



CCNA

Cisco Certified Network Associate

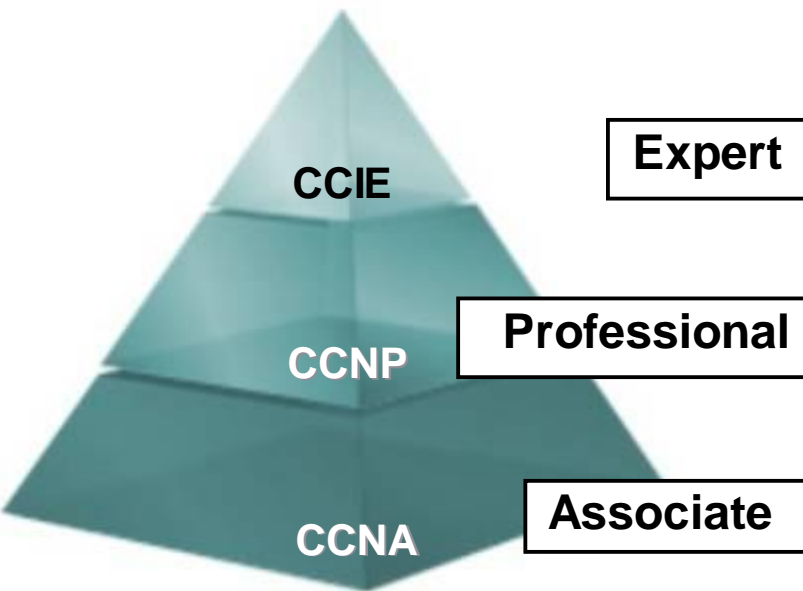


Course Introduction



Cisco Career Certifications

CCNA Exam 640-802



Required Exam	Recommended Training Through Cisco Learning Partners
CCNA	Cisco Certified Network Associate
INTRO and ICND	<i>Introduction to Cisco Networking Technologies and Interconnecting Cisco Network Devices</i>

<http://www.cisco.com/go/certifications>

How to be CCNA certified ?

Option 1

Pass the CCNA exam 640-802
(60-70 questions in 2 hours)

Option 2

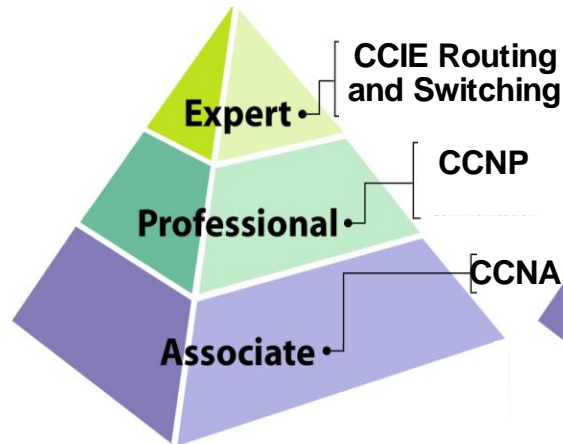
Pass the INTRO exam 640-822
(40-50 question in 1.5 hours)

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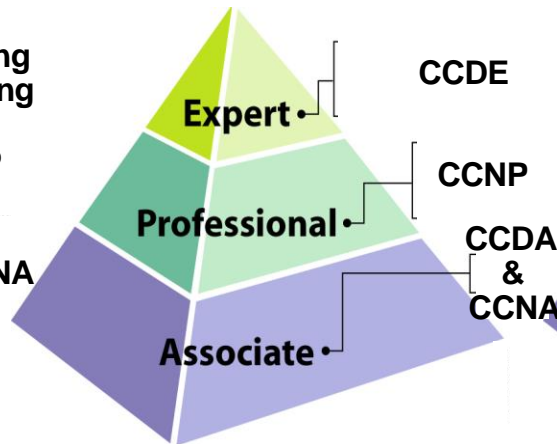
Pass the ICND exam 640-816
(40-50 question in 1.5 hours)



