

# Additional Multicast Control Extensions for ANCP

**draft-lefaucheur-ancp-mc-extensions-00**

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# Scope

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- ancp-protocol-04 includes some ANCP extensions that support one multicast use case of ancp-framework
    - NAS initiated ANCP Multicast Control
  - lefaucheur-ancp-mc-extensions defines additional ANCP extensions for support of more multicast use cases of ancp-framework:
    - Conditional Access + Admission Control without Bandwidth Delegation
  - Support of remaining use cases of framework is work in progress:
    - Admission Control with Bandwidth Delegation
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# Scope

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- lefaucheur-ancp-mc-extensions heavily reuses the ANCP extensions already defined for “NAS initiated ANCP Multicast Control”
  - “Admission Control” message flow is a strict superset of “NAS initiated Multicast Control” message flow
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# List/Profile Provisioning

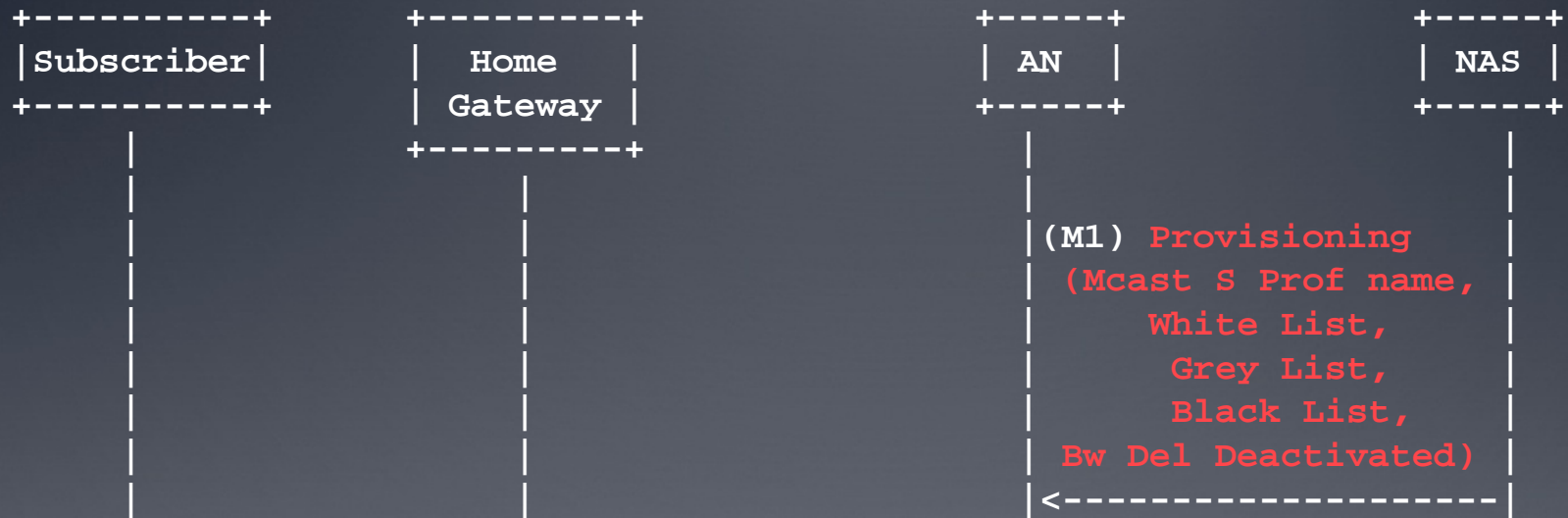


Figure 1: Provisioning AN with White/Grey/Black Lists for Conditional Access

New Message or TLV specified in lefaucheur-ancp-mc-extensions

Existing Message or TLV specified in ancpl-protocol

# Profile Mapping

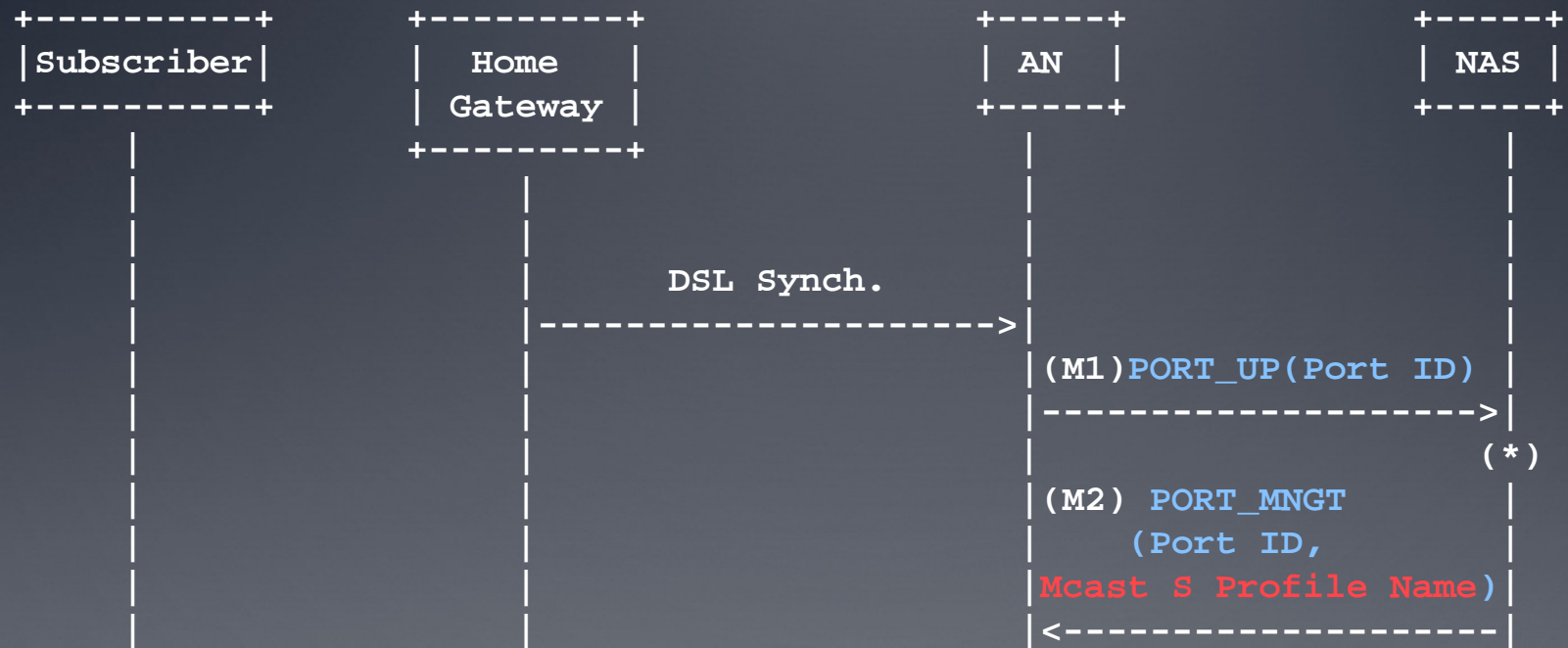
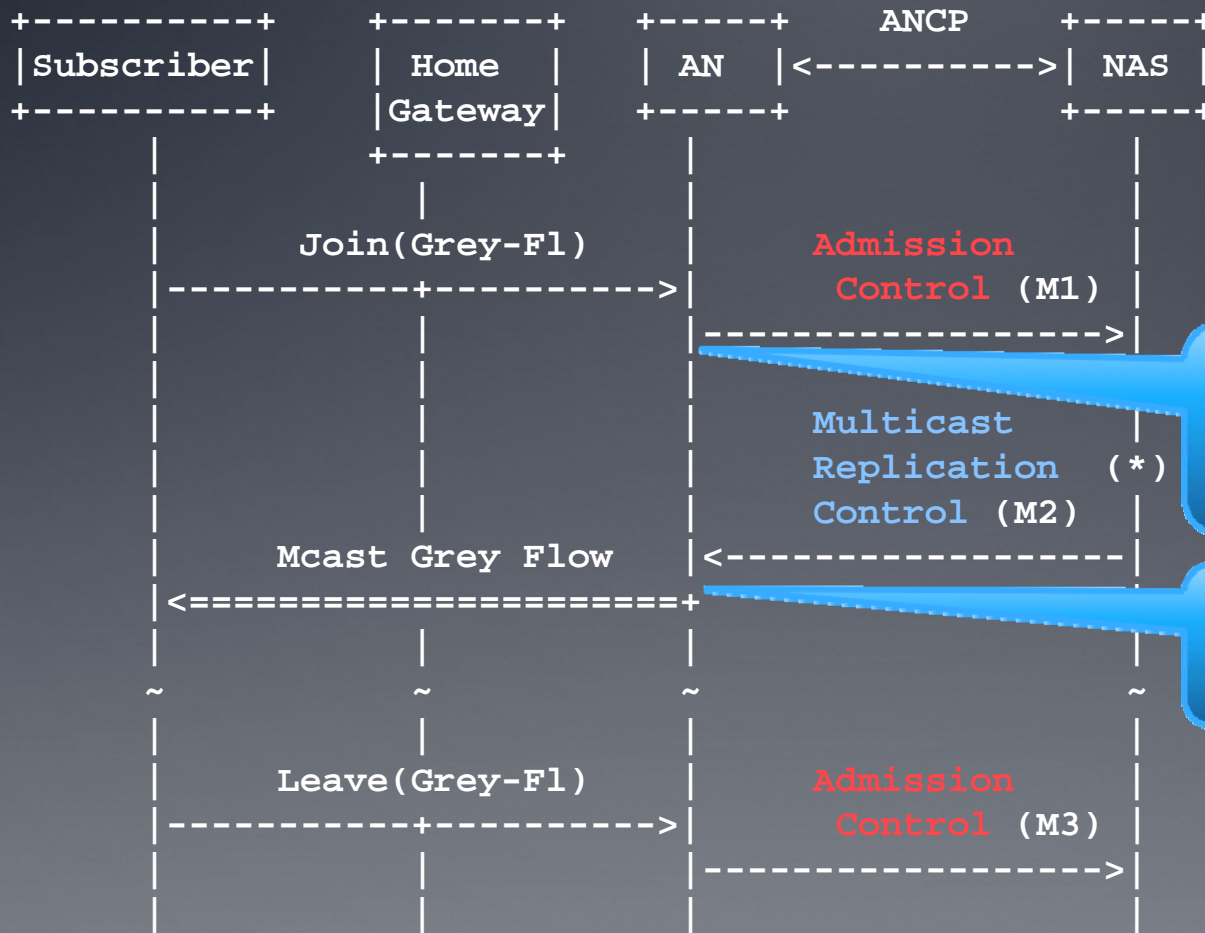


