

Merging Discovery Processing and Gate Processing at ONU

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Similarities at ONU

- Receive a Gate(discovery/normal) from OLT for operation
- Access the same resource
- Only one Gate SHOULD be activated at the same time
- State diagrams of Discovery Processing Window Setup and Gate Processing Activation

Draft 1.414 State Diagram Similarities

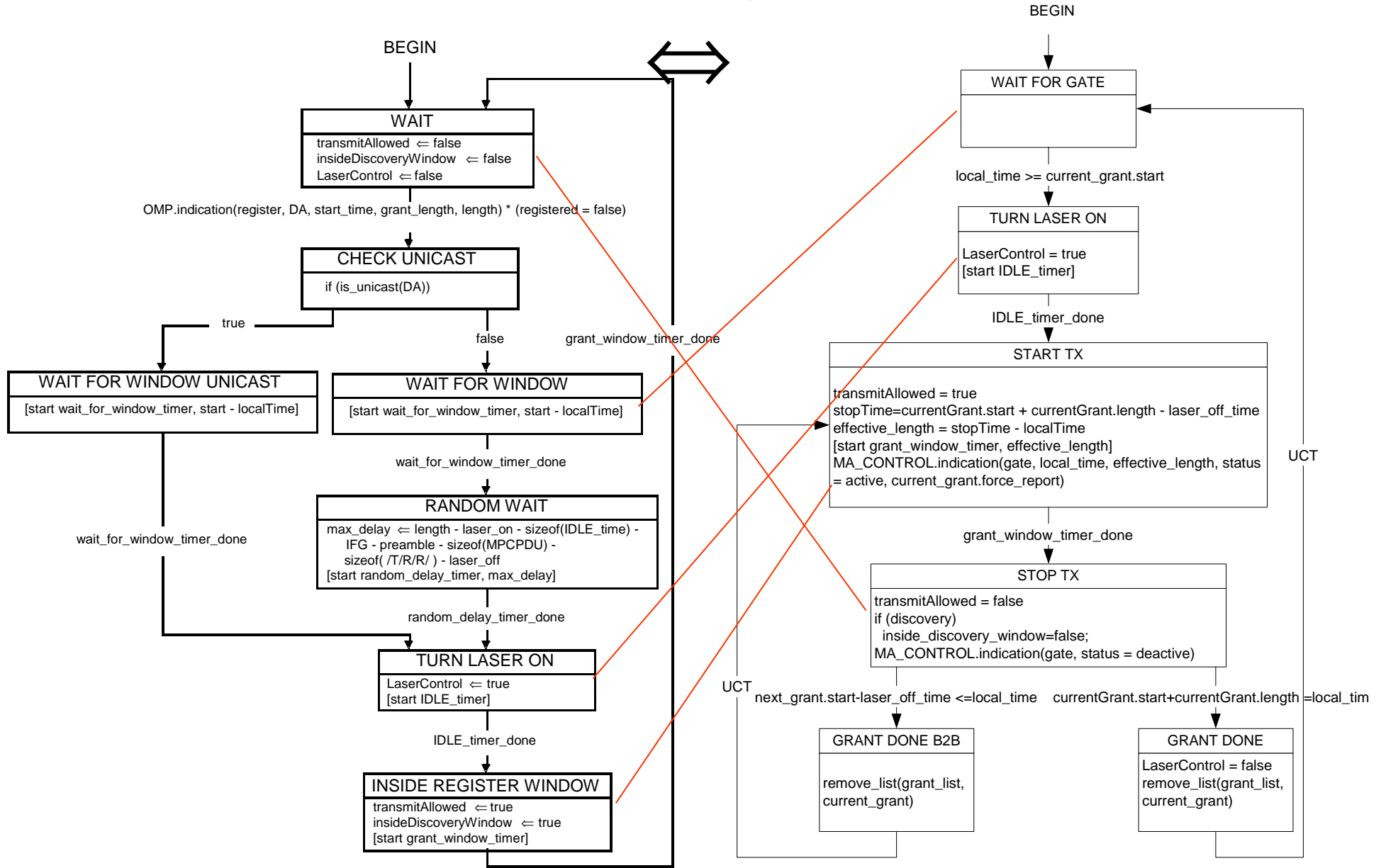


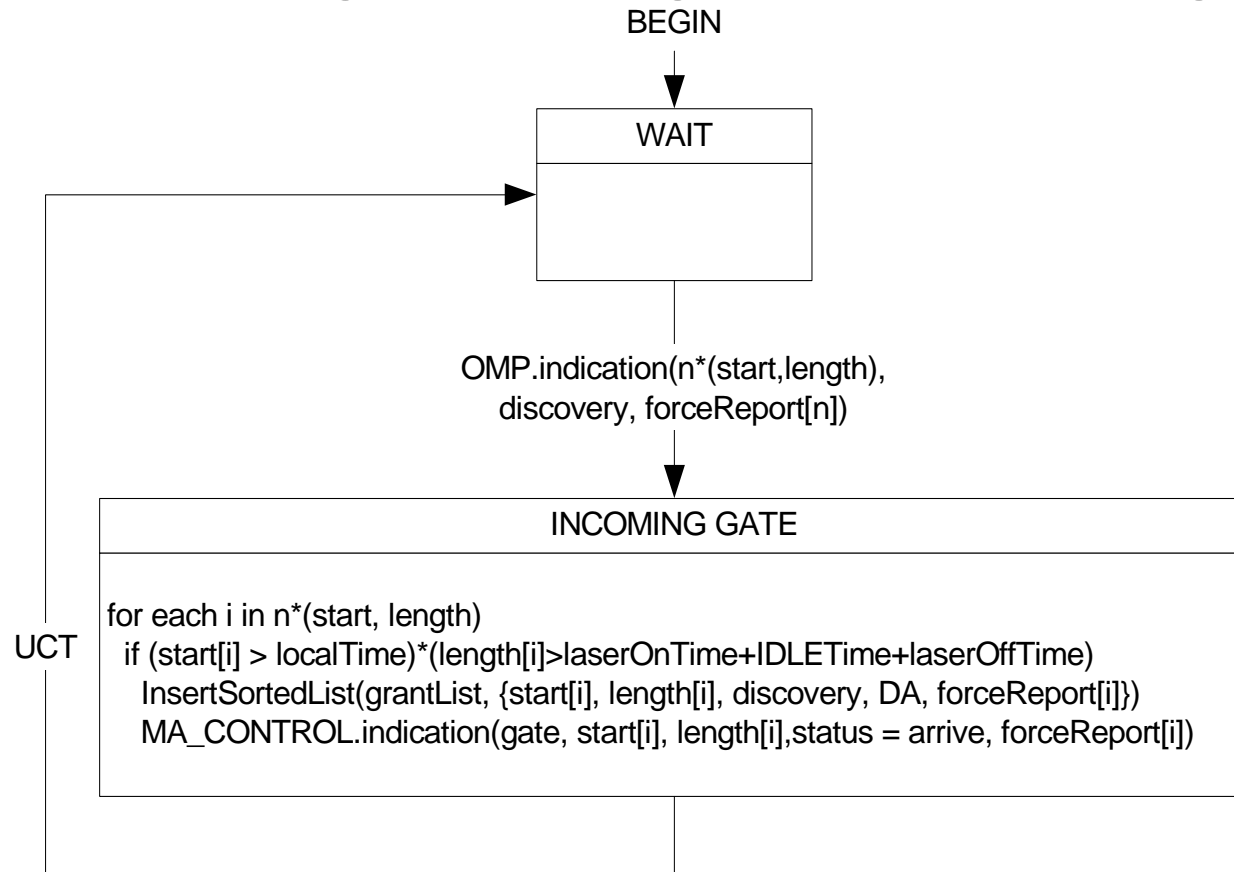
Figure 64-20 Discovery Processing ONU Window Setup

Figure 64-28 Gate Processing ONU Activation

Problem with Present Model

- Both processes running at the same time. Waste of processing power
- Potential: If Gates overlap due to OLT scheduling error or transmission error, both processes will send respective PDUs at the same time.
- **Solution:** For simplicity, combine Discovery Processing ONU Window Setup and Gate Processing ONU Activation

