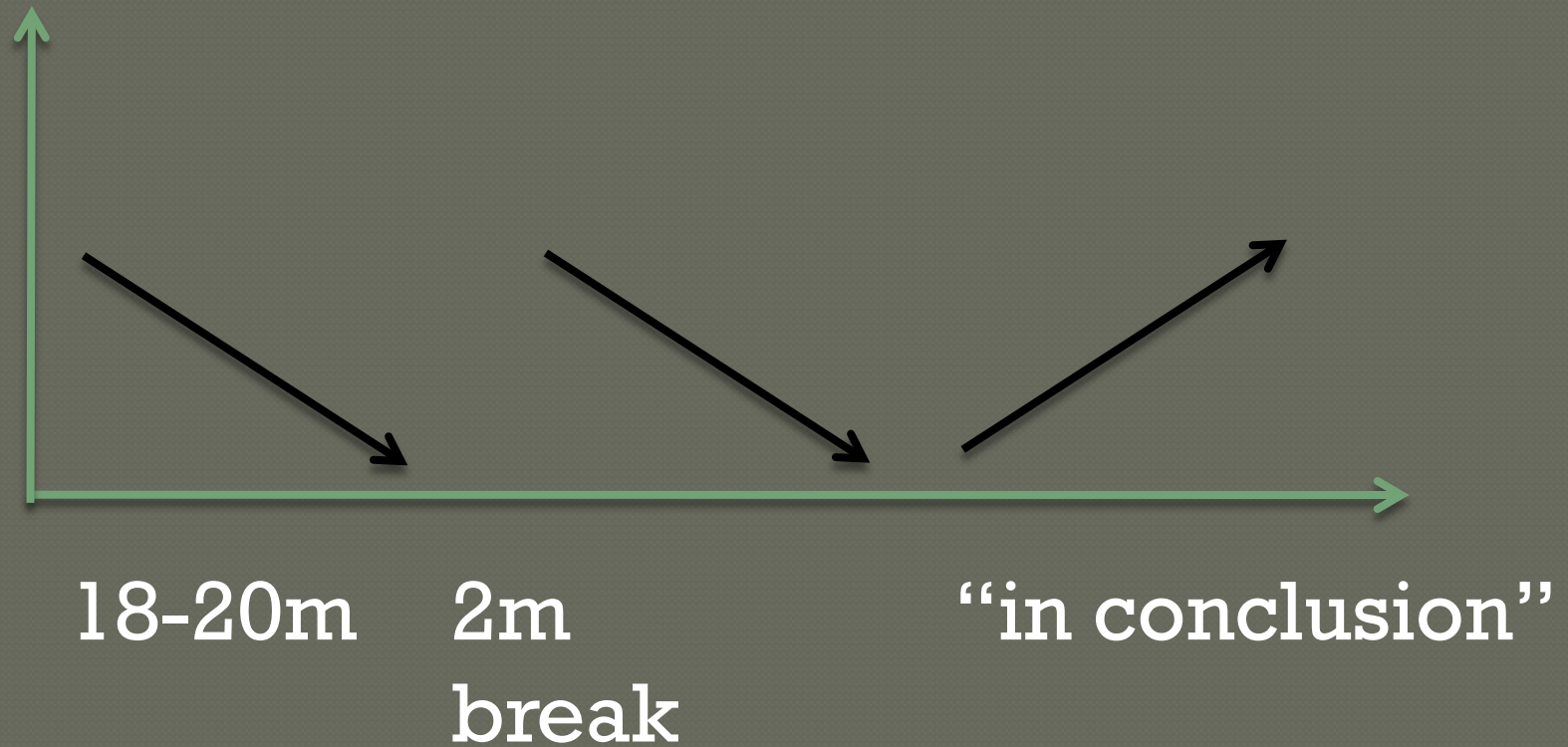


Chapter 1

Introduction
Lesson I

Attention

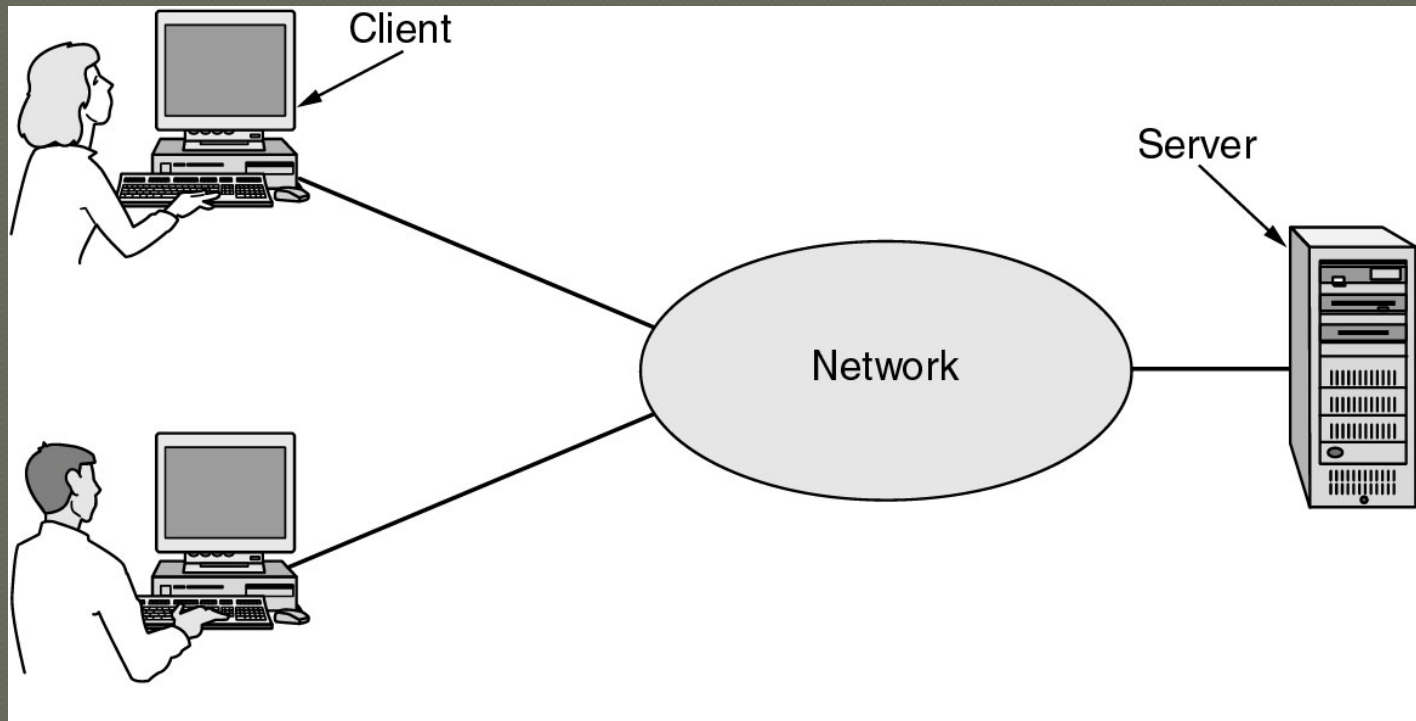


Uses of Computer Networks

