

Network Management Issues of Ethernet over WDM

July 9 -11, 2002

NTT

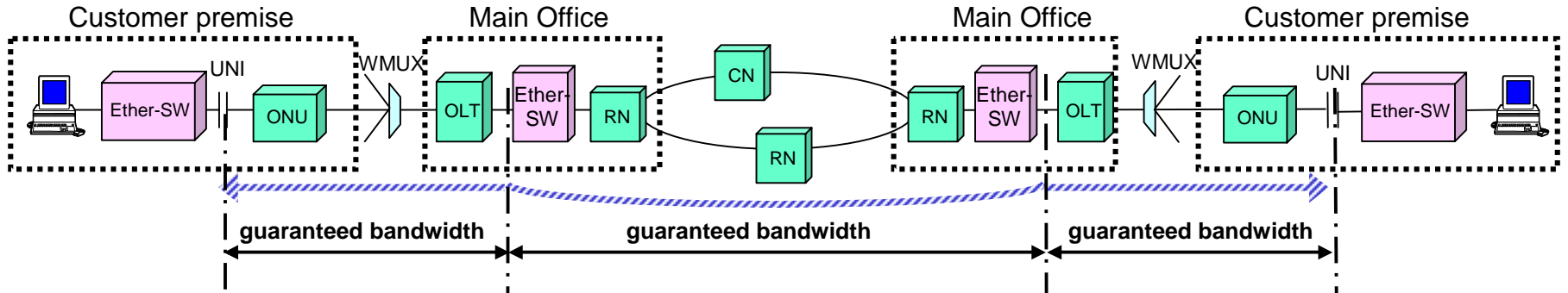
Tatsuhiko Yoshida

E-mail: tyoshida@trans.ntt-at.co.jp

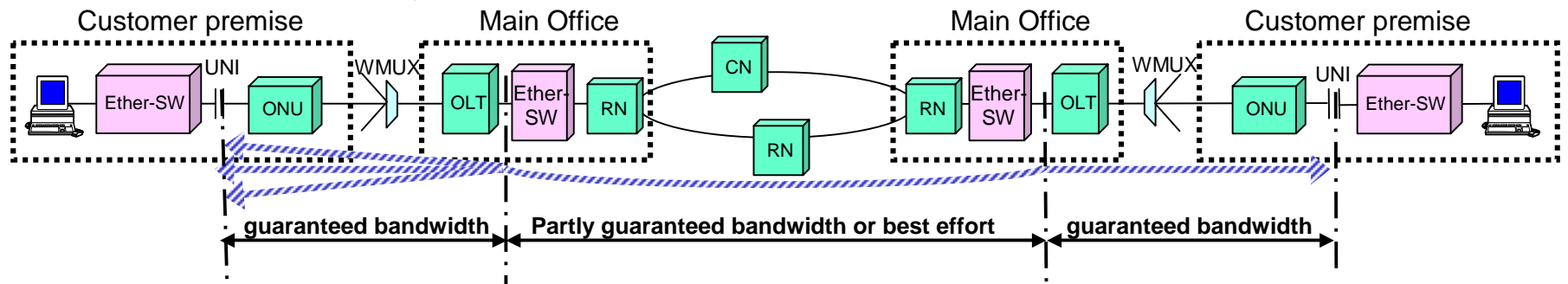
- Services and Network Configuration
- Management Information Model
 - Service/Network/NE level View -
- Summary and next step

three main Ethernet Services

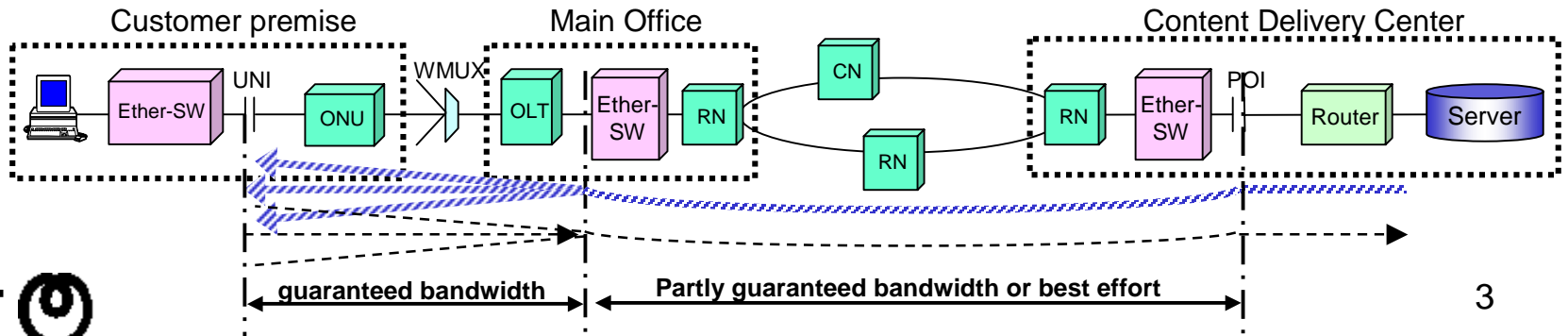
(1) End-to-end bandwidth guaranteed type dedicated circuit services for business users



