First Mile OAM&P Objective

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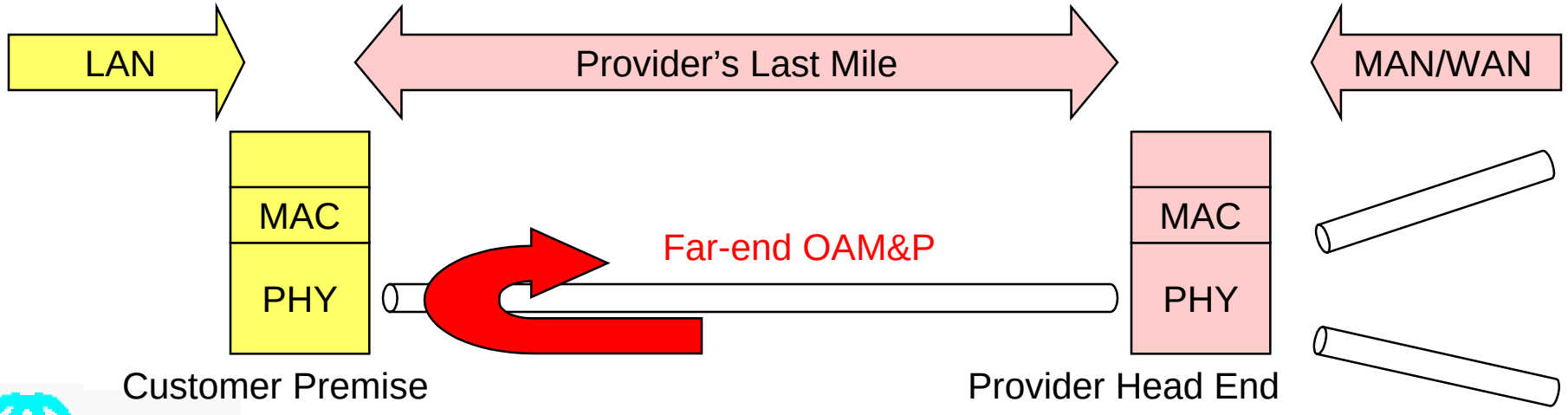
Outline

- Essence of OAM&P*
  - * OAM&P: Operations, Administration, Maintenance, and Provisioning
  - Service Provider's perspective

- Proposal of First Mile OAM&P Objective
  - Support far-end PHY maintainability

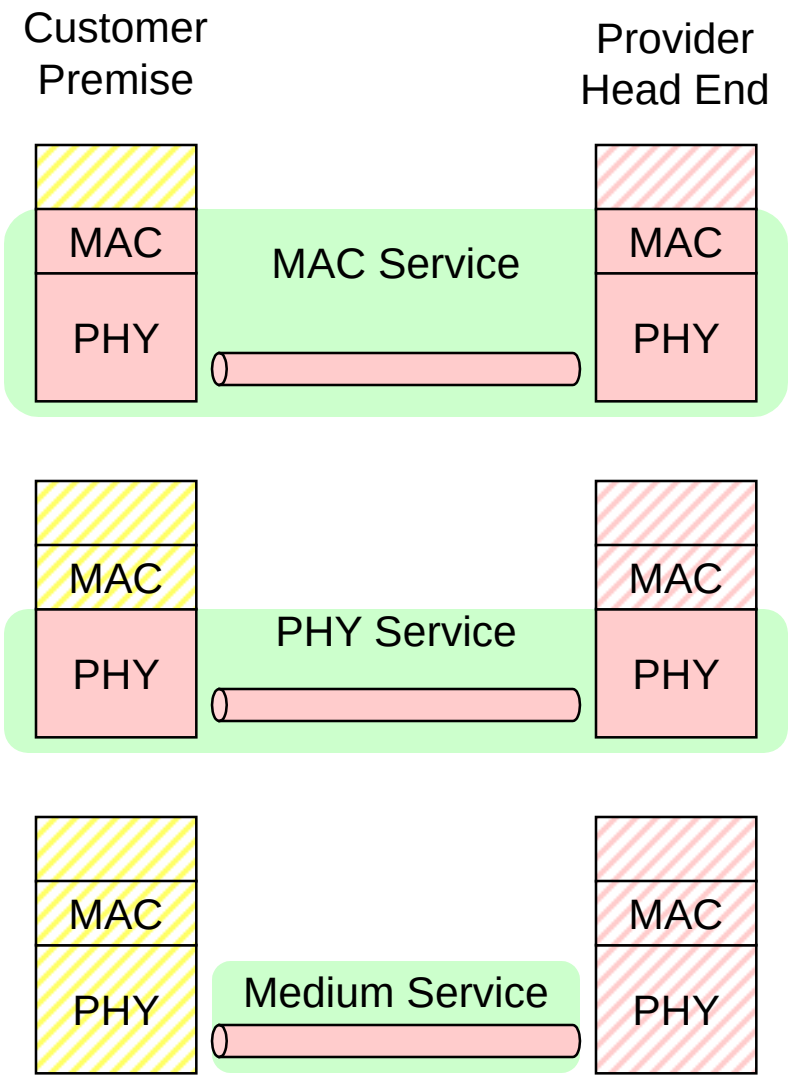
Why First Mile OAM&P?

