Report from P802.1Qdq Editor

The current status

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The current status

- Finished the last ballot to D0.2 on 15th of Nov.
- Resolved all the comments except for #4
  - Please check 802-1Qdq-d0-2-pdis-v01.pdf
- Max posted a new comment to the 802.1 email list.

- The editor is also working to switch its base document from 802.1Q-2018 to 802.1Q-2022.

Contribution from Toru

- Toru, the contributor of the original text, provides his proposal of the remedies for the remaining comments.

Backup

Discussion from the Editor's point of view

- I also investigated the base document, 802.1Q-2022.

- Keep in mind the difference between the viewpoints of
  application developers and
  network administrators/designers
- Application developers use 802.1Q as a tool and don't care inside the network. They are only aware of boundary inside and outside of 802.1Q network, that is, APIs.
- Network administrators are aware of inside the network.

What is “Latency”?

- 802.1Q-2022 defines ”Latency” as follows;

  3.120 latency: The delay experienced by a frame in the course of its propagation between two points in a network, measured from the time that a known reference point in the frame passes the first point to the time that the reference point in the frame passes the second point.
  NOTE—Latency is sometimes referred to as frame delay.

How to estimate “Latency”?

- 35.2.2.8.6 Accumulated Latency
  …
  The initial value sent by the Talker is set to portTcMaxLatency plus any amounts specified in the REGISTER_STREAM.request, and its value is increased by each Bridge as the Talker Declaration propagates through the network.

  The portTcMaxLatency per hop is equal to the sum of the following:

  a) (equal or higher priority traffic) the time required to empty the queue in which frames of that priority are placed, if that queue and all higher priority queues are full.

  b) (lower priority traffic) the time required to transfer one lower priority frame of maximum size that could have just started transmitting as the current priority frame was queued up.

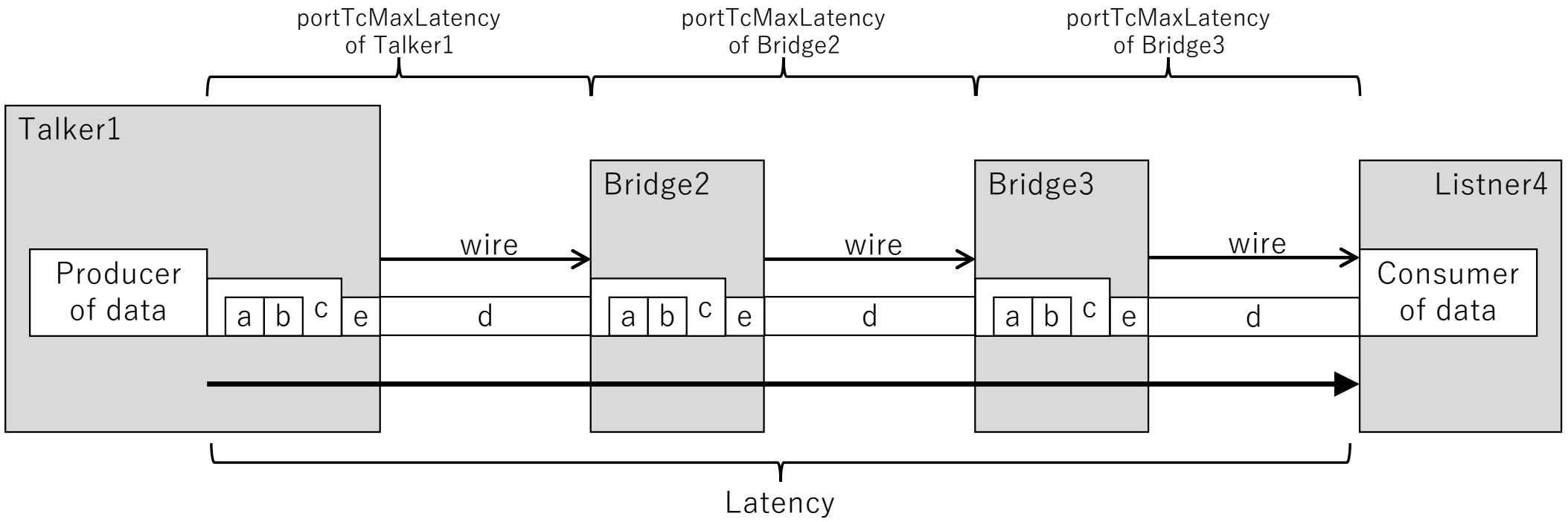
  c) (internal processing) the worst-case time required by the Bridge to transfer a received frame from the input port to the output queue.

  d) (wire propagation time) the time required for the first bit of the frame to propagate from the output port to the receiving device.

  e) (media access delay) the time required to wait for the media to become available for transmission.
- This means that AccumulatedLatency includes Talker’s portTcMaxLatency.

