A **wireless network** enables people to communicate and access applications and information without wires. This provides freedom of movement and the ability to extend applications to different parts of a building, city, or nearly anywhere in the world. Wireless networks allow people to interact with e-mail or browse the Internet from a location that they prefer.

Many types of wireless communication systems exist, but a distinguishing attribute of a wireless network is that communication takes place between computer devices. These devices include personal digital assistants (PDAs), laptops, personal computers (PCs), servers, and printers. Computer devices have processors, memory, and a means of interfacing with a particular type of network. Traditional cell phones don't fall within the definition of a computer device; however, newer phones and even audio headsets are beginning to incorporate computing power and network adapters. Eventually, most electronics will offer wireless network connections.

As with networks based on wire, or optical fiber, wireless networks convey information between computer devices. The information can take the form of e-mail messages, web pages, database records, streaming video or voice. In most cases, wireless networks transfer data, such as e-mail messages and files, but advancements in the performance of wireless networks is enabling support for video and voice communications as well.

**WLANS: Wireless Local Area Networks**

WLANS allow users in a local area, such as a university campus or library, to form a network or gain access to the internet. A temporary network can be formed by a small number of users without the need of an access point; given that they do not need access to network resources.

### WPANS: Wireless Personal Area Networks

The two current technologies for wireless personal area networks are Infra Red (IR) and Bluetooth (IEEE 802.15). These will allow the connectivity of personal devices within an area of about 30 feet. However, IR requires a direct line of site and the range is less.

### WMANS: Wireless Metropolitan Area Networks

This technology allows the connection of multiple networks in a metropolitan area such as different buildings in a city, which can be an alternative or backup to laying copper or fiber cabling.

### WWANS: Wireless Wide Area Networks

These types of networks can be maintained over large areas, such as cities or countries, via multiple satellite systems or antenna sites looked after by an ISP. These types of systems are referred to as 2G (2nd Generation) systems.

**Comparison of Wireless Network Types**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Type** | **Coverage** | **Performance** | **Standards** | **Applications** |
| Wireless PAN | Within reach of a person | Moderate | Wireless PAN Within reach of a person Moderate Bluetooth, IEEE 802.15, and IrDa Cable replacement for peripherals | Cable replacement for peripherals |
| Wireless LAN | Within a building or campus | High | IEEE 802.11, Wi-Fi, and HiperLAN | Mobile extension of wired networks |
| Wireless MAN | Within a city | High | Proprietary, IEEE 802.16, and WIMAX | Fixed wireless between homes and businesses and the Internet |
| Wireless WAN | Worldwide | Low | CDPD and Cellular 2G, 2.5G, and 3G | Mobile access to the Internet from outdoor areas |

### What Is a Wireless Network?: The Benefits

Small businesses can experience many benefits from a wireless network, including:

* Convenience. Access your network resources from any location within your wireless network's coverage area or from any WiFi hotspot.
* Mobility. You're no longer tied to your desk, as you were with a wired connection. You and your employees can go online in conference room meetings, for example.
* Productivity. Wireless access to the Internet and to your company's key applications and resources helps your staff get the job done and encourages collaboration.
* Easy setup. You don't have to string cables, so installation can be quick and cost-effective.
* Expandable. You can easily expand wireless networks with existing equipment, while a wired network might require additional wiring.
* Security. Advances in wireless networks provide robust security protections.
* Cost. Because wireless networks eliminate or reduce wiring costs, they can cost less to operate than wired networks.

**Difference between wired and wireless network**

**Wired Network**   
  
1)Wired networking requires cables to be connected to each and every computre in the network.  
  
2)Cost of a Wired network is less as compared to wireless network as Ethernet,cables,swiches are not expensive,  
  
3)Wired LAN offers better performance as compared to wireless networks.Wired network can offer 100Mpbs bandwidth using Fast Ethernet technology.  
  
3)Ethernet cables,Swiches are used in wired network are reliable.  
  
4)Security considerations for a wired network connected to the internet are firewalls. Firewall software can be installed on each computer.  
  
  
**Wireless Network**   
  
1)Wireless network can be configured in two ways. I.e. Adhoc or infrasture mode.Wiresless devices require WLAN cards and access points for communication.  
  
2)Wireless networks requires equipments like Wireless Adapters and access points which ae quite expensive.Cost of wireless networks is high as compared to wired networks.  
  
3)Maximum bandwidth provided by wireless network is about 11Mpbs.  
  
4)The reliability of wireless network is less as compared to wired network.  
  
5)WLANS use wired equivalent privacy(WEP) encryption to protect the data.This makes wireless networks as secure as wired networks.  
  
6)Laptops and other computing devices can be moved around freely within the wireless network because mobility of wireless network is better as compared to wired networks.