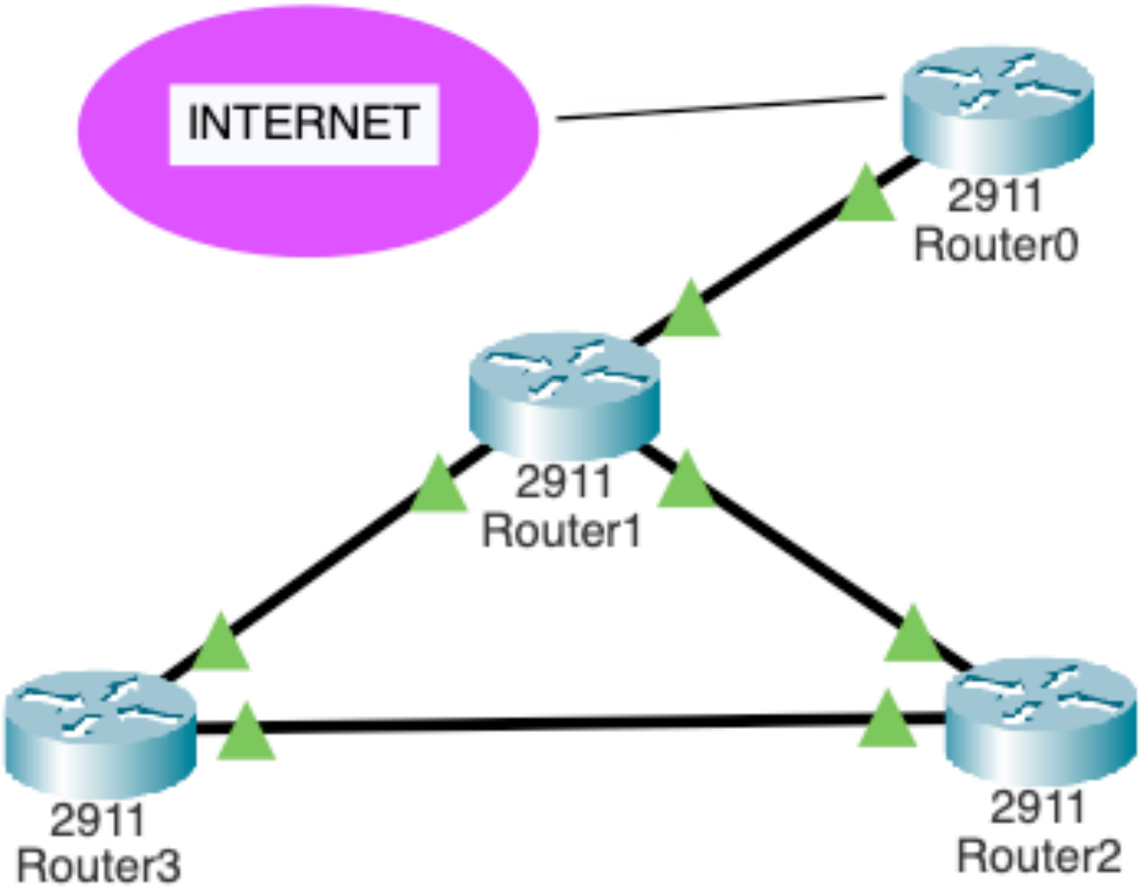
Computer Networks
week 14. Dynamic routing.

Advantages:

1 - automatic routing
2 - fail-safe routing

Disadvantages:

1 - computational load
2 - the network is less predictable

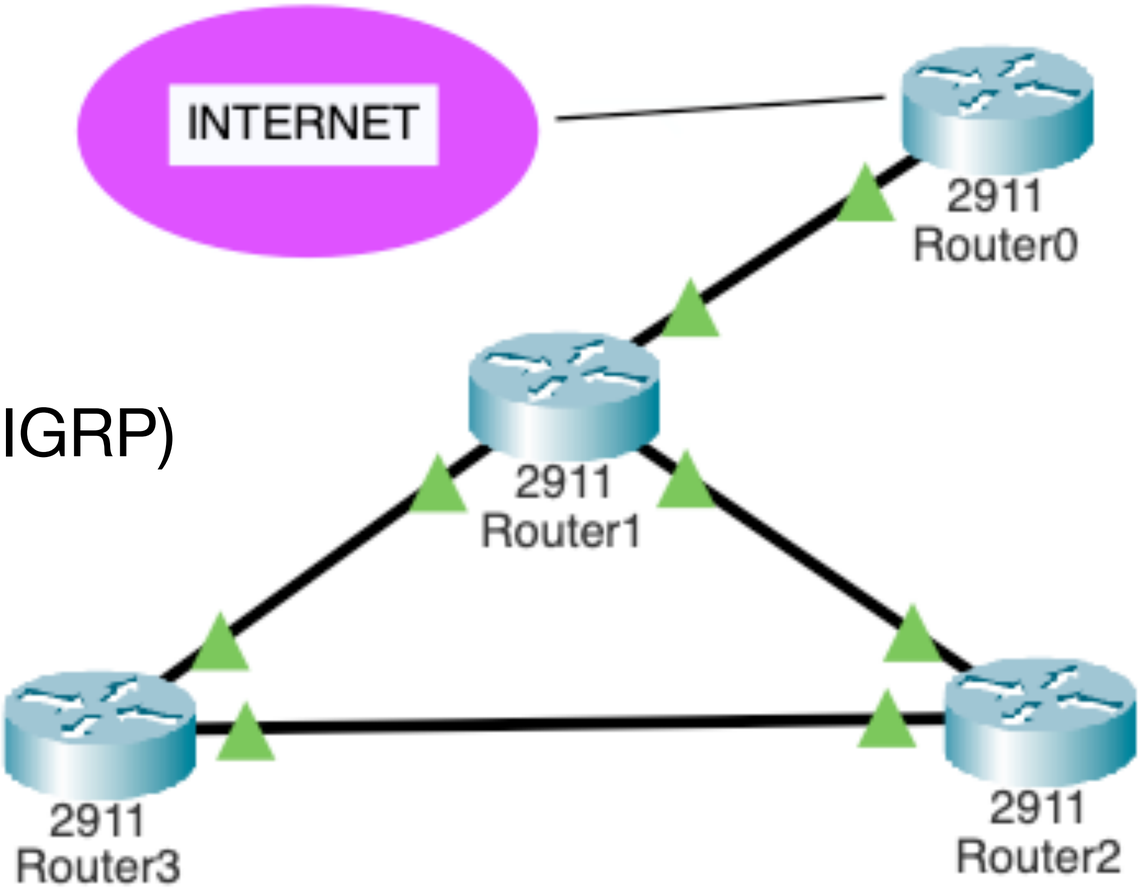


Dynamic routing protocols:

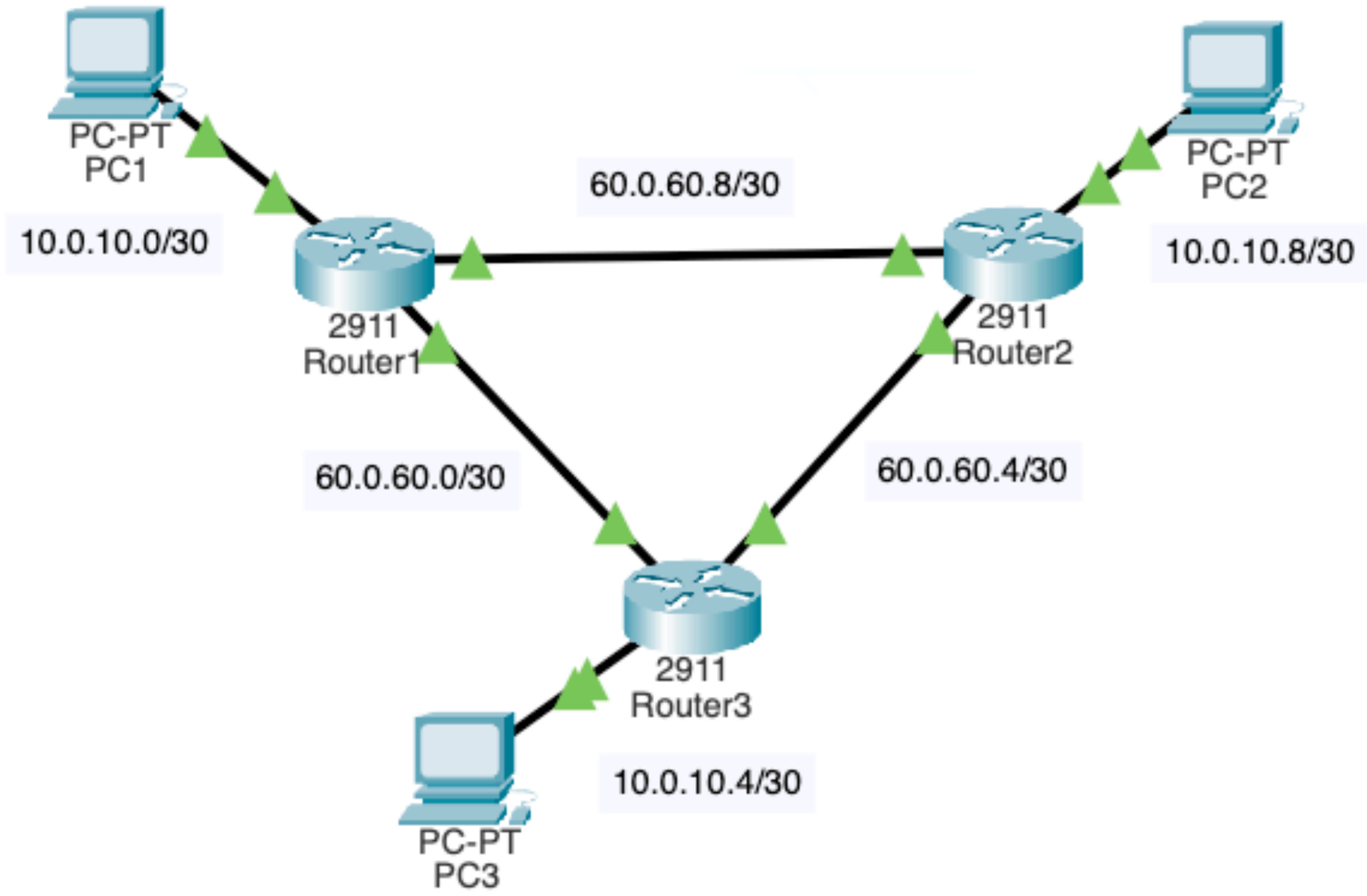
1 - Exterior Gateway Protocol (EGP, BGP)

2 - Interior Gateway Protocol:

2.1 - Distance-Vector (RIP, IGRP, EIGRP)
2.2 - Link State (OSPF, IS-IS)



Task. Dynamic routing with OSPF



Task. Dynamic routing with OSPF

1 - Deploy routers and connect them;
2 - Configure interfaces.
3 - Enable OSPF;
4 - Discover OSPF data on routers
5 - Ping end hosts;
6 - Run simulation mode and discover OSPF packets;

Explanation

1. You need to enable OSPF process on a router

```
<routing mode> <routing protocol> <Id of a process>
router ospf 1
```

2. You need to tell which IP interfaces should be advertised by OSPF protocol

```
<network> <subnet of IP interface> <wild-mask> <osfp zone>
network 60.0.60.0 0.0.0.3 area 0
```

3. Now router begins to send hello osfp packets to his neighbours. If neighbours is configured and answers to router, then they start a process of exchanging data.

Useful commands:

```
# list of ospf neighbours
show ip ospf neighbour

#list of interfaces there osfp is enabled
show ip ospf interface

# ospf database
show ip ospf database

# ospf records in routing table
show ip route ospf
```

Example (router configuration)

```
enable
configure terminal
router ospf 1
network 60.0.60.0 0.0.0.3 area 0
network 60.0.60.0 0.0.0.3 area 0
network 10.0.10.0 0.0.0.3 area 0
exit
exit
```

Questions:

1 - What is ‘Hello Interval’?
2 - What is ‘Router Dead Interval’?
3 - What is ‘Link-State Request’?
4 - What is DR and BDR?
5 - What is ‘passive interface’?