

PreFEC BER Signaling Features

David Ofelt – Juniper Networks

Pete Anslow – Ciena

Mark Gustlin – Xilinx

Gary Nicholl - Cisco

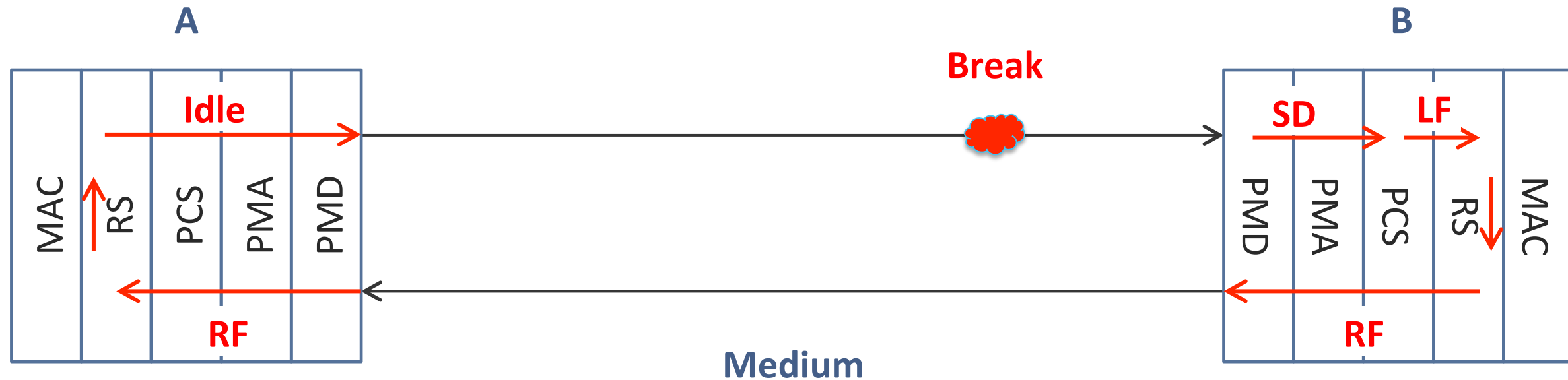
2016-05 Whistler

Supporters

Background

- Working to add PreFEC BER monitoring features to 802.3bs
 - maki_3bs_01a_1115.pdf – Background and Justification
 - ofelt_3bs_01a_0116.pdf – Initial proposal
 - ofelt_3bs_01_0316.pdf
 - ofelt_3bs_01_0416_logic.pdf
- Status:
 - Detailed PreFEC SER signaling proposal made at March meeting
 - Consensus is positive for the features, but not the current details
 - Punted it to the May meeting so we can work out the issues
 - Presented at last logic ad-hoc meeting
 - Lots of feedback and work from Pete Anslow and Mark Gustlin

