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Code 672 Observational Science Branch Computer Networks

by

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In general, networking increases productivity due to the speed of transmission, easy access to remote computers, ability to share files, and increased availability of peripherals. Two different networks within Code 672 Observational Science Branch are described below.

The Observational Science Branch Local Area Network (OSBLAN) supports a Gould PowerNode 6000 super-minicomputer, two Sun workstations, and a PC network consisting of MS-DOS personal computers (Figure 1). OSBLAN uses the Transmission Control Protocol/Internet Protocol (TCP/IP) on Ethernet cabling and is bridged in turn to NFSNET/ARPANET at GSFC via a Proteon gateway machine.

The Gould and Suns run under Unix operating systems that support NFS (Network File Sharing). OSBLAN PC systems use the Sun Microsystems PC-NFS network software for DOS. PC-NFS uses the central-server approach to networking which means that all network PCs share disk space on a central server system, currently the Gould. Users share and exchange files with little effort, and remote logins and file transfers to computers on the network are easily achieved. Output data can be spooled to one of four printers on the OSBLAN. A user does not see the difference between his files being on a local physical hard disk or on the file server disk. The files on the server can be easily

accessed by other users by the permissions given. DOS files can be converted to Unix and Unix files to DOS by provided utilities. Sun local disk files are backed up using the Gould tape unit. The PC local disk can be copied to the Gould and then backed up on 9-track tape. From OSBLAN, users can exchange data with computers on the three major Wide Area Networks (WANs): ARPANET, BITNET, and DECNET. Data to the Division 670 Vax computer at GSFC can be exchanged over the network. NASAMAIL and GSFCMAIL can be sent from any computer on the network. The communication with the WANs uses the Proteon gateway with a 9.6 kilobaud direct line.

A second network, the TOPEX-MORAR Network (TMNet) connects MacIntosh and MS-DOS personal computers (Figure 2). TMNet is configured in an active star topology and was implemented by using the old AT&T phone lines that existed in the E-106 building. The network allows MacIntosh and MS-DOS computers to share disk space, transfer and translate files, and use network output devices. Network output is currently handled by an Apple LaserWriter Plus with a second laser printer on order. The TMNet uses TOPS for its network software and AppleTalk cable connection. TOPS is a distributed server network which means any connected system can be a file server with each user deciding what files to make available on the network. TOPS works transparently, therefore, the network files look like MacIntosh files on the MacIntosh and MS-DOS files on PCs. TOPS comes with translators for the most popular MS-DOS and MacIntosh file formats. In the future, plans are to bridge the TMNet to the OSBLAN by using a Kinetic Fastpath machine.

**OBSERVATIONAL SCIENCE BRANCH LOCAL AREA NETWORK SCHEMATIC**  
**BUILDING E-106 WALLOPS FLIGHT FACILITY**  
**WALLOPS ISLAND, VIRGINIA**