Figure 2: Associating Profile ID to AN Port

New Message or TLV  
specified in  
lefaucheur-ancp-  
mc-extensions

Existing Message  
or TLV specified  
in ancp-protocol

# Successful Join/Leave



"Fire-and-Forget" operations ie AN need not keep track of Admission Control message sent (but AN keeps IGMP states and tracks join/leave transitions)

The AN does not worry about whether M2 is in response to an M1 or spontaneous

New Message or TLV specified in lefaucheur-ancp-mc-extensions

Existing Message or TLV specified in ancpl-protocol

Figure 3: Successful Multicast Admission Control

# Admission Control Reject

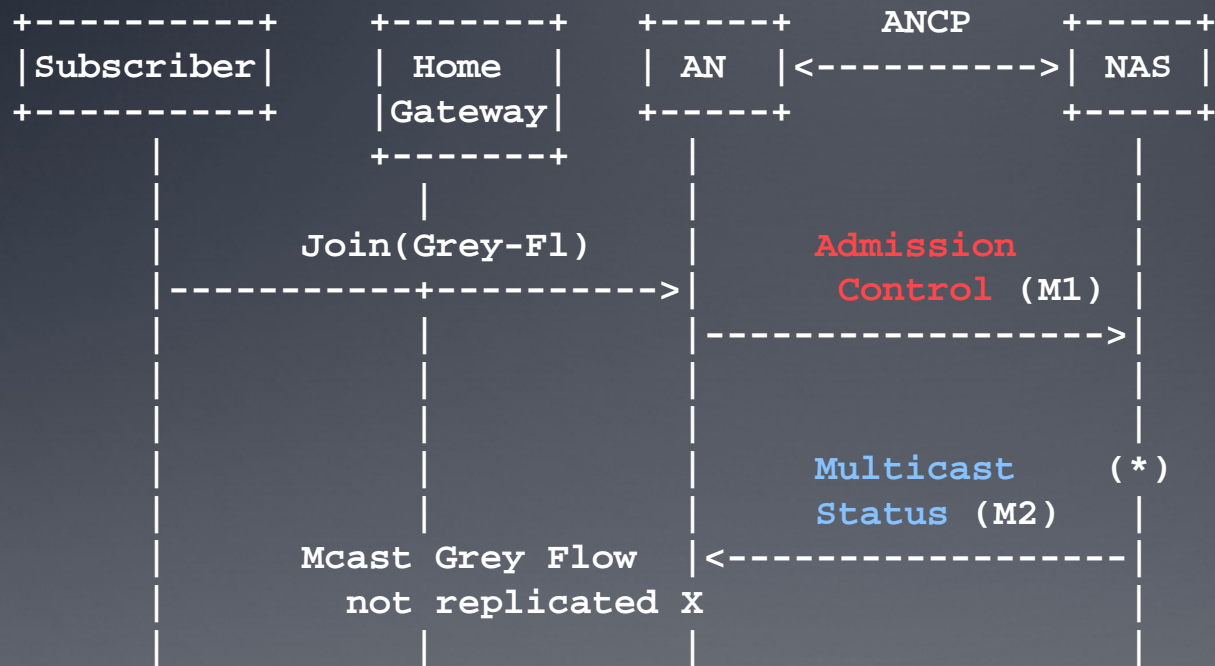


Figure 4: Multicast Admission Control Reject

New Message or TLV specified in lefaucheur-ancp-mc-extensions

Existing Message or TLV specified in ancpc-protocol

# Provisioning Message

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The ANCP Provisioning message payload is not specific to multicast (eg can be used to provision Service-Profiles)

The ANCP Provisioning message payload may contain the following TLVs:

- o Service-Profile TLV: MAY be included by the NAS to provision the existing Service-Profiles in AN
  - o Multicast-Service-Profile TLV: MAY be included by the NAS to provision the Multicast-Service-Profiles in AN
  - o Bandwidth-Delegation-Control TLV: MAY be included by the NAS to turn on/off AN Bandwidth Delegation
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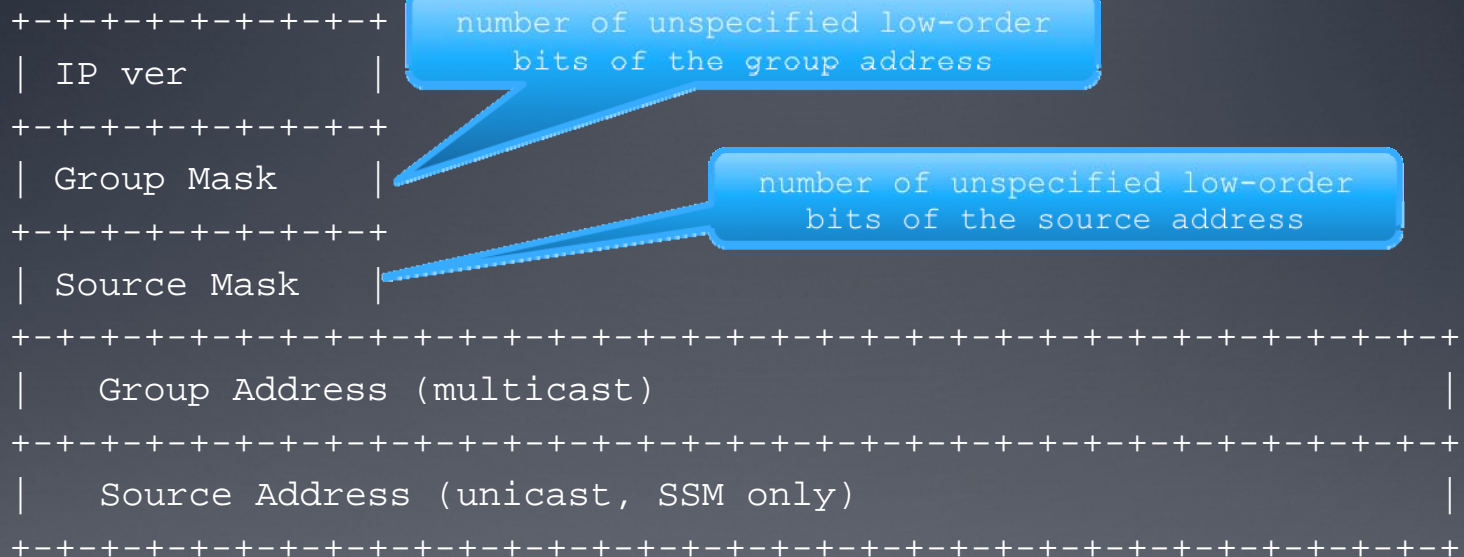
# Multicast Admission Control Message