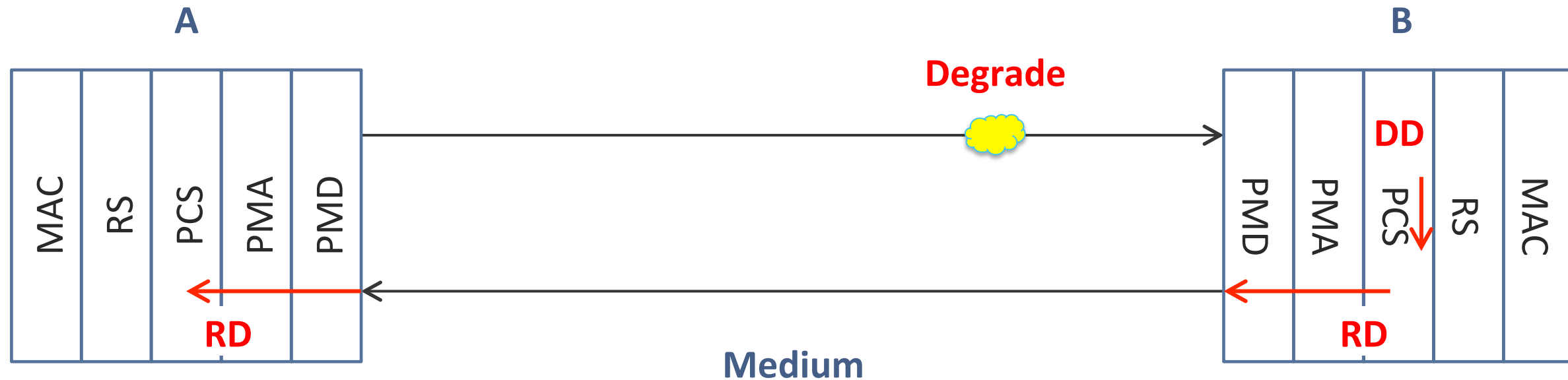
Existing local fault / remote fault



Use-case figures from Pete Anslow, Ciena

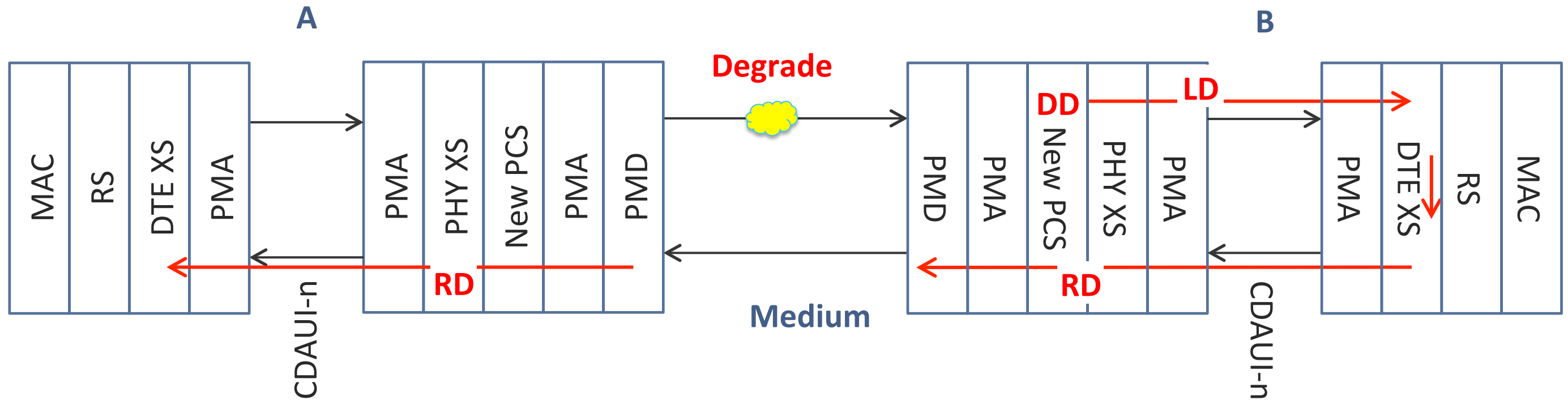
- PMD Rx at B sets SIGNAL_DETECT (SD) to FAIL
- PCS at B sends local fault (LF) to RS at B
- RS at B sends remote fault (RF) to A
- RS at A receives RF and sends all idle characters

Pre-FEC degrade no extender sublayer



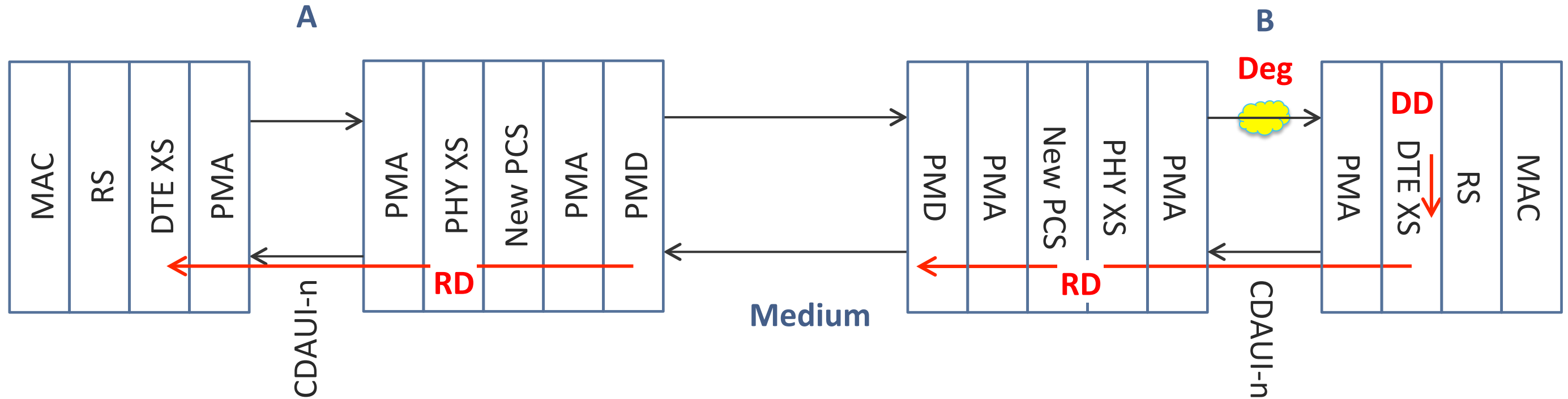
- PCS at B exceeds pre-FEC symbol error ratio (SER) threshold and detects degrade (DD)
- PCS at B sends remote degrade (RD) to PCS at A
- Traffic unaffected

