

draft-ietf-pim-source- discovery-bsr-01

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Problem statement (1/2)

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

- We basically want SSM plus source discovery
- SSM is great but source discovery is a challenge
 - Sources not necessarily known in advance
 - Applications not able to do source discovery
 - Applications/OS/infrastructure not IGMPv3 capable

- Only use SPT (no RPT or PIM registers) for data packets

Problem statement (2/2)

- This proposal focuses on deployment scenarios where:
- The sources are not known in advance
- It is not important to deliver the first few multicast packets
- Relatively low number of flows $< 10K$

Solution

- First hop routers (FHR) detect active sources like today
 - But instead of PIM registers, the information about the active sources are distributed through the network.
- A new active source is announced immediately
- Each FHR periodically sends messages with their active sources (source,group pairs)
- RPF flooding is used, similar to BSR
- Last hop routers that receive SG pairs and have local interest, join the SPT for each of the SGs

Status

- Initial proposal used a variation of BSR
- A prototype has been implemented in Cisco IOS and successfully tested by a customer
- Rather than modifying BSR the draft now has a generic flooding mechanism that can be used in the future for distributing any information
- Input wanted on the usefulness of a generic flooding mechanism. The mechanism is explained on the following slides.

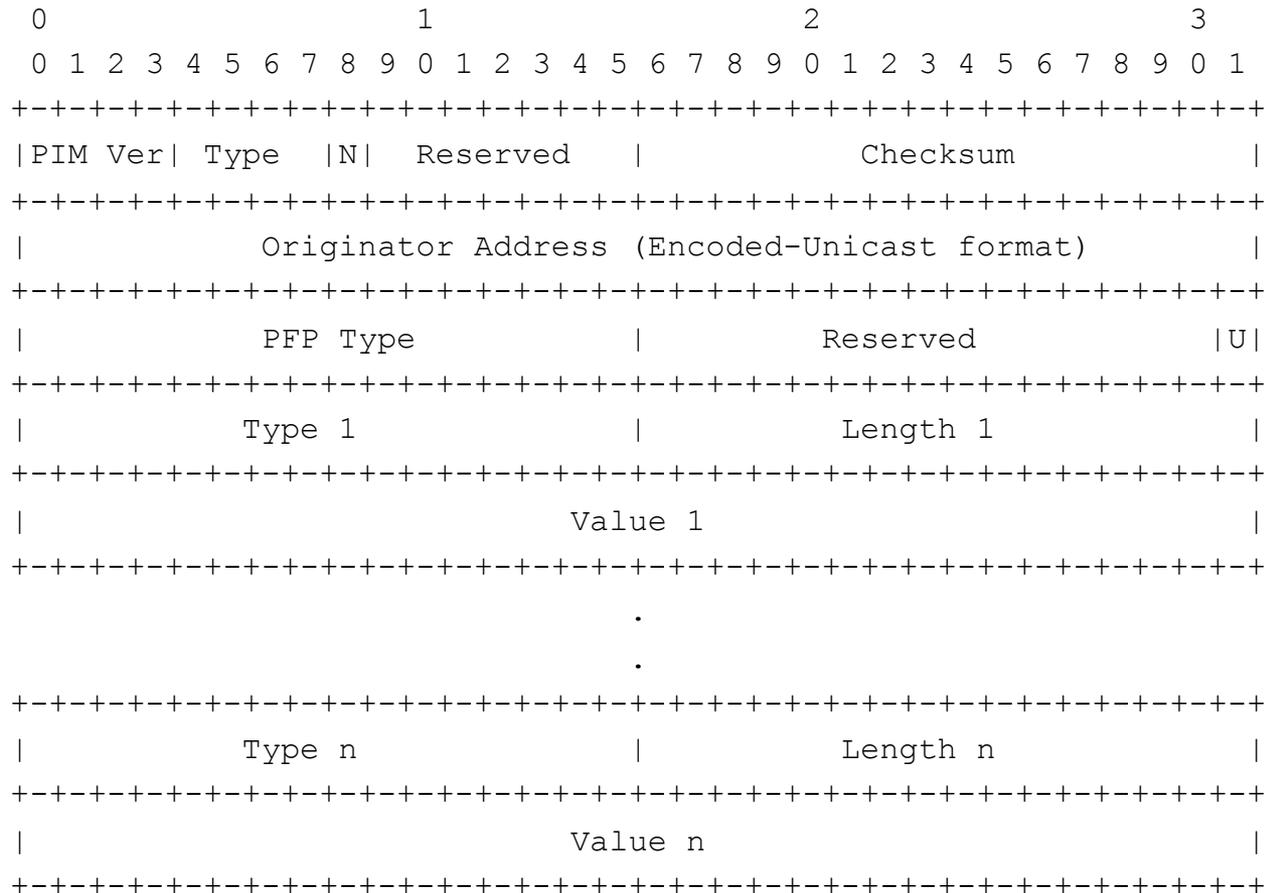
PIM Flooding Protocol

- Distribute information throughout a PIM network/domain
- Modelled after BSR, extensible
- A generic mechanism allows for different types of information being distributed without using a new PIM message type for each
 - Allows for new types of information to be distributed without requiring every router to support the new types (similar to transitive J/P attributes)
 - We are short on PIM message types

PIM Flooding Protocol

- RPF flooding based on the originator address
- Messages have a type field
 - Information for different purposes should use different types
 - A router could be configured with rules to drop certain types on border interfaces, even for types they don't support
 - To implement something like BSR border, but potentially per type
- TLVs used to provide the information
- A flag indicates whether a router should forward unknown message types
 - In some cases one wants info to be flooded and it is not necessary for every router to process the information
 - In other cases it may be necessary for all routers to process or store the information, where it is useless or harmful if a router simply forwards it
- A Do-not-forward flag similar to BSR
 - Useful when a new router comes up where it might get information from a neighbor, but where it should not be forwarded

PIM Flooding Protocol (PFP) message format



Almost BSR, but not quite

- There is no built in election mechanism, no priority field
- For some types of information it makes sense to have multiple originators
 - Like each FHR with active sources
- If a new type later requires an election mechanism, a new document can specify a priority TLV and how election takes place
- The priority and the election should then be per type