



IEEE 802.17 RPR Working Group

# **Why a New PHY Is a Bad Idea**

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# Why a New PHY Is a Bad Idea

- • 802.17 objectives explicitly state MAC is required to comply with the existing Gigabit and 10 Gigabit Ethernet PHY standards. Quote from January 2001 Objectives:
  - “4) Define mapping of MAC frame into existing PHY layers
    - OC-48c, OC-192c SONET/ SDH
    - 1 Gb/ s Ethernet PHY
    - 10 Gb/ s Ethernet (LAN and/or WAN) PHY”

Quote from March 2001 Requirements:

“The 802.17 RPR Standard shall support and comply with Gigabit Ethernet SAP (Service Access Point).”

- • Defining changes to an existing Ethernet PHY standard is the same as defining a new PHY. This requires a new PAR.

# Why a New PHY Is a Bad Idea

- RPR has often been advertised as providing resiliency of SONET/SDH on an Ethernet physical layer. Removing this capability will violate the 5 criteria.
- Introducing a new PHY, such as Packet PHY, at this stage of the process will open a huge can of worms and will greatly damage the RPR standardization efforts, as it will cause a long delay.
- This will also hurt RPR market potential in general.
- The fact is that there are some differences in the modes of operation of 802.17 PHY and Ethernet PHY, which are not necessarily incompatible with Ethernet PHY standards.

# Why a New PHY Is a Bad Idea

- The stated goal of the 802.17 standards has been to define a new MAC standard, which will work with the existing PHYs. It's the RS's responsibility to provide compatibility between the new MAC and the existing PHYs.
- That the 802.3 might block the approval of 802.17 based on the PHY, is a valid point but it should not be an excuse to make major changes in the standards, which is already six months passed the deadline for technical changes.

# Some Technical Points

- Flow control is the MAC function.
- Fault behavior differences can be taken care of in the reconciliation sub-layer.
- Packet size is important to PHY specification and needs to be addressed.
  - ○ For minimum size packets we can make MAC configurable to be limited to 64B if PHY does not support smaller sizes.
  - ○ Maximum size is tricky as even a packet with 1500B payload plus all the MAC and RPR header will become bigger than 1522B. But we don't know of any Ethernet PHY that has any problem with packets of around 1600B.

# Suggested Remedy

- Forward the issue of 802.17 compatibility with Ethernet PHYs to an 802.3 liaison committee and try to convince them that there won't be any issues. Lantern will volunteer to take up this action item.
- In case, there are still unresolved issues, we would suggest the formation of a PHY ad-hoc in order to recommend minor modifications to 802.17 draft in order to be able to use Ethernet PHY as is, instead of defining a new PHY.