About Internet2

Internet2 is a non-profit, advanced technology consortium founded by the nation's leading higher education institutions in 1996. It provides national, globally interwoven technology infrastructure and collaboration capabilities for the nation's researchers, scholars, and learners.

Internet2 exists to facilitate mission-critical technology services for U.S. higher education institutions in support of their educational, research, and community service missions. Internet2 enables the power of collaborative scale to make possible vitally important capabilities that no single institution could produce on its own and no other source will provide.

To accomplish this, Internet2 engages mutual-interest collaborators across diverse communities and facilitates their work together to solve shared technology challenges. Internet2 convenes U.S. universities, government agencies, industry partners, and regional and state education networks. Internet2 supports not only the work of these groups but more than 100,000 community anchor institutions such as K-12 schools, community and vocational colleges, public libraries, health care facilities, museums, and other cultural and historic organizations.

Internet2 also collaborates with more than 70 national research and education network partners that represent more than 100 countries. These partnerships help ensure global interoperability in the next generation of networking technologies, mobile connectivity, security and privacy considerations, identity and access management, and cloud services tailored to the needs of research and education.

Today, Internet2 members and service participants enjoy an increasingly integrated and powerful set of services across the entire national technology infrastructure. This includes the nation's largest and fastest research and education network that was built to deliver advanced, customized services that are being accessed and secured by the community-developed trust and identity framework.

Internet2's member community is putting these powerful assets to work in the service of research and education in all its diverse forms. Together, this community continues to develop breakthrough technologies that support the most exacting applications of today—and spark the most essential innovations of tomorrow.
Advanced Networks

Supporting Advanced Research Applications - Supports applications such as the Open Science Grid and national research platform testbed, enabling daily research in high-energy physics, astronomy and astrophysics, genomics, health and life sciences, engineering, medicine, and earth sciences.

Scaling Beyond 7 Petabytes Moved on a Busy Academic Day - Designed with bundles of 100 gigabits per second connectivity for abundant bandwidth, zero congestion, capacity for innovation, and peering to global research and education networks reaching over 100 countries.

Flexible 100 Gigabits per Second Services - Provides users with cost-effective, secure capacity for the big data needs of global science researchers, or allowing innovators to program the network itself through application programming interfaces.

Next Generation Infrastructure - The fifth iteration of the Internet2 Network will include optical system sharing, 400-gigabit wavelengths, and deeper integration of programmable interfaces and automation.

Trust and Identity

InCommon Federation - Provides a collaboration-ready trust framework for research and education, including single sign-on and privacy-enhancing exchange of information among participants, allowing users to securely use their home institution identity credentials to access a broad range of global collaboration services.

Software Engineering and Development - Ensures that key identity and access management (IAM) suite software components work together and are sustainable, with straightforward installation and configuration (including Shibboleth, Grouper, COmanage, and midPoint); also works with research and education on adoption strategies.

eduroam - As the U.S. node for this global federated wireless service, ensures that eduroam in the U.S. is robust and sustainable; eduroam-enabled user mobile devices can attach to eduroam-enabled wireless networks automatically and securely, around the world.

InCommon Certificate Service - Operates an enterprise-scale web service security certificate service, with unlimited Secure Sockets Layer (SSL), Extended Validation (EV), and other types of certificates for one annual fee available to U.S. higher education institutions.
Cloud Services

Internet2 NET+ Solutions
Internet2 helps solve the cloud conundrum for campuses with a unified portfolio of solutions specifically tailored by and for higher education.

- Leverages the capacity of the Internet2 Network connection for enhanced performance and delivery of cloud services.
- Expands adoption of InCommon Federation identity and access management among cloud services.
- Facilitates deployment and ease of integration of commercial cloud services uniquely configured for academic needs. Legal terms are negotiated via the power of a large community, and members frequently experience substantial financial savings.
- Influences industry to develop services meeting the particular needs of the research and education community.
- Encourages a strategic relationship between the community and service providers, and provides a basis for long-term collaboration on R&D and product roadmaps.

Internet2 Cloud Connectivity
Allows the Internet2 community to leverage its regional and national trusted infrastructure to directly access leading cloud services.

- Makes it easier for researchers to access and use cloud resources in a campus/regional-friendly way.
- Facilitates data movement using research and education networks into and out of the cloud.
- Facilitates movement between clouds and creates alternatives to single commercial vendor lock in.
- Uses the community’s existing 800 gigabit per second of peering capabilities to the major cloud providers for advanced, community-enabled access to cloud services.
- Provides peering services as well as direct access to Microsoft Azure Express Route, Amazon’s AWS Direct Connect, and Google Cloud Platform Dedicated Interconnect.

Community Anchor Program

Presidential Primary Sources Project - Connects students from all over the world with national presidential historic sites to access primary source documents, shedding light on aspects of the American presidency, including major historical events and significant decisions made.

LOLA for All - Promoted LOLA, which enables real-time, simultaneous, live musical performances across long distances, using an open source, low-latency audio and video conferencing technology. This is emerging as an exciting opportunity for schools and libraries.

Measuring Library Broadband Networks Project - Through support from the Institute for Museum and Library Services, works toward the goal of helping public libraries utilize broadband measurement tools and training materials to develop a better understanding of the relationship between library network infrastructure and digital services.

State and Regional Network Spotlight - Profiles a new state or regional network each month to promote the network to the research and education community and community anchor institutions.
A Trusted Infrastructure to Accelerate Research

- Delivers nationwide next-generation networking capability between sites up to 200G, 400G, and 1Tb on the roadmap
- Offers cost efficiency, operational transparency, and better economies of scale through infrastructure sharing
- Same access and operational control as dedicated network
- Community-built and community-driven trust and identity infrastructure that supports global collaboration among faculty, staff, researchers, and scholars
- Bold engagement with custom approaches and new technology

Gravitational-Wave Astrophysics

LIGO Scientific Collaboration (LSC) consisting of over 1,300 collaborators at 112 institutions in 20 countries, Laser Interferometer Gravitational Wave Observatory (LIGO), California Institute of Technology, Massachusetts Institute of Technology, w-astronomy.org - operated by the Leonard E. Parker Center for Gravitation, Cosmology and Astrophysics at the University of Wisconsin–Milwaukee.

Federated Identity is one of the best tools to pave the way for groundbreaking future discoveries.

– Warren Anderson, LIGO scientist and IAM manager

LIGO collaborates with astronomers all over the globe who are looking at the sky at the same time, but with different types of instruments, and who need ways to share discoveries securely. It is a significant challenge to keep track of LIGO participants, their roles, and who has access to shared resources. To help with these daunting tasks, LIGO has employed many trust and identity tools created by the Internet2 community, which have become integral parts of LIGO’s daily operations.

INTERNET2 NETWORK BY THE NUMBERS

- Built on a new 17,500-mile national optical infrastructure equipped at 17.6 Tbps
- Utilizes “future-ready” Ciena 6500, supporting up to 100GE MPLS interfaces with enhanced capabilities in process
- 341 individual network elements
- 100GE MPLS infrastructure deployed
- Variety of wave services 10G & 100G
- 62 add/drop colo facilities, 44 router nodes, 300+ Ciena 6500 optical elements

MEMBER LED. MEMBER FOCUSED.

- 300+ U.S. universities
- 60 government agencies
- 43 regional and state education networks
- 50+ industry members
- 100,000+ community anchor institutions
- 1000+ InCommon participants

OFFICES
Ann Arbor MI
Denver CO
Washington DC
West Hartford CT

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