



# Issues with fast re-registration in 802.3ca

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The OLT also may send the REGISTER MPCPDU to an already-registered ONU to request it to de-register or re-register. Such REQUEST MPCPDUs are sent in the envelopes with the unicast PLID assigned to the given ONU.

**Table 144–5—REGISTER MPCPDU Flag field**

Value	Indication	Comment
0	ACK	The ONU's requested registration is successful or a registered ONU is asked to re-register
1	NACK	The registration request is denied or a registered ONU is asked to deregister
2 to 255	Reserved	Ignored on reception

- ❑ The spec says that the OLT can request a registered ONU to de-register or re-register
  - Deregistration means that ONU becomes unregistered and will participate in discovery and registration process (the ONU will send REGISTER\_REQ MPCPDU)
  - Re-registration means that ONU will update its registration parameters (PLID, MLID, Sp1Length, Sp2Length, or Sp3Length) without becoming unregistered. After updating the parameters, ONU just sends REGISTER\_ACK.
- ❑ ONU Registration state diagram supports re-registration, but the OLT Registration state diagram can never send a REGISTER MPCPDU for re-registration

# ONU state diagram supports re-registration

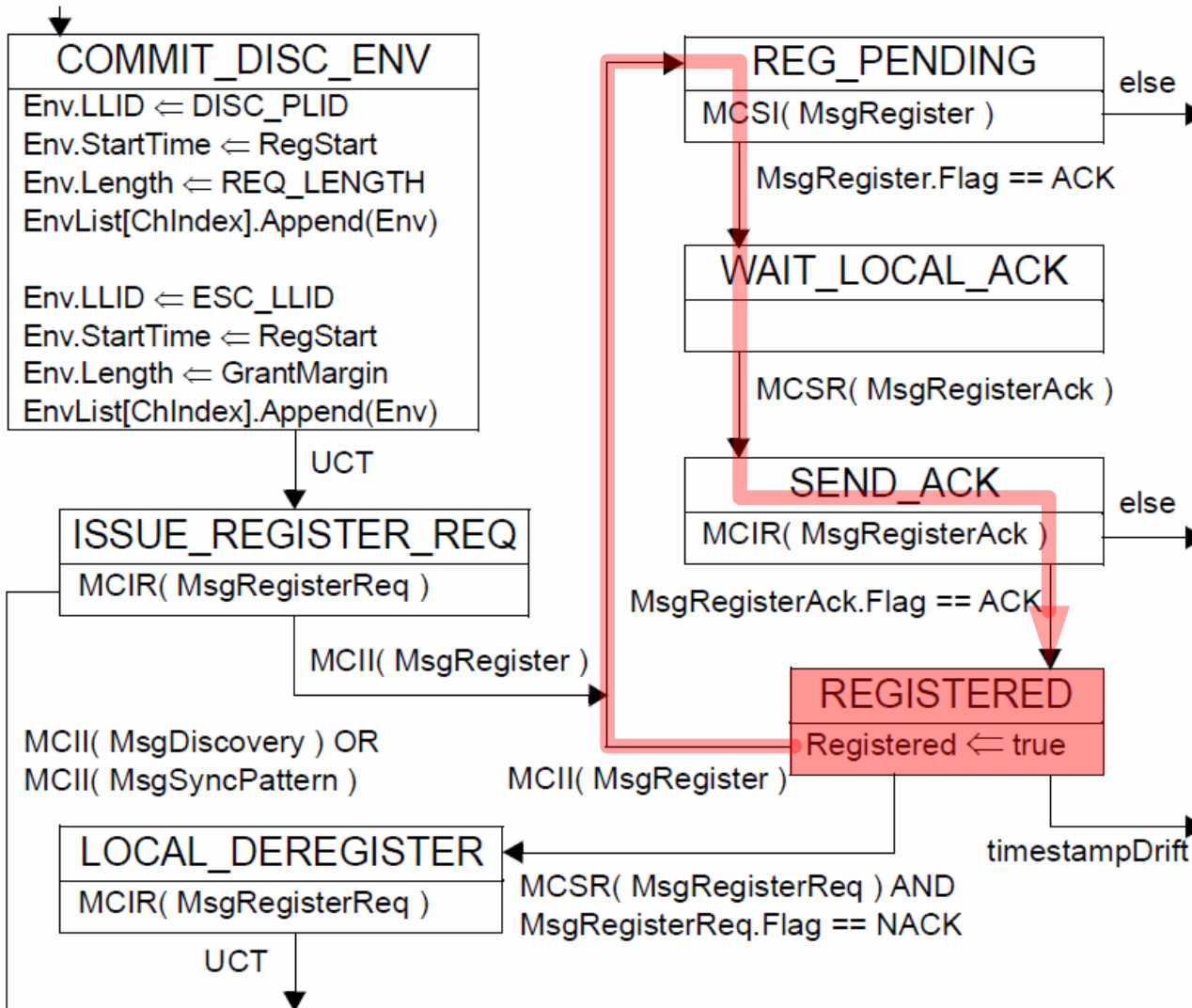
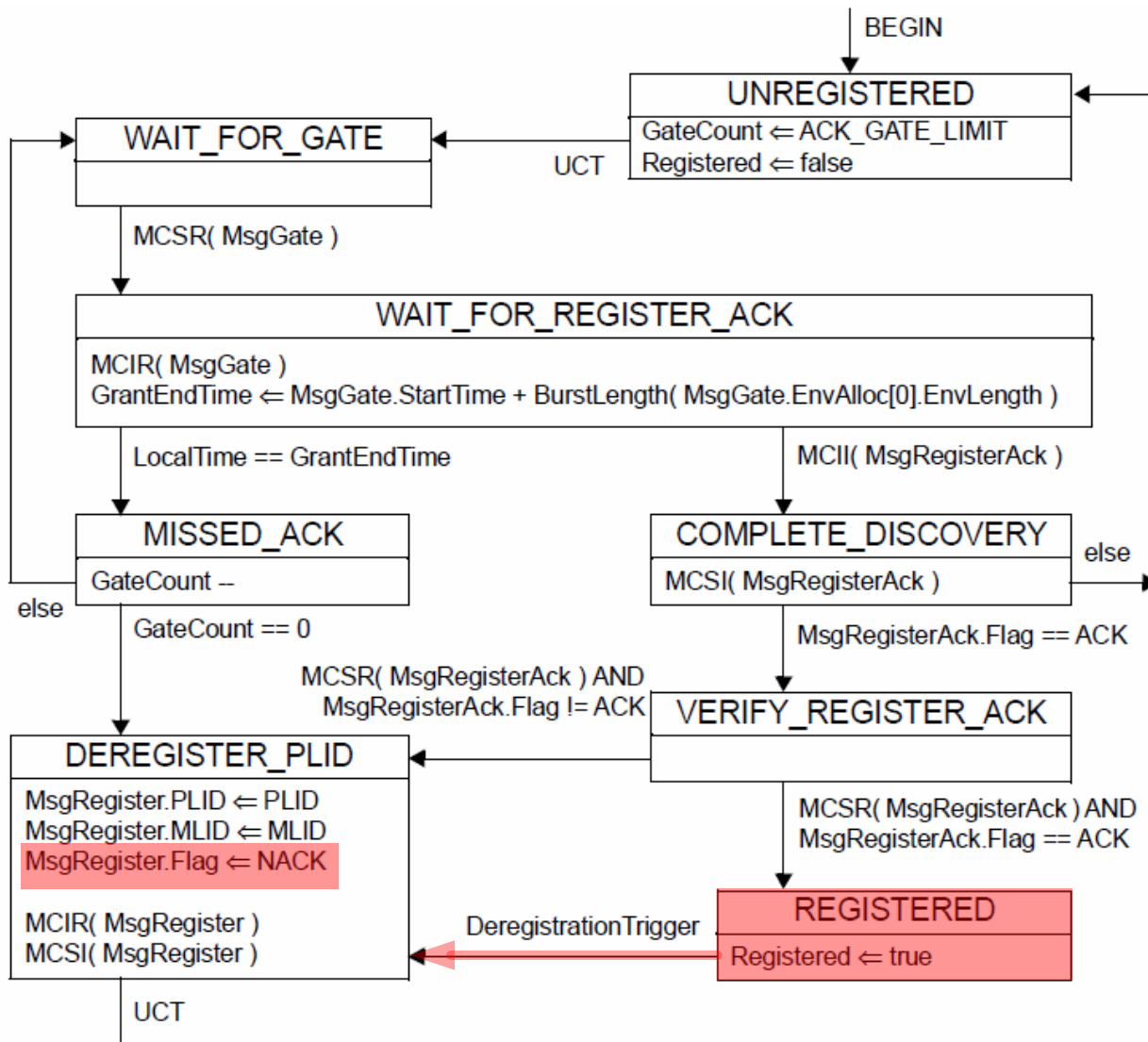


