CONCERT Network

Address:
CONCERT Network
MCNC
3021 Cornwallis Road
P.O. Box 12889
Research Triangle Park, NC 27709

Email: info@concert.net

Phone: (919) 248-1999

Description

CONCERT (COmmunications for North Carolina Education, Research, and Technology) is a private telecommunications network owned and operated by the Center for Communications at MCNC to interconnect universities, research institutions, graduate centers, non-profit organizations, government laboratories, and industries in North Carolina, permitting timely participation in research and education projects. The CONCERT Network Operations Center is located at MCNC in Research Triangle Park.

CONCERT is actually two networks; one for video, one for data. Both are carried over CONCERT's private microwave facilities that span 453 path miles from Asheville in the west to Greenville in the east.

CONCERT OBJECTIVES

- Provide and operate an advanced communications network for research and education.
- Build a collaborative university and industry program.
- Serve as a test bed for next-generation services and systems.
- Participate in the deployment of National Research and Education Network (NREN) for North Carolina.
- Develop high-performance capabilities in visualization, supercomputing, and distributed systems.

VIDEO NETWORK

CONCERT utilizes two duplex analog NTSC video channels that function as a multi-way, interactive videoconferencing network to encourage research, education, and technology transfer. An additional duplex video channel connects the state's four medical schools. The interactive video channels provide face-to-face communications capabilities among all institutions. Each institution has videoconference and video teleclass facilities.

Specific programs and applications include:

- videoconferencing capabilities for researchers and faculty;
- graduate and extension courses in a variety of disciplines;

- seminars in supercomputing and high-performance computation;
- research collaborations among members of the research community;
- scientific and technical seminars and workshops; and
- medical courses and programs.

Sixty percent of the available video network time is booked for courses and regularly scheduled seminars, with the remaining time reserved for meetings and conferences. This open time provides researchers and faculty the opportunity to meet as required with little prior notice.

DATA NETWORK

The CONCERT data network functions as a mid-level TCP/IP network providing access to the INTERNET, a collection of data networks across the nation and world interconnecting universities, government agencies, national laboratories, non-profit research organizations, and industry. Through CONCERT, North Carolina researchers from academia, government, and industry have access to these resources as well as electronic mail and USENET news for communications, learning, and collaboration with colleagues.

The CONCERT network is built from an interconnected collection of IP routers spanning the state. T3 links are utilized for the Triangle campuses; T1 circuits for institutions outside the Triangle area. More than 10,000 computers and workstations are interconnected across North Carolina.

CONCERT-CONNECT

CONCERT-CONNECT, a program of the MCNC Center for Communications, provides North Carolina businesses and industry an opportunity to gain access to state and national research and education resources through the INTERNET. CONCERT-CONNECT can provide a company a significant competitive edge in research and development.

Businesses and industry interested in connecting to CONCERT can use the network for collaboration, research, and education. Network connection provides users with access to email, bulletin boards, various databases, and other network and institutional resources. Connection to CONCERT can be achieved by direct network connection at 56 Kbps or T1 speeds, or by three dial-up modem services: Serial Line Internet Protocol (SLIP); individual UNIX accounts; UUCP Mail/News.

COMMUNICATIONS RESEARCH

The primary purpose of the research activities is to leverage the evolution of CONCERT to support advanced educational uses of the network and communications research in North Carolina. The existing network and established userbase is utilized as a testbed, and the focus of the research is joint activities among MCNC, the universities, and industry. Projects tend to emphasize use of standard network technologies, supercomputing communications applications, and methods to use networking to enable collaboration by providing virtual proximity capabilities.

Currently Funded Projects:

- Atila-development of a prototype network analysis- evaluation-management system for Asynchronous Transfer Mode networks.
- VISTAnet-a testbed that provides a 2.488-Gbps wide area network connecting the CRAY Y-MP, the Pixel Planes graphic processor, and SGI 340 VGX. Research programs center on meeting the challenges of gigabit networking: efficient

communications, distributed computing, and applications. (Partners: BellSouth, GTE, UNC-Chapel Hill, NCSU, CNRI.)

- Shared X-Windows/Workstation Collaboratory-a joint program with NCSC and UNC-Chapel Hill emphasizing remote interactive graphics on high-end workstations located in CONCERT video- conference rooms. Advanced visualization applications and shared computing environments are featured.
- Traffic Characterization-a study to measure and mathematically characterize the traffic statistics (packet length and interarrival times) of CONCERT.
- Packet Video-seeks to make evolutionary changes to TCP/IP protocols to support interactive video traffic.

Network Access

Any research facility, educational institution, non-profit organization, government laboratory, commercial company, or individual may join the network under either education/research or commercial options.

Who Can Use the Network

Use of CONCERT and/or the Internet is subject to appropriate acceptable use policies of the various constituent networks. CONCERT maintains agreements that permit both research/education organizations and commercial service providers to connect to the Internet.