PEARC)**, Columbus, Ohio. https://doi.org/10.1145/3708035.3736037
- Snapp-Childs, W. (June 18, 2025). **Emerging Centers Call, CaRCC**.
- Shechter T. (June 3-4, 2025). **Research Computing at Smaller Institutions**, Swarthmore, Pennsylvania.
- Snapp-Childs, W. (2024) **NSF Cybertraining PI Meeting**.

NEW
TRAINING PROGRAM

RCD Emerging Leaders Program

Application Deadline: September 5th, 2025

This is a year-long, intensive leadership training program tailored specifically for Research Computing & Data Professionals. The program is designed to address the unique challenges faced by professionals in research computing and data management at research universities. It provides participants with the training, context, and perspective needed to become emerging leaders.

Who Should Apply?

Early- to mid-career RCD professionals who are ready to take the next step in their leadership journey and contribute to the broader Midwest RCD community.

The program is centered around **seven main components**:

1. Virtual Orientation
2. Professional Development
   a. Cohort-Based Merit Program
   b. "Other Facings" Interviews
3. Cross-Institutional Experience
4. Cohort Engagement & Learning Activities
5. Team Capstone Project
6. Self-Reflection
7. Culminating Experience

Future Roadmap
2025 - 2026

October/November

Kick off new initiatives, including RCD Emerging Leaders program, and outreach to smaller institutions, while affinity groups continue facilitating peer learning.

December/January

Host webinar, workshops, and training sessions, strengthen cross-institutional collaborations, and begin planning for upcoming events and community engagement activities.

February/March

Expand networking opportunities, share resources and best practices across institutions, and continue targeted support for students and early-career RCD professionals.

April/May

Convene the Midwest RCD Annual Network Meeting to foster collaboration, support student experiences, highlight successes, and identify emerging needs across the regional CI ecosystem.

June/July

Facilitate affinity group projects, and provide professional development opportunities to build leadership and technical capacity.

August/September

Reflect on program outcomes, disseminate insights and lessons learned, and plan for the next cycle of initiatives to strengthen the regional RCD community.

Program Office

Behind the scenes, our Program Office keeps everything running smoothly. From coordinating logistics to supporting participants and shaping the program's direction, this core team ensures the Midwest RCD Consortium thrives.

Meet the people who make it happen:

Winona-Snapp-Childs
Principal Investigator

Beth Plale
CO-PI

Esen Gokpinar-Shelton
Lead Program Manager

Laura Pettit
Program Manager

Robert Ping
Program Manager

Midwest RCD Consortium

Steering Committee Members

1. **Benjamin Lynch,** University of Minnesota
2. **Beth Plale**, Indiana University
3. **Brock Palen**, University of Michigan
4. **Hadrian Djohari,** Case Western Reserve University
5. **Jane Combs**, University of Cincinnati
6. **Karen Tomko**, Ohio Supercomputing Center
7. **Lee Liming**, University of Chicago
8. **Preston Smith**, Purdue University
9. **Scott Hampton**, Notre Dame University
10. **Todd Shechter**, University of Wisconsin-Madison
11. **Winona-Snapp Childs**, Indiana University
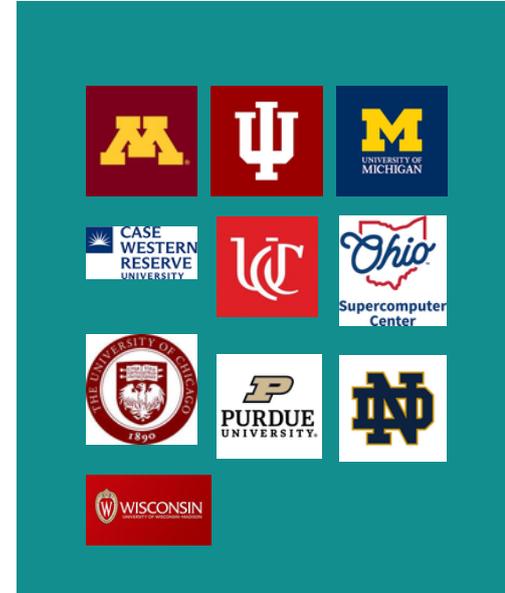
Contact Us

Have questions, feedback, or ideas to share? We'd love to hear from you. Our team is here to support, connect, and collaborate with the community, so don't hesitate to reach out.

Program Office Location

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Website

https://midwestresearchcomputing.org/