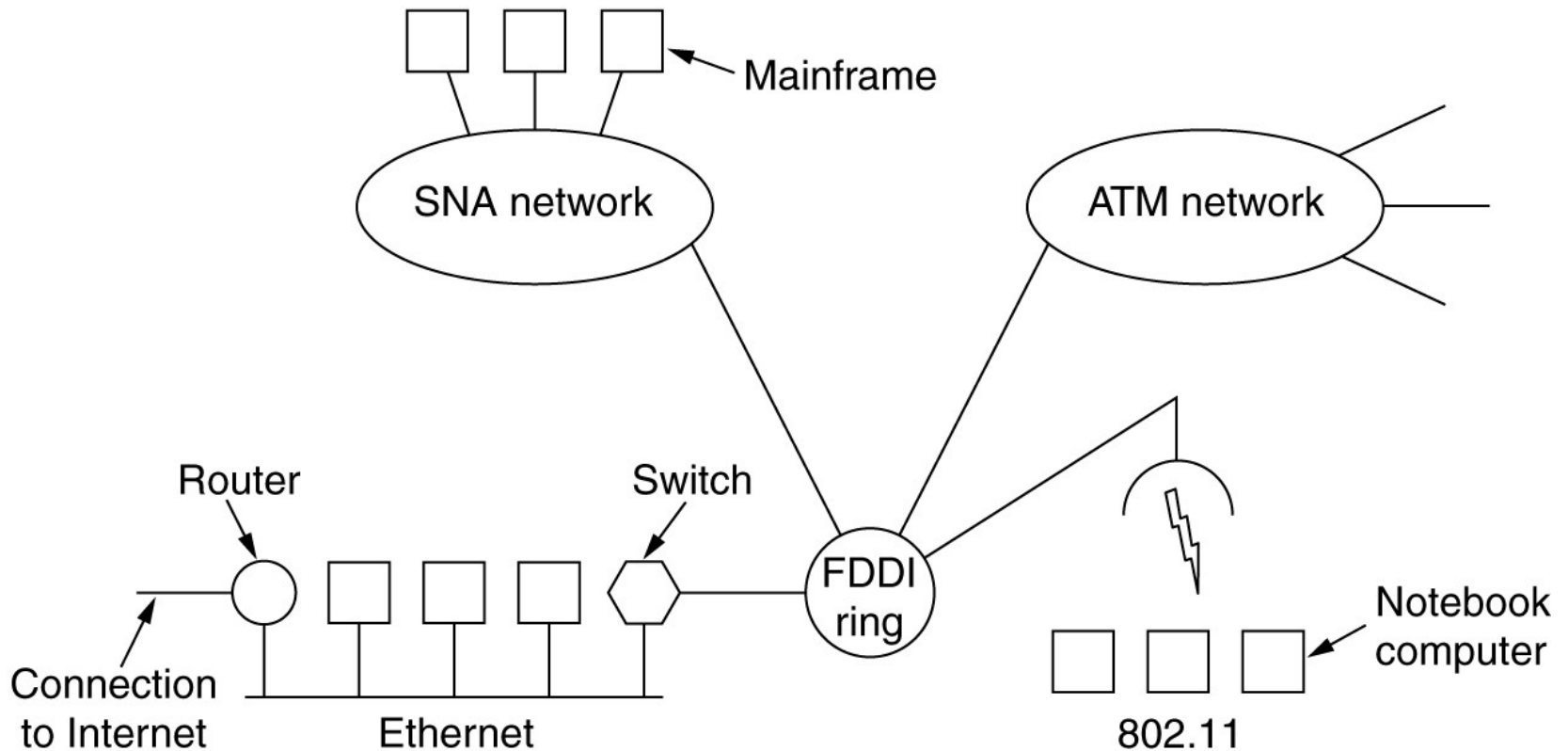


UNIT-3

The Network Layer

Connecting Networks



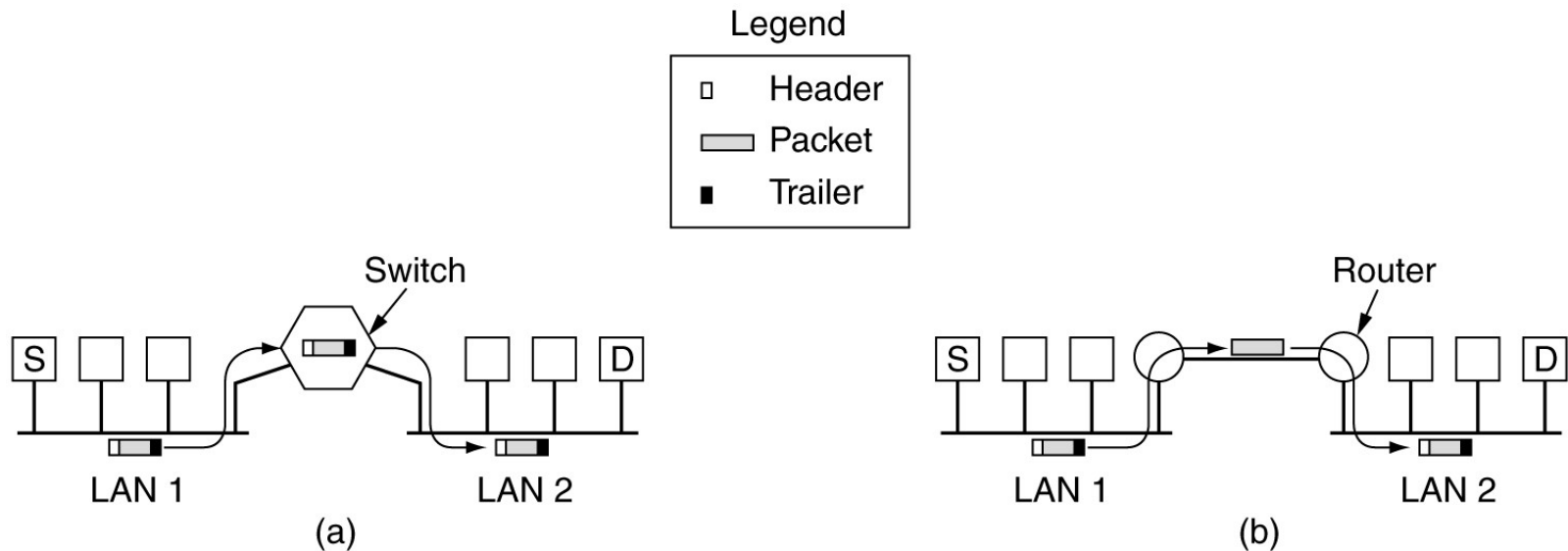
A collection of interconnected networks.

How Networks Differ

Item	Some Possibilities
Service offered	Connection oriented versus connectionless
Protocols	IP, IPX, SNA, ATM, MPLS, AppleTalk, etc.
Addressing	Flat (802) versus hierarchical (IP)
Multicasting	Present or absent (also broadcasting)
Packet size	Every network has its own maximum
Quality of service	Present or absent; many different kinds
Error handling	Reliable, ordered, and unordered delivery
Flow control	Sliding window, rate control, other, or none
Congestion control	Leaky bucket, token bucket, RED, choke packets, etc.
Security	Privacy rules, encryption, etc.
Parameters	Different timeouts, flow specifications, etc.
Accounting	By connect time, by packet, by byte, or not at all

Some of the many ways networks can differ.

