INTRODUCTION TO NETWORKING

A network is defined as devices connected together to share information and services. The types of data/services that can be shared on a network is endless – documents, music, email, websites, databases, printers, faxes, telephony, videoconferencing, etc.

Protocols are "rules" that govern the method by which devices share data and services. Protocols are covered in great detail in subsequent sections.
Basic Network Types
Networks are generally broken down into two types:

LANs (Local Area Networks) – a high-speed network that covers a relatively small geographic area, usually contained within a single building or campus. A LAN is usually under the administrative control of a single entity/organization.

WANs (Wide Area Networks) – The book definition of a WAN is a network that spans large geographical locations, usually to interconnect multiple LANs.

A more practical definition describes a WAN as a network that traverses a public network or commercial carrier, using one of several WAN

**technologies. Thus, a WAN can be under the administrative control of
several entities or organizations, and does not need to "span large
geographical distances."**
Note: Occasionally, books will define a third type of network known as a
MAN (Metropolitan Area Network). **A MAN is defined as a network that
spans several LAN's across a city-wide geographic area. The term "MAN"
is less prevalent than either LAN or WAN.**

Network Architectures

A host refers to any device that is connected to your network. Some define ahost as any device
that has been assigned a network address.

A host can serve one or more functions:

• A host can request data (often referred to as a client)

• A host can provide data (often referred to as a server)

• A host can both request and provide data (often referred to as a peer)

Because of these varying functions, multiple network "architectures" havebeen developed,
including:

• Peer-to-Peer networks

• Client/Server networks

• Mainframe/Terminal networks

When using a peer-to-peer architecture, all hosts on the network can bothrequest and provide
data and services. For example, configuring twoWindows XP workstations to share files would
be considered a peer-to-peer
network.Though peer-to-peer networks are simple to configure, there are several
keydisadvantages to this type of architecture. First, data is spread acrossmultiple devices,
making it difficult to manage and back-up that data.

Second, security becomes problematic, as you must configure individual permissions and user
accounts on each host.

When using a client/server architecture, hosts are assigned specific roles.Clients request data and services stored on Servers. Connecting Windows XP workstations to a Windows 2003 domain controller would be considered

a client/server network.While client/server environments tend to be more complex than peer-to-peer networks, there are several advantages. With data now centrally located on a server or servers, there is only one place to manage, back-up, and secure

that data. This simplified management allows client/server networks to scale much larger than peer-to-peer. The key disadvantage of client/server architecture is that it introduces a single point of failure.

When using a mainframe/terminal architecture, often referred to as a thinclient environment, a single device (the mainframe) stores all data and services for the network. This provides the same advantage as a client/server environment – centralized management and security of data. Additionally, the mainframe performs all processing functions for the dumb terminals (or thin-clients) that connect to the mainframe. The thin clients perform no processing whatsoever, but serve only as input and output devices into the mainframe. Put more simply, the mainframe handles all the "thinking" for the thin-clients.

A typical hardware thin-client consists of a keyboard/mouse, a display, and an interface card into the network. Software thin-clients are also prevalent, and run on top of a client operating system (such as Windows XP or Linux).Windows XP's remote desktop is an example of a thin-client application.

Source : http://topnetworking4u.wordpress.com/introduction-to-networking/