Multicast Server Architectures for MARS-based Multicasting

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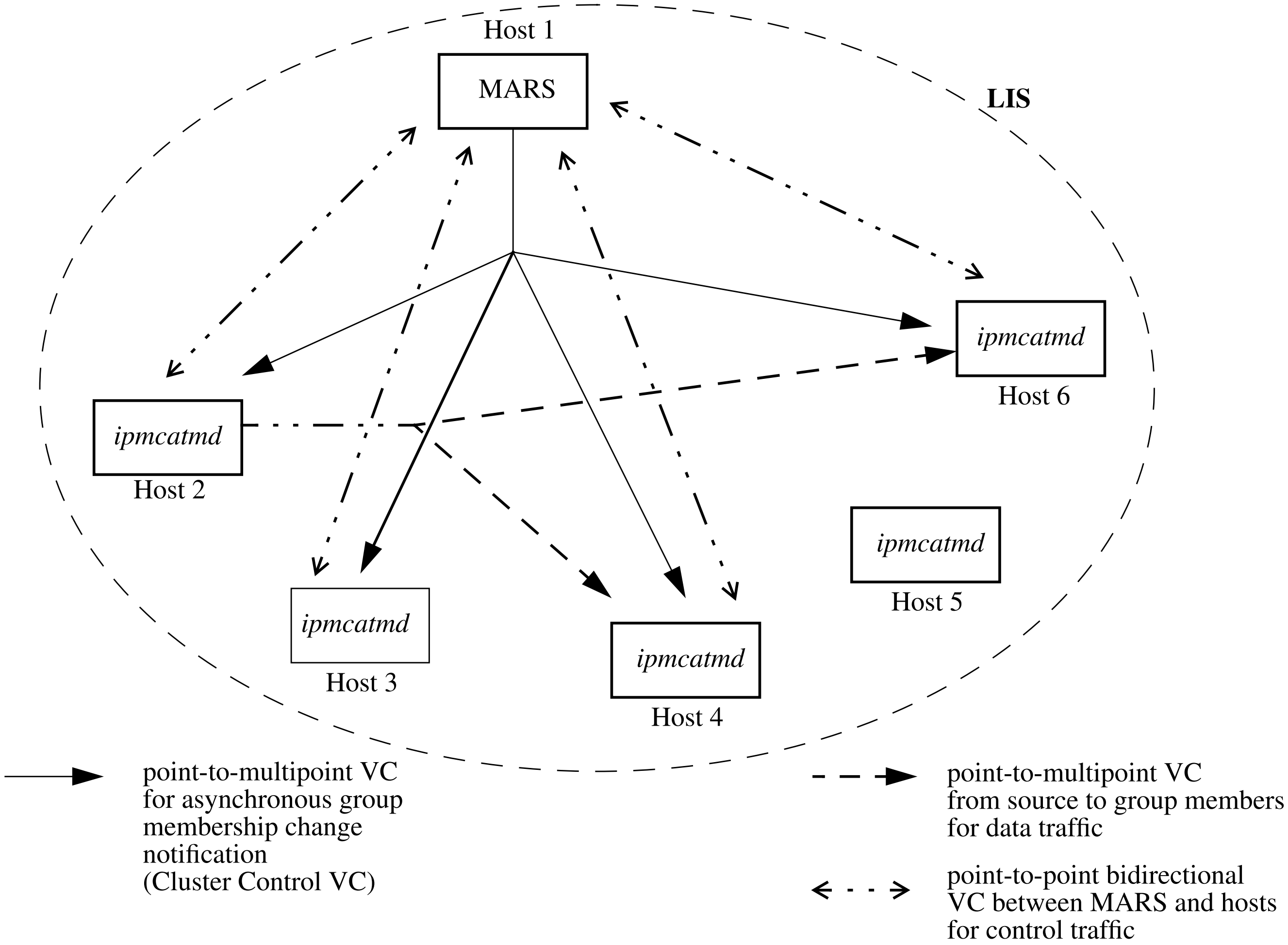
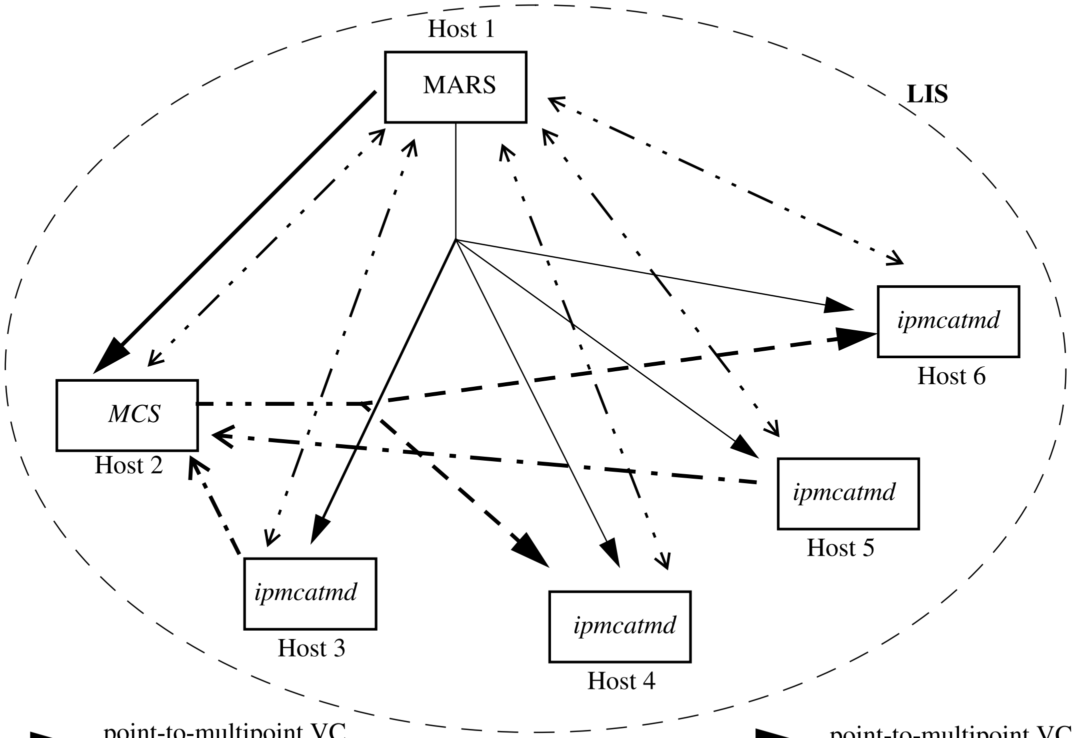
Overview of the MARS model



