

13.3

OSPF: Open Shortest Path First

Figure 13-18

Areas in an autonomous system

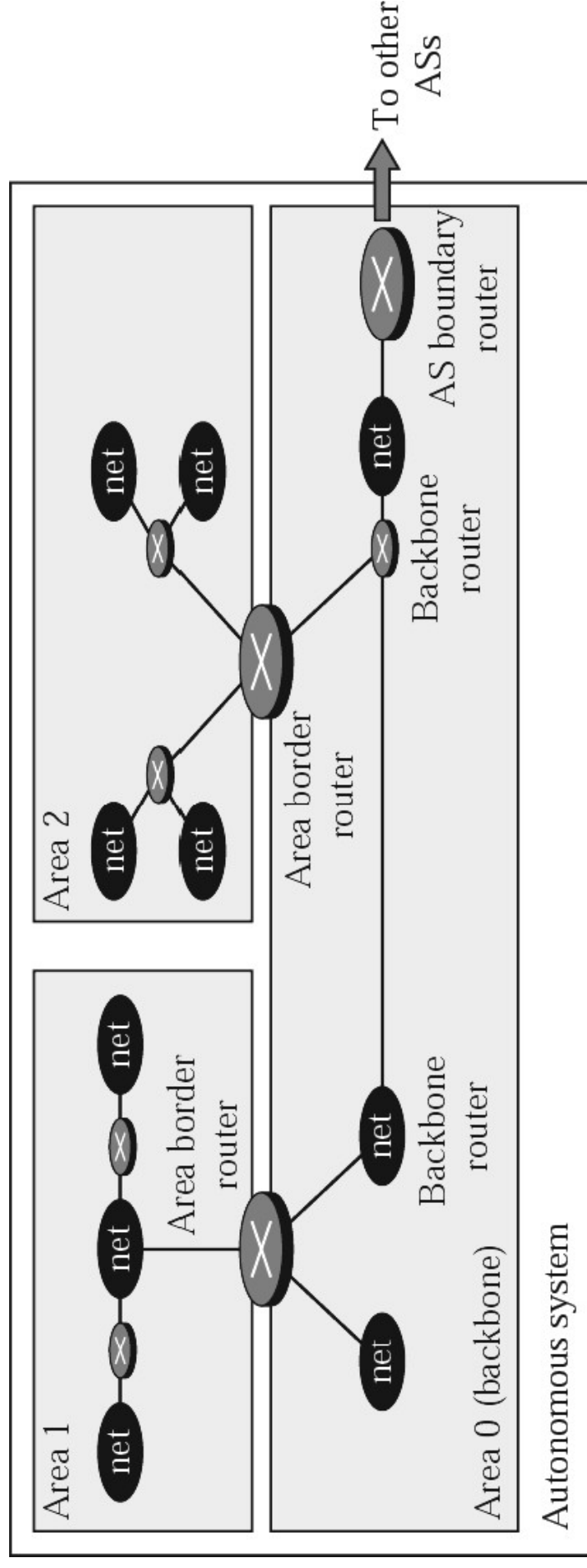


Figure 13-19