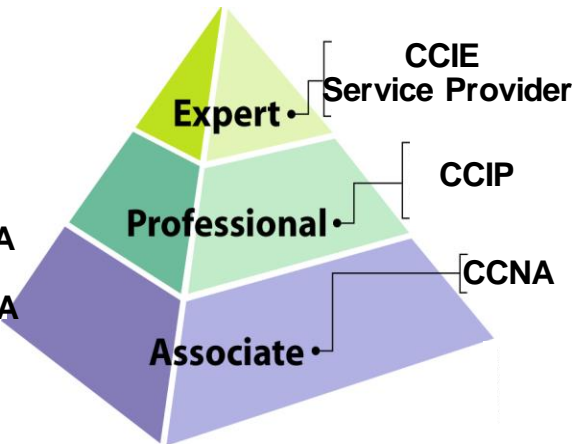
Cisco Different Certifications Fields



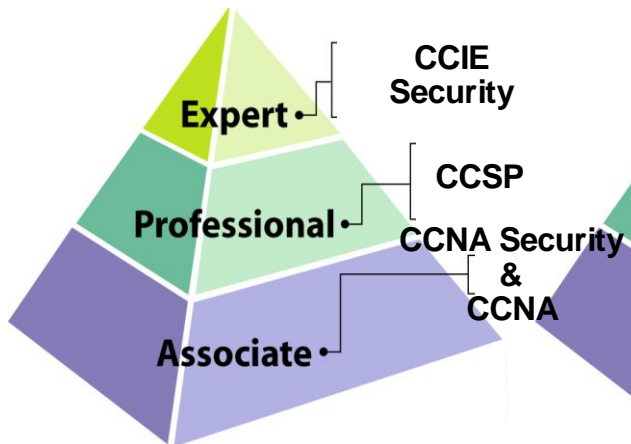
Network Implementation



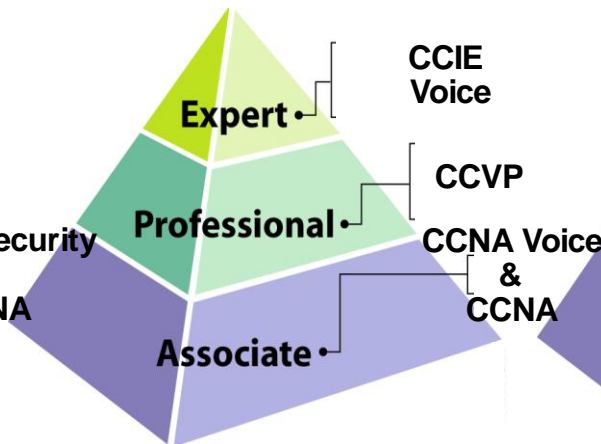
Network Design



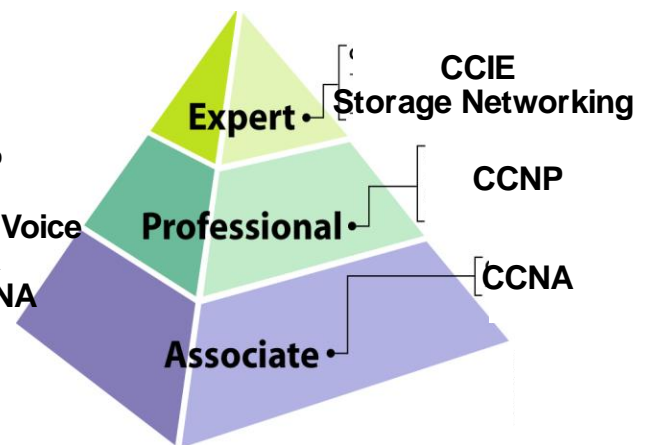
Network Service Provider



Network Security

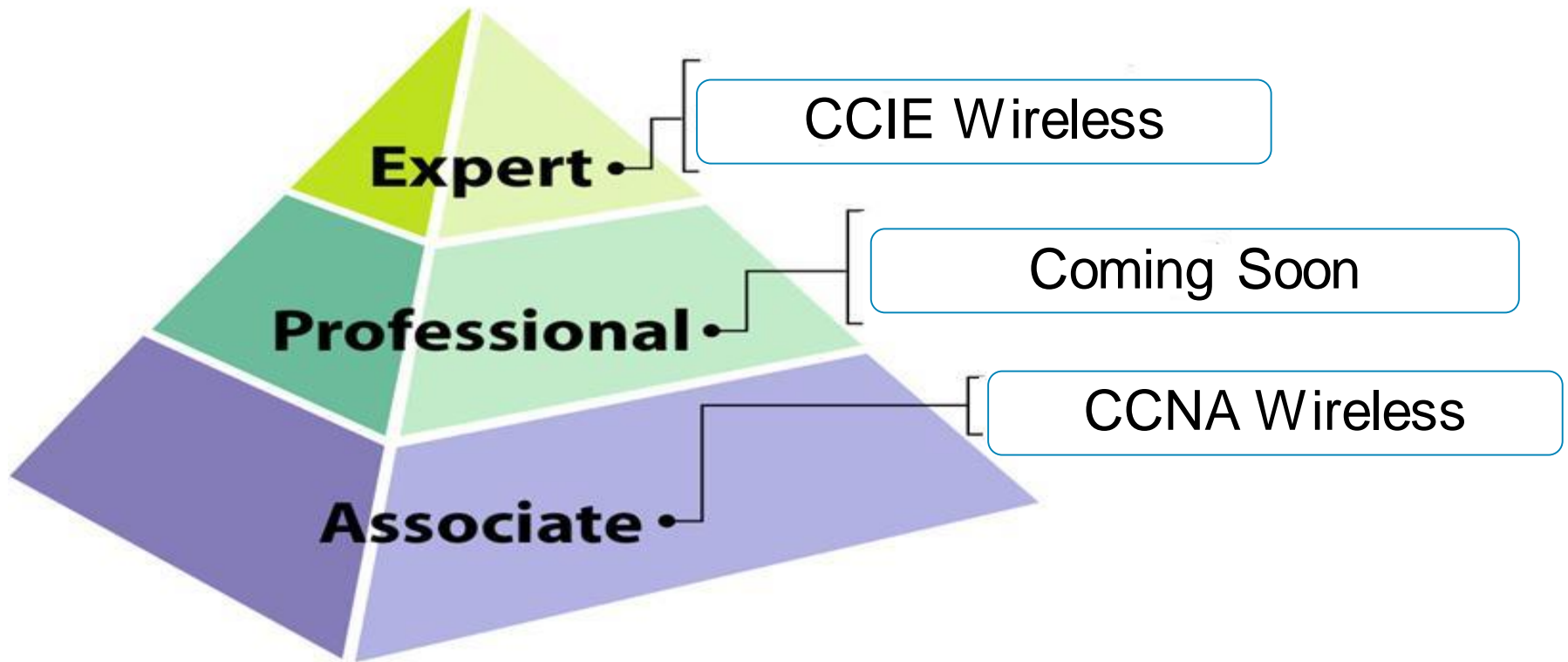


Voice Networks



Storage Networking

New Cisco Certification Path



Course Topics

- Introduction
 - Network introduction.
 - TCP/IP Vs OSI.
 - Cisco Routers & Basic configuration.
- Routing Concepts & Routing Protocols.
 - Routing Concepts
 - Routing Protocols
 - Static Routing & Default Routing
 - RIP v1 & RIP v2
 - EIGRP
 - OSPF

Course Topics

- Switching & LAN Design
 - LAN Design
 - Switching concepts
 - Switching Protocols (VLAN, VTP, STP, Inter-VLAN Routing)
 - WLAN

- WAN Technology
 - WAN Introduction.
 - HDLC , PPP
 - Frame Relay
 - Network Security (Access Control List)
 - IP addressing services (DHCP , NAT, NAT overload)
 - WAN Advanced Technology (Tele-worker Solution & IPV6)

Networking Technologies

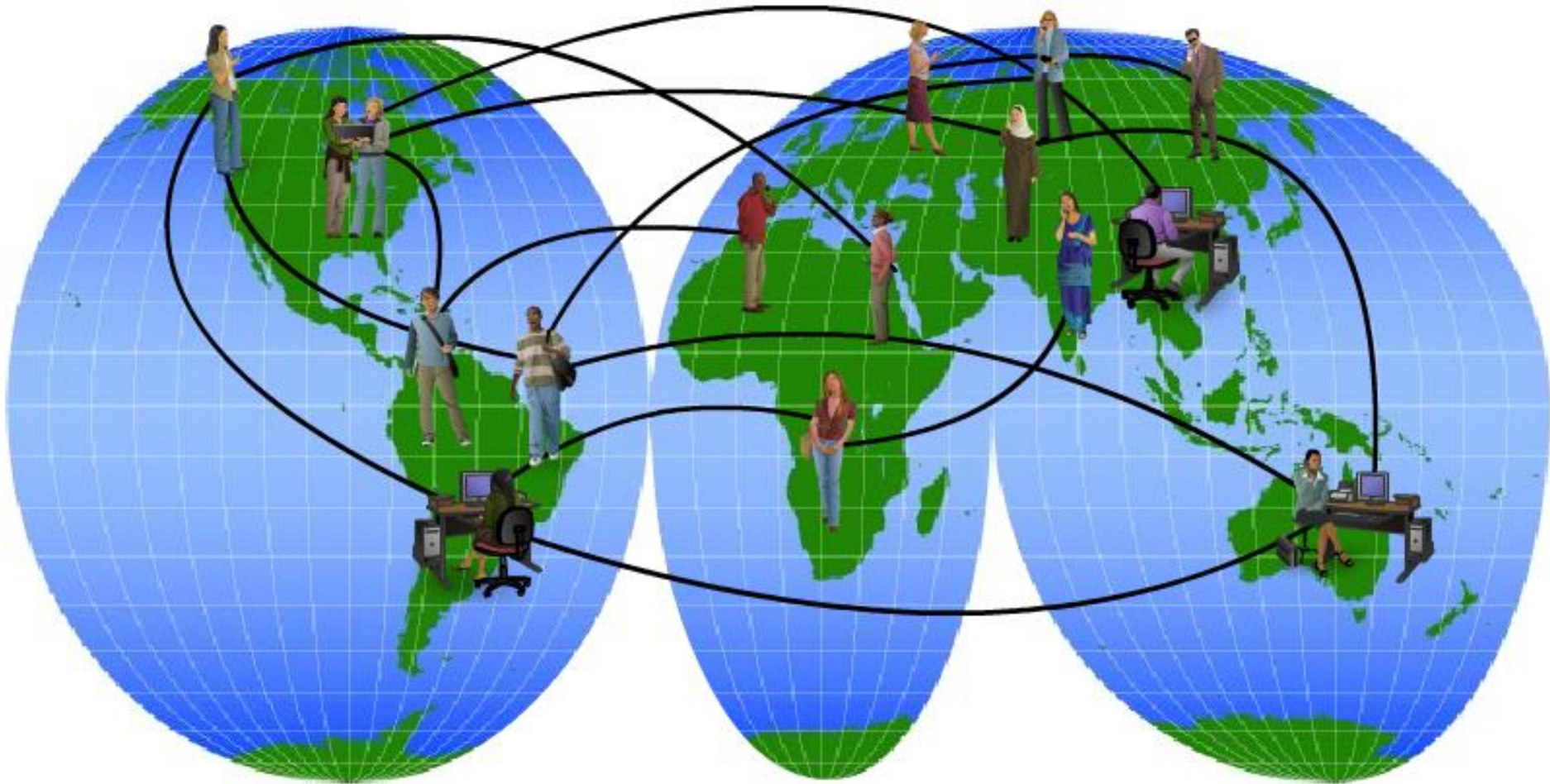
- **Network:**

Group of components or devices connected together to give the user a certain service (application).

