

Bridges-2

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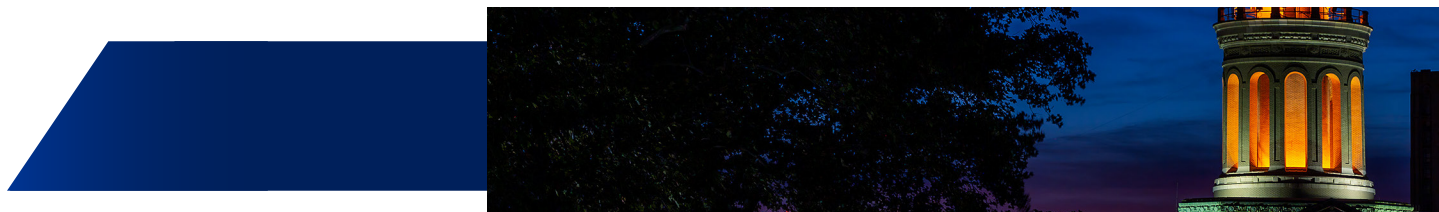
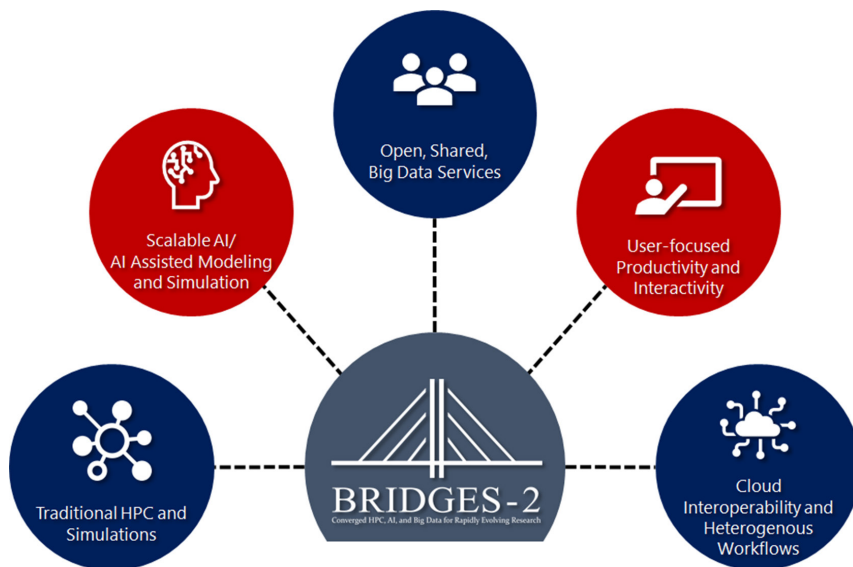
Bridges-2 will provide an innovative platform for rapidly evolving computation and data-intensive research. Bridges-2 will support traditional computational research areas while working to create and further enhance opportunities to catalyze collaboration and convergence with emerging communities. Bridges-2 will be available at no cost for research and education through the [NSF-funded XSEDE program](#), and at cost-recovery rates for other purposes.

Integrating new technologies with existing best practices that prioritize user friendliness and integration with ongoing projects and workflows will provide researchers with the essential tools required to carry out research utilizing scalable computing, artificial intelligence, machine learning and data analytics.

Massively complex datasets are driving innovations in computational research while multidisciplinary collaborations are evolving methods in AI, machine learning and deep learning.

Bridges-2 was designed from its inception to offer researchers a familiar platform to carry out their readily evolving research with cutting edge hardware, interconnection, and networking.

Bridges-2 provides a single platform with the capability to help solve some of the most complex and challenging problems facing humanity today by incorporating the advances being made in heterogeneous computing, graphic processing (GPU) and data-centric capabilities.



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Research and Architecture

Bridges-2 will consist of Hewlett Packard Enterprise Apollo 2000 and ProLiant DL560 central processing unit (CPU) servers of three different memory capacities (256GB, 512GB, and 4TB) for extremely broad workloads; Apollo 6500 servers each with two CPUs and eight graphics processing units (GPUs) for AI and to accelerate simulations; and ProLiant DL360/380 servers for gateways, databases, and utility and management functions.

A hierarchical data management system using HPE's Data Management Framework (DMF) will provide seamless access with exceptional ease of use to active and archival data, spanning a Lustre parallel filesystem and StoreEver MSL6480 Tape Library.

An HPE TierZero high-performance flash array will provide even higher performance for data-intensive applications. A Mellanox HDR InfiniBand interconnect will provide unified, high-performance data transport across compute and storage components. The Bridges-2 user environment is designed to be robust and flexible as to support HPC applications, AI frameworks, high-productivity programming languages, containers, interactive and batch execution, workflows, databases, and science gateways. The flexible software environment and heterogeneous hardware resources will serve the needs of today's collaborative research, opening the door to discovery and the path to prosperity.

Bridges-2 will enable a wide-array of computational research in areas such as:

- gene expression
- digital pathology
- bioinformatics
- severe storm prediction
- immunology
- material design
- autonomous vehicles
- particle physics
- and more

For more information and to find out how you can leverage Bridges-2 for your research needs visit psc.edu/bridges-2 today.

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