Types of links

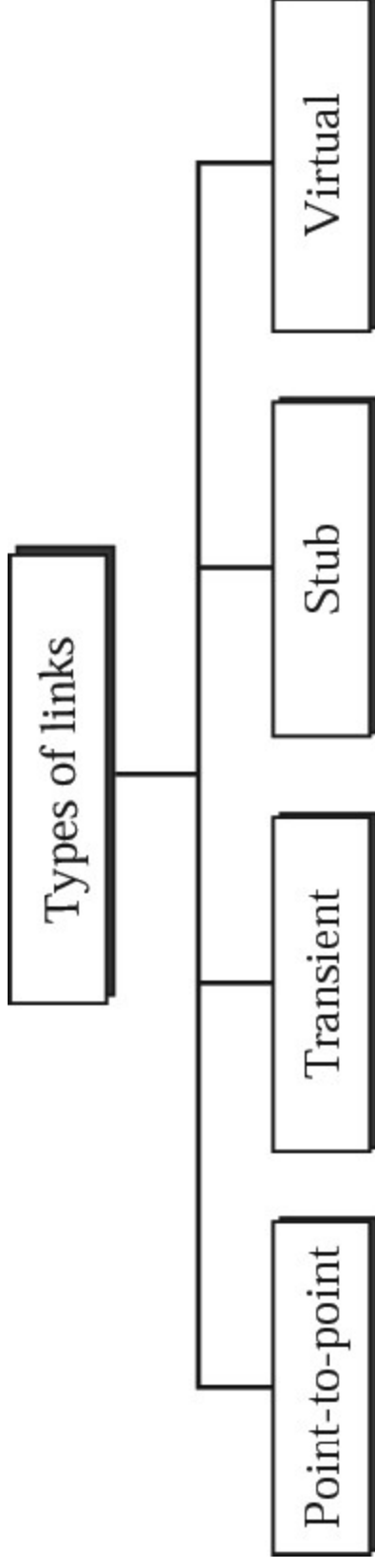


Figure 13-20

Point-to-point link

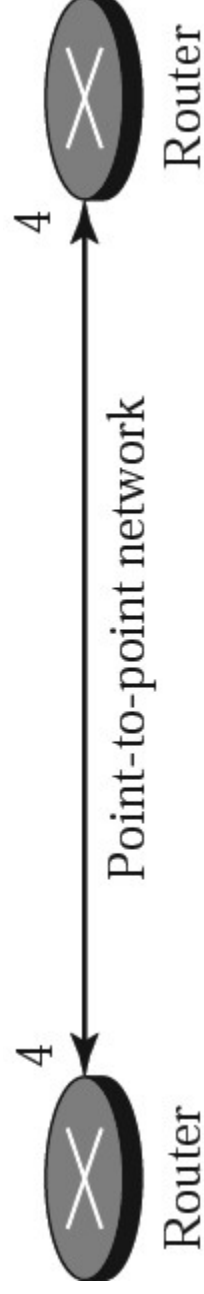


