A Vision for a New Era

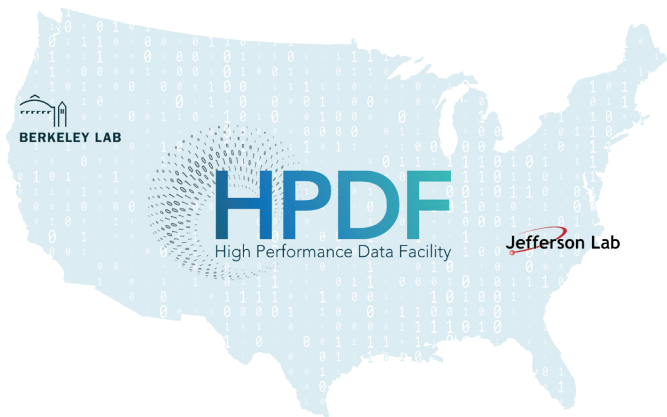
HPDF will provide a powerful tool researchers can use to analyze, manage, and maintain research data.

HPDF data life cycle resources will meet the increasing need for real-time analysis and storage

The High Performance Data Facility will establish a powerful new resource for data science and research, offering revolutionary capabilities for high-powered data analysis, networking, and storage to the scientific and engineering community.

As a key component of the U.S. Department of Energy's Integrated Research Infrastructure, HPDF will dramatically increase the capacity and flexibility of the nation's research computing network. Once operational, it will offer researchers seamless access to a full complement of customizable compute capabilities and distributed data storage, providing a dynamic resource that will be ideally suited for real-time steering of experiments.

HPDF will extend and strengthen the Department of Energy's existing portfolio of Advanced Scientific Computing Research facilities, enriching the discovery environment for researchers nationwide and opening doors for new scientific communities to access the DOE's world-leading high-performance computing capabilities.



Progress Through Partnership

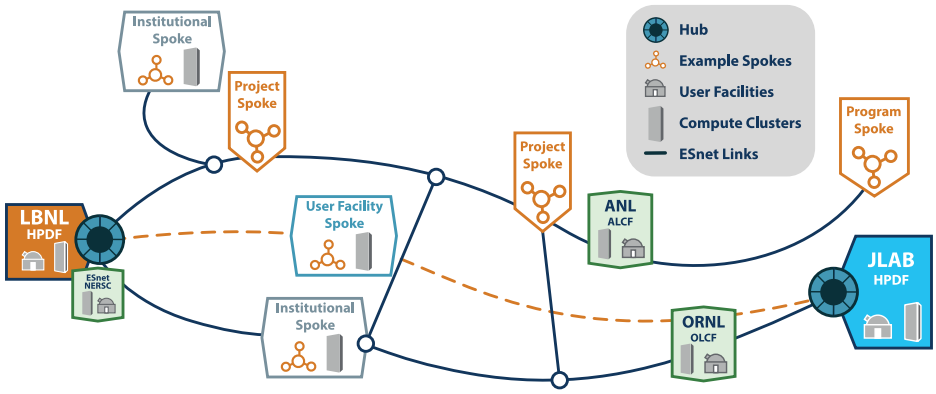
Coast to coast, Jefferson Lab in Virginia and Lawrence Berkeley National Laboratory in California will provide seamless services that enable scientific advancement through an integrated model. HPDF will be a distributed facility with a hub-and-spoke architecture. Spoke sites will enjoy customizable access to interdisciplinary scientific information via the Energy Sciences Network.

FAIR Data: Findable, Accessible, Interoperable and Reusable

HPDF will enable data stewardship on a new scale, making research data shareable to the broader science community, promoting partnerships, and enabling unified responses to global challenges.

The HPDF mission: To enable and accelerate scientific discovery by delivering state-of-the-art data management infrastructure, capabilities, and tools to the nation's research communities

HPDF infrastructure will be designed to maximize availability and resilience. Working with IRI ensures a secure, high-performance fabric that will enable data and workloads to flow freely among the Hub, Spokes, and high-performance computing facilities.



HPDF will support DOE Integrated Research Infrastructure priorities: data management, sharing and collaboration, high-speed data transport, and real-time streaming and processing. It will also enable science discoveries using artificial intelligence and machine learning. Potential partners include programs like these:

Dawn Harmer/SLAC National Accelerator Laboratory

The **LINAC COHERENT LIGHT SOURCE** at SLAC National Accelerator Laboratory produces the world's brightest X-ray laser pulses. It takes X-ray snapshots of atoms and molecules at work, revealing fundamental processes in materials, technology, and living things. It provides scientists a unique tool with the potential to significantly affect the advancement of energy research and other research fields.

The **EARTH SYSTEM GRID FEDERATION** at Lawrence Livermore National Laboratory is an international collaboration for the software that powers most global climate change research. ESGF provides essential resources for global-scale research. Virtually all Earth system science researchers worldwide use it to discover, access, and analyze data. The open-source effort enables access to petascale and exascale scientific data.

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