Refinement of P2MP layering model

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Preface

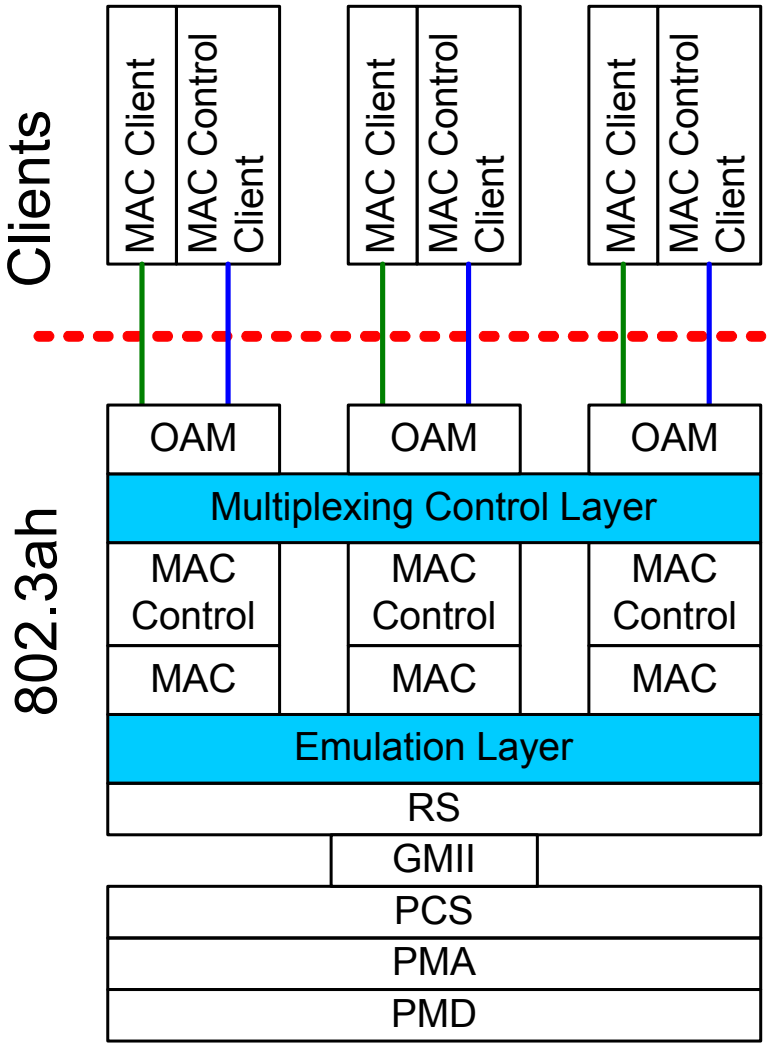
After several conference calls and numerous e-mail exchanges, the P2MP STF has identified two P2MP layering models which are good candidates for the standard.

- Both models require the same amount of editorial work
- **Model 2** matches baseline layering model adopted in Vancouver (http://grouper.ieee.org/groups/802/3/efm/baseline/haran-sala_p2mp_1_0702.pdf).
- **Model 4** is a proposed refinement. It provides simpler layering diagram and eliminates some shortcomings of model 2.

