

Types of Wireless Networks

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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