- Business Applications
- Home Applications
- Mobile Users
- Social Issues

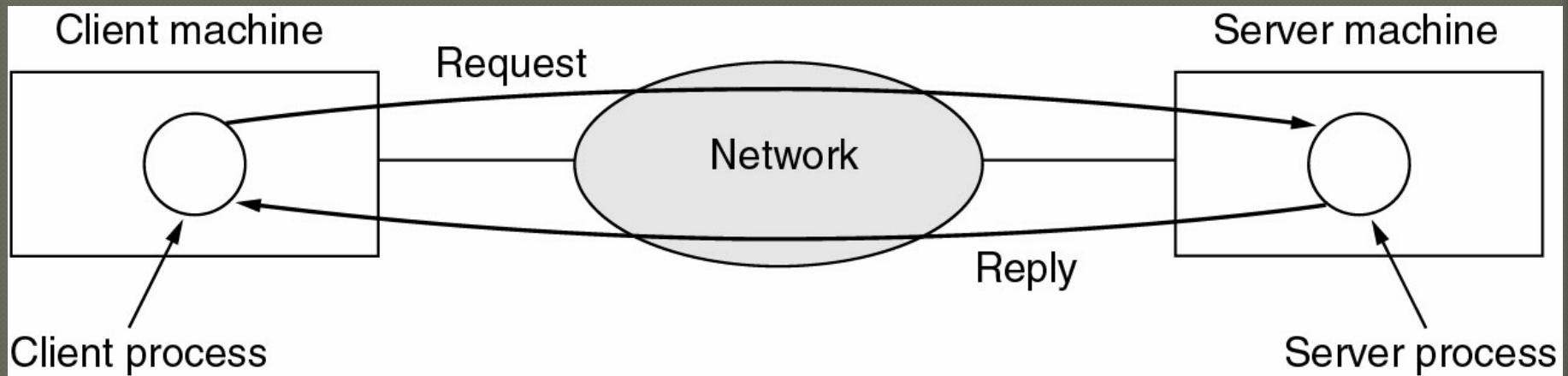
Business Applications of Networks