Figure 13-21

Transient link

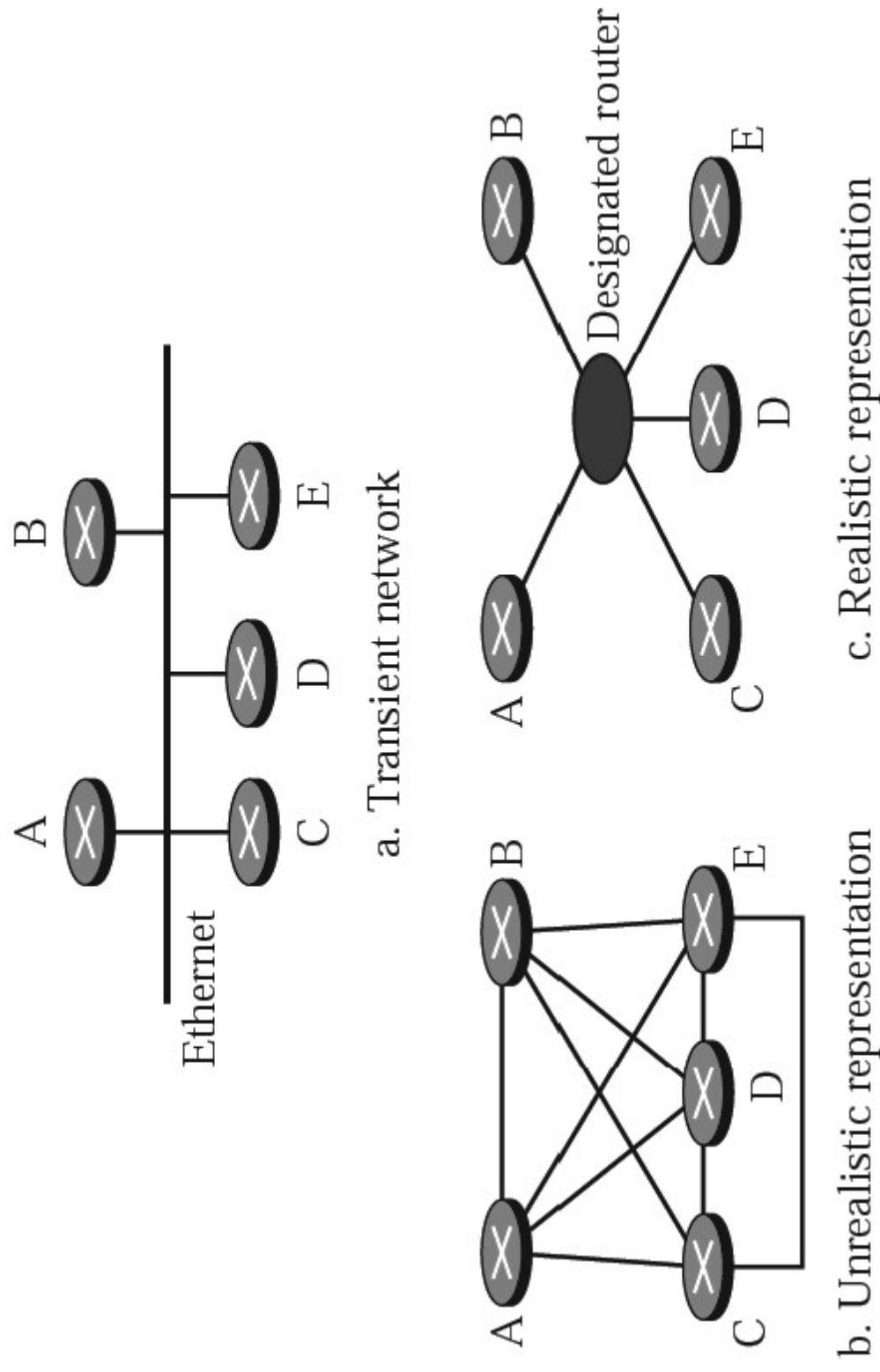


Figure 13-22

Stub link

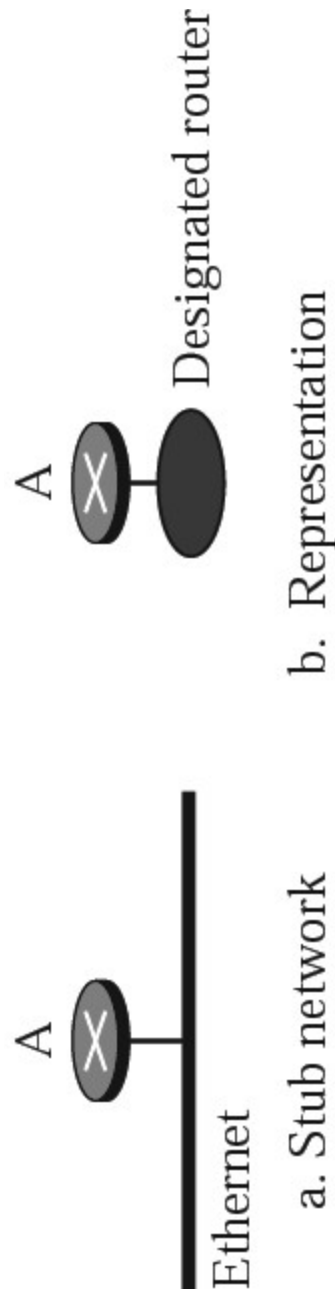