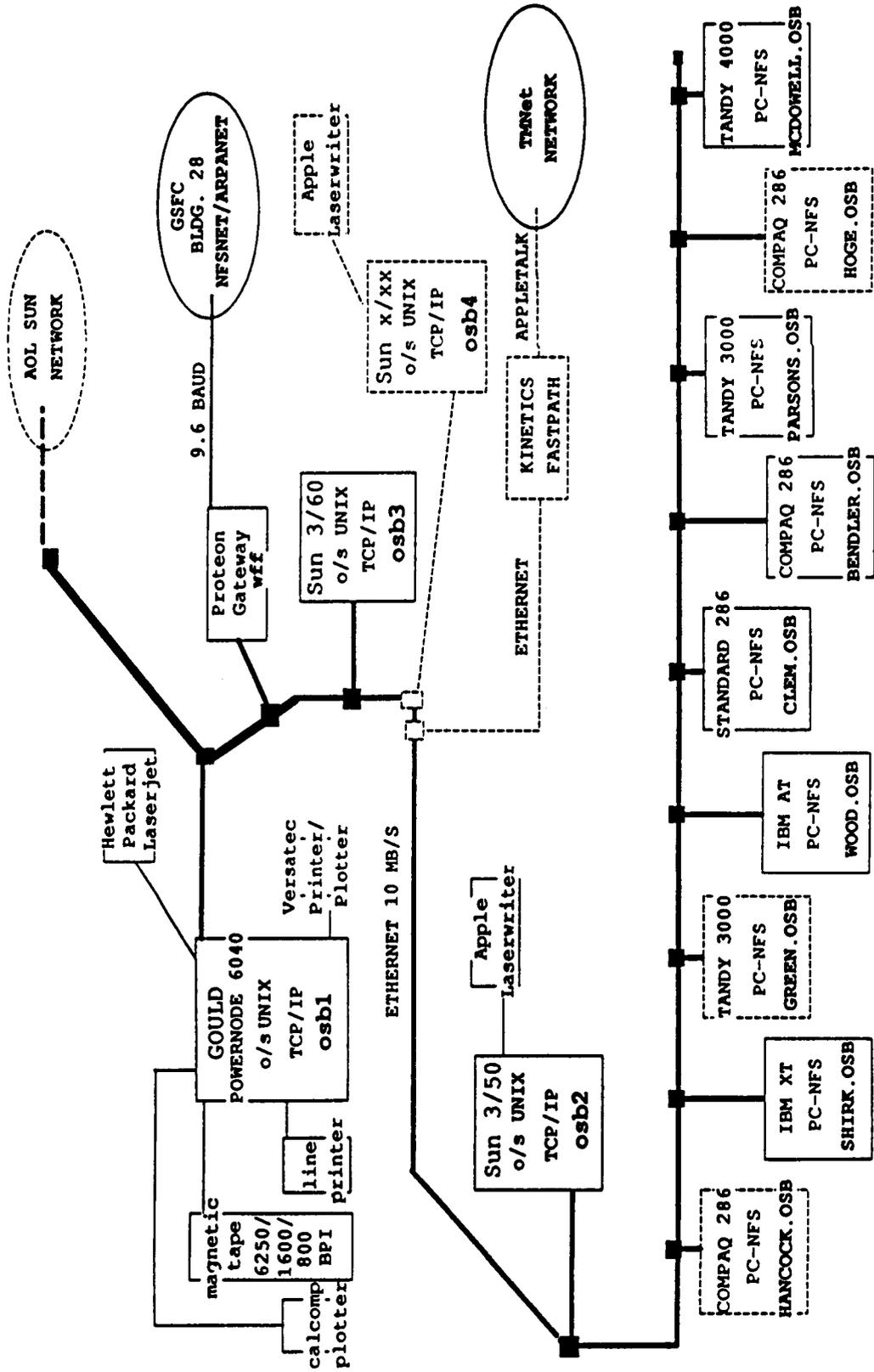


Figure 1.

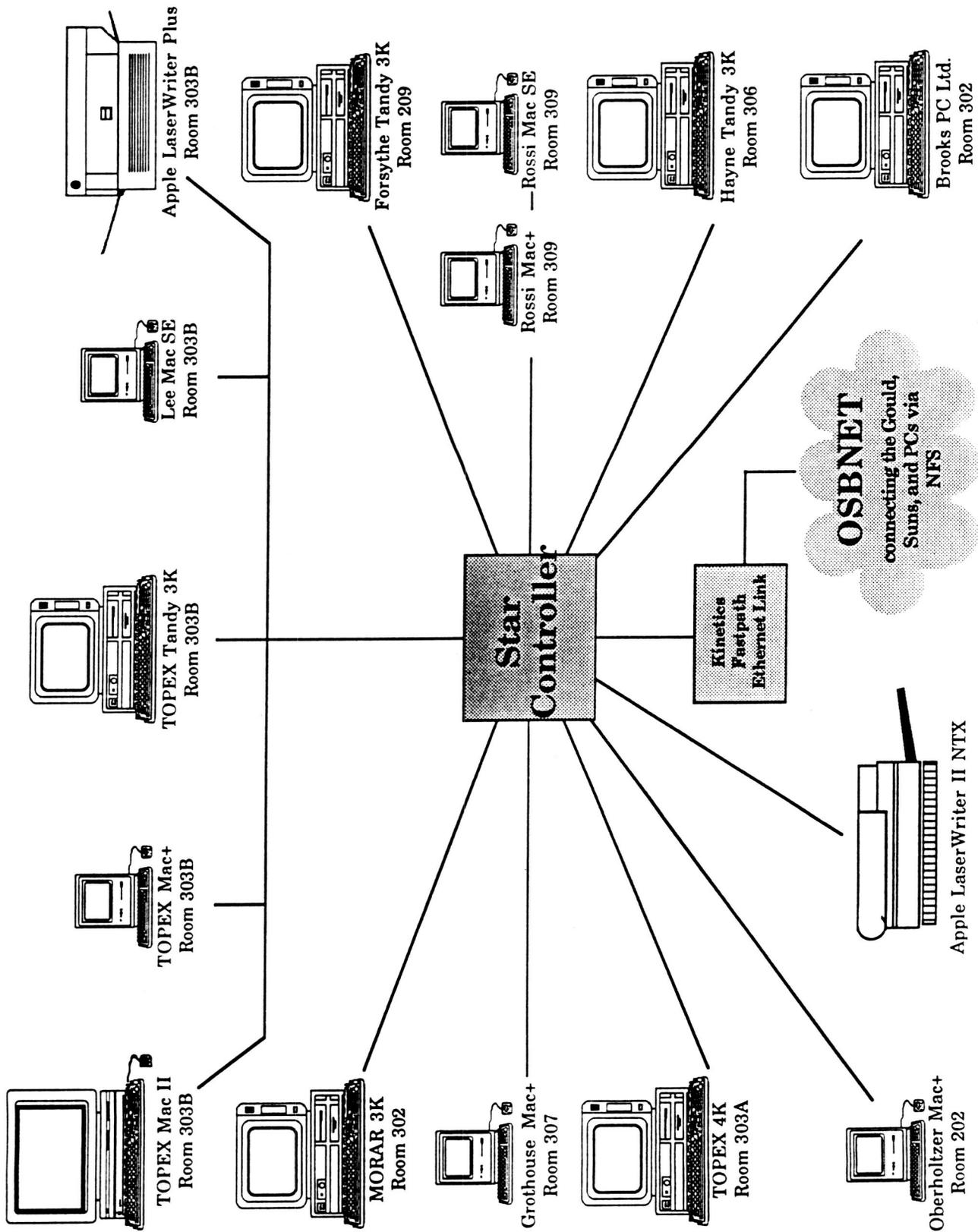


Figure 2.