

Transportable Satellite Internet System

OARnet, ITEC-Ohio, and The Ohio State University have partnered with the American Distance Education Consortium (ADEC), through its Advanced Internet Satellite Extension Project (AISEP) to design and construct a trailer-mounted Tachyon Transportable Satellite Internet System (TSIS) for developing advanced satellite Internet technology. This project is partly supported by funding from the NSF and the Ohio Technology Action Fund. The project will focus on providing advanced networking applications to geographically remote locations and other sites lacking terrestrial connectivity.

This project will lead to new partnerships through technology in order to meet the educational needs of teaching and distance learning throughout the country. The project will also assess Quality of Service (QoS) capabilities in the delivery of broadband distance education applications through the TSIS.

The TSIS includes a local wireless capability that can penetrate the wall of a nearby building, and provide normal 802.11b connectivity inside the building. It also includes a generator and batteries, is totally self-contained, and can run for more than 24 hours unattended. The system is designed so that it can be set up and operated by one person.

The goals of this project are threefold: (1) To expand the learning opportunities of Ohioans. (2) To focus on the fundamental science and technology needed to facilitate the efficient, high-speed transfer of information through Internet2 and other networks, and distributed systems using a TSIS. (3) To create best practices while designing, fabricating and operating the TSIS.



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For more information go to
Satellite Project at OARnet's Web Site:
www.oar.net



A Collaborative Partnership of:

- American Distance Education Consortium
- ITEC-Ohio
- OARnet
- The Ohio State University

Networking:Research:Connectivity:Solutions:Routers:Websites:Service:Design:Support:Management:Bandwidth:Reliable

PATENT PENDING

Bridging the Digital Divide

Businesses and organizations rely on their networks more than ever as bandwidth needs rapidly increase. Yet, lacking terrestrial network infrastructure limits its reach to many essential locations. Complete Internet connectivity solutions that are mobile, flexible, scalable, secure, affordable and readily available -- no matter how geographically remote a physical site may be -- solve last-mile connectivity challenges and help bridge the "digital divide."

To address the digital divide problem in business and education, a partnership has been formed between OARnet, ITEC-Ohio, the American Distance Education Consortium (ADEC) and The Ohio State University (OSU). A research grant from the National Science Foundation funded developing the Transportable Satellite Internet System (TSIS), which allows Internet connectivity anywhere, anytime. TSIS has been successfully deployed across the United States for many purposes.

Encouraged by OSU to transfer technology to market, TSIS is being commercialized via Transportable Internet, Inc. (TRANSNet), in partnership with OSU and TSIS inventors.

TSIS offers a ubiquitous solution for broadband connections to any location. This seamless resource provides high-speed Internet access directly to the end user by supporting videoconferencing, telephony, Web-based and collaborative applications, training and educational materials, e-mail, and access to databases and the public Internet.

With increased security issues and travel costs, TSIS provides a proven technology with many economic implications for rural and underserved areas in Ohio and other states.

Applications

TSIS and its broadband capabilities have virtually endless applications. Following its construction, TSIS was successfully demonstrated more than 30 times throughout the United States at OARnet and ITEC-Ohio events, educational conferences, OSU's outreach programs, ADEC events, and with other participating and partner organizations.

Since these successful tests and field deployments, we have identified many other TSIS applications. They include:

Telemedicine:

- *Real-time monitoring and consultations between doctors at established facilities and remote areas without medical equipment and communication capabilities.*

Construction and Engineering:

- *Remote monitoring of construction sites from any location, saving time and money.*

Education:

- *Real-time interactions between students and educators at remote sites.*

Disaster Recovery:

- *Instant communications and live video conferencing between rescue units and organizations when traditional means of communication have been destroyed.*

National Defense and Homeland Security:

- *Coordinates efficient communication and resource deployment across business and government lines.*

Special Events:

- *Short- or long-term Internet connectivity for conferences, auctions, entertainment, etc.*



Transportable Satellite Internet System

The Transportable Satellite Internet System (TSIS) provides advanced networking applications to geographically remote locations and other sites lacking terrestrial connectivity.

Capabilities:

- *Provides real-time, two-way video conferencing*
- *Enables videostreaming*
- *Powers external peripherals such as laptops and other electrical equipment*
- *Supports up to 124 PCs at one time*
- *Provides scalable architecture*
- *Provides remote telephone service through IP telephony using 900Mhz cordless telephones and/or fax machines (optional)*

TSIS Specifications and Features

- **Dish size:** 1.2 meters
- **Satellite access:** Tachyon transponder on AMC-4 satellite
- **Frequency:** Ku band 12/14 GHz
- **Trailer specifications:** 12 ft long, 6 ft wide, 5 ft high, 1160 pounds
- **Power sources:** UPS batteries (1750 watts) for at least 4-8 hours, generator (2800 watts) operates for 3 days; 200 ft extension cord for local connection
- **Data bandwidth:** 1.5 Mb downlink, 512 Kb uplink, lower speeds available at lower cost
- **Internet connectivity:** both Internet2 and the standard Internet
- **Local wireless network:** standard IEEE 802.11b, 2.4 GHz. Range: 1000 feet omni-directional, several miles point-to-point, penetrates multiple building walls
- **Portable LAN:** wired and wireless access to existing indoor LAN
- **24-port Ethernet switch**
- **Internet telephony**
- **Internet videoconferencing**
- **Wireless PDA access**