Breakdown along a path

The Latency consists of $a_1 + b_1 + c_1 + e_1 + d_1 + a_2 + b_2 + \cdots$



Get back to the definition

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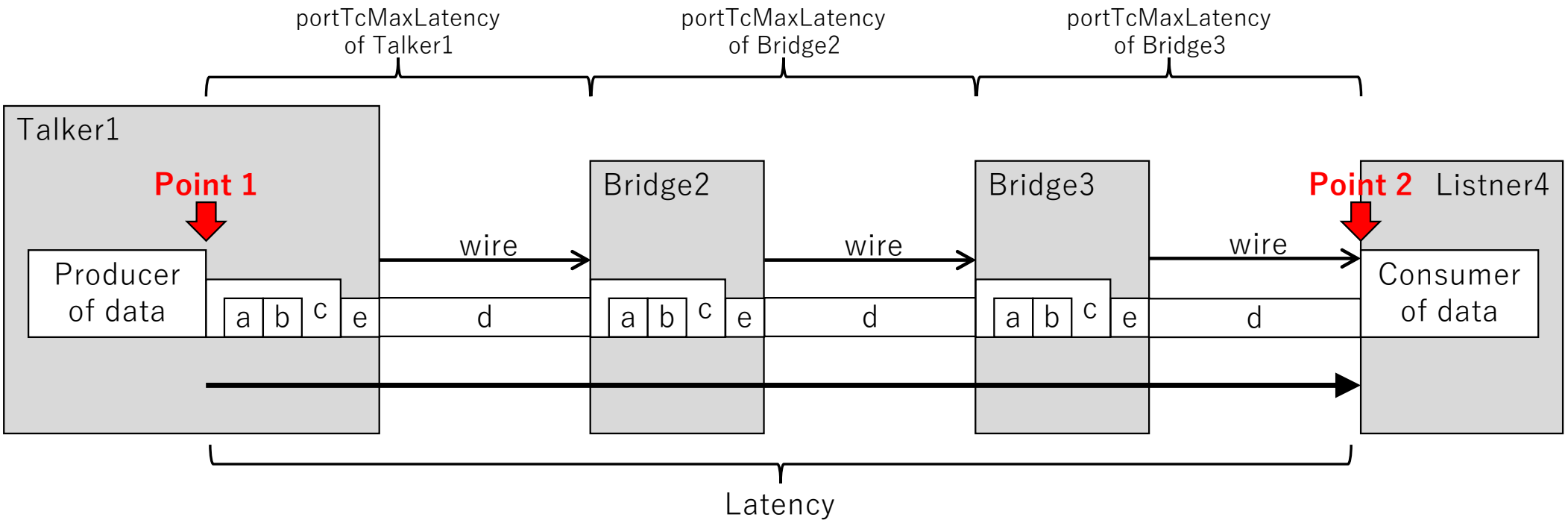
Where are “two points in a network”?

What are ”in a network”? How about Producer/Consumer of data?



What is “Talker”?

- 802.1Q-2022 says;