- **Importance of Networks:**

- ✓ Easy access and sharing of information
- ✓ Sharing of expensive devices and network resources
- ✓ Modern Technologies (IP telephony, Video Conferencing,etc)

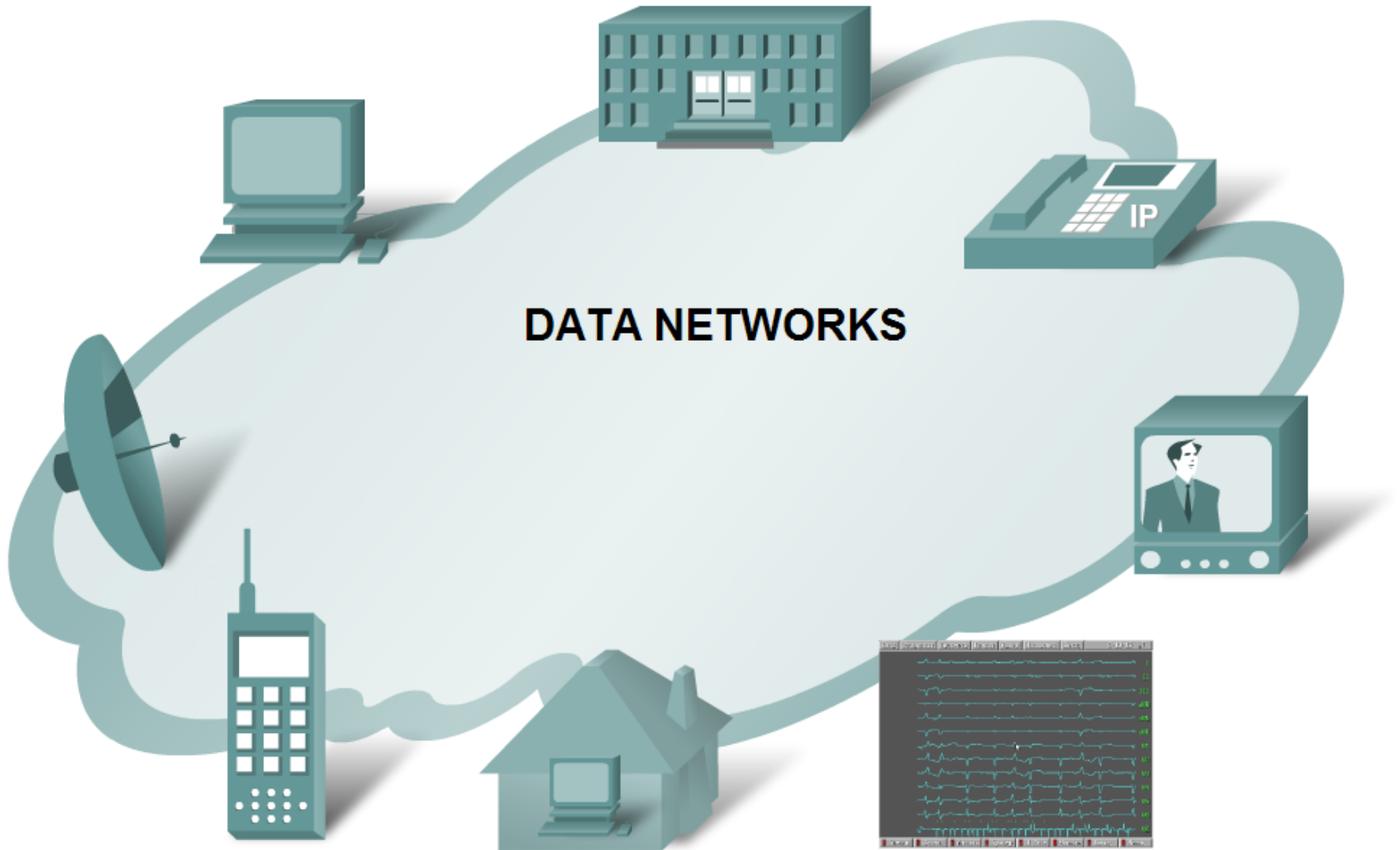
Networks Support the way we live



Networks Support the way we live



DATA NETWORKS



HUMAN NETWORK



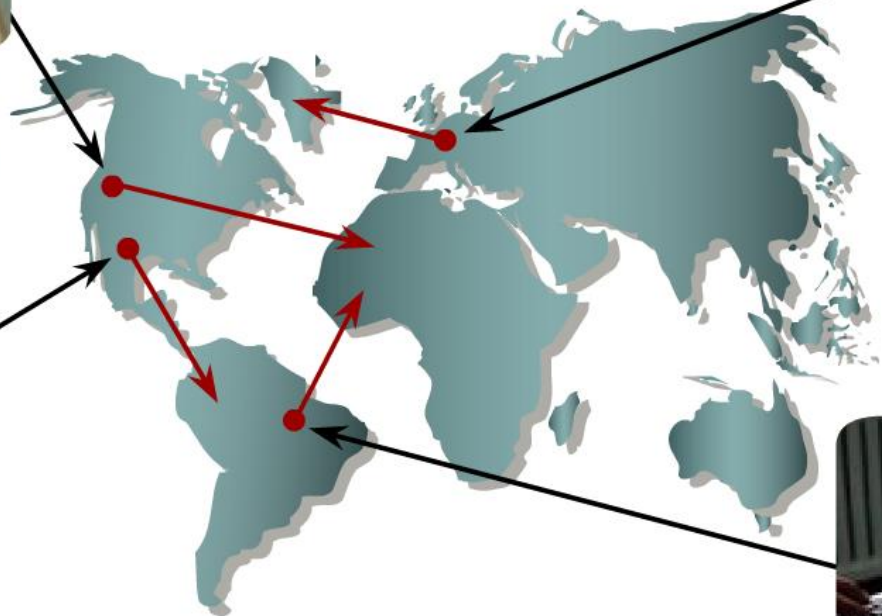
Intelligent Networks allow handheld devices to receive news, Emails, and to send text.



Video conferencing around the globe is in the palm of your hand.



Phones connect globally to share voice, text and images.