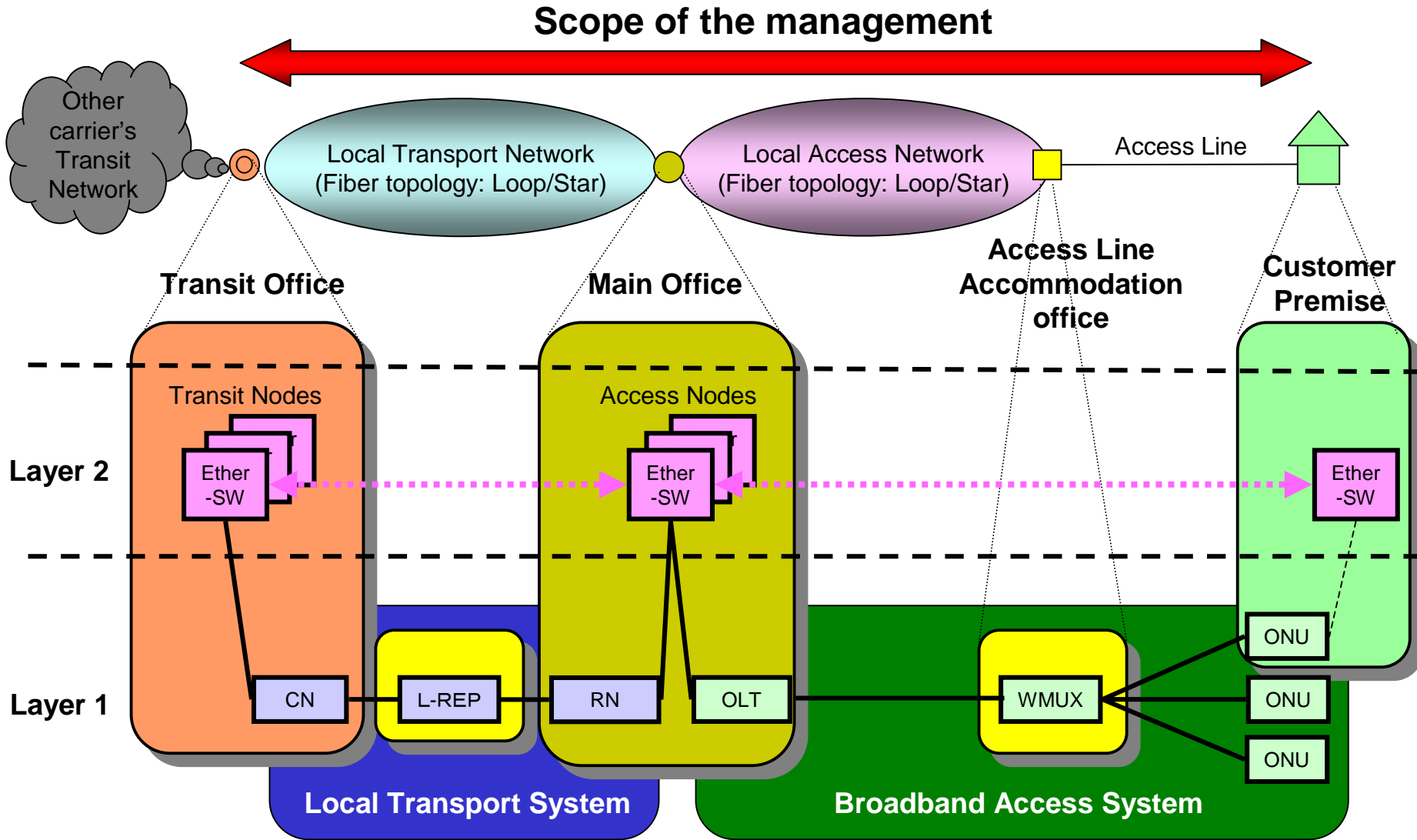
(2) Shared Bandwidth type VPN services for business and/or mass users



