

# IEEE P802.3bf

## Data delay

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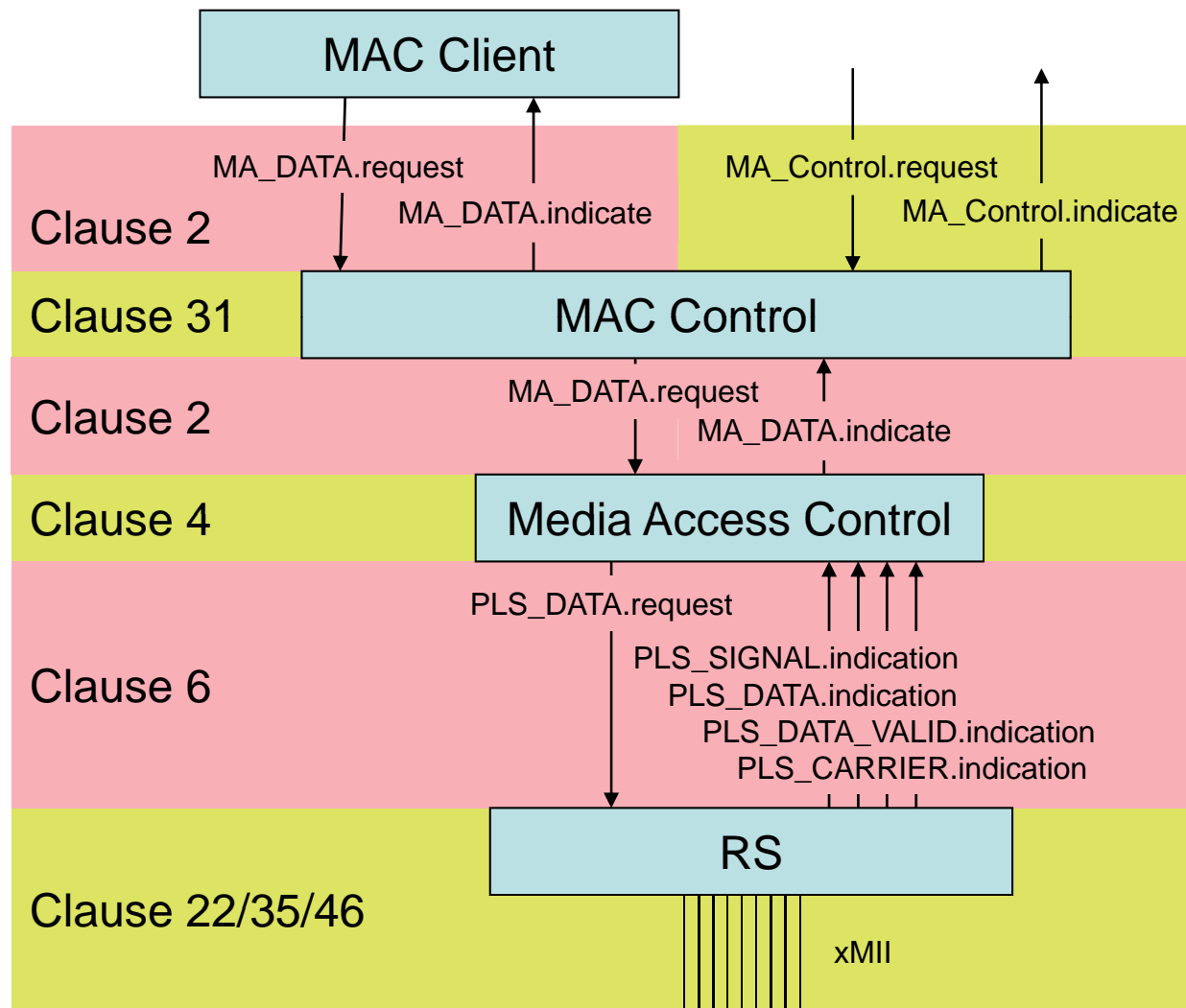
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# Review of sublayers and interfaces



# Abstract Service Interface

- Clause 2 MAC Service Interface example

MA\_DATA.request ( destination\_address, source\_address,  
mac\_service\_data\_unit, frame\_check\_sequence)

This primitive defines the transfer of data from a MAC client entity to a single peer entity or multiple peer entities in the case of group addresses.

MAC Client output  
MA\_DATA.request  
(MAC Service  
interface)

MA\_DATA  
.request(..)

MA\_DATA  
.request(..)

- Clause 6 Physical Signaling (PLS) service Interface example

PLS\_DATA.request (OUTPUT\_UNIT)

The OUTPUT\_UNIT parameter can take on one of three values: ONE, ZERO, or DATA\_COMPLETE and represent a single data bit. The DATA\_COMPLETE value signifies that the Media Access Control sublayer has no more data to output.

