

Mobile Multicast Sender Support in PMIPv6 Domains with Base Multicast Deployment

draft-ietf-multimob-pmipv6-source-00

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Objective of the Draft

- Define Multicast Source Mobility for PMIP

- Three Basic Multicast Scenarios:

1. Pragmatic base-line approach as for listeners:

- Suboptimal routes are price for simplicity

2. Direct Multicast

- Based on Proxies, PIM-S(S)M or BIDIR PIM

3. Optimized Source Mobility

- Extended Proxies for traffic optimization

Document History

o Two initial approaches

- Base solution for sources
draft-schmidt-multimob-pmipv6-base-source-01
- Multiple upstream proxy for sources
draft-zhang-multimob-msm-03.txt

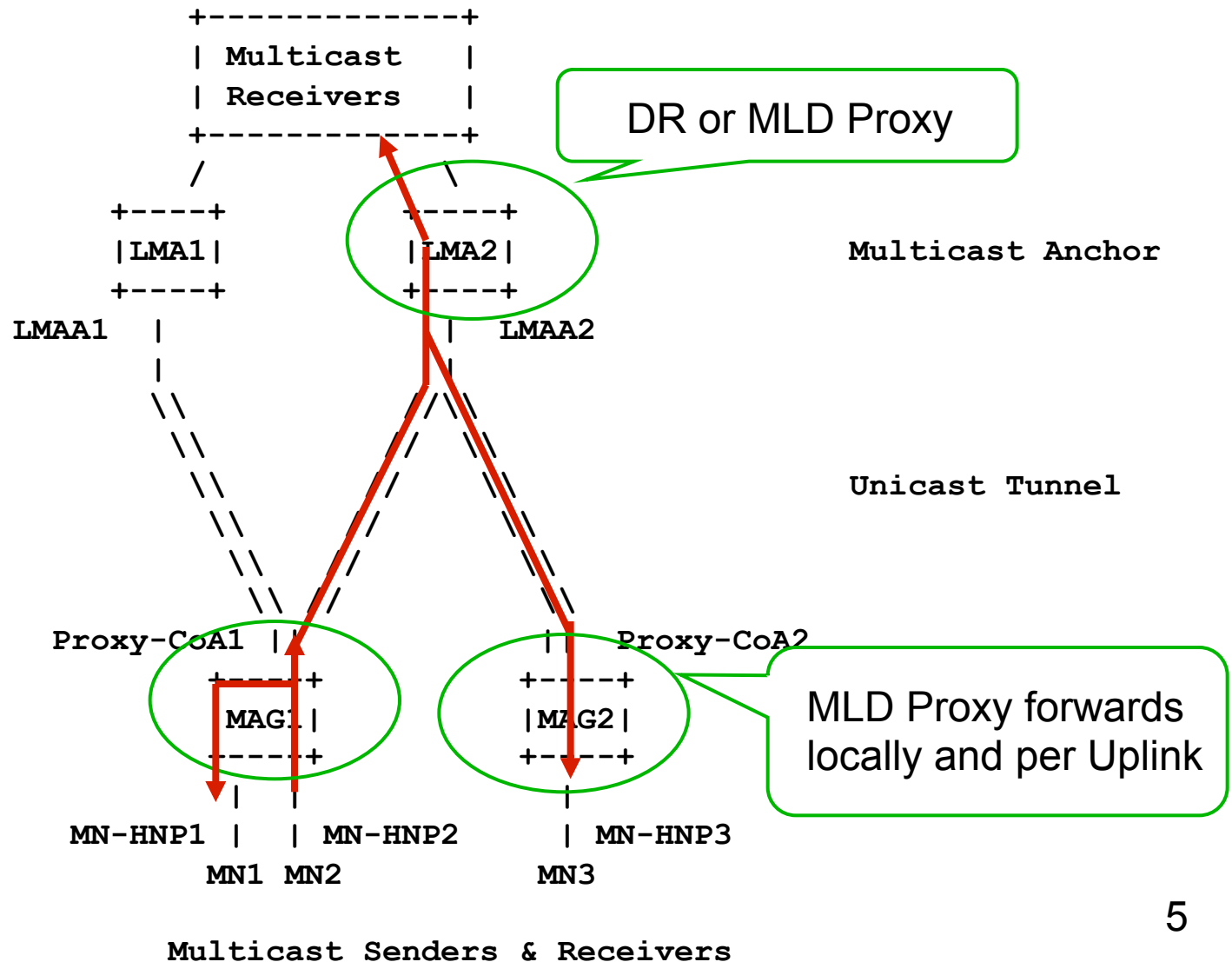
o Merged to

- Mobile Multicast Sender Support in PMIPv6 Domains
draft-schmidt-multimob-pmipv6-source-00
- Now draft-ietf-multimob-pmipv6-source-00

1. Base Solution

- o Deployment as of RFC 6224
 - MLD Proxy at MAG (one instance per LMA-uplink)
 - Multicast router (or another proxy) a LMA
- o At MAG multicast data from MN is forwarded
 - to all downstream interfaces with subscriptions
 - to the upstream LMA
- o Transparent to ASM and SSM
- o Supports IPv4 access/bindings (plain GRE tunneling)
- o Caveat: Proxy should check subscriptions prior to forward downstream

