

Architecture des Systèmes d'Information

WAN
Wide Area Network
Internet



Traduction en cours

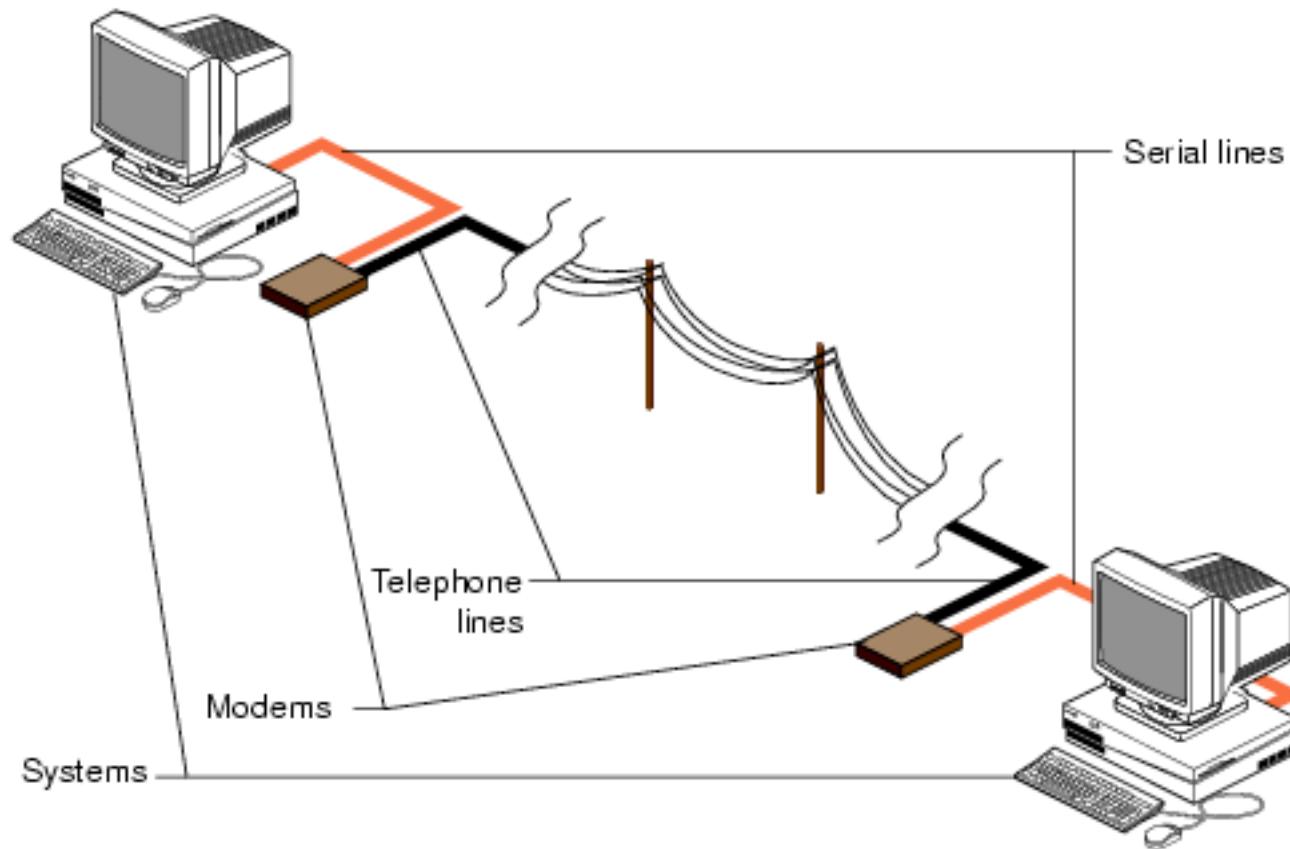


Avant Internet (inter réseaux)

- Infrastructure spécifique Ad hoc
- WAN : Wide Area Network
 - Réseau étendu
- MAN : Metropolitan Area Network
 - Université
 - Centre de recherche
- LAN : Local Area Network.



Serial Lines Over Telephone Lines





From Analog POTS (a) to ADSL (b)

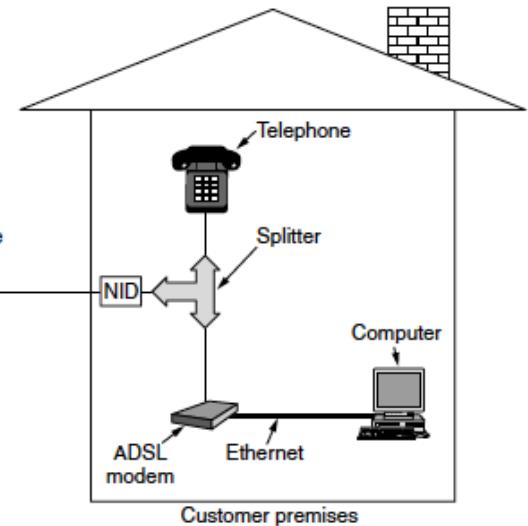
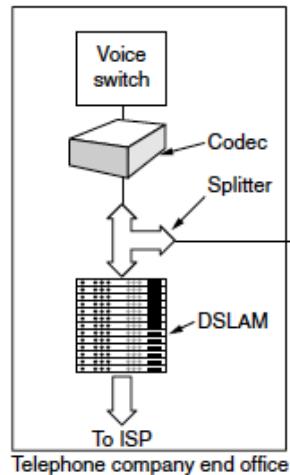
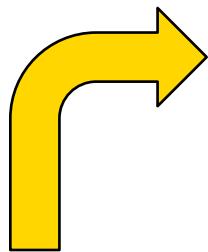
POTS : Plain Old Telephone Service

DSLAM :

