

LAN - Local Area Network

Whether it's a server, desktop PC, printer, single computer or a building full of computers, PenTeleData will design, build, implement and support a custom-tailored Local Area Network (LAN) for your company's needs. PenTeleData gets the job done – from physically running structured cable, right down to plugging in your desktop PC. Yes, we know there are a number of companies out there that deploy LANs, etc. However, PenTeleData is unique: not only do we do what the others do, but PenTeleData does it more often – and better. We've assembled the finest staff employees to do one thing – serve you better and faster than anybody else can. We have a trained and certified staff of Engineers, Sales Engineers and Integration Specialists ready and waiting. Best of all, this staff is centrally-located right here in Pennsylvania – in your backyard. That makes PenTeleData not only different, but better. Simply put, we provide our customers with Smarter Business Solutions.

What is a LAN?

A Local Area Network (LAN) is a number of computers or other IP devices connected together in a localized geographic area. For example, in one room, building or several buildings, LANs are typically connected to each other via cable and – more recently – via radio waves. In an office building for example, workstations and personal computers (PCs) are commonly connected to each other with a Local Area Network. This allows employees' equipment to communicate – send and receive files, share access to the files or data on another workstation – even share applications. One obvious benefit of building a LAN is the efficiency of transporting data from one location to another. And because of the technology engineered into the modern-day LAN the transmission speed of data, across the LAN can be measured at more than 1,000 times the speed with which you transfer files using a standard 56k modem.

Types

In today's world, there are three basic types of Local Area Networks. They can be categorized as Wired, Wireless and a combination of both networks.

The Wired LAN: A Wired LAN is created by connecting various IP-based items (PCs, Printers, Terminals, Servers, etc) via a structured wire system (follows 802.2 IEEE Standard). Today, the most common cable used in a Wired LAN is "Category 5 cable", or Ethernet. However, based on the desired speed, there are three common cable types: 10BaseT, 100BaseTx and Gigabit Ethernet. Today, a Wired LAN is the most common and widely distributed type of LAN. This is true because of its inherently positive characteristics:

- Low initial cost
- High Level of security
- Low interference
- Tired and tested technology

Because of these characteristics, a Wired LAN is ideally suited for Small to Medium-sized entities. The hardware needed to configure a Wired LAN is readily available. These items typically include – an access point or hub and cable to connect the network together.

Unfortunately, a Wired LAN does have some drawbacks. Due to the large amount of cable deployed in a Wired LAN, installation and troubleshooting can become difficult. Additionally, because of a Wired LAN's semi-permanent installation, scalability is hindered. Finally, a Wired LAN can't always benefit from the latest technological advancements.

*"Transferring files,
data and shared
applications throughout a
company sounds complex:
Simplify the function of
sophisticated file transfers
with a Local Area Network
from PenTeleData."*

Jeff Reinhard

*General Manager
- PenTeleData*

LAN - Local Area Networks

The Wireless LAN: The second type of Local Area Network is a Wireless Local Area Network (WLAN) (follows 802.11b IEEE Standard). A WLAN is created by connecting various IP-based items (PCs, Printers, Terminals, Servers, etc) via a wireless system using radio frequencies. In simplest terms, a Wireless local area network does exactly what the name implies: It provides the same service as a traditional LAN, without the limitations of structured cables. An infrastructure does not need to be buried in the ground, hidden behind a wall or ceiling – this “infrastructure” can move and change with the speed that the organization changes. WLANs have been deployed for a number of years. However, due to recent technological advancements, the speed, efficiency and cost of a WLAN now make it a viable alternative in the market. Many medium and large-sized entities embrace the WLAN and use it to help their employees operate virtually anywhere.

