

# Routing Protocol Types



- Routing protocols can be split into two main types:
  - Interior gateway protocols (IGPs)
  - Exterior gateway protocols (EGPs)
- Interior gateway protocols are used for routing within an organisation
- Exterior gateway protocols are used for routing between organisations over the Internet
- The only EGP in use today is BGP (Border Gateway Protocol)

# Interior Gateway Protocols



- Interior gateway protocols can be split into two main types:
  - Distance Vector routing protocols
  - Link State routing protocols

# Distance Vector Routing Protocols

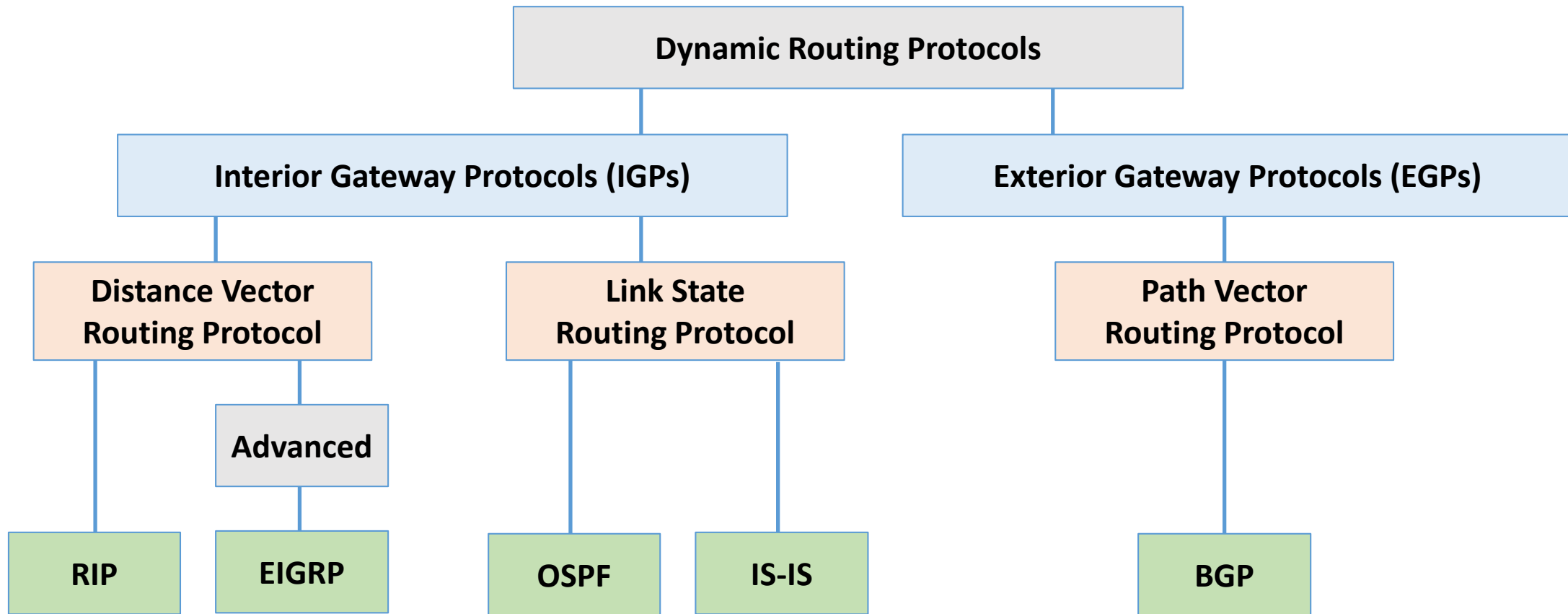


- In Distance Vector protocols, each router sends its directly connected neighbours a list of all its known networks along with its own distance to each of those networks
- Distance vector routing protocols do not advertise the entire network topology
- A router only knows its directly connected neighbours and the lists of networks those neighbours have advertised. It doesn't have detailed topology information beyond its directly connected neighbours
- Distance Vector routing protocols are often called 'Routing by rumour'

# Link State Routing Protocols



- In Link State routing protocols, each router describes itself and its interfaces to its directly connected neighbours
- This information is passed unchanged from one router to another
- Every router learns the full picture of the network including every router, its interfaces and what they connect to



RIP: Routing Information Protocol

EIGRP: Enhanced Interior Gateway Routing Protocol

OSPF: Open Shortest Path First

IS-IS: Intermediate System – Intermediate System

BGP: Border Gateway Protocol

# Interior Gateway Protocols



- All of the IGPs do the same job, which is to advertise routes within an organisation and determine the best path or paths
- An organisation will typically pick one of the IGPs
- If an organisation has multiple IGPs in effect (for example because of a merger), information can be redistributed between them. This should generally be avoided if possible

# Lab