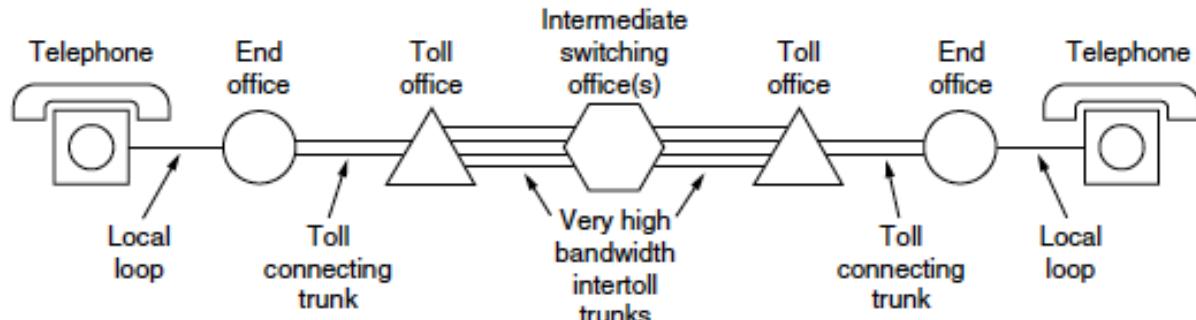
Digital Subscriber Line Access Multiplexer

DSL : Digital Subscriber Line

ADSL : Asymmetric DSL



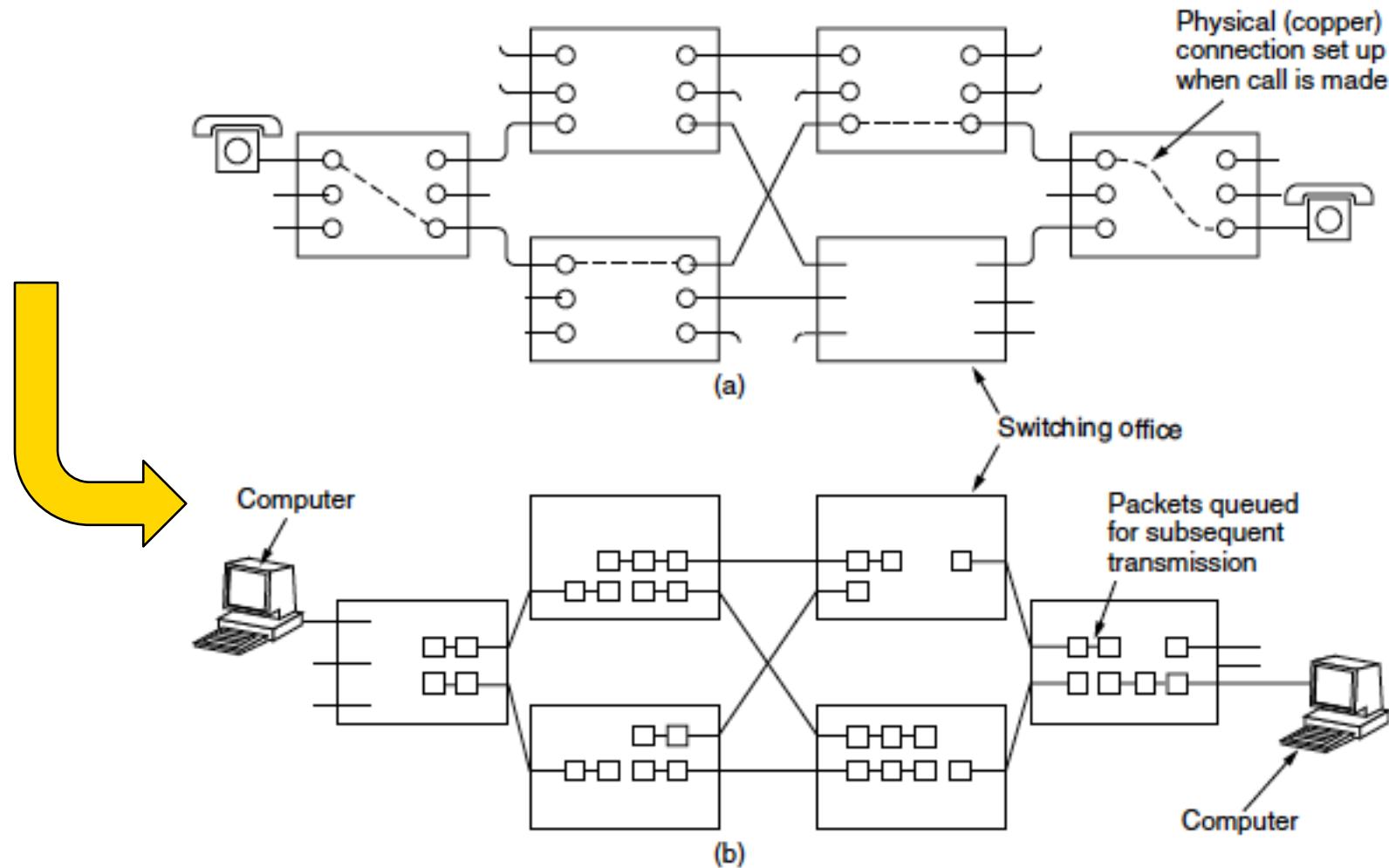
b



a



From Circuit switching (a) Packet switching (b)





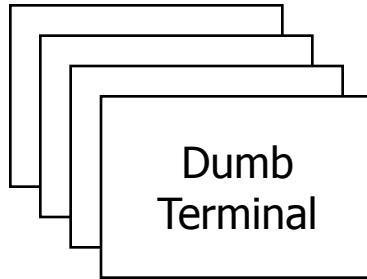
Avant Internet (inter réseaux)

- WAN
 - Réseaux privés dédiés
 - Banques
 - Air Lines (compagnie aériennes)
 - Plan de Vol (AFTN)
 - ...
 - Transpac : Réseau France Télécom
 - Accès en utilisant le protocole X25 (commutation de paquets, PDU (Protocol Data Unit))
 - Point to point leased line, liaison spécialisée (LS) (permanente, pas de numérotation) vs RTC (Réseau Téléphonique Commuté).
- MAN
 - Metropolitan Area Network

