



Multicast Routing Protocol

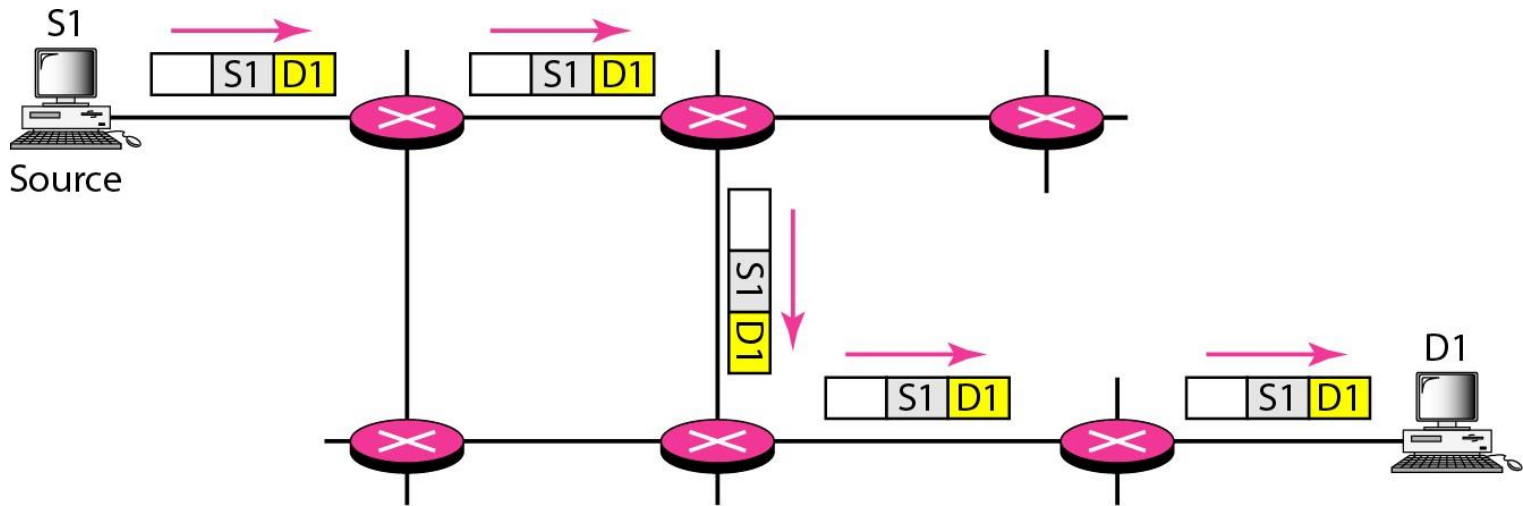


MULTICAST ROUTING PROTOCOLS

In this section, we discuss multicasting and multicast routing protocols.

