1.

2.

1. Since the subnet mask is 255.255.252.0, the host bits is 10

Which means the network can handle 2^10-2=1022 hosts

4.

1. Insufficient link capacity
2. Router’s CPU are slow in processing packets
3. Low-bandwidth lines
4. Mismatch between parts and system

5.In distance vector routing protocols, such as Routing Information Protocol (RIP), routers share information with each other about the distance (or metric) to reach various networks. Each router sends its own distance vector to its neighboring routers, which, in turn, merge the information they receive and send their updated distance vectors to their neighbors. This process continues until all routers have the complete picture of the network.

The count-to-infinity problem arises when there is a network topology change, such as a link failure, and a router fails to receive any updates from its neighbors about the change. In this situation, the router assumes that the failed link is still operational, and updates its routing table by incrementing the metric for that link by one. It then sends its updated distance vector to its neighbors, who, in turn, update their routing tables and send their updated distance vectors. This process continues until all routers update their routing tables, which can take an infinite amount of time, hence the name "count-to-infinity."

The count-to-infinity problem can result in routing loops, where routers send packets in a continuous loop without delivering them to their destinations, leading to network congestion and packet loss. To prevent this problem, distance vector protocols use techniques such as split horizon and poison reverse, which prevent routers from sending updates back to the router from which they received them, or advertise an infinite metric for unreachable networks, respectively.