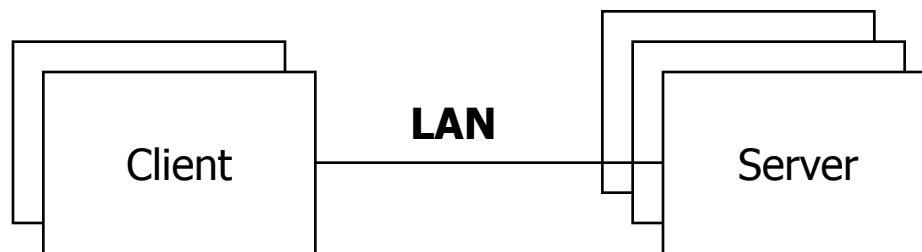




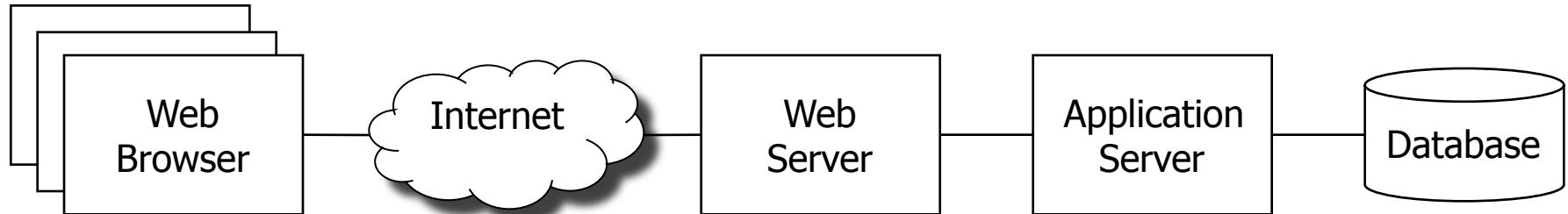
Évolution des architectures informatiques



**Single
Tier**



**Two
Tier**



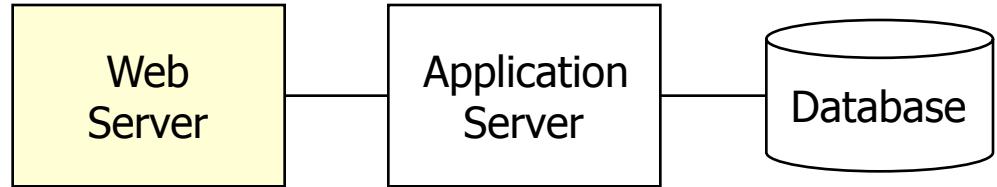
N-Tier



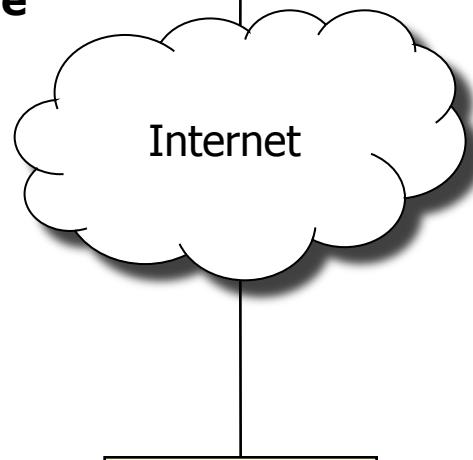


Évolution d'architecture : SOA

Service Oriented Architecture

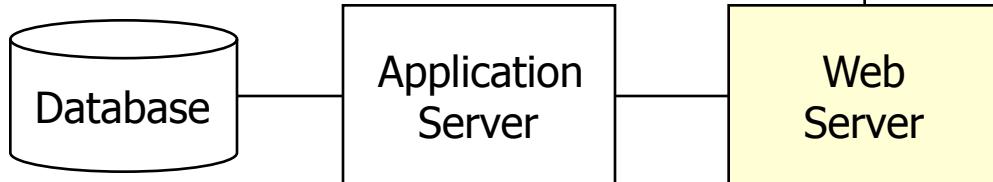


**Web Server Are the Middleware
Of the Internet**



Cloud Computing.

Internet as a LAN or MAN





Transition vers IP et Internet (IETF)

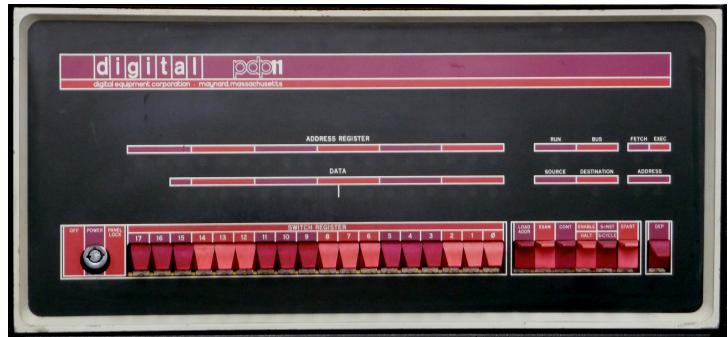
- Remplacement des « mainframes »
- Utilisation des stations de travail sous UNIX
- TCP/IP disponible sans surcoût
- Migration de fait vers TCP/IP
- Protocole de gestion de lignes séries pour IP
 - PPP (point-to-point protocol) basé sur HDLC.
- →
 - Internet est omniprésent, disponible.
 - Transport internet : HTTP.





Minicomputer to workstation

Minicomputer



SUN Sparc



workstation



LAN avant Ethernet

- Liaison série ou parallèle
- Protocoles propriétaires spécifiques
- LAN
 - Ethernet (XEROX)
 - IEEE 802.3
- TCP/IP
- Commutateur Ethernet (Hub, Switch)

From Serial Ports (a) to Ethernet coax (b)



