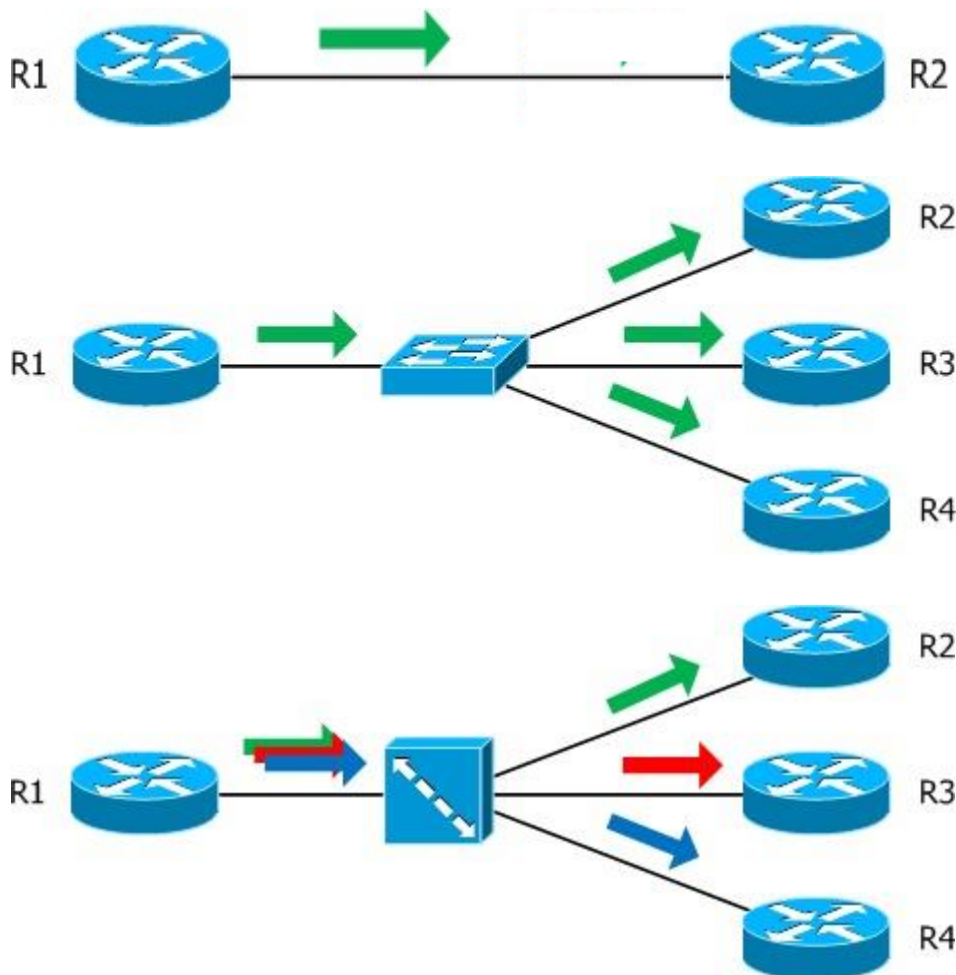


## OSPF Network Types:

The network type defines how the neighbor relationship will be formed. Behavior of OSPF when operating in these different network types – whether hellos are multicast or unicast, if DR/BDR are elected, and so on. There are five different OSPF network types on a Cisco router point-to-point, broadcast, non-broadcast, point-to-multipoint non-broadcast and point-to-multipoint.

Network Type	Hello Timer	Dead Timer	Adjacency
Broadcast	10	40	Automatic + DR/BDR
Non-Broadcast	30	120	Manual + DR/BDR
Point-to-Multipoint	30	120	Automatic No DR/BDR
Point-to-Multipoint non-Broadcast	30	120	Manual No DR/BDR
Point-to-Point	10	40	Automatic No DR/BDR



