

WANGNET, A CABLE-BASED LOCALNET

Jay Jubert

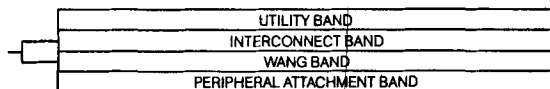
WANG LABORATORIES, INC.

ABSTRACT

WangNet is a hybrid office network which includes data, video, audio, and facsimile. WangNet was designed to meet the growing demand in all forms of data transmission. The design can be configured to be a complete local area, multivendor, computer communications network--down to a point-to-point application.

Wang Laboratories, Inc., as a manufacturer of computers and data transmission equipment, is dedicated to the efficient utilization of information through broadband/coaxial cable.

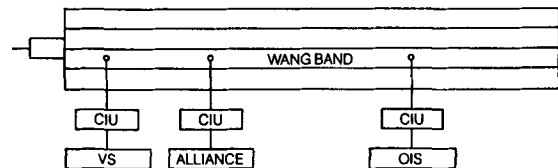
WANGNET'S MULTIPLE SERVICES



Information takes many forms--Video, Data, Audio and Facsimile. In the modern business environment the many different types of equipment used in handling information should be connected to share resources--this connection is WangNet. WangNet can be characterized as a private cable system for office use. WangNet is designed in a tree configuration, like many cable systems, and can be the size of a room, a high-rise or a campus and gatewayed to a cable TV system for Metro transmissions to other WangNets or to individual information users. WangNet is a broadband, frequency multiplexed network as opposed to baseband, which restricts only one user to a cable.

According to the U.S. Department of Commerce figures, by 1985 data transmission will represent about \$22.5 billion in domestic telephone company revenues, which is an increase of 642% over those of 1979.

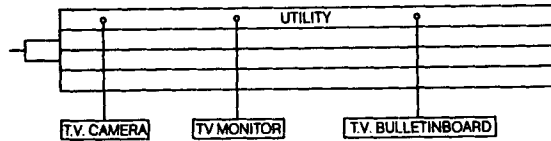
WANG BAND



WangNet is designed to help accommodate this enormous data requirement by utilizing standard reliable cable TV components with a spectrum allocation of 340MHz, divided into four major groupings. The utility band is for video and is transparent for many RF users--the Wang Band is for the interconnection of Wang computers and word processors. The interconnect band is utilized for the connection of equipment of many different manufacturers such as IBM and Digital. Finally, the peripheral band is used to connect printers and remote workstations to host computers. Each band accommodates different data speeds, protocols and line utilizations providing an extremely flexible network.

Wang studies of office information flow have concluded that a dual cable systems offers the most efficient design to handle present and future office needs, with one cable dedicated for upstream traffic, the other downstream. This dual cable design is actually a one cable design looped back over itself or in other words an elongated "U", which is terminated at the ends, with all amplifiers aligned up in the same direction.

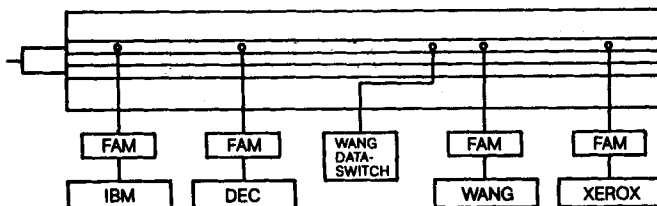
UTILITY BAND



The utility band has a 42 mHz slice of the spectrum broken up in 7 TV channels, corresponding to VHF TV channels 7 through 13. This spectrum is for non-Wang RF devices such as closed circuit TV, teleconferencing, video security, training or any devices which can use CATV spectrum.

INTERCONNECT BAND

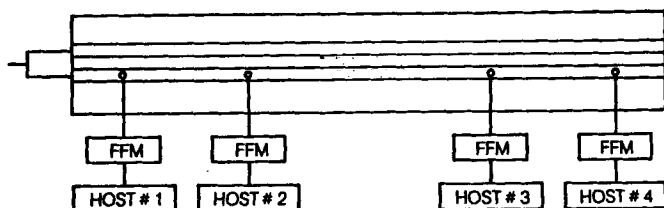
• SWITCHED SERVICE



The interconnect band has three sub-divisions. Two groupings are comparable to telephone leased lines and the third is for switched channels. All interconnect band channels are protocol independent and support virtually any manufacturers equipment. The switched

INTERCONNECT SERVICE

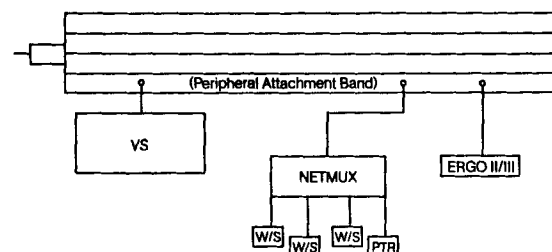
• DEDICATED SERVICES



band has 256 channels which are available at speeds of up to 9600 bps by using a Wang frequency agile (FAM) modems. This switched capability provides point-to-point or multipoint information transfer. Each frequency agile modem is controlled by a Wang data switch which selects available frequencies and addresses, by continually polling all FAMs to keep track of their status and the availability of each channel. The two dedicated interconnect sub-bands include 64 channel allocations at speeds of up to 9600 bps and 16 channels for speeds up to 64,000 bps. Both dedicated channel groups require Wang fixed frequency modem (FFMs) to be used between compatible pieces of equipment.

The Wang Band is composed of a 12 megabit channel for the use of Wang Word Processing and Data Processing equipment. The Wang Band uses CSMA/CD contention protocol and a variable length HDLC packet protocol. Network connection is accomplished through a Wang cable interface unit (CIU) which is a general network processor that also has extensive diagnostic and network administration capabilities. Wang Band Facilitates data base file and document transfers, electronic mail as well as many shared resource functions. Up to 16,384 devices can be connected to the Wang Band.

PERIPHERAL ATTACHMENT BAND



The peripheral attachment band is a means to attach thousands of workstations and printers to larger systems on the network in order to increase productivity through resource sharing.

In its announced form, WangNet addresses the need for simultaneous flow of highly diverse information forms within a facility. However, recent studies indicate that while up to 80% of the information generated stays within this facility, this still leaves 20% destined for branch and regional offices. As a result, capabilities to be announced in the future include high

speed "gateway" services between facilities, perhaps using in-plant CATV cable for these purposes. We believe that the choice we made several years ago of broadband technology for local networking will allow us the flexibility of using this technology to meet the communication challenges of the eighties, for both local and remote communication networking.

I would like to acknowledge Bill Rosenberger and Mark Stahlman for their input.