Model 2: Voted Baseline Layering

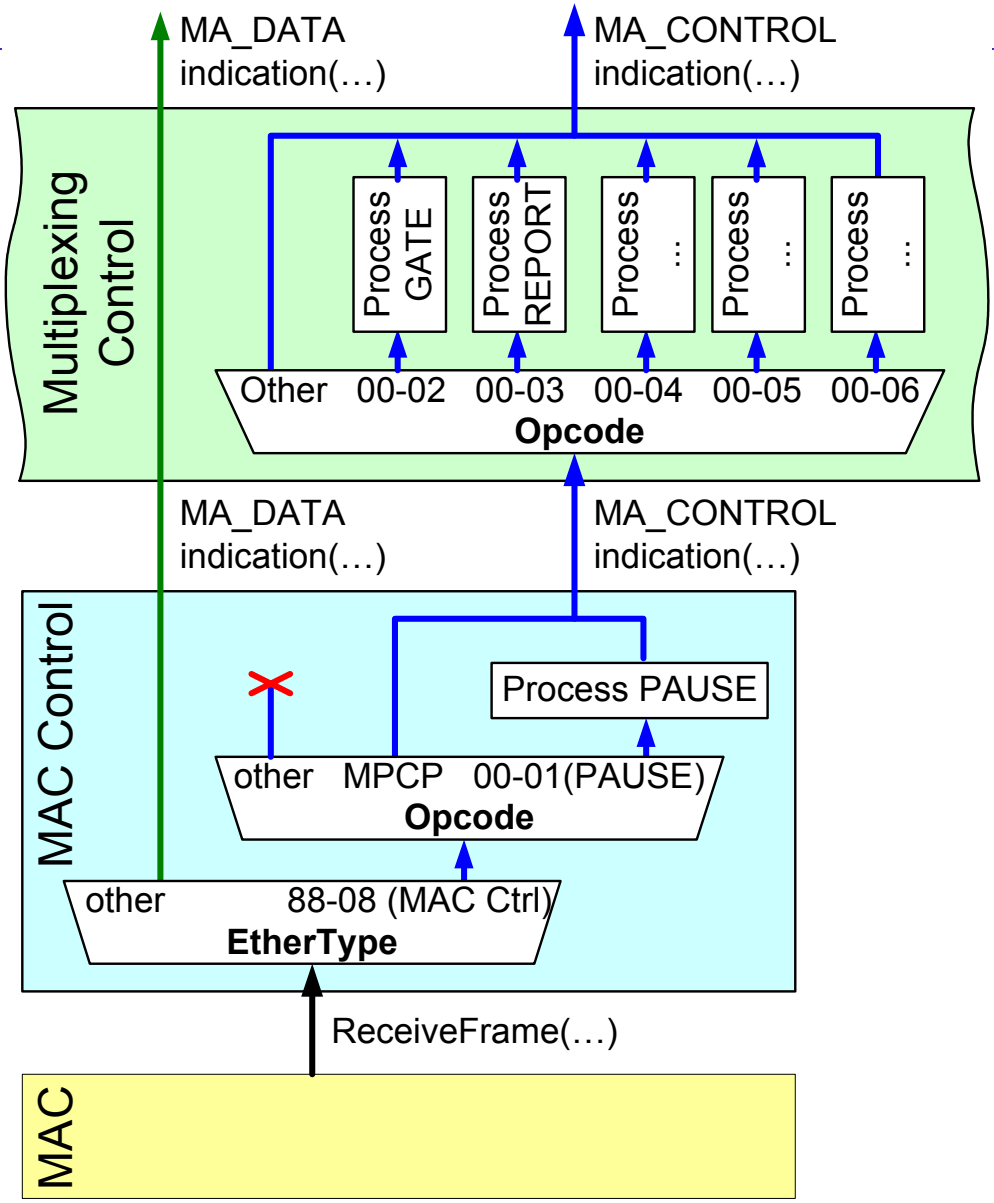
Multiplexing Control Sublayer provides multiple MA_DATA and MA_CONTROL interfaces to the multiple MAC Clients and MAC Control Clients above