- A network with two clients and one server.



Business Applications of Networks (2)

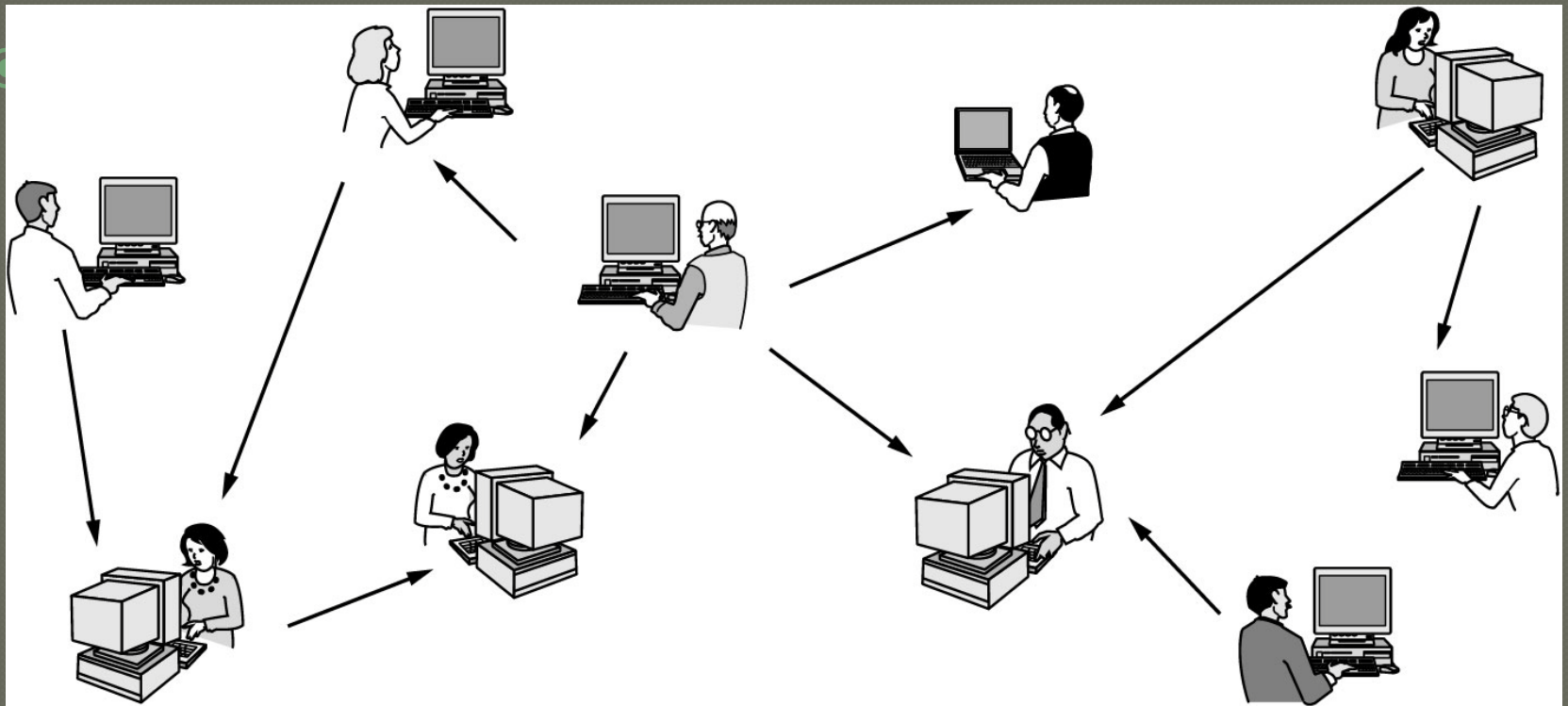
- The client-server model involves requests and replies.



