ANALYSIS OF CONGESTION CONTROL ALGORITHMS

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What is congestion ?

When the “offered load” crosses certain limit, then there is a sharp fall in the throughput.

"when too many packets are present in the network, the performance degrades. This situation is known as congestion"

Tanenbaum

MECHANISMS FOR CONGESTION CONTROL

- Accumulation-based congestion control.
- Internet congestion control.
- Data Cast.
- Mutipath TCP algorithms.
- A connectionless congestion control algorithm.
- Multipath routing algorithms for congestion minimization.
- TCP congestion control algorithms.

ACCUMULATION-BASED CONGESTION CONTROL

- ACC Model
- Two possible schemes under this model is
  - TCP Vegas
  - TCP Monaco
- Vegas emphasis packet delay.
- Monaco provides an out-of-order receiver based accumulation estimator.

INTERNET CONGESTION CONTROL

- Novel estimation algorithm.
- It is based on online parameter identification technique.
- Used in design of congestion control protocols.

DATA CAST

- RGDD
- There are two design spaces
  - Multiple edge disjoint Steiner trees.
  - Soft-state based congestion control algorithm.
- Few duplicate data transmission.

MULTIPATH TCP ALGORITHM

- It proposes a fluid model.
- It identify the uniqueness and stability of system equilibrium.
- It greatly improves application performance.
- Using multiple paths transparently.

A CONNECTIONLESS CONGESTION CONTROL ALGORITHM

- It operates from the IP layer.
- This model provide routing algorithm.

Gregory G. Finn, “Congestion control in connectionless network”

MUTIPATH ROUTING ALGORITHMS

- Route all traffic along a single path
- Reduce congestion in “hot spots”
- Split traffic based on flow control
- Practical restriction
  - Establishing, maintaining, and tearing the path
  - Complexity

TCP CONGESTION CONTROL ALGORITHMS

- It favors reliability.
- TCP is efficient and responsive to network congestion conditions.

B.Jamal, K.Sultan," TCP congestion control algorithm(1988)"

CONCLUSION

- TCP based methods are much better than others.
- It provides more scalability, better throughput and loss of packet is less and provide reliability.

REFERENCE

- Y.Xia, D.Harrison, S K Kishore Ramachandran, and Arvind Venkatesan "Accumulation based Congestion Control (2005)"
- Rate Control In Communication Networks (Journal of the Operational Research Society-1998)
- Gregory G. Finn, "Congestion control in connectionless network"
- Ron Banner, " Multipath routing algorithm (2007)"
- B.Jamal, K.Sultan," TCP congestion control algorithm (1988)"
- Jon P, "Transmission Control Protocol (1981)"
- V.Jacobson, "Congestion avoidance and control (1998)"

THANK YOU