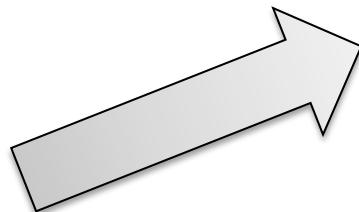
TD : Transmit Data

RD : Receive Data

DTE : Data Terminal Equipment

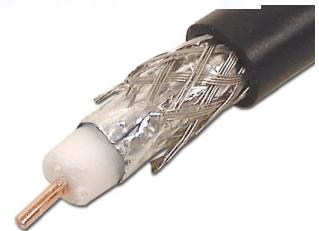
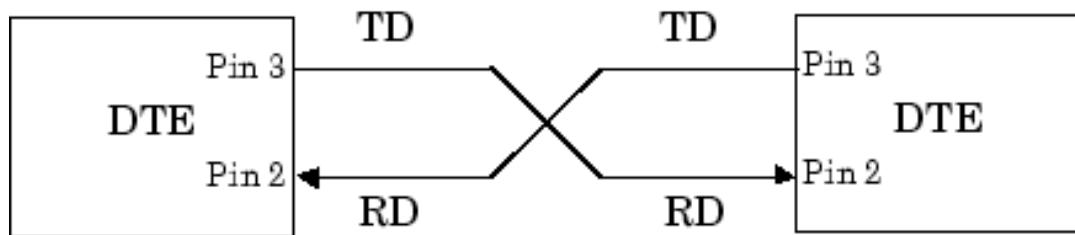
b

a



Computer

Computer



<http://fr.mathworks.com/help/instrument/serial-port-overview.html>



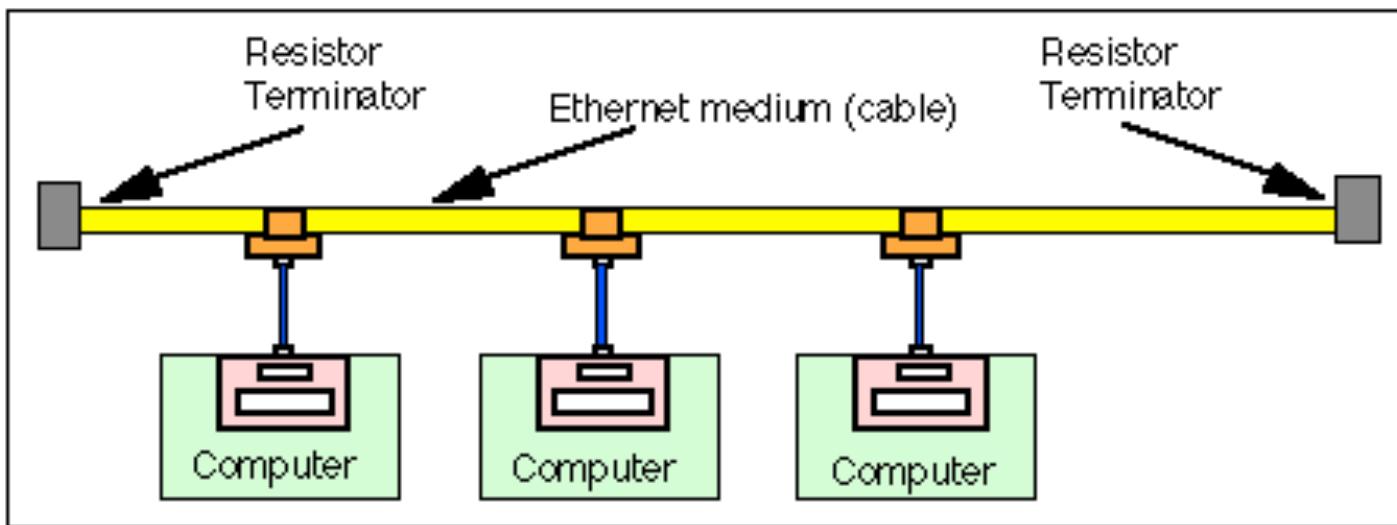
Ethernet

- May 23rd, 1973, Bob Metcalfe outlined his new “Ethernet” concept in a memo to his managers at Xerox PARC.



