

COMPUTER NETWORK

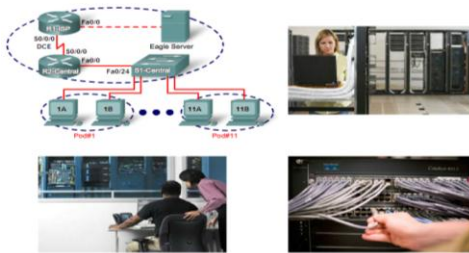
PLANNING & CABLING a NETWORK

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COMPUTER NETWORK

Planning & Cabling a Network

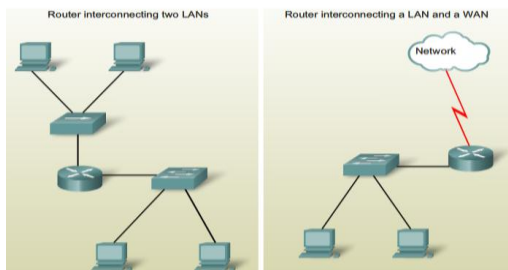


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Internetwork Connections with a Router



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Factors to Consider in Choosing a Device



COST

PORTS

SPEED



EXPANDABLE/ MODULAR



MANAGEABLE

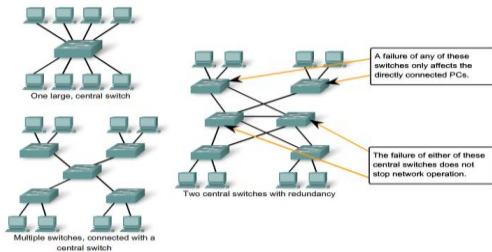
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• COST

Factors Determining LAN Switch Selection

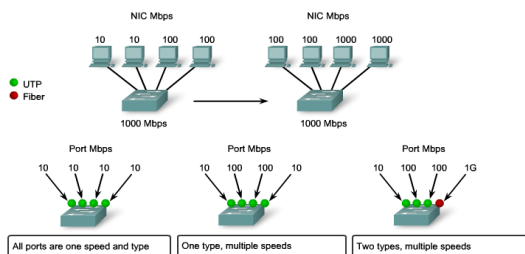


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• PORT SPEED, TYPES & EXPANDABILITY



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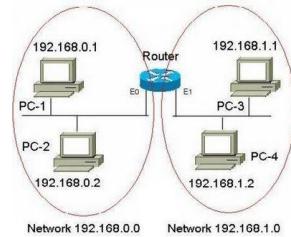
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• EXPANDABILITY

ROUTER Expand Network

router is a device that forwards data packets between computer networks



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Types of Device Interconnection

- Bandwidth
- Length
- Mobility
- Cost



Fiber



UTP



Wireless

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Ethernet Type	Bandwidth	Cable Type	Maximum Distance
10Base-T	10Mbps	Cat3/Cat5 UTP	100m
100Base-TX	100Mbps	Cat5 UTP	100m
100Base-TX	200Mbps	Cat5 UTP	100m
100Base-FX	100Mbps	Multi-Mode Fiber	400m
100Base-FX	200Mbps	Multi-Mode Fiber	2Km
1000Base-T	1Gbps	Cat5e UTP	100m
1000Base-TX	1Gbps	Cat6 UTP	100m
1000Base-SX	1Gbps	Multi-Mode Fiber	550m
1000Base-LX	1Gbps	Single Mode Fiber	2Km
10GBASE-T	10Gbps	Cat6a/Cat7 UTP	100m
10GBASE-LX4	10Gbps	Multi-Mode Fiber	100m
10GBASE-LX4	10Gbps	Single Mode Fiber	10Km