Figure-1

Unicasting



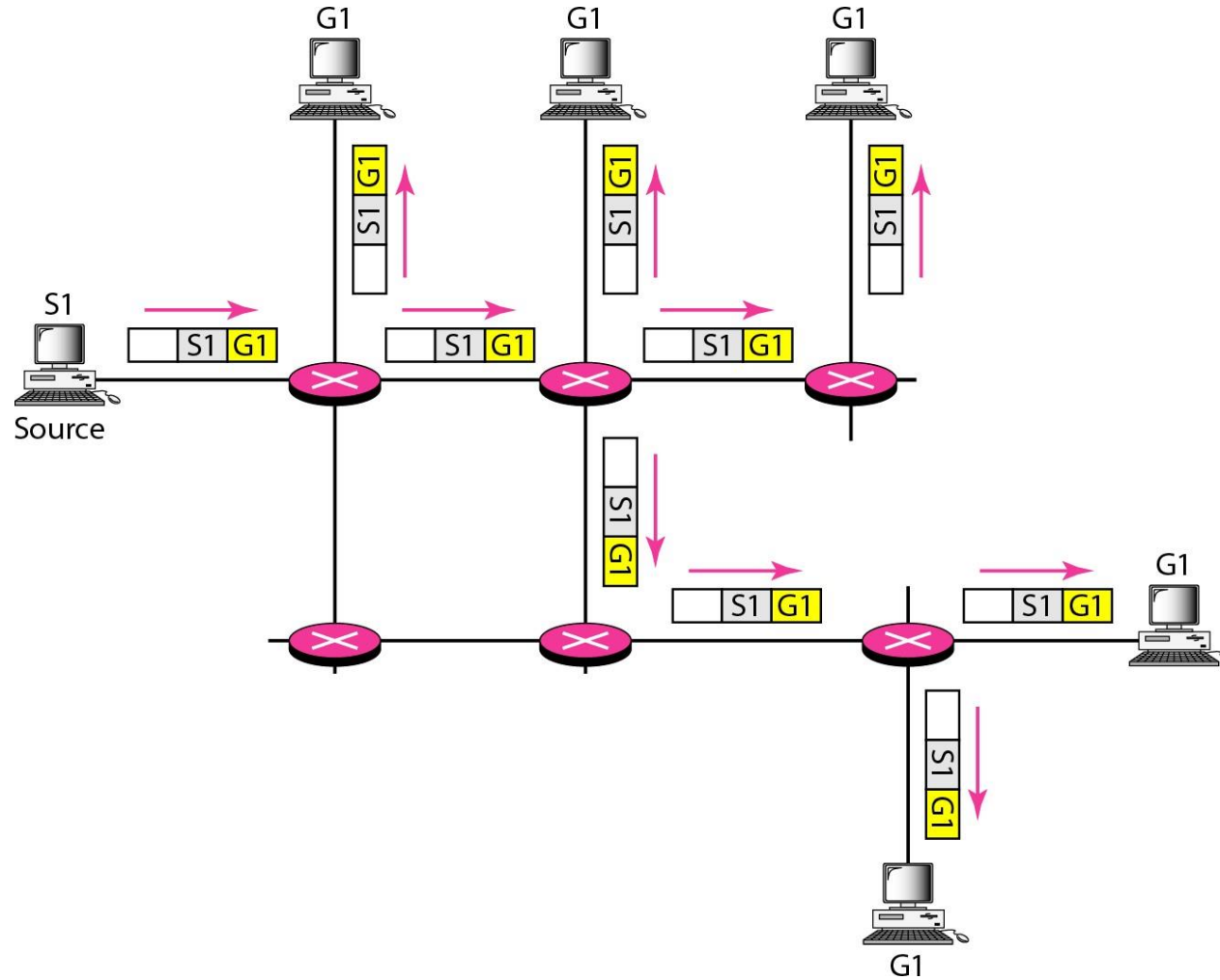


Note

In unicasting, the router forwards the received packet through only one of its interfaces.

Figure-2

Multicasting



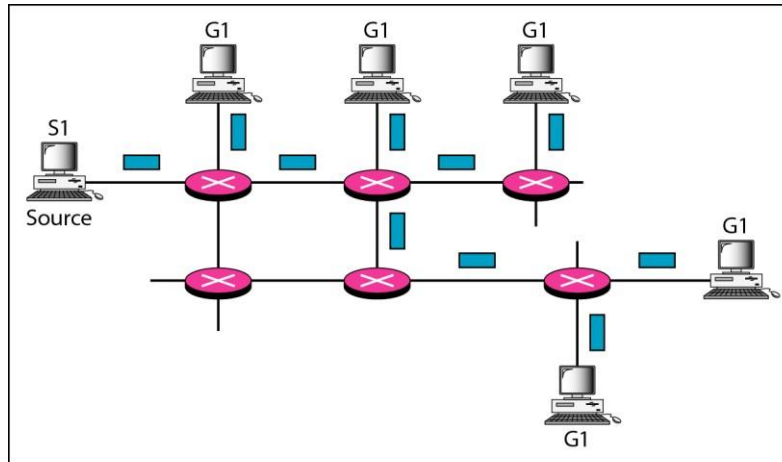


Note

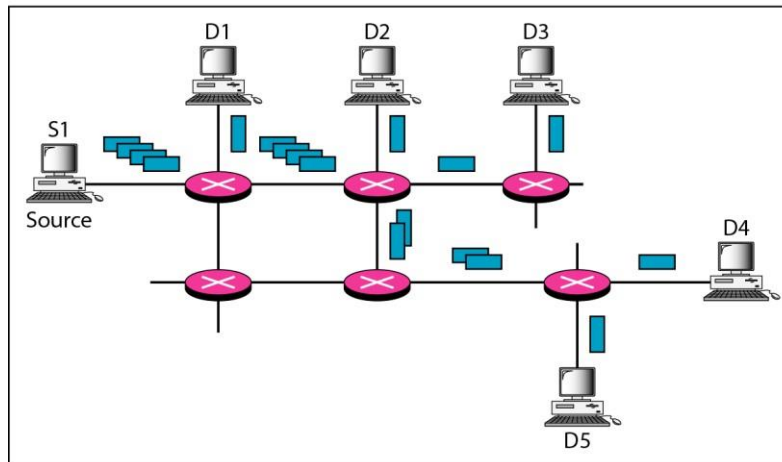
In multicasting, the router may forward the received packet through several of its interfaces.

