

Differentiated Services (Diffserv): Background and Context

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Diffserv Topics

- Background: Important RFCs
- History: How we got here
- Topics: Today's discussion
- Disclaimer: May contain my opinions 😊

Important Diffserv RFCs

- Diffserv Architecture: RFC 2475
 - QoS treatment: Per-Hop Behavior (PHB)
- Diffserv field in IP Header: RFC 2474
 - Also class selector codepoints (CSn DSCPs)
- Expedited Forwarding (EF PHB): RFC 3246
- Assured Forwarding (AF PHB): RFC 3260
- Diffserv Service Classes: RFC 4594
- Diffserv Service Class Aggregation: RFC 5127

Diffserv History

- Originally a “toolkit” (RFC 2474, 2475)
 - Network operators decide what to use and how
- Problem: How to use the “toolkit”?
 - RFC 4594: Service Classes and configuration guidelines
 - Map traffic to service classes (12 service classes defined)
 - Apply diffserv (PHBs, DSCPs) to each service class
 - Expected deployment: Subset of service classes
- What about MPLS? Not enough bits available!
 - RFC 5127: Service Class aggregation (RFC 5127)
 - Four treatment aggregates defined

Topics: Why are we here?

Proposed work

1. Service Class Update (4594bis)
 - RFC 4594: August 2006
 - Network usage has changed since then
2. Treatment Aggregate Update (5127bis)
 - Update RFC 5127 to match RFC 4594 update
3. New: Diffserv Interconnection (next slide)
 - ITU-T SG12 liaison (response due: March 1 2013)
 - draft-geib-tsvwg-diffserv-intercon-00

Diffserv Interconnection: Problem Description

- Diffserv Architecture: Receiver makes right
 - Inbound traffic: Receiving domain edge classifies, marks (DSCP values) and shapes/drops (as needed)
- Scaling concern: Many sending domains
 - Inbound traffic: Sending domain's DSCP usage
 - Receiving edge: Converts to its domain's DSCP usage
 - Hence receiving edge config depends on sending domain
- Proposal: Standard interconnect PHBs/DSCPs
 - Sending domain marks to these PHBs/DSCPs
 - Receiving domain: Single edge config
 - Result may resemble treatment aggregates (RFC 5127)

What should the IETF do?

Proposed work

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- In discussion: please identify relevant topic(s)