

Latency Guarantee with Stateless Fair Queuing (C-SCORE)

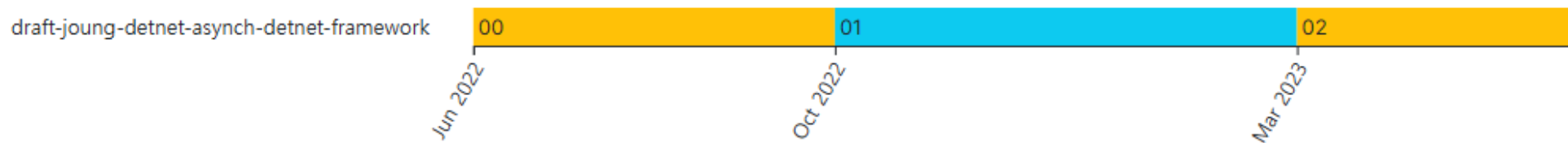
draft-joung-detnet-stateless-fair-queuing-03

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History of C-SCORE

- Included in “Asynchronous Deterministic Networking Framework for Large-Scale Networks” draft-joung-detnet-async-detnet-framework
- as one of the async. data plane solutions.



- Separated to an independent draft with the requests from WG.



- Has been through intensive debates, discussions, and revisions until IETF 119.

Summary of updates

- Minor editorial updates
- Revised titles for subsections 6.3.2 ~ 6.3.6.

Editorial updates

- Added the definition of entrance node:
 - “The edge node through which a flow enters a network is called the entrance node.”
- Specified that Virtual clock is the basis of C-SCORE.
 - “The document adopts the VC's approach.”
- Removal of the concept of System potential, which is equivalent to Virtual time.
- Specified that
 - “The service rate should be chosen to be larger than or equal to the arrival rate of the flow.”

Editorial updates (cont.)

- Emphasized that the complexity in the entrance node can be mitigated, by adding more sentences.

6.3.5. Mitigation of complexity in entrance node

Flow states still have to be maintained in entrance nodes. When the number of flows is large, maintaining flow states can be burdensome. However, this burden can be mitigated as follows. The notion of an entrance node can be understood as a various edge device, including a source itself. FT of a packet is decided based on the maximum of $F0(p-1)$ and $A0(p)$; and $L(p)/r$. These parameters are flow-specific. There is no need to know any other external parameters. The arrival time of p to the network, $A0(p)$, can be defined as the generation time of p at the source. Then $F0(p)$ is determined at the packet generation time and can be recorded in the packet. In other words, the entrance node functionality can reside in the source itself.

Therefore, we can significantly alleviate the complexity of the proposed framework. The framework is scalable and can be applied to any network.

Subsections Titles Updates

- Revised titles of subsections 6.3.2 ~ 6.3.6.

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Future Plan

- The draft is now stable.
- When RTs of the taxonomy draft becomes stable, we plan to evaluate C-SCORE and compare.
- WG adoption in 2025.
- After the adoption, a new draft for E2E jitter bound guarantee, the “buffered network” will be presented.

Thank you

- Please take a look at

<https://datatracker.ietf.org/doc/draft-joung-detnet-stateless-fair-queuing/>

- Comments and Questions are welcome!