The Multicast Server (MCS) approach



point-to-multipoint VC for asynchronous group membership change notification (Cluster Control VC)

point-to-multipoint VC from source to MCS for data traffic

point-to-multipoint VC from MCS to group members for data traffic

point-to-point bidirectional VC between MARS and hosts for control traffic

point-to-multipoint VC from MARS to MCSs for control traffic (Server Control VC)

Existing support for Multicast Servers in the MARS Internet Draft

- General guidelines provided for supporting single MCS per group.
- Detailed description of MCS architectures not provided.
- Need for multiple MCSs per group is expressed, but are not supported.

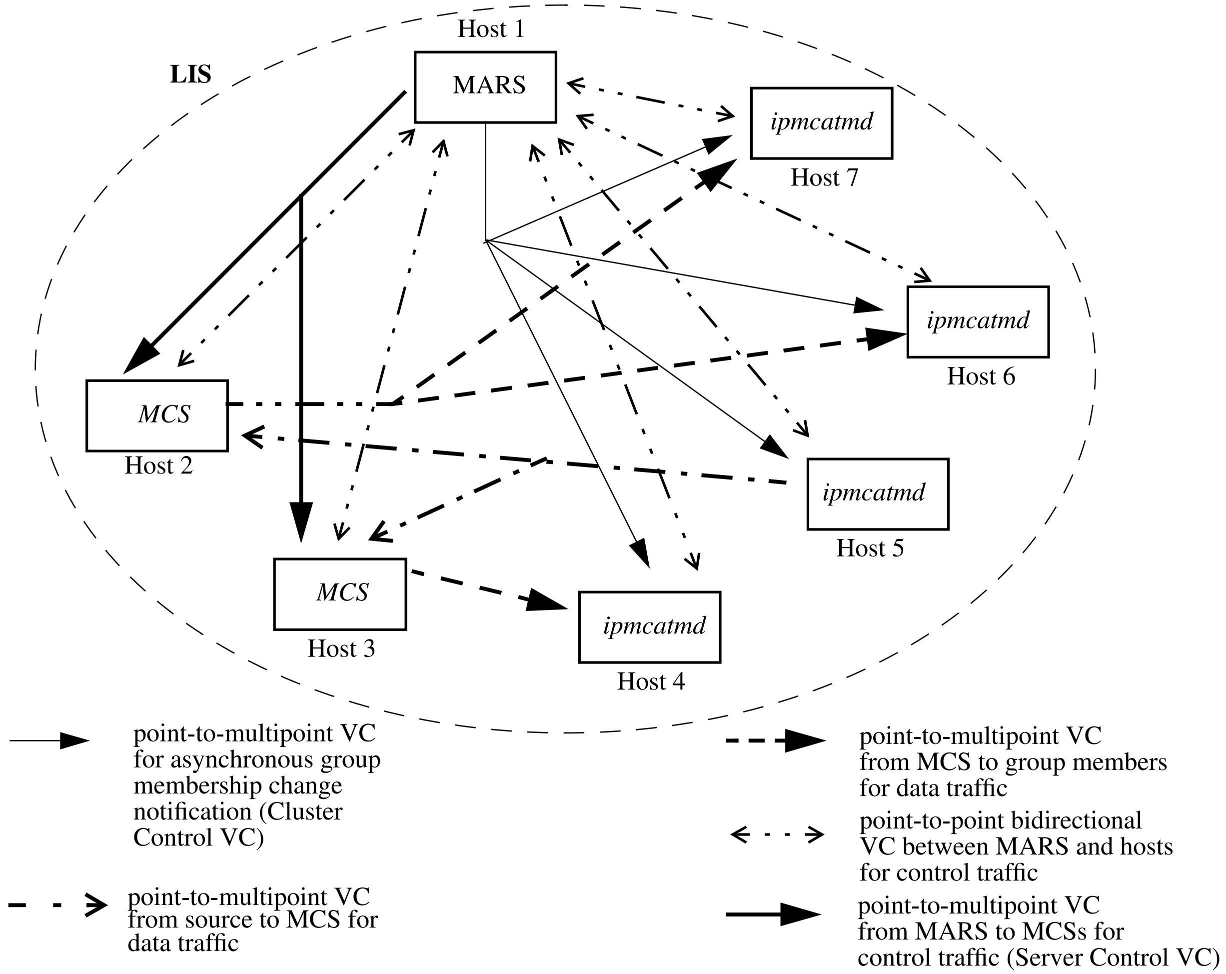
Motivation for the Multicast Server draft

- Discussion of the pros and cons of the VC Mesh and MCS approaches.
- Detailed description of MCS architectures and their interaction with MARS.
- Inter-MCS synchronization protocol for supporting multiple MCSs per group.

