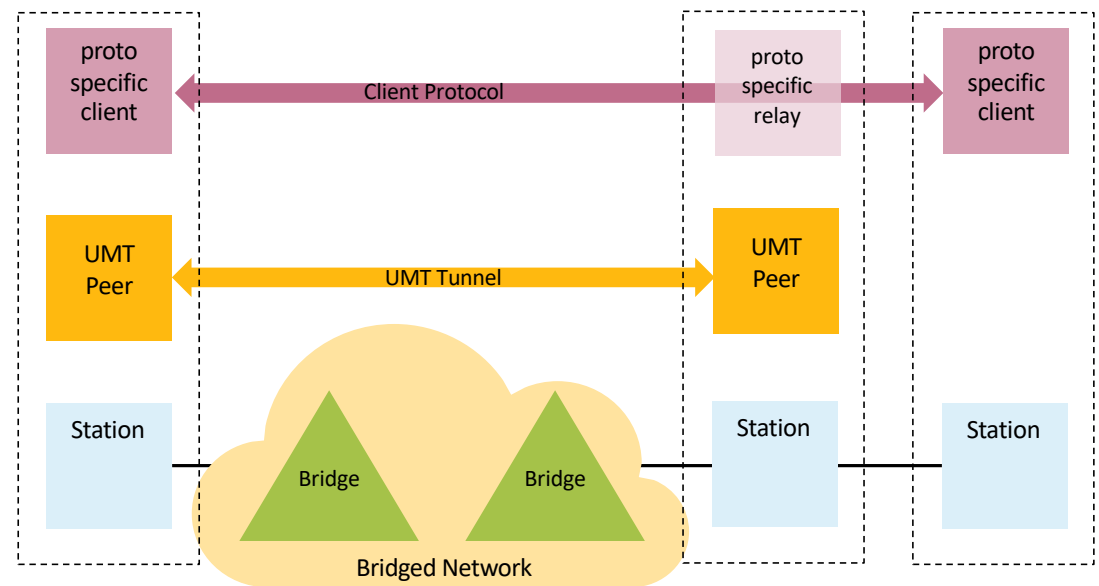


IEEE 1904.2 Universal Management Tunnel

Topology Elements

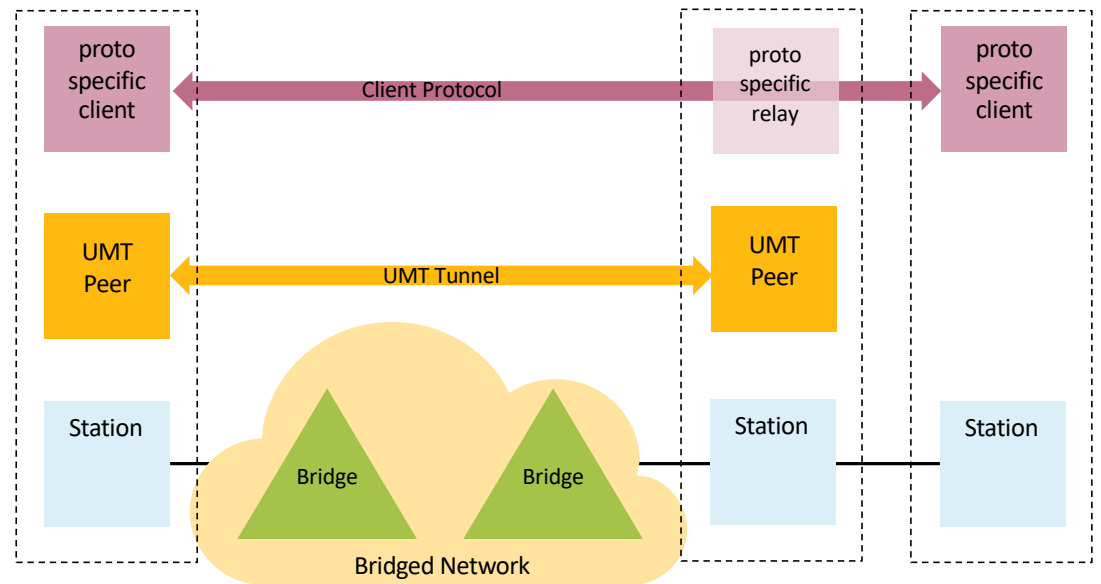
UMT Network Topology Elements

- UMT Peer: An entity implementing an instance of the UMT sublayer and UMT client, the combination of which causes a Protocol-Specific Client's data to be encapsulated in a UMTPDU and transmitted to another UMT Peer.
- UMT Client: A function in the IEEE 1904.2 model – definition TBD
- UMT Sublayer: A function in the IEEE 1904.2 model – definition TBD
- Protocol-Specific Client: The entity implementing a protocol being encapsulated in a UMTPDU (e.g. IEEE 802.3 Clause 57 OAM)
