

ALTO Traffic Engineering Cost Metrics

draft-wu-alto-te-metrics-03

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Document Status

- Started as draft-wu-alto-json-te, and was first presented at IETF 87 Berlin, during ALTO re-chartering
 - A lot of interests from vendors and operators in this work.
- draft-wu-alto-json-te was renamed to draft-wu-alto-te-metrics-00 after consolidation with draft-lee-alto-app-net-info-exchange and draft-randriamasy-alto-multi-cost-07
- The latest version (draft-wu-alto-te-metrics-03):
 - Revised -02 to follow the guideline and template of RFC 6390 (Guidelines for Considering New Performance Metric Development)
 - Defined 11 cost metrics to provide a relatively comprehensive set of TE related cost metrics

V(-03) vs RFC 6390 Template

- RFC 6390 Normative :

RFC6390	This draft
Metric name	Cost Metric name, Cost Metric string in US-ASCII
Metric description	Metric Description
Method of measurement or calculation	defined in the common Section 2 called Data sources, computation of defined metrics
Unit of measurement	Metric Unit, Metric Value Type in JSON
Measurement point(s) with potential measurement domain	specified as part of Metric Description, defining two types: endhost to endhost, and PID to PID
Measurement timing	more later

- RFC 6390 Informative:

- Implementation, verification, Use and applications
- These are not included

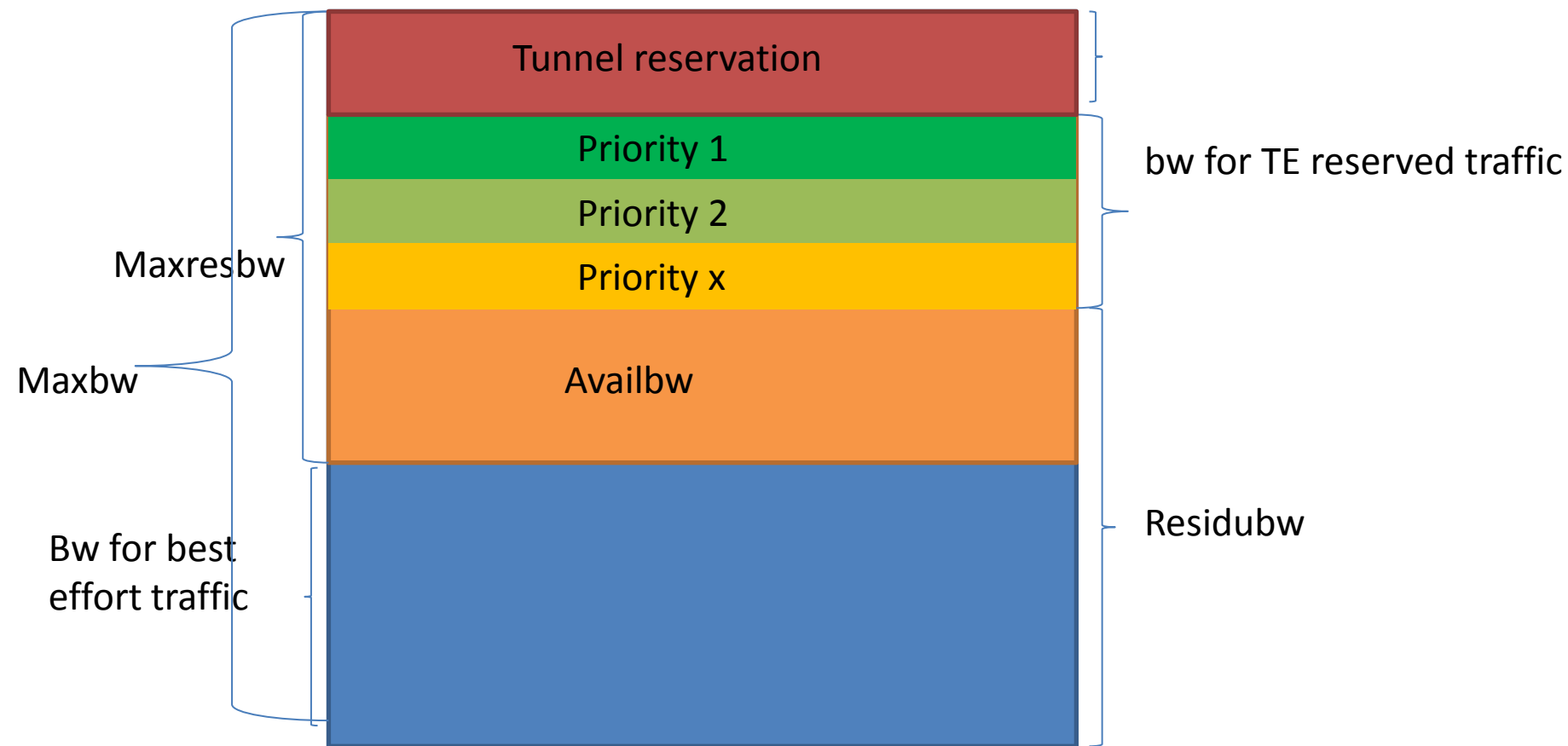
The Cost Metrics

- Delay (delay)
- Delay Jitter (jitter) -> delayjitter
- Packet Loss (pktloss)
- Hop Count (hopcount)
- Bandwidth

Metric name	Metric Description	Relation to other metric
Maximum Bandwidth (maxbw):	the maximum bandwidth that can be used; motivated from RFC 3630 Sec. 2.5.6.	
Maximum Reservable Bandwidth (maxresbw):	the maximum bandwidth that can be reserved; motivated from RFC 3630 Sec. 2.5.7.	Maxresbw can be larger than maxbw if the link is oversubscribed
UnReserved Bandwidth (unresbw[x,y]):	the amount of bandwidth not yet reserved at each of the eight priority levels in IEEE floating point format, return an array, motivated from RFC 3630 Sec.2.5.8	The initial value of unresbw for each priority can be maxbw.
Residue Bandwidth (residbw):	subtracts tunnel reservations from Maximum Bandwidth, motivated from [I-D. ietf-isis-te-metric-extensions], Sec.4.5.	Residbw = maxbw - tunnel reservation bw
Available Bandwidth (availbw):	subtracts the tunnel reservation and the measured bandwidth used for the actual forwarding of best effort traffic from Maximum Bandwidth, motivated from [I-D. ietf-isis-te-metric-extensions], Sec.4.6.	Availbw = residbw- measured bw for best effort traffic
Utilized Bandwidth (utilbw):	Actual measured bandwidth used for all traffic, motivated from [I-D. ietf-isis-te-metric-extensions], Sec.4.7.	Utilbw = measured bw for best effort traffic + bw for TE traffic

Relationship between bandwidth related metrics

Utilbw = bw for TE reserved traffic + bw for best effort Traffic



Open Issues

- Do we want more precise, flexible specification of metric semantics, e.g.,
 - Do we use a single, fixed Measurement Timing specification (i.e., measurement interval) or allow multiple specifications that will be conveyed in IRD?
 - Do we allow more flexible statistics operators (e.g., mean, avg, x-percentile, variance)
 - In current draft, delay and delay jitter are both on delay, with one reflect mean and the other variance
- Detailed questions
 - Hop count (AS level or IP level)

Follow Up

- Is there sufficient discussion on the list, including reviews and feedback?
- Goal: Accept as WG item to fulfill the Cost Property Extension milestone (May 2015)