Mechanism of delay asymmetry measurement

802.1 ASbt, 201411 IEEE 802 plenary

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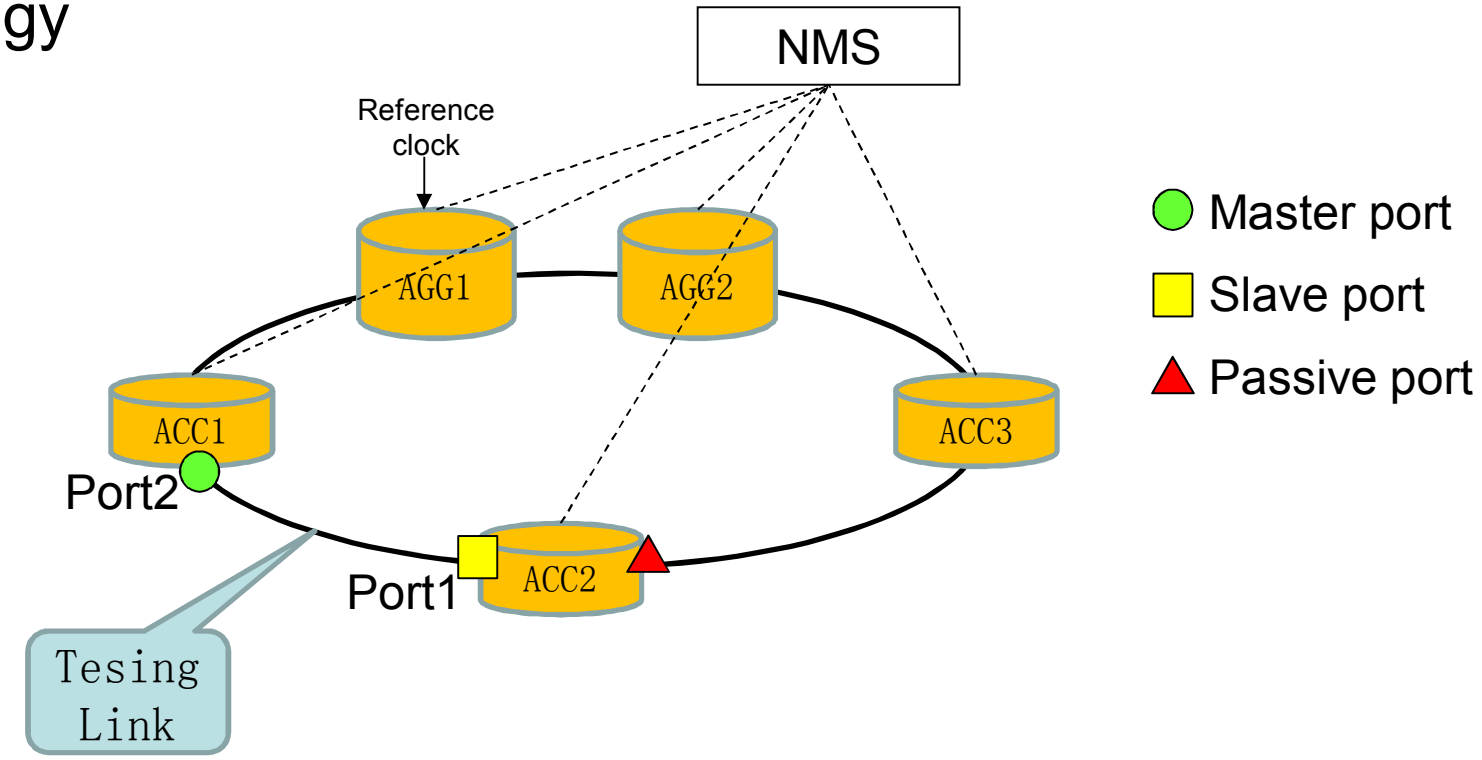
Agenda

