PFC State Diagrams

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MA_CONTROL Primitives

- MA_CONTROL.request
  
  (destination_address
   opcode
   request_operand_list)

- MA_CONTROL.indication
  
  (opcode
   indication_operand_list)
PAUSE Receive State Diagram

- Opcode = pause_command

WAIT FOR TRANSMISSION COMPLETION

- Transmission_in_progress = false
- (DA = reserved_multicast_address) + (DA = phys_Address)
- (DA ≠ reserved_multicast_address)
- (DA ≠ phys_Address)

PAUSE FUNCTION

- n_quanta_rx = data[17:32]
- Start pause_timer (n_quanta_rx * pause_quantum)

UCT

END PAUSE
PAUSE Indication State Diagram

BEGIN

NOT PAUSED

pause_status = not_paused
MA_CONTROL.indication(pause_command, pause_status)

pause_timer_Done = false

PAUSED

pause_status = paused
MA_CONTROL.indication(pause_command, pause_status)

pause_timer_Done = true
802.3bd PFC Receive State Diagram

PFC VALIDATE ADDRESS

\[ \text{PFC VALIDATE ADDRESS} \]

\[ \text{opcode} = \text{pfc\_command} \]

\[ \text{(DA} = \text{reserved\_multicast\_address}) + \]
\[ \text{(DA} = \text{phys\_Address}) \]

PFC INDICATION

\[ \text{MA\_CONTROL\_indication (} \]
\[ \text{pfc\_command,} \]
\[ \text{pfc\_operand\_list)} \]

UCT

PFC DONE

\[ \text{(DA} \neq \text{reserved\_multicast\_address}) * \]
\[ \text{(DA} \neq \text{phys\_Address}) \]
802.1Qbb PFC Indication State Diagram (1)

WAIT FOR TRANSMISSION COMPLETION

The frame completed transmission

(PFC.indication with (e[n] = 1) * (time(n) ≠ 0)) *
(no frame is being transmitted)

PRIORITY N PAUSED

Do not select frames at priority n for transmission
Start priority_n_timer (time(n) * pause_quantum)

(priority_n_timer_done) +
(PFC.indication with (e[n] = 1) * (time(n) = 0))

PRIORITY N NOT PAUSED

Allow selection of frames at priority n for transmission

Per Priority n
802.1Qbb PFC Indication State Diagram (2)

- PFC.indication with \( (e[n] = 1) \)

**WAIT FOR TRANSMISSION COMPLETION**

- The frame completed transmission

**PRIORITY N TIMER**

- Start priority_n_timer \( (\text{time}(n) \times \text{pause quantum}) \)

**UCT**

**PFC.INDICATION DONE**

Per Priority n
802.1Qbb PFC Operation State Diagram

Per Priority n

- **Priority_n_timer_Done = false**

  - **Priority n NOT PAUSED**
    - Allow selection of frames at priority n for transmission

  - **Priority n PAUSED**
    - Do not select frames at priority n for transmission

- **Priority_n_timer_Done = true**
Implementation Delay? (1)

Per Priority n

- **Priority n NOT PAUSED**
  - Allow selection of frames at priority n for transmission
  - Priority_n_timer.Done = false
  - **IMPLEMENTATION DELAY**
    - Start implementation_delay_timer
    - Implementation_delay_timer_done = true
    - **Priority n PAUSED**
      - Do not select frames at priority n for transmission
      - Priority_n_timer.Done = true
Implementation Delay? (2)

**WAIT FOR TRANSMISSION COMPLETION**

(PFC.indication with (e[n] = 1) * (time(n) ≠ 0)) *

(a frame is being transmitted)

The frame completed transmission

(PFC.indication with (e[n] = 1) * (time(n) ≠ 0)) *

(no frame is being transmitted)

**IMPLEMENTATION DELAY**

Start implementation_delay_timer

Implementation_delay_timer_done = true

**PRIORITY N PAUSED**

Do not select frames at priority n for transmission

Start priority_n_timer (time(n) * pause_quantum)

(priority_n_timer_done) +

(PFC.indication with (e[n] = 1) * (time(n) = 0))

**PRIORITY N NOT PAUSED**

Allow selection of frames at priority n for transmission

Per Priority n
Implementation Delay (3)

- Or what???
Thank You