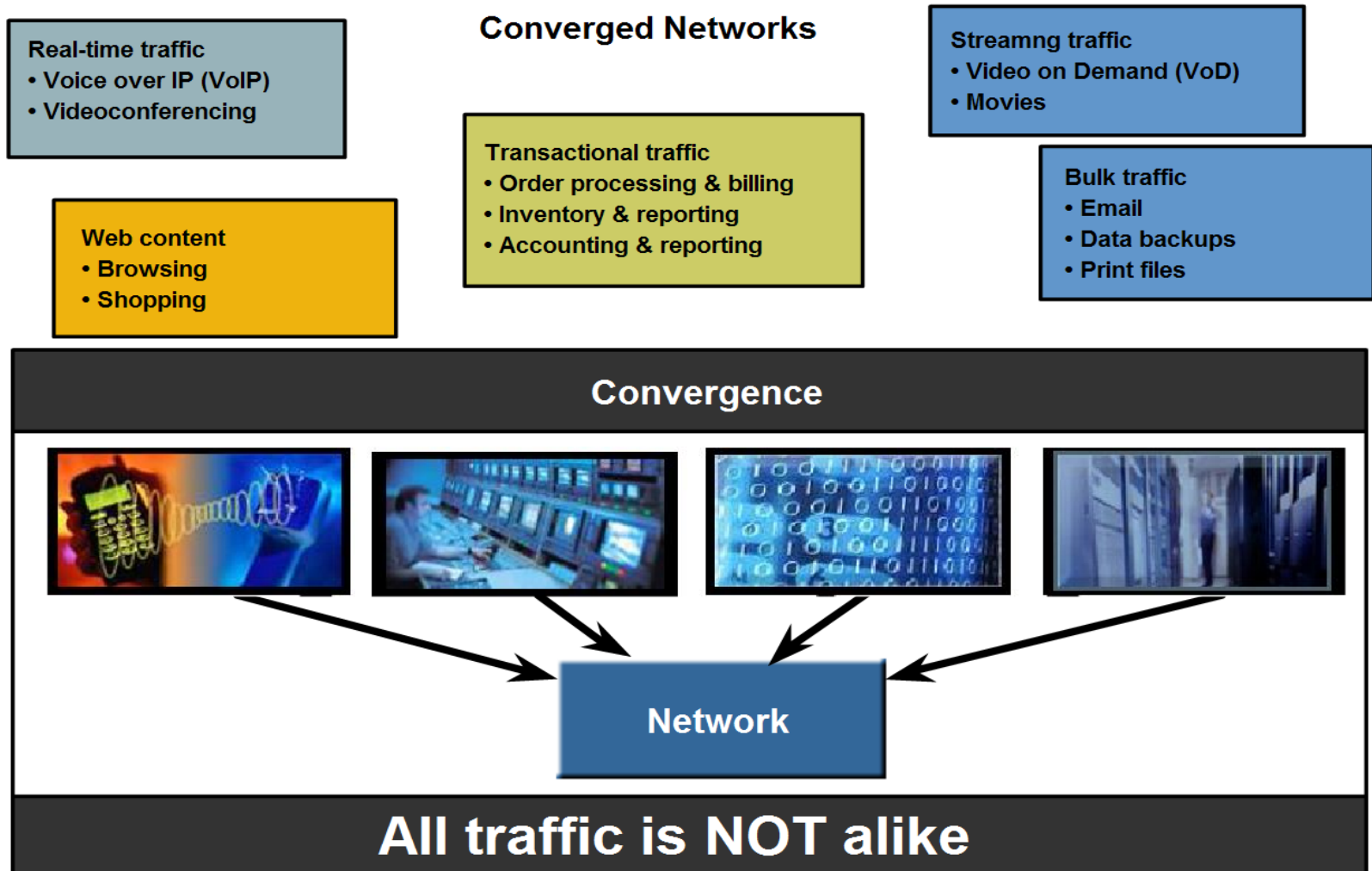


The Human Network is everywhere.







Online gaming connects thousands of people seamlessly.

Converged Network



Quality Of Service

Quality of Service Matters

Communication Type	Without QoS	With QoS
Streaming video or audio	 <p>Choppy picture starts and stops.</p>	 <p>Clear, continuous service.</p>
Vital Transactions	Time : Price 02:14:05 \$1.54 Just one second earlier...	Time : Price 02:14:04 \$1.52 The price may be better.
Downloading web pages (often lower priority)	 <p>Web pages arrive a bit later...</p>	 <p>But the end result is identical.</p>

Need for secure network

Unauthorized Transactions

1 Your First Bank

SEND PAYMENT TO
Box 1234
Anytown, USA

CREDIT CARD STATEMENT

ACCOUNT NUMBER	NAME	STATEMENT DATE	PAYMENT DUE DATE
4125-239-412	John Doe	2/13/01	3/09/01

CREDIT LINE	CREDIT AVAILABLE	NEW BALANCE	MINIMUM PAYMENT DUE
\$1200.00	\$1074.76	\$125.24	\$20.00

REFERENCE	SOLD	POSTED	ACTMITY SINCE LAST STATEMENT	AMOUNT
403GE7302		1/25	PAYMENT THANK YOU	-168.80
32F349ER3	1/12	1/15	RECORD RECYCLER ANYTOWN USA	14.83
89102DIS2	1/13	1/15	BEEFORAMA REST ANYTOWN USA	30.55
NX34FJD32	1/18	1/18	GREAT EXPECTORATIONS BIG CITY USA	27.50
84RT3293A	1/20	1/21	DINO-GEL PETROLEUM ANYTOWN USA	12.26
873EWS321	2/09	2/09	SHIRTS 'N SUCH TINYVILLEUSA	40.10

Previous Balance	(+)	168.80	Current Amount Due	125.24
Purchases	(+)	125.24	Amount Past Due	
Cash Advances	(+)		Amount Over Credit Line	
Payments	(-)	168.80	Minimum Payment Due	20.00
Credits	(-)			
FINANCE CHARGES	(+)			
Late Charges	(+)			
NEW BALANCE	(=)	125.24		

FINANCE CHARGE SUMMARY	PURCHASES	ADVANCES	For Customer Service Call: 1-800-XXX-XXXX For Lost or Stolen Card, Call: 1-800-XXX-XXXX 24-Hour Telephone Numbers
Periodic Rate	1.65%	0.054%	
Annual Percentage Rate	19.80%	19.80%	

Please make check or money order payable to Your First Bank. Include account number on front.

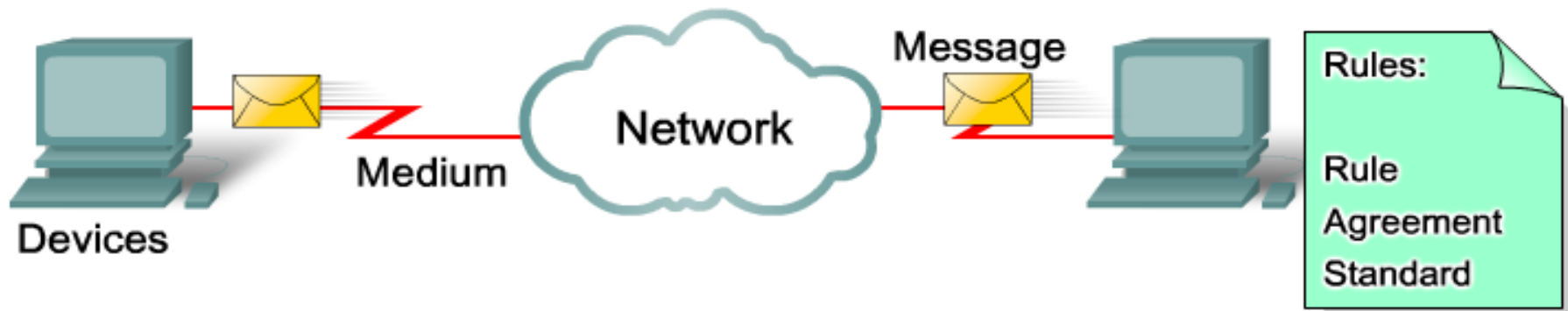


Out of Business

Network components

- **Network has three main components**
 - ✓ **Computers** (servers and hosts)
 - Source of applications (network aware applications)
 - ex: HTTP (Hyper Text Transmission Protocol),
FTP (File Transfer Protocol),
SMTP (Simple Mail Transfer Protocol)
POP3 (Post Office Protocol 3)
Telnet
 - ✓ **Network Devices**
 - Devices that interconnect different computers together
 - ex: Repeaters, hub, bridge, switch, router, NIC and modems
 - ✓ **Connectivity**
 - Media that physically connect the computers and network devices
 - ex: Wireless and cables

