



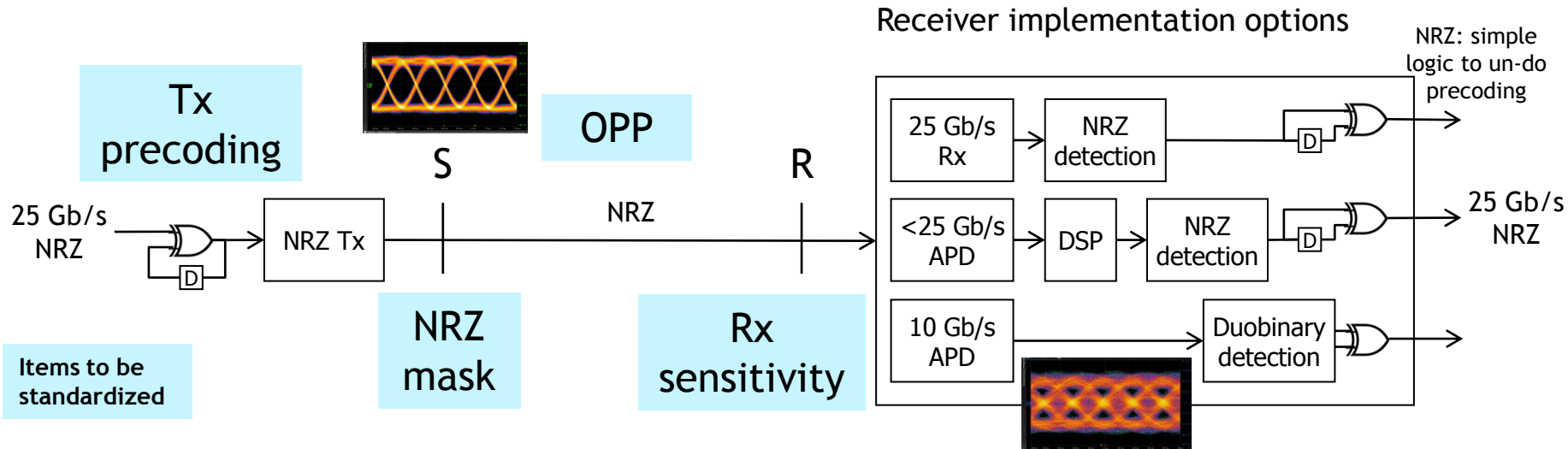
# NG-EPON unified signaling proposal

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Nov. 2015

# NG-EPON unified signaling proposal using NRZ transmission



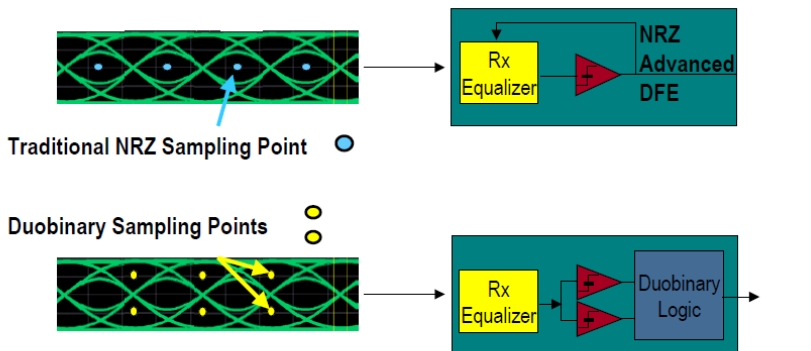
Items to be standardized

- **25 Gb/s Tx**
  - For downstream, cost is shared in the OLT
  - For upstream, only need for symmetrical (premium services)
  - Residential services can be 25G/10G

- **Receiver implementation left to**
  - vendor innovation and
  - evolution of technology.
- **Risk mitigation- no commitment to single solution**
- **No IPR issues**

# Unified signaling proposals for NRZ and duobinary receivers considered in 802.3ap (backplanes)

## Unified Signaling: Presenting a Common Signal at channel output that can be sampled by Either NRZ or DB Rx's



Xilinx Confidential



## Precoding considerations

### Conclusion / Recommendation

VITESSE

- ▶ Normative two-level transmitter must include a precoder
  - ▶ In the duobinary receiver
    - ▶ Eliminates unbounded error propagation
    - ▶ Decoder is a simple XOR gate
  - ▶ In the NRZ receiver
    - ▶ Trivial differential decoder required
    - ▶ Error propagation limited to 2 bits
- ▶ Approach provides maximum flexibility in receiver design options while minimizing overall circuit complexity in Tx and Rx

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9

[http://www.ieee802.org/3/ap/public/nov04/seemann\\_01\\_1104.pdf](http://www.ieee802.org/3/ap/public/nov04/seemann_01_1104.pdf)

[http://www.ieee802.org/3/ap/public/nov04/srivastava\\_01\\_1104.pdf](http://www.ieee802.org/3/ap/public/nov04/srivastava_01_1104.pdf)

Every success  
has its network