

Staukontrolle durch Active Queue Management

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I. EINFÜHRUNG UND MOTIVATION

- Problem
Das Internet hat mittlerweile eine Größe erreicht, bei der man sich nicht mehr komplett auf Ende-zu-Ende Staukontrolle verlassen kann [1]. Sehr viele Router stellen aufgrund der sternförmigen Struktur des Internets Flaschenhälse dar.
- Problemstellung
Die mittlere Pufferauslastung soll gering gehalten werden, um E2E Staukontrolle zu ermöglichen [2].

II. STAUKONTROLLE IN NETZEN

- Vorschläge zur Staukontrolle
Vorschläge zur Gewährleistung und Verbesserung der Internetperformance [3]
- congestion collapse
Congestion collapse und wie es dazu führt [4].
- Warum ist das Problem so schwer zu identifizieren
Was sind die Gründe für das Problem [5]?
- Mechanismen zur Staukontrolle in ATM Netzwerken
Auswahlkriterien zwischen den beiden Ansätzen rate-based und credit-based [6].
- Standard TCP Verhalten bei Staus
Warum ist es keine gute Idee TCP die Staukontrolle selbst zu machen [7]? Gleichbehandlung aller Datenströme [8].
- Explicit Congestion Notification
Vor- und Nachteile von ECN bei TCP [9]
- Router Mechanismen zur Staukontrolle
Vor- und Nachteile von normaler Staukontrolle in Routern [1]
- Überleitung zu Active Queue Management
Active Queue Management ist eine Lösungsansatz zur Staukontrolle [10]

III. DEFINITION UND ANWENDUNG VON ACTIVE QUEUE MANAGEMENT

- Effizientes Active Queue Management in Internet Routern [11]
- Dimensionierung von Router Puffern [12]
- Stochastische Modellierung und die Theorie von Queues [13]
- Analyse und Simulation eines gleichbehandelnden Queue Algorithmus [14]

IV. DIE GÄNGIGSTEN ACTIVE QUEUE MANAGEMENT ALGORITHMEN

- RED (Random Early Detection) [15] [16]
Adaptive RED[17]
- BLUE [18]
- ECN [19]
- PI Controller [20]

V. VERGLEICH DER VORGESTELLTEN ALGORITHMEN

- Vergleich RED, ARED, PI [2]
- Vergleich RED, PI [21]
- Vergleich RED, BLUE, ARED, ECN, PI [10]

VI. AUSBLICK UND ANDERE ANSÄTZE

- Ein wirklich optimaler Algorithmus muss noch gefunden werden [10]
- Statt Staukontrolle andere Wege suchen (CHOKE) [22]

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