

# BGP - Link State (BGP-LS) Advertisement for Enhanced DetNet

draft-geng-idr-bgp-ls-enhanced-detnet

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# DetNet is Supposed to Guarantee Bounded Latency

- The DetNet QoS can be expressed in terms of:
  - Minimum and maximum end-to-end latency from source to destination, timely delivery, and bounded jitter (packet delay variation) derived from these constraints.
  - Packet loss ratio under various assumptions as to the operational states of the nodes and links.
  - An upper bound on out-of-order packet delivery. It is worth noting that some DetNet applications are unable to tolerate any out-of-order delivery.
- Three techniques are used by DetNet to provide these qualities of service:
  - Resource allocation
  - Service protection
  - Explicit routes

# New Link Attribute and Node Attribute TLVs are Defined for Bounded Latency

## Link Attribute TLVs for Enhanced DetNet

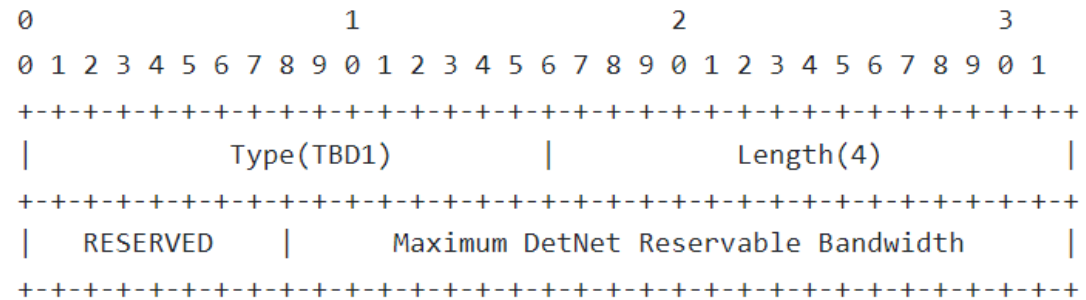
- Max DetNet Reservable Bandwidth Sub-TLV
- DetNet Available Bandwidth Sub-TLV
- DetNet Time Resource Sub-TLV
  - Time Resource for Logical queues sub-TLV
  - Time Resource for Time Scheduling sub-TLV

## Node Attribute TLVs for Enhanced DetNet

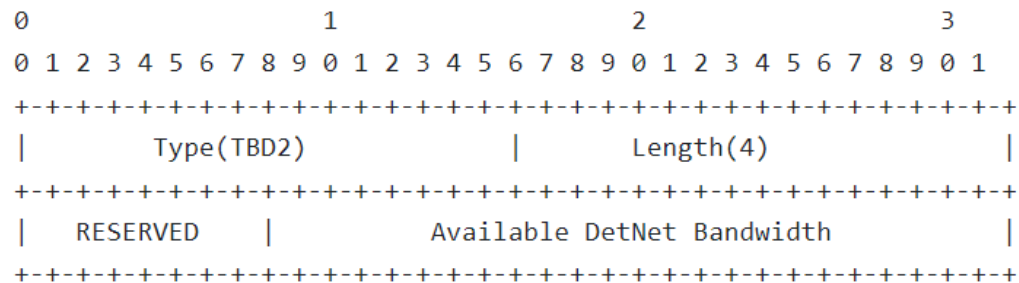
- DetNet Processing Delay Sub-TLV

# Link Attribute TLVs for Enhanced DetNet

- **Max DetNet Reservable Bandwidth Sub-TLV:** specifies the maximum amount of bandwidth that is reserved for DetNet on this link. Note that this value SHOULD be smaller than the value of Maximum Reservable Link Bandwidth defined in [RFC5305].

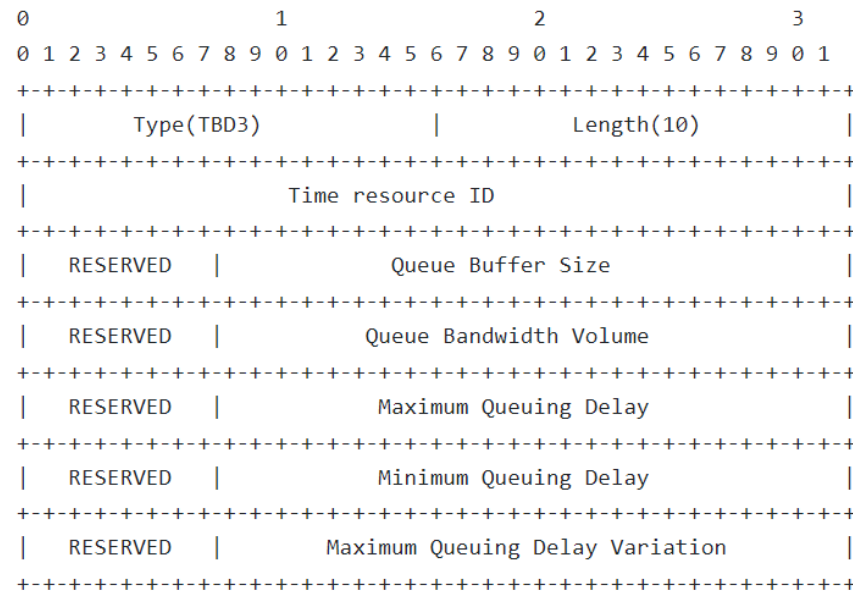


- **DetNet Available Bandwidth Sub-TLV:** specifies the available bandwidth that can be reserved for DetNet flow on this link for now.

