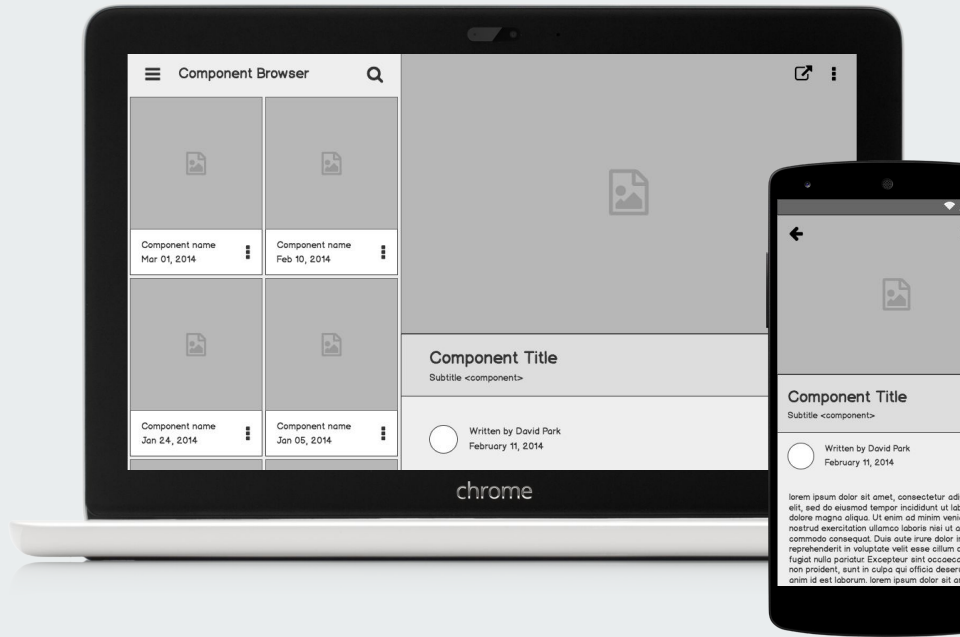




NS2 Project Proposal

Md. Shahrukh Islam
Student ID: 1805098



The Paper:

The Peak-Hopper: A New End-to-End Retransmission Timer for
Reliable Unicast Transport

Link:

https://www.cs.helsinki.fi/u/gurtov/reiner/PeakHopper_draft0207.pdf



Overview

**Modified mechanism for
RTT calculation**

**TCP Retransmission Time Out (RTO) and
Round-Trip Time (RTT)**

Two RTO algorithm runs in parallel.

One is Short-Term History RTO.

Another one is Long-Term History RTO.

Calculating RTO [From the Paper]

$$\delta = \frac{RTT_{sample} - RTT_{previous}}{RTT_{previous}} \quad (\text{Step 1})$$

$$D = 1 - \frac{1}{F * S} \quad (\text{Step 2})$$

$$B \leftarrow \max(\delta, D * B) \quad (\text{Step 3})$$

$$RTT_{max} = \max(RTT_{sample}, RTT_{previous}) \quad (\text{Step 4})$$

$$RTO \leftarrow \max(D * RTO, (1 + B) * RTT_{max}) \quad (\text{Step 5})$$

$$RTO \leftarrow \max(RTO, RTO_{min}) \quad (\text{Step 6})$$

Explanation

Step 1

Having collected a new RTT sample, RTT_{sample} (in the picture), we compare this value to the previous RTT sample collected, $RTT_{previous}$ (in the picture), as shown in Step 1. We call the normalized change between these two samples δ . This is the measure of the short-term changes in RTT.

Step 2

D is decay factor. D determines how rapidly the RTO is decayed. F is fade variable, which controls the speed of this decay (a high F gives a slow decay and a low F gives a high decay).

Explanation

Step 3

We calculate a booster variable B . The booster variable determines how high the RTO should hop when a large RTT increase has been detected.

Step 4

We set RTT_{max} to the maximum of the new RTT sample, RTT_{sample} , and the previous RTT sample, $RTT_{previous}$. RTT_{max} is used to represent the short-term history of the RTT

Explanation

Step 5

We set RTO to the maximum of a long-term history (represented by the term $D \cdot RTO$) and the short-term history (represented by the term $((1+B) \cdot RTT_{max})$).

Step 6

we ensure that the RTO does not fall below the minimum allowed RTO.

Expected Output

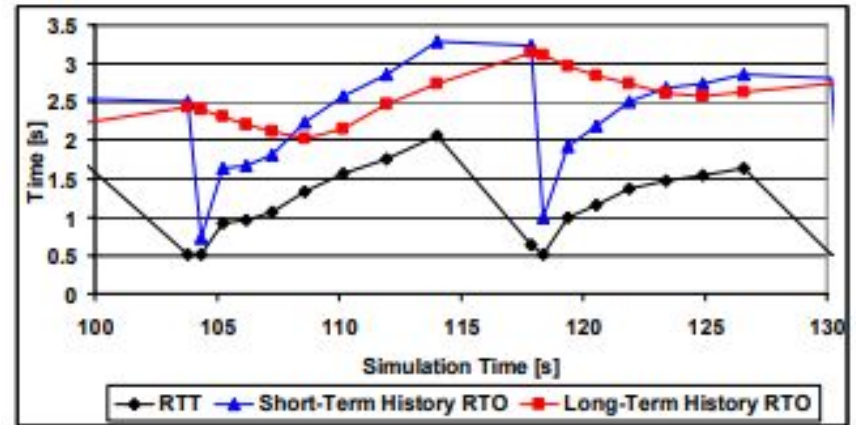


Figure 4. The PH-RTO is calculated as the envelope of the Short- and Long-Term History RTO curves



Thank you.