- X-Client: A User of a X-layer service interface



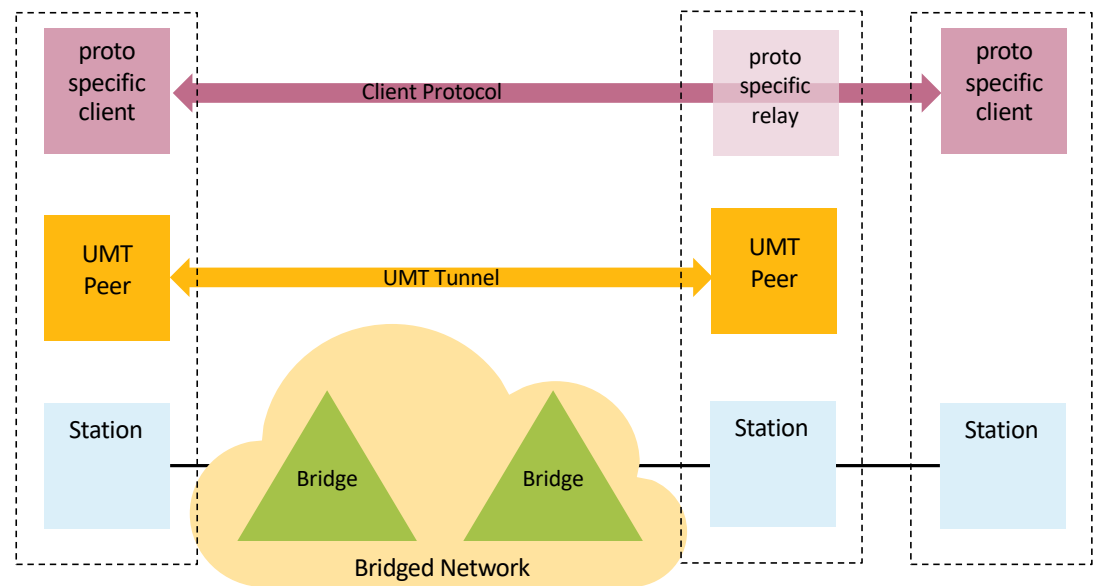
UMT Network Topology Elements

- Bridged Network: A general term referring to a Virtual Bridged Network and/or a MAC Bridged Network.
- MAC Bridged Network: A term describing a network that relays frames based on MAC-layer addressing. A MAC bridged network as defined in IEEE 802.1Q-2018.
- Virtual Bridged Network: A term describing a network that relays frames based on VLAN addressing. A Virtual Bridged network as defined in IEEE 802.1Q-2018.
- VLAN Bridged Network: A synonym for Virtual Bridged network as defined in IEEE 802.1Q-2018.



