draft-geib-tsvwg-diffserv-interconnection
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Presented by: David Black (thanks!)

Aims:

Standardise a limited set of interconnection QoS PHBs and classes. Accept deployment of different provider internal class- and codepoint schemes. Simplify interconnection by a set of classes to which and from which provider internal QoS schemes are mapped at interconnection.

This enables end-to-end QoS using classes of similar properties along all domains.

Allow aggregating PHBs into classes. Respect IP over MPLS & Ethernet aspects.
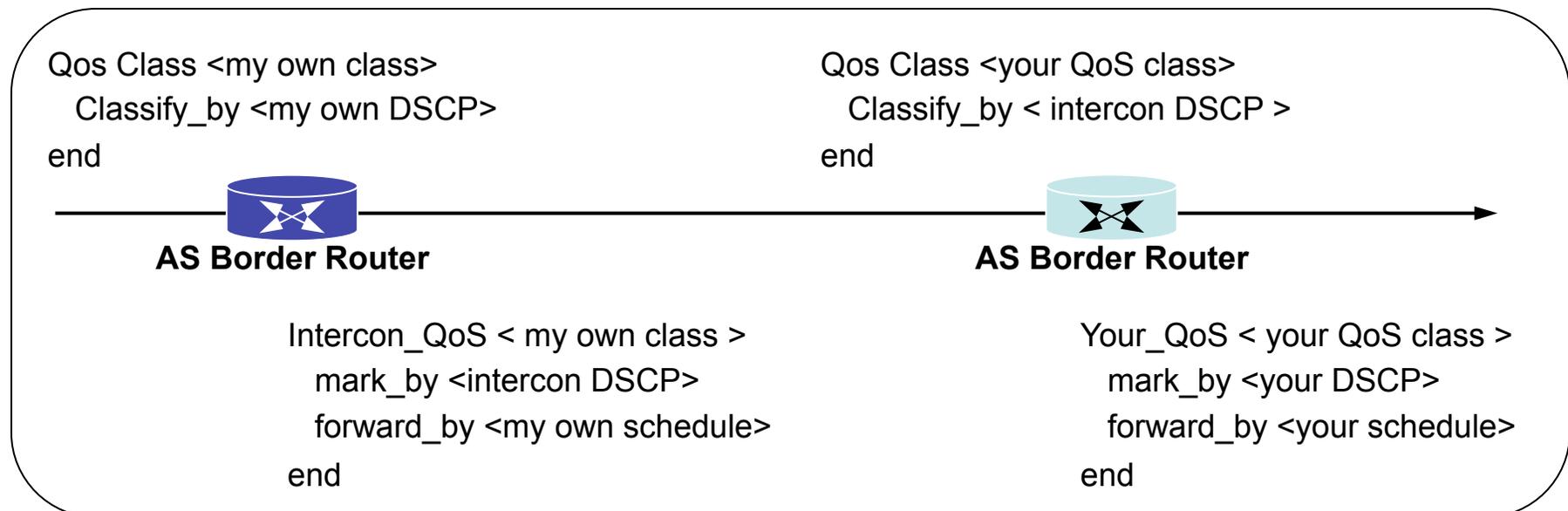
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Application of the DiffServ Interconnection scheme

The DiffServ-Intercon scheme allows to develop a single interconnection interface QoS config regarding classification and marking. This policy can be applied at all interconnection interfaces using DiffServ-Intercon.

DiffServ Intercon can be applied if four or less classes are interconnected and they meet the class defintions specified by DiffServ-Intercon. The latter are rough descriptions and leave room for provider specific implementation.

Conditioning depends on bilateral agreements.

Qos Class <my own class>
  Classify_by <my own DSCP>
end

Qos Class <your QoS class>
    Classify_by < intercon DSCP >
end

AS Border Router

AS Border Router

Intercon_QoS < my own class >
    mark_by <intercon DSCP>
    forward_by <my own schedule>
end

Your_QoS < your QoS class >
    mark_by <your DSCP>
    forward_by <your schedule>
end

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DiffServ Interconnection scheme for QoS classes and codepoints

Diffserv–Intercon roughly defines classes, their properties and codepoints to identify them at interconnection interfaces.

DiffServ-Intercon does not specify, how a provider produces a class. Diffserv Intercon does not specify any quantitative performance objectives.

Class	Properties	PHBs
Priority	Should meet the EF PHB jitter and delay figures of merit (both in the range of low single digit milliseconds), see RFC3246.	EF
Bulk Inelastic	Optimised for low loss, low delay, low jitter at high bandwidth. Traffic load must be controlled. Avoid packet discards by active queue management. Congestion may result in bursty packet loss. If used for multimedia traffic, audio and video should both have this class.	AF41
Assured	To transport traffic without bandwidth requirements. Aims on very low loss at high bandwidths. Expect retransmissions after losses. Expect active queue management with probabilistic dropping.	AF31, AF32, AF33
Default	For traffic without bandwidth requirements. Expect retransmissions after losses. Expect active queue management with probabilistic dropping.	Default

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Issues and questions after list discusssion of -02

Issues related to aggregation of PHBs based on the old „IP Precedence Bits"
Classifying a class by the three most important DSCP bits

- simplifies mapping of IP DiffServ to MPLS and Ethernet.
- is preferrable for public IP traffic if MPLS Pen-ultimate Hop Popping is deployed.
- does *not* mean, that the IP-Precedence CoS scheme is required by DiffServ-Intercon.

- Next step: define this feature and propose terminology.

- Clarify the relation of DiffServ-Intercon to RFC5127 (or a revised version of the latter)
  - Revise RFC5127, align contents, adavance both separately (preferred by the author).
  - Progress DiffServ-Interconn and leave RFC5127. Possibly not really desirable.
  - Replace RFC5127 by an enhanced version of DiffServ-Intercon (enlarged by RFC5127 content). Will slow down progress of DiffServ-Intercon.
  - Relation to RFC5127 requires WG decision.

- Decide on making this document or -03 a WG draft and desired status. Should this be put on standards track?

- Requires some more clarifications, improved terminology and editorial changes....

9. March 2013   Rüdiger Geib