Pre-FEC degrade with extender sublayer 1



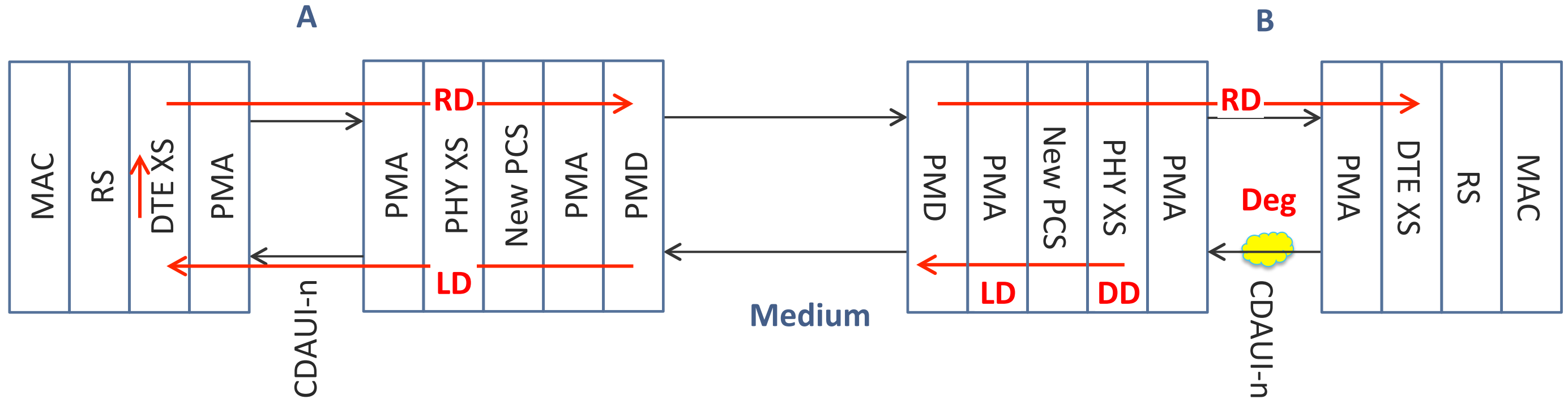
- New PCS at B exceeds pre-FEC symbol error ratio (SER) threshold and sends local degrade (LD) to DTE XS at B
- DTE XS at B sends remote degrade (RD) to DTE XS at A
- Traffic unaffected

Pre-FEC degrade with extender sublayer 2



- DTE XS at B exceeds pre-FEC symbol error ratio (SER) threshold and sends remote degrade (RD) to DTE XS at A
- Traffic unaffected

