Multicast Servers in an RFC 1577 Environment.

Goals:

- Enable administrative division of VC load between meshes and multicast servers on a group by group basis.
- Extension of **draft-armitage-ipatm-ipmc-02.txt** multicast model.
- Transparent to LIS hosts.

Summary: ARP Server is configured with ATM address of 'Multicast Server' node for certain Class D addresses. Returns ARP_REPLY instead of ARP_MULTI(s) when hosts ARP for that Class D address. Hosts join and leave group as usual. Multicast Server node manages pt to mpt VC out to group members.

Multicast Server:

- Client of LLC layer on node attached to ATM cloud.
- ARP Server 'knows' MC Server's ATM address.
- Needs to track group membership changes within LIS.
  - ◊ Joins 224.0.0.1 to receive `ARP_MCJOIN`s and `ARP_MCLEAVE`s propagated by ARP Server.
  - ◊ Initializes by sending `ARP_REQUEST` to ARP Server for the group it serves.
- Propagates LLC/SNAP encapsulated packets.
  - ◊ May use own pt to mpt VC out to members.
  - ◊ May use pt to pt VCs from members.

ARP Server extensions:

- Multicast Server identities are administratively configured into ARP Server.
  - ◊ `{IP Class D, ATM.mcserver}` mappings for each multicast server.
- ARP Server continues to track `{IP class D, ATM.1, ATM.2, ..... ATM.n}` mappings.
- Response to `ARP_REQUEST`s depends on request's source.
  - ◊ Multicast Server gets `ARP_MULTI`(s) back, and so constructs outgoing pt to mpt VC.
  - ◊ Other hosts get `ARP_REPLY` with address of Multicast Server `{ATM.mcserver}`.

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The IP host:

- No change to key behavior....
  - ◊ If reply is `ARP_REPLY` host establishes unicast VC as per RFC 1577.
  - ◊ If reply is `ARP_MULTI` host establishes itself as root of pt to mpt VC, with supplied ATM addresses as initial leaf nodes.
  - ◊ Updates pt to mpt VCs based on subsequent `ARP_MCJOIN` and `ARP_MCLEAVE` messages received from ARP Server.

Above behavior ensures local host ignores `ARP_MCJOIN` and `ARP_MCLEAVE` messages it may see that relate to a Class D group served by a Multicast Server.

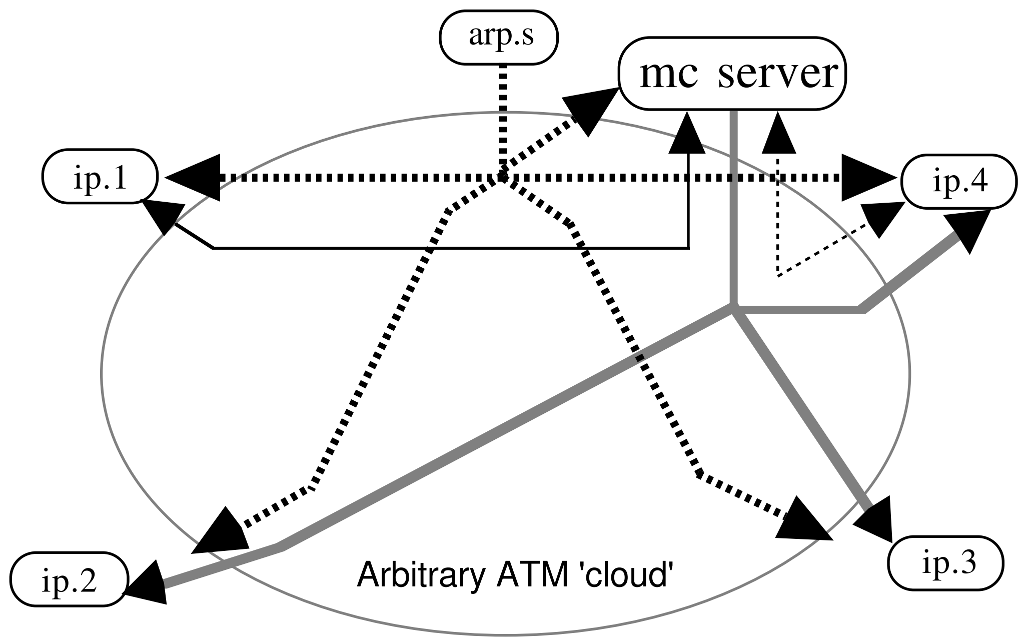
VCs for Class D traffic within LIS:

Multicast VC from ARP Server for propagated ARP_MCJOIN and ARP_MCLEAVE messages.

Unicast VC, IP host 1 sending to group {2,3,4} via MC Server.

Unicast VC, IP host 4 sending to group {2,3,4} via MC Server.

Multicast VC, MC Server sending to group {2,3,4}



Unicast VCs for ARP Request, ARP MULTI reply omitted for clarity.

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