

# Congestion control pdf

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Destinations send ACKs. TCP Congestion Control Congestion in a Drop-Tail FIFO Queue. Transmission Control Protocol (TCP) is a popular protocol – provides reliable transmission – when all users exhibit “good-citizen” behavior – but has higher delay (cost of reliability) User Data-gram Protocol (UDP) is another protocol – unreliable and user TCP Congestion Control Congestion in a Drop-Tail FIFO Queue. Source retransmits lost and/or corrupted segments. –Packets transmitted in the order they arrive •Access to the buffer space: drop-tail queuing. How it Looks to the End Host Taming Congestion The optimal congestion window is the bandwidth/delay product Sender learns this by adapting window size Senders must slow down when there is congestion Absence of ACKs (timeout) implies serious congestion Duplicate ACKs imply some congestion The congestion control mechanism has been responsible for maintaining stability as the Internet scaled up in size, speed, tra c volume, coverage, and complexity by many orders of magnitude over the last three ades. (to not overflow receiver) Sources perform Congestion control (to not overload network) Source and destination participate in “Connection” set-up and tear-down The congestion control protocol is also called “transport protocol”. •Principles of congestion control. Sources perform Flow control. Classical literature in datacenter congestion control takes a nar-row view of “end-to-end”, often interpreting the end as the point of presence of Ethernet (the network interface card, or NIC). –Packets transmitted in the order they arrive •Access to the buffer space: drop-tail queuing. –Additive-increase, multiplicative- rease –NACK (“fast retransmission”) and timeout-based TCP (Reliable, In Order Delivery) Source send segments. Taming Congestion The optimal congestion window is the bandwidth/delay product 6 TCP Window Control Receiver flow control Avoid overloading receiver rwnd: receiver (advertised) window Receiver sends rwnd to sender Network congestion control Sender tries to avoid overloading network It infers available network capacity from “loss idi ti ” 1 INTRODUCTION. •Access to the bandwidth: first-in first-out queue. In this book we develop a coherent theory of congestion control from the ground up to help understand and design these algorithms –Learning that congestion is occurring –Adapting to alleviate the congestion. •Access to the bandwidth: first-in first-out queue. –If the queue is full, drop the incoming packet. –If the queue is full, drop the incoming packet Congestion Control Two conflicting goals-Provider: high utilization-User: fairness among users Want to converge to a state where everyone getsN Avoid congestion collapse. •TCP congestion control. This view precludes a network that every datacenter Goals of Today’s Lecture. –Tool for understanding complex protocols. •State diagrams.

 Difficulté Moyen

 Durée 551 jour(s)

 Catégories Électronique, Maison, Musique & Sons

## Sommaire

Étape 1 -  
Commentaires

Matériaux

Outils

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Étape 1 -

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