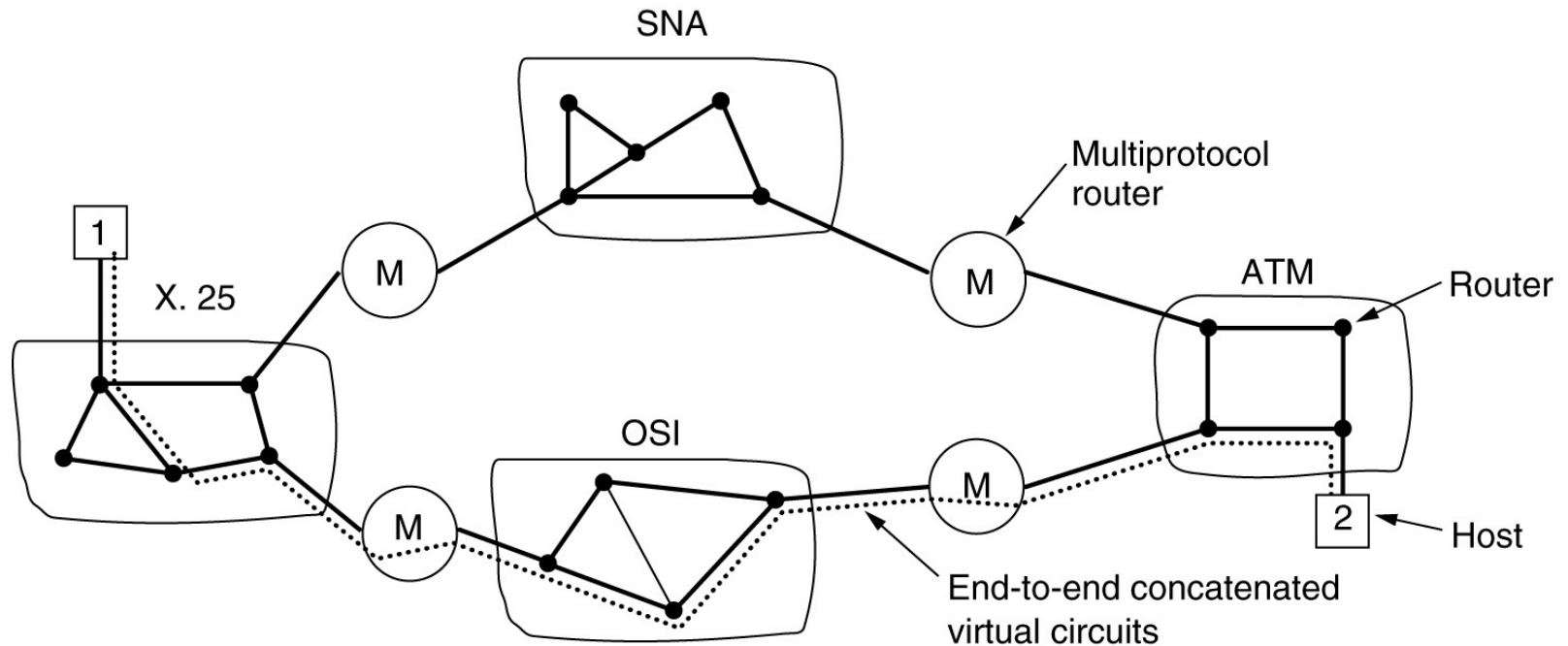
How Networks Can Be Connected



(a) Two Ethernets connected by a switch.

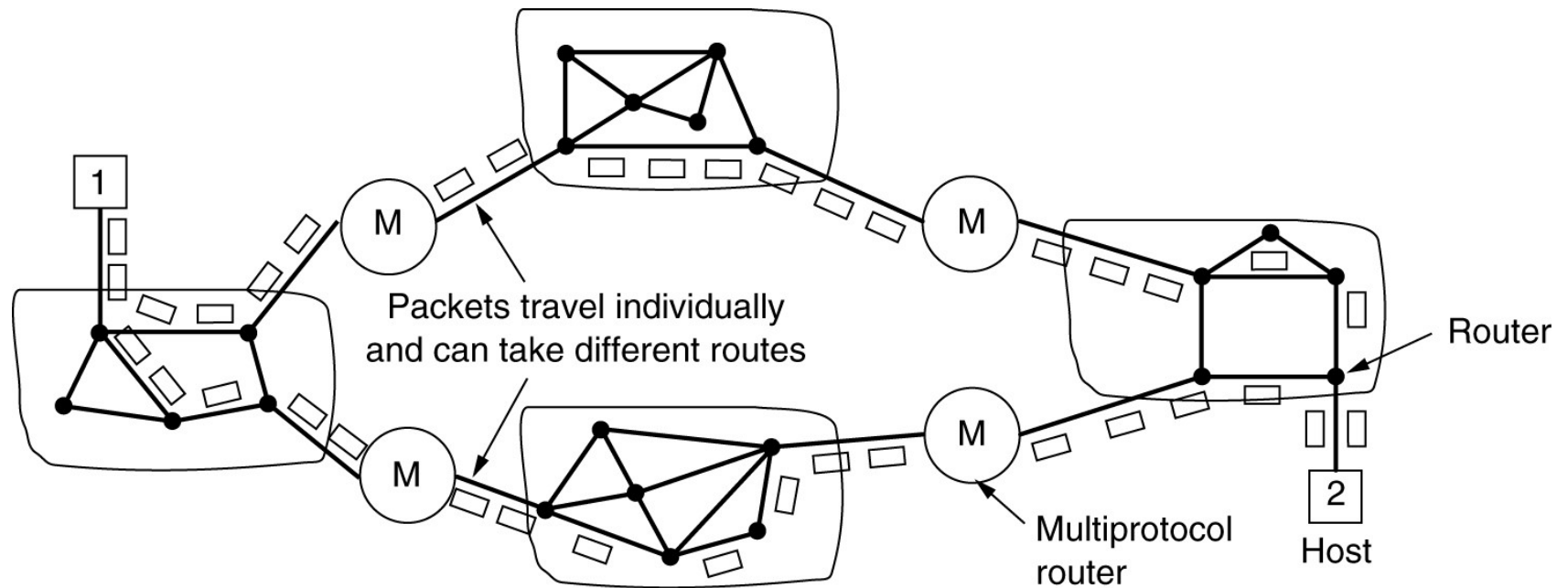
(b) Two Ethernets connected by routers.