The ANCP **Multicast Admission Control message** payload contains three TLVs:

- o **Target TLV**: identifies the AN port subject to the request for admission or release.
- o **Command TLV**: The Command TLV is encoded as specified in [I-D.ietf-ancp-protocol] with the following additional rules:
  - \* the R flag is set to 0
  - \* the O flag is set to 0
  - \* the Command field: "0x01 – Add" for a Join, "0x02 - Delete" for a Leave and "0x03 - Delete All" for Leave all channels
  - \* **Request-Source-IP sub-TLV**: MAY be included by the AN to convey the IP address of the sender of the join/leave message
  - \* **Request-Source-MAC sub-TLV**: MAY be included by the AN to convey the MAC address of the sender of the join/leave



# Multicast-Service Profile TLV Flow field



A value of 0xFF for either the Group Mask or the Source Mask indicates that any value of the corresponding address will match (wild card). If the value 0xFF is provided for a particular mask, the corresponding address MUST be omitted from the field contents. In particular, a value of 0xFF for the Source Mask indicates an ASM multicast entry, and the Source Address will be absent.

# Can we close on those?

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- Capability Negotiation
    - proposal on WG alias (CapSet1, CapSet2, CapSet3)
  - Encoding of addresses
    - More efficient encoding of addresses in {Provisioning message/Multicast-Service-Profile TLV} than in {Multicast Replication Control message/Command TLV}
    - (S,G) encoding in Multicast-Service-Profile TLV do not allow mixing Address Families inside a given (S,G) .i.e (Sv4,Gv6) is not allowed.
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# Next Steps

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- Merge into ancp-protocol
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# Backup Slides

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# Multicast Capability Negotiation

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- Multicast Capability Set 1 = 0x03:  
--> supports Transactional Multicast
  - Multicast Capability Set 2 = 0x05  
--> supports Transactional Multicast & Admission Control Without Bandwidth Delegation
  - Multicast Capability Set 3 = 0x06  
--> supports Transactional Multicast & Admission Control Without Bandwidth Delegation & Admission Control With Bandwidth Delegation
  - an ANCP node advertising a Multicast Capability Set N, MUST also advertise Multicast Capability Set M (where  $M < N$ ). E.g.
    - a node supporting Transactional Multicast & Admission Control Without Bandwidth Delegation, will advertise Multicast Capability Set 1 and Multicast Capability Set 2
    - a node supporting Transactional Multicast, will advertise Multicast Capability Set 1
    - this way the two nodes will eventually agree on Multicast Capability Set 1.
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