All MPCP state machines are in Multiplexing Control Sublayer



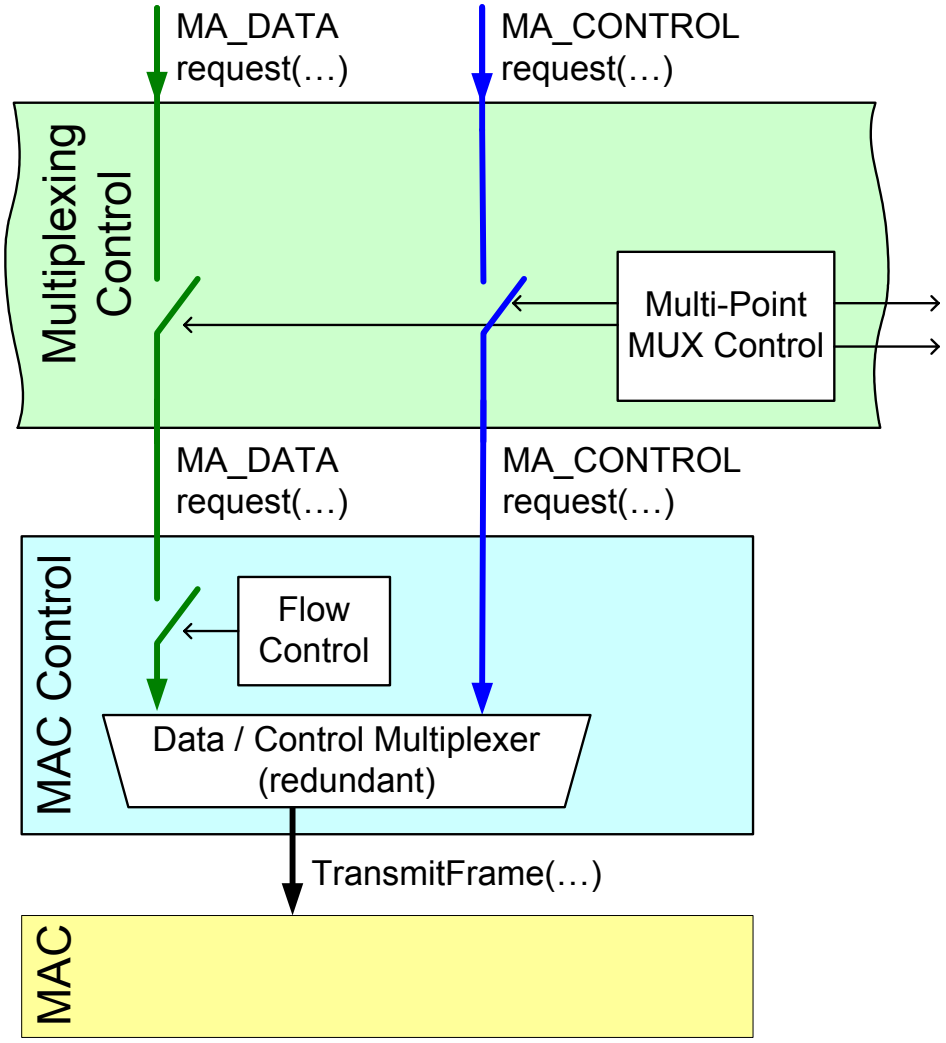
Model 2: Frame reception

- MPCP messages are MAC Control messages (Type 88-08)
- MAC Control recognizes MPCP opcodes (00-02, 00-03, 00-04, 00-05, 00-06)
- Upon receiving MAC Control message with one of MPCP opcodes, MAC Control generates corresponding MA_CONTROL.indication
- Multiplexing Control sublayer processes MPCP messages and generates MA_CONTROL.indication to MAC Control Client



Model 2: Frame transmission

- Multiplexing Control sublayer ensures that at any time only one frame exists below (one MA_....request at a time)
- No modifications made to MAC Control
- Data/Control Multiplexer in MAC Control is redundant



Model 2: Pros and Cons

Pros

- IEEE 802.3 layer diagram of this approach matches baseline 'Layer diagram‘

Cons

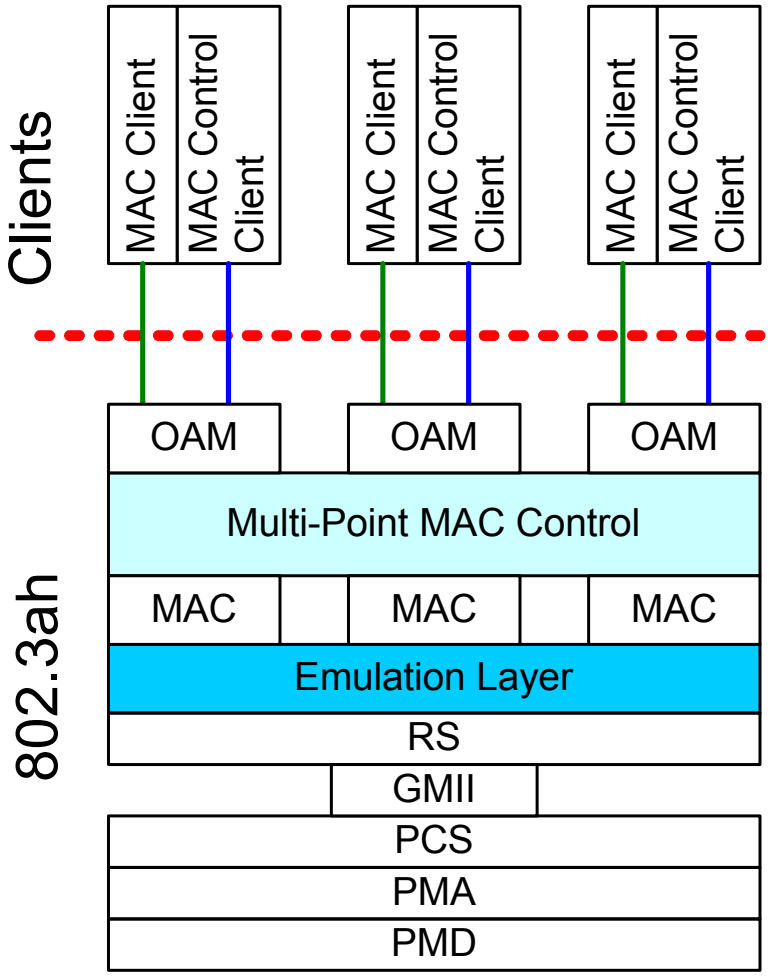
- No future extensions may allow MAC Control to generate frames without MA_CONTROL.request primitive
- Data/Control Multiplexer in MAC Control becomes redundant
- A lot of duplicated functionality between MAC Control and Multiplexing Control sublayers