Figure 13-23

Example of an internet

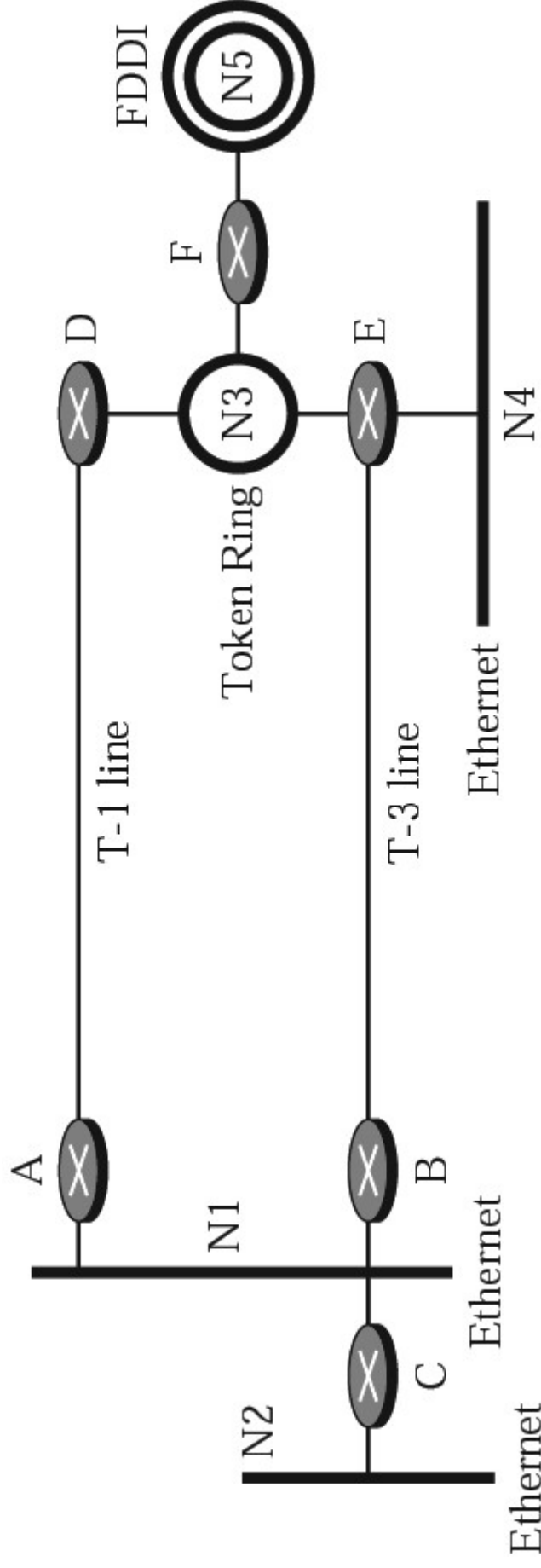


Figure 13-24

Graphical representation of an internet