UMT Network Topology Elements

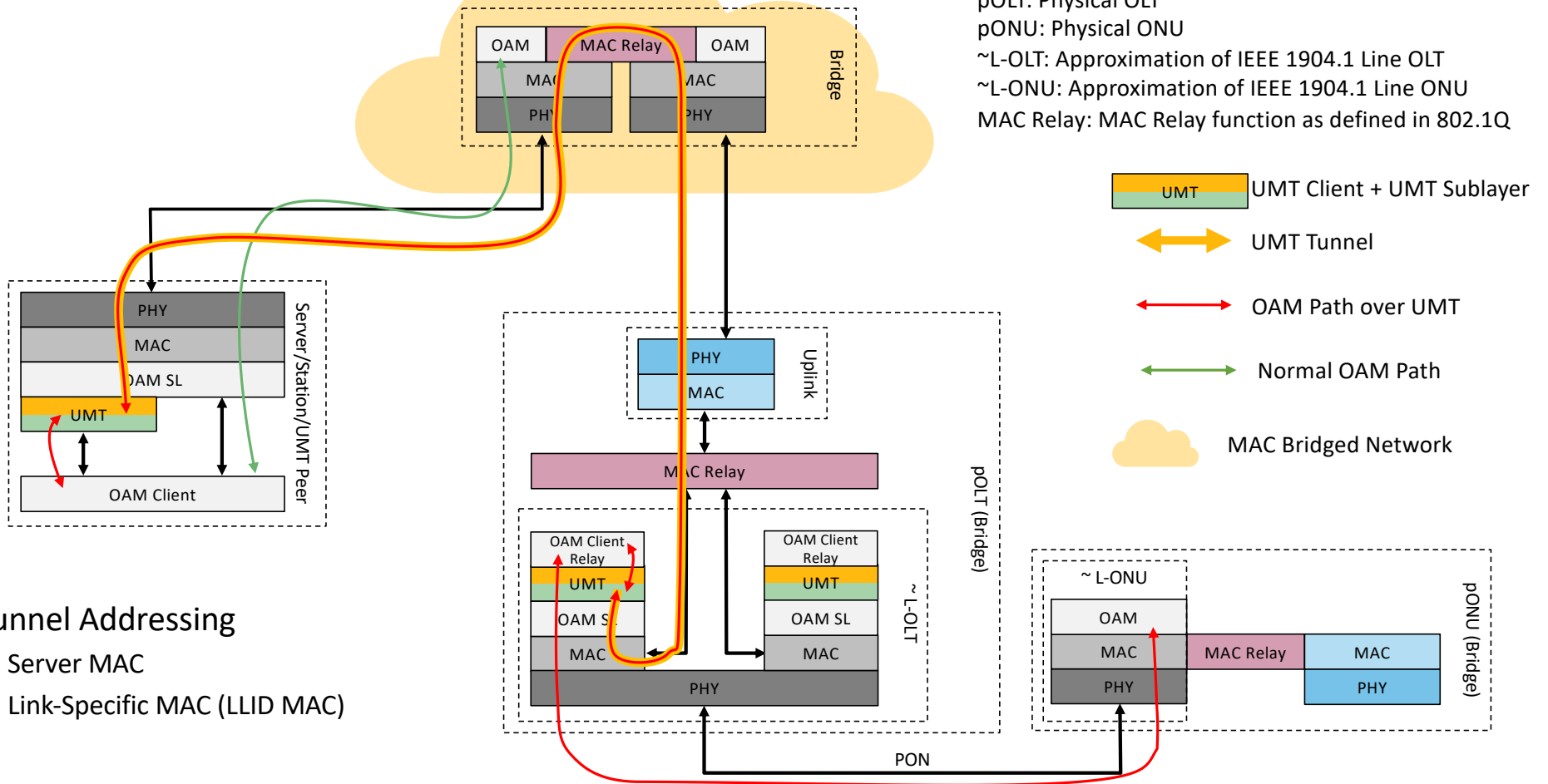
- Protocol-Specific Relay: A special case of a Protocol-Specific Client that relays the client protocol from a UMT Peer to a UMT-Unaware station.
- Station: As defined in IEEE 802 (end station), is a source and/or destination of link layer traffic
- Client Protocol: The protocol being encapsulated in a UMTPDU
- Bridge: As defined in IEEE 802.1Q-2018, a MAC bridge or VLAN bridge



Additional Vocabulary

- Universal Management Tunnel (UMT) – refers to the tunnel between two UMT Peers
- UMT Protocol – The protocol defined by IEEE 1904.2;
- UMT Protocol Data Unit (UMTPDU) – The unit of UMT data sent across a network
- Service Data Unit (SDU) – The unit of data carried as payload in service-providing protocol (inferior layer/sublayer in a stack) for a client protocol (superior layer/sublayer in a stack)
- Protocol Data Unit (PDU) – The unit of data for a service-providing protocol
- UMT-Unaware-Station: Used to describe an entity (station) that does not implement an instance of the UMT sublayer+client, but has a protocol entity for a protocol that uses a UMT tunnel (e.g. ONU without an UMT stack)
- UMT-Unaware-Relay: Used to describe an entity (typically a bridge) that forwards a UMTPDU with no awareness of it being a UMTPDU
- **It is possible for a device to be both UMT-Unaware-Station and UMT-Unaware-Relay

