Usage of GATE Message
and 3 reasons to separate it into two messages

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Usage of GATE Message

Used in two roles

- NORMAL GATE (Flag == Normal)
  - Used to assign transmission window to one registered ONU
- DISCOVERY GATE (Flag == Discovery)
  - Used to advertise a window in which multiple un-registered ONUs may contend for registration

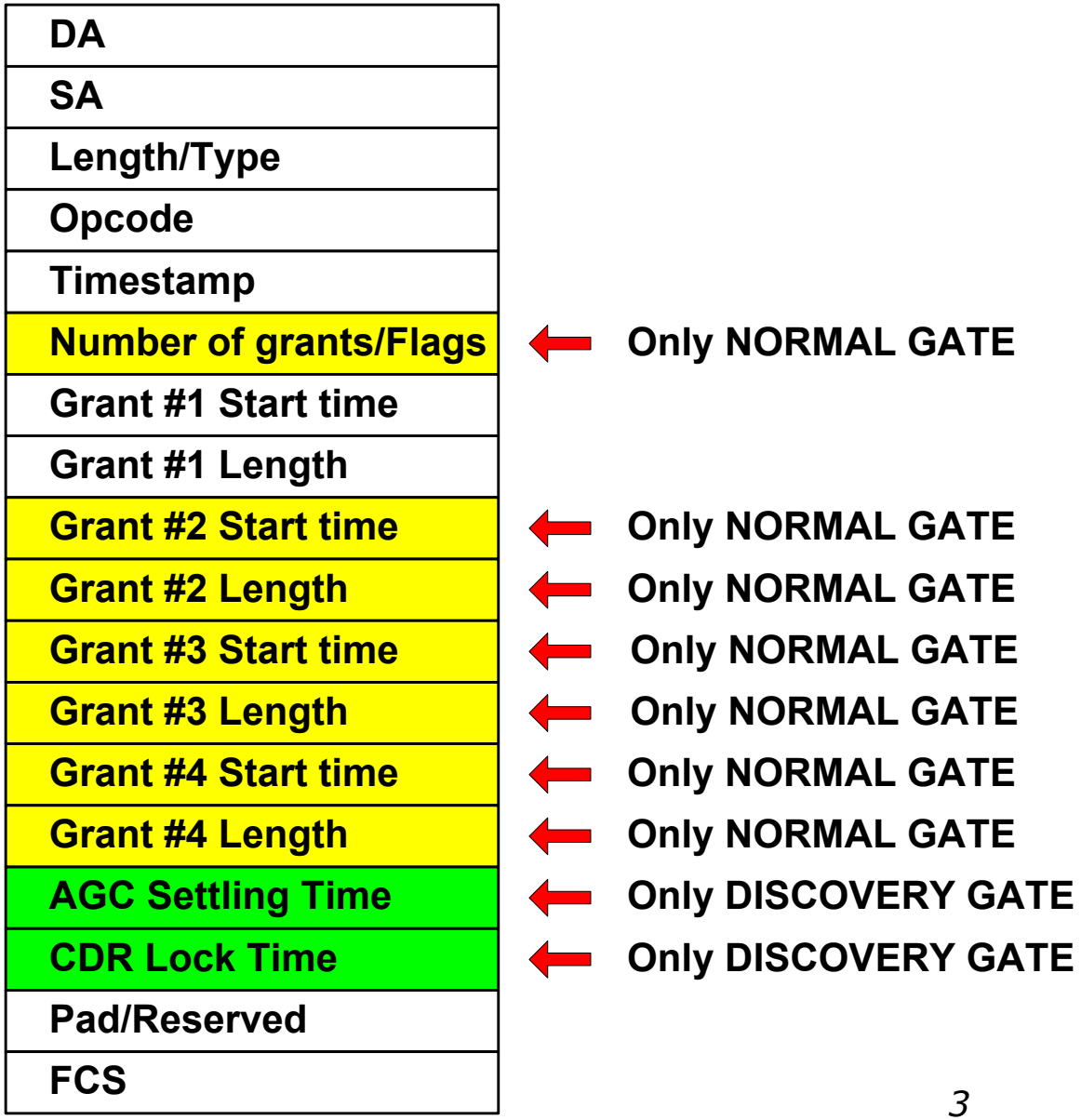
Reason 1: Different parameters needed

Very little information is shared between the two messages

Message parsing is more complicated due to optional fields

"forceREPORT" fields make no sense in DISCOVERY GATE

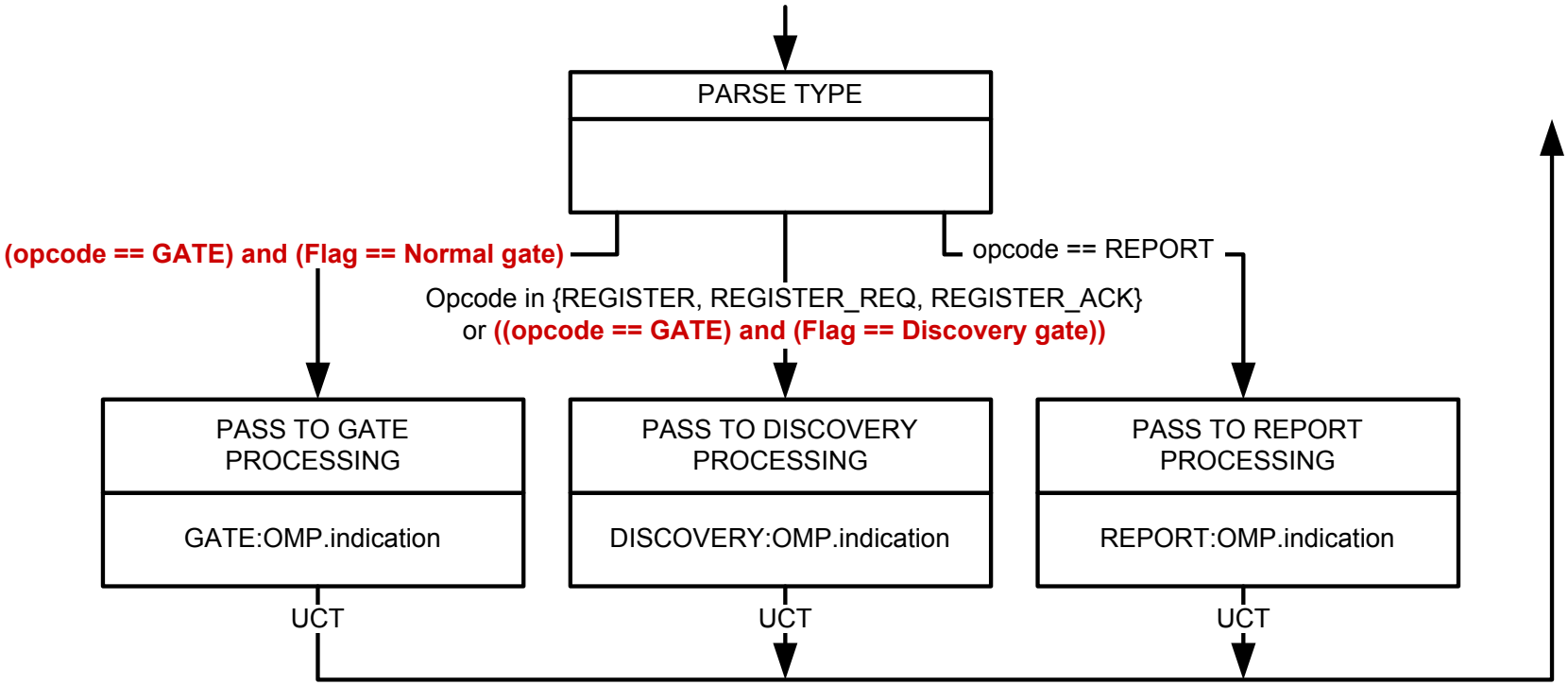
"AGC" and "CDR" fields make no sense in NORMAL GATE