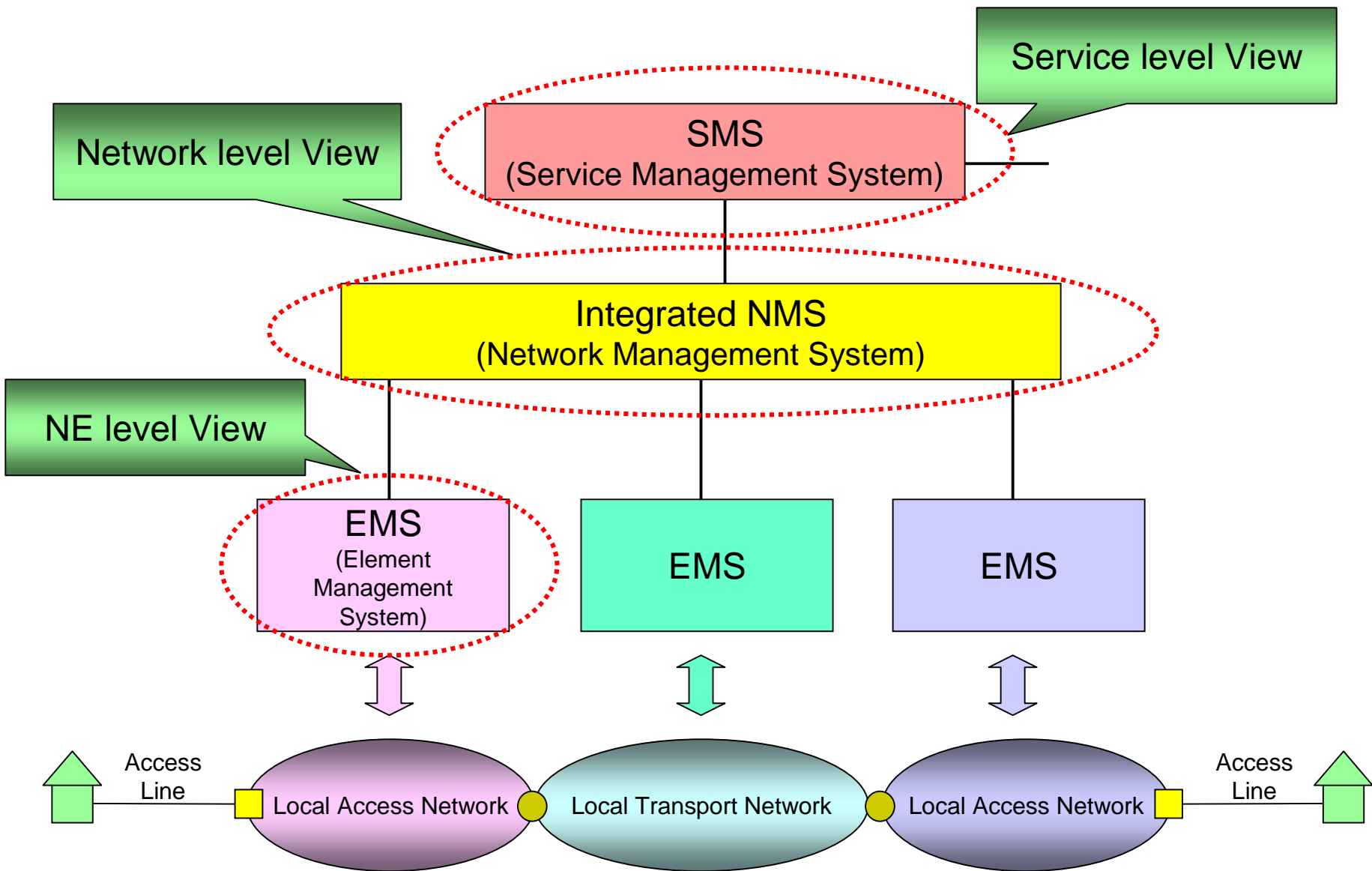
(3) Content delivery type services for mass users



