

# The Cyberinfrastructure Landscape: Organizations

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# The Cyberinfrastructure Landscape: Organizations

└ Who am I? (Who are any of us, really?)

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Who am I? (Who are any of us, really?)

Back in the day

- ▶ ME student at a medium-sized public STEM-ish university who should have studied more instead of helping people do things in computer labs.
- ▶ Sysadmin/CAD/FEA co-op student at Oak Ridge National Lab before SGI Irix got its cameo in "Jurassic Park" ("It's a Unix system: I know this!").



Figure 1: Some skinny nerd, 1990

# The Cyberinfrastructure Landscape: Organizations

└ Who am I? (Who are any of us, really?)

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Who am I? (Who are any of us, really?)

Now

- ▶ Three ME degrees from the now-R2 university (1995, 1998, 2018)
- ▶ Mostly-solo practitioner of all things RCD at the same university (2000–2017, 2017–)
- ▶ Perpetually online member of multiple RCD organizations (2018–)
- ▶ Member of Campus Champions Leadership Team (2022–)
- ▶ Compulsive advice-giver



Figure 2: Same nerd, not remotely skinny, 2023

# The Cyberinfrastructure Landscape: Organizations

## └ The Starter Pack

### └ Campus Champions

#### └ Campus Champions

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## Campus Champions

- ▶ One of the original RCD communities (2008)
- ▶ Formerly funded by NSF XSEDE program
- ▶ Over 800 members from over 300 institutions in all 50 states
- ▶ Active mailing list for all topics and all RCD roles
- ▶ Monthly Zoom call with planned speaker/topic
- ▶ Monthly Zoom call for any other topics
- ▶ Additional visibility to their institutions' NSF ACCESS usage



## └ The Starter Pack

Campus Research Computing Consortium (CaRCC)



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# The Cyberinfrastructure Landscape: Organizations

## └ The Starter Pack

### └ PEARC Conference Series

#### └ PEARC Conference Series

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## PEARC Conference Series

- ▶ The de facto RCD people conference
  - ▶ Small enough (782 attendees in 2023)
  - ▶ Full range of publishing options
    - ▶ full papers
    - ▶ short papers
    - ▶ posters
    - ▶ visualization showcase
  - ▶ Tutorials/workshops
  - ▶ Birds of a Feather (BoF) sessions
  - ▶ Panel discussions
- Go at least once.



# The Cyberinfrastructure Landscape: Organizations

## └ The Starter Pack

### └ Supercomputing Conference Series

#### └ Supercomputing Conference Series

Supercomputing Conference Series

- ▶ The de facto HPC stuff conference
  - ▶ Huge
  - ▶ Like, really huge (14,000 attendees in 2023)
  - ▶ Lots of vendors
  - ▶ Lots of recruiting
  - ▶ Student Cluster Competition
  - ▶ SCinet (local network providing 6.71 Tb/s WAN connectivity in 2023)
- Go at least once, but just once is probably ok, too.



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## The Cyberinfrastructure Landscape: Organizations

### └ The Starter Pack

#### └ Virtual Residency Program

└ Virtual Residency Program (you're in this photo, we hope you like it)

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- ▶ Henry's already explained what we're doing here
- ▶ (Mike's opinion) best value experience for new RCD professionals, especially for under-resourced institutions or emerging programs

# The Cyberinfrastructure Landscape: Organizations

## └ The Starter Pack

### └ Where to Go from Here?

#### └ Where to go from here?

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Where to go from here?



Figure 3: We have lots more groups (Craign)



Figure 4: Not why we have lots more groups

# The Cyberinfrastructure Landscape: Organizations

## └ The Starter Pack

### └ Where to Go from Here?

#### └ How to make sense of all these groups?

How to make sense of all these groups?

Campus Research Computing Consortium's [facings](#) (somewhat blurry boundaries, still):

1. Researcher-facing: outreach, advanced application support, co-creating along the research lifecycle
2. Data-facing: data discovery/collection, analysis/visualization, curation, preservation, policy compliance
3. Software-facing: software package management, research software development, optimization
4. Systems-facing: systems administration and operations, networking, architecture, security
5. Strategy- and Policy-facing: leadership, institutional alignment, culture, funding, external partnerships

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# The Cyberinfrastructure Landscape: Organizations

- └ Researcher-Facing
  - └ Software Carpentry
    - └ Software Carpentry

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Since 1998, Software Carpentry has been teaching researchers the computing skills they need to get more done in less time and with less pain. Our [volunteer instructors](#) have run [hundreds of events](#) for more than 34,000 researchers since 2012. All of our [lesson materials](#) are freely reusable under the [Creative Commons - Attribution license](#).  
– <https://software-carpentry.org/about/>



# The Cyberinfrastructure Landscape: Organizations

- └ Researcher-Facing
  - └ CyberAmbassadors
    - └ CyberAmbassadors

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CyberAmbassadors

- ▶ Originally an NSF workforce development project for R&D professionals
- ▶ Now expanded to include STEM students and professionals from all disciplines
- ▶ Strengthening skills in:
  - ▶ communications
  - ▶ teamwork
  - ▶ leadership
- ▶ Pls inducted into American Society for Engineering Education Hall of Fame in 2023



# The Cyberinfrastructure Landscape: Organizations

## └ Data-Facing

### └ Research Data Access and Preservation Association (RDAP)

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[RDAP] supports an engaged community of information professionals committed to creating, maintaining, advancing, and teaching best practices for research data, access, and preservation.

