IETF Taiwan

draft-wijnands-pim-source-discovery-bsr-00

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Problem Statement

- Highly redundant Multicast network.
- No single point of failure.
- Simplification.
- Supports source discovery.

Problem Statement

- This sounds a lot like PIM SSM, no?
- Yes, it does ☺
- But, source discovery remains to be challenging in order to do SSM.
  - applications not capable.
  - IGMPv3 not available.
  - Sources not known in advance.
- SSM Mapping often used otherwise.

Problem Statement

- This proposal focuses on a specific sort of deployment where;

- The sources are not known in advance.

- Its not important to deliver the first (couple) of packets.

- Relatively low number of flows < 10K

Solution

- The First Hop Router (FHR) detects a active source.

  – The packet is NOT PIM registered.

- It uses RPF flooding to distribute the Source – Group mapping in network.

- Last Hop Routers that receive the SG-mapping and have local interest join the (S,G) tree via PIM.

RPF flooding

- There are already 2 protocols that flood 'RP – Group' mappings through the network
  - BSR
  - Auto-RP
- Why not re-use one of these to flood the S-G mappings.
- BSR seems to be a logical choice.

BSR

- Defined new BSR encoding to include Source.
- The Source sort of replaces the RP.
- Each FHR becomes a BSR router for advertizing the Source directly connected to it.

Advantages

- Allows to do 'sparse-mode' without RP's
- Simplification of the network.
- Highly redundant, no single point of failure.

Disadvantages

- Initial packet(s) received by FHR are dropped.
    - This is fundamentally different from PIM Sparse.
- All potential last-hop routers will need to cache all S-G mappings.

First packet

- PIM sparse-mode made a very large sacrifice in order to support delivering the first packet.

- Applications like SDR depend on it…

- There are many applications of multicast that don't depend on the first packet, like video for example.

- Many deployments could benefit.

PIM Bidir

- Applications that are sensitive to the first packet may use PIM Bidir.
- These are mostly low bandwidth, so no worry about best path forwarding.
- With PIM Bidir the first packet is always delivered.

Conclusion

- Until the day comes that applications becomes SSM aware;

- This could be a good intermediate solution.

- It could co-exist with existing PIM modes, and do this only for specific group ranges.

Going forward

- Like to get feedback from the group.
- Adopt as a WG doc?

Questions?