

Multicast OSPF

- **Multicast using link-state based protocol.**
 - Simple augmentation of OSPF. Used for Intra-AS multicast.
- **Edge routers flood mcast group membership information**
 - Similar to LSP flooding.
 - LS database now has group membership info.
- **Locally build source-based, shortest-path mcast tree on each router.**
 - Build tree on-demand (on first packet arrival) for a mcast group to avoid tree calculations for all known groups.
 - Use caching to avoid tree calculation for every packet.
 - Note the mcast trees are already pruned.
 - Data packets are forwarded along tree branches.

MOSPF Performance

- **Membership information is flooded.**
 - High overhead if group membership changes frequently.
 - Not scalable. Certain divide-and-rule techniques have been suggested.
- **High computational overhead on routers**
 - Need to compute shortest path trees for every active <source,group> after each update on LS database. Cost $O(N^2)$ per source with Dijkstra.
- **Must still maintain forwarding table on a per <source,group> basis.**

Core-Based Tree (CBT)

- **Motivation:**
 - We don't like maintaining any routing state on a per <source,group> basis. Just per group is nice.
 - We don't like any form of flooding either for group membership (MOSPF) or to trigger pruning (DVMRP).
 - We don't like non-tree routers doing very much work, if any.
- **Idea:**
 - Build a “shared tree” for the group (same as spanning tree). NOT a source based per source!
 - Tree starts with a “core” router for the group.
 - Use a join/leave protocol to “grow” or “shrink” the tree.