Campus Research Computing (CaRC) Consortium

## Vision, Stakeholders, and Value Propositions

Overarching Vision

● The vision of the CaRC Consortium is to advance the frontiers of research at academic institutions by supporting on-campus awareness and facilitation services related to computation for researchers, including inter-institutional resource and knowledge sharing among research computing professionals, and continuous innovation in research computing capabilities.

Key CaRC Consortium Stakeholders

● Campus Executive Leadership (e.g. Presidents, Chancellors, Provosts, Deans)
● Campus Information and Research Leadership (e.g. CIOs, VPRs)*
● Campus Research Computing (RC) Leadership (e.g. VP, AVP or Director RC; Associate CIO)*
● Principal Investigators and Research Team Members
● Students (in classrooms) and as RC employees
● Campus Research Computing Facilitators, including CaRC and ACI-REF Facilitators, RC Software Engineers, and XSEDE Campus Champions
● Campus Research, Academic, Enterprise IT Services (systems, security, networking, engineering)
● Campus Research Computing/Data Science Instructors
● Those Responsible for IT/Research Cyberinfrastructure Workforce Development
● Research Funders

Note: Titles, roles, and responsibilities vary across campuses with respect to research and research computing.
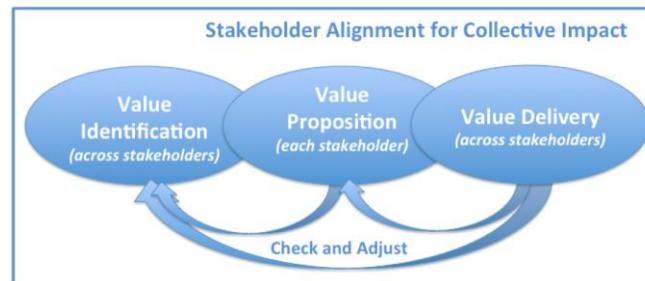
Overarching CaRC Value Propositions

● The CaRC Consortium will advance the frontiers of research through improved access to and use of Research Computing (RC) and supporting resources.
● CaRC will enhance members' ability to optimize the use of RC and supporting resources on each campus and across the CaRC Consortium.
● CaRC will enhance members' ability to identify and share RC leading practices and innovations.
● CaRC will enhance members' ability to access domain-specific RC expertise in a range of fields and disciplines that exceeds the expertise on any one campus.
● Through CaRC, individual campuses will be better able to provide leadership in the RC ecosystem, with an underlying culture of collaboration.

Stakeholder Specific Value Propositions:

- **Campus Executive Leadership (e.g. Presidents, Chancellors, Provosts, Deans)**
  - Membership in the CaRC Consortium helps your campus maximize the value generated from investments in research and research computing. As a CaRC Consortium member, your campus is represented and visible within national and international research computing ecosystems, connecting to diverse resources, increasing research productivity, and enhancing collaboration.

- **Campus Information and Research Leadership (e.g. CIOs, VPRs)**
  - Membership in the CaRC Consortium multiplies research computing expertise and enabling infrastructure investments, increasing the resources available to principal investigators and research teams across your campus. The CaRC Consortium is dedicated to helping its members develop new research computing solutions, utilize the full range of computing resources, advance data and networking capabilities, document the impacts of research computing in grants and publications, increase the security compliance capabilities, increase compliance with data management plans, and ensure career paths for people supporting research, including research computing and research information technology.

- **Campus Research Computing (RC) Leadership (e.g. VP, AVP or Director RC; Associate CIO)**
  - As a member of the CaRC Consortium you will be better able to leverage expertise across multiple campuses. This includes supporting individual research projects requiring specialized expertise not present on your campus and launching multi-campus initiatives that exceed the capability of any individual campus. You will be able to contribute to and learn from leading practices and innovations in research computing and data leadership. Smaller campuses can accelerate the establishment of needed research computing and data support systems; larger campuses can lead in the formation of regional and national networks. You can contribute to and learn from leading practices in workforce development at the frontiers of research computing and data work. Career paths for people supporting research, including research computing and research IT, will be advanced within individual campuses and across the RC ecosystem.

- **Principal Investigators and Research Team Members**
  - If your campus is a member of the CaRC Consortium, you will have access to research computing leaders and facilitators who know of complementary efforts on other parts of your campus and on campuses across the Consortium. When preparing research proposals, CaRC leaders and facilitators on your campus may be able to help, for example, in connecting you to resources for drafting broader impact statements, developing data management plans, and and forming interdisciplinary collaborations. CaRC Membership is an assurance of additional access to resources that can improve the efficiency and quality of computation and data management, as well as helping pioneer new uses of compute resources and data architecture in diverse fields and disciplines. RC expertise, reinforced through CaRC, can help avoid missteps when making strategic choices about software development and compute and data architecture.