Network Configuration



Three kinds of Management Information



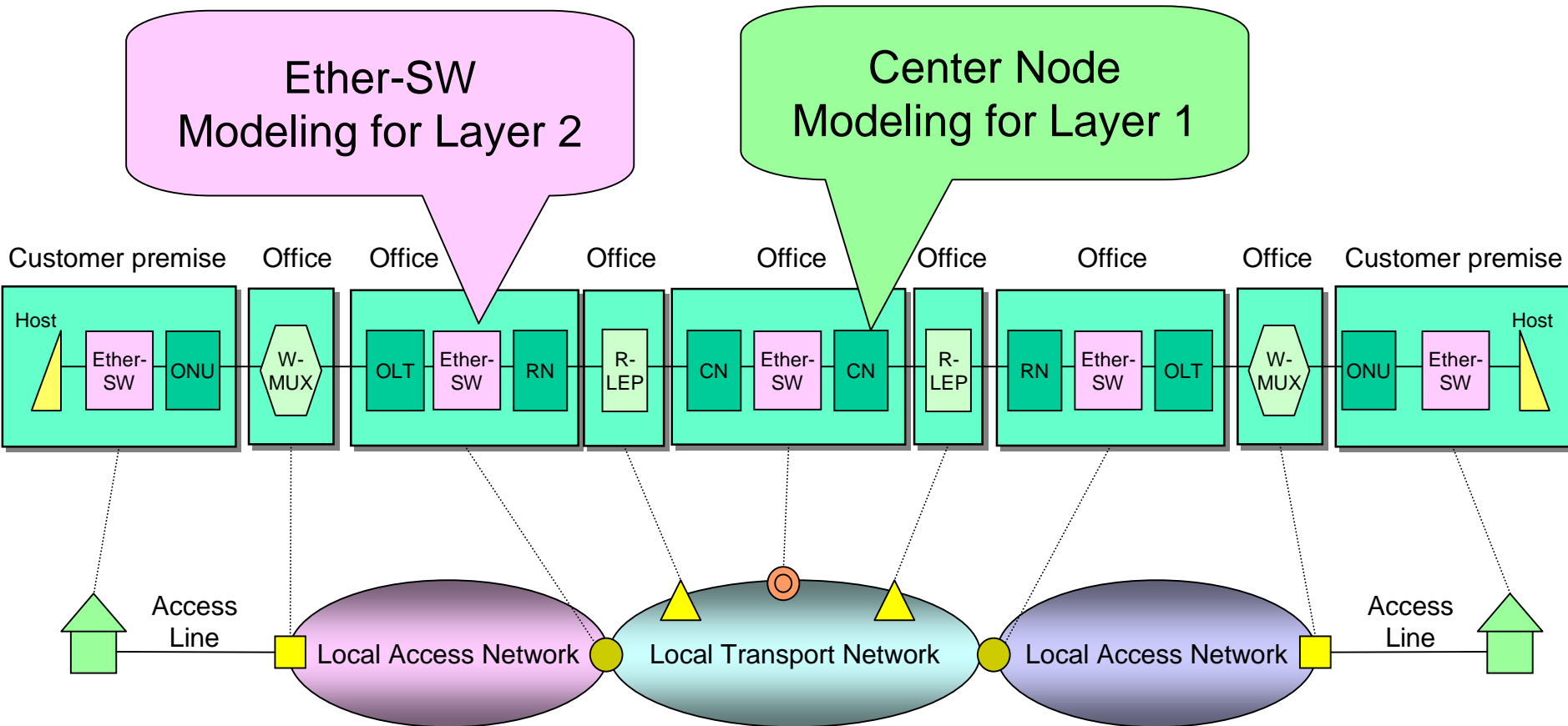
➤ Bottom-up approach for NE level View

- G.805: Generic functional architecture of transport networks
- M.3100: Generic Network Information Model
- G.872: Architecture of optical transport networks
- G.983.2: ONT Management and Control Interface specification for B-PON
- Q.834.1: ATM-PON requirements and managed entities for the network element view

➤ Top-down approach for Network and Service level View

- G.852.2: Enterprise Viewpoint description of transport network resource model
- G.853.1: Common elements of the Information Viewpoint for the management of a transport network
- M.3100 Amendment 1: Generic Network Information Model

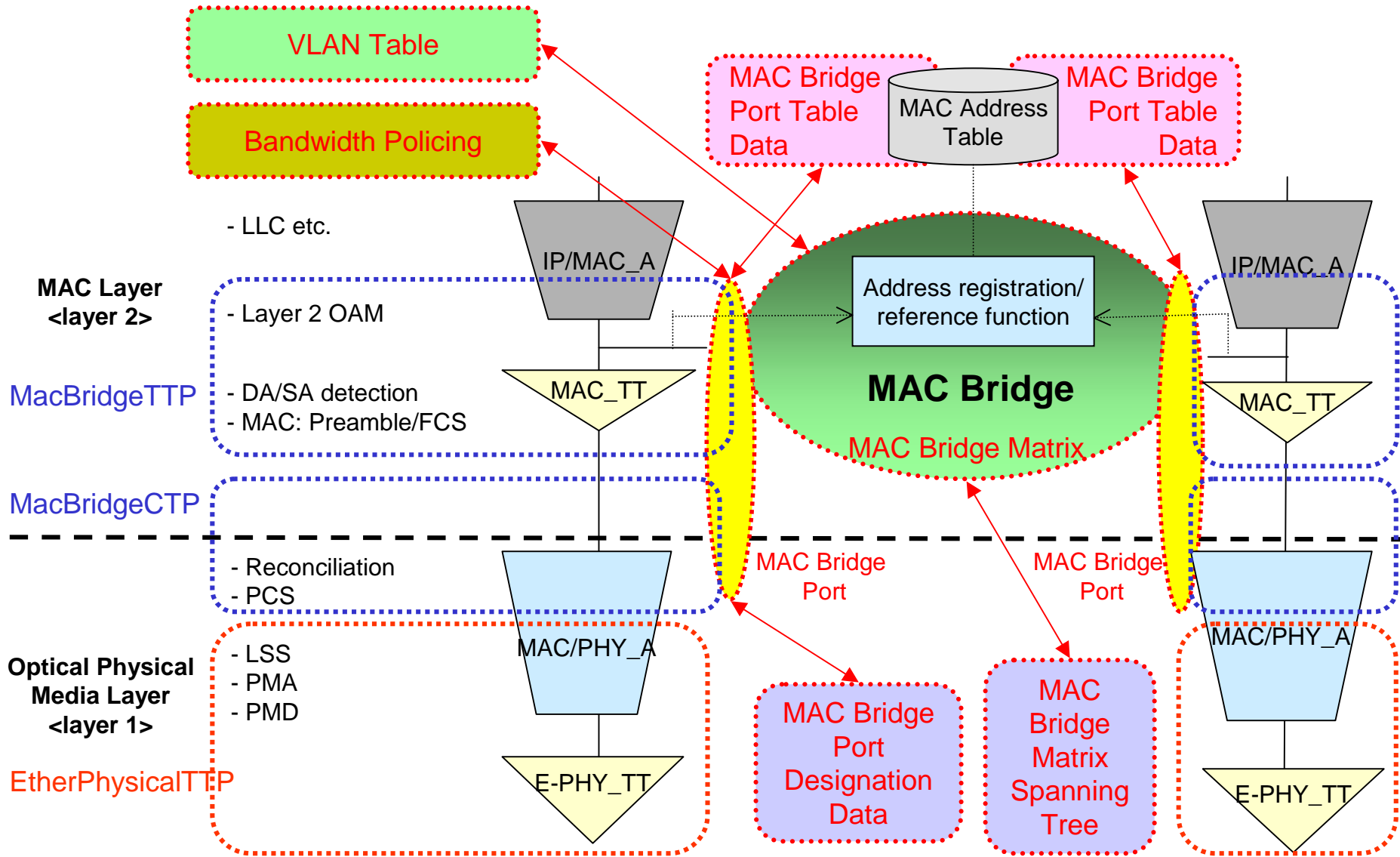
Two Main NE level View Management Information Model