Figure 144-22—ONU Registration state diagram

1. A registered ONU receives REGISTER MPCPDU on its assigned PLID
2. ONU transitions to state REG\_PENDING. *Registered* variable remains 'true'. Payload of REGISTER MPCPDU is passed to MPCP Client.
3. If REGISTER Flag was ACK (i.e., this is a re-registration), go to state WAIT\_LOCAL\_ACK and wait for the MPCP client to confirm setting new parameters.
4. When new parameters are confirmed, generate REGISTER\_ACK MPCPDU and queue it for transmission (may be on a new PLID).
5. Return to REGISTERED state.

# OLT state diagram



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DeregistrationTrigger =
// 1) ONU MPCP is unresponsive
MissedReportCount == MISSED_REPORT_LIMIT OR

// 2) Timestamp drift exceeded the safe margin
TimestampDrift == true OR

// 3) ONU requested deregistration
( MCII( MsgRegisterReq) AND MsgRegisterReq.Flag == NACK ) OR

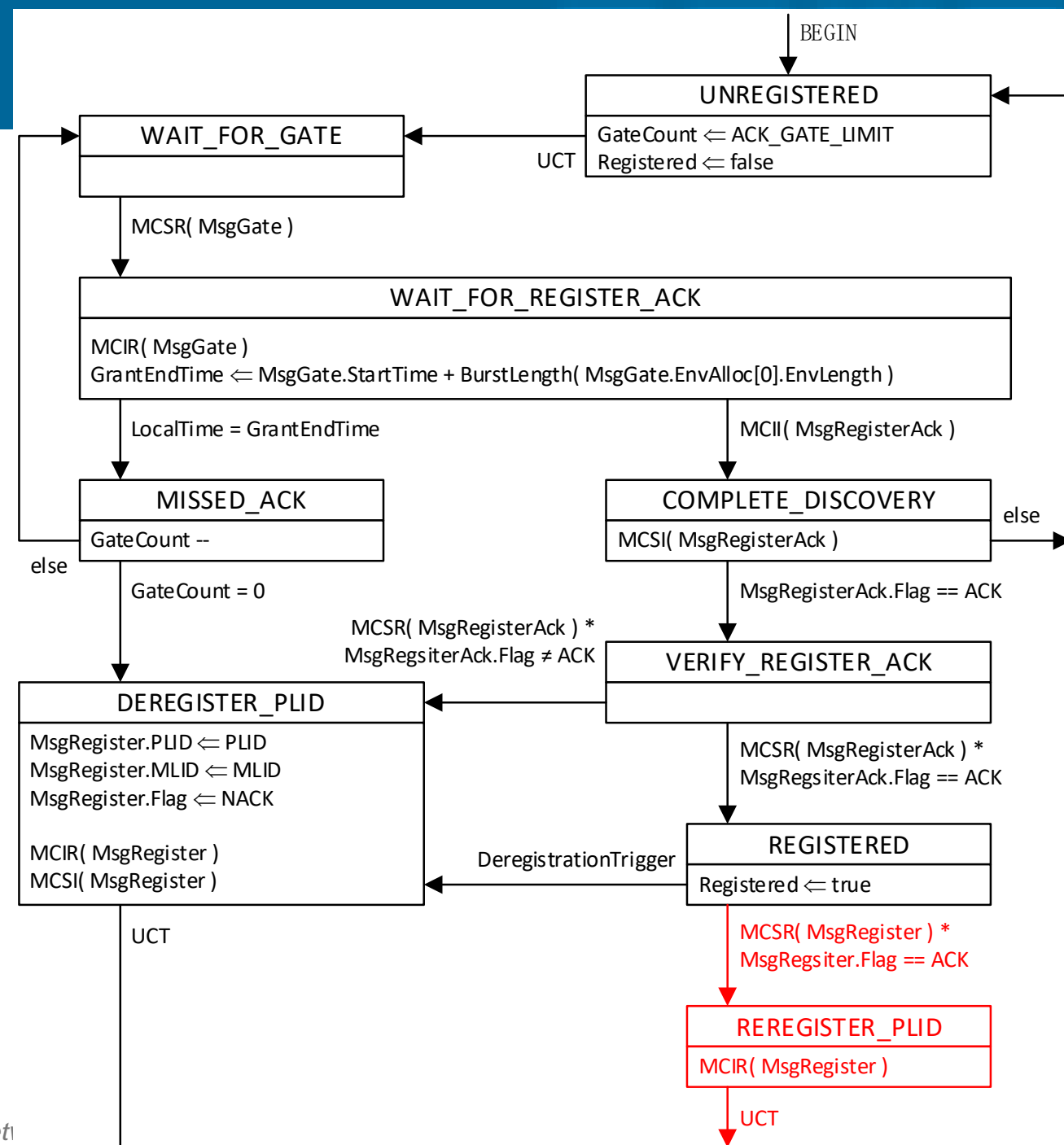
// 4) OLT MPMC client initiated ONU deregistration
( MCSR( MsgRegisterAck) AND MsgRegisterAck.Flag == NACK )
    