<http://www.computerhistory.org/atchm/happy-40th-birthday-ethernet/>

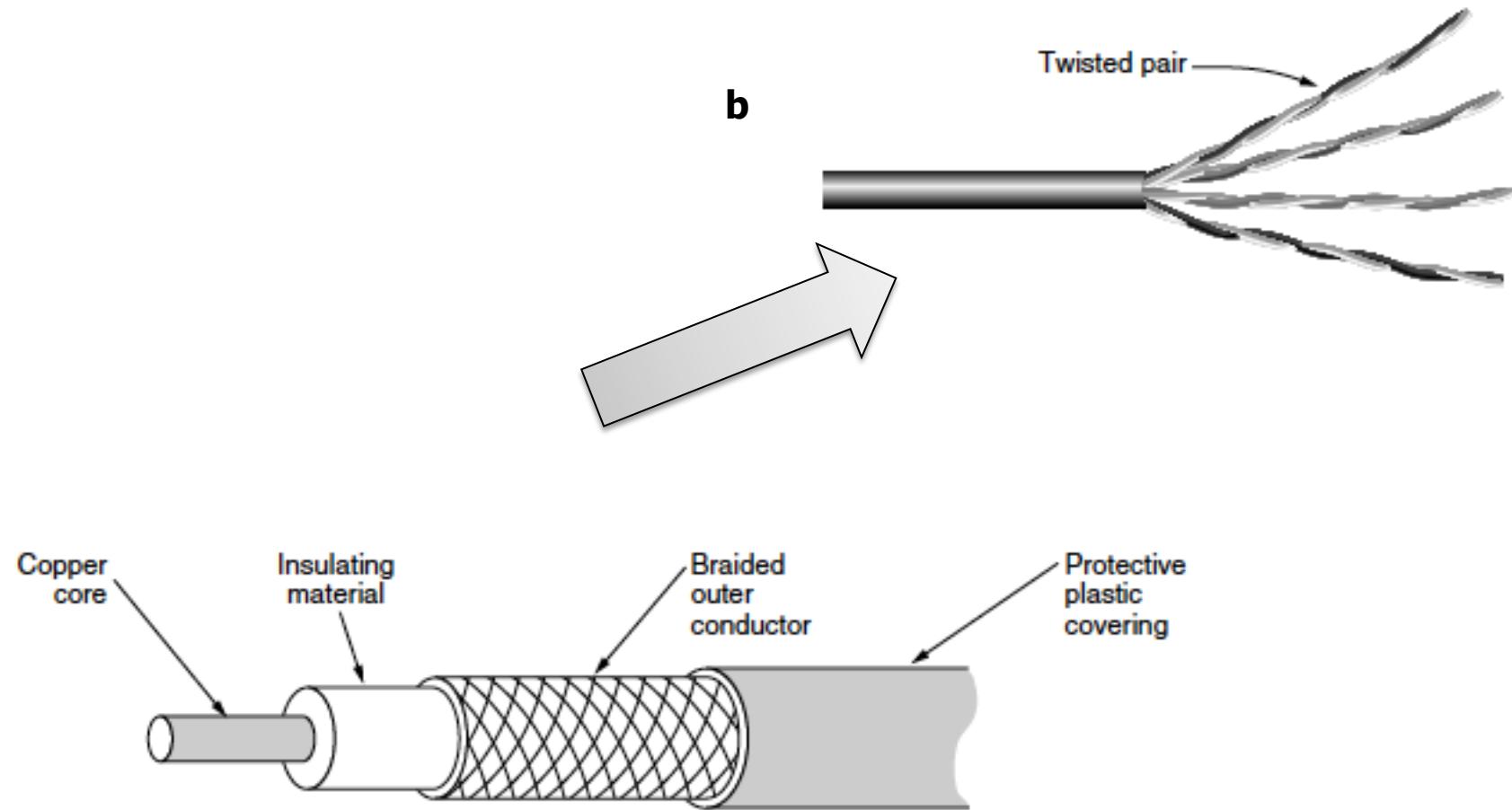
Ethernet Bus



<http://www.erg.abdn.ac.uk/users/gorry/course/lan-pages/enet.html>

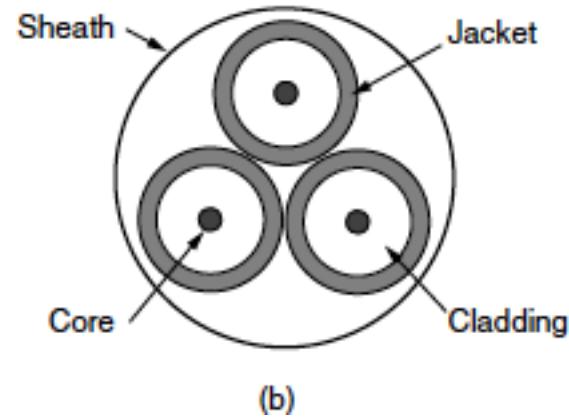
