A scalable packet scheduling policy for vast number of sessions

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Abstract

An apparatus comprising a plurality of queues configured to cache a plurality of packets that correspond to a plurality of sessions, a scheduler configured to schedule the packets from the different queues for forwarding based on a finish time for each packet at the egress of each corresponding queue, and an egress link coupled to the scheduler and configured to forward the scheduled packets from all the queues at a total bandwidth that is shared among the queues, wherein the finish time is calculated dynamically based on the amount of bandwidth allocated for the corresponding queue, and wherein the queues are assigned corresponding weights for sharing the total bandwidth.

References:

[1] Bahr, H. A., and Ronald F. DeMara. "Smart priority queue algorithms for self-optimizing event storage." Simulation Modelling Practice and Theory 12, no. 1 (2004): 15-40.

[2] Cheung, Shun Yan, and Corneliu S. Pencea. "BSFQ: bin sort fair queueing." In INFOCOM 2002. Twenty-First Annual Joint Conference of the IEEE Computer and Communications Societies. Proceedings. IEEE, vol. 3, pp. 1640-1649. IEEE, 2002.

[3] Olesinski, Wladek, Rob Robotham, Mustapha Aissaoui, and Jordan Lu. "Considerations for scheduling and servicing events using a calendar structure." In Computer Communications and Networks, 2002. Proceedings. Eleventh International Conference on, pp. 30-33. IEEE, 2002.