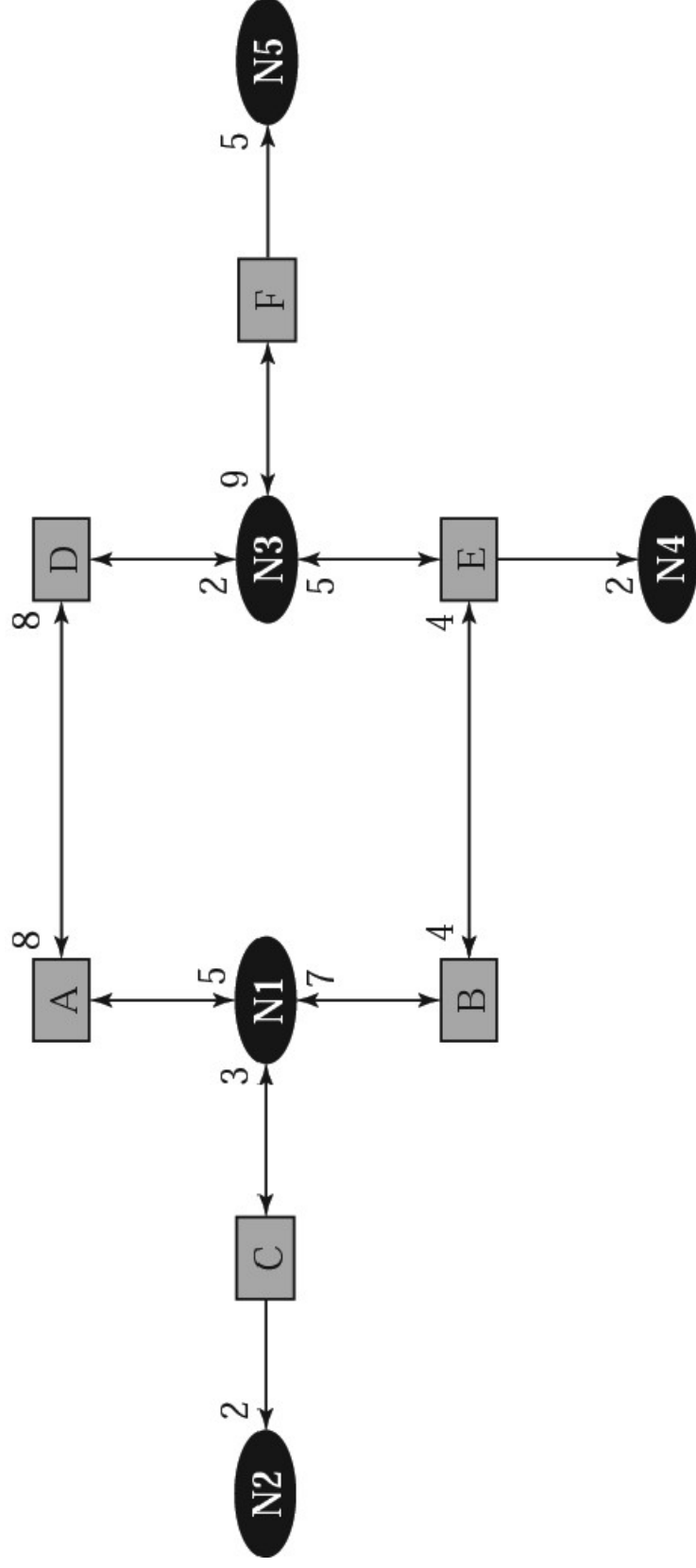


Figure 13-25

Types of LSAs

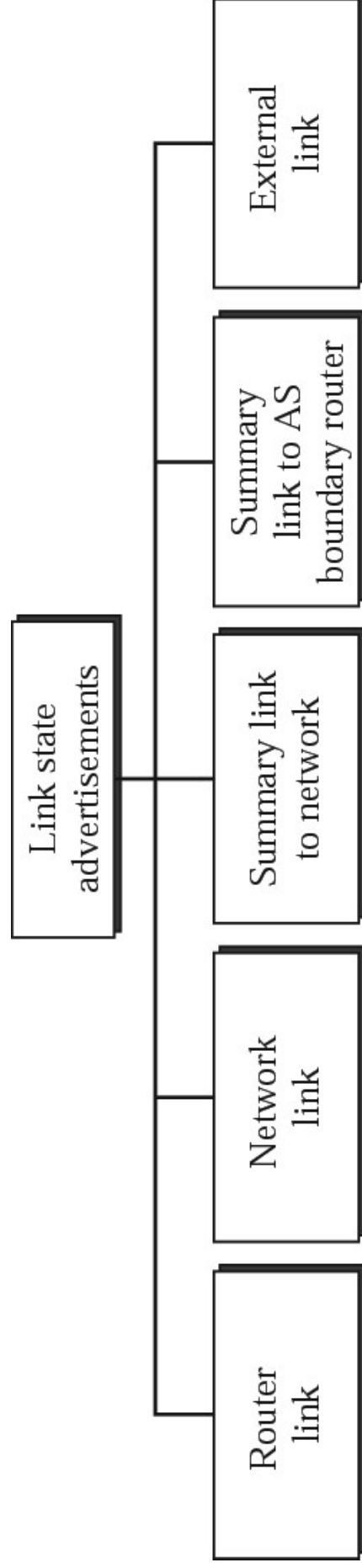


Figure 13-26

Router link

