

CS554 Project Ideas

NET:MPNet – Improving Network Throughput through Multipath Network Routing

Overview

Traditional routing (single path) has limitations delivering under-utilized networks, and sub-optimal performance in terms of throughput and latency. Multi-path routing can increase throughput and decrease latency by using more available resources concurrently. This project will attempt to prototype a multi-path reliable communication protocol on top of UDP/IP. This work will involve building an overlay network that will enable custom routing to be performed. A TCP-like protocol called MSP (Multi-path Stream Protocol) will be designed and implemented, and allow MSP connections to utilize multiple UDP (or TCP) channels that have different routes from source to destination. This project requires 2~3 students.

Relevant Systems and Reading Material

Paper: Multipath Routing to Minimize Path Delays, Fabrizio Devetak², Junghwan Shiny, Tricha Anjali² and Sanjiv Kapoor

Preferred/Required Skills

Programming language choice: C/C++

Skills/knowledge: Network protocols

Performance Metrics

Throughput, Latency

Project Mentor

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