Concatenated Virtual Circuits



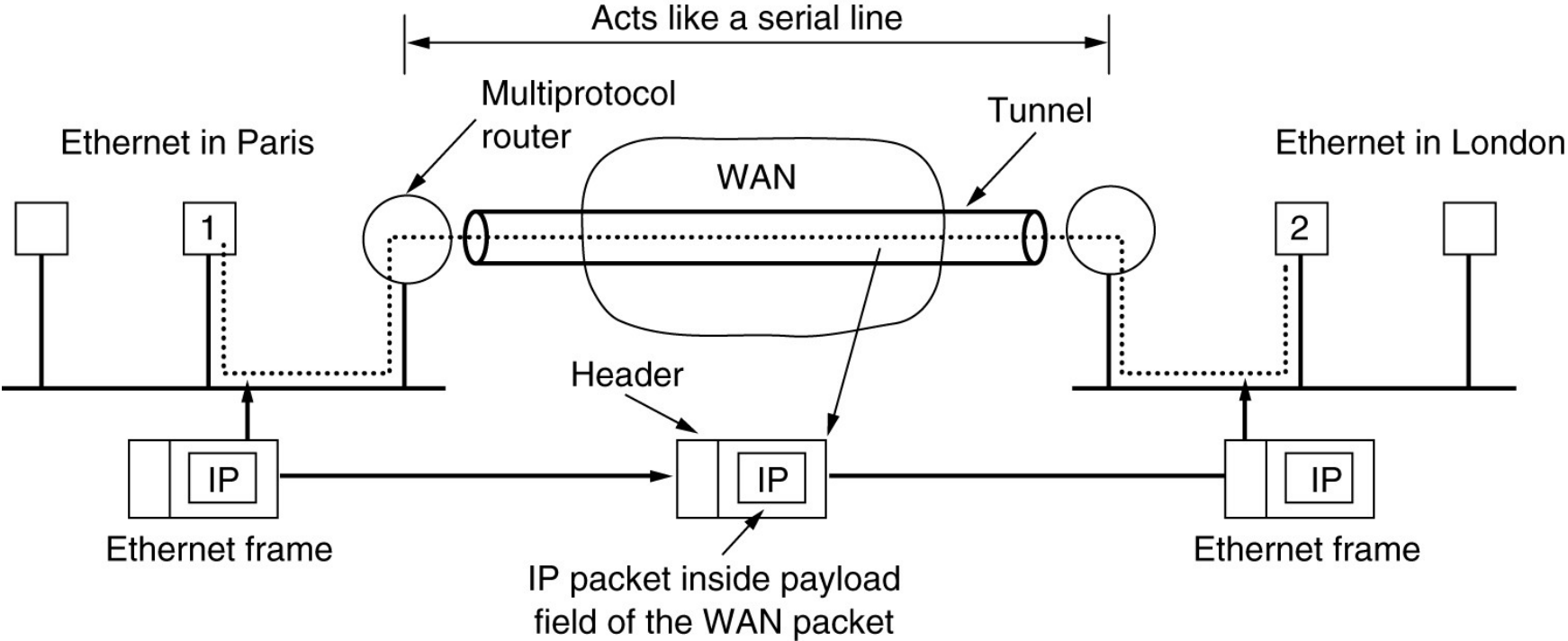
Internetworking using concatenated virtual circuits.