- CM’s solution
- Suggestion

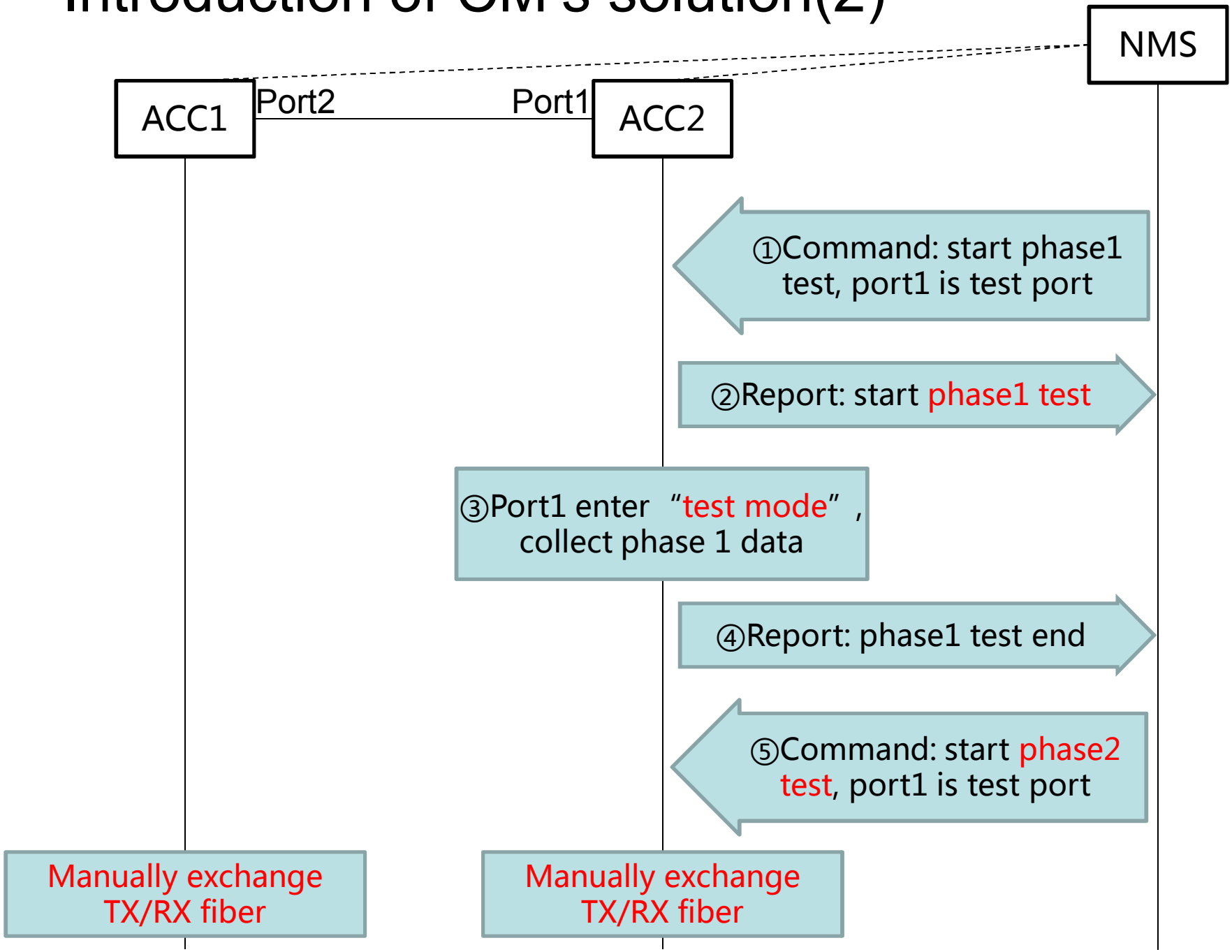
Introduction of CM's solution(1)

- Pre-condition
  - Synchronized frequency through sync-E
  - Enable PTP, enable BMC
  - Redundant synchronization path for every node

