SCTP Sendbuffer Advertisement

A Thesis

submitted by

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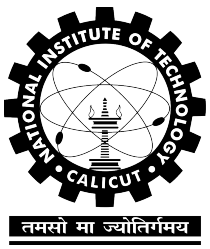

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Abstract

Advertising sendbuffer, i.e. the amount of backlogged data present in the sender's buffer has been proposed for TCP and experiments show improvements in application limited flows. This project proposes to advertise the same in SCTP.

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Chapter 1

Introduction

Stream Control Transport Protocol (SCTP) is a reliable transport protocol designed to transport Public Switched Telephone Network (PSTN) signaling messages over IP networks, but is capable of broader applications. Unlike TCP, SCTP offers sequenced delivery of user messages within multiple unidirectional logical channels called streams. Each SCTP endpoint is represented as a set of destination transport addresses, one of which is the primary address. If the primary address becomes unreachable SCTP chooses another destination transport address to route the messages thereafter. This provides network-level fault tolerance and is called multi-homing. It also employs a security cookie mechanism during association initialization to provide resistance to flooding and masquerade attacks.

Advertising the amount of backlogged data present in the sender's buffer can help network operators evaluate the end-to-end performance of a connection in a better way than that with the existing passive measurements. This information can also be used to infer whether a connection is limited by the network or the application.

1.1 Problem Statement

To propose a scheme to advertise sendbuffer occupancy information in SCTP, implement it in the Linux kernel and study the performance and security implications of the same.

1.2 Literature Survey

RFC 3286 [6] provides a high level introduction to the capabilities supported by SCTP, while RFC 4960 [8] describes the complete protocol. Agache and Raiciu [1]

propose a scheme to advertise sendbuffer occupancy in TCP. [4] was used to study the state machine employed in the Linux SCTP implementation. It was also used to understand the SCTP packet flow within the kernel.

Chapter 2

Design

Include design details

Chapter 3

Implementation

Include implementation details

Chapter 4

Results

Include experimental details and results

Chapter 5

Conclusions

Write your conclusions and possible future works

Bibliography

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