

Networks

- ❑ **Local Area Network (LAN)** – that spans a single building or campus
- ❑ **Metropolitan Area Network (MAN)** – that spans a single city
- ❑ **Wide Area Network (WAN)** - that spans sites in multiple cities, countries, or continents
- ❑ **The internet**

Interprocessor distance	Processors located in same	Example
1 m	Square meter	Personal area network
10 m	Room	
100 m	Building	
1 km	Campus	Local area network
10 km	City	
100 km	Country	Metropolitan area network
1000 km	Continent	
10,000 km	Planet	Wide area network
		The Internet

LANs (Local Area Networks)

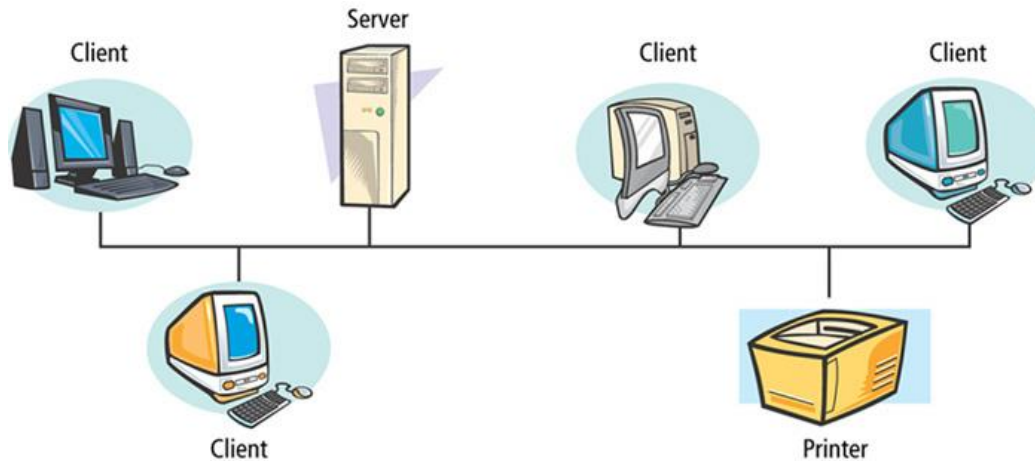
