

# CS744 Project Presentation

## File Backup System

Vikas Kumar   Satyaki Sen

Department of Computer Science  
IIT Bombay

22 Nov 2017



# Outline

- 1 Basic Design
  - Multithreaded Architecture
- 2 Performance Evaluation
  - Load Generator
  - Experimental Setup
  - Results
- 3 Optimization
  - Non blocking IO



# Basic Design

## Multithreaded(MT) Architecture

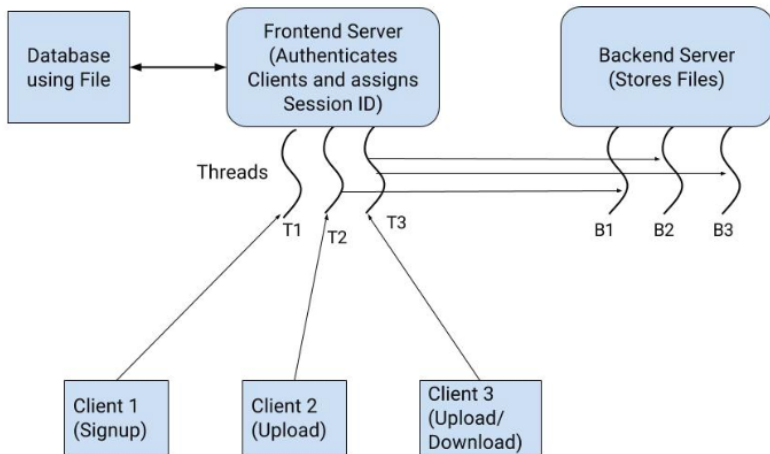


Figure: Basic Architecture of System.



# Performance Evaluation

## Load Generator

- Multithreaded client acts as Load Generator.
- Closed Loop Testing.



# Performance Evaluation

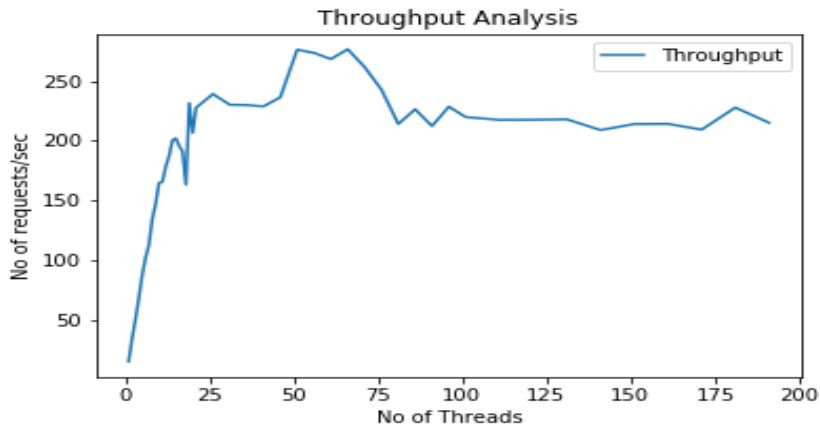
## Experimental Setup

- Client : Ubuntu 16.04 machine with 8 cores CPU and 16 GB RAM
- Frontend Server : Ubuntu 16.04 Core i7 machine with 1 core CPU and 8 GB RAM.
- Backend Server : Ubuntu 16.04 Virtual Machine with 3 cores and 6 GB RAM
- Experiment : 10 KB File Download from Backend Server to Client.



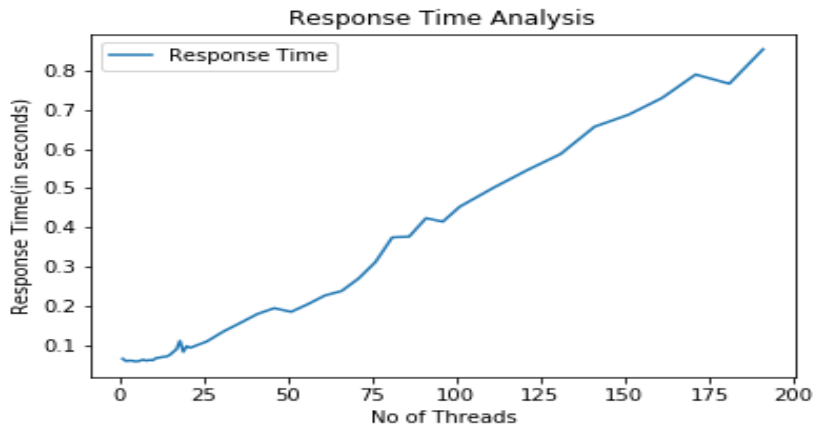
# Performance Evaluation

## Results



# Performance Evaluation

## Results



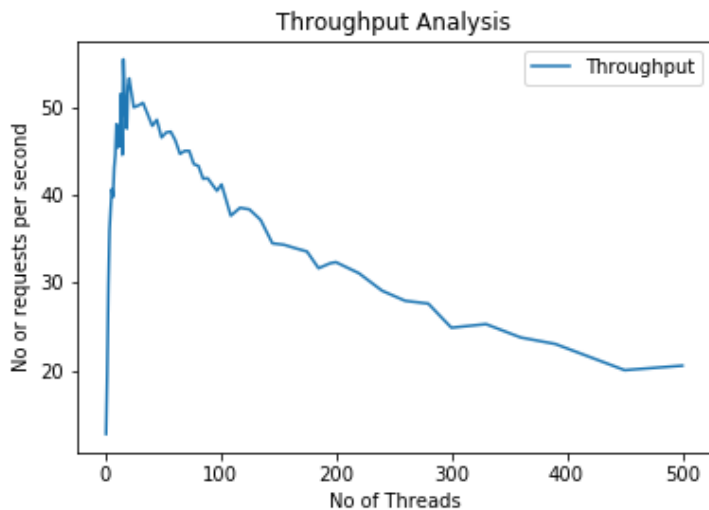
- Bottleneck during MT Architecture: CPU as well as disk
- Epoll on Frontend Server, MT on client and Backend Server.





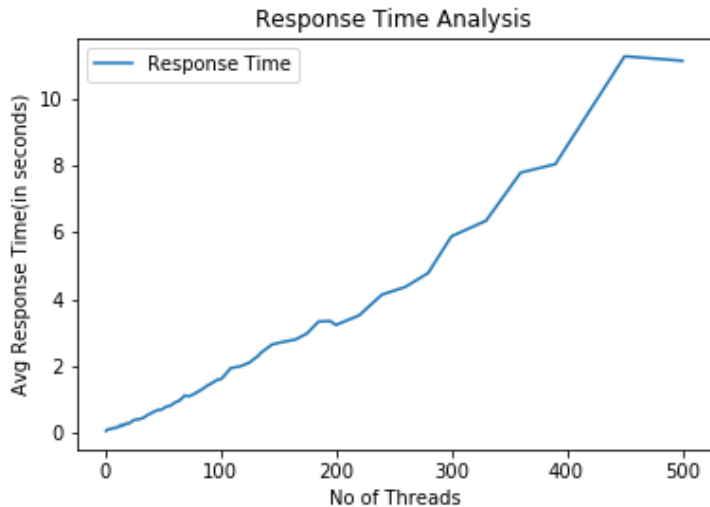
# Optimization

## Results



# Optimization

## Results



# Summary

- Epoll does not give performance improvement over MT when Disk I/O is involved.
- Epoll scales well with more number of clients we can handle 500 clients with epoll as compared to 200 clients while using MT Architecture.
- Epoll has less memory overhead as compared to MT Architecture.
- Complex to maintain state of each client at epoll server