Model 4: Refined Layering Model

Multiplexing Control is a function of the MAC Control, rather than a separate sublayer

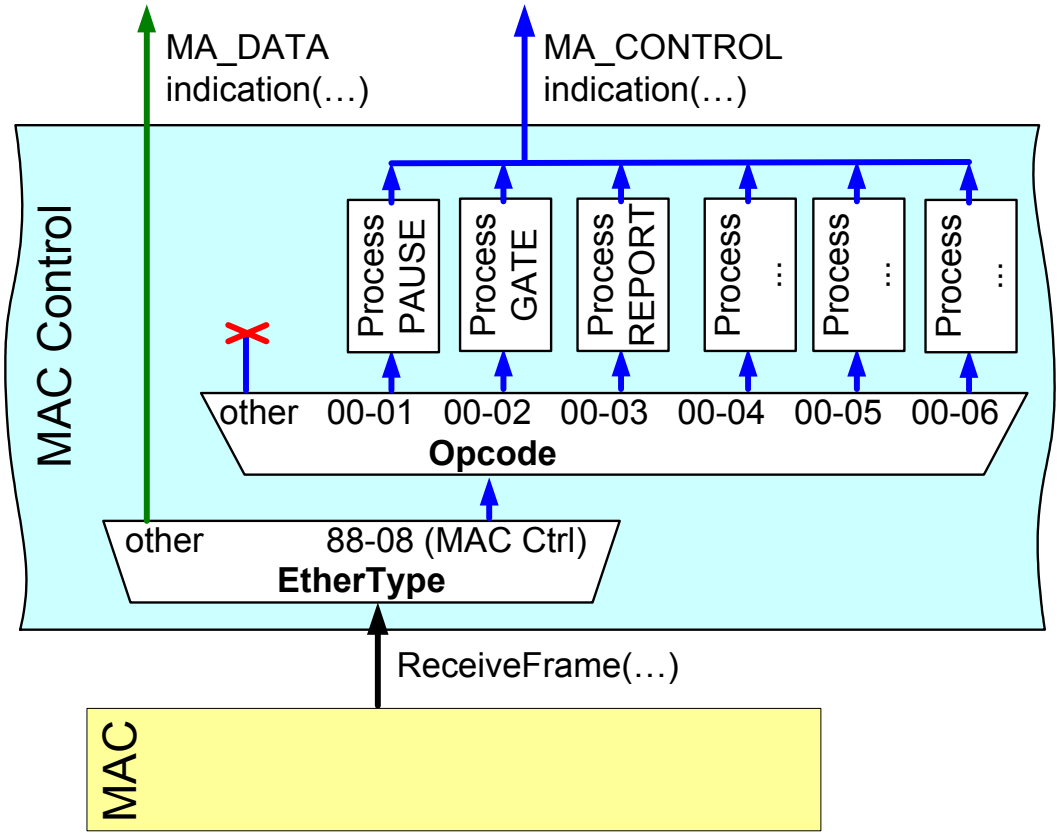
This is an extension of MAC Control (called Multi-Point MAC Control)