Home Network Applications

- Access to remote information
- Person-to-person communication
- Interactive entertainment
- Electronic commerce

Home Network Applications (2)



Home Network Applications (3)

Some forms of e-commerce.

Tag	Full name	Example
B2C	Business-to-consumer	Ordering books on-line
B2B	Business-to-business	Car manufacturer ordering tires from supplier
G2C	Government-to-consumer	Government distributing tax forms electronically
C2C	Consumer-to-consumer	Auctioning second-hand products on-line
P2P	Peer-to-peer	File sharing

Network Hardware

- Local Area Networks
- Metropolitan Area Networks
- Wide Area Networks
- Wireless Networks
- Home Networks
- Internetworks

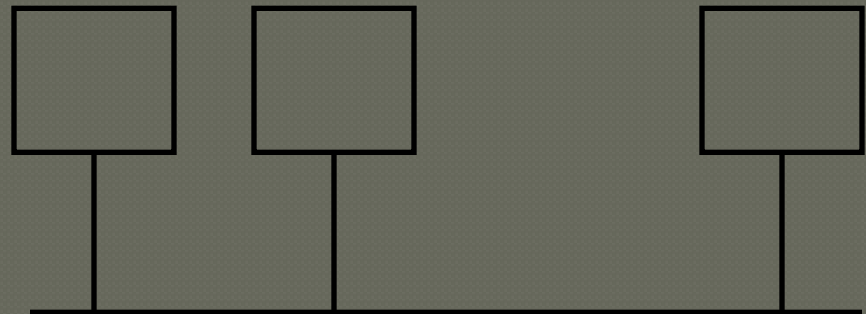
Connectivity

- Connectivity is what we need to connect when we do not have a point-to point physical link
 - The goal is to access to every node in the network
 - Direct
 - Indirect
 - The Tradeoff is that the performance characteristics are worse than true physical link!

Connectivity

Direct connectivity:

- point-to-point
- multiple access



Physical Media

links: coax cable, optical fiber...

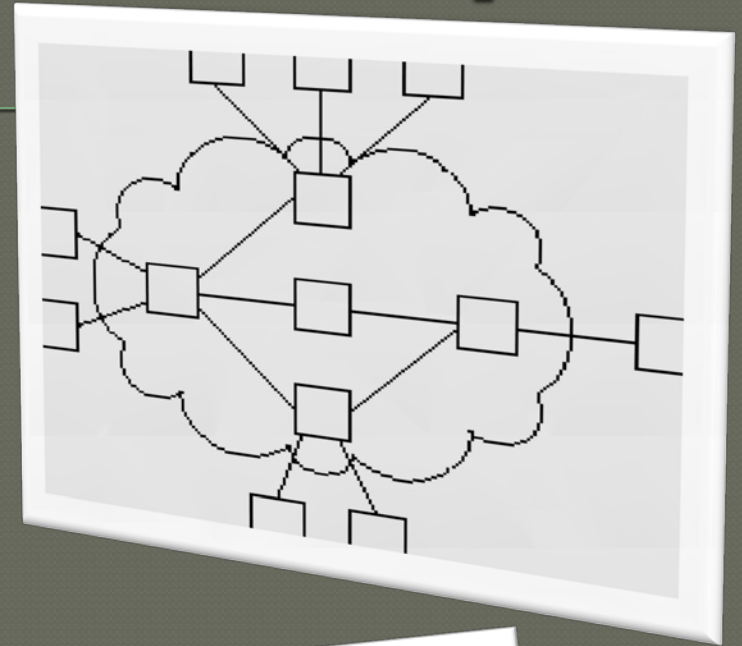
nodes: general-purpose workstations...

Connectivity..