- **Students (in classrooms) and as RC employees**
  - If your campus is a member of the CaRC Consortium, it is likely that there will be enhanced classroom demonstrations and visualizations, allowing more effective use of compute and data resources. For your own class projects, particularly capstone projects, there are research computing and data resources that you may be able to use in novel and compelling ways. You may find that research computing represents a career path that is of interest to you and, as a CaRC Consortium member, the career paths on your campus and across the Consortium will be more accessible to you as part of the next generation of professionals in the research computing and data fields. There are growing communities of practice among students with an interest in high performance research computing, data visualization, data analytics, data curation, software development, and related domains. The CaRC Consortium is a gateway to these communities, including student activities in relevant conferences and workshops.

- **Campus Research Computing facilitators, including CaRC and ACI-REF Facilitators, RC Software Engineers, and XSEDE Campus Champions**
  - You are the heart of the CaRC Consortium value proposition, bridging between researchers and campus research computing and data resources. The CaRC Consortium represents your broader community of practice across campuses, providing opportunities for sharing expertise and resources that bridge across disciplinary silos. CARC is committed to supporting career paths for you and providing opportunities for your interests to be understood and advanced, including building out the norms and leading practices in this emerging professional domain.

- **Campus IT Services (systems, networking, security, storage, cloud services, engineering)**
  - As a member of the CaRC Consortium, you will have increased opportunities to connect with cyberinfrastructure and IT professionals across campuses, as well as increased opportunities to learn of the user needs and requirements for the broad range of research projects on your campus. The CaRC Consortium brings together aspects of IT that are too often siloed, including systems, networking, security, storage, cloud services, and other domains in the IT world -- helping the IT function to realize its full strategic potential as technology and research requirements continue to evolve at rapid rates. Research Computing is, itself, a customer for enterprise IT services and the CaRC Consortium helps RC be a good customer. CaRC is committed to full partnership between IT and research computing.

- **Campus Research Computing/Data Science Instructors**
  - As a professor or instructor advising students and teaching classes that require research computing and/or data science, campus membership in the CaRC Consortium helps you stay abreast of the latest innovations and emerging good practices. Students, researchers, and staff with career interests in these domains can become active in CaRC and both benefit from and contribute to the wide range of expertise available on CaRC campuses (e.g. GIS, parallel computing, machine/deep learning, specific research computing applications, etc.). The specific interests of instructors and trainers within CaRC can also be clarified and advanced.

- **Those responsible for IT/Research Cyberinfrastructure Workforce Development**
  - CaRC Consortium membership can be instrumental in attracting, retaining, and motivating the diverse talent needed to support research cyberinfrastructure, research computing, and data science on campus. Career paths and the associated professional development activities are important concerns for all CaRC Consortium members. With CaRC Consortium membership, your campus will have access to leading models for career development, as well as the associated learning materials, expertise sharing, and mentoring required to help you address your workforce needs.

- **Research Funders**
  - The CaRC Consortium is advancing funding priorities at the frontiers of research by promoting the most effective use of compute and data resources within and among campuses. All participants in the research enterprise (faculty, students, postdoctoral fellows, and other research staff) will benefit from improved research support, better and more current classroom experiences, and more effective training activities in research computing and data science. This will lead not only to dramatically improved research outcomes across many fields, but also to a substantial growth in the size and diversity of the pool of well-trained people to perform computation/data-based research and to support research computing and data operations in the future. The CaRC Consortium can be an important sounding board and incubator for new ideas at the leading edge of research computing and research cyberinfrastructure, and it can provide a support infrastructure that can quickly enable multi-campus initiatives.

Current CaRC Consortium Members (as of 3/07/18):

- Arizona State University
- Brandeis University
- Clemson University
- Cornell University
- Florida Atlantic University
- Harvard University
- Kansas State University
- Montana State University
- Ohio Supercomputer Center
- Oklahoma State University
- Oregon State University
- Rutgers, The State University of New Jersey
- Stanford University
- University of California, Berkeley
- University of California, San Diego
- University of Colorado, Boulder
- University of Florida
- University of Georgia
- University of Hawaii
- University of Illinois, Urbana Champaign
- University of Miami
- University of Minnesota
- University of Missouri
- University of Nebraska, Lincoln
- University of North Carolina, Chapel Hill
- University of Notre Dame
- University of Oklahoma
- University of Southern California
- University of Utah
- University of Virginia
- University of Wisconsin, Madison
- Yale University