CN: Center Node
 RN: Remote Node
 L-REP: Line Repeater

OLT: Optical Line Terminal
 ONU: Optical Network Unit
 WMUX: Wave length Multiplexer

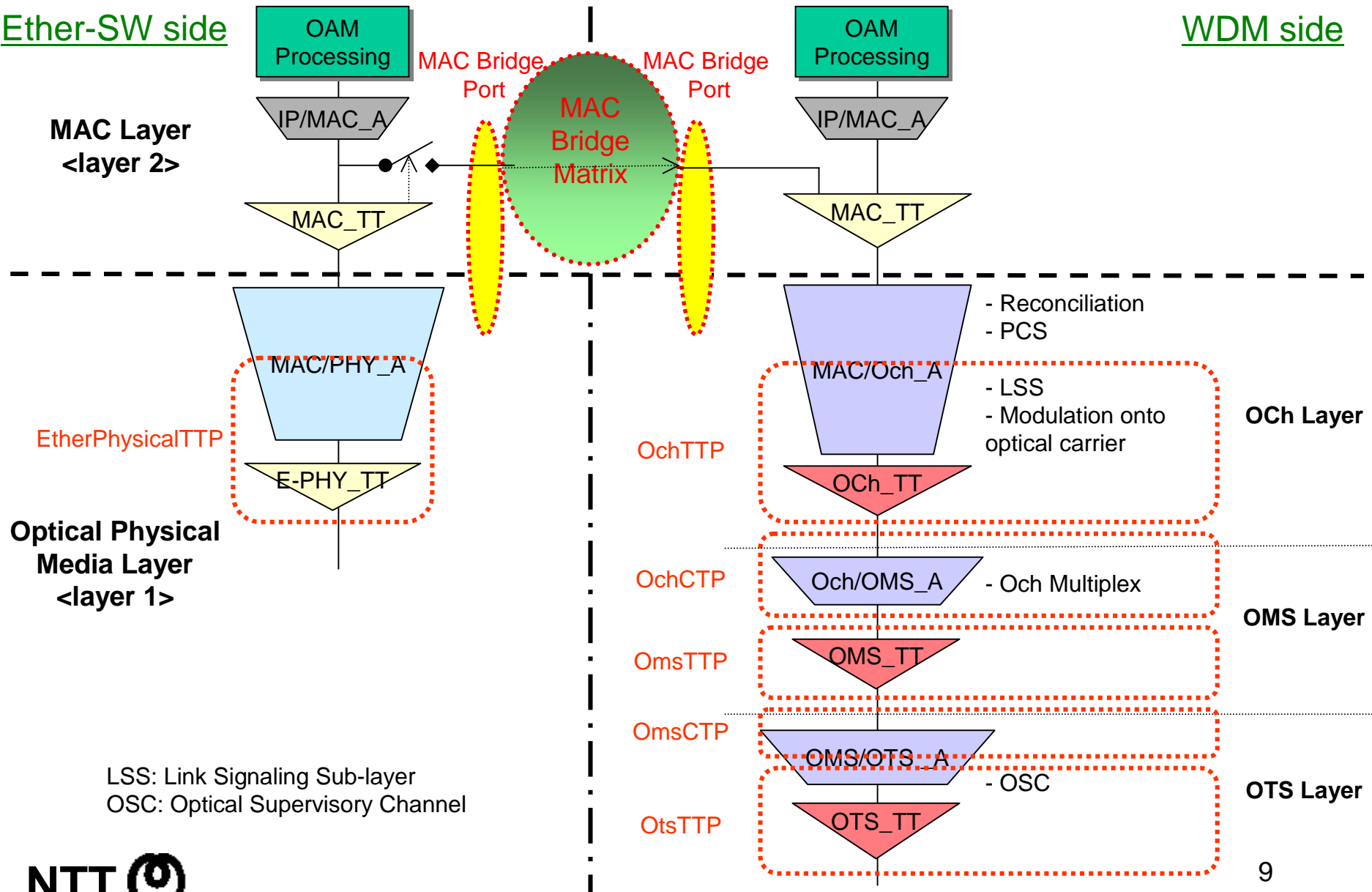
NE level View of Ether-SW



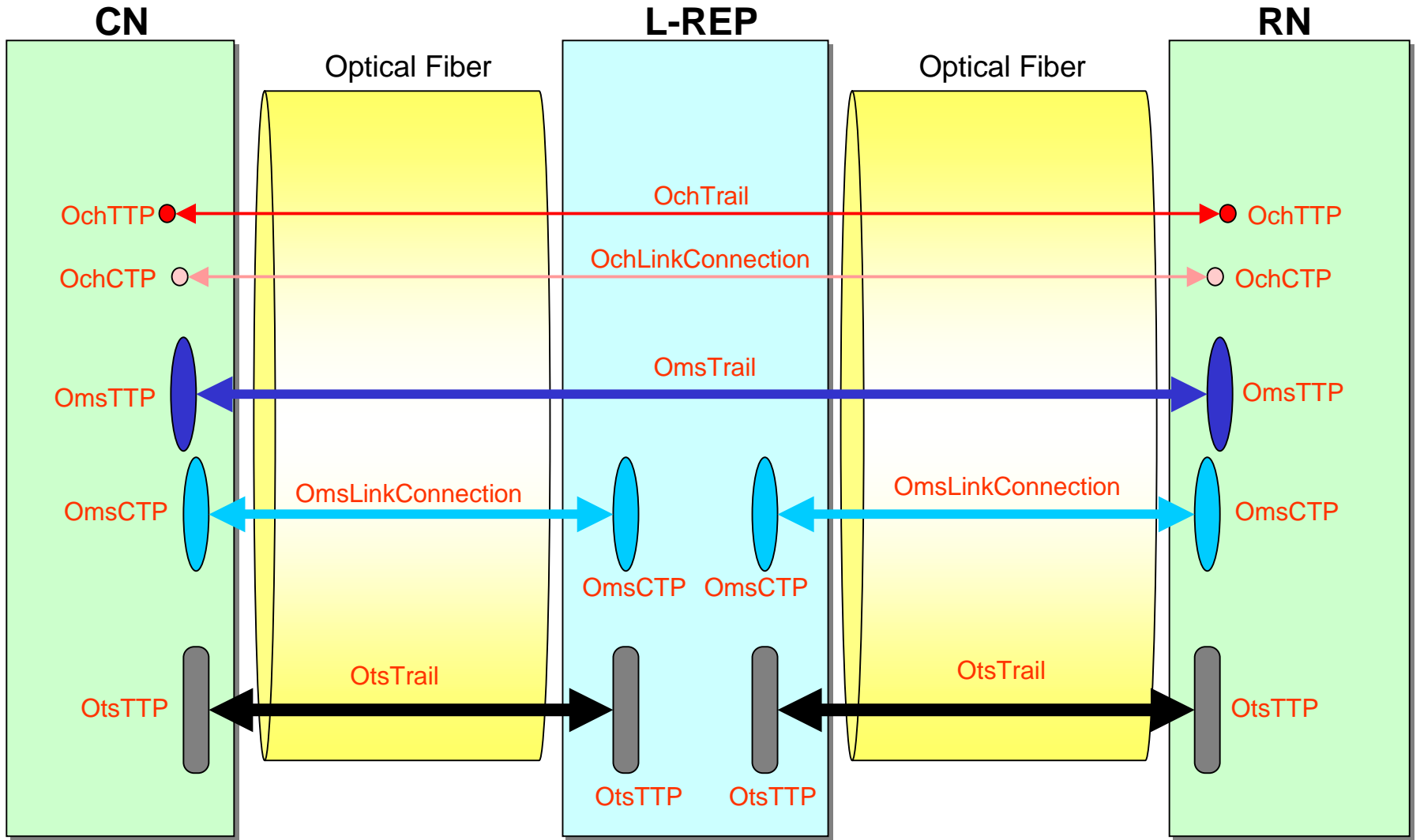
NE level View of Center Node

