6.1 DELIVERY

The network layer supervises delivery, the handling of the packets by the underlying physical networks. Two important concepts are the type of connection and direct versus indirect delivery.

The topics discussed in this section include:

Connection Types
Direct Versus Indirect Delivery

IP is a connectionless protocol.

Figure 6.1 *Direct delivery*

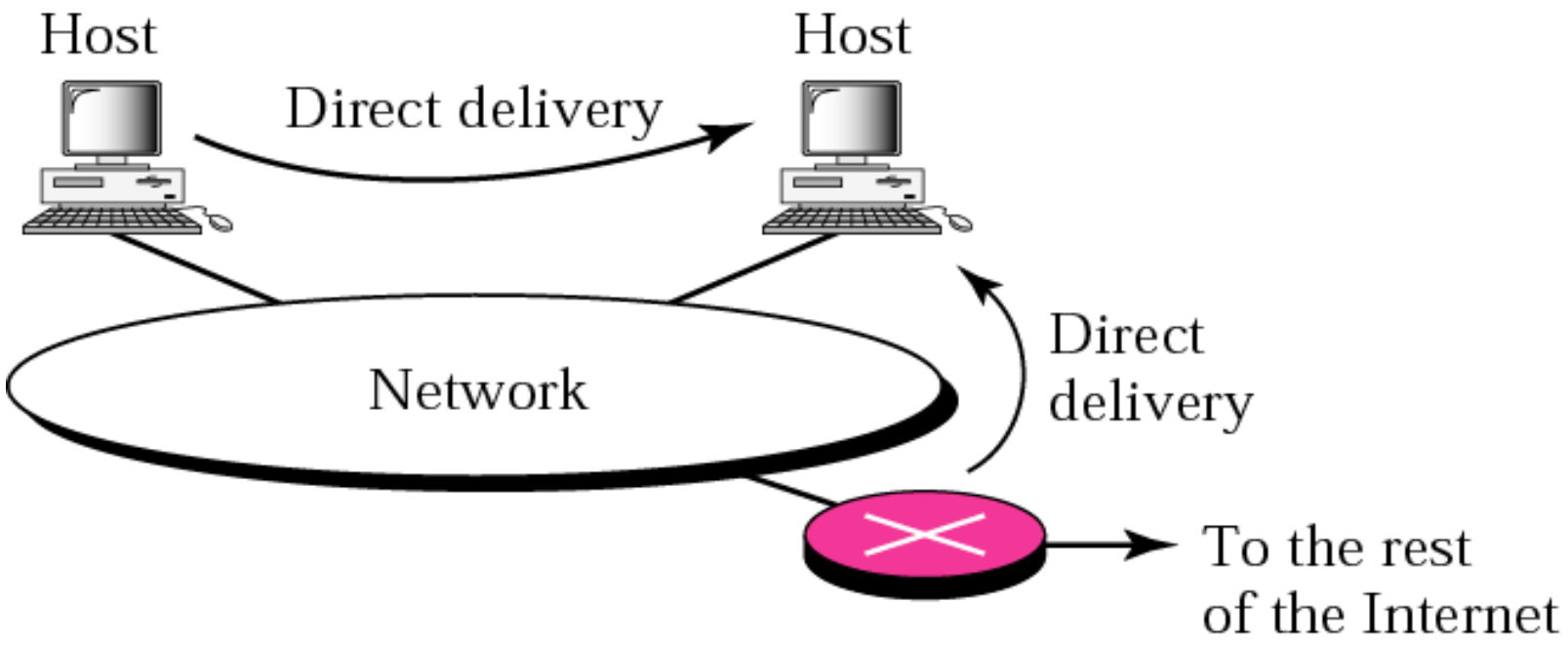
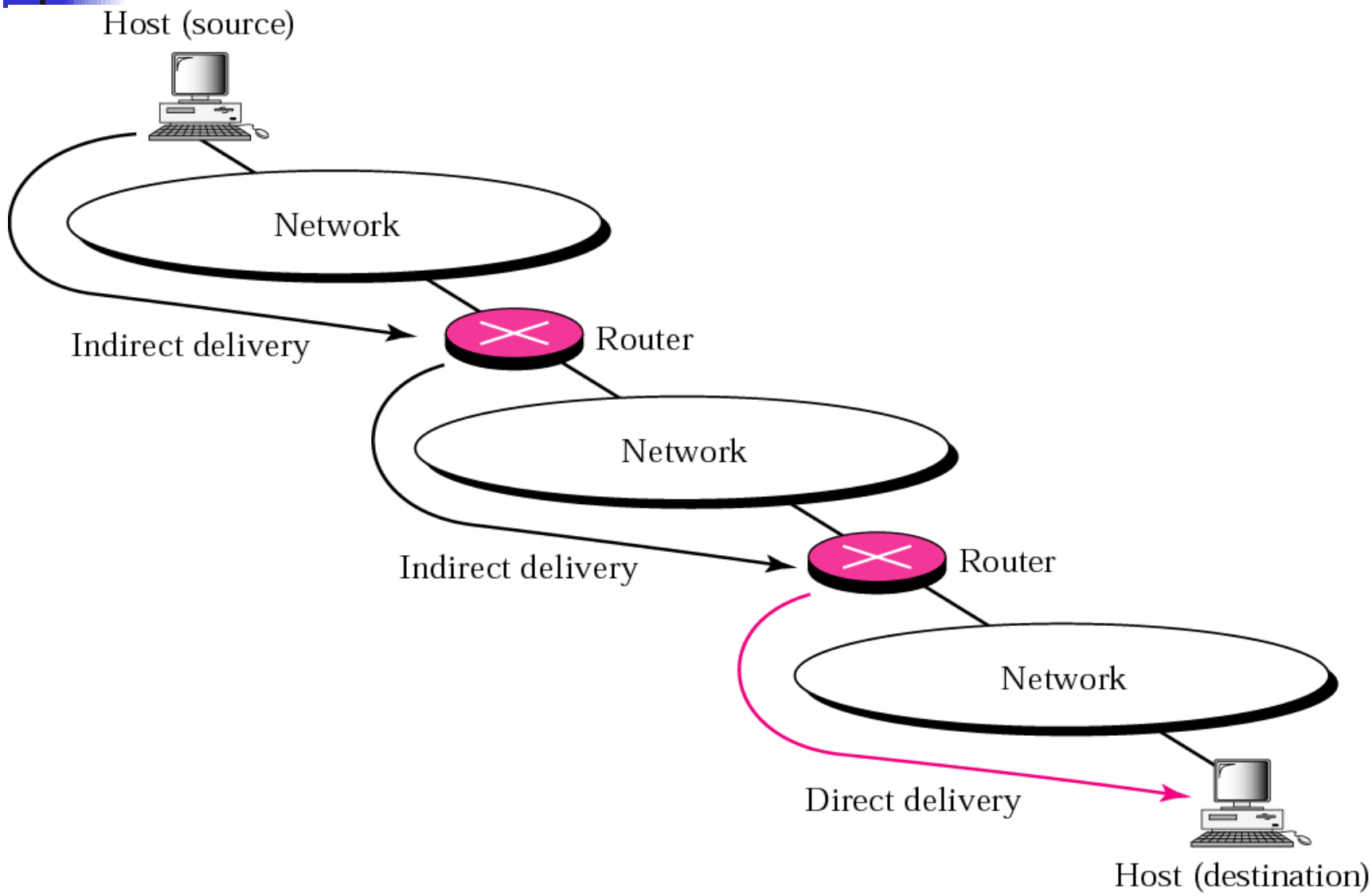