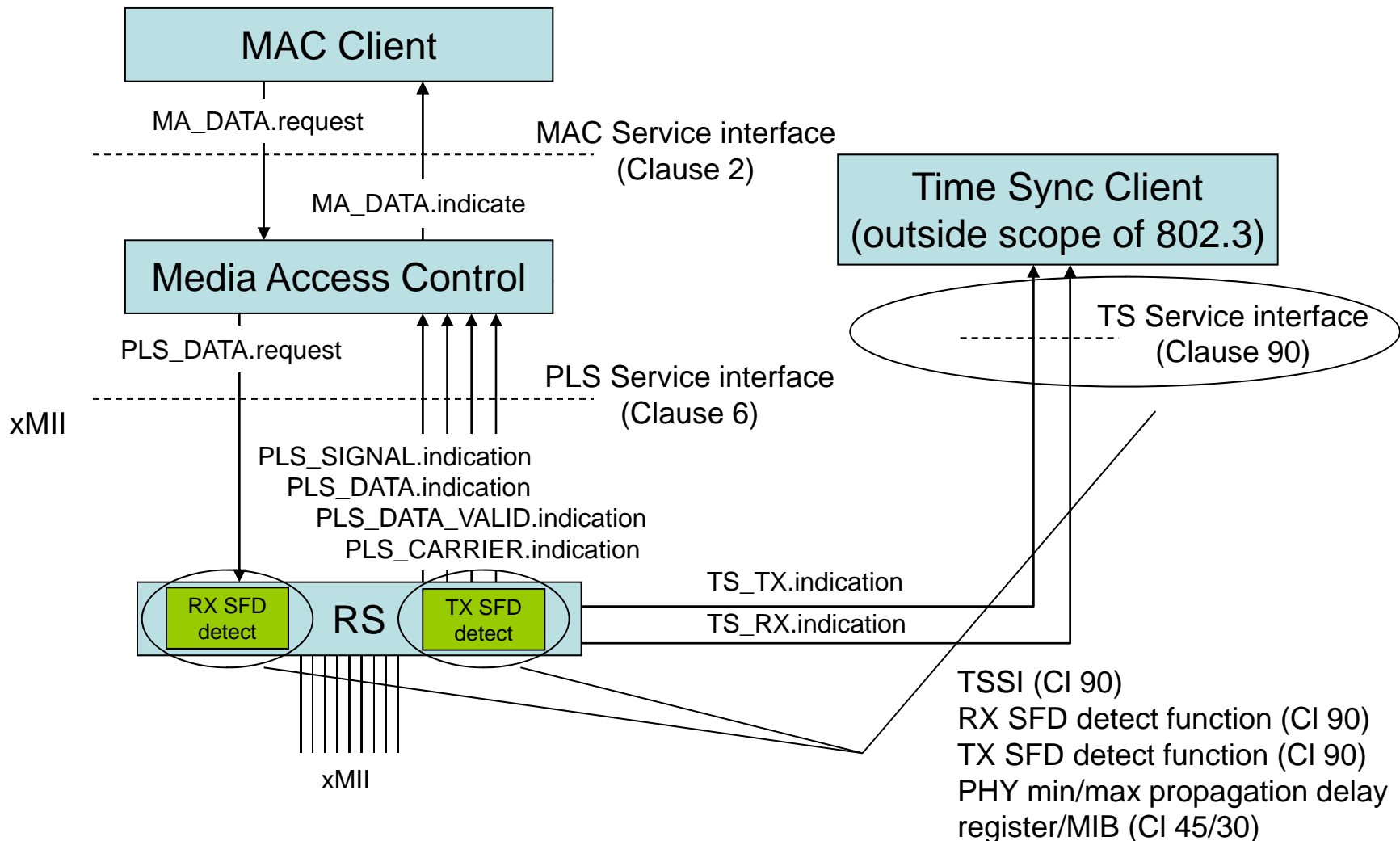
MAC output  
PLS\_DATA.request  
(PLS Service  
interface)