The RDAP community brings together a variety of individuals, including data managers and curators, librarians, archivists, researchers, educators, students, technologists, and data scientists from academic institutions, data centers, funding agencies, and industry who represent a wide range of STEM disciplines, social sciences, and humanities.

– <https://rdapassociation.org/>



# The Cyberinfrastructure Landscape: Organizations



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## Data Carpentry

*Data Carpentry develops and teaches workshops on the fundamental data skills needed to conduct research. Our mission is to provide researchers high-quality, domain-specific training covering the full lifecycle of data-driven research.*

= <https://datacarpentry.org>  
Curricula for: [astronomy](#), [ecology](#), [genomics](#), [geospatial data](#), [image processing](#), [social sciences](#)



# The Cyberinfrastructure Landscape: Organizations

- └ Data-Facing
  - └ Library Carpentry
    - └ Library Carpentry

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Library Carpentry

*Library Carpentry focuses on building software and data skills within library and information-related communities. Our goal is to empower people in these roles to use software and data in their own work and to become advocates for and train others in efficient, effective and reproducible data and software practices.*

- <https://librarycarpentry.org/about/>



# The Cyberinfrastructure Landscape: Organizations

## └ Software-Facing

### └ US Research Software Engineer Association (US-RSE)

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US Research Software Engineer Association (US-RSE)

[US-RSE] is a community-driven effort focused on the increasingly important role of the Research Software Engineer.

- <https://us-rse.org/about/>

We have an inclusive definition of [RSEs] to encompass those who regularly use expertise in programming to advance research. This includes researchers who spend a significant amount of time programming, full-time software engineers writing code to solve research problems, and those somewhere in-between. We aspire to apply the skills and practices of software development to research to create more robust, manageable, and sustainable research software.

- <https://us-rse.org/about/what-is-an-rse/>



# The Cyberinfrastructure Landscape: Organizations

## └ Systems-Facing

### └ ACM SIGHPC Systems Professionals

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We are a SIGHPC ACM Chapter focused on the systems staff who stand up high performance systems. This includes system admins, storage admins, networking admins, facilities staff—everyone who participates in the process of physically standing up HPC systems. Our community is focused on sharing solutions and failures associated with these complicated, novel, cutting-edge systems.

– <https://sighpc-syspros.org/>



# The Cyberinfrastructure Landscape: Organizations

## └ Systems-Facing

### └ Linux Clusters Institute (LCI)

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Linux Clusters Institute (LCI)

*The Linux Clusters Institute (LCI) is providing education and advanced technical training for the deployment and use of computing clusters to the high performance computing community worldwide.*

*Founded in 1998, it includes some of the world's foremost specialists in building and deploying clustered high-performance computing systems. LCI is the premier international forum to share information on management, administration, and advanced computing techniques for high performance clustered computing.*

→ <https://linuxclustersinstitute.org>



# The Cyberinfrastructure Landscape: Organizations

## └ Strategy- and Policy-Facing

### └ Coalition for Academic Scientific Computation (CASC)

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*The mission of CASC is to:*

1. Advocate for the importance of and need for public and private investment in research computing and data services to support academic research.
2. Serve as a trusted advisor to federal agencies on the direction of relevant funding programs.
3. Actively engage in discussions of policies related to research computing and data services.
4. Foster advancement of a robust and diverse community of current and emerging leaders in this field.
5. Provide a forum for the community to share strategic ideas and best practices.



# The Cyberinfrastructure Landscape: Organizations

## └ Strategy- and Policy-Facing

### └ EDUCAUSE Research Computing and Data Community Group

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This community group discusses IT support for institutional research missions. The two broad categories of issues are: IT support for research administration, and IT support for research activities. The former includes pre- and post-award support, interacting with Federal grant systems, regulatory compliance, and intellectual property management. The latter includes centralized vs. decentralized approaches, high performance computing, advanced networking, informatics and enabling multidisciplinary/interdisciplinary/inter-institutional work.



## The Cyberinfrastructure Landscape: Organizations

### └ Strategy- and Policy-Facing

#### └ Regulated Research Community of Practice (RRCoP)

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*The Regulated Research Community of Practice (RRCoP) builds a network of people able to help each other in implementing an affordable but effective cybersecurity and compliance program at academic institutions.*

– <https://www.regulatedresearch.org/about>