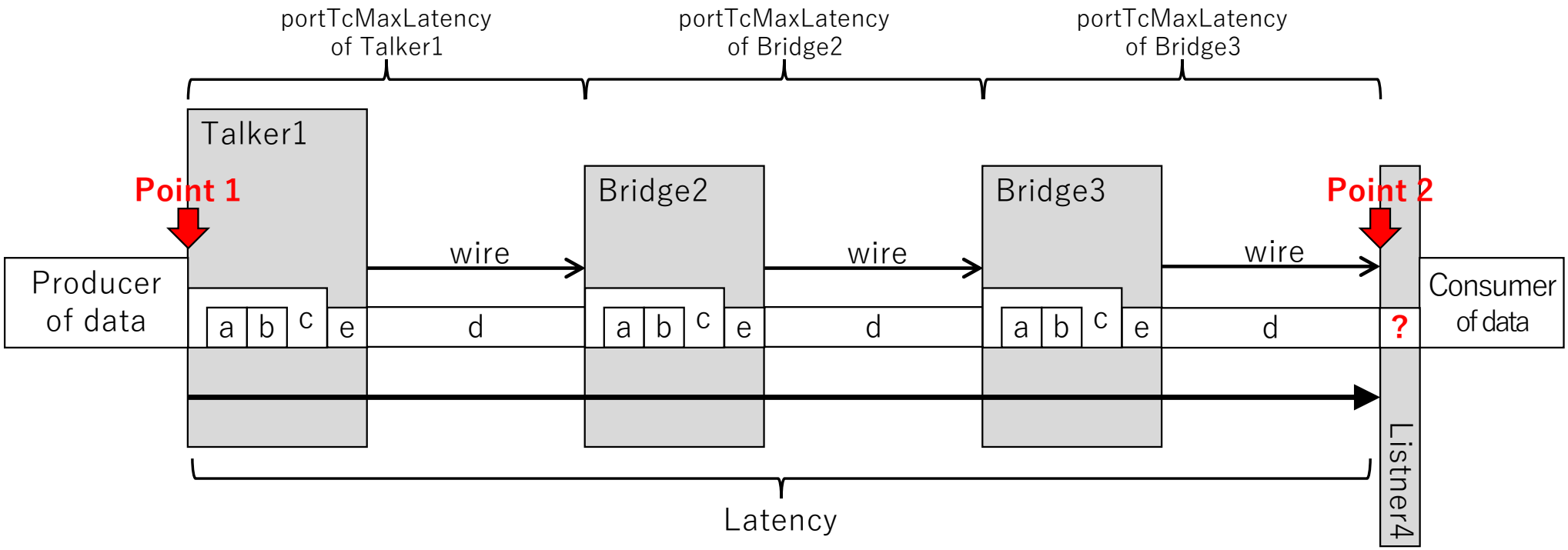
  3.268 Talker: The end station that is the source or producer of a stream.

- 802-2014 says;

  end station: A functional unit in an IEEE 802® network that acts as a source of, and/or destination for, link layer data traffic carried on the network.

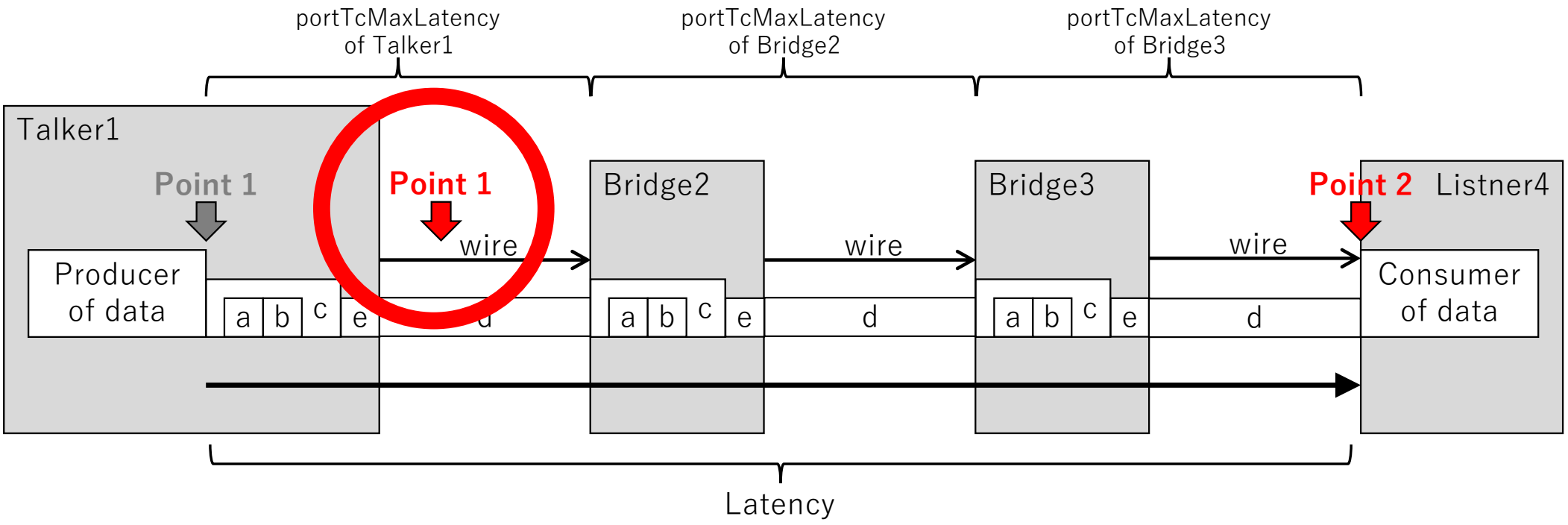
If Producer/Consumer is not “in a network”