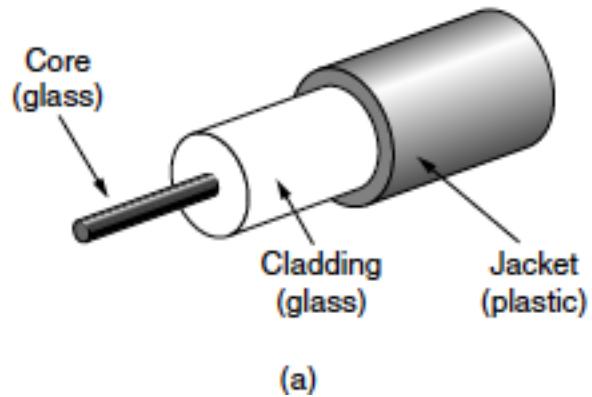


From Coax (a) to Twisted Pairs (b)



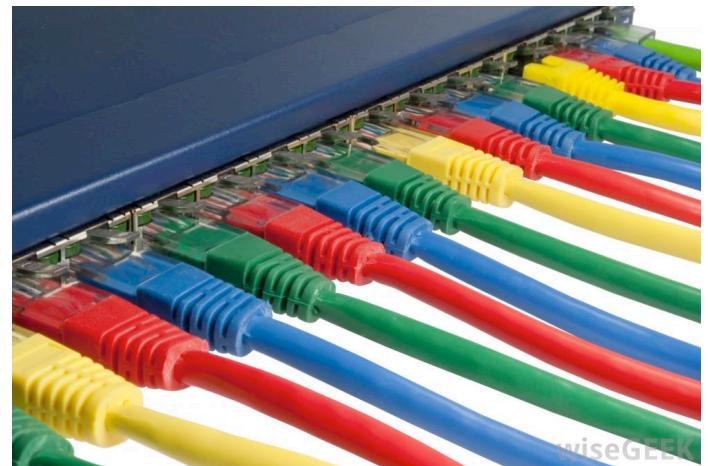
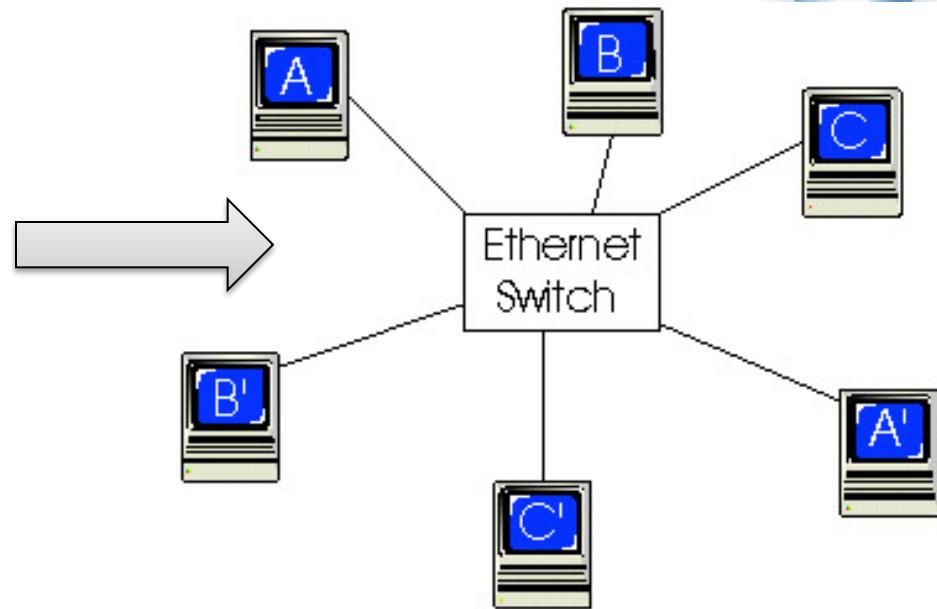
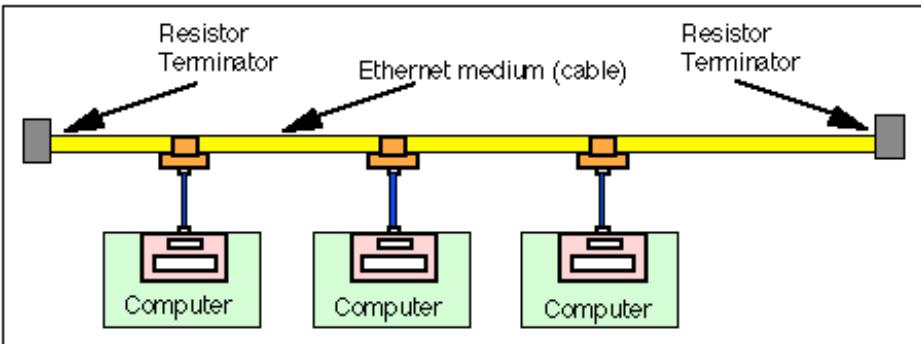