```

1. DeregistrationTrigger only activates when OLT wants to deregister the ONU
2. OLT always sends REGISTER MPCPDU with Flag = NACK
3. Deregistration REGISTER MPCPDU does not carry Sp1Length, SP2Length, SP3Length and EchoPendingEnvelopes, in violation to 144.3.6.4.

Figure 144–21—OLT Registration Completion state diagram

# Possible fix

1. In REGISTERED state, the OLT expects REGISTER MPCPDU with Flag=ACK from MPCP client.
  - ❑ Do we also need to handle Flag=NACK? (see next slide)
2. After sending REGISTER MPCPDU, OLT locally deregisters ONU until it receives a positive acknowledgement from the ONU that the new parameters were accepted (REGISTER\_ACK with Flag = ACK)
3. Not a good design if the REGISTER MPCPDU sometimes originates in MPCP client and other times originates in MPCP state diagram.



# Possible fix #2

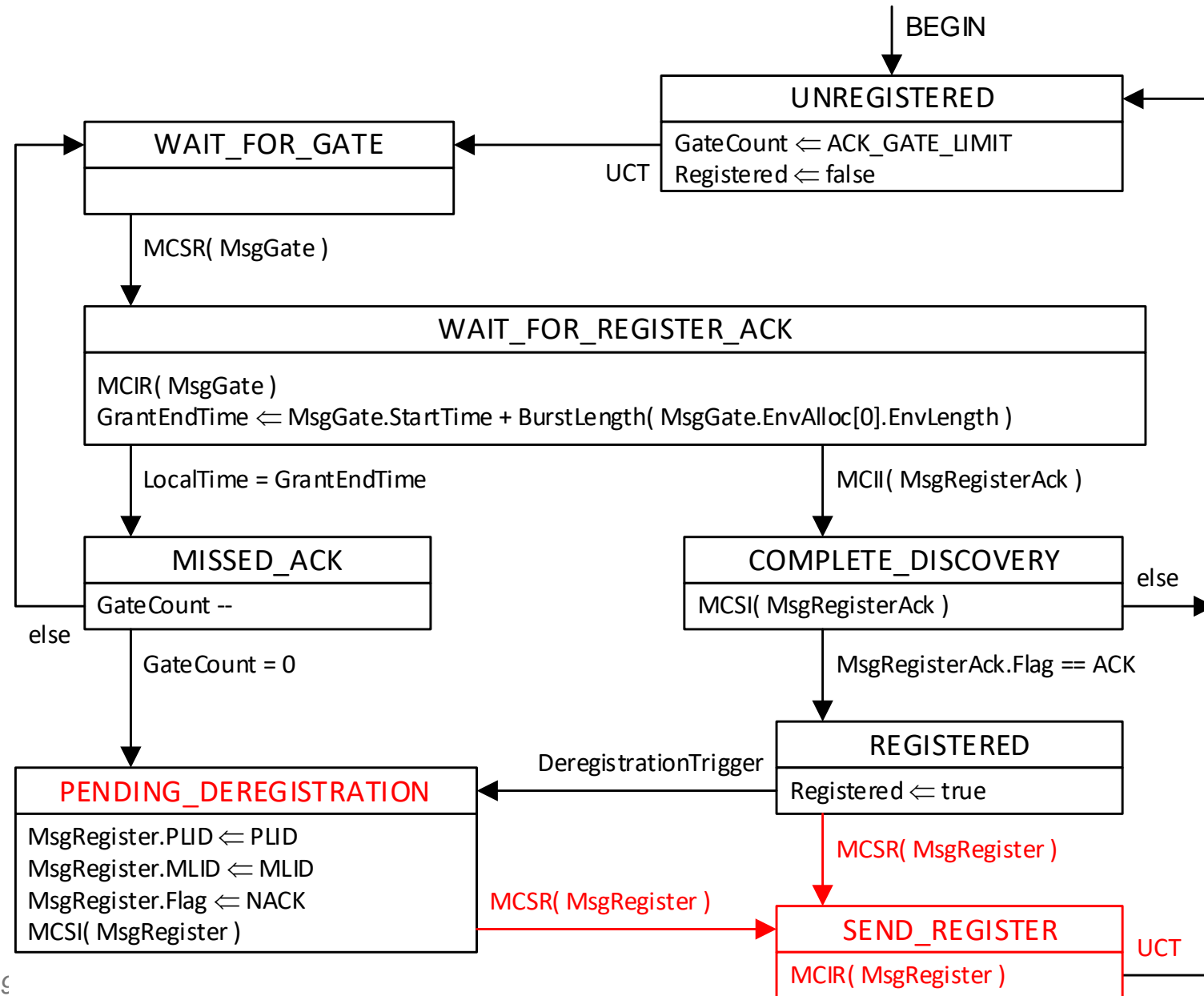


OLT Registration Process informs the MPCP Client about the events that client cannot detect:

1. REGISTER\_ACK form ONU is not received after ACK\_GATE\_LIMIT attempts
2. MPCP timeout
3. Timestamp drift,
4. ONU requests to deregister

Only MPCP Client initiates the deregistration and re-registration by issuing the REGISTER MPCPDU

- Deregistration: Flag = NACK
- Reregistration: Flag = ACK





**Thank you**