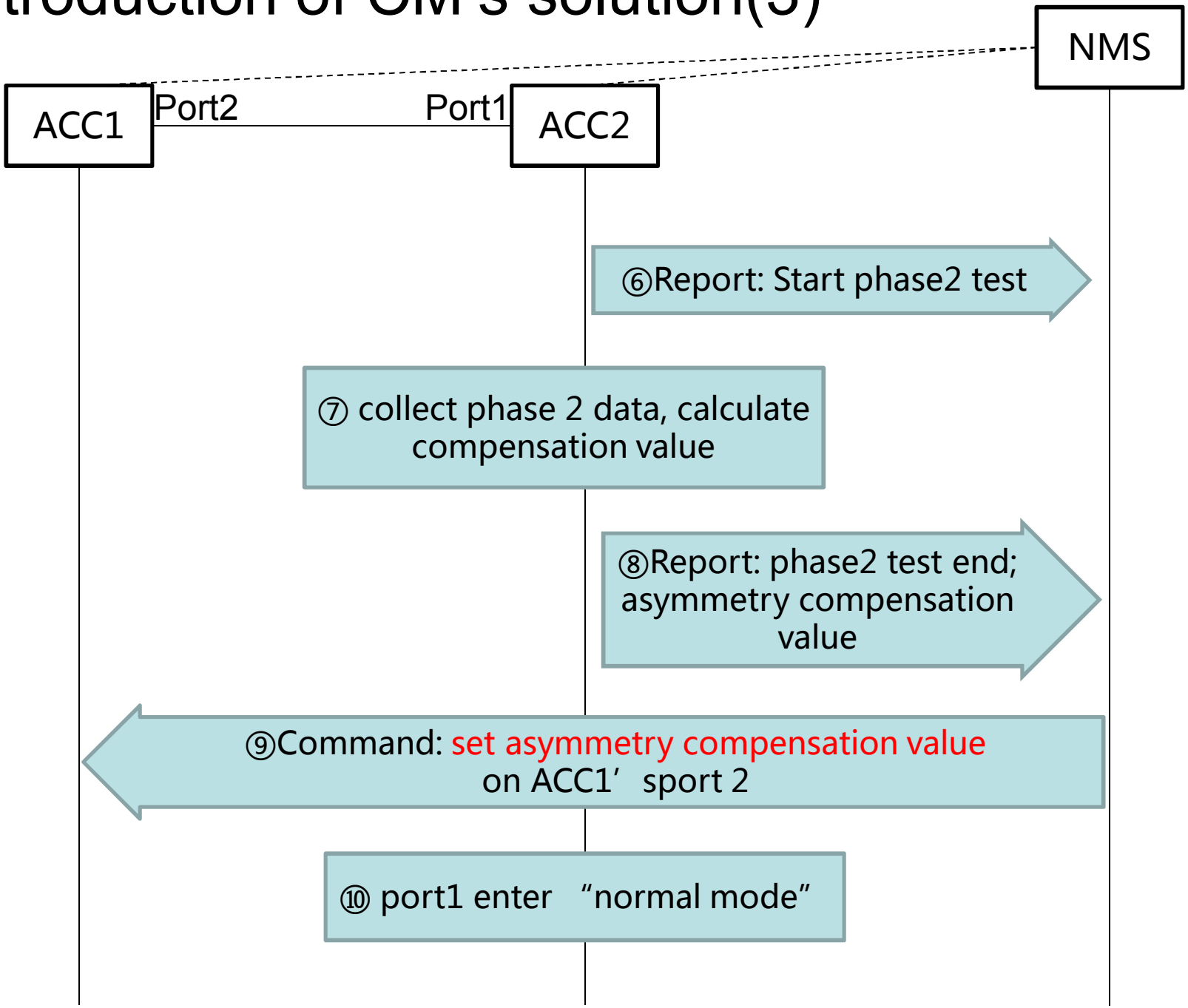
- Topology



Introduction of CM's solution(2)



Introduction of CM's solution(3)



Key points

- Precondition
  - Frequency synchronization
- Command from NMS to device
  - Start phase1 test, test port index
  - Start phase2 test, test port index
  - Set asymmetry compensation value
- Device specification
  - Port could be set as “test mode”, when under test mode port doesn't join PTP calculation nor affect time synchronization
  - Report test status: phase1 test start/end, phase2 test start/end
  - Report asymmetry compensation value
  - Report error if happened in phase1 or phase2 test

Agenda

- CM’s solution
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Suggestion for ASbt

- Precondition requirement
  - Frequency synchronization

- Define new port mode
  - Asymmetry test mode

- Define interaction between device and NMS
  - Commands from NMS to device
    - Start phase1 test
    - Start phase2 test
    - Set asymmetry compensation as mentioned
  - Reports from device to NMS
    - Phase1 test start/end
    - Phase2 test start/end
    - Asymmetry compensation
    - Any error if happend

Discussion on data collection and asymmetry calculation

- Option 1: calculation absolute asymmetry value
  - Collect t2-t1 in phase1 test, collect multiple sets of data for precision
  - Collect t2'-t1' in phase2 test , collect multiple sets of data for precision
  - Calculate absolute asymmetry value
    - (t2'-t1') – (t2-t1)

- Option 2: calculation asymmetry ratio
  - Collect t1,t2,t3,t4 in phase1 test , collect multiple sets of data for precision
  - Collect t1',t2',t3',t4' in phase2 test , collect multiple sets of data for precision
  - Calculate asymmetry ratio
    - Delay_ms/delay_sm = (t2+t4'-t1-t3') / (t2'+t4-t1'-t3)

In my own option, option 2, asymmetry ratio, maybe is better than absolute asymmetry value, because ratio is more stable when environment changes after a long period

Thank you
Q&A