

# Processing Delay Compensation for ONU's

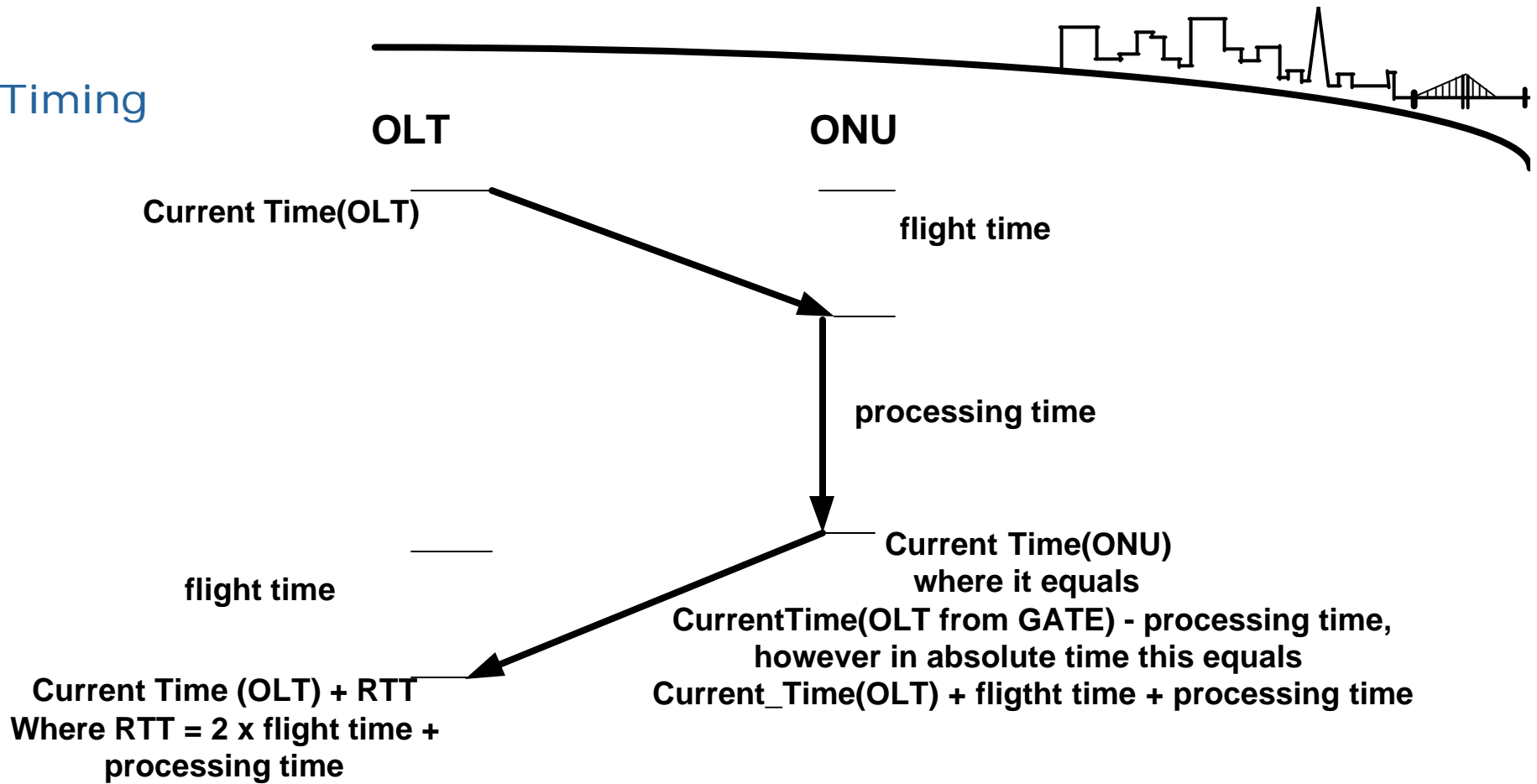
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## How to handle ONU processing time



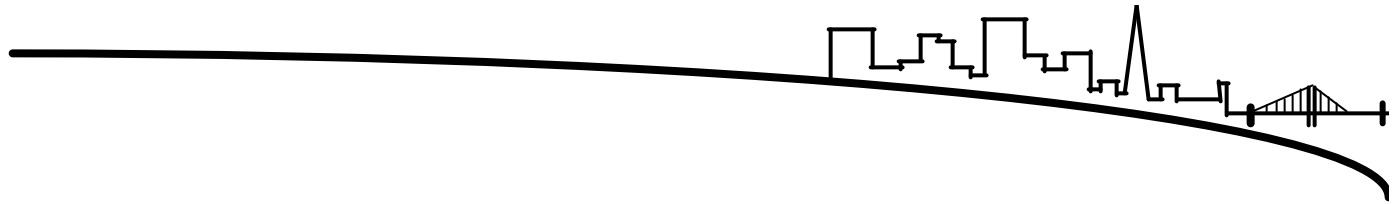
- **ONUs require time from receiving a GATE to start of transmitting**
- **Some ONU may be fast or slow depends on vendor's design**
  
- **Option 1: Set a value for processing time where**
  - **Grant\_Start\_Time > current time - Processing\_time(Global)**
  - **Hard to reach agreement on Processing**
  
- **Option 2: Have ONU send parameter to OLT**
  - **Grant\_Start\_Time > current time - Processing\_time(ONU)**
  - **Requires exchanging parameters**
  
- **Option 3: Lump ONU processing time into RTT time**
  - **Grant\_Start\_Time > current time**
  - **Read on ...**

## Timing



- ✓ Current time for the ONU is set at its transmit point
  - The ONU time is set to the MPCP Timestamp minus the processing time.
- ✓ Processing time is absorbed in Round Trip Time at the OLT
- ✓  $\text{Grant\_Start\_Time} > \text{Current\_Time}$  for all ONUs

## Conclusion



### ✓ Option 3

- Does not require the ONU processing time to be specified.
- ONUs can respond to Grant\_Start\_Times up to the Current\_Time
- Processing delay compensated by RTT in OLT.
- No debate over slow and fast ONU processing time.
- No need to exchange another parameter.