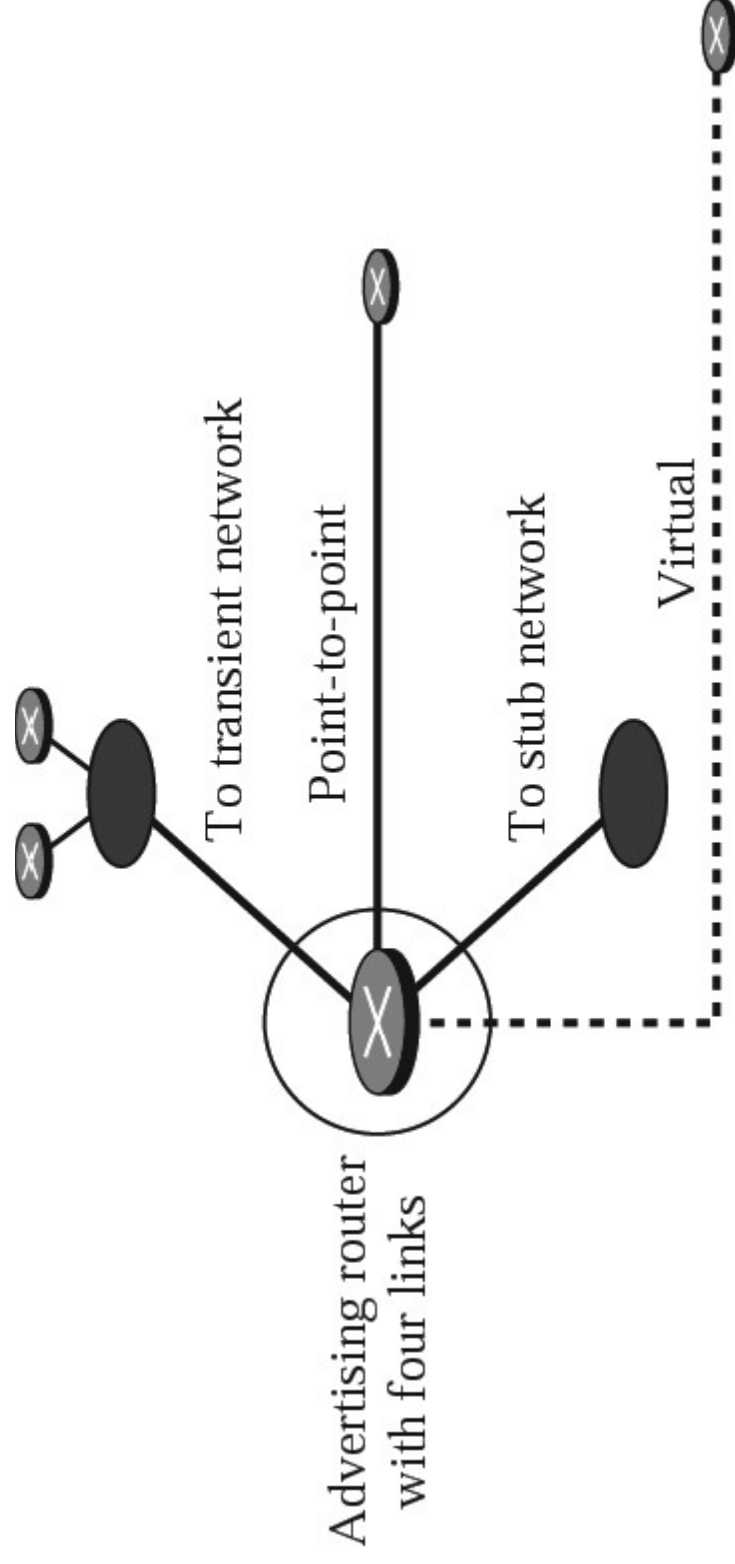


Figure 13-27

Network link

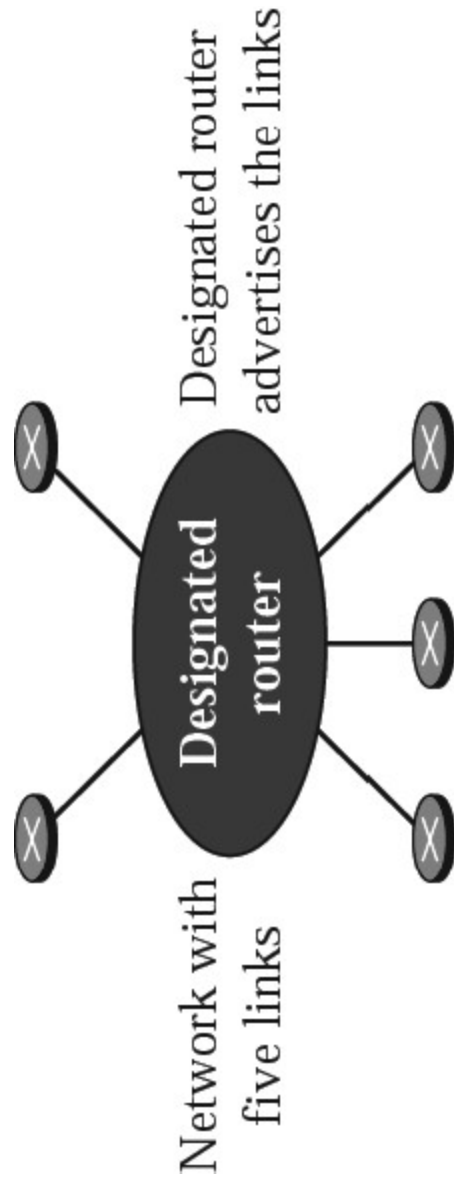
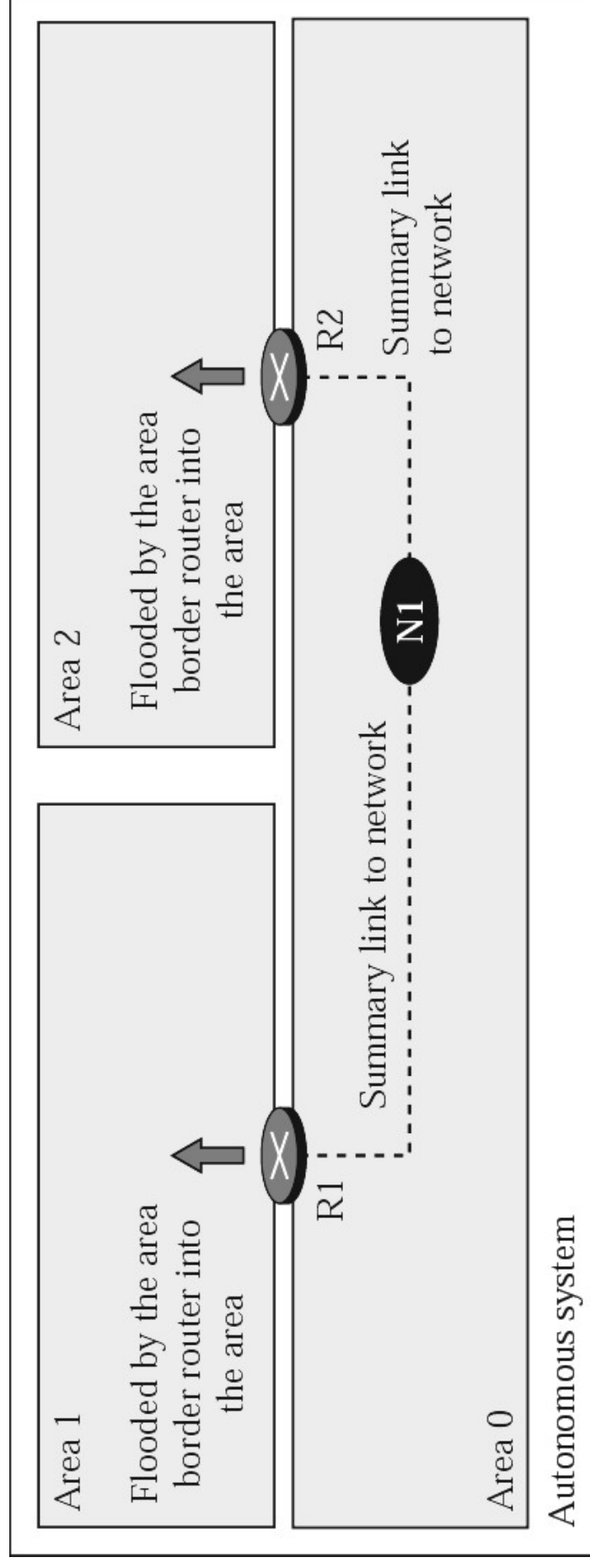