Fiber





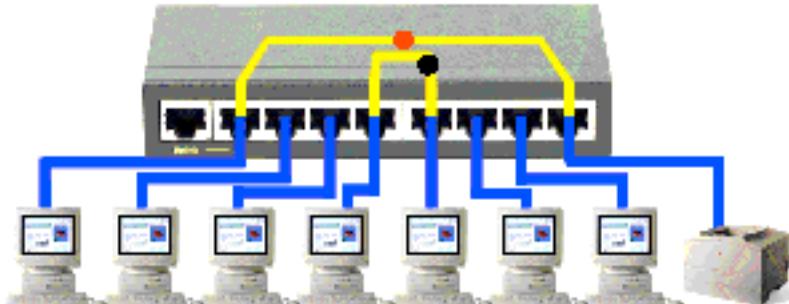
Switched Ethernet



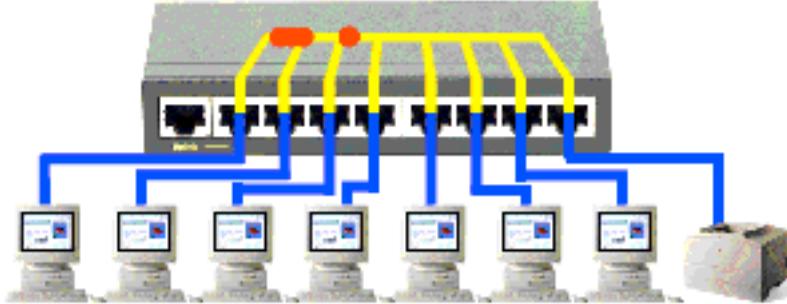
Switched Ethernet Switch and Hub



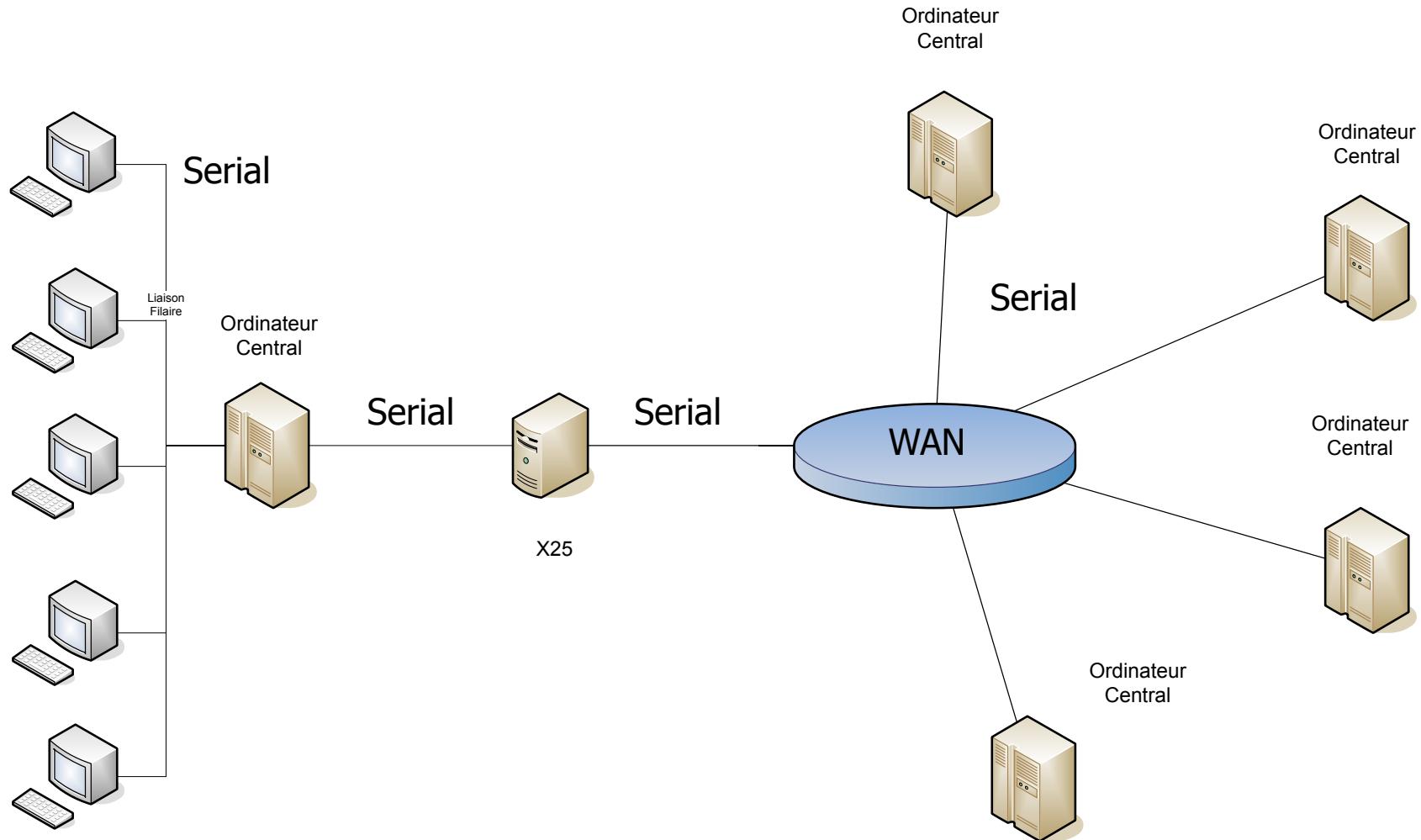
Switch : Unicast



Hub : Broadcast

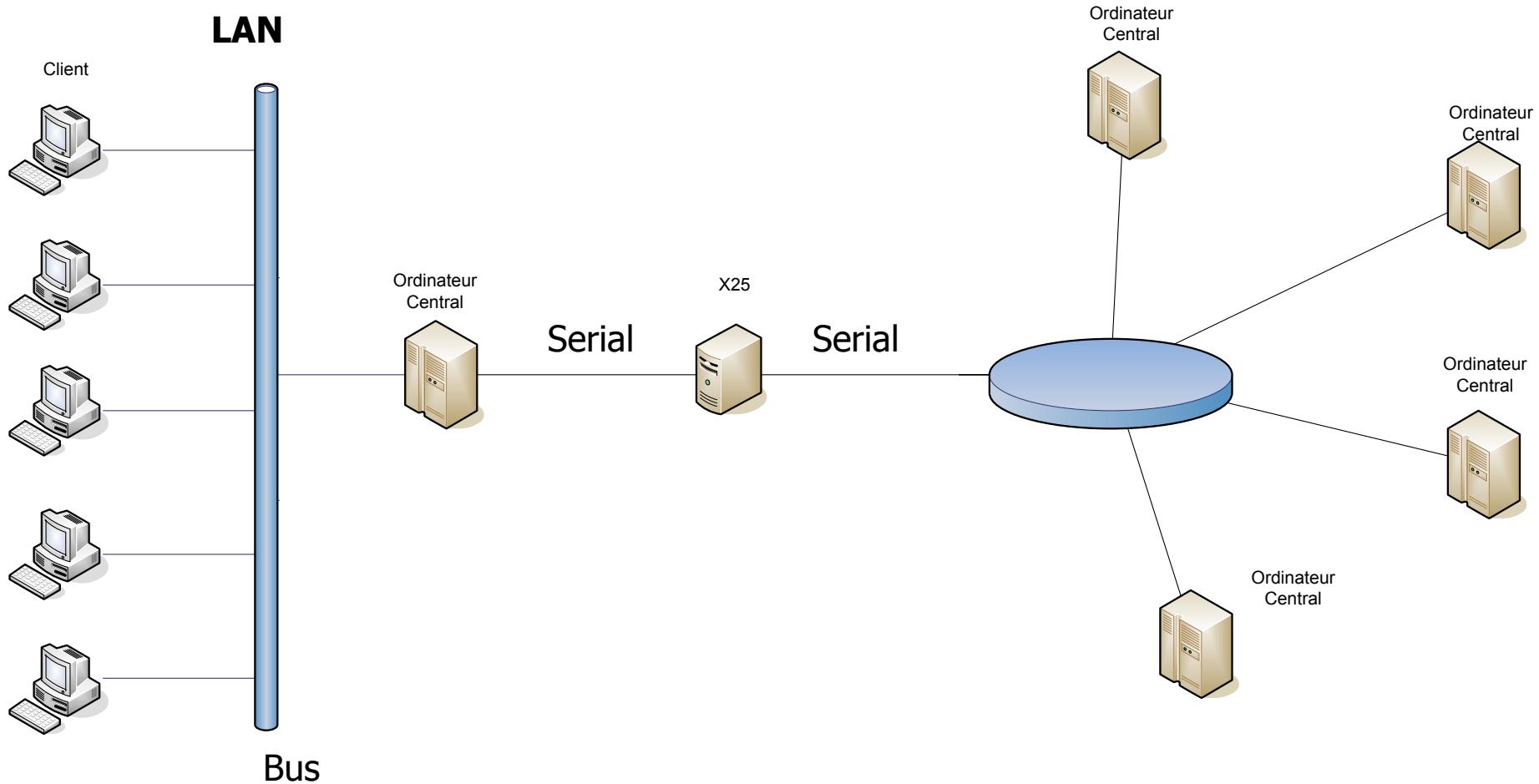


Configuration Main Frame (ordinateur central)