Figure-3

Multicasting versus multiple unicasting



a. Multicasting



b. Multiple unicasting



Note

Emulation of multicasting through multiple unicasting is not efficient and may create long delays, particularly with a large group.

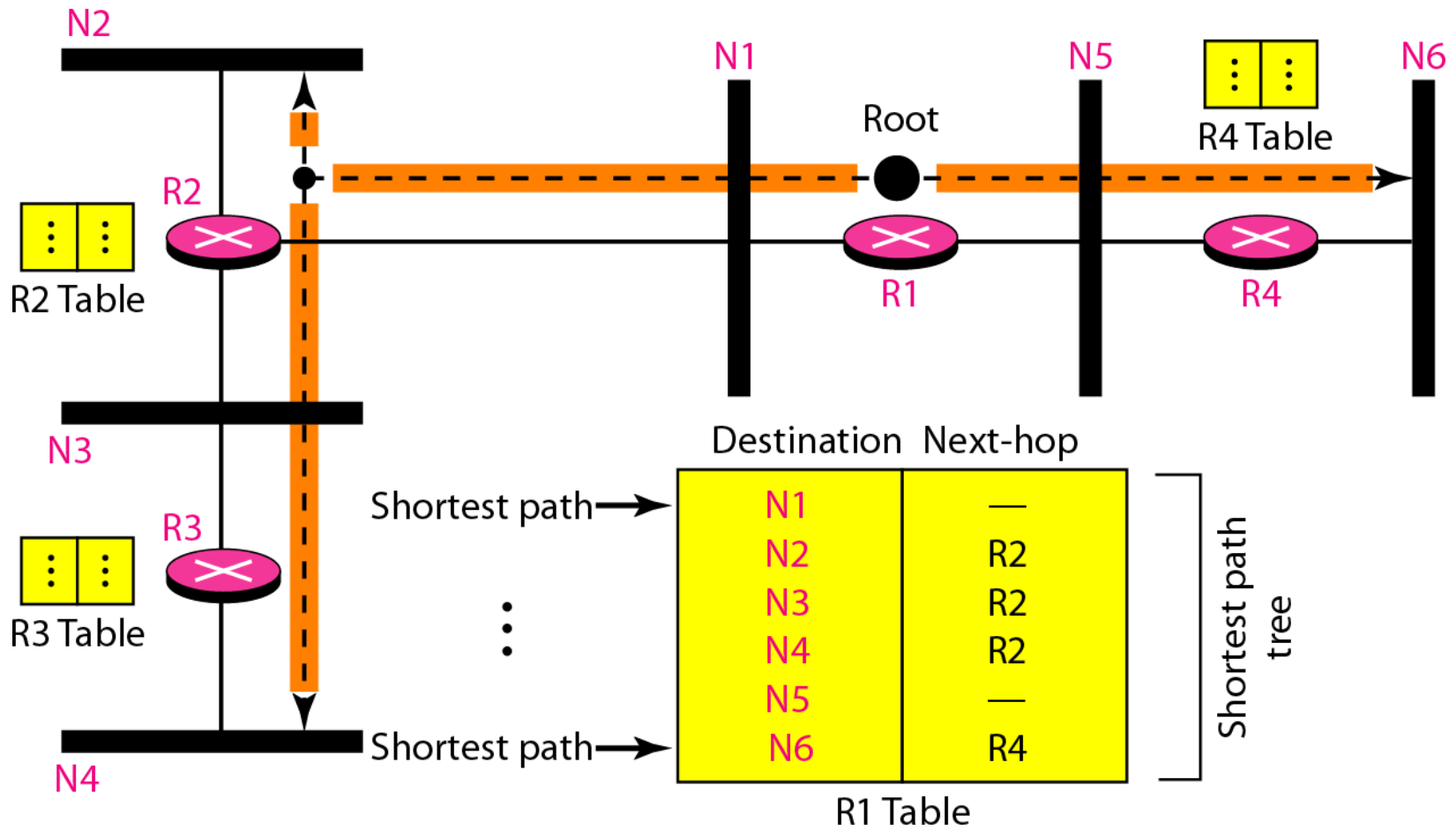


Note

In unicast routing, each router in the domain has a table that defines a shortest path tree to possible destinations.

