DON’T GET CAUGHT IN THE NET

UNDERSTANDING LANs, WANs, MANs AND FRONT-END NETWORK SOFTWARE

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UNDERSTANDING LANs

Understanding LANs, WANs, and MANs and their associated front-end software is a bit like changing a tire on a fast-moving car. The technology behind them is advancing so rapidly, it’s difficult to get a fix on where things stand now. So let’s begin with some basic definitions and concepts.

- A computer network links multiple computers together, allowing them to share files, printers and other peripheral devices. Networks also transfer data communications, including voice and fax.

- A LAN (Local Area Network) is a computer network typically restricted to one building or group of buildings in one place, such as on a campus.

- A WAN (Wide Area Network) takes in a geographical area. It connects LANs over a wide area via phone lines, satellite links or data packet carrier service.

- A MAN (Metropolitan Area Network) is limited to a geographical area typically covering a 25-mile radius.

- The Internet, of course, is the broadest network of all. Virtually any and every LAN and WAN can be connected to the Internet.

- Front-end software is not part of the network. It’s the software building owners and maintenance engineers use to communicate with the building’s HVAC system. Communication can be within the site, or remote from thousands of miles away. Specifying the most suitable front-end software is crucial to your customer’s application and satisfaction.

IMPORTANT SPECIFICATION CONSIDERATIONS

When specifying front-end software, critical factors are the type of network to be used and the possibility of future technological developments should the building’s size or function change.

Field experience has shown that using software designed and developed by the HVAC system’s manufacturer helps ensure both compatibility and expandability.

WHAT IT ALL MEANS

The term “LAN” means different things to different people. Some think of a LAN as a place to store files and access software, which is entirely accurate since LANs have a central computer or file server for that purpose.

Others refer to it as the physical wiring and connections that network all PCs in a building or group of buildings – also accurate, because the PCs need to be connected to perform their data communication tasks. Today, these tasks can even be accomplished using wireless technology.

FRONT-END SOFTWARE

Front-end software, such as Carrier ComfortWORKS, supports LAN and WAN networks. ComfortWORKS is compatible with Ethernet, Token-Ring and other common LANs supported by Microsoft Windows NT – the most widely used server operating system.
According to a recent survey, Windows NT's market share has soared since its launch in 1992. Dan Kusnetzsky of International Data Corporation states that Windows NT will control more than half of the server operating system market by 2002 (Red Herring, November 1998, p. 42). This makes the across-the-board compatibility of ComfortWORKS an asset to any network.

A LAN with Windows NT computers can use Microsoft's LAN protocol, called NETBUI. LANs and WANs supporting routers for Novell or other types of operating systems require TCP/IP (Transmission Control Protocol/Internet Protocol). To be on the Internet, a computer must have TCP/IP-compatible software.

**USING ComfortWORKS WITH HVAC CONTROL NETWORKS**

Support for networks is set up in ComfortWORKS by entering the control panel and selecting the network icon, then adding an adapter (NIC) from the list of those supported (Windows NT should automatically find this hardware). The MS Loopback adapter should be selected only for stand-alone computers without a network adapter.

Once an adapter is selected, NT asks if the user wants to install the network protocol TCP/IP. The answer depends on the type of network the user wants to be connected to. As described earlier, a LAN with Windows NT can use NETBUI. LANs and WANs supporting other routers will require the TCP/IP.

ComfortWORKS can be installed as a ComfortWORKS server two ways, on a Windows NT workstation or a Windows NT server. Basic LANs are typically installed as part of a workgroup, since an NT workstation can provide the same security and capabilities as a server.

When installing a network adapter, the control panel prompts the user to supply a computer name and workgroup name. The workgroup default name is, logically, “Workgroup.” Left unchanged, it automatically designates the user as part of the default workgroup. “Network Neighborhood” allows the user to see and share files with all other computers in the workgroup and access any shared folders or files on the network.

The most common reason for installing ComfortWORKS on an NT server is so it can act as a domain server, which can be used to create an exclusive group of users and computers (a “domain”) on the LAN or WAN. The domain server processes all log-ins and only allows authorized users and computers to see and share files with other computers in the domain. A domain administrator manages the accounts and establishes what each domain user is able to access or share.

**SPECIFYING ComfortWORKS**

Customer input is critical when choosing a ComfortWorks single- or multi-user software package.

Both have full networking support designed in. The single-user version can reside on a network with multiple client PCs, but only allows one ComfortWorks user to log in and perform operations at a time. The multi-user version can support an unlimited number of clients, and permits 15 users from 15 different workstations to log in and perform operations simultaneously.

Windows NT clients may also support communications to Carrier control devices through one of the communications ports on the client. That means a number of Carrier Comfort Networks can be linked via a LAN or WAN, with one dedicated computer functioning as a ComfortWorks server and multiple ComfortWorks clients communicating on the network.

When specifying, be sure to work closely with your customer's network administration group to obtain a complete definition of the system architecture. If you have questions concerning applications, check with application engineering.

Most customers should have a network support group. Be sure they receive training and documentation on how ComfortWorks will be set up on their network. If possible, allow the customer's network group to program all networking parameters, including IP addresses and protocols.

Remember, this network system will be theirs to support once the software is installed and running. They need to receive any and all information required to support the software.

For valuable assistance and information about LANs, WANs and MANs, please refer to the sources listed below.

**SOURCES**

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