

ION Notes

Internet2 ION is an **Interoperable On-demand Network** service that lets users provision dedicated circuits across the Internet2 Network – and other networks with dedicated circuit capabilities. Through a simple, secure web interface, users can reserve in advance – or provision in real time – point-to-point virtual circuits with whatever capacity they need to meet their application's requirements. Circuit requests can be easily modified or canceled. Built on widely deployed protocols, Internet2 ION can instantly reserve and create circuits across the Internet2 Network and into partner regional, national and international networks to connect researchers with colleagues worldwide. (Partners may use a variety of tools to control circuit setup.)

Internet2 ION brings to fruition the dynamic circuit networking vision developed through a community-wide network research initiative led by ESnet, Internet2 and GÉANT. Circuit networks leverage ESnets OSCARS technology, developed through funding by the DOE Office of Science, and DRAGON technology, developed through NSF funding by MAX, USC ISI East and George Mason University. The current Internet2 ION service uses OSCARS to signal the underlying Internet2 Network infrastructure for circuit reservation and creation. Actual circuits are created as MPLS overlays on the current Internet2 IP Network.

Internet2 ION's target audience

Internet2 ION's target audience is as wide as the range of discipline communities represented by Internet2 members and participants. Any application that benefits from dependable availability and guaranteed capacity will benefit from Internet2 ION. Though the large data transfers and bandwidth-intensive applications of global scientific research are obvious candidates, there are many other important uses, including advanced media and telepresence applications and low-latency network performance and music collaborations.

Internet2 ION features

- **Build dedicated virtual connections** in real time or reserve them in advance, across the Internet2 Network and partner regional, national and international networks to connect to research colleagues worldwide. Internet2 ION can create a circuit originating or terminating on any node that is part of the Internet2 ION domain. In practical terms, that means Internet2 ION can build a circuit between *enabled connector interfaces* on any of the Internet2 core routers as well as some predefined test points in the Internet2 network. See figure 1.
- **Build permanent or persistent circuits.** Using the "persistent" feature on the Internet2 ION interface will create a circuit for a period of two years. If the circuit is required for a longer period, you can either manually set the end date or renew the circuit as it nears its ending time. When three months remains on the reservation, notifications will be sent out at regular intervals as reminders that the reservation is ending.
- Configure your Internet2 ION circuit using the **simple and secure web interface found at <https://ion.net.internet2.edu/ion>**. Creating circuits through this interface does not require the assistance of the Internet2 NOC. The web interface allows users to reserve a circuit in advance or create it in real time. It also provides the ability to easily save, cancel or modify circuit requests as needed. Users must contact a designated local or regional Internet2 ION administrator to establish an account to use the Internet2 ION interface.
- **Choose a customized capacity** for your circuit, ranging up to the total capacity available on the physical link between your site and the Internet2 Network. There may be limitations on some backbone link capacities. The initial default setting for the backbone links is 2 GB.
- **Depend on 24x7x365 Internet2 Network Operations Center support.** Support personnel will assist with reservation problems, performance issues on existing circuits or other problems that may arise.

Resources

- [Internet2 ION Statistics](#)
- [Internet2 ION working group collaboration space](#)
- [About Internet2 ION\(PDF\)](#) – information sheet
- [Internet2 ION FAQ\(PDF\)](#)
- [Internet2 ION: How To Connect\(PDF\)](#)
- [Internet2 ION installation instructions](#)
- [Connectors' Internet2 ION-enabled status](#)