

# Assignment 3

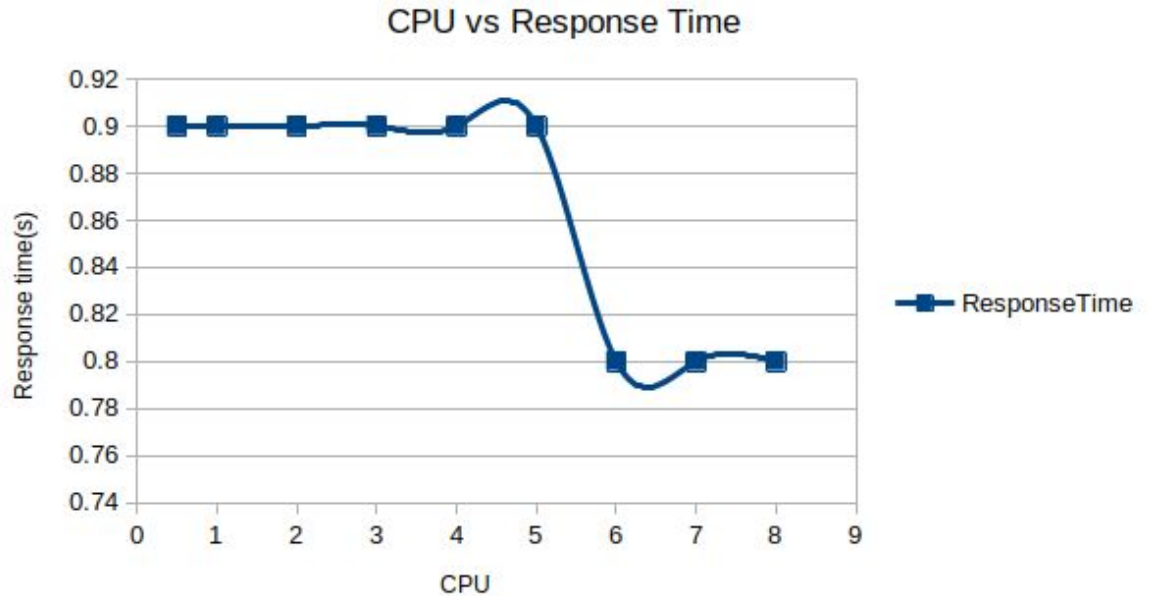
Empirical (Data-driven) Modeling of Web Server

Sridevi  
Helen Sathvika

# Results

## Response time vs CPUs

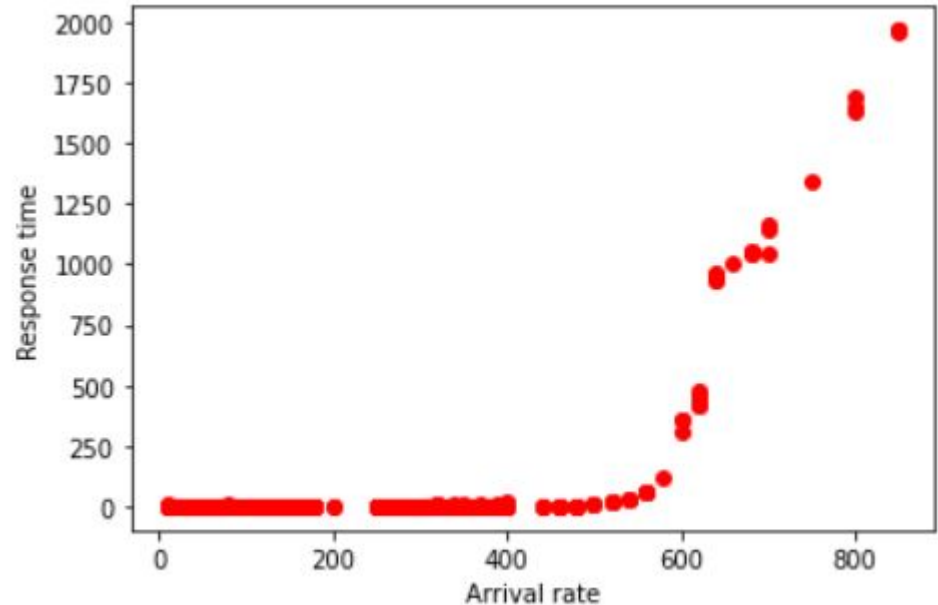
As allocated #CPUs increases, Response time decreases because workload will be distributed



