ZC Multicast Address Allocation

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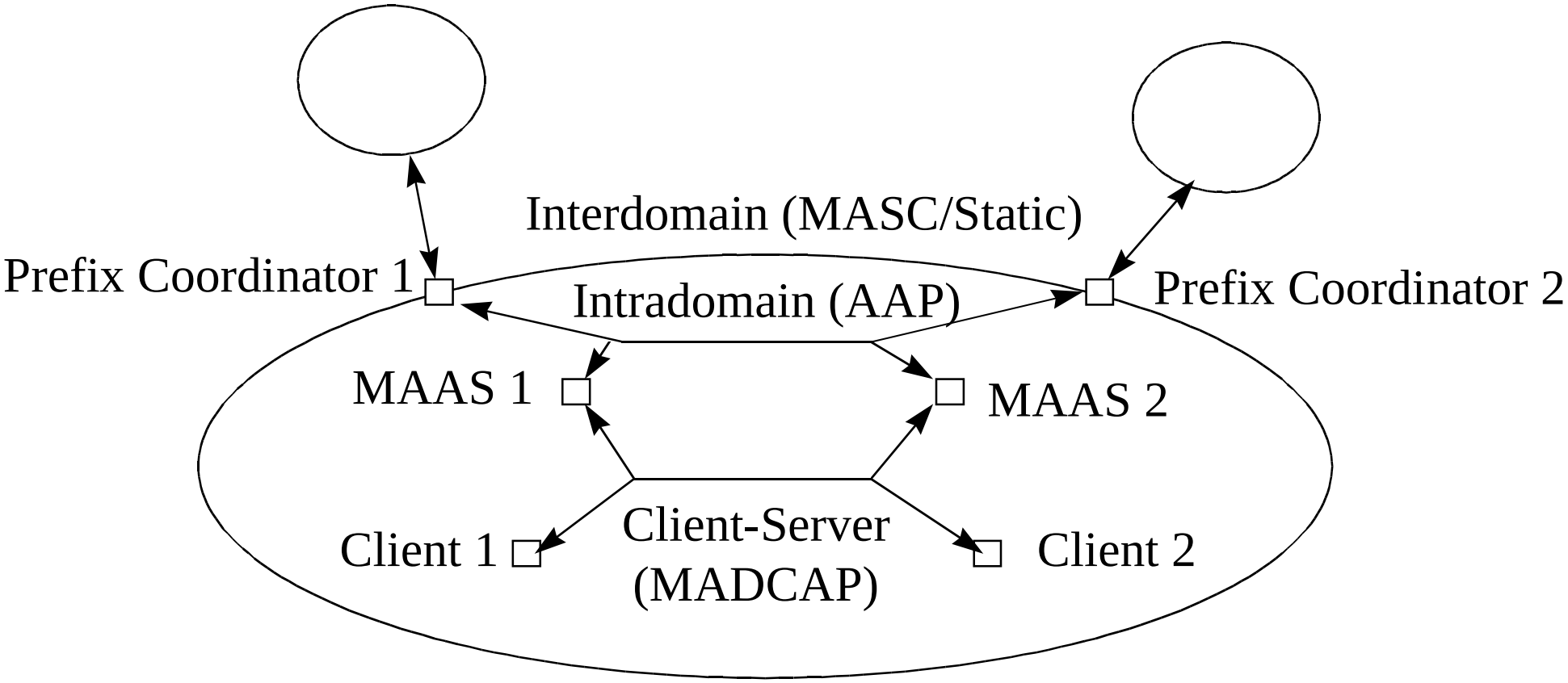
Outline

- Multicast Address Allocation Overview
- ZC Multicast Address Allocation
- Issues

Dynamically Assigned IP Multicast Addresses

- Global Scope (225.0.0.0/8)
- "Big" Admin Scopes (various in 239.0.0.0/8)
- Allocation Scope (239.251.0.0/16)
- "Small" Admin Scopes (various in 239.0.0.0/8)
- Local Scope (239.255.0.0/16)
- Link-Local Scope (static-only in IPv4)
- Node-Local Scope (IPv6 only)
- Single Source (232.0.0.0/8)

