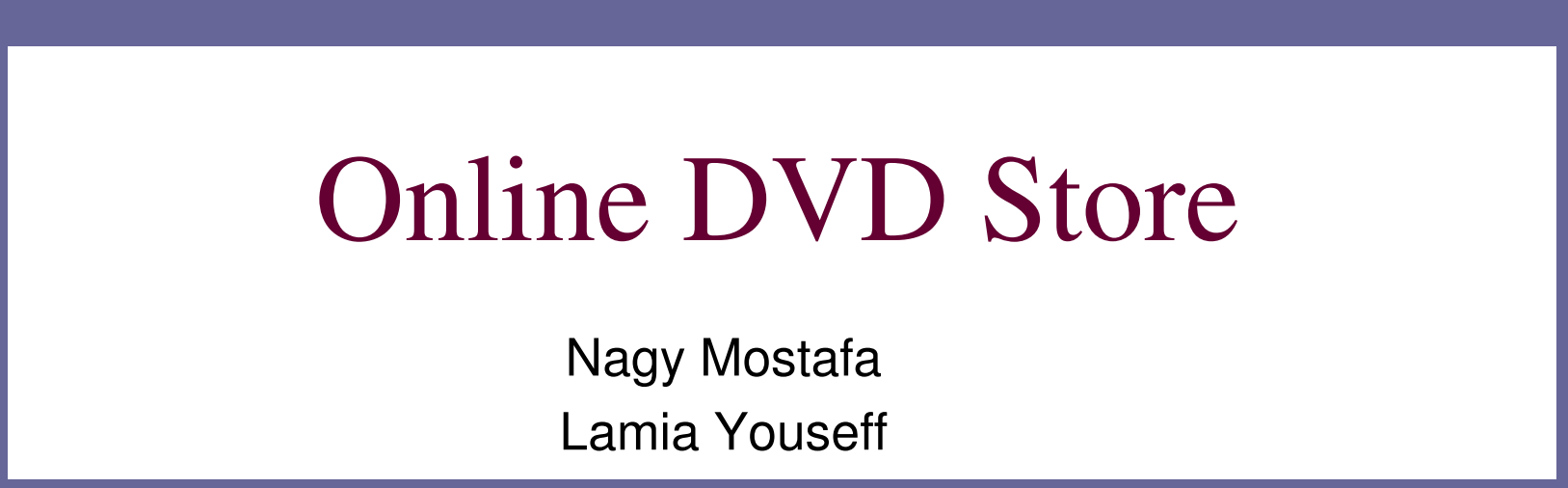


University of California, Santa Barbara  
Computer Science Department  
CS290F Fall'06



