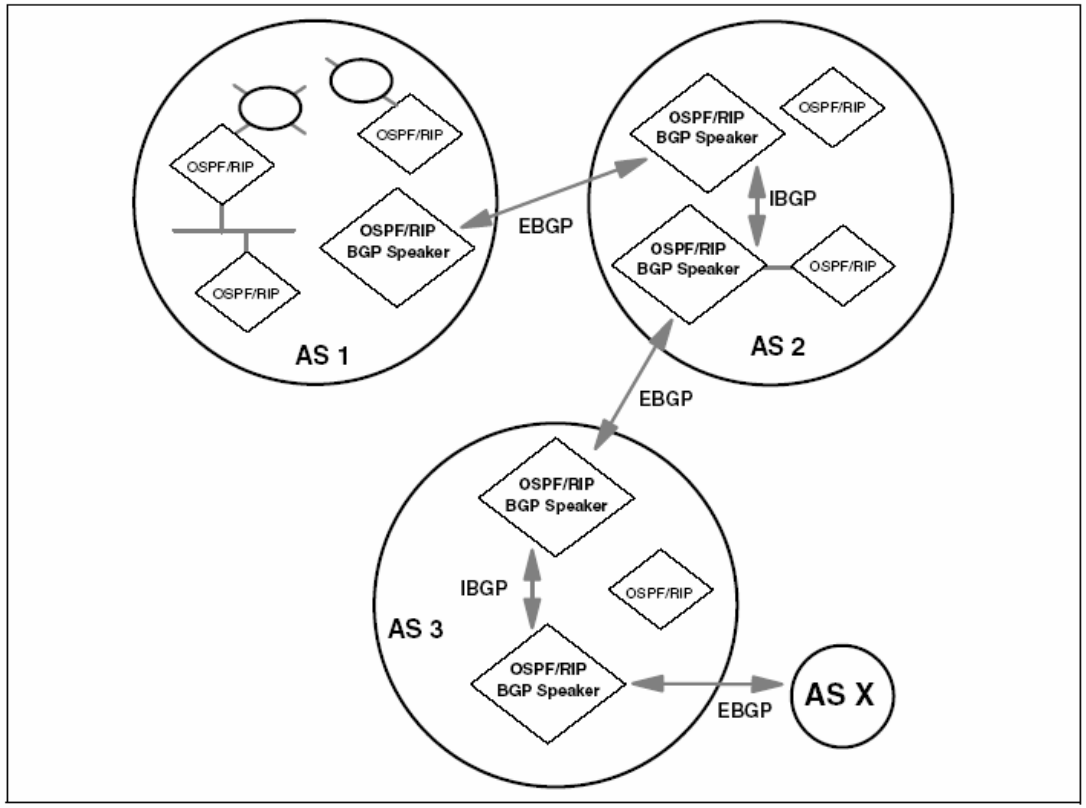
Open Shortest Path First (OSPF)

- This is yet again another interior gateway protocol
- It has many enhancements over RIP which makes it the ideal choice for large networks
  - Equal Cost Load Balancing- allowing efficient load balancing
  - Logical Partitioning of Network – Limit advertisement of unnecessary subnet information
  - Support for authentication
  - Faster Convergence Time
  - Support for CIDR
- It is a link-state protocol

Border Gateway Protocol

- BGP is an exterior gateway protocol



BGP (cont.)

- BGP is a distance vector protocol
- It varies in the type of metric and also in giving attributes to each type of path
  - Well-known mandatory
  - Well-known discretionary
  - Optional Transitive
  - Optional Non-Transitive
- Preferences are assigned to each route
- BGP is partitioned into IBGP (located within an AS) and EBGP (those neighbours within different ASs)
- BGP uses TCP as its carrier

Choice of Routing Protocol

- The proper choice of routing protocol is very important.
- Selection depends on
  - Network complexity,
  - Size, and
  - Administrative Policies
- A number of design requirements have to be evaluated
  - Scalability to large environments: distance vector does not scale
  - Stability during Outages: Distance vector introduce instabilities during outage periods
  - Speed of Convergence: Triggered updates makes RIP equal to all the rest, yet they all still can be quite slow
  - Metrics: LS Algorithms use bandwidth to calculate routes, EIGRP can use network delays
  - Support for VLSM + use of Private Address Ranges
  - Vendor Interoperability
  - Ease of Implementation: Distance Vector the simplest to implement
    - One might use static routes for small networks