

# OAM Control

**R0-1**

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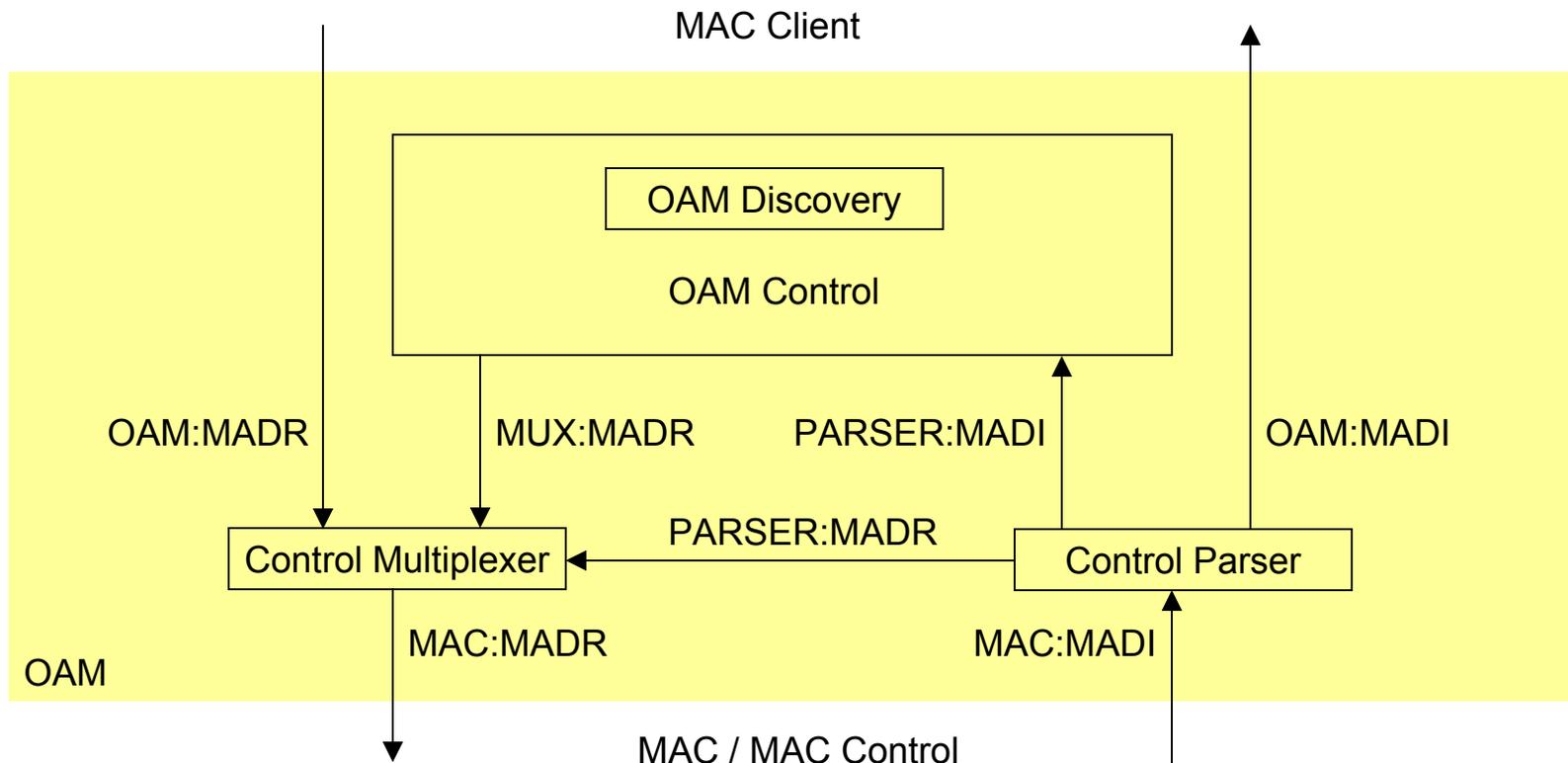
# Overview

