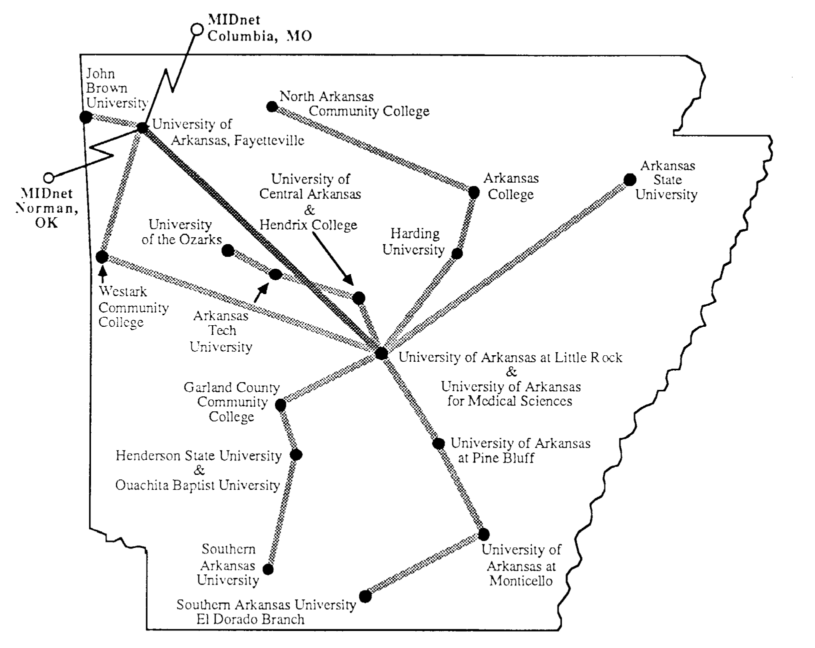
- KRNet - Kansas Regional Network
- MORNET - Missouri Research Network
- MRNet - Minnesota Regional Network
- NYSERNet - New York State Education and Research Network.
- OARnet - Ohio Academic Resource Network
- PREPnet - Pennsylvania Research and Economic Partnership Network.
- THEnet - Texas Higher Education Network
- VERnet - Virginia Education and Research Network
- WiscNet - The Wisconsin Network

ARKnet - Network Design



MIDARK has as a potential extension a GISnet used specifically for the exchange of geographic data.

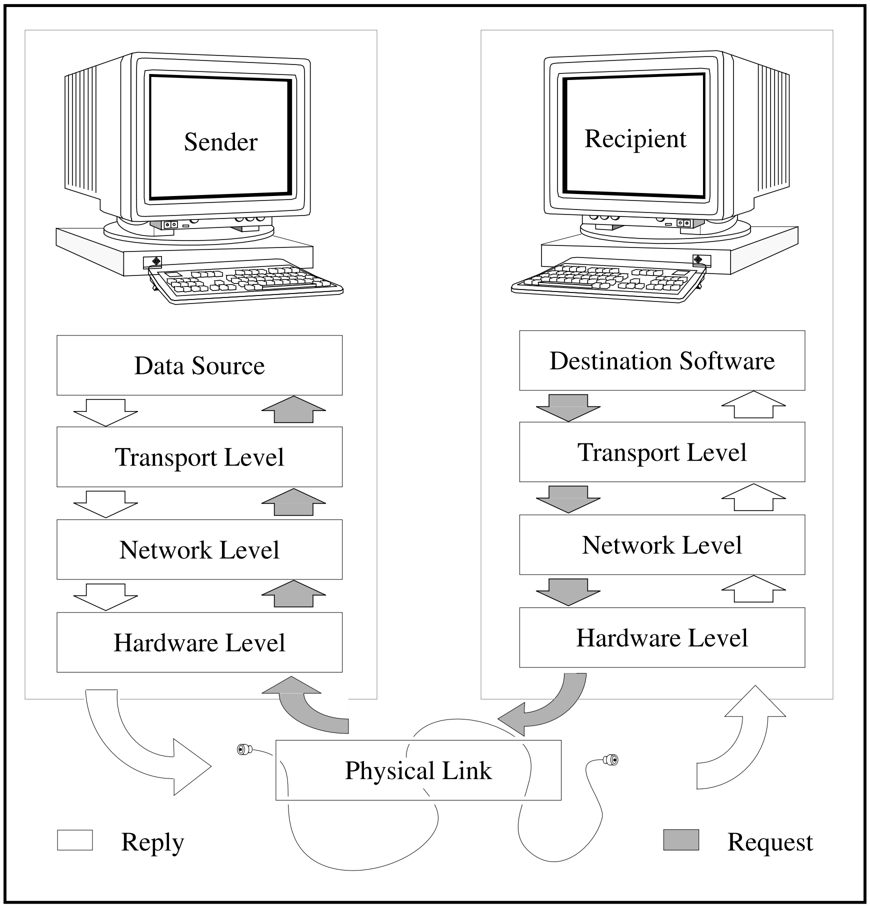
Network Protocol:

Since the cable connecting several computers on a network is carries information for all of the computers on it, a means for controlling the flow of information to and from specific computers is necessary. This is accomplished by using a network protocol which formats transmissions that travel over the network.

Usually, data is sent in packets or chunks rather than all at once.

This is for a couple of reasons; 1. since the network is shared, sending large amounts of data i n a steady stream would "hog" the network forcing others to wait, and 2. parity checking is used to make sure that data has been correctly received and in the case of a bad transmission it is easier to retransmit a small packet rather than a large one.

Preparing data to travel over a network involves both software and hardware. Four steps (levels) are used on both the sending and receiving computers; a software/data level, a transport level, a network level and finally a hardware level. See the diagram below.



The software/data level interacts with the software and data in use by the user. It implements new software routines which begins the process of preparing data for transmission. Some common software protocols are telnet, ftp (file transfer protocol) and DNS (Domain Name Service).

The transport level serves as a link between processes running on separate machines by making them appear as one to the software/data level.

The network level determines how the data is to be transmitted and where. At this stage destination id's are attached to packets before transmittal. This level also receives incoming by looking at packet id's and "pulling off" those addressed to it. Upon receipt of a packet the network level forwards the packet to the transport level for decoding.

The hardware level is what actually transmits the packets as voltages out onto the network. A common type of hardware level protocol is the Ethernet protocol.

Summary:

Several hardware components make up a GIS. Some of those are CPU and hard disk, graphics terminal, printer, plotter, and digitizer. Additional components include networks which can be used to share data and resources between individual computers making the whole of the network a greater utility than the sum of its parts.