Ether-SW side

WDM side

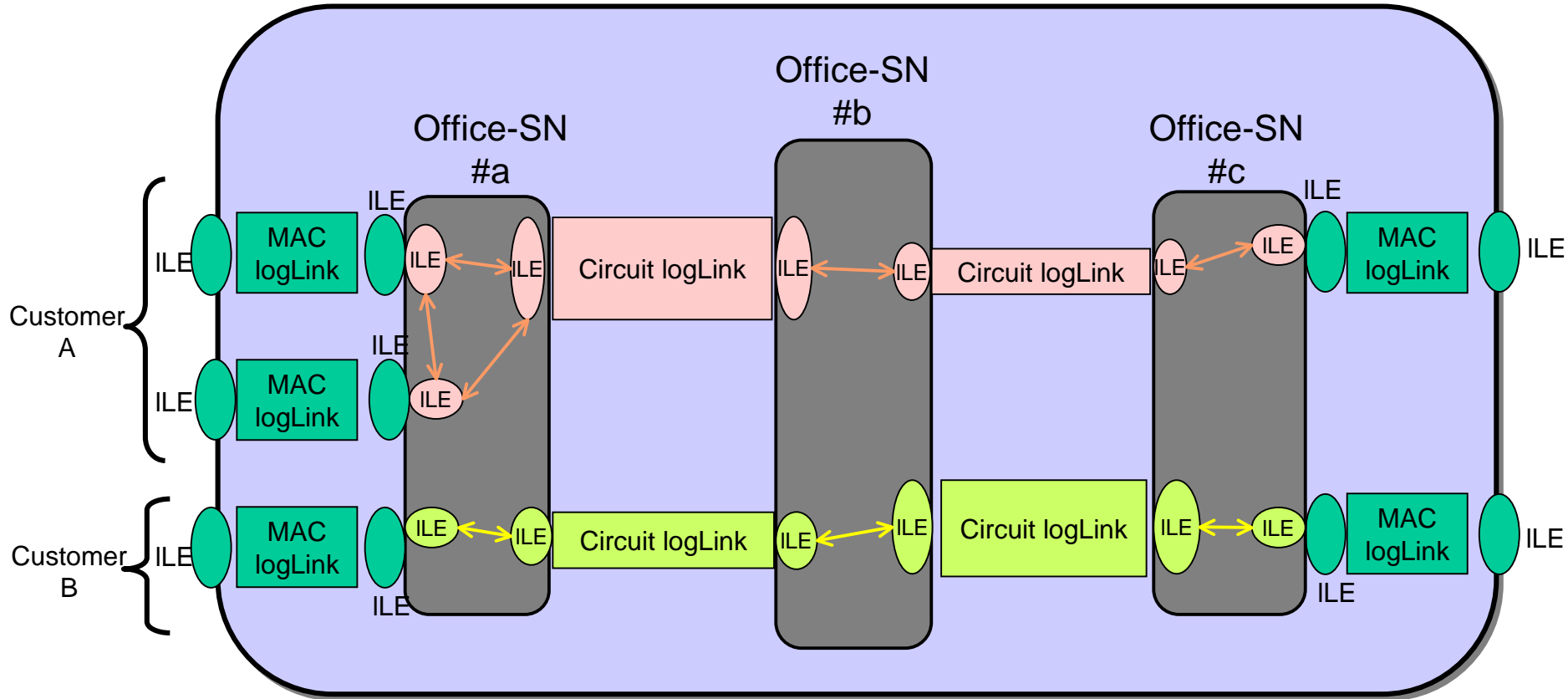


Managed Entity Relationship between Center Node and Remote Node



Service level View

Carrier SN



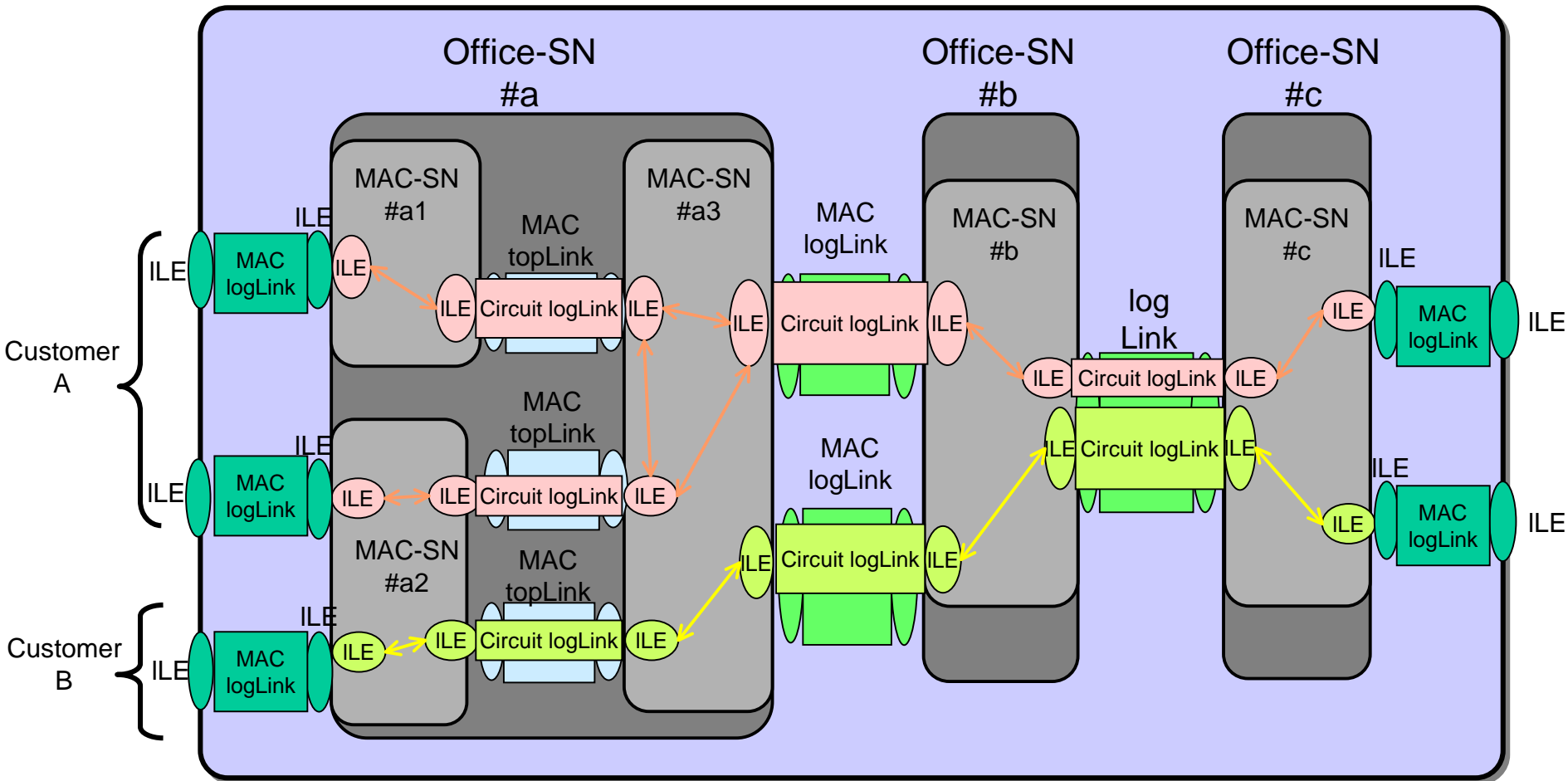
SN : Subnetwork

logLink : logical Link

ILE : logical Link End

