

Deterministic Forwarding PHB

<http://tools.ietf.org/id/draft-svshah-tsvwg-deterministic-forwarding-02.txt>

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Topics

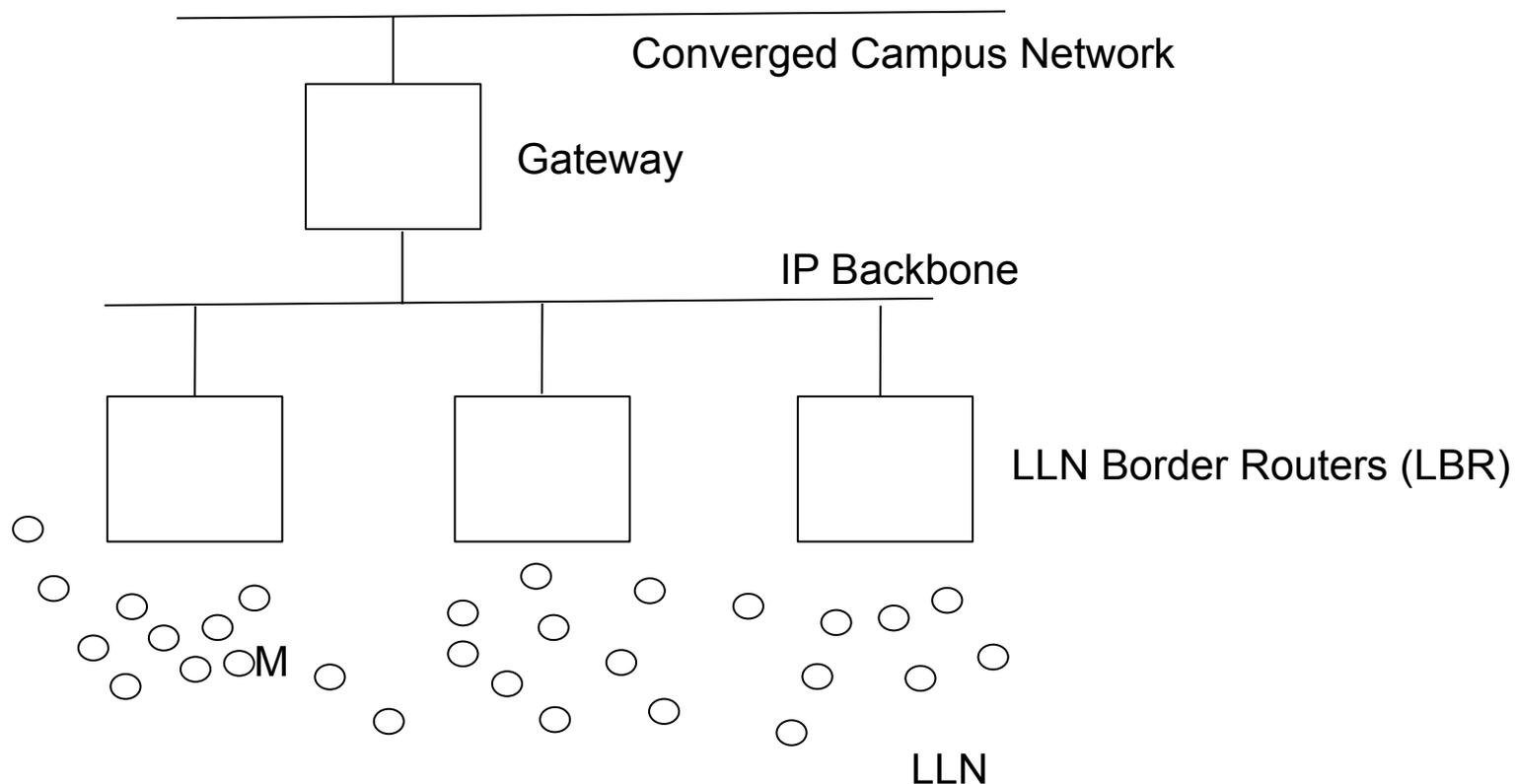
- Motivation for new DSCP
- Use case (6TiSCH)
- DF Per Hop Behavior (PHB)

Motivation

- Time scheduled forwarding treatment in L3 networks for time sensitive traffic
 - Example: Emerging applications of machine to machine networks (closed loop control signals)
 - PHB requirement = jitter sensitive + bounded delay (time scheduled)
 - Various initiatives on standardizing various L2 to prepare for this already underway
 - No L3 capability today to facilitate such PHB
- In certain cases, deterministic flow may have both time sensitive and best effort traffic
 - DSCP to classify time sensitive
- Flow lookup, if needed, shall be performed only for relevant traffic (specific DSCP)
- Flow lookup required in all use-cases?
 - A network with homogenous property for deterministic flows
 - Coarse grained deterministic traffic class can be provisioned with one set of parameters
 - No flow state/lookup required
- Scope requires consideration of deterministic service across multiple administrative domains (including potentially over Wide Area)
 - Need for a standardized DSCP

Use case (6TiSCH)

- Time sensitive traffic forwarding through LLN nodes
- Time sensitive traffic forwarding from one LL Network to another connected through IP Backbone



DF PHB

- Forwarding of packets at pre-provisioned/scheduled time
- Scheduling MUST pre-empt service to any other class of traffic
 - When there are eligible DF packet(s)
 - If no eligible DF packet(s) during scheduled time, traffic from other classes served
- Traffic Conditioning
 - Non-conforming packets may be dropped or marked down
 - Define conformance
- Provisioning
 - Provisioning of fixed/relative time of scheduling
 - Is there a requirement for relative?
 - Provisioning of max data to be transmitted during scheduled time
- Note that provisioning may be done via any of possible methods like –
 - Command Line interface
 - Off-box agents like Controller
 - On the path signaling protocol

DF PHB

- Optional inspection of other packet fields (deep-packet inspection)
 - If more than one stream with different deterministic parameters
 - Packets subject to further classification within DF Diffserv class

Flow state in the network required?

