Internet2 members are developing and testing technologies that will enable tomorrow´s commercial Internet to provide the reliable performance required by advanced network applications. Multicast is one of the new network technologies already being deployed among Internet2 members.

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Internet2 Multicast

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Multicast is a set of technologies that enables efficient delivery of data to many locations on a network. In today's Internet, the dominant model of communication is "unicast" — the data source must create a separate copy of the data for each recipient. When there are many recipients, and when large amounts of data (e.g. streaming video) are being sent, unicast becomes prohibitively wasteful of bandwidth. The key idea behind multicast (see diagram on right) is to create each recipient's copy of each message at a point as close to that recipient as possible, thus minimizing the bandwidth consumed.
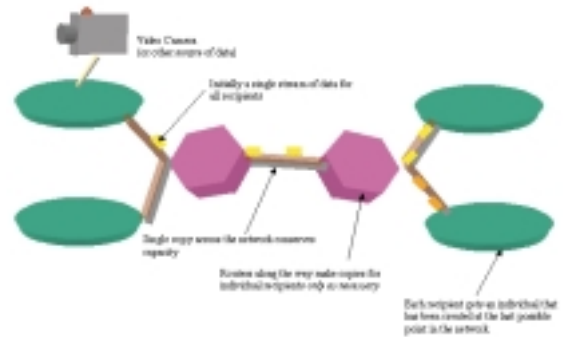

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Network multicast capability is crucial for distance learning, digital video libraries, online collaboration tools, and other types of advanced applications important to research and education. For this reason, Internet2 members are at the forefront of multicast deployment. The Internet2 backbone networks vBNS and Abilene, as well as many Internet2 regional and campus networks, have fully deployed multicast. Multicast is routinely used to distribute better-than-TV-quality video to thousands of viewers at Internet2 universities. The Access Grid (left) enables the creation of an always-on "virtual venue", a kind of global conference hall.

In contrast, largely because of the absence of open and universally-agreed-upon standards, commercial multicast deployment has been slow. Through the work of Internet2's industry partners and of standards bodies such as the Internet Engineering Task Force, the technologies being tested in the Internet2 multicast effort are now making their way into the global Internet.

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