Figure 6.2 *Indirect delivery*



6.2 FORWARDING

Forwarding means to place the packet in its route to its destination. Forwarding requires a host or a router to have a routing table. .

The topics discussed in this section include:

Forwarding Techniques
Forwarding with Classful Addressing
Forwarding with Classless Addressing
Combination

Figure 6.3 *Next-hop method*

Routing table for host A

Destination	Route
Host B	R1, R2, Host B

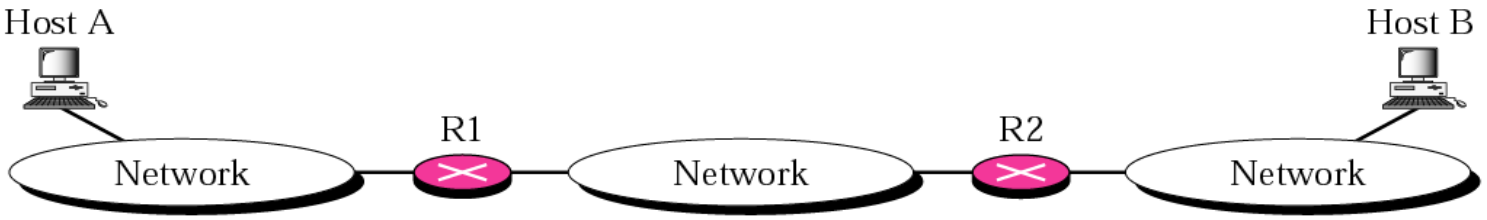
Routing table for R1

Destination	Route
Host B	R2, Host B

Routing table for R2

Destination	Route
Host B	Host B

a. Routing tables based on route



Routing table for host A

Destination	Next Hop
Host B	R1

Routing table for R1

Destination	Next Hop
Host B	R2

Routing table for R2

Destination	Next Hop
Host B	Ñ

b. Routing tables based on next hop

Figure 6.4 *Network-specific method*

Routing table for host S based on host-specific method

Destination	Next Hop
A	R1
B	R1
C	R1
D	R1

Routing table for host S based on network-specific method

Destination	Next Hop
N2	R1

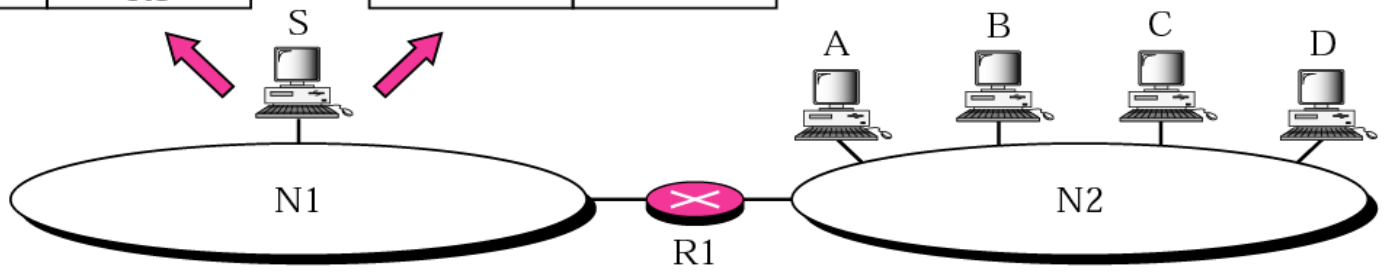


Figure 6.6 *Default routing*

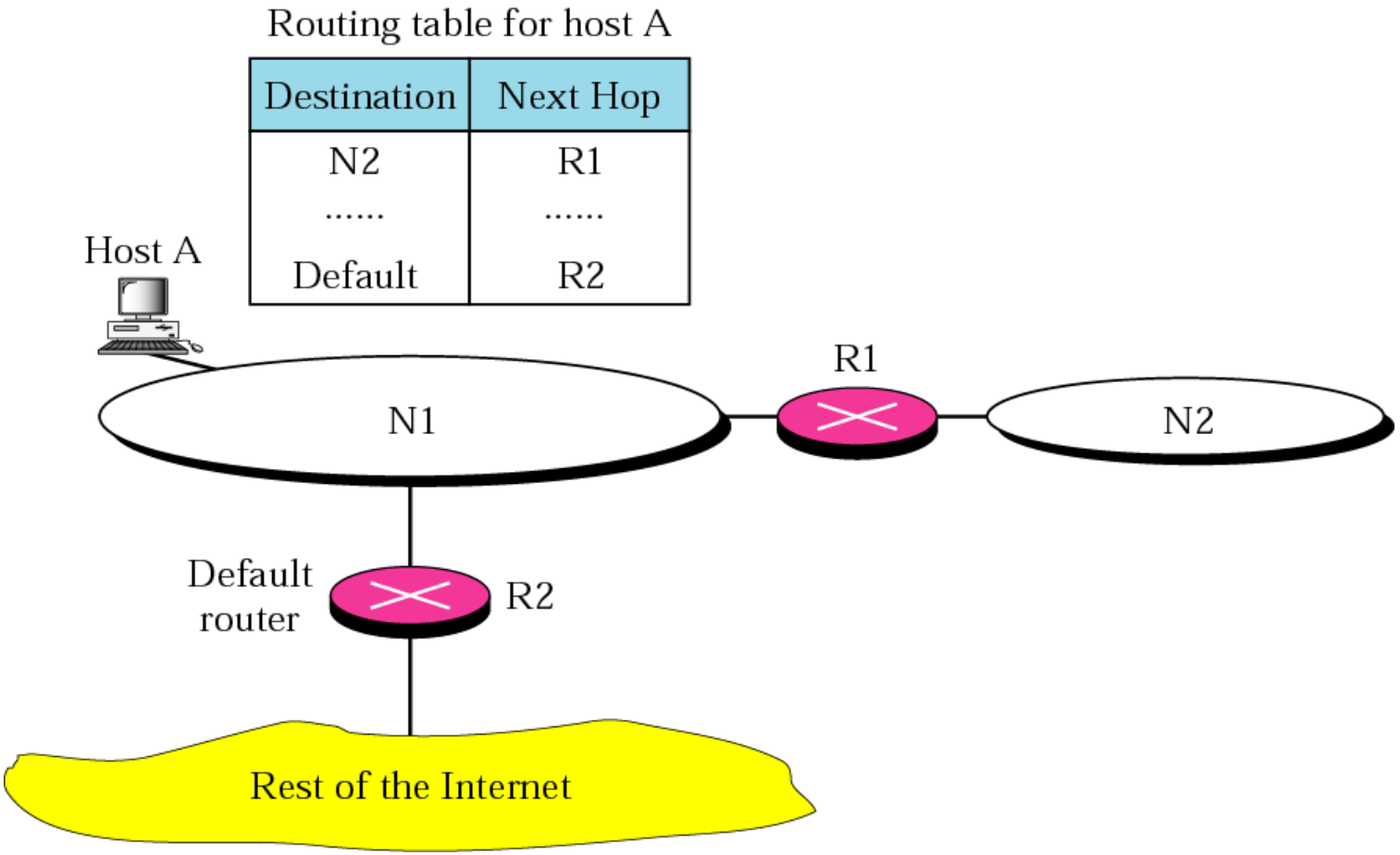


Figure 6.7 *Simplified forwarding module in classful address without subnetting*