

**I E T F<sup>®</sup>**

# **Requirements for the extension of the MLD proxy functionality to support multiple upstream interfaces**

**<draft-contreras-pim-multiple-upstreams-reqs-00>**

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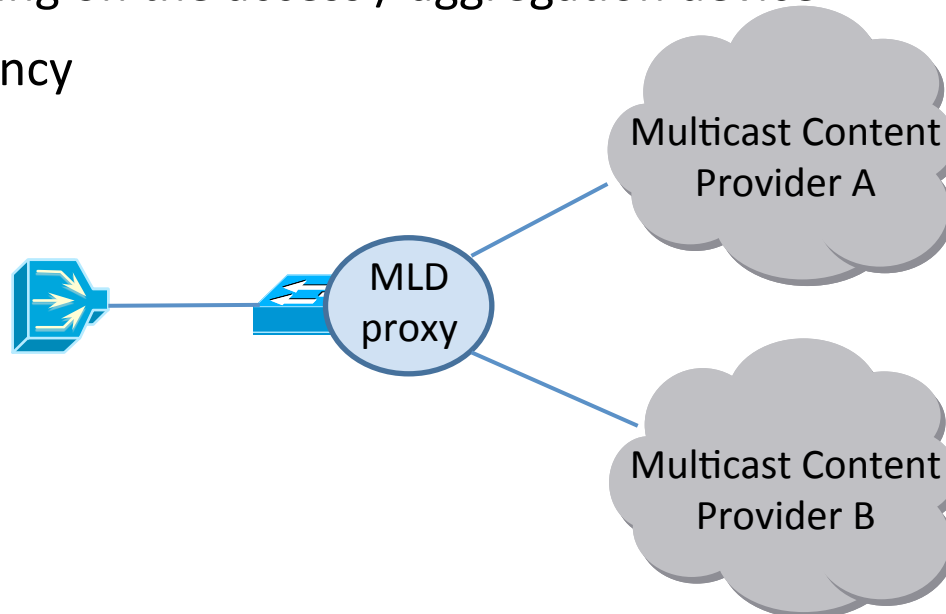
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# Proposal Status

- The draft covers a number of use cases where an MLD proxy functionality supporting more than one upstream interface would be useful
- A number of requirements for those scenarios are collected

# Problem statement

- General application:
  - Sharing of a common network access infrastructure among different multicast content providers
- Advantages
  - Subscribers can get their preferred contents from different multicast content providers without network constraints and without requiring PIM routing on the access / aggregation device
  - Redundancy



# Motivation

- The support of multiple upstream interfaces on an MLD proxy functionality has been identified as an opportunity for system optimization
- Flexibility
  - Channel-based upstream selection
  - Subscribed-based upstream selection
- Complexity
  - Handling of control messages for/from multiple upstreams
  - Efficient handling of data traffic for/from multiple upstreams
- Purpose
  - Identification of requirements for supporting multiple upstreams
  - Specification of the needed MLD proxy functional extensions

# Considered scenarios

- Multicast wholesale offer for residential services
    - ✓ Complementary multicast service offered by alternative operators in an efficient manner
  - Multicast resiliency
    - ✓ Path diversity through the connection to distinct leaves in a given multicast tree (skipping routing based mechanisms)
  - Load balancing for multicast traffic in the metro network
    - ✓ Demand split on different paths
- **Benefits**
- ✓ Resource efficiency on distribution network
  - ✓ Avoidance of multicast routing complexity as far as possible from the access / aggregation devices

# Needed functionality per scenario

	Fixed Network Scenarios		
Functionality	Multicast Wholesale	Multicast Resiliency	Load Balancing
Upstream Control Delivery	x	x	x
Downstream Control Delivery	x	x	x
Active / Standby Upstream interface		x	
Upstream i/f selection per mcast group			x
Upstream i/f selection for all groups		x	

# Proposed next steps

- Include work on MLD multiple stream interfaces in the PIM WG re-chartering
  - This draft can be taken as first input for Problem Statement and Requirements document
- Extend the scope to cover also IGMP
- Any scenario missing?
- Please, review and provide comments
- Start describing MLD proxy extension to cope with required functionality
  - Should it be part of a different doc?