A WLAN provides entities with a LAN that has:

- Mobility
- Scalability
- Ease of Installation
- Ease of troubleshooting
- Rapid deployment

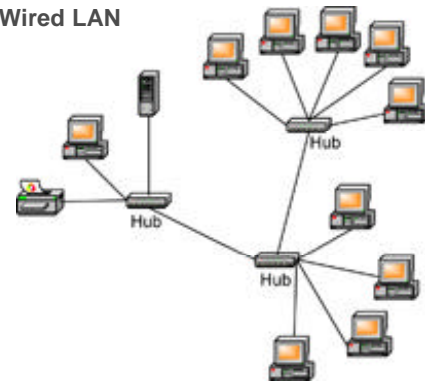
The characteristics and benefits of a WLAN have made this type of LAN perfect for individuals who require mobile technology to support their positions as Managers. Also, a WLAN is the perfect solution for entities that have encountered a difficult time remodeling, entities located in older buildings or those enterprises that lease or rent space.

The equipment to deploy WLAN is somewhat different than that of a Wired LAN. A typical WLAN configuration consists of access points that are set up throughout an area (these transmit the signals from the host to the clients) and client cards (these items transfer the radio frequency at the IP hardware – the computer).

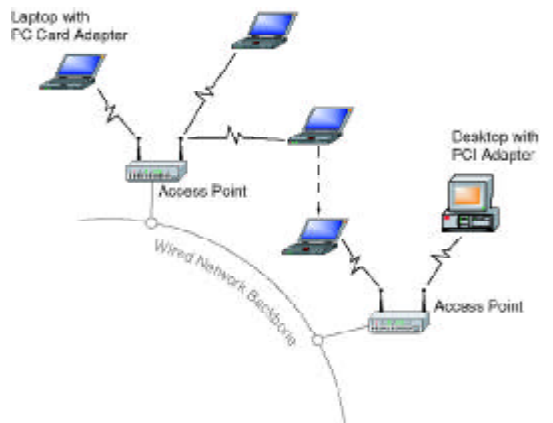
Unfortunately there are drawbacks to the WLAN configuration. A WLAN can be more insecure than a Wired LAN (despite encryption technology), is generally more expensive to deploy, is application dependent, can have performance issues due to interference, requires more specialized attention and has many of the same concerns RF other wireless products have.

Wired & Wireless LAN: The third type of Local Area Network is a combination of Wired and Wireless networks. With this type of LAN, users can move freely within a facility, benefiting from uninterrupted access to the network while still having the reliability and security of the Wired LAN. Applying Wireless LAN technology to a Wired LAN is a great enhancement to an overall need/solution. This combination provides companies with flexibility – impossible with traditional Wired LANs. Desktop client systems can be located in places where running cable is impractical or impossible. Desktop PCs can be redeployed anywhere within a facility as needed, making Wireless ideal for today’s fast-growing organizations. With a combination of a Wired LAN and WLAN, an entity benefits from the strengths of both networks, an increased level of reliability and redundancy. This combination has proved invaluable in certain situations – Hospitals, Educational entities and Large businesses all have embraced this solution. There is a downside to the Combination LAN – cost. Because this solution relies upon the technology and deployment of both a Wired LAN and a WLAN, the cost of deploying such a solution is often high.

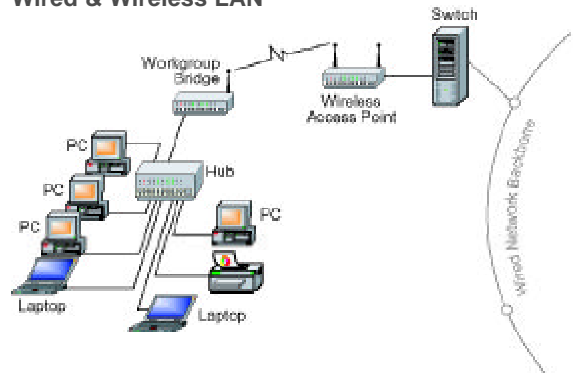
Wired LAN



Wireless LAN



Wired & Wireless LAN



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