Text Contribution for P802.1Qdq

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FLEXIBLE SOCIETY PROJECT

FLEXIBLE FACTORY PROJECT

What do we propose to update?

- Base proposal
  - https://www.ieee802.org/1/files/public/docs2021/dq-itaya-cas-text-contribution-0721-v1.pdf

1. Clause Y.2 “The whole block data requires to reach…”
   - To clarify at what point the latency is measured.
2. Clause Y.2 No explanation of fragmentation
   - To add proper definitions and let the readers remember that strategies of fragmentation affect other traffic.
3. Figure Y-5 “Worst-case latency calculation”
   - To clarify latency calculation

1. Add text to the definition of reception time

Add ~~Remove~~

- For accurate description in the second paragraph of Y.2, which explains Figure Y-3, some additional text is proposed as below:

- *Current:* ~~The whole block data~~ requires to reach the corresponding receiving application through the bridged network by the time t'_i that is equal to or less than t_i plus “Bounded Latency.”

- *Proposed:* The known reference point (clause 3.118) in the last frame of the frame cluster requires to reach the corresponding receiving application through the bridged network by the time t'_i that is equal to or less than t_i plus “Bounded Latency.”

2. Add some explanation of fragmentation

- In this annex, “block data” is supposed to be fragmented into “a frame cluster,” however the annex does not explain how to fragment.
  1. proper definition and expression of fragmentation
     - definitions of n(i), frameLength(i,k)
     - explanation of dataSize(i)
  2. how to configure these parameters
     - they are decided based on other than MTU, e.g. classMeasurementInterval.

2. Add some explanation of fragmentation (cont.)

Add ~~Remove~~

- Proposed changes are:

1. definitions

- In the middle of the next paragraph of Figure Y-3:

  …than “Data Size” and may be greater than frames the bridged network can handle without any problem. Therefore, the block data is fragmented into a frame cluster comprising *n(i)* frames whose indices *k* are from 1 to *n* and whose sizes are *frameLength(i,k)* respectively, and each frame is transmitted in order. The whole block data requires to reach the corresponding receiving application through the bridged network…

- After Equation Y-1, add the following text:

  Note that *dataSize(i)* may be greater than each size of block data itself, i.e. Data(*i*) because fragmentation mechanism may need extra data in general.

- At last of Clause Y.2, add the following text:

  Note that *n(i)* and *frameLength(i,k) should be configured carefully by the system implementor because they affect other traffic in the network and depend on the parameters of the network, e.g. classMeasurementInterval, etc.*

2. how to configure

3. Clarify worst-case latency calculation

To clarify worst-case latency calculation in Y.4.1,

- make clear the relationship among bounded latency, accumulatedLatency, and latency caused by shaping
- review technical terms:
  - replace the term “targetLatency” with “latencyBudget”
  - use the correct term (MaxLatency -> accumulatedLatency)

3. Clarify worst-case latency calculation (cont.)

- We propose to replace Figure Y-5 with the following two figures:

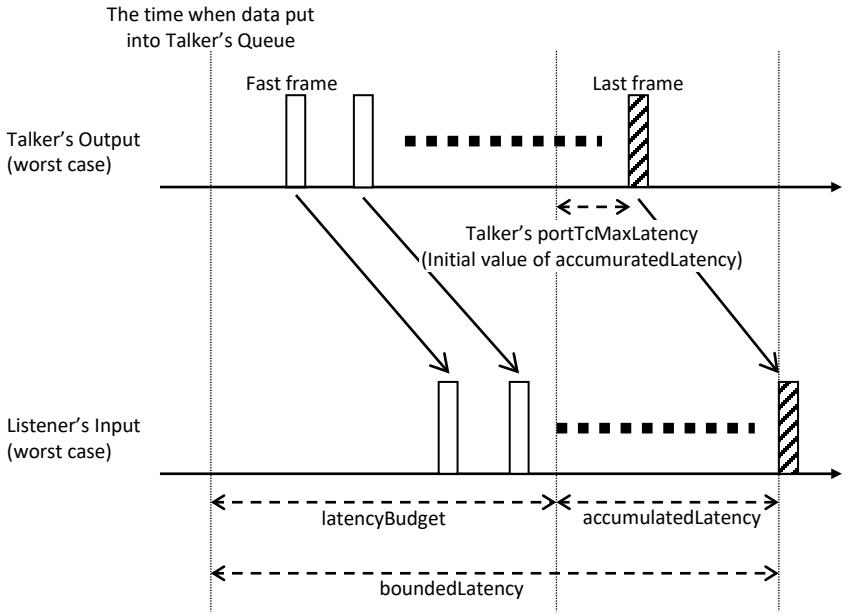

Figure Y-5A — the worst-case timing of the last frame

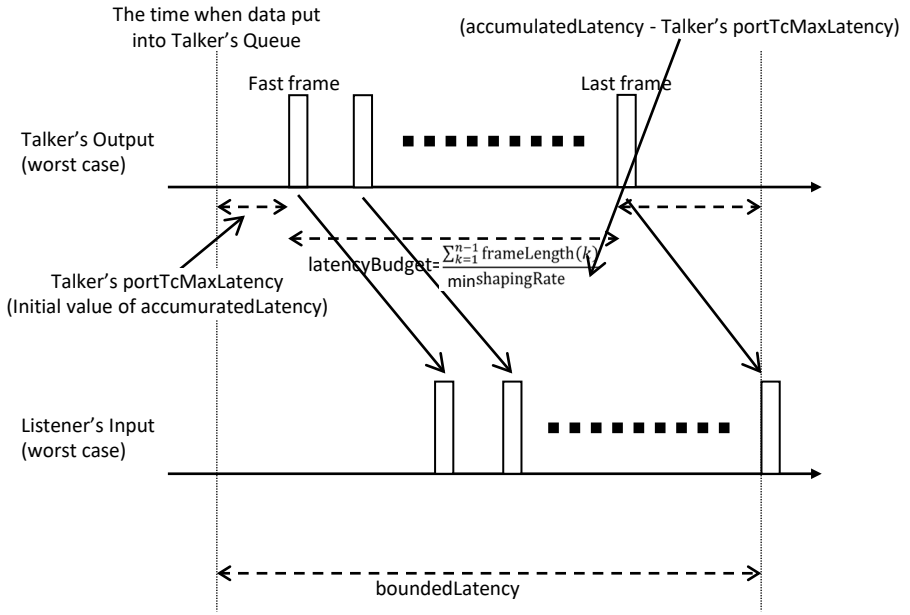

Figure Y-5B — the worst-case budget calculation

3. Clarify worst-case latency calculation (cont.)

Add ~~Remove~~

- In the second paragraph of Y.4.1, describe the definition of latencyBudget (formerly targetLatency) as follows:

  In order to minimize over-provisioning of bandwidth reservation while ensuring the ~~requirement for the delivery time is met~~ specified bounded latency, the bursty traffic should be shaped with the minimum shaping rate ~~within the required bounded latency~~ (required ~~m~~Minimum ~~s~~Shaping ~~r~~Rate). Figure Y-5A illustrates worst-case ~~Frame~~ propagation of the last frame of a cluster comprising *n* frames within the given bounded latency while minimizing over-provision of bandwidth reservation ~~is illustrated in Figure Y-5~~. accumulatedLatency is given by the network. latencyBudget is the maximum duration while Talker emits (n-1) frames. ~~and referred to as the target latency. From Figure Y-5, the target latency~~ Figure Y-5B shows latencyBudget can be derived from bounded latency and accumulatedLatency. The ~~required~~ minimum shaping rate for traffic shaping is equal to:

Any comment?