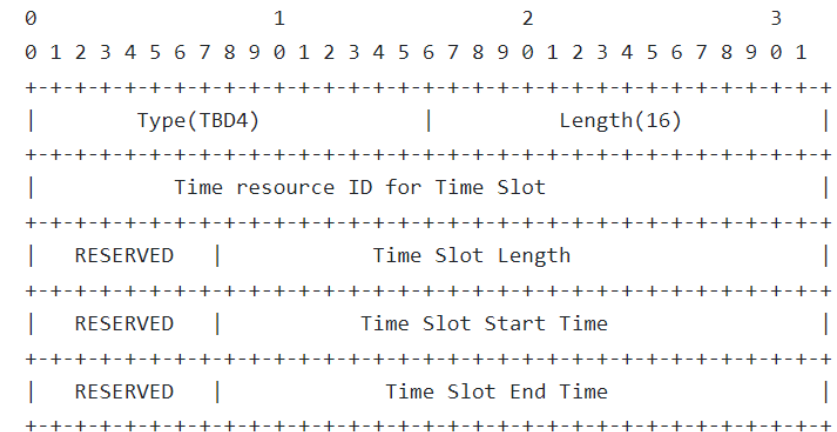


# Link Attribute TLVs for Enhanced DetNet-cont.

- **DetNet Time Resource Sub-TLV:** when the underlying technique is a logical queue based scheduling mechanisms, it represents a queue ID (There may different technologies for implementing logical queues, for example QoS, Flex- E, etc.); when the underlying technique is a time scheduling based mechanisms, it represents a time slot ID.(Cyclic queuing mechanisms could be considered as a special form of time scheduling, whose time slot is with equal length).
- There are 2 types of Time Resource Sub-TLV: **Time Resource for Logical queues sub-TLV** and **Time Resource for Time Scheduling sub-TLV:**



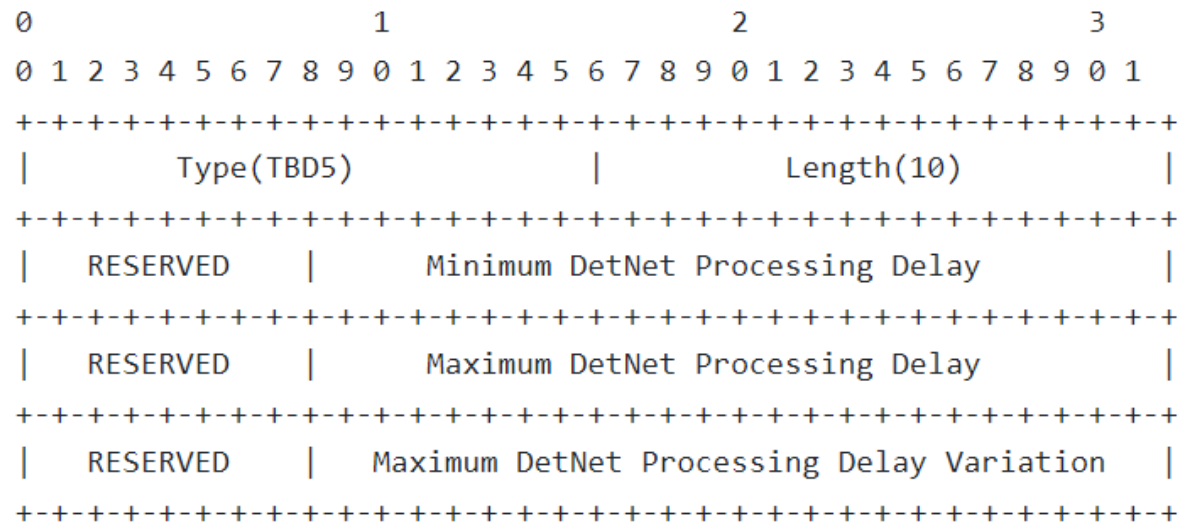
Time Resource for Logical queues sub-TLV



Time Resource for Time Scheduling sub-TLV

# Node Attribute TLVs for Enhanced Detnet

- **DetNet Processing Delay Sub-TLV:** In the scope of DetNet, packet processing delay, which begins after the packet goes into the input port and ends before the packet arrives the output buffer, can be expected in a known range, and the value of the delay bound is specified in this sub-TLV.



# Next Step

- Comments from IDR & LSR
- Cooperation with people who are interested

Thanks