Connectionless Internetworking



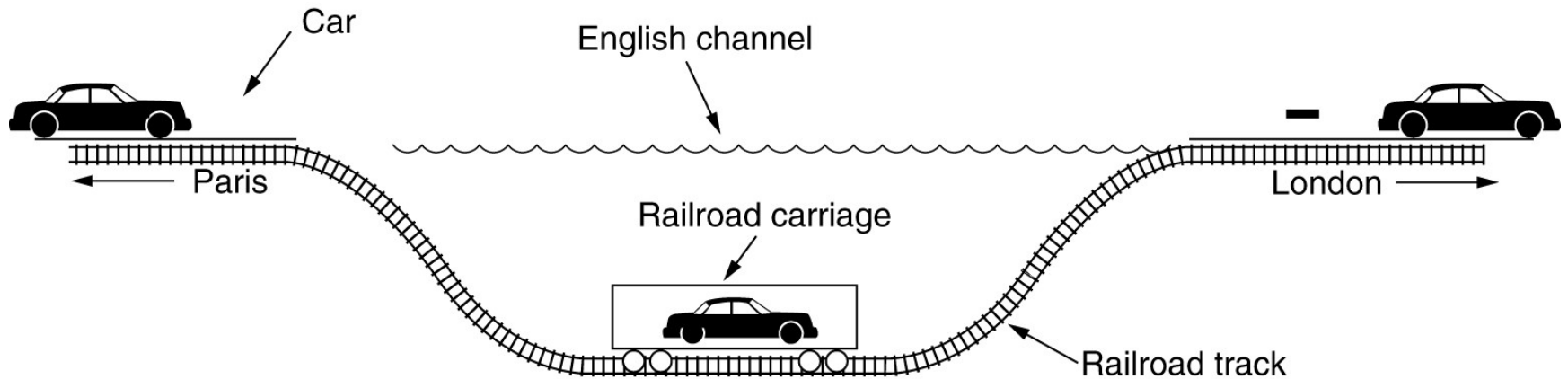
A connectionless internet.

Tunneling



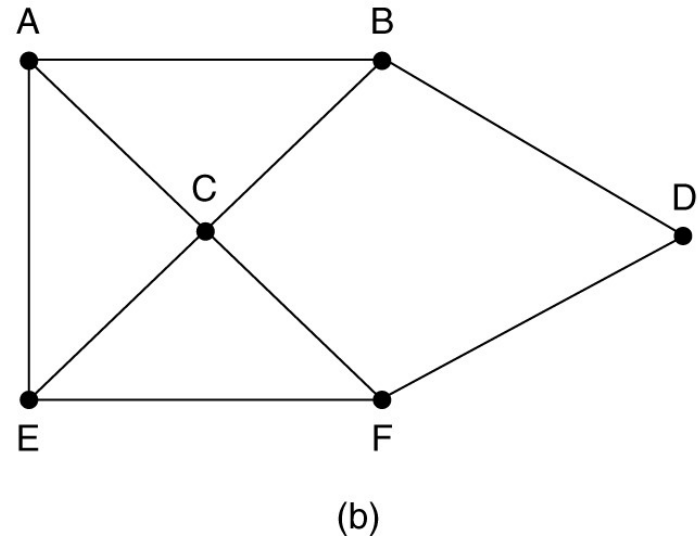
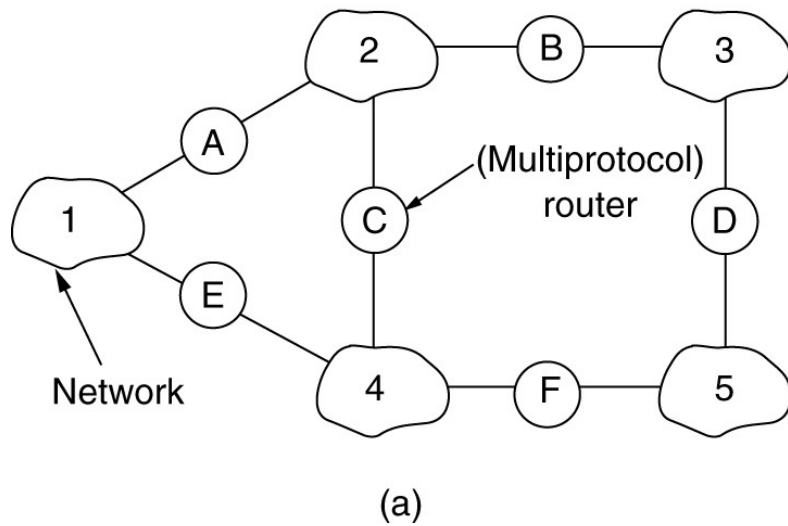
Tunneling a packet from Paris to London.