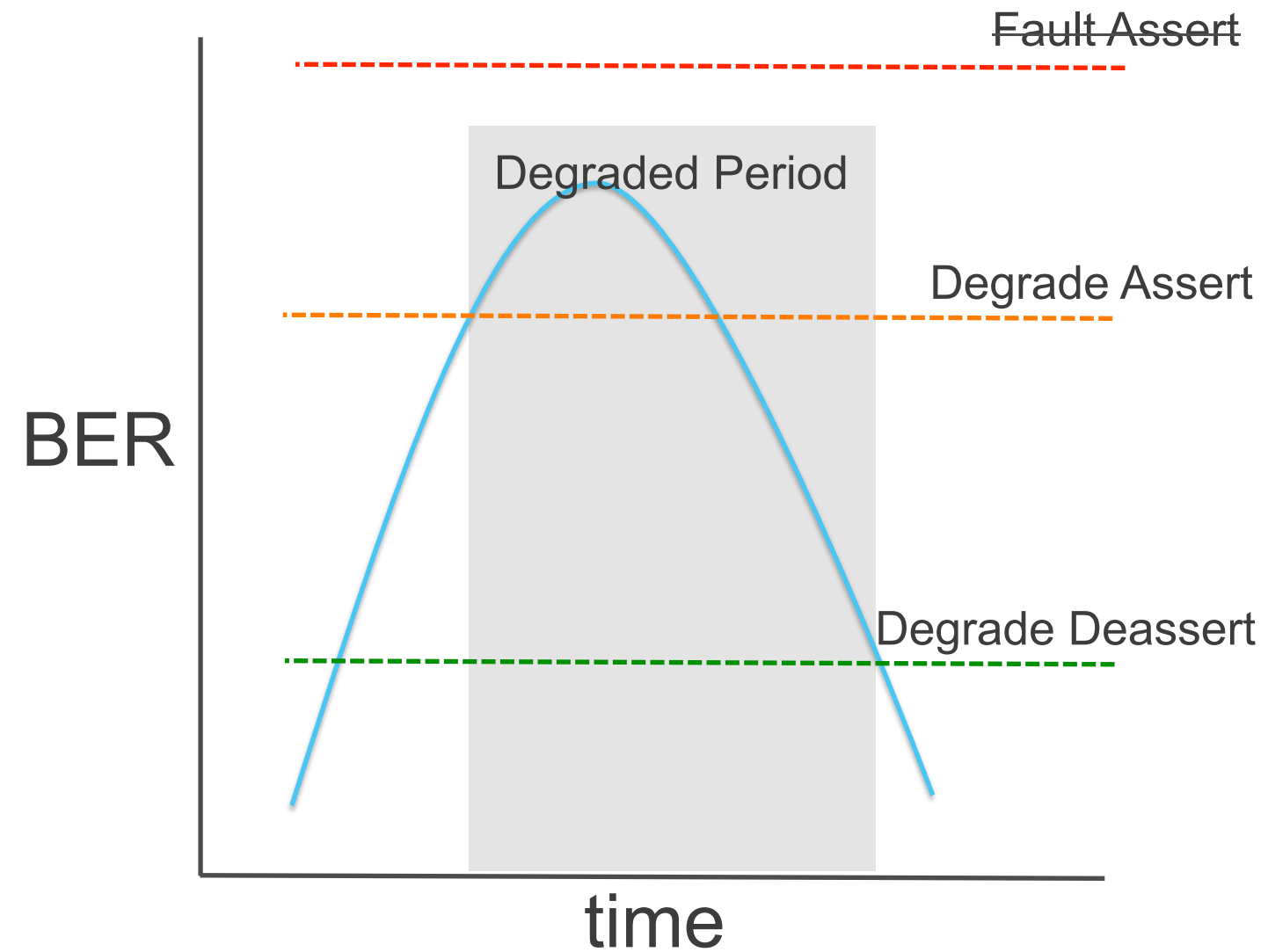
Pre-FEC degrade with extender sublayer 3



- PHY XS at B exceeds pre-FEC symbol error ratio (SER) threshold and sends local degrade (LD) to DTE XS at A
- Traffic unaffected

PreFEC ~~Fault~~ and Degradate

- ~~Fault~~
 - ~~Single threshold & interval~~
- Degradate
 - Separate activate and de-activate threshold with shared interval



Changes From March

- Removed PreFEC Fault feature
 - Consensus was that it did not add much value
- FEC Degrade SER feature now uses a single interval
 - Still has separate Assert and Deassert thresholds
- Extender Sublayer support formalized
 - DTE XS == Host side of the Extender Sublayer
 - PHY XS == External device side of the Extender Sublayer

Overview of Edits

- Edits presented as separate document
 - Changes made against a pre-release version of D1.4 to simplify logistics
- Clauses modified:
 - 45 – new and updated management registers
 - 118 – Changes for the Extender Sublayer
 - 119 – Changes for the PCS
- Some complexity due to the way we document PCS, DTE XS, and PHY XS layers

Review Document

ofelt_3bs_02_0516.pdf – clause 118 edits
ofelt_3bs_03_0516.pdf – clause 119 edits

Thanks