● *Indirect* Connectivity

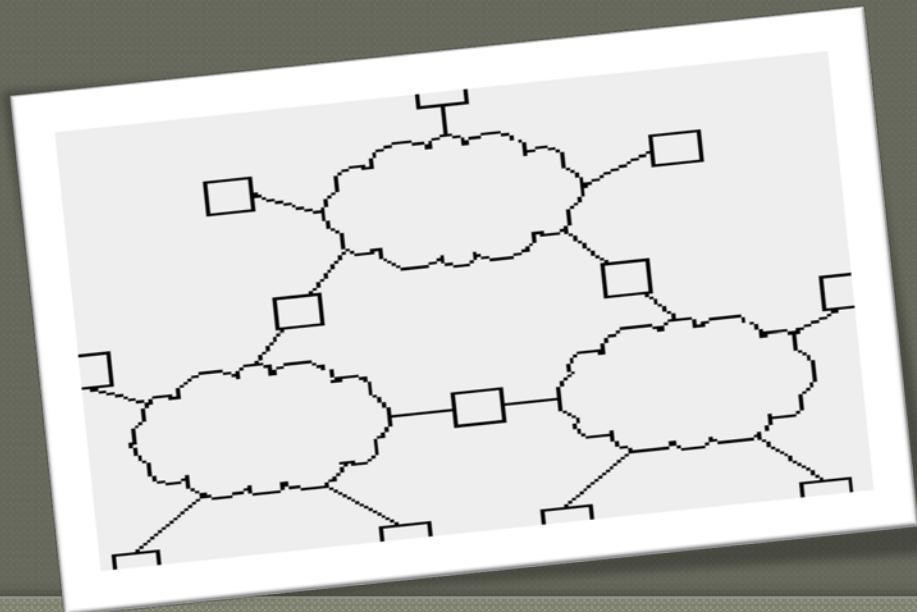
- switched networks

=> switches



- inter-networks

=> routers



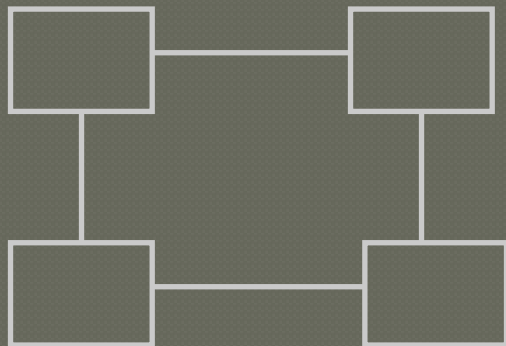
Broadcast Networks

- Types of transmission technology
 - Point-to-point links
 - *Always-connected*
 - *Fixed bandwidth*
 - *Fixed delay*
 - *Zero-jitter*
 - Broadcast links
 - What are the problems?

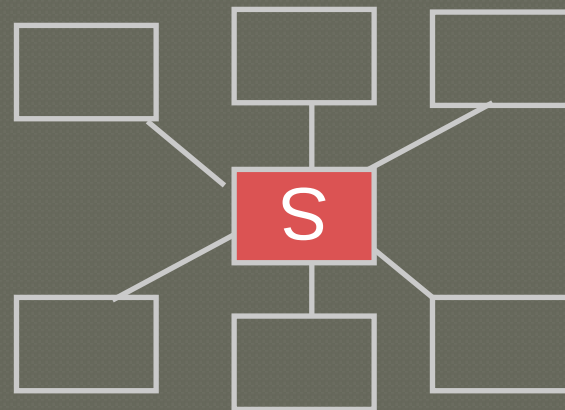
Indirect Connectivity

- Direct Connectivity doesn't scale easily
- We need parts that do not consume information but rather filters it and forwards it.