# Cont..

## Response time vs Arrival Rate

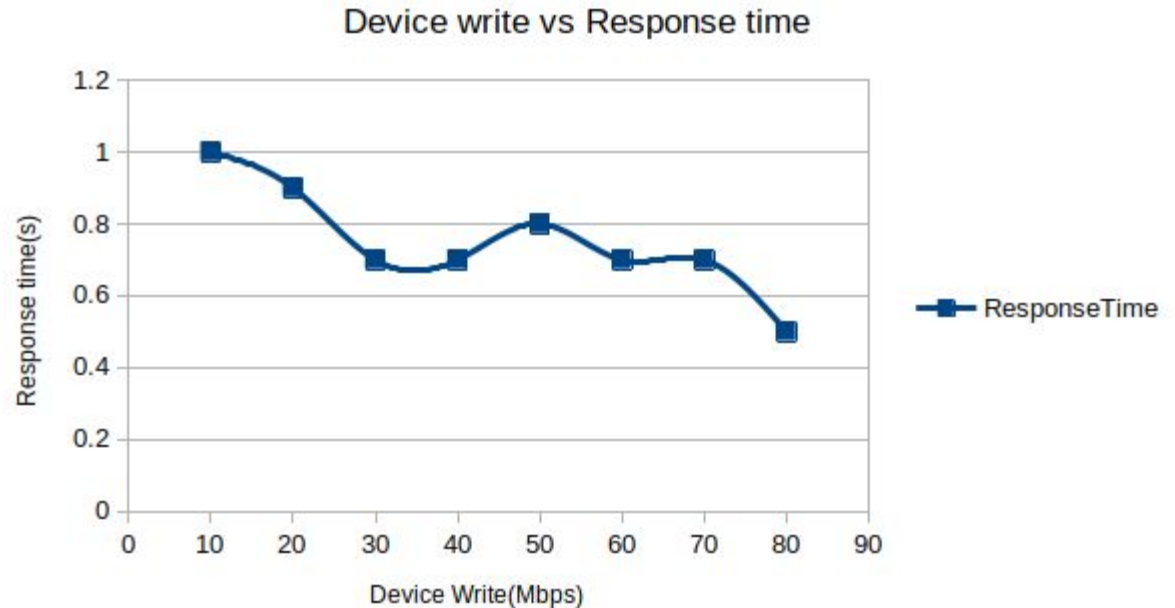
As arrival rate increases,  
Response time increases  
after arrival rate crosses  
450 req/sec.