Should implementers consider Listener’s processing time?



Common Misconception?

802.1Q has no parameters denoting *a*+*b*+*c*+*e* and *d* separately.



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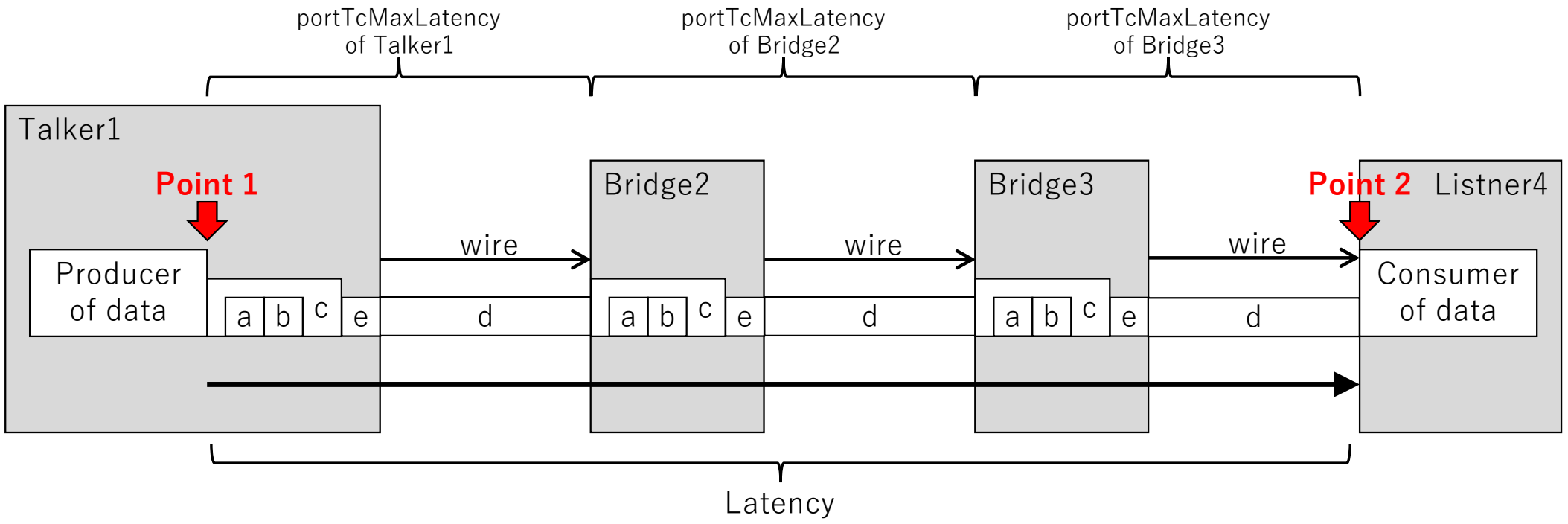
“The time that a known reference point in the frame passes the first point”

How do frames “pass” Point 1? Is it possible to be timestamped at Point 1?



Questions

- The definition and usages of “Latency” seems to contain some of inconsistency/opaque description. At least, this can lead the readers to misunderstanding.

Is my understanding correct?

- Qdq is not intended to modify the normative text, therefore, the editor does not intend to modify the definition. However, the editor is thinking if Qdq can provide some of hints about the definition/structure of ”Latency.”

Is this idea suitable for Qdq project?