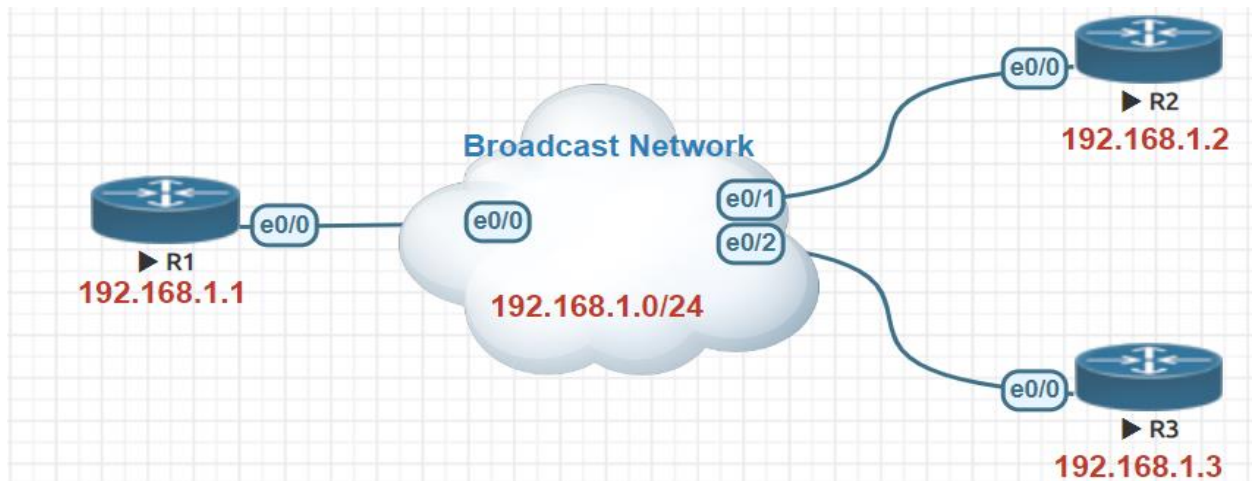
### Point-to-Point Network:

This is the simplest form of the network types. Point-to-Point network types are intended to be used between two directly connected routers. An example of a point-to-point link is a serial link connecting just two routers using HDLC or PPP. With point-to-point links, OSPF does not select a DR or BDR. In addition, hello packets are sent to the multicast address 224.0.0.5. The Point-to-Point network type has a 10-second hello and 40-second dead timer. Discovers neighbors dynamically. A packet sent from one of the routers will always have exactly one recipient on the local link. Point-to-Point Networks are one to one connections single connections. Leased lines running Point-to-Point Protocol (PPP) and High-Level Data Link Control (HDLC) are some examples of point-to-point links.



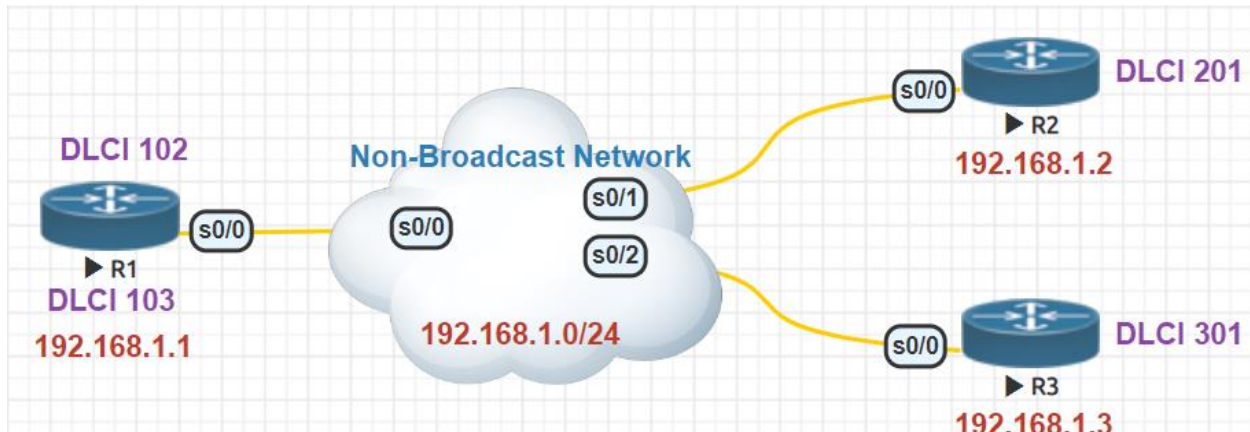
### Broadcast Networks:

A network type that connects two or more OSPF routers over a broadcast media such as Ethernet. The Broadcast network type requires that a link support Layer 2 Broadcast capabilities. On broadcast networks, neighbors are dynamically discovered by the hellos that are sent to the multicast address of 224.0.0.5. In addition, DR and BDR are elected on these networks. The Broadcast network type has a 10 second hello and 40 second dead timer. Broadcast Networks is the most used network type in OSPF networks. In this network type, multicast and broadcast transmission is used.



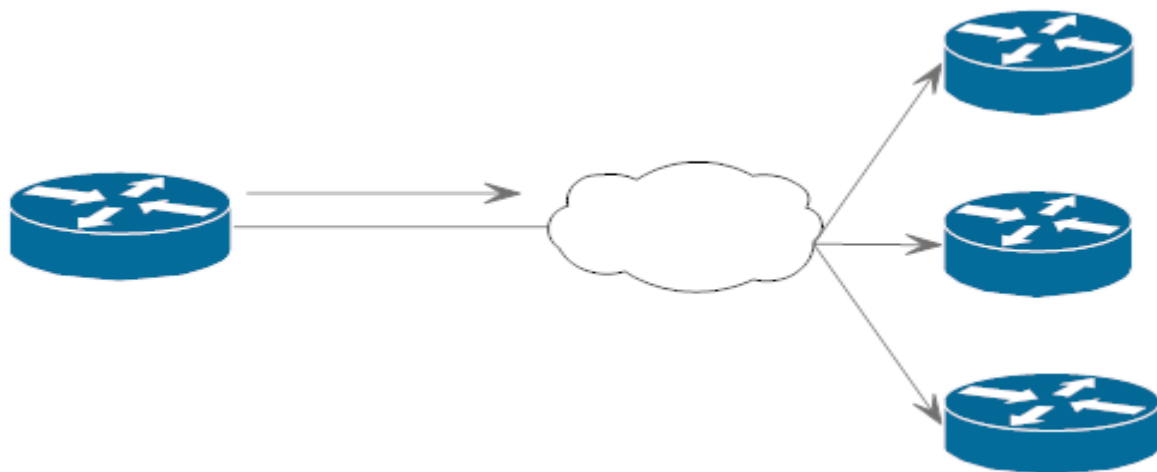
### Non-Broadcast Networks:

The Non-Broadcast network type is the default for OSPF enabled frame relay physical interfaces. No dynamic neighbor discovery requires the configuration of static neighbors; hellos are sent via unicast. The Non-Broadcast network type has a 30 second hello and 120 second dead timer. An OSPF Non-Broadcast network type requires the use of a DR/BDR.



### Non-Broadcast Multi-Access:

When OSPF operates in NBMA mode, it mimics a broadcast network (DR/BDR are elected) but, since broadcast is not supported, neighbors may need to be manually configured. One of the limitations of this is that there must be a full mesh between the devices; i.e., neighbors must be able to communicate directly; otherwise, the OSPF network may experience issues. The Non-Broadcast Multi-Access network type has a 30-second hello and 120 second dead timer. Nonbroadcast Multi Access Networks (NBMA) is the network type with which each neighbors are connected together. Here, all transmission is unicast. OSPF DR and OSPF BDR selection is also done and used.



### Point-to-Multipoint:

In this mode, OSPF treats the non-broadcast network like a collection of point-to-point links. There is **no DR/BDR election**, but neighbors may be **automatically discovered**, depending on how the interface is configured. The interfaces have to be configured with the `ip ospf network point-to-multipoint` command. The Point-to-Multipoint network type has a **30-second hello** and **120 second dead timer**. Point-to-Multipoint Networks are the network type that uses point-to-point links but OSPF packets work with multicast. Again in Point-to-Multipoint Networks, DR & BDR selection is not done and they are not used.

