

# Micro-burst Decreasing in Layer3 Network for Low-Latency Traffic

draft-du-detnet-layer3-low-latency-02

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# Modifications

- Change the statement that “the large scale ISP network is not in scope of DetNet”, because
  - DetNet is scoped for “single administrative domain” which could be small or large
- Change the draft to informational type, because
  - The key issue is not “an implementation or a queuing mechanism”
  - But is a new exploration to provide Low-Latency service
- Add some explanations about the motivation of the work and the way to decrease the micro-bursts
  - Several new sections are added, such as Section 2, 3, 5

# What we want to solve

- Currently, TSN Mechanisms are too complicated to deploy in large scale ISP networks
  - Nowadays, there is not a common and simple method to provide the Low-Latency service in large scale ISP networks
- The method mentioned in the draft shows a potential solution that is both simple and scalable
  - Meanwhile, does not need time sync
- Perhaps, it can benefit some Low-Latency service providing in large scale ISP networks

# Description of the method in the draft

- Precondition 1: critical traffic has a high priority
- Precondition 2: critical traffic has specific bandwidth resource reserved, so that there should be enough bandwidth for it on the interface
  - In this case, the main problem is the micro-burst
- Mechanism Description: on the edge, do the per-flow shaping, and on the Intermediate nodes, do the per-interface aggregated shaping
  - Change the regular behavior, i.e., forwarding all the traffic as soon as possible

# Analysis of the Proposed Method

- Comparing to traditional IP forwarding with priorities in a relatively light loaded network
  - The mechanism can offer a better forwarding for the Low-Latency traffic, with less micro-bursts
  - At the cost of shaping on the edge, and keeping the shaping result on the Intermediate nodes
- Comparing to TSN mechanisms
  - The mechanism is simpler, and more scalable
  - The disadvantage is that the uncertainty is higher
    - Perhaps, some of the DetNet use cases can not be supported in this mechanism

# Work at the next step

- Try to find whether some of the DetNet use cases can be supported in certain conditions
  - For example, in a network that the critical traffic is not too much, or the Low-Latency traffic not that critical
  - And perhaps as the first step, the Low-Latency traffic not that critical would appear in the ISP network
- An approximate evaluation of the uncertainty
  - We need to check whether the mechanism can work for those Low-Latency traffic not that critical
  - Maybe, the Packet Replication and Elimination mechanism can help

Thanks for listening and  
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