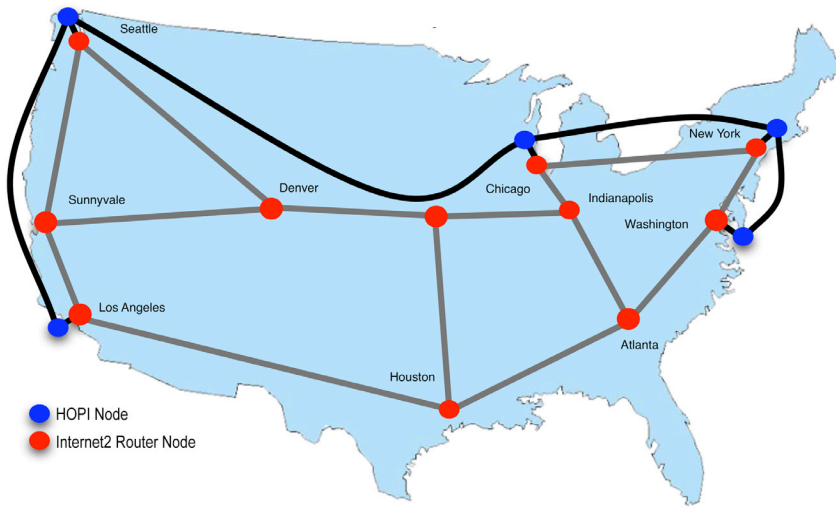




HOPI Hybrid Optical and Packet Infrastructure Project

A PROJECT OF 



● HOPI Node
● Internet2 Router Node



Providing A Unique Testbed

HOPI has deployed a nationwide testbed facility to provide a unique combination of packet-switched networks, which serve as the foundation of today's Internet, and circuit-switched optical network infrastructures, which are becoming increasingly available to the research and education community and are capable of being dynamically provisioned. HOPI fills critical gaps in understanding how these two types of networking technologies can work together by enabling exploration of the:

- requirements for accessing and using each type of network infrastructure in an environment where both are available,
- implications of hybrid networking for international, national, regional, and campus network infrastructures, and
- security, operational, measurement, and administrative issues, especially across network paths controlled by multiple organizations.

Motivated by extreme applications that demand performance at the limits of today's networks, Internet2's Hybrid Optical and Packet Infrastructure (HOPI) project leverages advances in optical networking technologies to examine and explore revolutionary network architectures. HOPI provides the Internet2 community with the experience and understanding needed to deploy the scalable networking capabilities that tomorrow's advanced network applications will increasingly require.

"Internet2's HOPI investigation represents a new paradigm in networking that goes well beyond traditional production services of today. In doing so, we hope to catalyze a new era of advanced applications which at this point have only been imagined."

Rick Summerhill, co-chair of the HOPI design team and Internet2 director of network research, architecture and technologies.

The HOPI testbed has been used to create dedicated transcontinental network circuits that reliably transmit terabytes of radioastronomy data, enabling scientific exploration in ways not possible with current packet-based network technologies like those that comprise the current commercial Internet.

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with thanks to the MIT Office for the Arts and the MIT Haystack Observatory, Westford, Mass



The HOPI Testbed Support Center

A Testbed Support Center (TSC) team is comprised of leading engineers from the Mid-Atlantic Crossroads (MAX), the North Carolina Research and Education Network (NCREN), and Indiana University (IU). Each organization brings deep experience to support the implementation of new and inventive techniques in hybrid networking.

The HOPI Research Advisory Panel

This panel represents a distinguished panel of network researchers from universities long associated with Internet2. The team brings research experience in networking and experience in ideas related to hybrid networking, switched technologies, control plane design and implementation, measurement technologies, and management of hybrid networks.

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Convening Thought Leaders

HOPI has assembled three teams of experts from Internet2 members and partners to guide its efforts: The Design Team, The Corporate Advisory Team, The HOPI Testbed Support Center, and The Research Advisory Panel.

The HOPI Design Teams

The HOPI Design Team consists of network engineers and architects long associated with Internet2. The design team was first formed in the fall of 2003 and its initial goal was to create a design for a testbed to test new ideas involving dynamic provisioning of dedicated circuits and hybrid architectures for future networks. The design team continues in an advisory role, setting directions for the project and the associated testbed.

Co-Chairs
Linda Winkler,
Argonne National Laboratory/TeraGrid/I-WIRE
Rick Summerhill,
Internet2

The HOPI Corporate Advisory Team

This team is a distinguished panel of Internet2 corporate members that advise both the HOPI Design Team and Internet2 on the HOPI project. The team brings technical expertise in packet and circuit switched technologies, control plane design and implementation, measurement technologies, and management of hybrid networks.