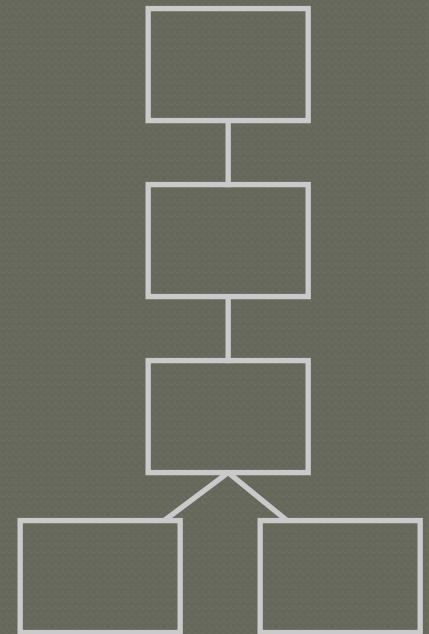
- Switch
- Router



Ring

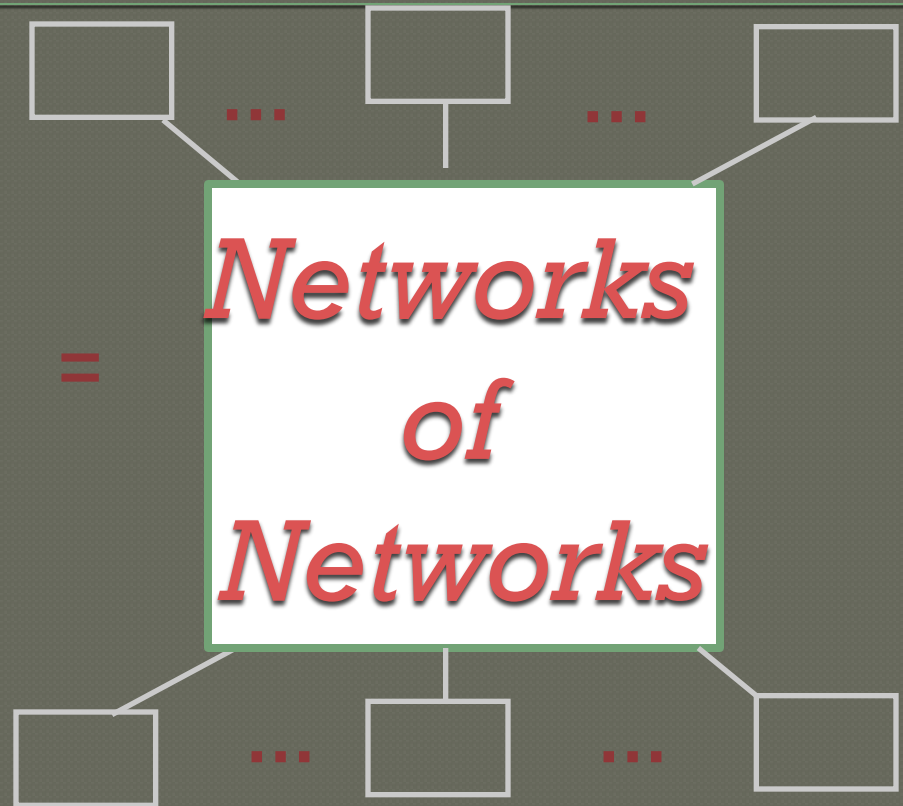
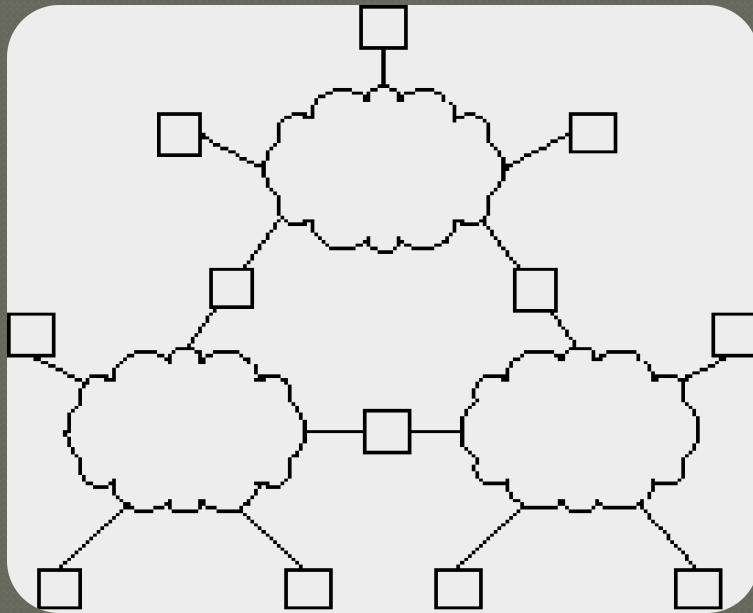


Star



Tree

Internet = Inter-Network's



Our goal is to design this black box on the right

Next Time

- ◉ We continue Chapter 1
 - Network HW and SW
- ◉ Reading Assignment: Chapter 1