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- **OAM Control is too distributed**
- **This presentation suggests a different organization**

# Loopback

- Make a new path in Figure 55-2 to send loopback data directly from the Control Parser to the Control Multiplexer
- This takes loopback out of OAM Control, except for Discovery States



# Discovery

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- **No changes**
- **Discovery progress is controlled by STA via OAM\_SATISFIED**
- **Discovery state controls OAM Control transmit rules**

# OAM Control

- **Central interface to STA**
- **All received OAMPDUs go to STA**
- **All transmitted OAMPDUs come from STA**
  - **Except Information OAMPDUs at min rate for Discovery or keeping the link alive**
- **Implementations can decide where the boundary between hardware and software exists**
- **How the STA responds to or generates requests is up to the user**

# OAM Control Receive Rules

- **No State Diagram – list of rules only!**
- **All PARSE:MADI primitives indicate an OAMPDU**
- **Requires new Clause 30 attributes:**
  - oampdu\_arrived** – indication that new OAMPDU has arrived
  - oam\_rx\_pdu** – actual contents of received OAMPDU
  - oam\_remote\_state** – latest copy of link partner's local state
  - oam\_rcvd\_local\_state** – latest copy of link partner's view of our local state
- **Upon PARSE:MADI**
  - Set oampdu\_arrived**
  - Update oam\_rx\_pdu**

# Other Response Rules

- These come from the definition of the frames – 55.6
- These are handled by the STA – implementations decide where the boundary is between hardware and software
- All requests require a maximum response time
- PING Request requires a PING Response
  - Response content matches request content
- Loopback Control requires an Information response
  - Local\_state field indicating state change
- Variable Request requires a Variable Response
  - Even if variable isn't supported, remote device still responds

# OAM Control Transmit Rules

- No State Diagram – list of rules only!
- All transmitted OAMPDUs result in MUX:MADR to Control Multiplexer
- Requires new Clause 30 attributes:

oam\_send\_pdu – indication from STA to transmit a particular OAMPDU

oam\_tx\_pdu – actual contents of OAMPDU to transmit

oam\_dying\_gasp – indication from STA to set dying\_gasp flag and immediately transmit an OAMPDU

oam\_event – indication from STA that the event table is not empty

oam\_ok\_to\_tx – indication from STA that the device is active or that the device is passive and an OAMPDU has been received – **STA controls when this happens!**