Elements Of Network



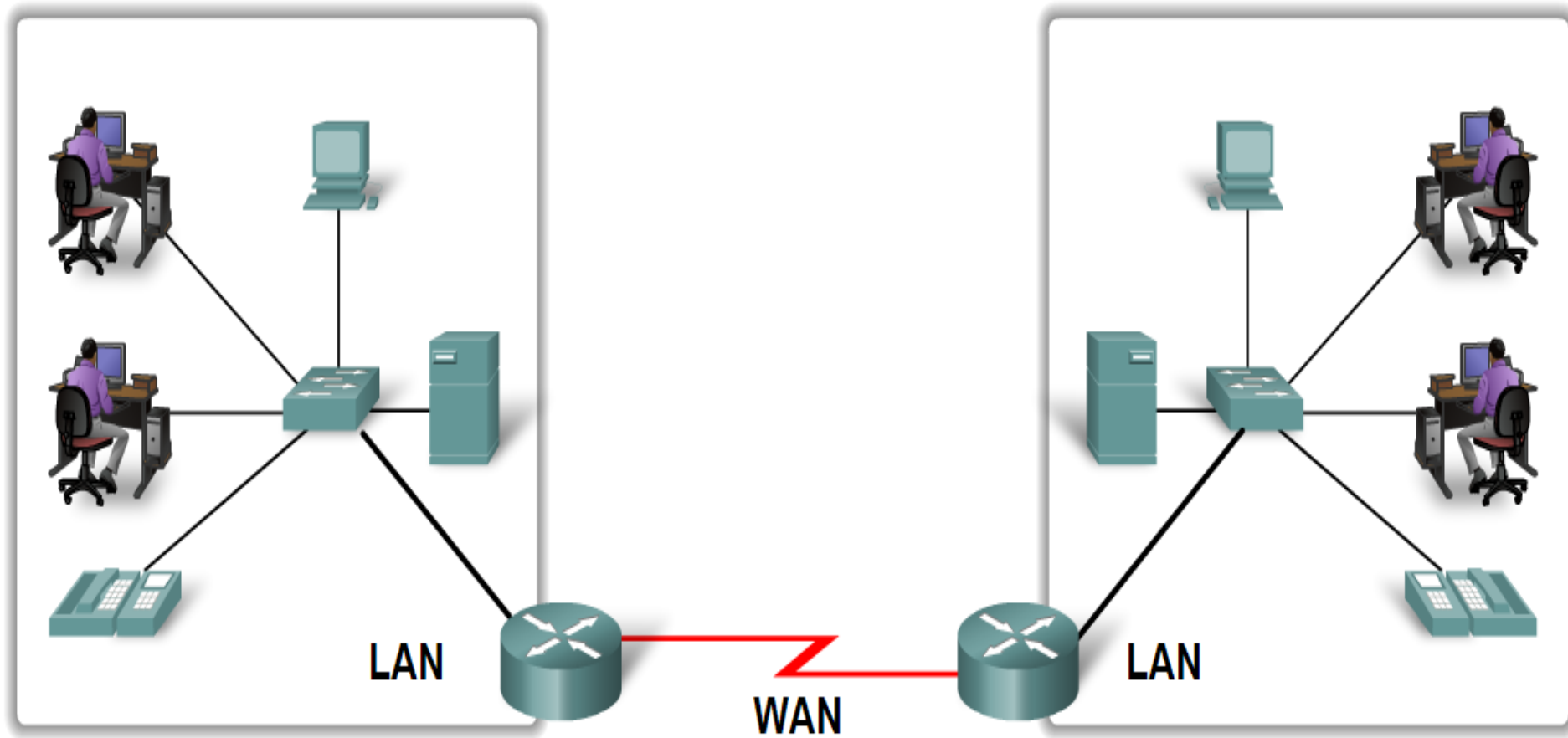
Four elements of a network:

- Rules
- Medium
- Messages
- Devices

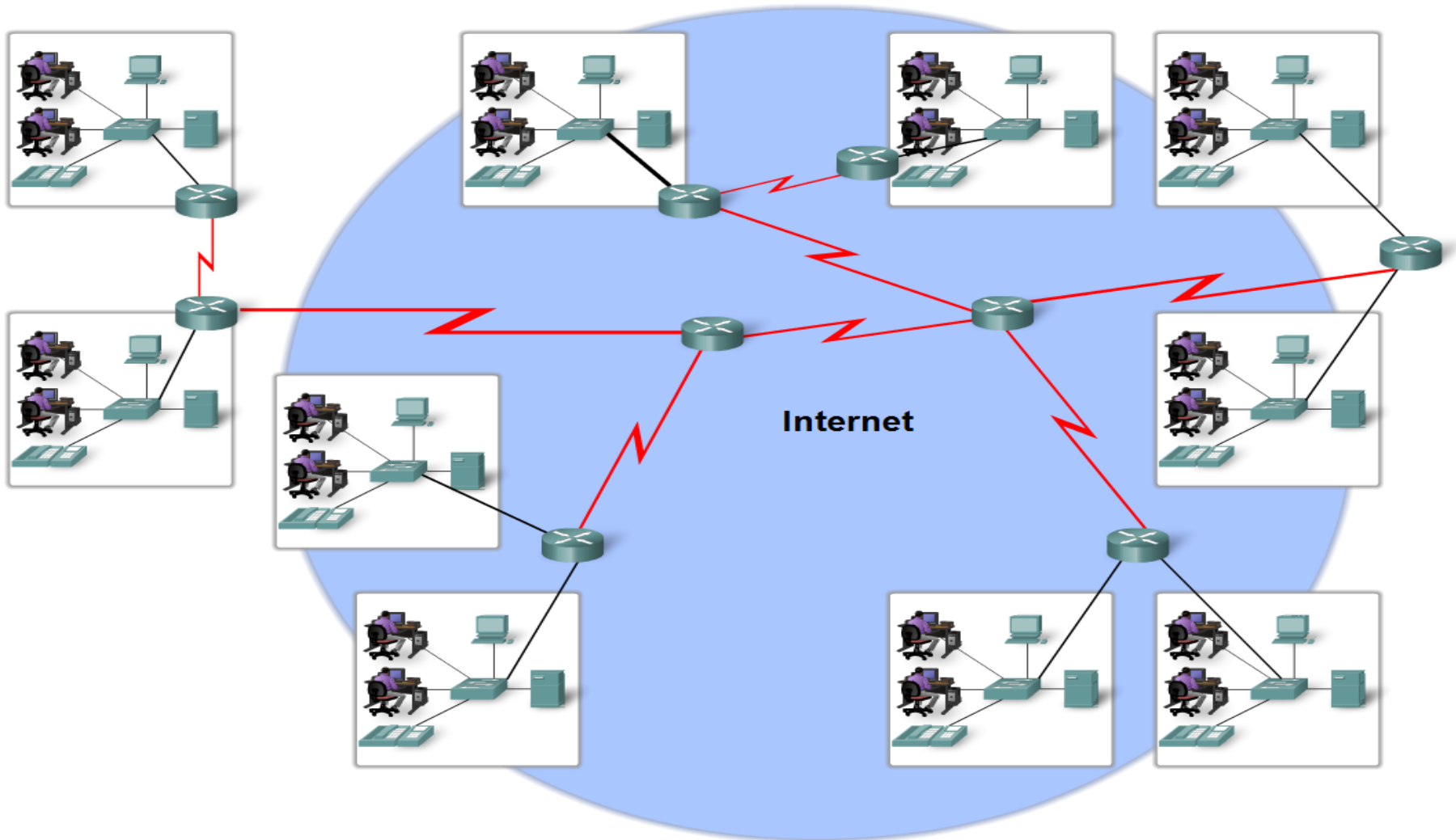
Network Types

- **LAN (Local Area Network):**
 - It is a group of network components that work within small area
 - Ex.: Token Ring, FDDI, Ethernet, Fast Ethernet,...
- **MAN (Metropolitan Area Network):**
 - It is a group of LANs that are interconnected over a small area within city like Cairo.
 - Ex.: Metro Ethernet.
- **WAN (Wide Area Network):**
 - It is a group of LANs that are interconnected within large area.
 - Ex.: FR, ISDN, X.25, Analog dialup, ATM.