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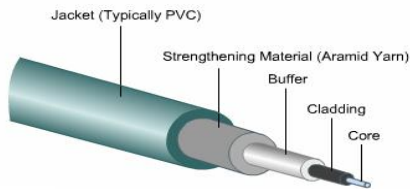
Wireless Fidelity		802.11b	802.11a	802.11g
Wireless Standard		802.11b	802.11a	802.11g
Popularity		Very popular. Nearly exclusive everywhere.	New technology.	New technology with rapid growth expected.
Speed		Up to 11 Mbps (averages in most cases to 5.5 Mbps)	Up to 6 Mbps (X greater than 802.11b)	Up to 54 Mbps (X greater than 802.11b)
Relative Cost		Inexpensive.	Relatively more expensive.	Relatively inexpensive.
Frequency		2.4 GHz	5 GHz	2.4 GHz
Range		Good range. Typically up to 100-150 feet indoors, depending on construction, building materials, room layout.	Shorter range than 802.11b & 802.11g. Typically 20 to 75 feet indoors.	Good range. Typically up to 100-150 feet indoors, depending on construction, building materials, room layout.
Public Access		The number of public "hotspots" is growing rapidly, allowing wireless connectivity in many airports, hotels, college campuses, public areas, and restaurants.	None at this time.	Compatible with current 802.11b networks (at 11 Mbps). Also, it is expected that most 802.11g networks will quickly convert to 802.11g.
Compatibility		OK 802.11b	OK 802.11a	OK 802.11g

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FIBER OPTIC CABLE

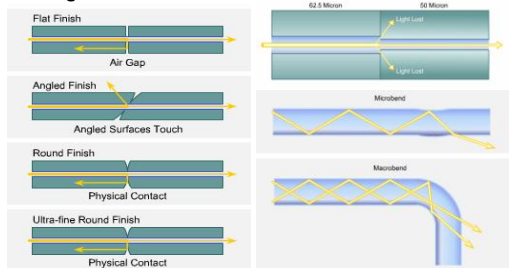


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FO leakage



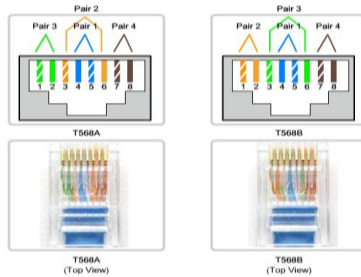
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UTP CABLING

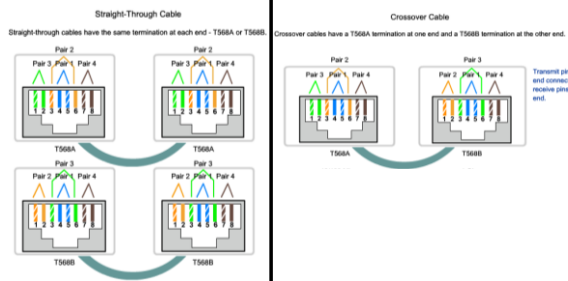
RJ-45 T568A & T568B Termination



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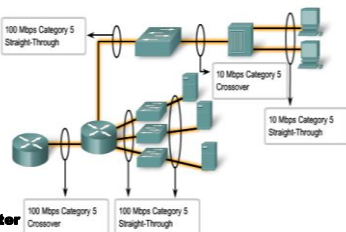
COMPUTER NETWORK

straight-through

- Switch to router
- Computer to switch
- Computer to hub

crossover

- Switch to switch
- Switch to hub
- Hub to hub
- Router to router
- Computer to computer
- Computer to router



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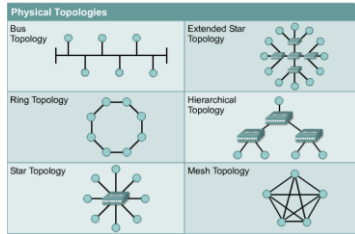
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Network Topology

Considerations

- **Cost**
- **Length of cable needed**
- **Future Growth**
- **Cable type**

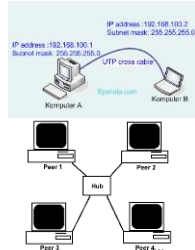


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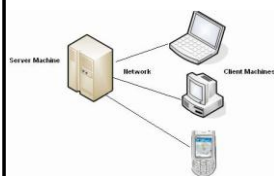
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- **Ad Hoc**
- **Peer to Peer**



Client Server



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