Reason 2: Message Semantic is Different

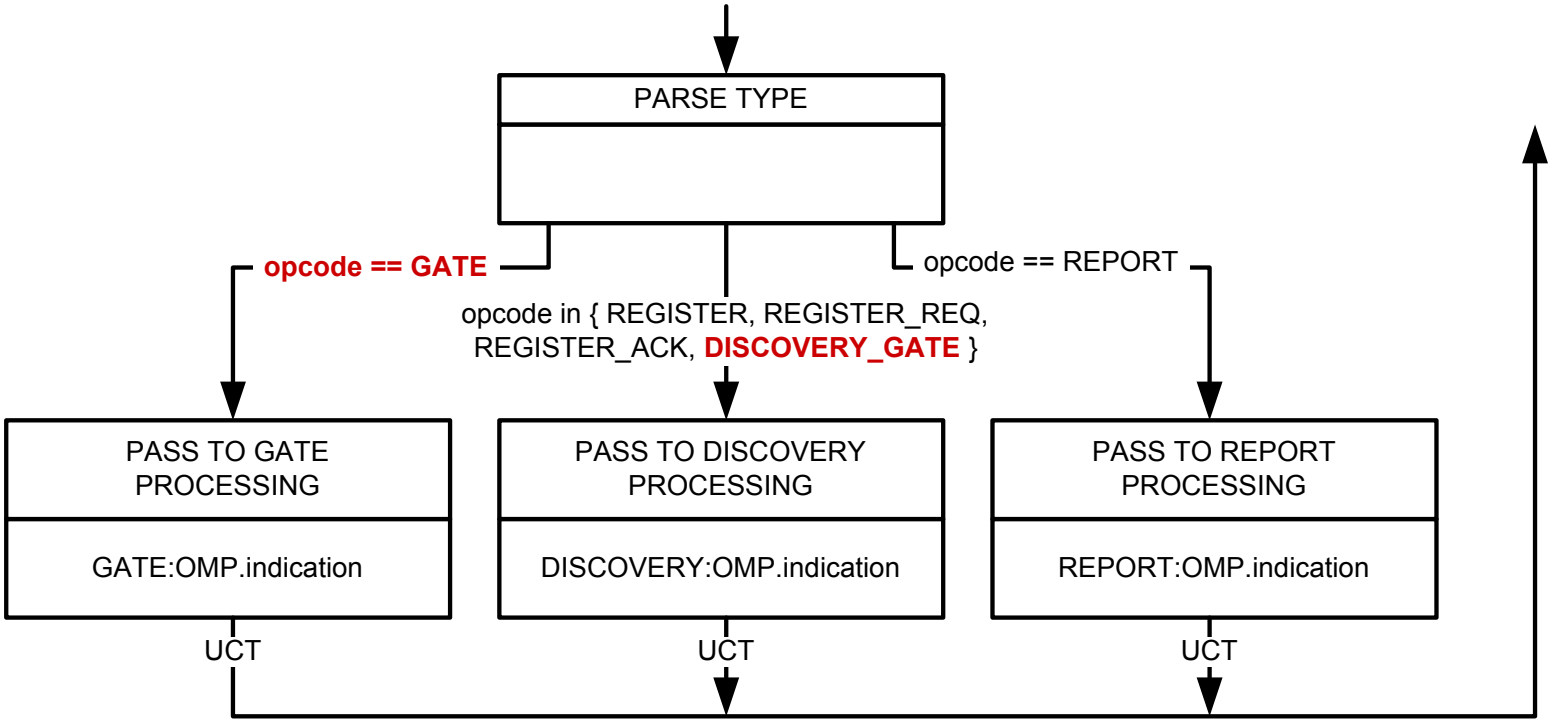
- GATE
  - Start Time – laser turns on at Start Time
  - Length – interval of time during which the laser remains on and data (or IDLES) being transmitted
- DISCOVERY_GATE
  - Start Time – laser turns on only after an additional random delay added to Start Time.
  - Length – used to derive the maximum bound on random delay
  - Laser remains on for short and constant interval independent on Length

Reason 3: No Opcode-Independence



MAC Control messages with the same opcode are passed to different functional blocks for processing (based on a parameter value)

Proposed Changes



- Additional MPCP opcode (**DISCOVERY_GATE**) should be defined (currently 5 opcodes defined)
- Message should only contain relevant parameters
- Minimum changes