LAN & WAN



Internet

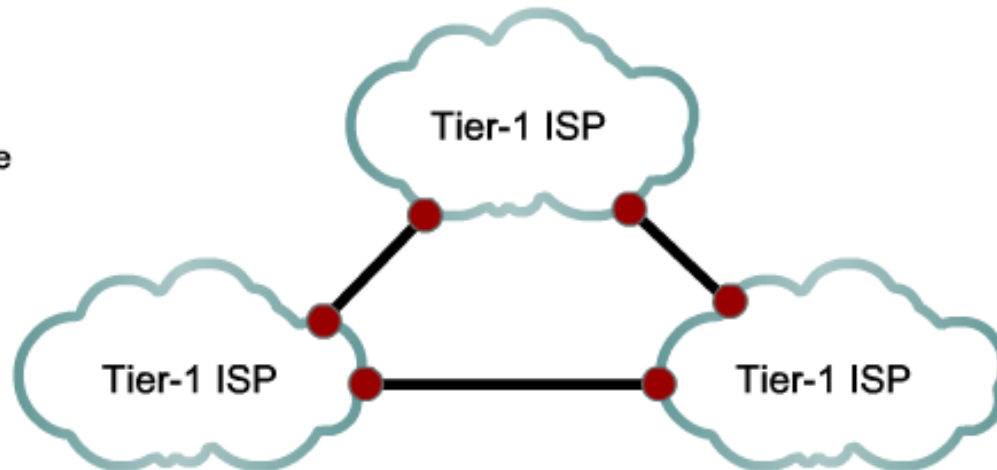


Internet

Internet Structure - A Network of Networks

At the center of the Internet, "tier-1" ISPs provide national and international connections. These ISPs treat each other as equals.

Examples are: Verizon, Sprint, AT&T, NTT, cable systems and wide area wireless networks.



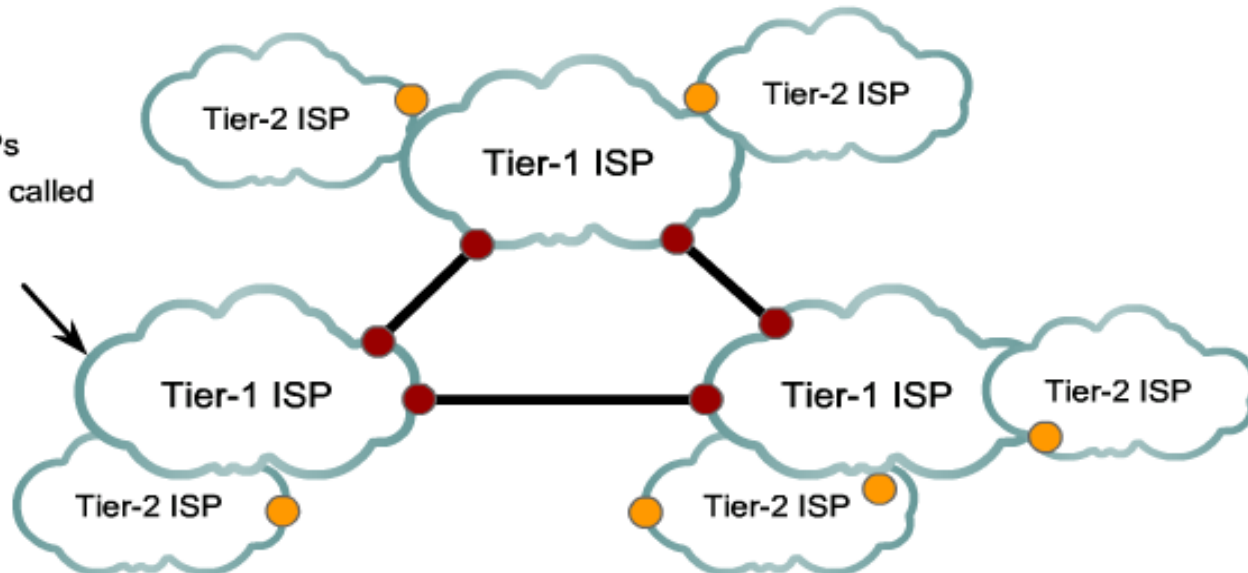
This is the "backbone" of the Internet.

Internet

Internet Structure - A Network of Networks

“Tier-2” ISPs are smaller and often provide regional service. Tier-2 ISPs usually pay Tier-1 ISPs for connectivity to rest of the Internet.

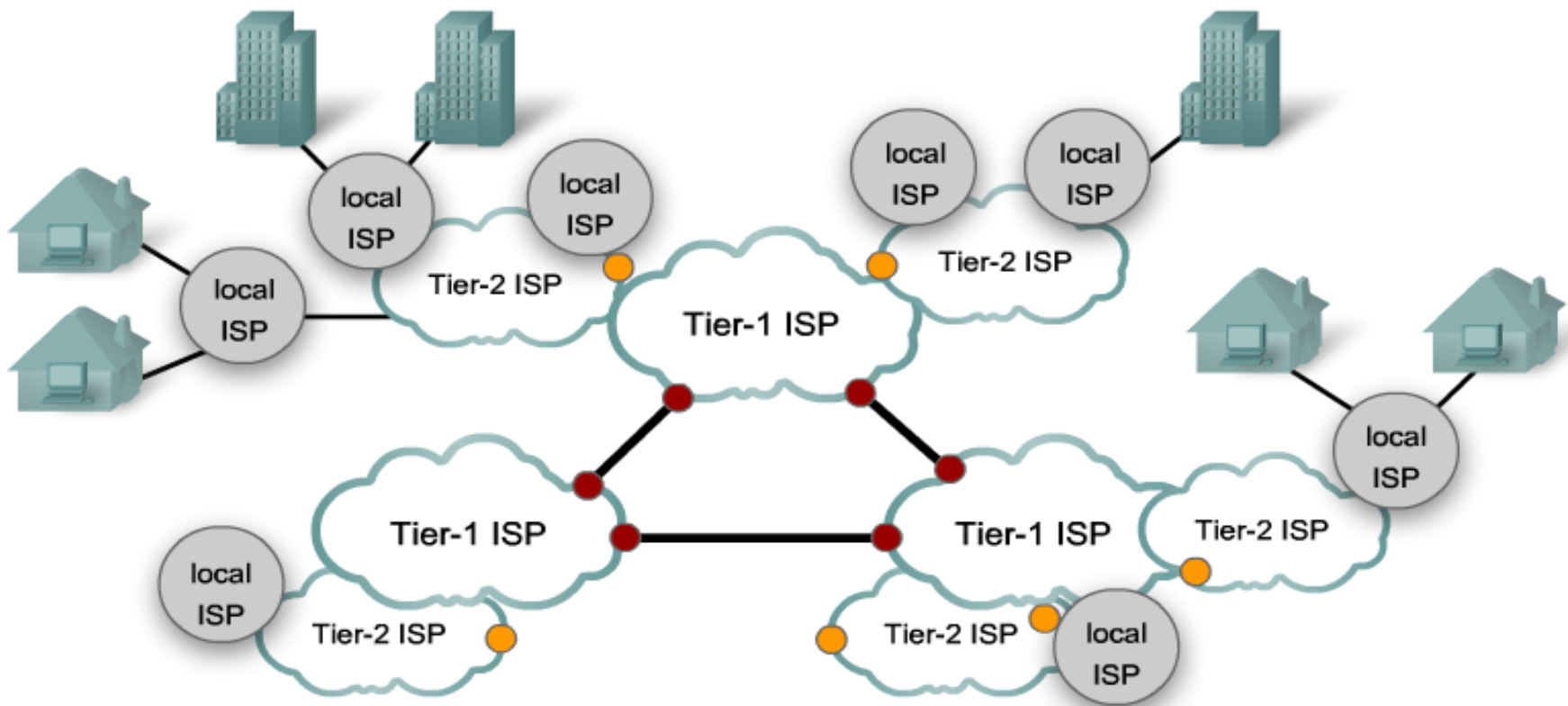
The point where ISPs interconnect is often called a “border.”