MALLOC Architecture



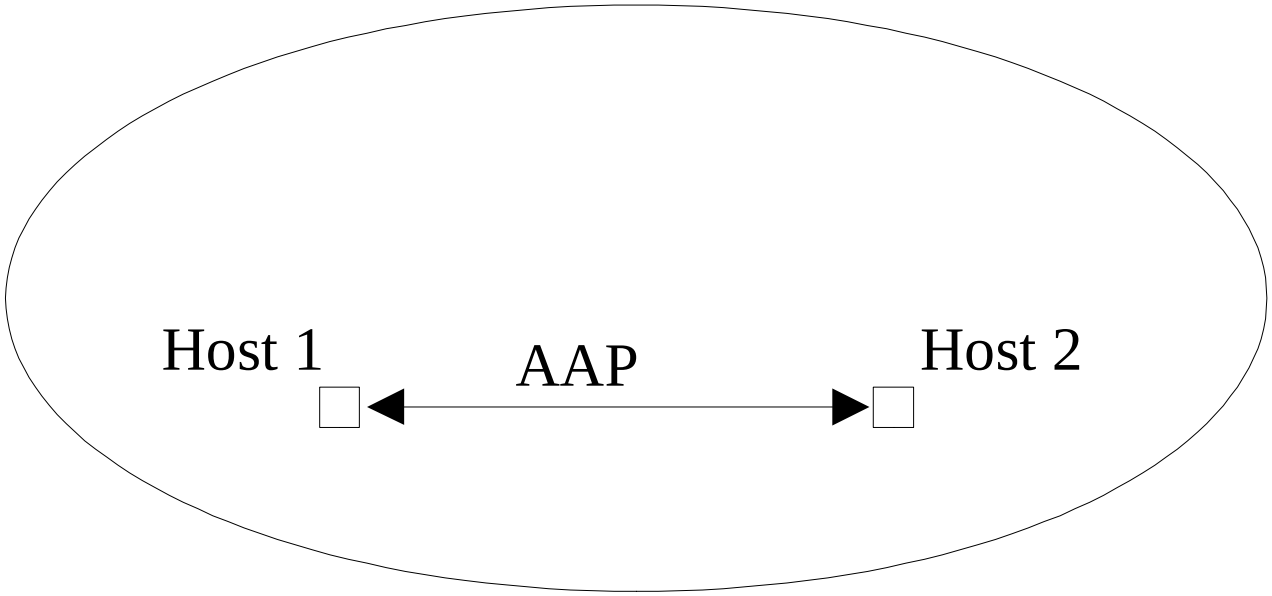
AAP Overview

- AAP = Address Allocation Protocol
- Intradomain protocol (allocation domain)
- Used by MAAS's, Prefix Coordinators (like MASC routers), and others
- All messages are UDP packets multicast to a scope-relative address (in the Allocation Scope for large scopes, in the scope being allocated from for small scopes)