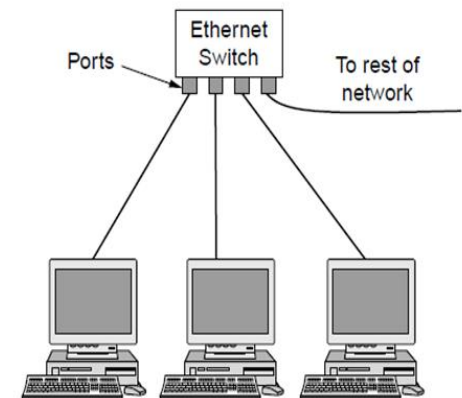
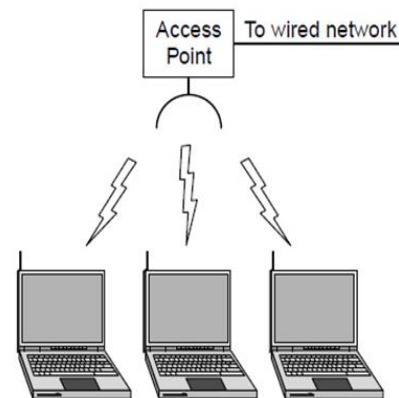
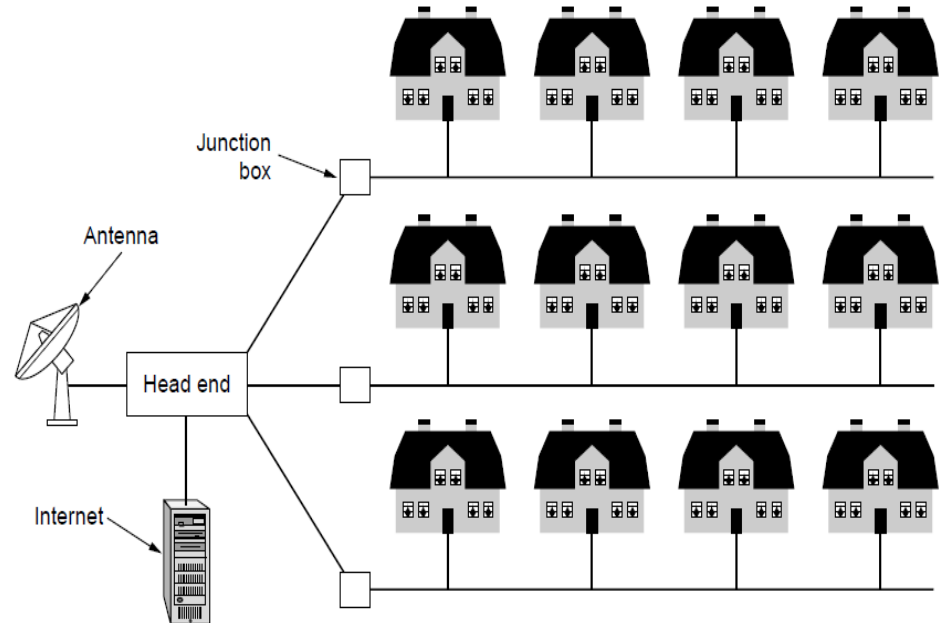
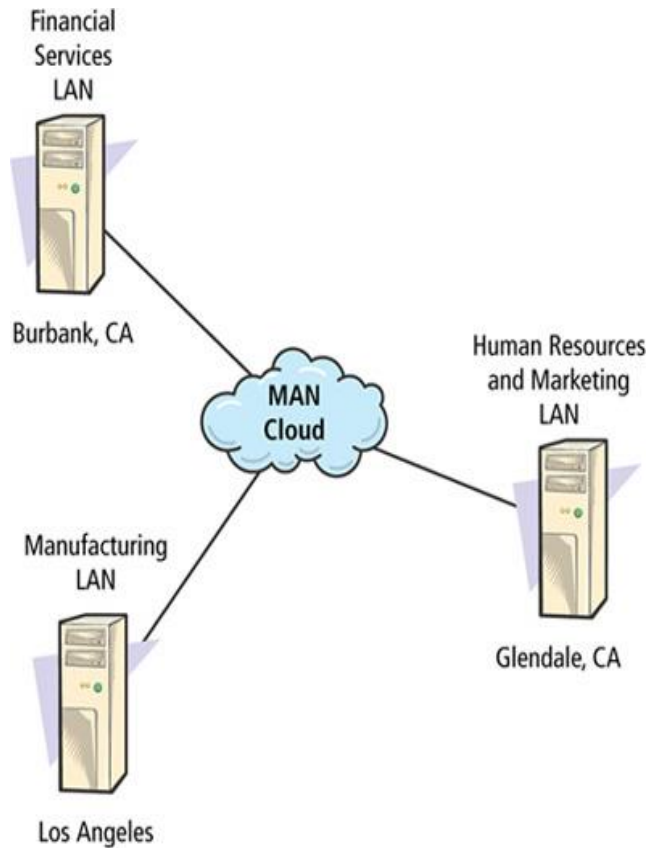


Figure 1.13

Simple Local Area Network (LAN). A local area network (LAN) is typically limited in size, for example, to a room or building. Also, a LAN will usually have no more than 50 connected devices.



A Metropolitan Area Networks



A metropolitan area network
based on cable TV.

Figure 1.15

Simple Metropolitan Area Network (MAN).

Los Angeles County is a very large metropolitan area that includes the cities of Burbank, Glendale, and Los Angeles.

