Multicast Source Notification of Interest Protocol (MSNIP)

draft-ietf-idmr-msnip-00

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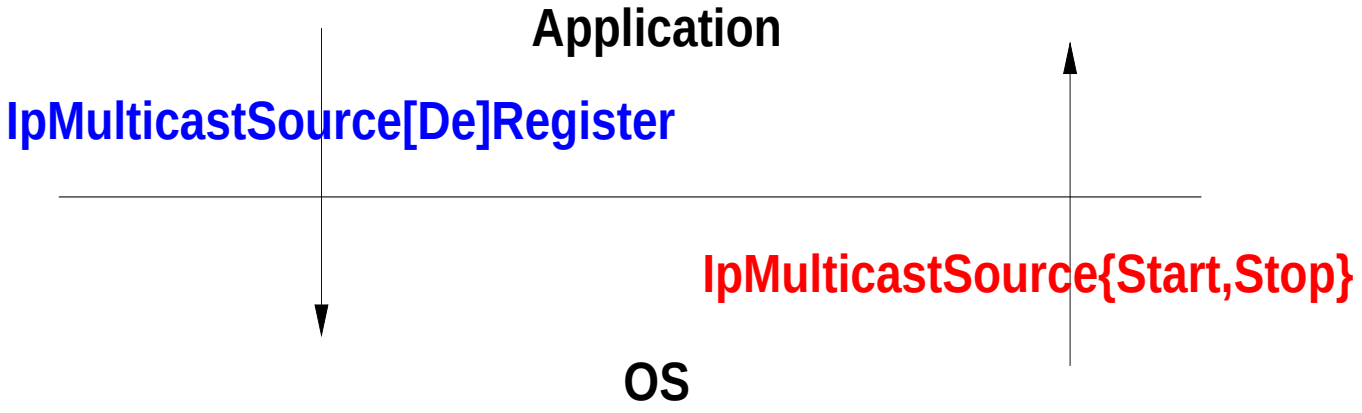
MSNIP overview

- Signal application when first receiver joins and last receiver leaves (prevent sources from sending when no receivers present)
- Design goals:
  - Need to support servers with a large pool of potential sessions but only a few active ones (e.g. video server)
  - Maintain full compatibility with existing hosts and routers
- MSNIP is an extension to IGMPv3 (between source and first-hop router)
- Works with SSM (ASM is not supported)

Client API

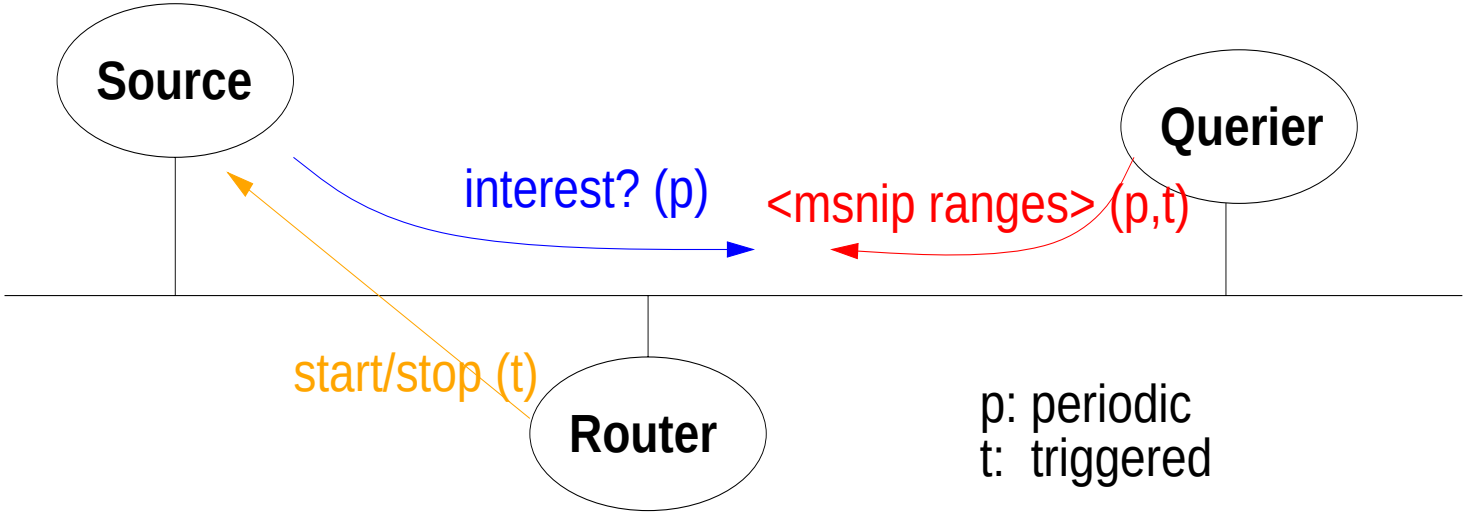


- **IPMulticastSourceRegister** (socket, interface, mcast-addr)
- **IPMulticastSourceDeregister** (socket, interface, mcast-addr)
- **IPMulticastSourceStart** (socket, interface, mcast-addr)
- **IPMulticastSourceStop** (socket, interface, mcast-addr)

Design choices

- Flood and prune
  - Can support ASM
  - Does not serve application purpose
  - Wasted resources on source systems
  - Creates state for every potential (S,G) on first-hop routers
- Explicit start
  - Only supports SSM
  - Better fits applications

Protocol description



- **Interest Solicitation** Multicast by potential sources to request receiver membership notification
- **Group Map** Multicast by the IGMP querier to advertise MSNIP managed address space
- **Receiver Membership Report** Unicast by first-hop router towards a source to instruct it to start or stop transmitting.

IP system behaviour in MSNIP managed address space

- Notification:
  - In MSNIP range, OS notifies
    - start when first receiver joins
    - stop when last receiver leaves
  - Outside MSNIP range, registering apps are immediately notified to start

- Filtering:
  - OS filters application data to source / group addresses in MSNIP space for which there is no interest (works with old apps)
  - OS never filters outside MSNIP space (application is immediately notified to send)

No changes required to receiving hosts

- PIM DR sends MSNIP reports on behalf of local (on-link) receivers discovered via IGMP
- Source IP system defaults to flooding if MSNIP router is not present

Extending MSNIP to a world without routers (Dave's slide)

- MSNIP source runs the IGMPv3 and MSNIP router side of the protocol
- IGMP querier sends MSNIP reports on behalf of local members
- Not in the current protocol spec
  - should we add it?
  - allow it?
  - mandate it?