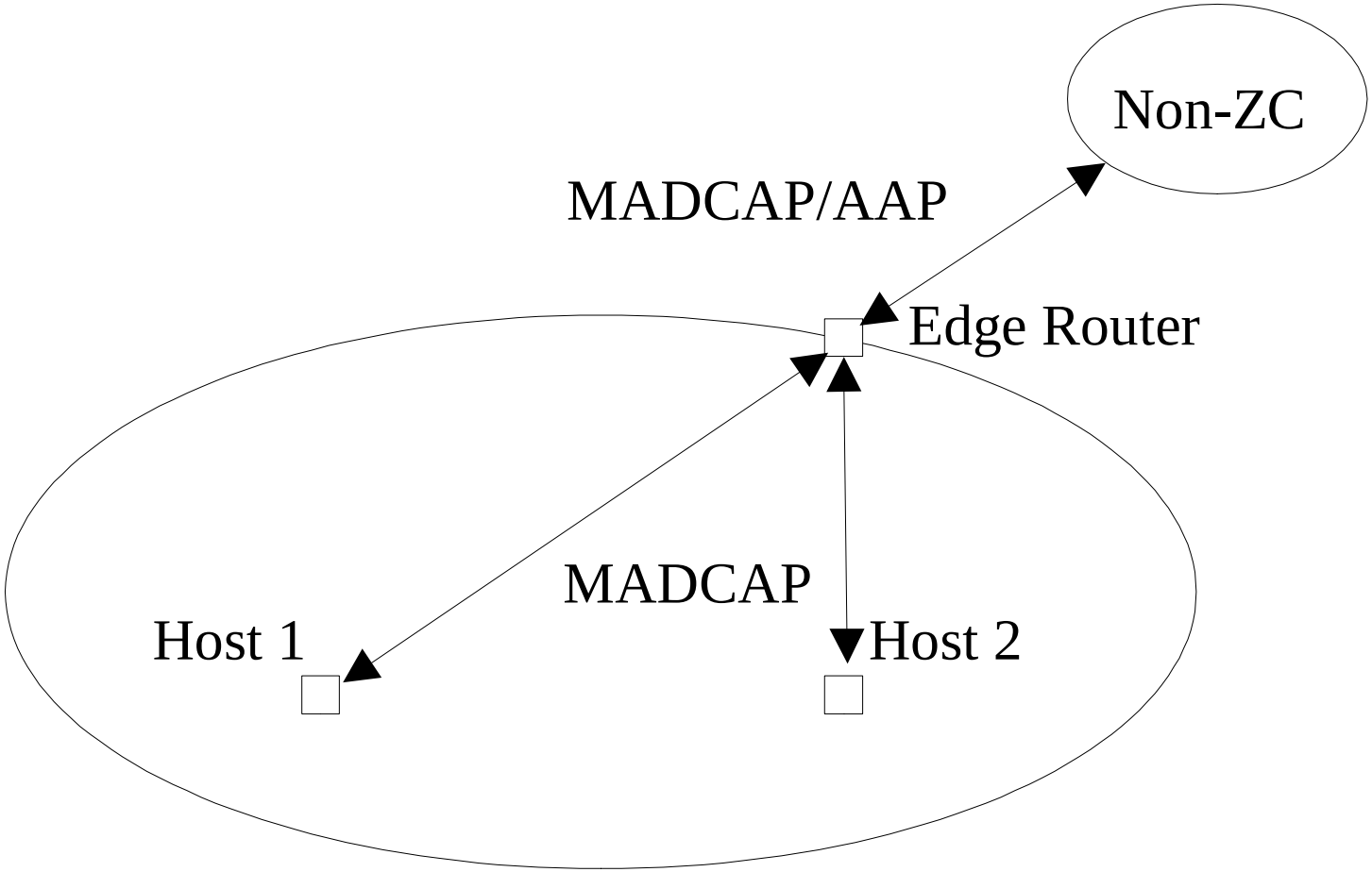
AAP Messages

- ASA Address Set Announce
- ASRP Address Space Report
- ACLM Address Claim
- AIU Address In Use
- AITU Address Intent To Use
- ANA Address Not Available

MALLOC Architecture (Isolated)



MALLOC Architecture (with Edge Router)



ZC Host Behavior

- If there's a MAAS (MADCAP server),
  - USE IT!
- If not, can allocate from ZC scopes
  - Local Scope
  - Link-Local Scope (IPv6 only)
  - Node-Local Scope (IPv6 only)
  - Single Source Scope (IPv4 only)

ZC Host Address Allocation

- For Node-Local and Single Source addresses, allocate them yourself
- For Local and Link-Local, use a subset of AAP:
  - ACLM and
  - AIU

ZC Router Behavior

- Are you an Edge router (between ZC & non-ZC)?
  - If not, simply route multicast traffic transparently
  - If so, act as a mini-MAAS:
    - Establish a Local Scope boundary
    - Act as a MADCAP server within the ZC env
    - If there's a MADCAP server in the non-ZC env, forward requests to it
    - Otherwise, participate in AAP in the non-ZC env and act as a MAAS

Issues

- How does a ZC router know if it's an edge router?
- Security
- Session Announcement
- Collisions likely, due to frequent topology changes
- Delay to establish AAP state