

The NMFEC Network Enables Any User to Log on to a Main Computer

The NMFEC network is a general-purpose network designed to provide users with reliable input/output of text and graphics data. The network enables any terminal to log on to any host computer. The network interconnects:

- All computers at the Center, including its large mainframes, its User Service Center (USC), and its User Service Station.
- Remote USCs that support local computing, experimental data acquisition, printers, and terminals.
- Remote USSs that support printers and terminals.
- The Advanced Research Projects Agency Network (ARPANET) via the User Service Center at the NMFEC.
- Dial-up terminals via TYMNET and commercial telephone lines.

The major trunks of the network are 56,000-bit/second satellite links, which are much cheaper and more reliable than the telephone lines they replaced. The branches off the trunk are 4,800- or 9,600-bit/second leased telephone lines. The NMFEC monitors and maintains the communications subnetwork, which controls the flow of messages between the computers. (Sites connected by satellite links and land lines are shown in Fig. 4.)

User Service Centers at Six Locations

The NMFEC network was planned to allow broader, faster service and more effective use of the main computers. Accordingly, local computing and output capability was provided at the "secondary" USCs, which are physically located at national laboratories, major universities, and a few private corporations--the places where the population of MFE researchers is concentrated.

Each USC houses a DECSys-10 KL computer, which is connected to the NMFEC network (so that the USC can function as a remote output and job-entry station) and to a local network (to acquire experimental data from fusion experiments). Each USC also functions as a terminal concentrator that links local, directly controlled, and dial-up terminals to other computers on the NMFEC network. Each USC can handle text editing, compilations, and graphics display, as well as run smaller programs that do not require the power of the mainframe computers at Livermore.

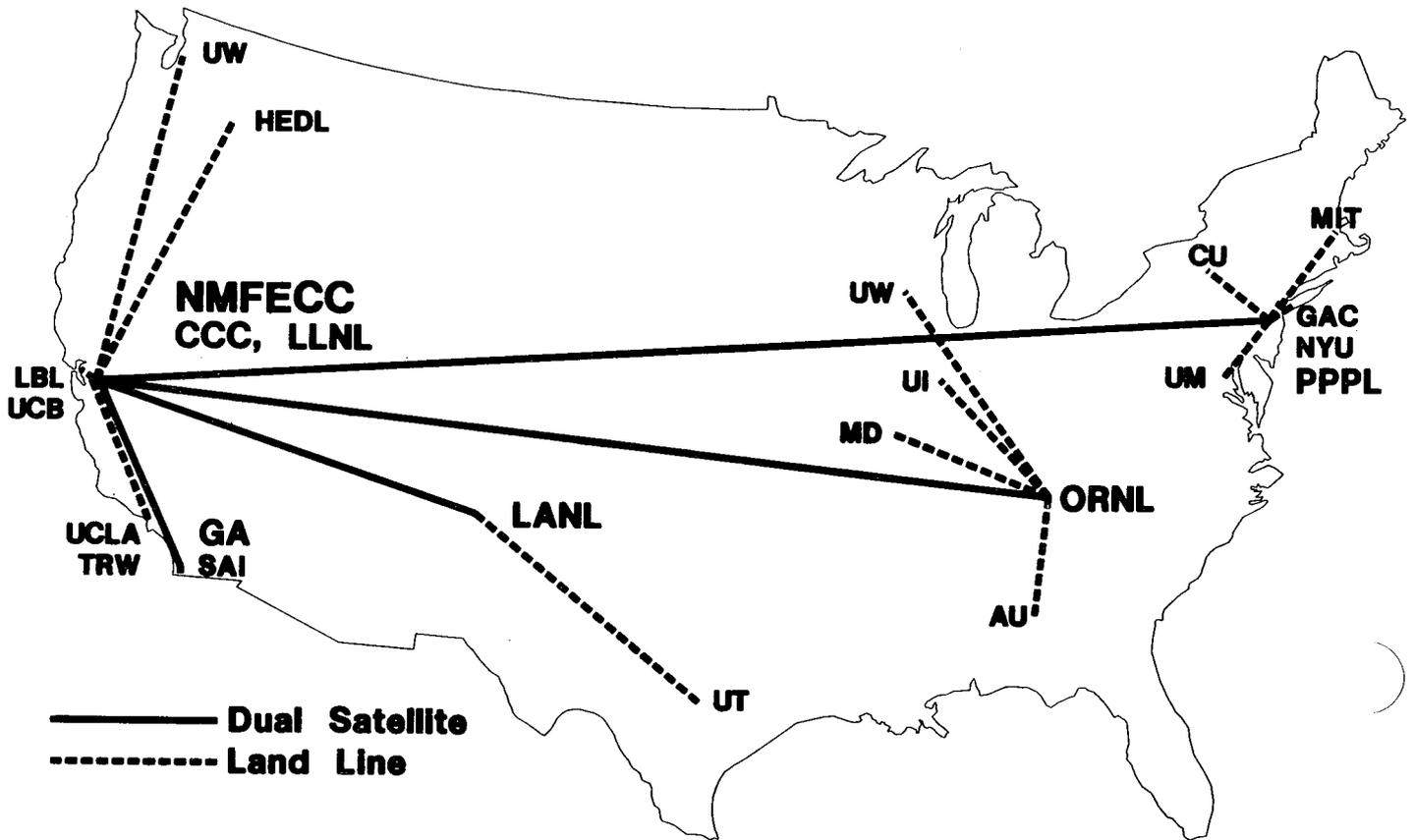


Fig. 4. Sites connected to the network by satellite or by land lines.

Several sites have chosen to base their operation on computers other than the DEC-10. For example, researchers at the University of Texas have written software that enables their DEC VAX-11/780 to connect to the network with a Network Access Port (NAP) that was developed and is maintained by the NMFECC. This software is shared with other institutions.

Remote User Service Stations Serve Eight Locations

Sites that do not need the complete capabilities offered by a USC may opt for a RUSS, which is a terminal concentrator and printer with a link to the network. An "economy model," the mini-RUSS is also available. The mini-RUSS economizes on the printer in its system and on the number of terminal lines it supports.

Remote Dial-up Terminals Are Also Available

Dial-up capability gives isolated users direct access to the main computers and to all other network hosts. Complete online documentation remains accessible for terminal display. Consultants are available--either through electronic mail (see the online documentation for TELL and MESSAGE) or by personal phone call. Hard-copy output for remote users is printed in Livermore and delivered by U. S. mail or by contract carriers.