Figure-4

Shortest path tree in unicast routing



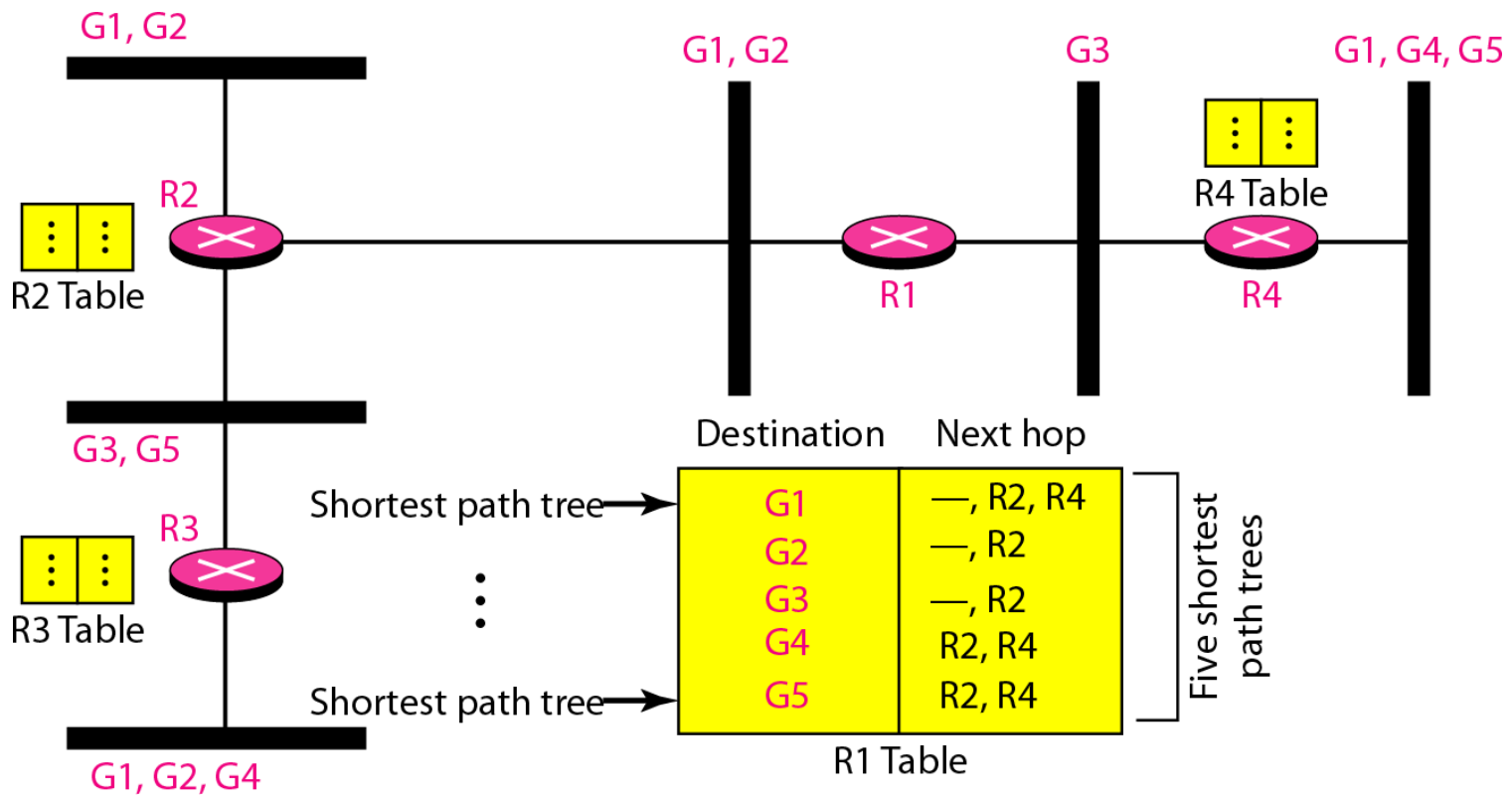


Note

In multicast routing, each involved router needs to construct a shortest path tree for each group.