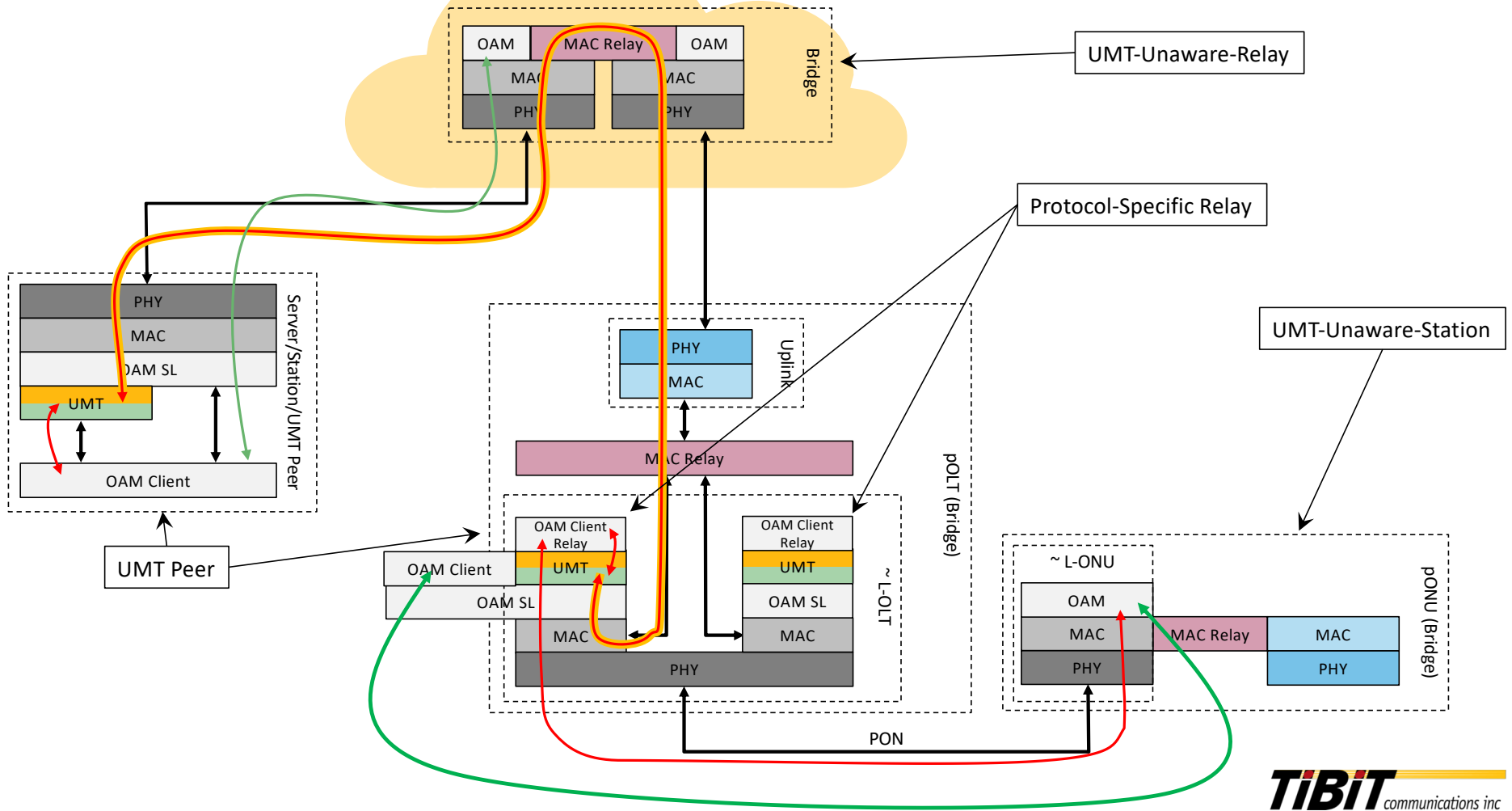
Example Topology with Primitives (EPON)