Internet

Internet Structure - A Network of Networks

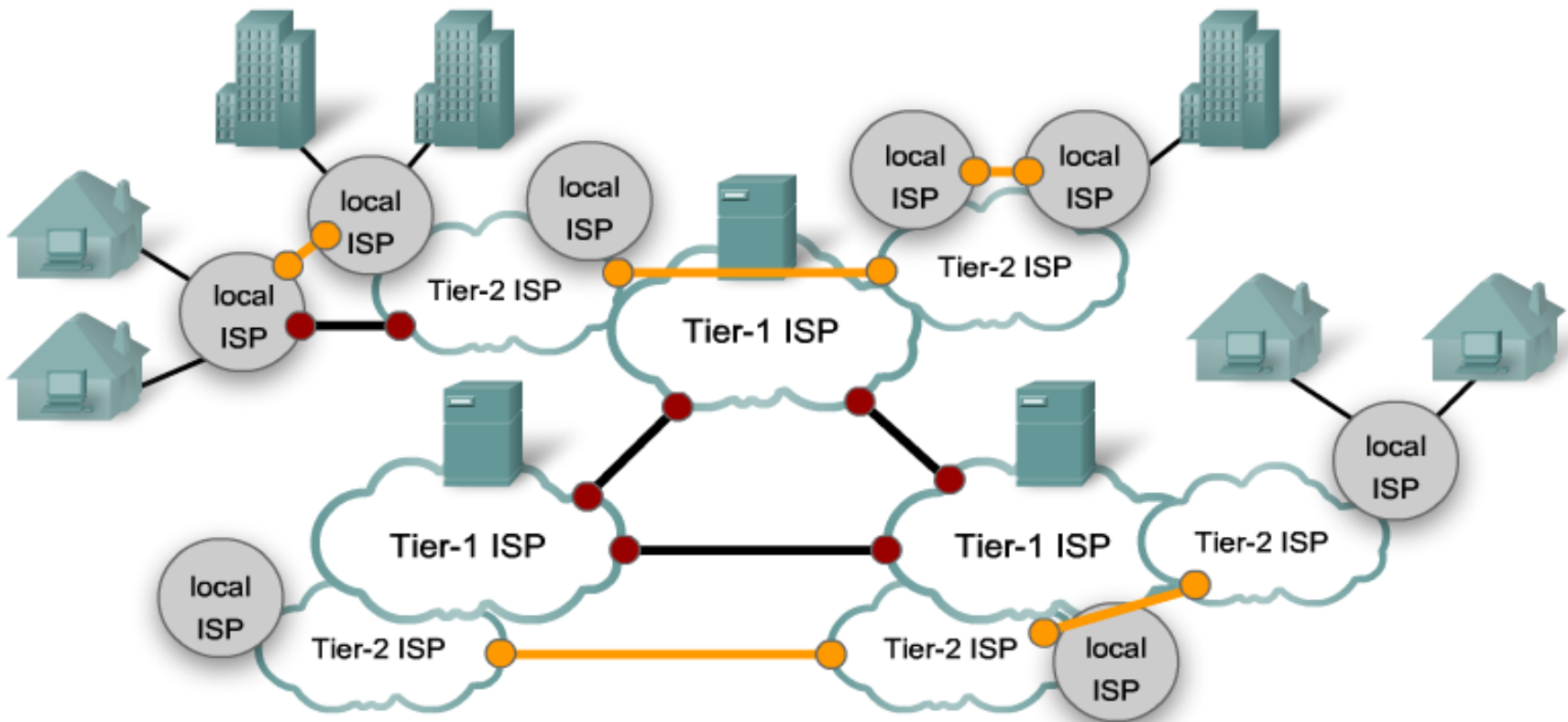
“Tier-3” ISPs are the local providers of service directly to end users. Tier-3 ISPs are usually connected to Tier 2 ISPs and pay Tier 2 providers for Internet access.



Internet

Internet Structure - A Network of Networks

Peer connections between networks at the same level provide direct connections, bypassing longer routes and preventing congestion on the backbone.