Figure-5

Source-based tree approach



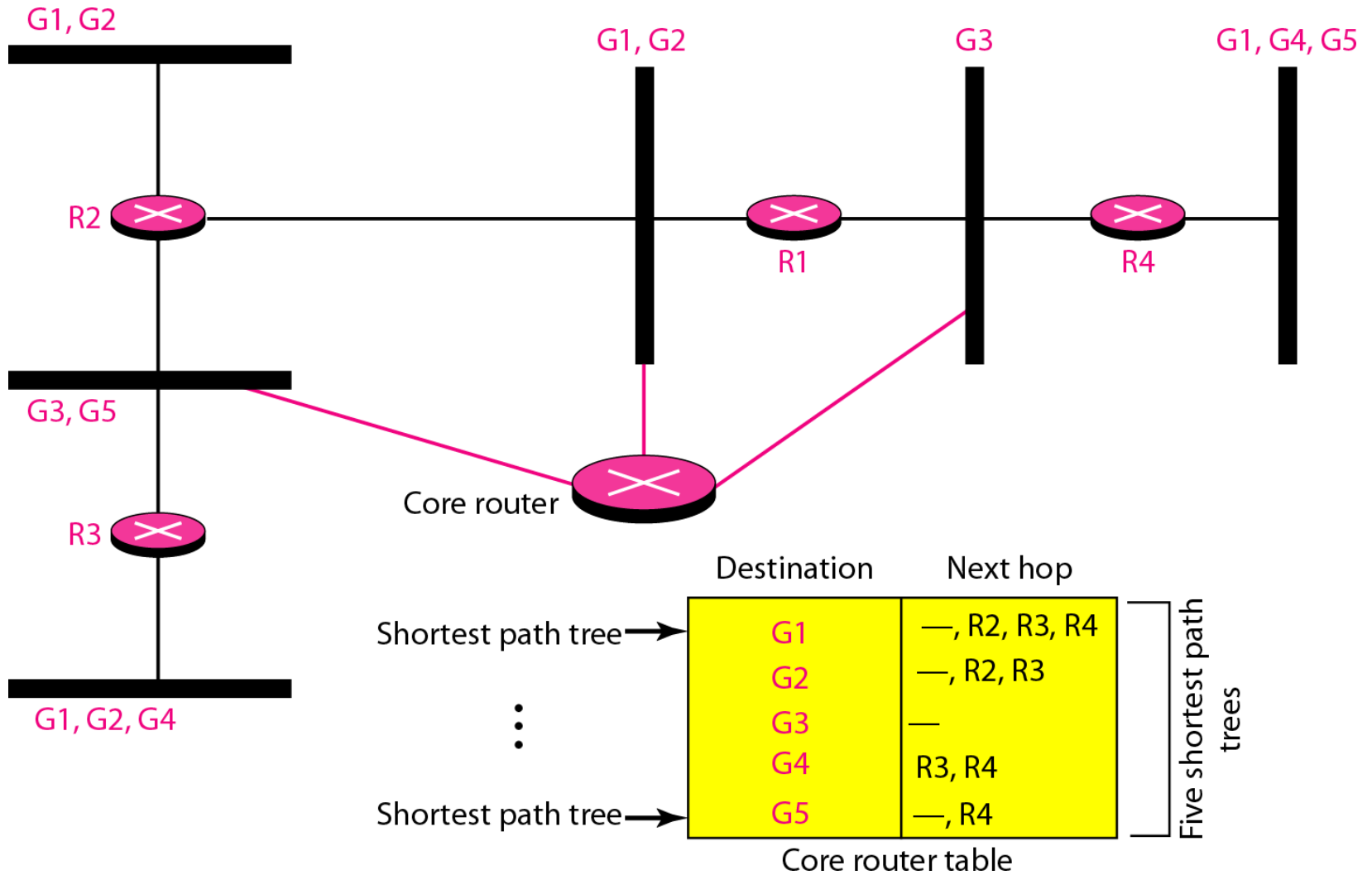


Note

In the source-based tree approach, each router needs to have one shortest path tree for each group.

Figure-6

Group-shared tree approach





Note

In the group-shared tree approach, only the core router, which has a shortest path tree for each group, is involved in multicasting.



References

- 1. Computer Networks, A. S. Tenenbaum, D. J. Wetheral, Pearson India.***
- 2. Data Communications and Networking, B.A. Forouzan, Tata McGraw Hill Education Private Limited.***
- 3. Data and Computer Communications, William Stallings, Pearson-Prentice Hall.***