- Customer needs Service
  - He never wants to worry about service facilities
- Service Provider has to care about service facilities
  - Medium, PHY, MAC, ...
- Customer's First Mile is Provider's Last Mile
  - Last Mile sometimes has no alternative route
  - Far-end OAM&P is the key issue



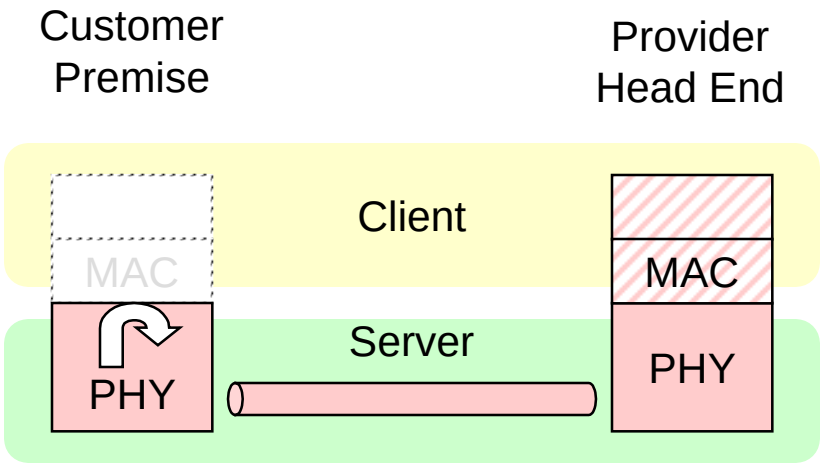
How far pursue far-end OAM&P?

- MAC Service
  - provides IP packet transport
  - requires Medium, PHY, and MAC
  - has no exposed IF of demarcation
    - hard for OAM&P
- PHY Service
  - provides MAC frame transport
  - requires Medium and PHY
  - may have exposed IF of demarcation
    - easy for OAM&P
- Medium Service
  - provides bit-stream transport
  - requires Medium
  - has no electrical interface
    - hard for OAM&P

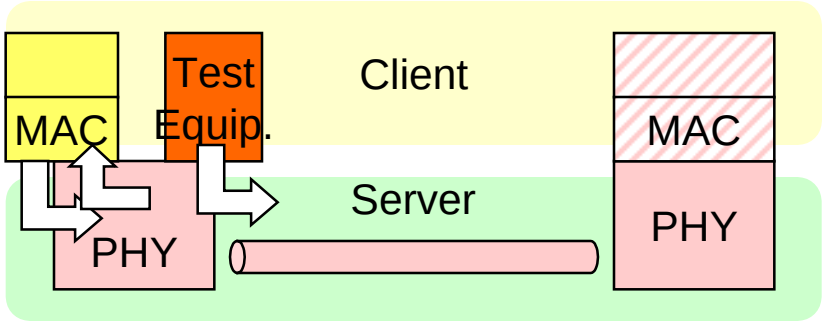


Far-end OAM&P in PHY Service Example 1

- Far-end installation/provisioning
  - Server self-test without Client
    - Far-end PHY loop-back
      - at the service demarcation
      - at the exposed interface

