

## *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 you say the others do, 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 - practically in your backyard. That makes PenTeleData not only different, but better - to say it simply, we provide our customers with Smarter Business Solutions.

### **What is a LAN?**

A Local Area Network (LAN) is the result of connecting a number of computers or other IP devices 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 an 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 in the modern-day LAN, the transmission speed of data, across the LAN, can be measured at more than 1,000 times the speed in which you transfer files using a standard 56k modem.

### **Different 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 speed desired, there are three common cable types - 10BaseT, 100BaseTx & Gigabit Ethernet. Today, a Wired LAN is the most common and widely distributed type of LAN. This is true because of its inherent positive characteristics:

- Low initial cost
- High Level of security
- Low interference
- Abundant technology

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*"Transferring files, data and shared applications throughout a company sounds complex, but with a Local Area Network from PenTeleData, the problems are cleared up and there are no complex file transfers anymore."*

### **Jeff Reinhard**

*General Manager  
- PenTeleData*

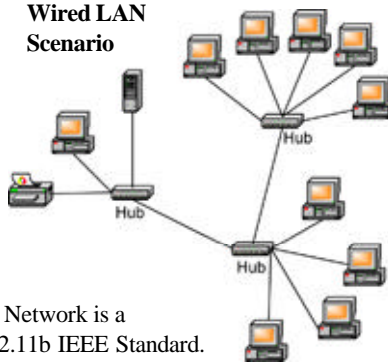
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## LAN - Local Area Networks

Because of these characteristics, a Wired LAN is ideally suited for Small to Medium sized entities. The hardware needed to be 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. A Wired LAN can't always benefit from the latest technological advancements.*

**Wired LAN Scenario**



**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 size entities now 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 a WLAN have, make this type of LAN perfect for individuals that require Mobility, Technological and are involved in Management. Entities that have a hard time remodeling ,to install a Wired LAN, those located in older buildings or those that lease or rent space find a WLAN the perfect solution.

The equipment to deploy a WLAN is somewhat different than that of a Wired LAN. A The 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 – computer).

*Unfortunately there are drawbacks to the WLAN configuration. A WLAN can be more unsecure 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.*

If mobility is what you want, then a Wireless connection is the way to go.

**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 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 Wired LAN and WLAN, an entity benefits from the strengths of both networks, can have an increased level of reliability and benefit from a redundant solution. This combination has proved invaluable in certain situations – Hospitals, Educational entities and Large businesses all have embraced this solution. But of course 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.

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