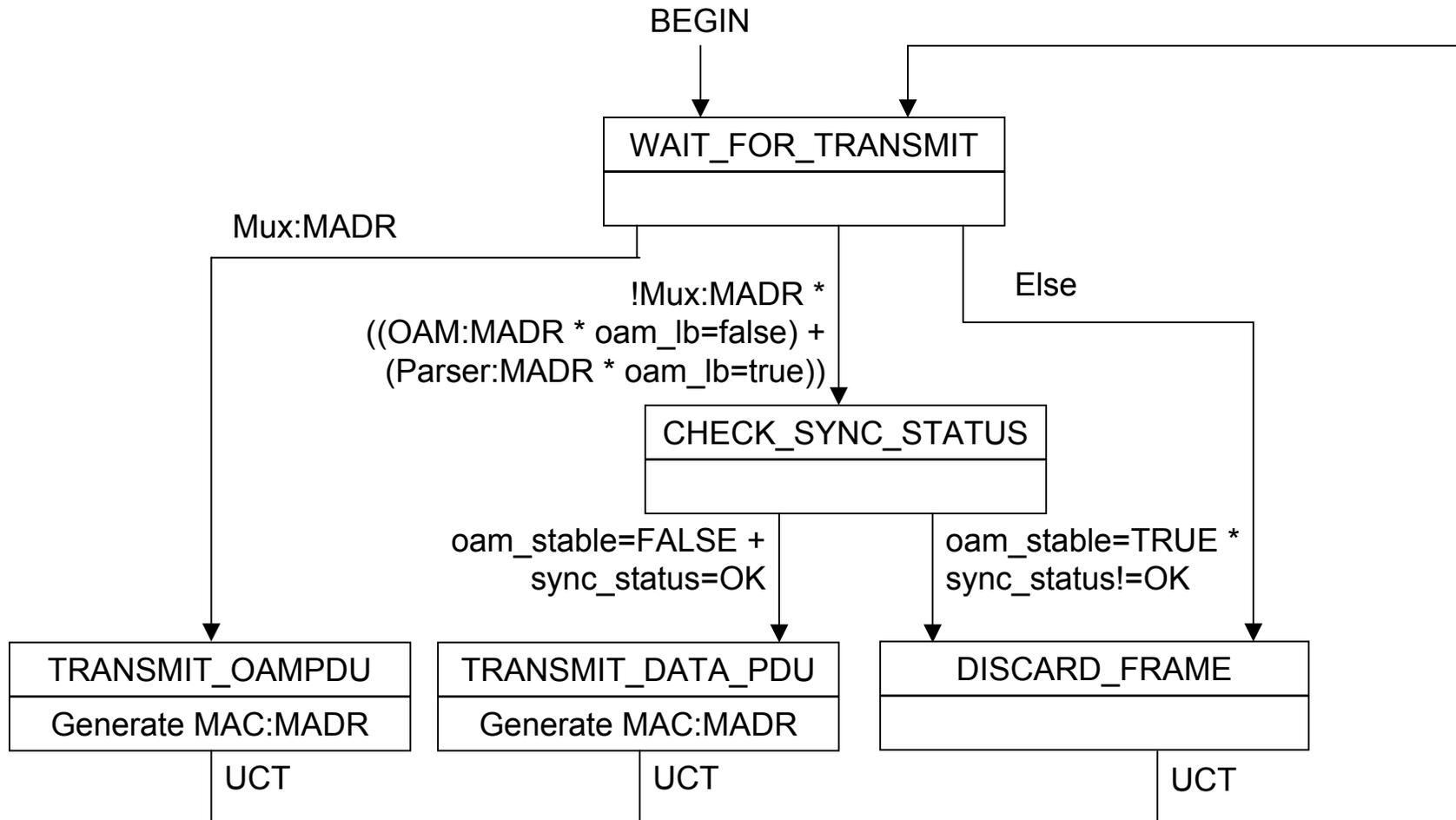
# OAM Control Transmit Rules (continued)

- Transmits are only allowed when `oam_ok_to_tx` is set
- While the OAM Discovery process is in the `SEND_LOCAL_*` states:
  - Transmit Information OAMPDU whenever the `min_rate_timer` expires
  - Build this OAMPDU using `oam_event`, `oam_dying_gasp`, `link_fault`, `oam_local_state` and `oam_remote_state`
- While the OAM Discovery process is in any of the other states:
  - `oam_dying_gasp` enables immediate transmission of `oam_tx_pdu` or information OAMPDU with the `dying_gasp` bit set in the Flags field
  - `oam_send_pdu` queues transmission of `oam_tx_pdu` when `max_rate_timer` expires
  - In absence of both `oam_dying_gasp` and `oam_send_pdu`, transmit Information OAMPDU when `min_rate_timer` expires
- Both `min_rate_timer` and `max_rate_timer` are reset upon transmission of any OAMPDU

# Sync Status Inhibits OAM:MADR

- Hooks have been added to Clauses 24 & 36 to enable unidirectional transmissions
- This function is enabled when OAM is enabled in these clauses
- Tie this to oam\_stable Clause 30 attribute (how?)
- When does this attribute get set?
- Recommend that it only occurs after both local and remote states are STABLE
- Add capability to Control Multiplexer state diagram to discard OAM:MADR primitives while transmitting MUX:MADR primitives only when oam\_stable is TRUE and sync\_status is not OK
- When oam\_stable is FALSE or sync\_status is OK, Control Multiplexer transmits all MADR primitives

# Control Multiplexer State Diagram



# Control Parser State Diagram