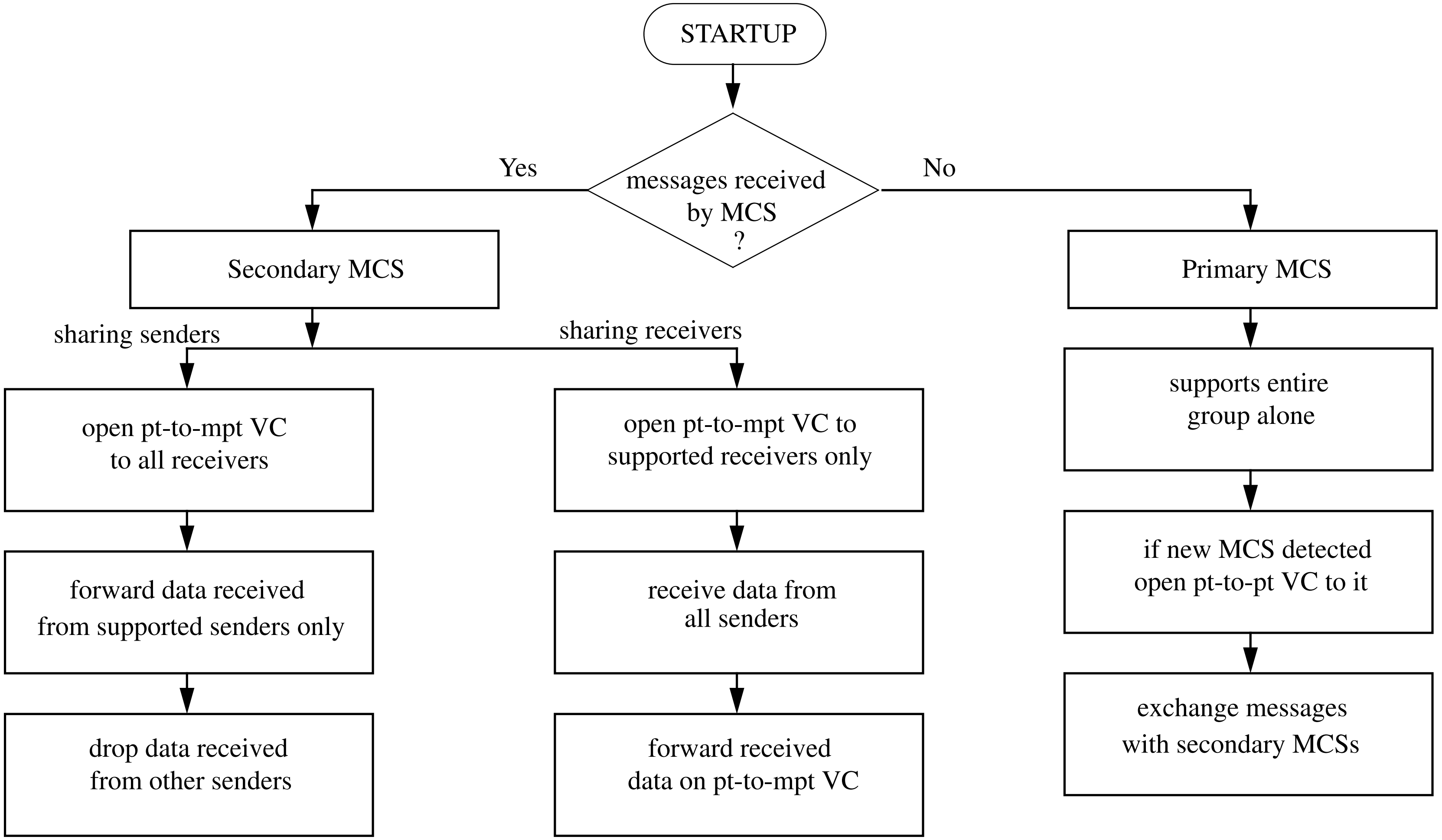
Features

- No changes to existing MARS or client architectures.
- Senders/receivers are oblivious of existence of multiple MCSs.
- Centralized decision making and distributed database in Inter-MCS synchronization protocol.
- Decision to share senders or receivers made by network administrator on a per group basis.
- Recovery from most failures possible.

Multiple MCSs per group



Simplified sequence of events



Inter-MCS control messages

- MCS_LIST
- MCS_ALIVE
- MCS_REQUEST
- MCS_MULTI
- MCS_MULTI_ACK
- MCS_SELECT

Failure Handling

- Failures detected by MCS_LIST and MCS_ALIVE.
- Recovery from failures of primary and secondary MCSs possible.
- New primary MCS chosen from existing secondary MCSs.
- Reallocation of senders/receivers done by primary MCS.

Summary

- Examine the relative merits of the VC Mesh and MCS approaches.
- Formalize MCS architecture and MARS-MCS interactions.
- Solution for supporting multiple MCSs per group.
- Unresolved issues.