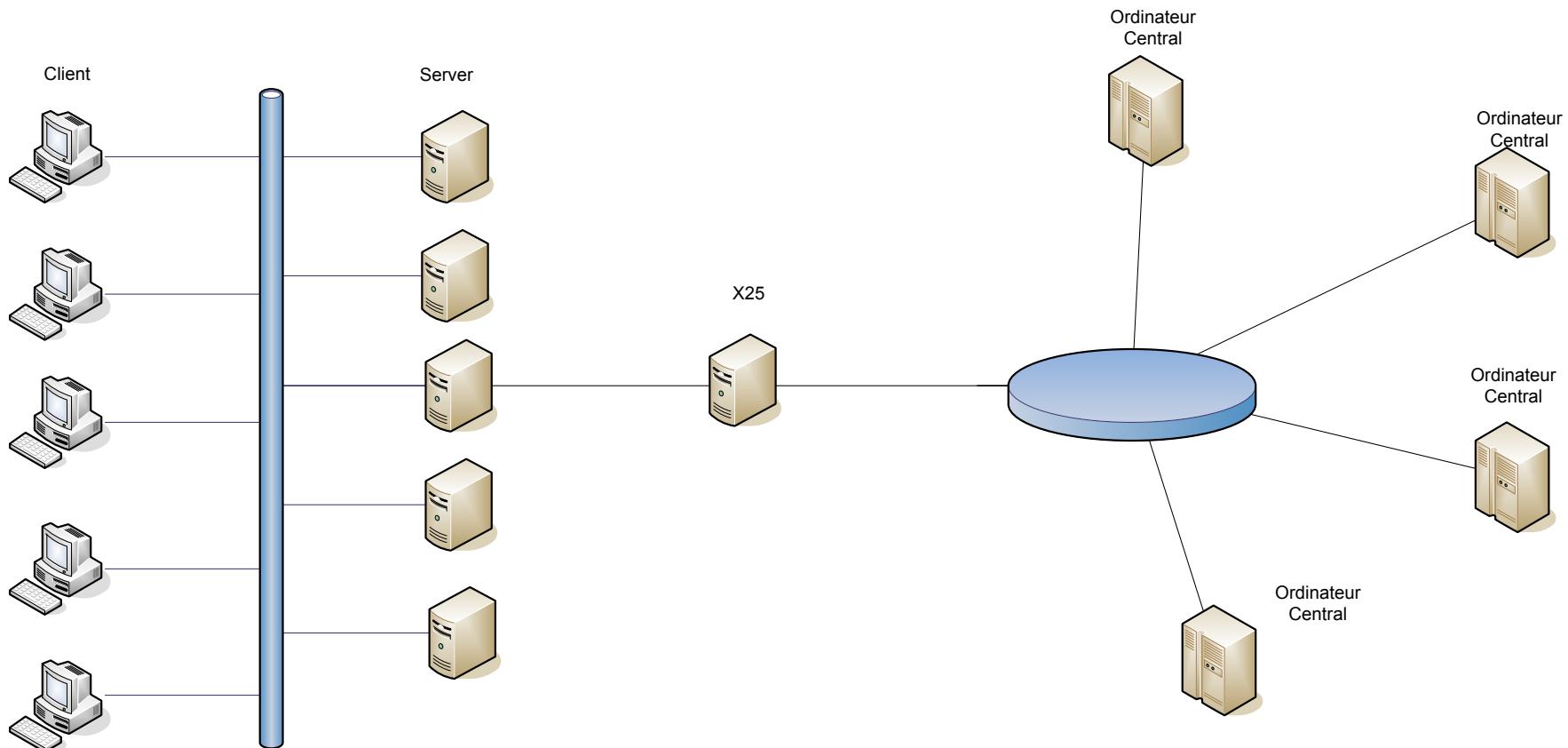


Main Frame (ordinateur central) LAN

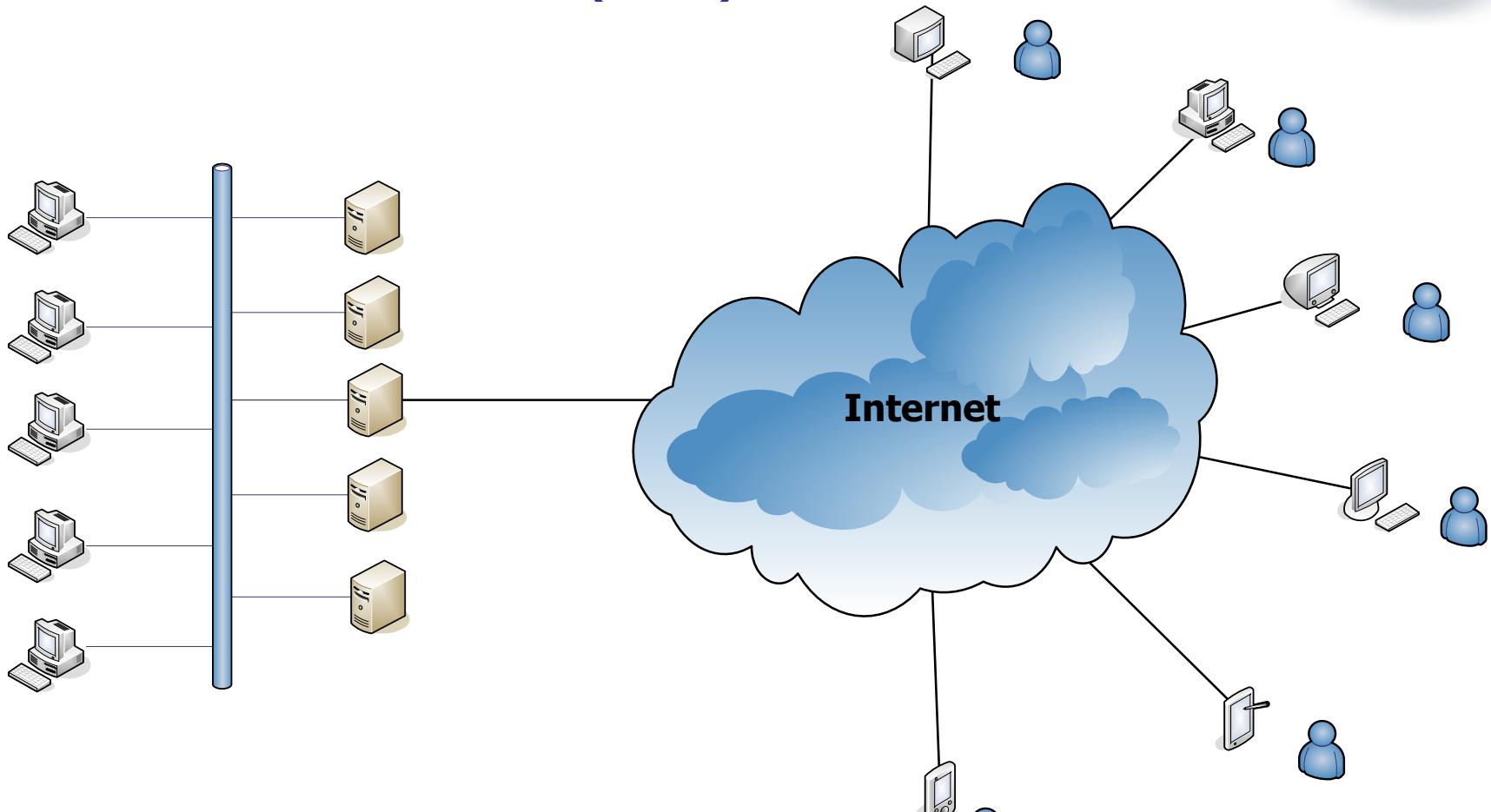




LAN server



Internet Serveur WEB business-to-consumer (B2C)



Back
Office

Serveurs
Web

Internautes





B to B : Business-to-business