Multicast Base Deployment with Mobile Source



PIM-SM: Direct Connect Problem

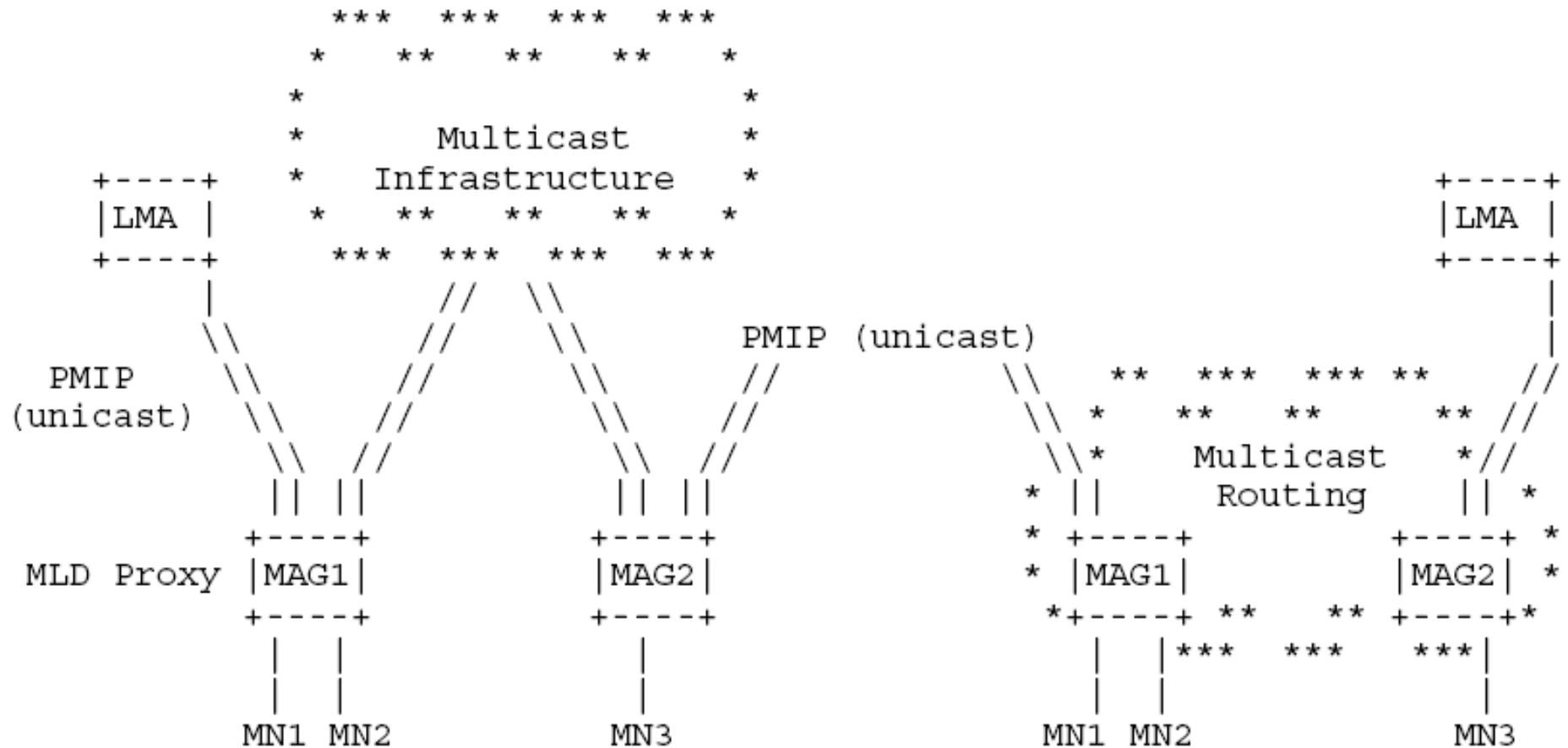
Issue for LMAs running PIM-SM:

- o PIM-SM requires sources to be directly connected
- o Generic problem for Proxy-augmented PIM domains (proxy is intermediate router)
- o Solution:
Configure tunnel interface with Border bit that ends PIM domain → eliminates constraint

Efficiency Issues

- o Routing is optimal for receivers at the sender's MAG that belong to the same LMA, and for the fixed Internet
- o Routing detours via LMAs, whenever
 - Mobile listener is attached to another MAG
 - Mobile listener is associated with a different LMA
- o No way to suppress the forwarding uplink to LMA
- o Admission control/rate limiting may be desirable to prevent flooding LMAs

2. Direct Multicast Routing



(a) Multicast Access at Proxy Uplink

(b) Multicast Routing at MAG

Alternative Approaches

- o MLD Proxies connect MAGs to multicast cloud
 - Single instance uplinked (tunneled) to multicast domain
- o PIM-SM deployed at MAGs
 - Problem: Use meaningful MRIB independent of PMIP unicast
 - Keep access network flat to avoid tardy re-routing
- o BIDIR-PIM deployed at MAGs
 - Source mobility agnostic
 - Simplest, most transparent approach

3. Optimized Source Mobility

- o Scenario: Proxies at MAGs
- o Objective: avoid re-routing, when traffic is at local MAG (at different instances)
 1. Multiple upstream proxy for sources (MUIMP)
 - Traffic forwarded to multiple LMAs
 2. Proxy-Instance Interconnect (PII)
 - Traffic exchange between proxy instances
 - SSM: Route to source-specific instance (routing table at interface needed)
 - ASM: Distribute according to address ranges

Summary & Outcome

- o This draft defines source mobility in the basic scenarios
- o In easy deployments traffic flows/aggregation may be optimal, but need not be
- o Direct routing and extended Proxy functions to optimize traffic flows

Questions?