# Online DVD Store



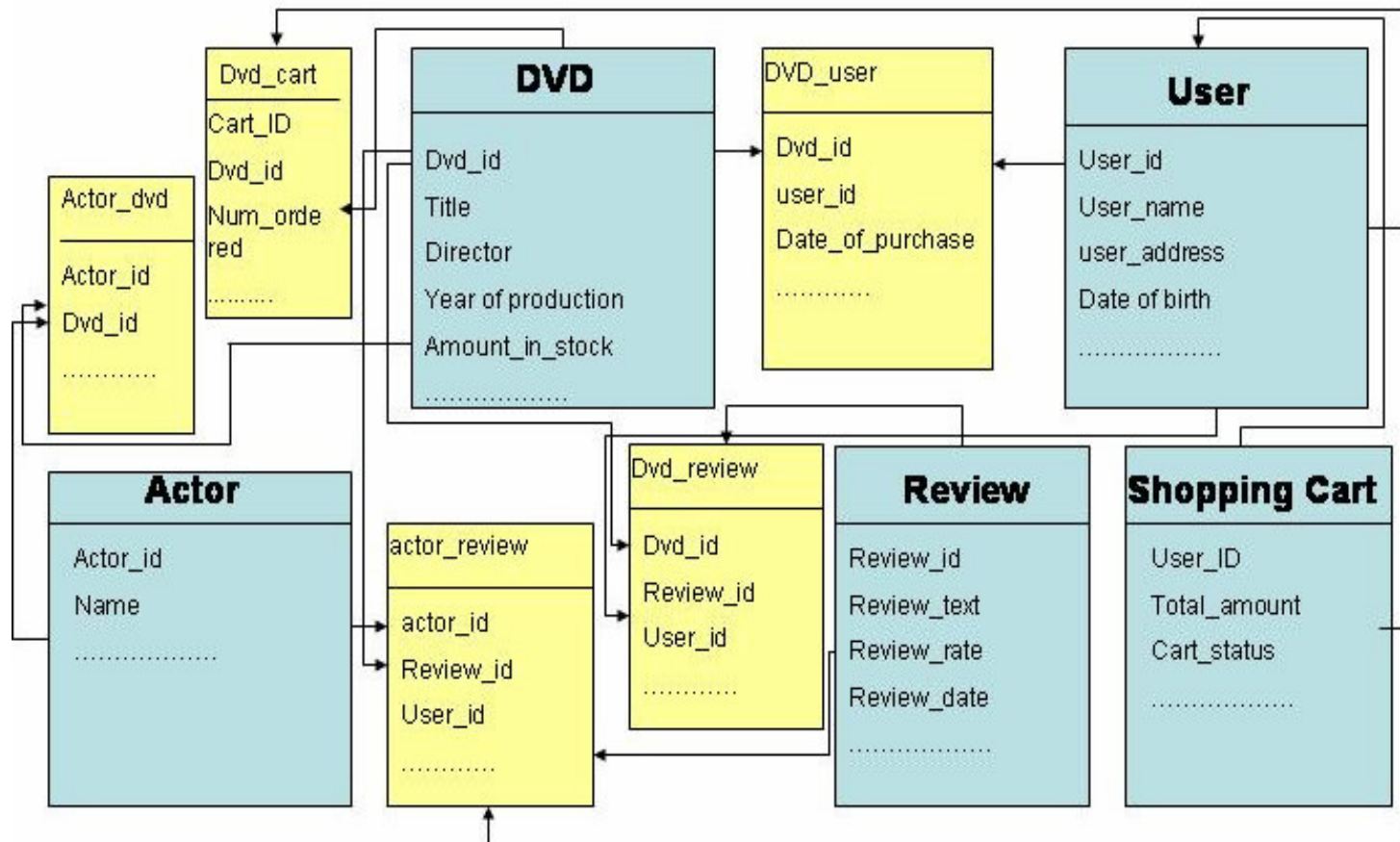
Nagy Mostafa  
Lamia Youseff

# Project Description

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- Online DVD Store
- Amazon E-commerce Service
  - DVD titles, actors, director, manufacturer, movie format, images URLs ...etc.
  - Price
  - Reviews
- *MySQL* for database backend
- Ruby on Rails

# Database Design



# Demo ....

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- URL

<http://domu-12-31-33-00-01-a8.usma1.compute.amazonaws.com>

# Performance Measurements

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- Benchmark → httpperf
- measured Response [time, rate] vs Rate of sessions
- Studying traces of application performance
  - *MySQL log*
  - *Mongrel log*

# Analysis

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- The listing/searching for *DVDs* is the most time-consuming operation
- Some indexing is needed on several tables
- Join between *DVD* and *Review* tables is a performance bottleneck