A Wide Area Networks

WAN that connects three branch offices in Australia

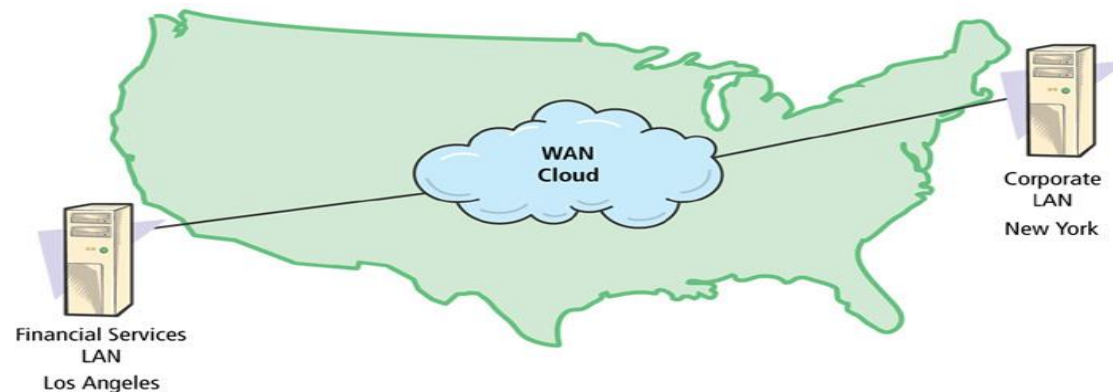
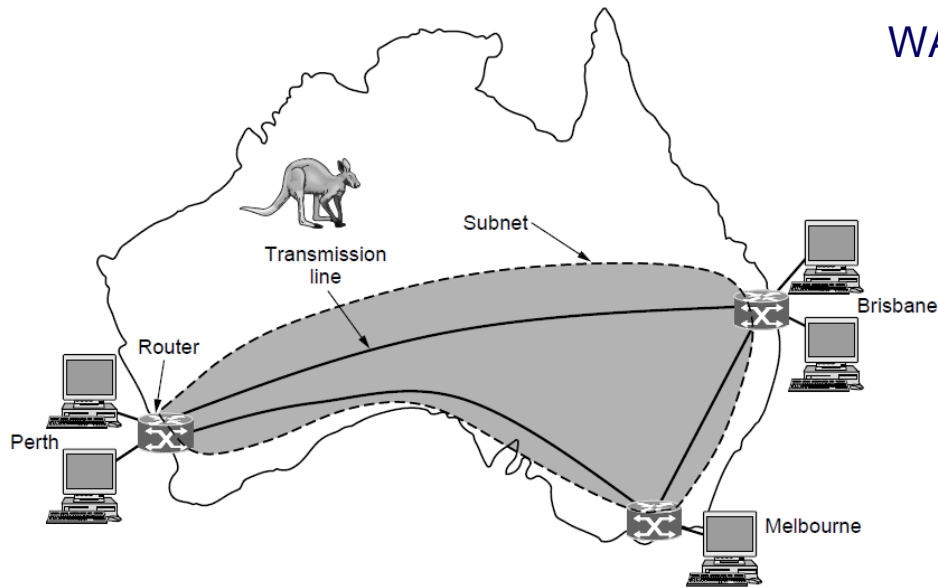
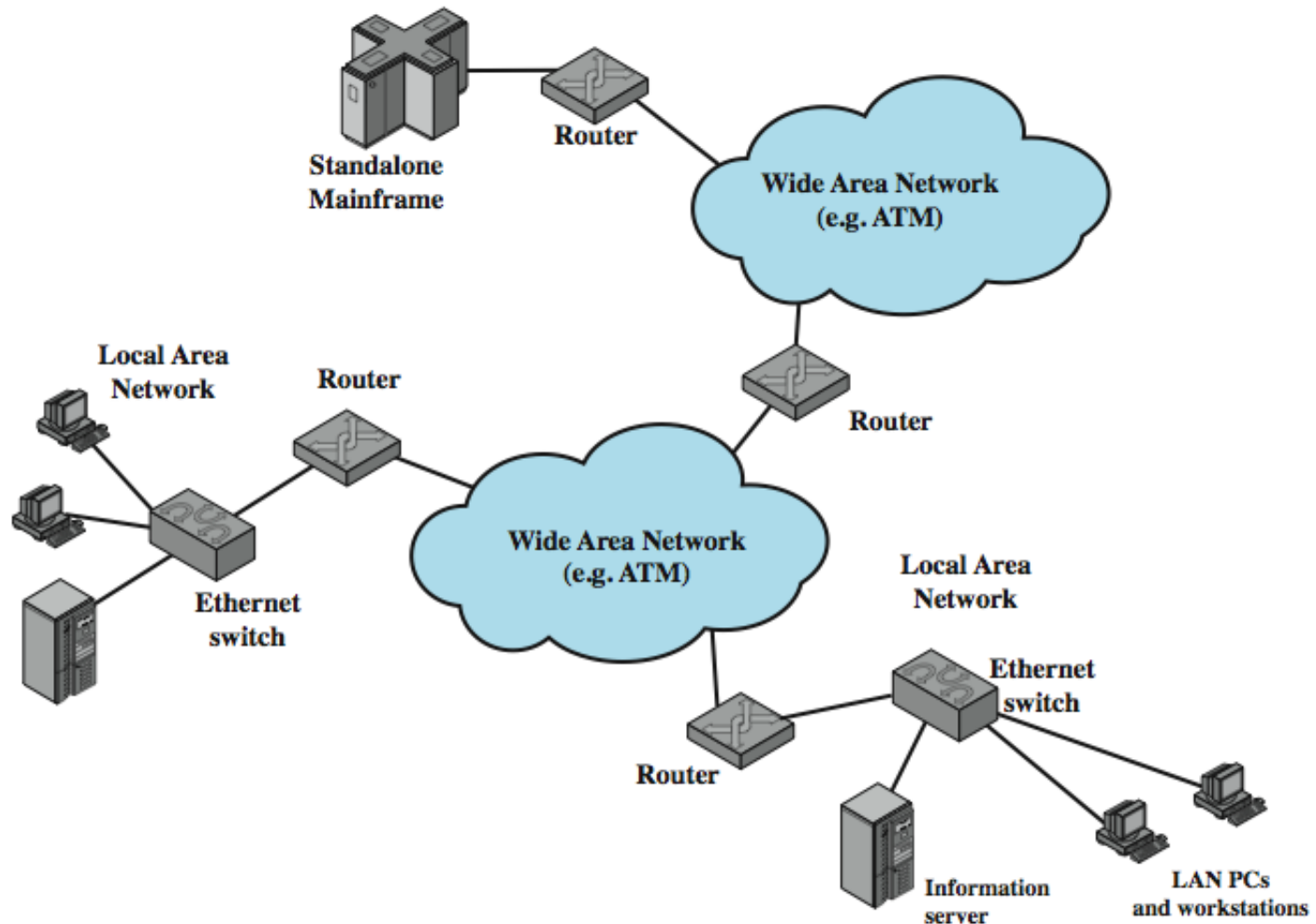


Figure 1.16

Simple Wide Area Network (WAN). A WAN spans great geographic distances, including states, provinces, countries, continents, or the globe.

Internet Elements



Size - differences between Local and Wide Area Networks

- ❑ 'Speed' - bandwidth and latency
- ❑ Management
- ❑ Security
- ❑ Reliability
- ❑ Billing
- ❑ Heterogeneity (and standards)

Some goals of computer networks

- ❑ Access to remote resources
- ❑ Human communication
- ❑ Mobile computing
- ❑ Computing power through parallelism
- ❑ Optimizing resources - load balancing
- ❑ Incremental growth of computer systems (reduced cost and risk)
- ❑ Increased robustness through graceful degradation