

# Multicast Control Protocol (MCOP)

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# Outline

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- Goals and requirements
- Overview of MCOP
- Summary
- Next steps

# Goals and Requirements

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- Control over multicast receivers and sources
- Protection against DoS attacks on multicast groups and network
- Centralized multicast policy control tool
- Simple scheme that does not need cryptographic calculations
- No modifications to IGMP/MLD
- No modifications to core routers
- Control mechanism must be independent of multicast routing protocol

# Network Elements

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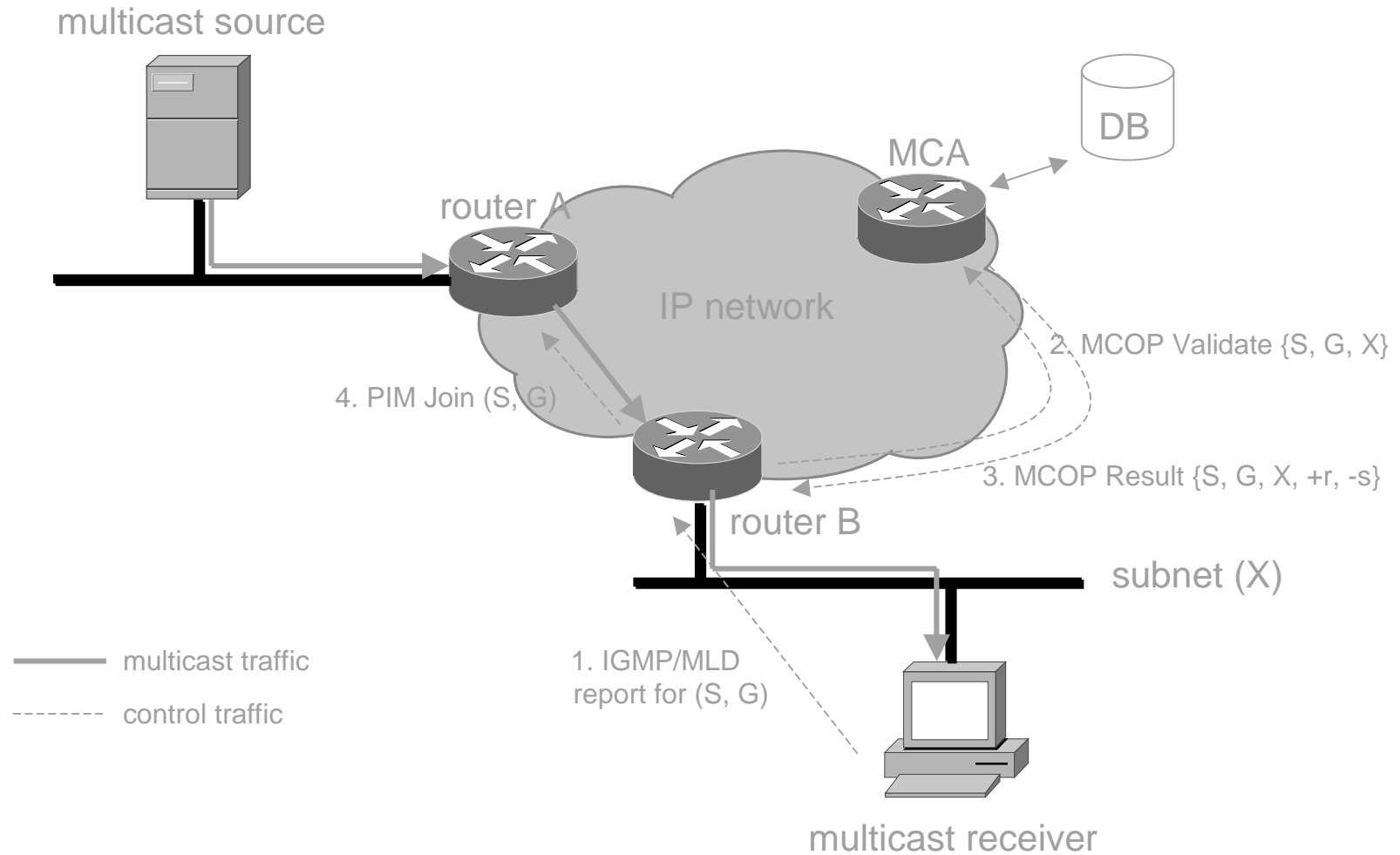
- MCOP router
  - first hop multicast router with MCOP support
  - filters multicast traffic and IGMP/MLD reports based on the information it gets from MCA
  - maintains local cache of group information for directly connected active groups
- MCA (Multicast Control Agent)
  - defines MCOP controlled multicast addresses
  - responsible for managing the multicast source and receiver information for MCOP controlled groups and channels (SSM-groups)

# Overview of MCOP

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- Adds possibility to selectively enable multicast receiving and sending
- Independent of IP multicast routing protocols
- Multicast control is based on filtering IGMP/MLD reports and multicast packets
- Control information is maintained at MCA
- MCOP protocol is used between multicast control agent (MCA) and MCOP routers (that have directly connected multicast sources or receivers) to retrieve the control information from MCA
- MCOP phases
  - discovery
  - initialization
  - source/receiver validation
  - reset

# MCOP Receiver Validation Phase



# Summary

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- Centralized and dynamic policy control for multicast networks
- Avoids DoS attacks by verifying the source and receiver status (authorized/unauthorized) before creating the multicast tree
- Independent of multicast routing protocols
- Host level control with IGMPv3/MLDv2
- Subnet level control with earlier versions of IGMP and MLD
- A tool for ISPs for multicast network management

## Next Steps

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- Implementation of MCOP
  - Linux environment
  - MCA with SQL database
  - standalone MCOP bridge