Figure 13-28

Summary link to network

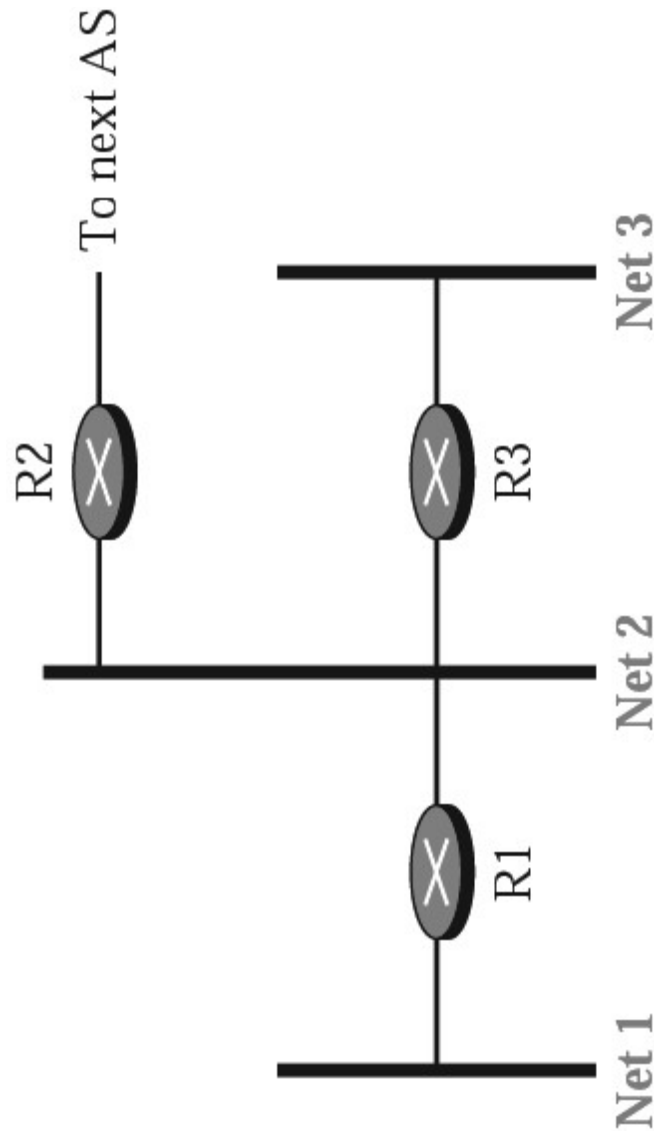


Example 3

In Figure 13.31 (next slide), which router(s) sends out router link LSAs?

Figure 13-31

Example 3 and Example 4



Solution

All routers advertise router link LSAs.

R1 has two links, Net1 and Net2.

R2 has one link, Net1 in this AS.

R3 has two links, Net2 and Net3.

Example 4

In Figure 13.31, which router(s) sends out the network link LSAs?

Solution

All three network must advertise network links:

Advertisement for Net1 is done by R1 because it is the only router and therefore the designated router.

Advertisement for Net2 can be done by either R1, R2, or R3, depending on which one is chosen as the designated router.

Advertisement for Net3 is done by R3 because it is the only router and therefore the designated router.

Note

In OSPF, all routers have the same link state database.