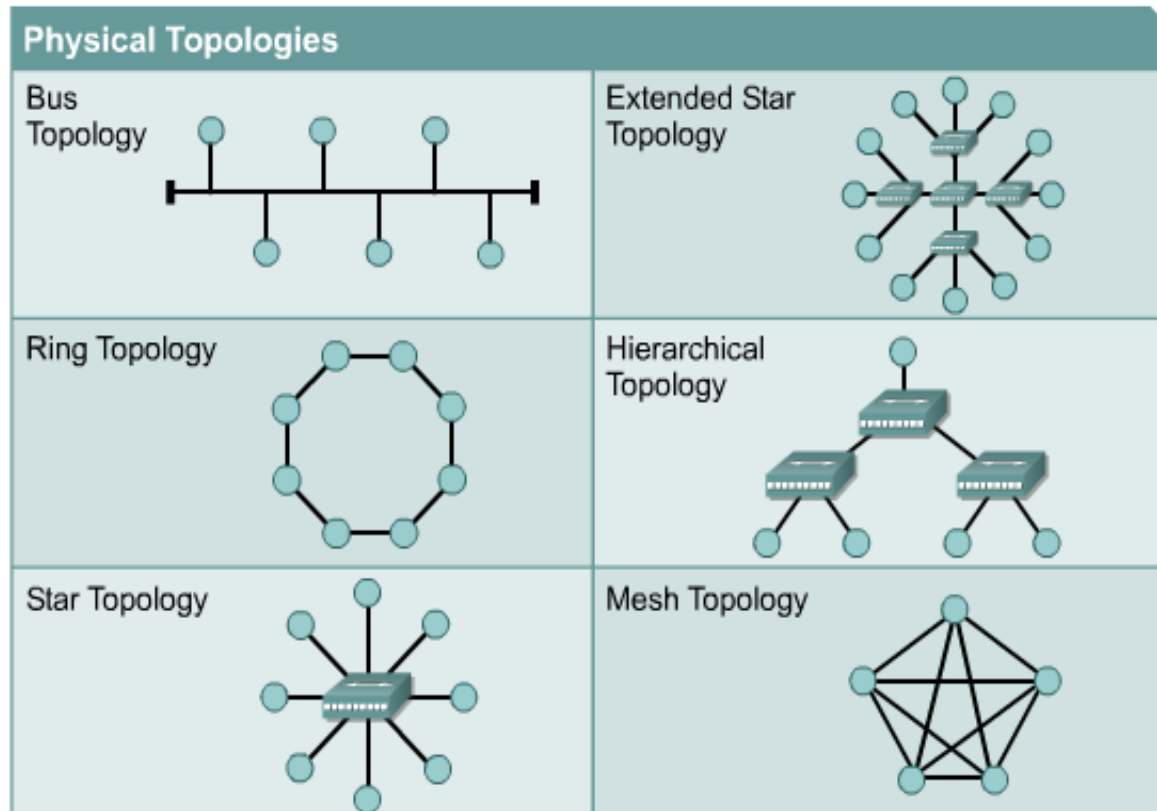


Network Topologies

- **Topology:**

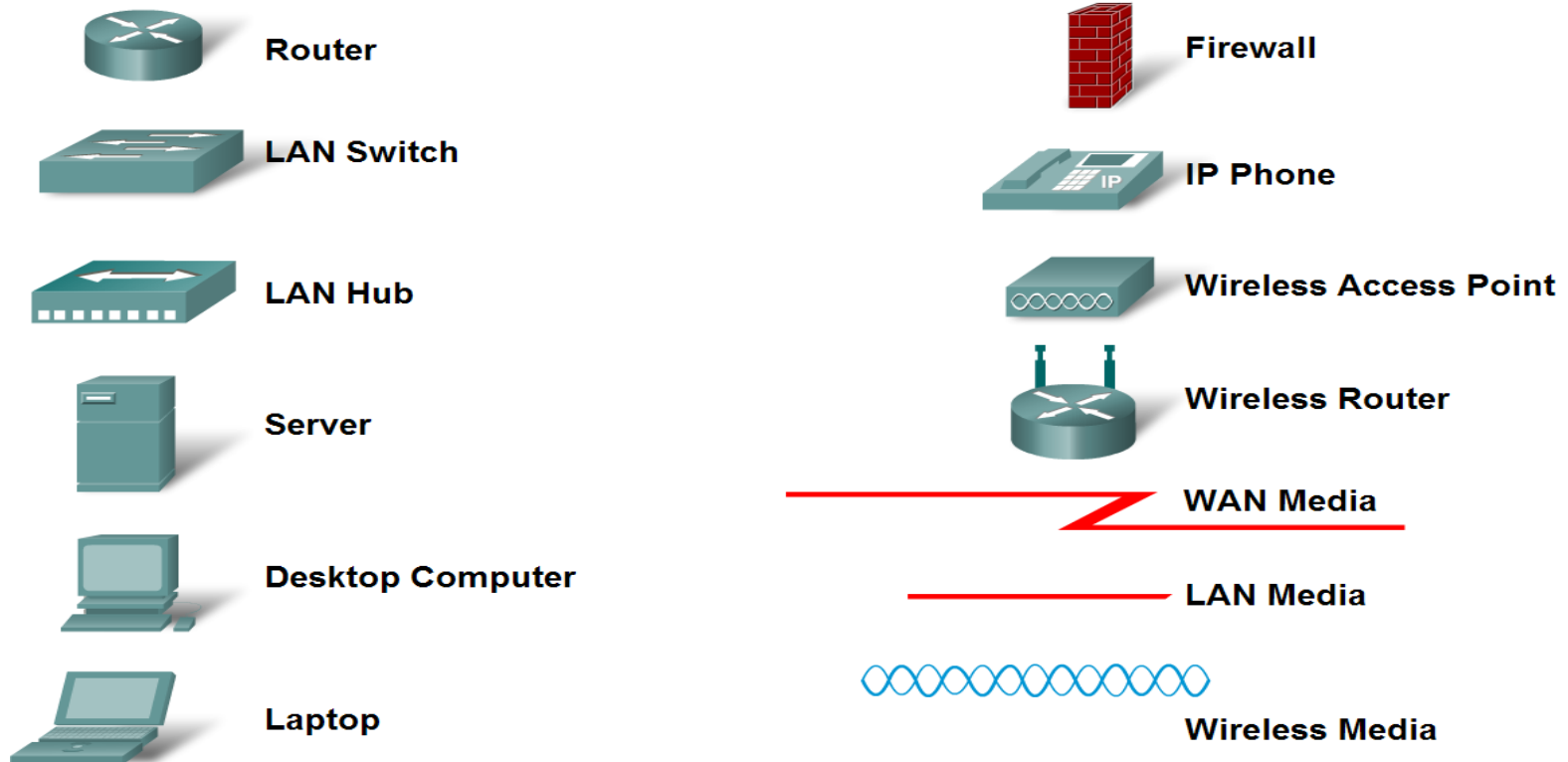
How devices are connected together

- ✓ Physical Topology: It describes how devices are physically cabled
- ✓ Logical Topology: It describes how devices communicate across physical topology.

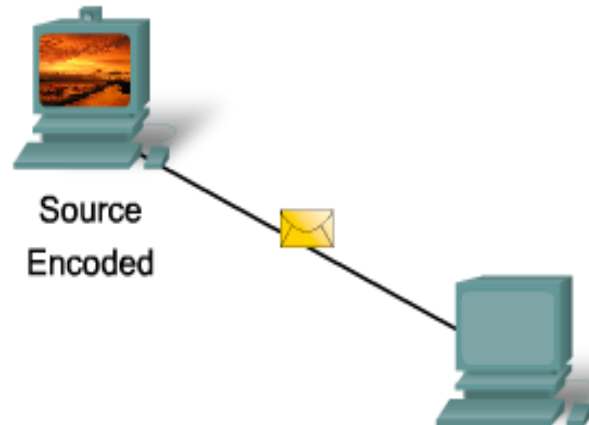


Cisco symbols

Common Data Network Symbols

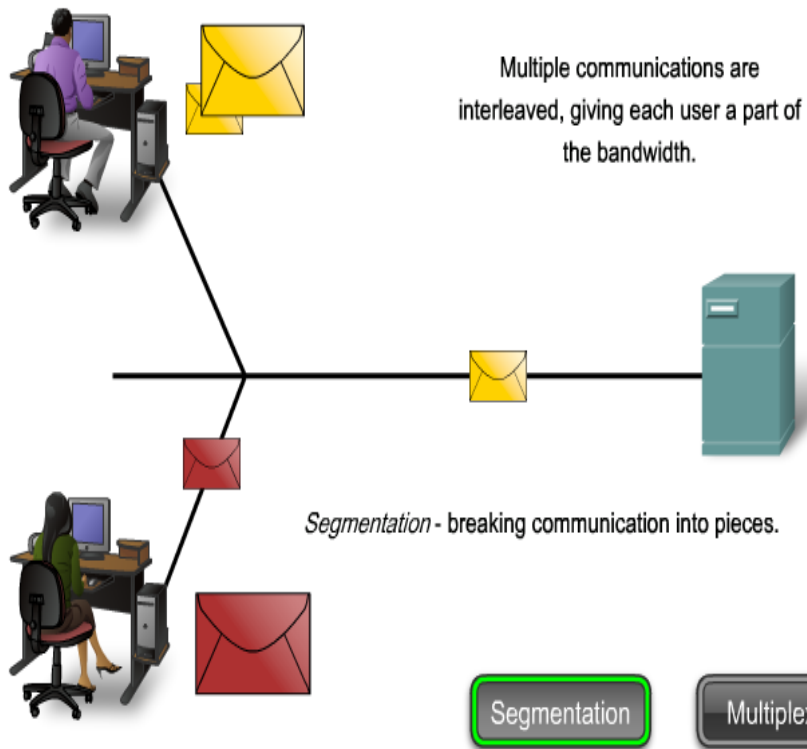


The elements of communication



The elements of communication

Communicating the Message



Communicating the Message