# Cont..

## Response Time vs Device write

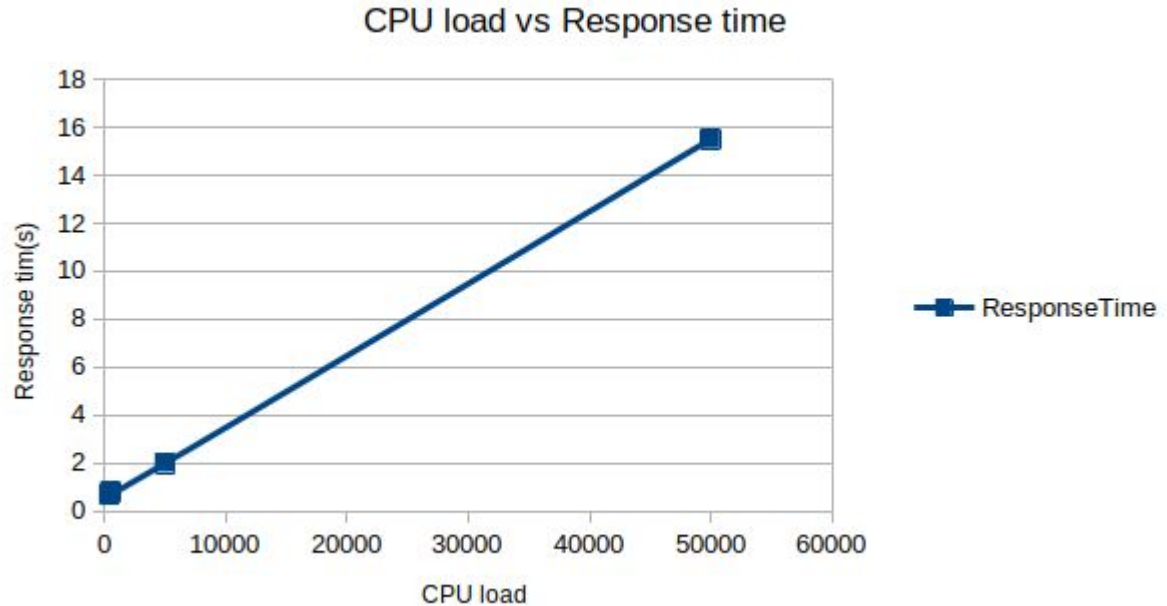
As allocated I/O write rate increases, Response time decreases because amount of data written in each time unit increases



# Cont..

## Response time vs CPU load

As CPU load increases, Response time increases because it takes more amount of time to to service each request.



# Cont..

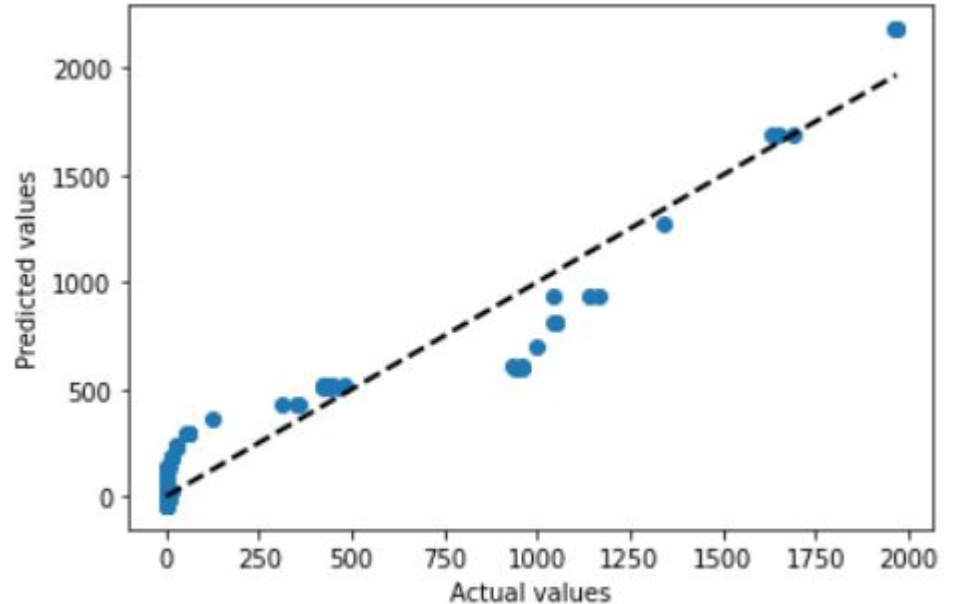
## Scatter plots of predicted vs measured response time

Model:

Polynomial Regression  
model of degree 3

MAPE: 8.3496

The predicted response  
time approximately  
matches with actual  
response time.



# Cont..

## Throughput vs arrival rate

Throughput converges  
after 450 req/sec arrival  
rate