ZERO ZERO ZERO ZERO ONE ZERO ONE D C

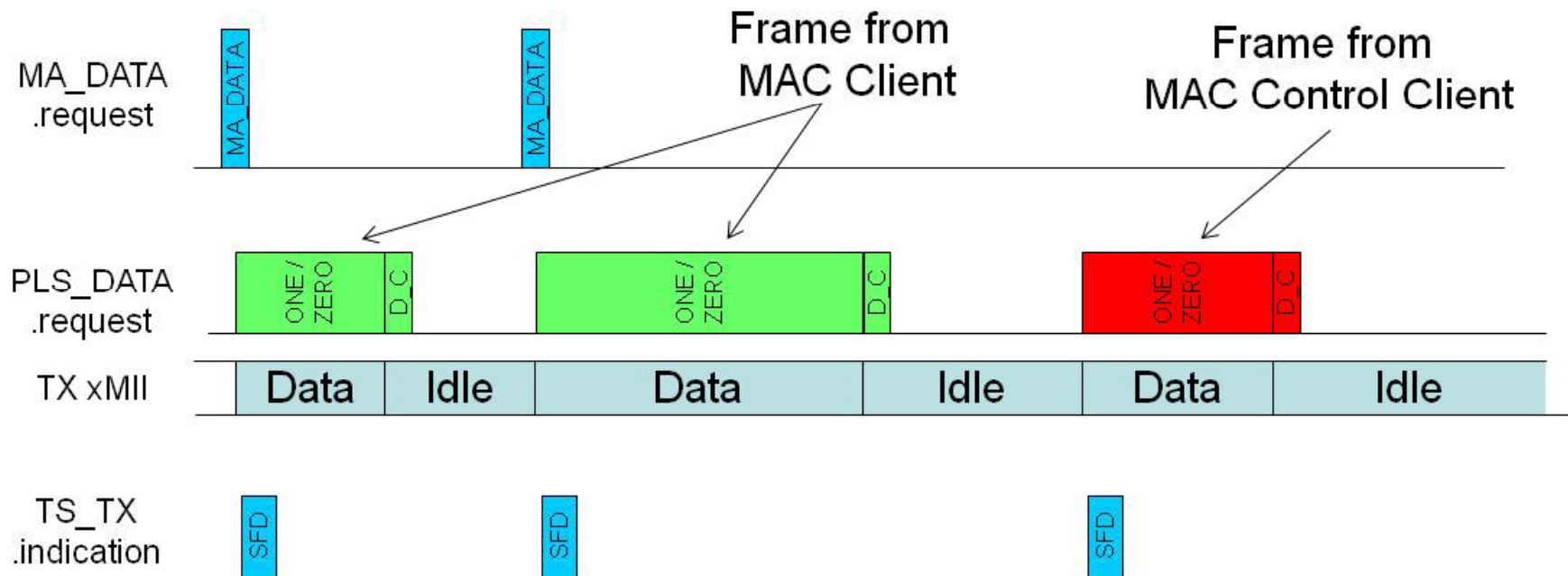
ONE ZERO ONE ZERO ONE ZERO

NOTE – The above is only an **illustration** of the abstract messages passing interface – messages are instantaneous

