Two Physical Layers

For 10 Gigabit Ethernet

27-September-1999

Howard Frazier - Cisco Systems

Two Physcial Layers for 10 Gigabit

hmf

IEEE 802.3
HSSG

Page 1 of 6

27-September-1999

Outline

- Observations

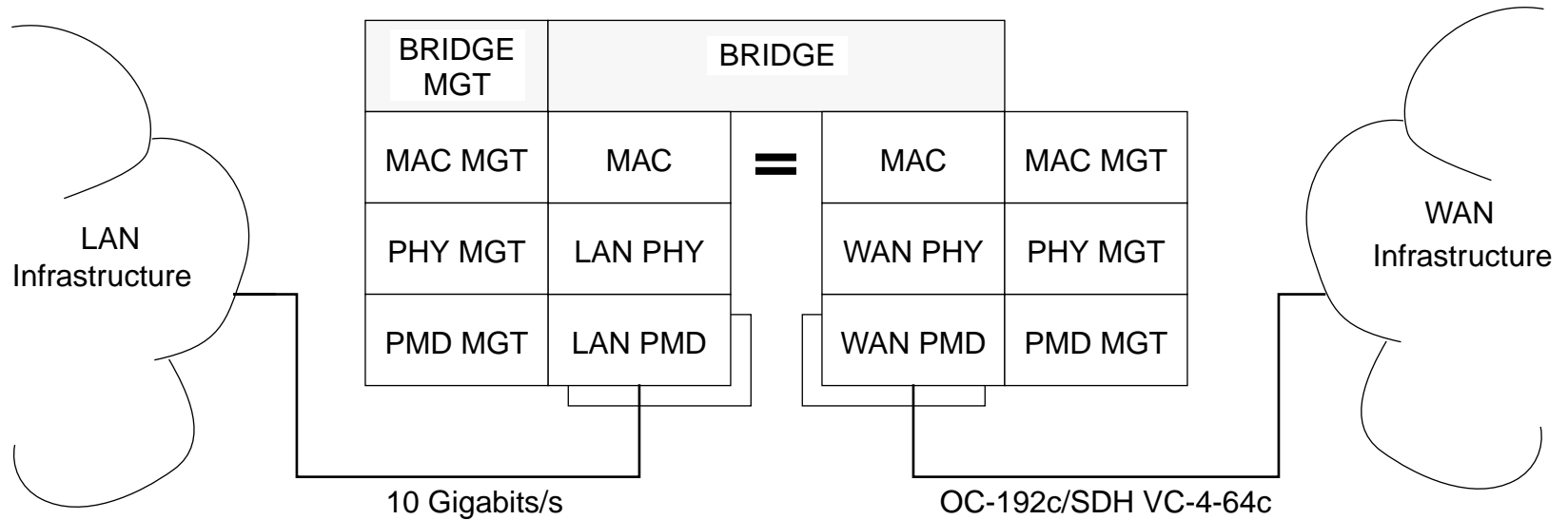- Proposal

- Model

- Objectives

Observations

- HSSG has been arguing about the "speed" objective for months
    - LAN people want the PHY to be optimized for the LAN
    - WAN people want the PHY to be optimized for the WAN
- No apparent way to achieve consensus on a single PHY
- 802.3 has defined multiple PHYs at other speeds
    - 100BASE-T4, 100BASE-X, 100BASE-T2
    - 1000BASE-X, 1000BASE-T

Proposal

- Two PHYs at 10 Gigabit- **Compromise, in order to optimize:**

    - Data rate

    - Management

    - Framing

    - Coding

    - Clocking

    - Sublayer interfaces

Model

BRIDGE MGT	BRIDGE			
MAC MGT	MAC	=	MAC	MAC MGT
PHY MGT	LAN PHY		WAN PHY	PHY MGT
PMD MGT	LAN PMD		WAN PMD	PMD MGT

LAN Infrastructure

WAN Infrastructure

10 Gigabits/s

OC-192c/SDH VC-4-64c

Objectives

- Speed of 10.0000 Gb/s at the MAC/PLS service interface

- Define two PHYs:

    - A LAN PHY, operating at a data rate of 10.0000 Gb/s

    - A WAN PHY, operating at a data rate which is compatible with the payload rate of OC-192c/SDH VC-4-64c

- Define a mechanism to adapt the MAC/PLS data rate to the data rate of the WAN PHY