Tunneling (2)



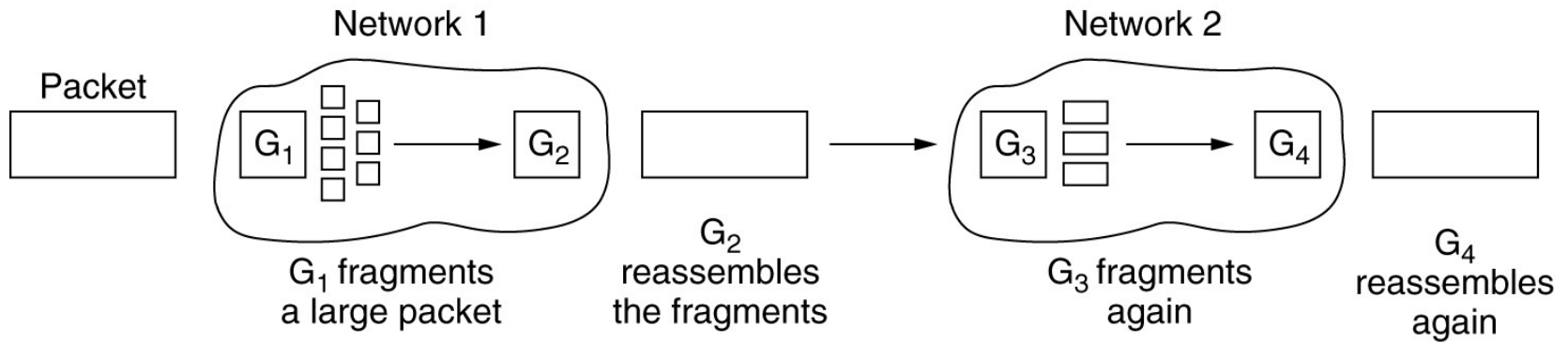
Tunneling a car from France to England.

Internetwork Routing

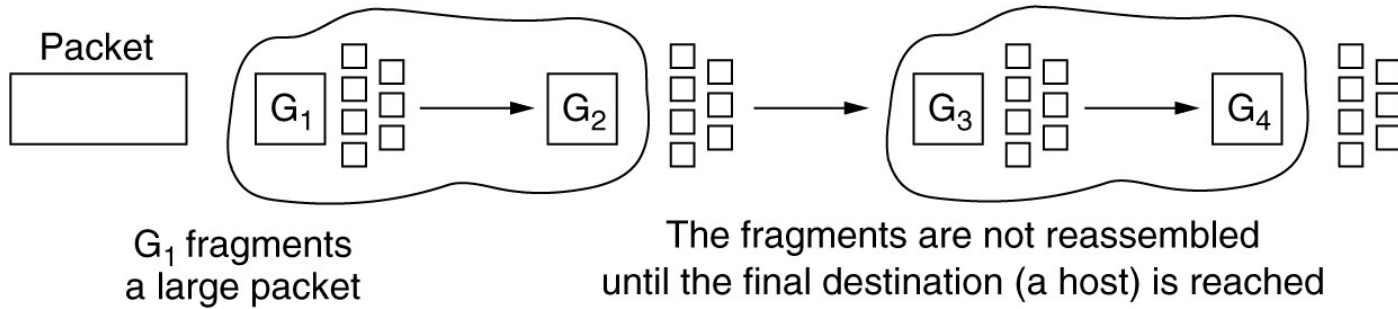


(a) An internetwork. (b) A graph of the internetwork.

Fragmentation



(a)



(b)

(a) Transparent fragmentation. (b) Nontransparent fragmentation.

Thank YOU