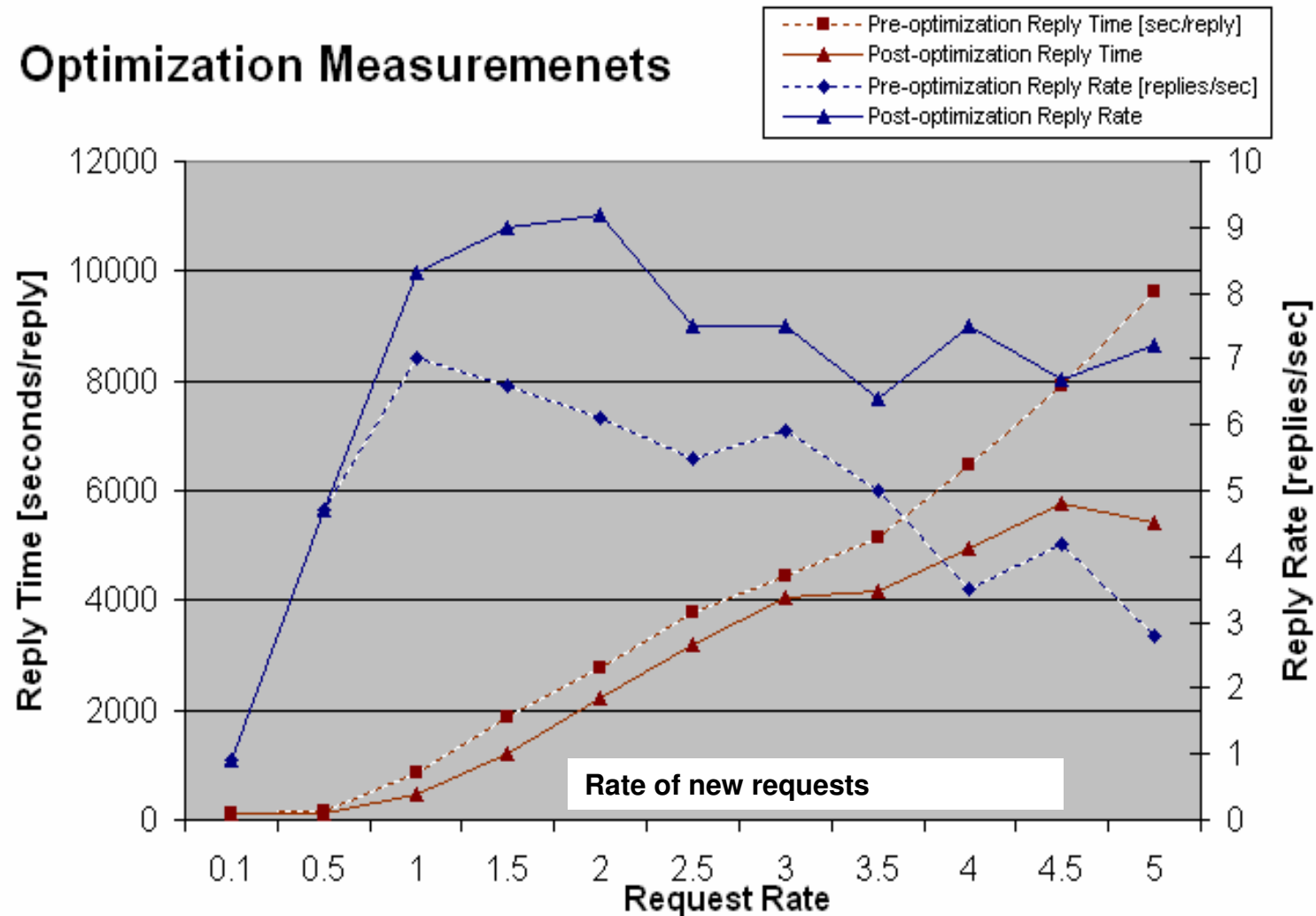
# Optimizations

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- Removing showing snippet of the reviews on the list page (*drastic improvement*).
- Searching for titles is done by prefix only.
- Indexing on dvds.title.
- Indexing on dvds\_actors.actor\_id and dvds\_actors.dvd\_id.
- Limiting DVDs listing to 10 per page instead of 20 (improves response time)