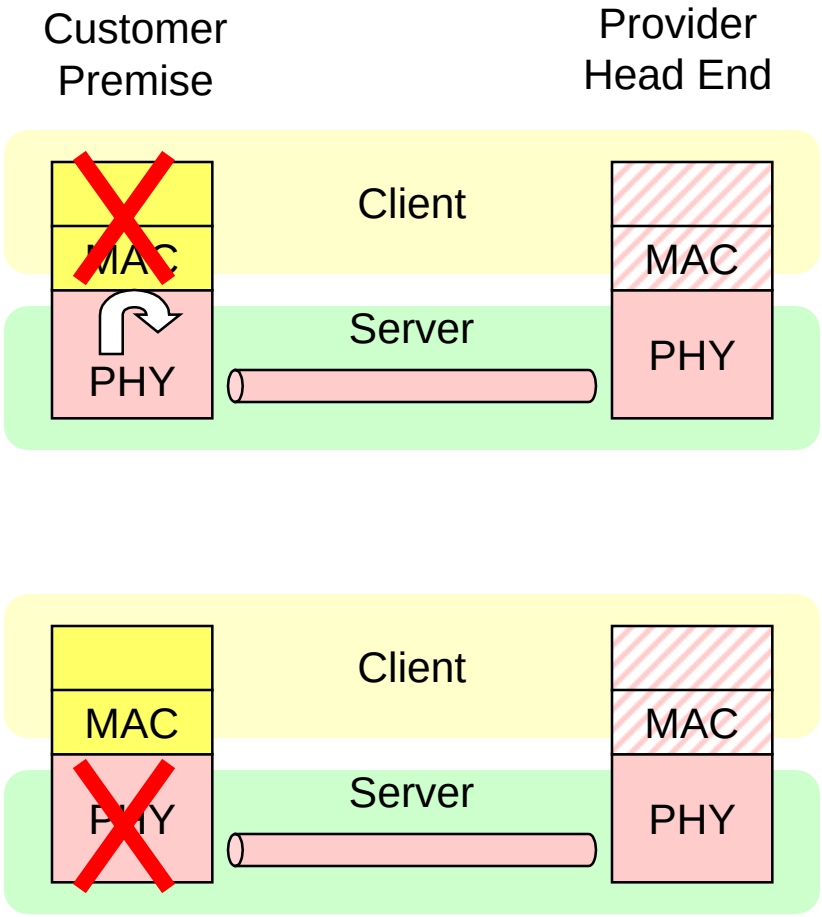


  - If without far-end OAM&P .....
    - A track roll is required
      - Use test equipment, or
      - Depend on Customer Premise Client



Far-end OAM&P in PHY Service Example 2

- Far-end fault localization
  - Far-end Client Fault
    - Defect in MAC or Higher
    - PHY Service is OK
      - no PHY maintenance required
      - remote PHY loop-back can isolate the Client defect
  - Far-end Server Fault
    - Defect in PHY
    - PHY Service is NG
      - PHY maintenance required



PHY Service OAM&P Advantages

- The lowest Service that can support far-end OAM&P economically
  - Easy to isolate the Customer's Client fault from the Server fault
  - Wide variety of Services
    - PHY Service = Leased Lit Fiber/Wavelength
    - MAC Service on the PHY Service infrastructure
    - IP Service on the MAC Service infrastructure
    - Application Service on .....
- SONET friendly
  - SONET provides MAC frame transport (= PHY Service)
  - SONET Overhead supports far-end OAM&P for PHY Service

First Mile Objective Proposal

- Support far-end PHY maintainability
  - provide an exposed interface of demarcation
  - allow PHY Service OAM&P
    - wider market potential of Lit Fiber/Wavelength Infrastructure
  - consider SONET friendly far-end OAM&P
    - support minimal PHY signaling that is intact to the Client