# IEEE P802.3bf architecture

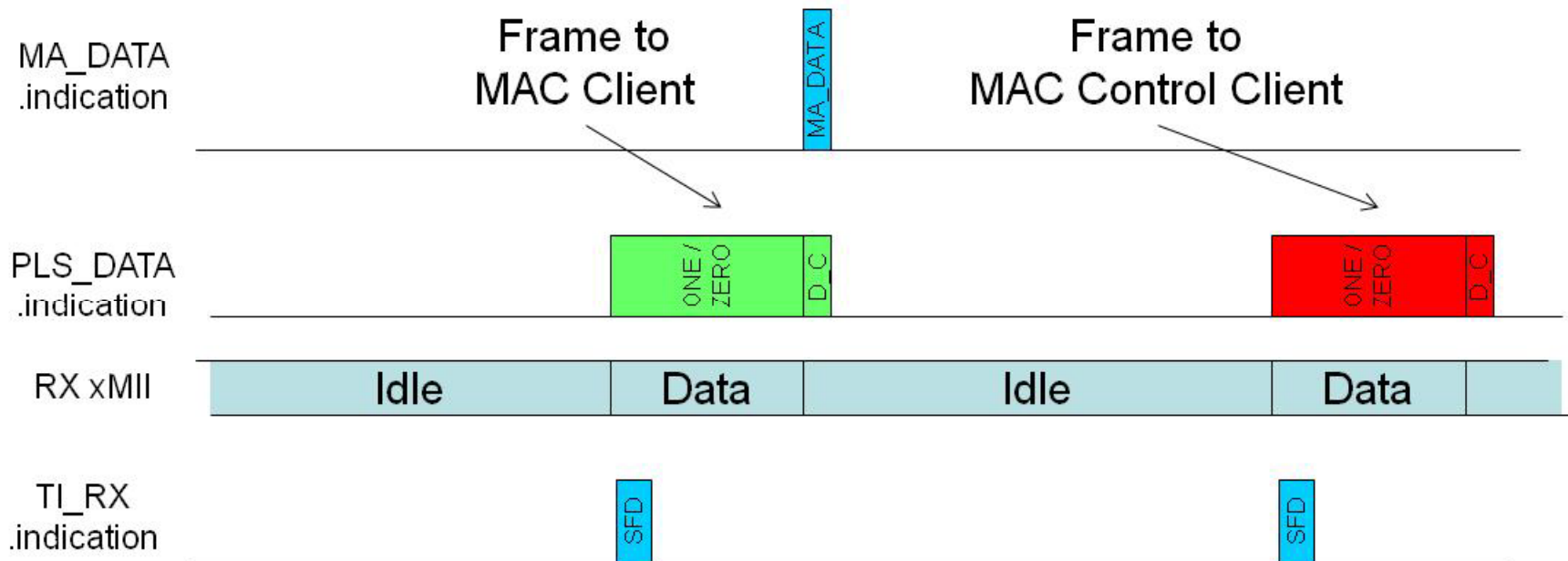


# Interface operation – TX path



- Represents operation in the transmit direction
- TS\_TX.indication is generated for all frames detected at xMII using TS\_SFD\_Detect\_TX function: both data and control frames generate SFD indication
- Correlation between SFD indication and frame transmission is needed in the Synchronization MAC Client

# Interface operation – RX path



- Represents operation in the receive direction
- TS\_RX.indication is generated for all frames detected at xMII using TS\_SFD\_Detect\_RX function: both data and control frames generate SFD indication
- Correlation between SFD indication and frame transmission is needed in the Synchronization MAC Client

# Delay measurement

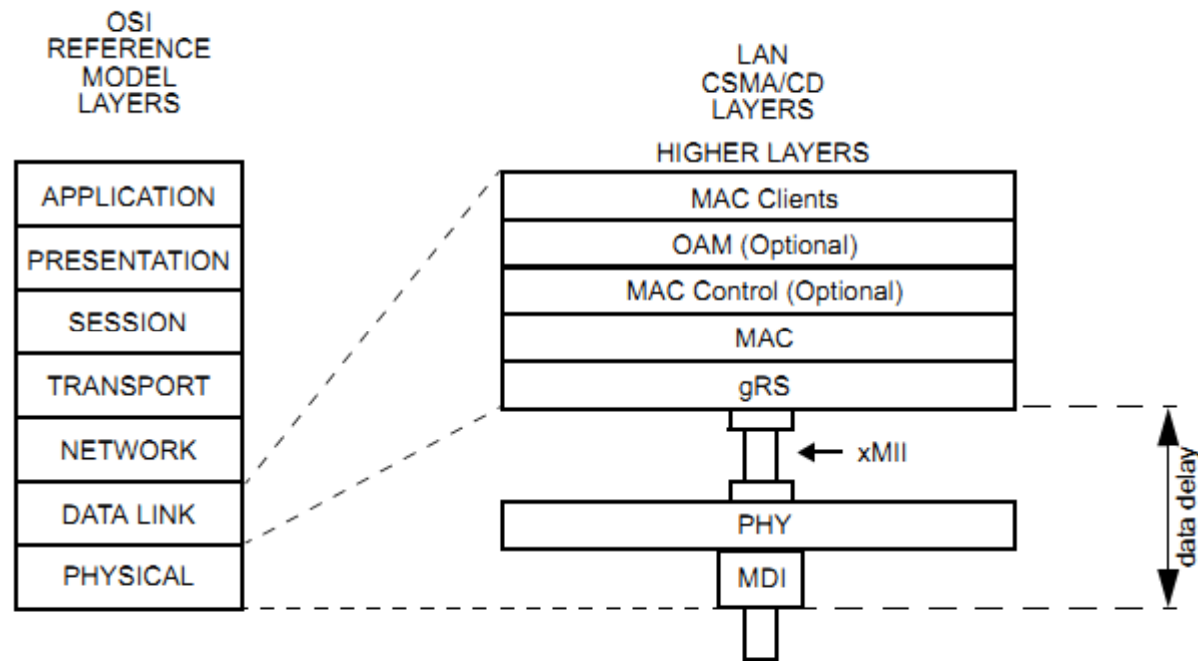


Figure 90-3—Data delay measurement

- Performed between the bottom of MDI and top of xMII (units of ns)
- Covers the absolute min/max delay in transmit/receive path for:
  - Whole path (managed objects in clause 30), representing the total of delays for all instantiated sublayers (registers in Clause 45)
  - Individual instantiated sublayers (registers in Clause 45)

# Delay terminology

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- Considerable discussion in P802.3bf TF on terminology
- P802.3bf TF felt “latency” was a broader, somewhat ambiguous term that had system-wide ramifications—therefore not appropriate
- Decided on “data delay” as a precise term for what’s being reported
  - Whole path (managed objects in clause 30), representing the total of delays for all instantiated sublayers (registers in Clause 45)
  - Individual instantiated sublayers (registers in Clause 45)
  - Reported as a quartet of 32-bit unsigned integer registers (nanoseconds) data delay
    - TX path minimum
    - TX path maximum
    - RX path minimum
    - RX path maximum