- Has many-to-many relationship
- Points to existing MAC control functions
- Defines a new clause with additional MAC control functionality mandatory for P2MP (i.e. multiplexing, MPCP)



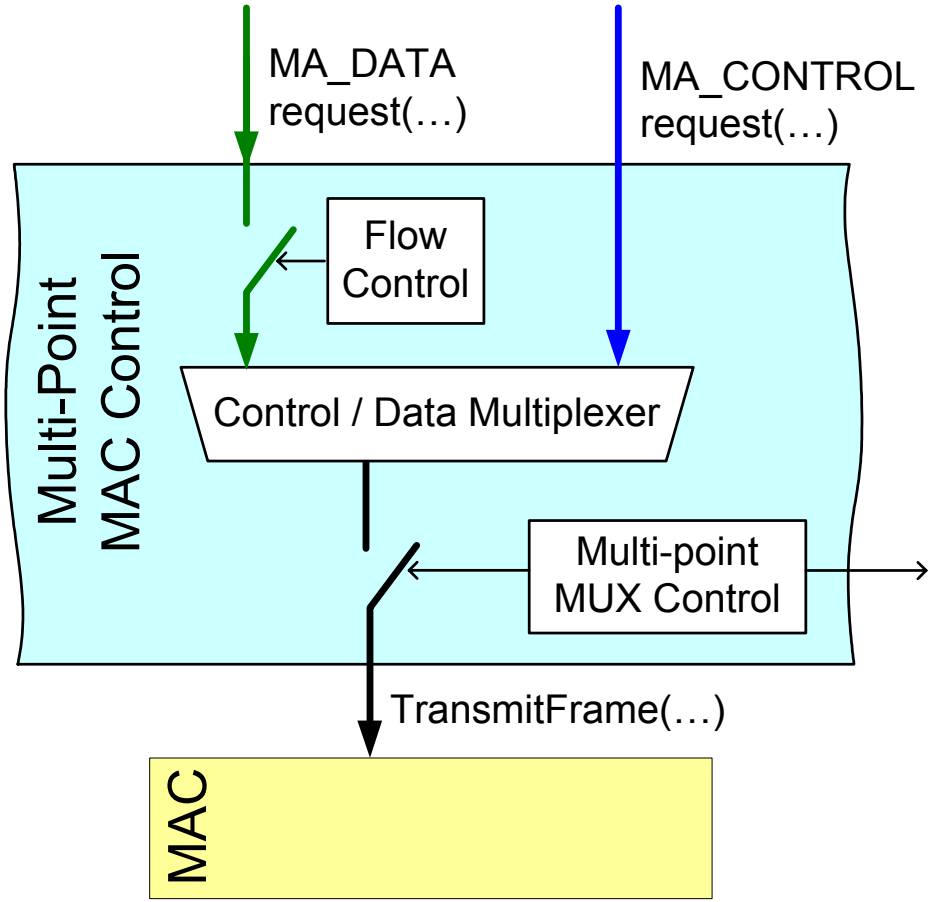
Model 4: Frame reception

- MAC Control Sublayer processes all MAC Control messages
  - Flow Control Protocol (PAUSE)
  - Multi-Point Control Protocol (GATE, REPORT, etc)



Model 4: Frame transmission

- Multi-Point MAC Control sublayer (Multiplexing Control function) ensures that at any time only one frame exists below



Model 4: Pros and Cons

Pros

- Simple layering diagram
- All gating is done in one sublayer

Cons

- IEEE 802.3 layer diagram of this approach does not match baseline 'Layer diagram‘

Support for Model 4

David Law,	3Com
Vincent Bemmel,	Alloptic
Dolors Sala,	Broadcom
Bob Gaglianello,	Lucent
Yinghua Ye,	Nokia
Osamu Yoshihara,	NTT
Ariel Maislos,	Passave
Jin H. Kim,	Samsung
Shinichi Yoshida,	Sumitomo
Glen Kramer,	Teknovus
Ryan Hirth,	Terawave

Motion to adopt model 4

Adopt model 4 as a refined baseline layering model for P2MP per kramer_p2mp_1_0902.pdf

Moved: Glen Kramer

Second: David Law

P2MP		802.3ah		802.3	
Yes:	26	Yes:	51	Yes:	32
No:	0	No:	0	No:	0
Abs:	9	Abs:	14	Abs:	12