Figure 13-33

Types of OSPF packets

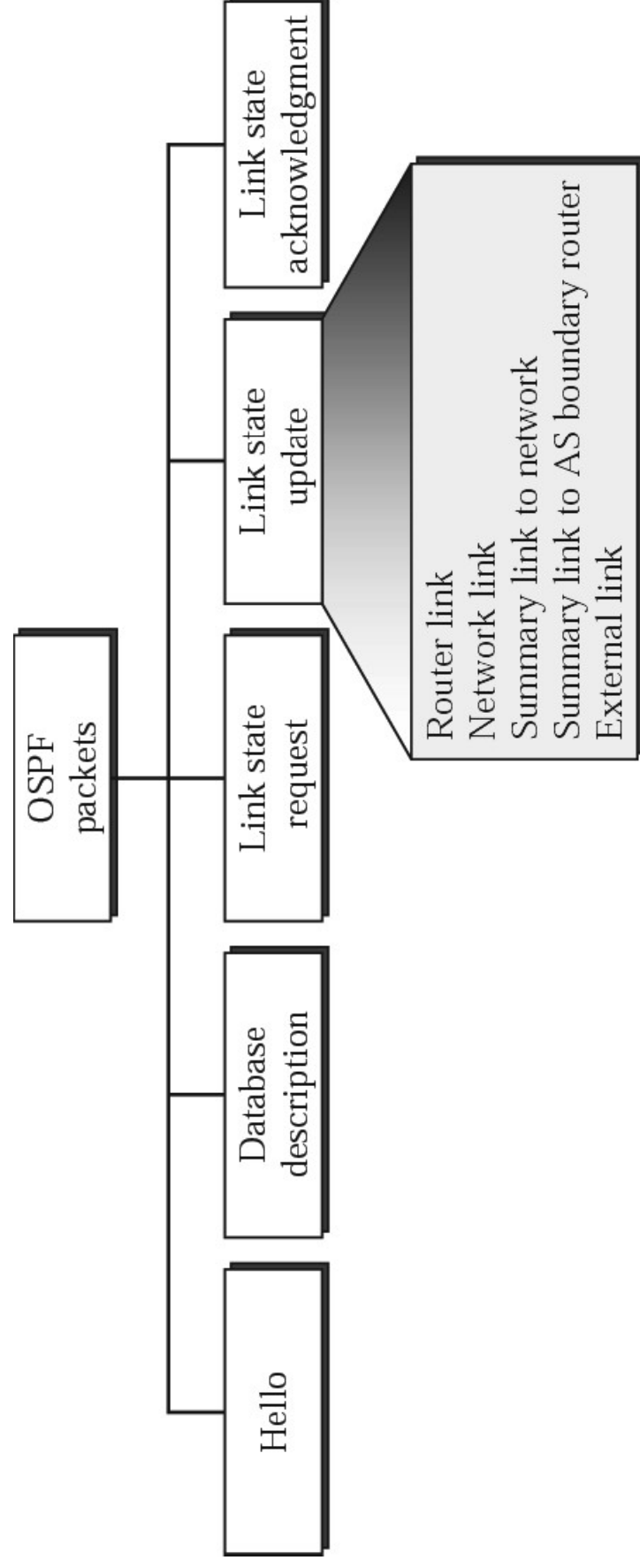


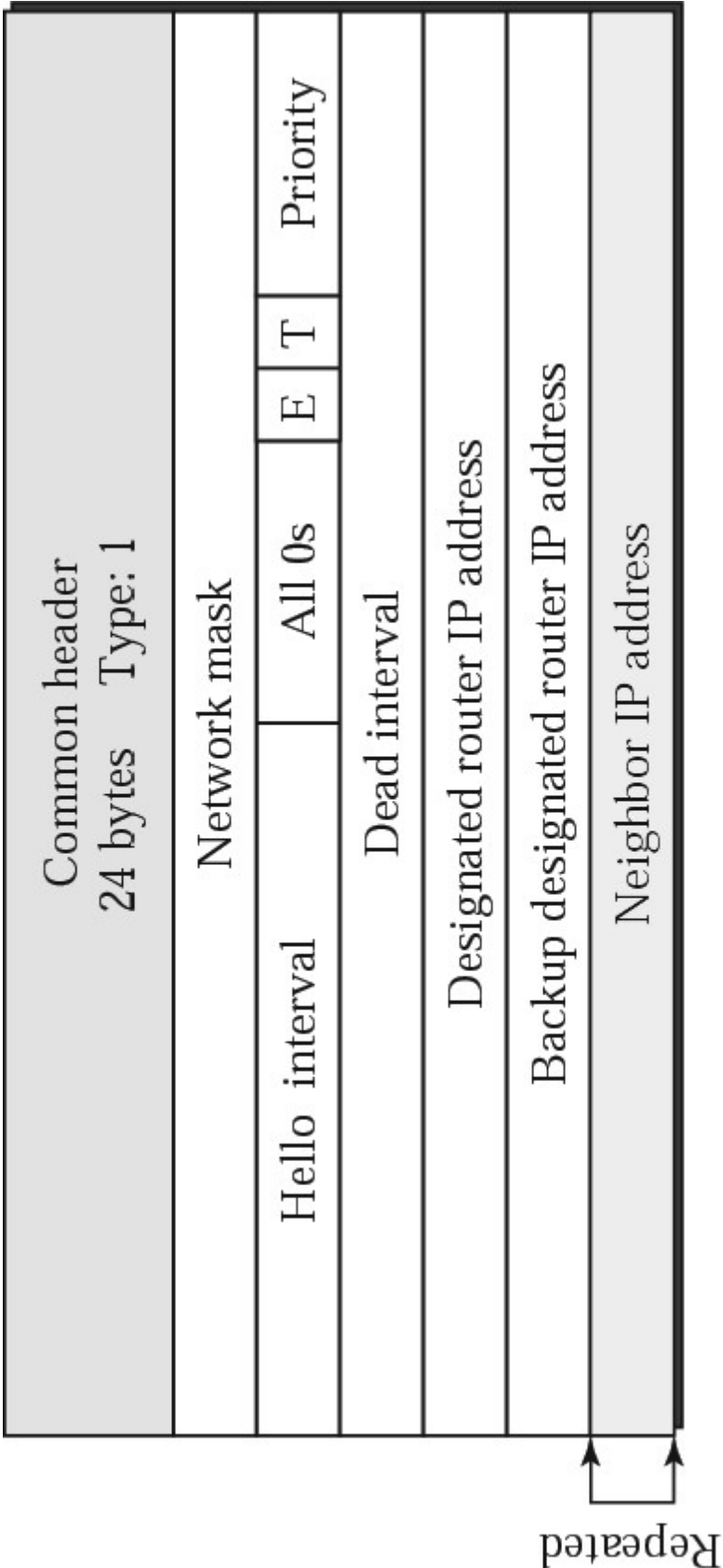
Figure 13-34

OSPF packet header

Version	Type	Message length
Source router IP address		
Checksum	Authentication type	
Authentication		

Figure 13-35

Hello packet



Note

OSPF packets are encapsulated in IP datagrams.