Network level View

Carrier SN

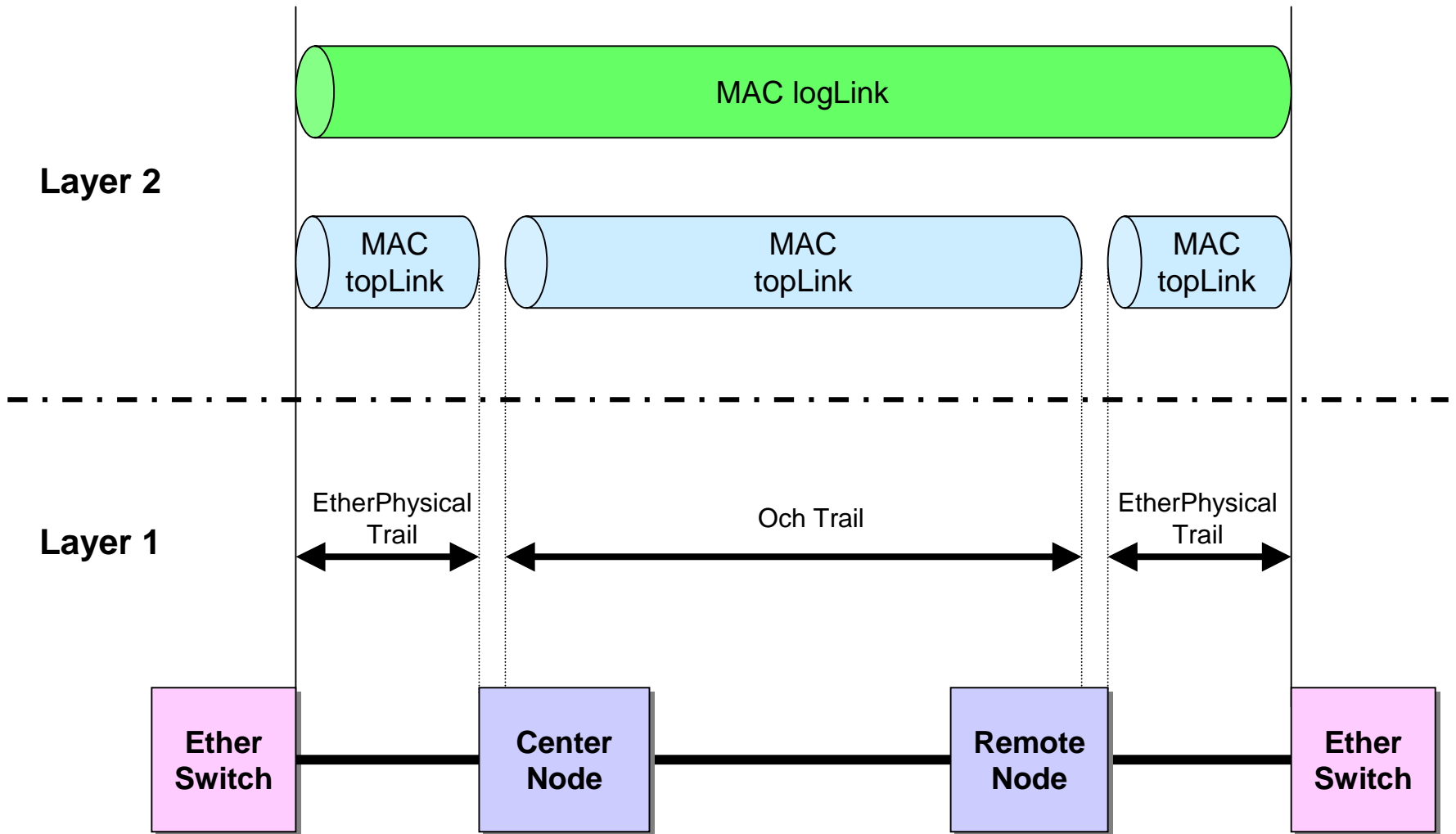


SN : Subnetwork

logLink : logical Link
topLink : topological Link

ILE : logical Link End
tLE : topological Link End

Decomposition of MAC logical Link



logLink : logical Link topLink : topological Link

- Key NE/Network/Service management information model was produced
 - WDM modeling in Layer 1
 - CUG, bandwidth policing, spanning tree etc. modeling for Layer 2
- Next step
 - Detailed specifications and scenarios using UML
 - Which protocol to use in the heterogeneous network