ONU Programming State Diagram

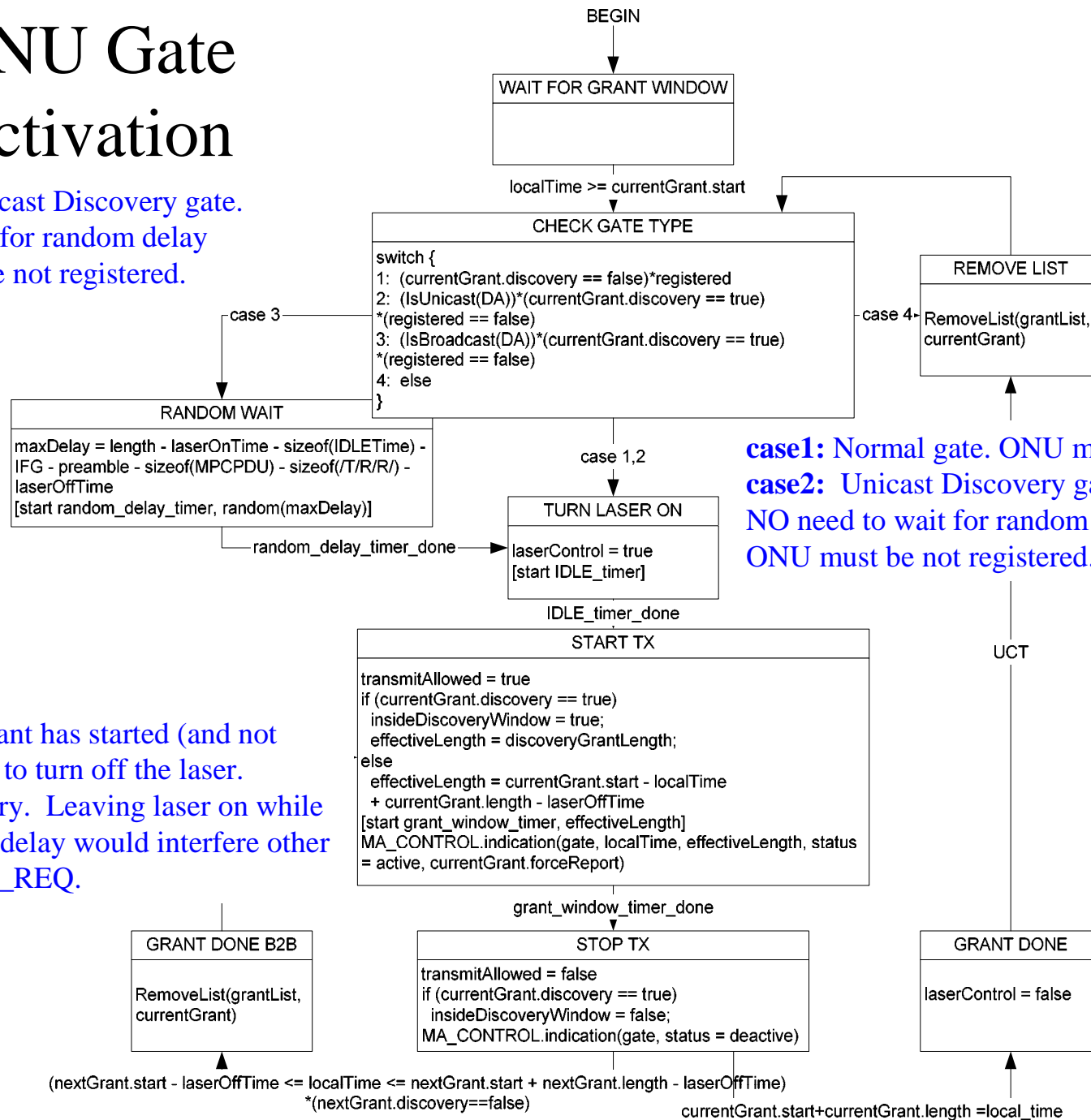


- Same as D1.4 Figure 64-27 Gate Processing ONU Programming
- Sort discovery gate together with normal gates.

If OLT schedules properly, discovery gate should not overlap with any normal gate.

ONU Gate Activation

case3: Broadcast Discovery gate.
Need to wait for random delay
ONU must be not registered.



ONU Gate Activation (cont.)

- The special case of Broadcast Discovery (case2) must go through random delay (case3) while Unicast Discovery(case2) and normal Gate (case1) need not.
- CHECK GATE TYPE:
 - a) Discovery: ONU must be not registered.
 - b) Normal Gate: ONU must be registered first.
 - c) Other cases (case 4), discard
- Constant:
discoveryGrantLength:VALUE: 00-00-00-27
(624 nano seconds, equivalent of 78 bytes)

Differences at ONU

- Gate processing only receives Gate messages only.
- Discovery processing handles discovery message handshake, i.e. other than receiving discovery Gate, it also sends REGISTER_REQ, REGISTER_ACK and receives REGISTER messages.
- Solution: Keep Discovery Processing ONU Registration