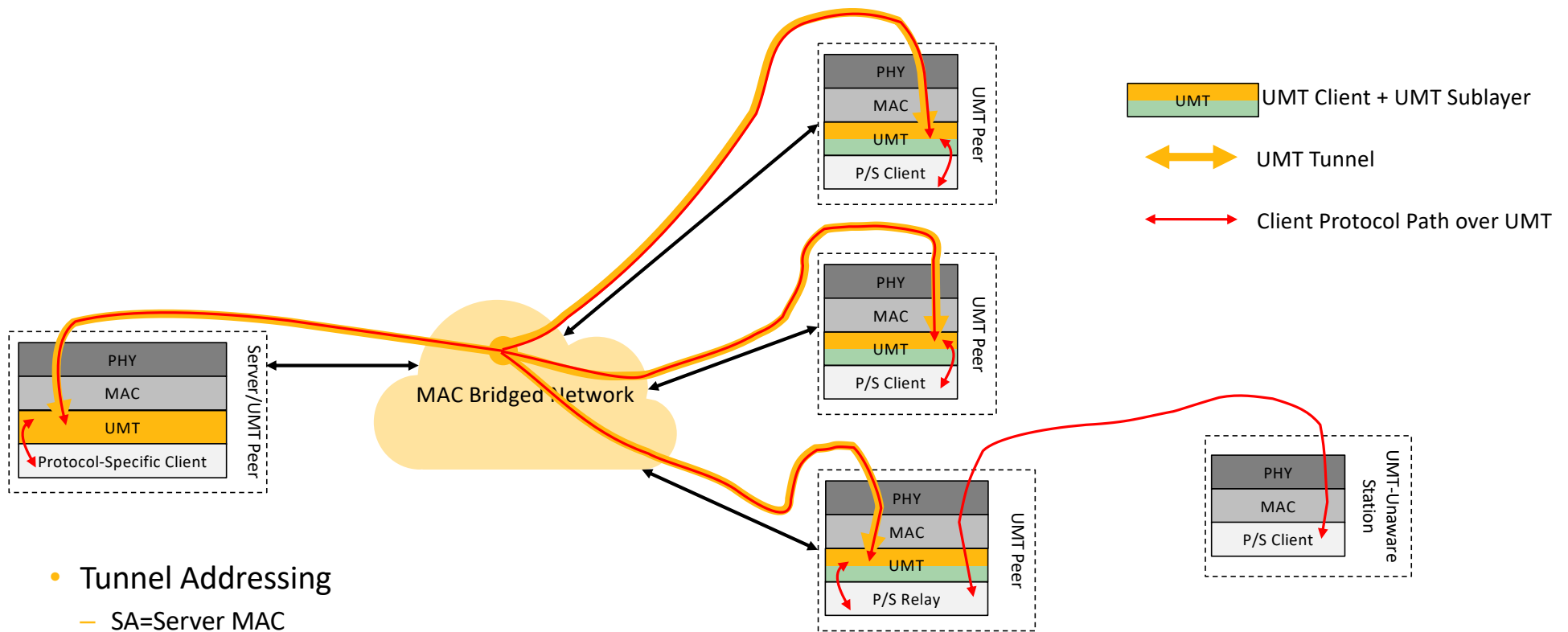
pOLT: Physical OLT
 pONU: Physical ONU
 ~L-OLT: Approximation of IEEE 1904.1 Line OLT
 ~L-ONU: Approximation of IEEE 1904.1 Line ONU
 MAC Relay: MAC Relay function as defined in 802.1Q

- Tunnel Addressing
 - Server MAC
 - Link-Specific MAC (LLID MAC)

Example Topology with Primitives (EPON)



Multicast/Broadcast UMT



- Tunnel Addressing
 - SA=Server MAC
 - DA=Multicast or Broadcast MAC

Recommendation

- Accept the vocabulary in this presentation as the basis for describing the operation of UMT in IEEE 1904.2

Thank You!
Additional Q&A