# Performance Measurements

## Optimization Measurements

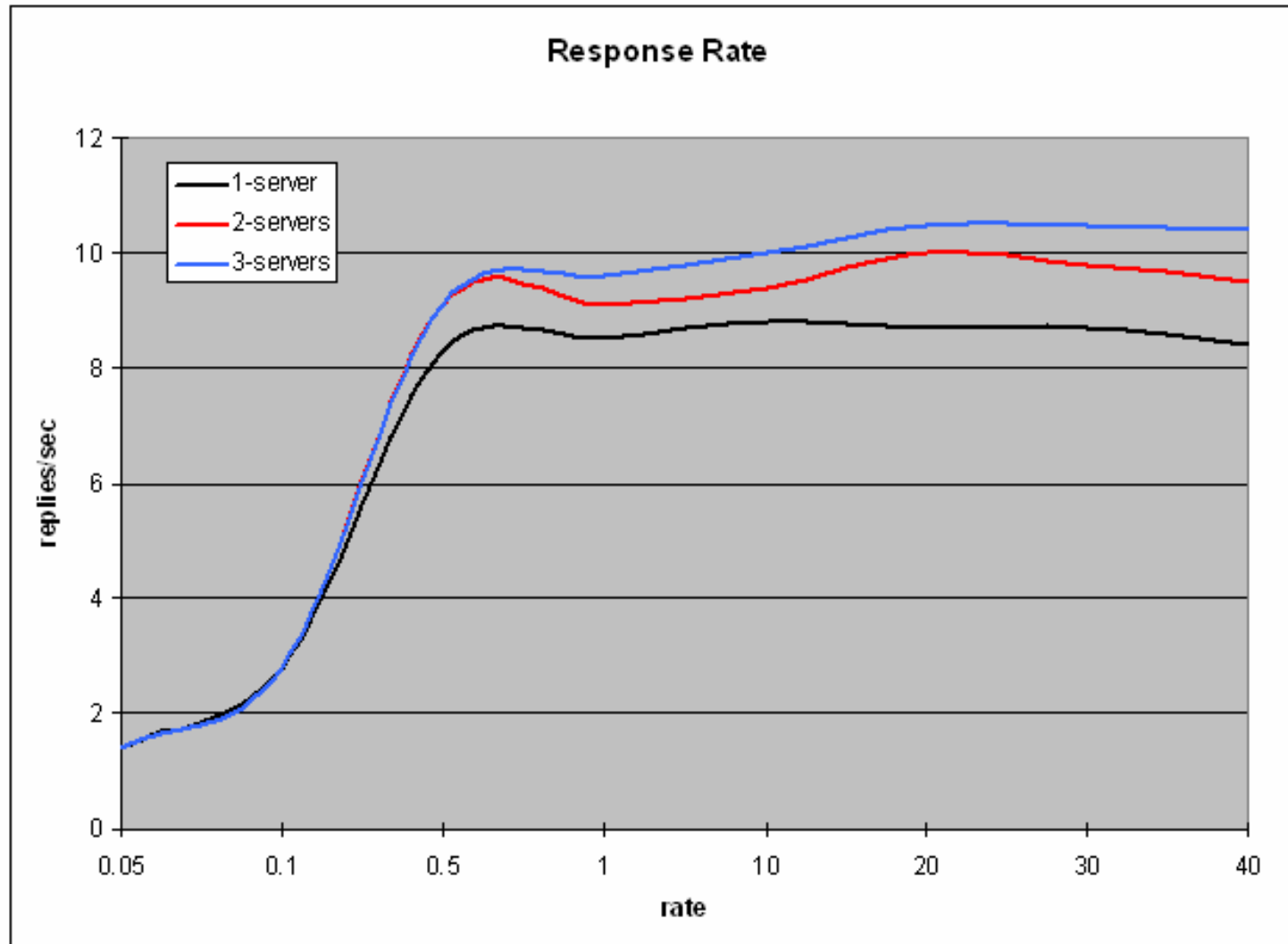


# Scaling to multi-servers

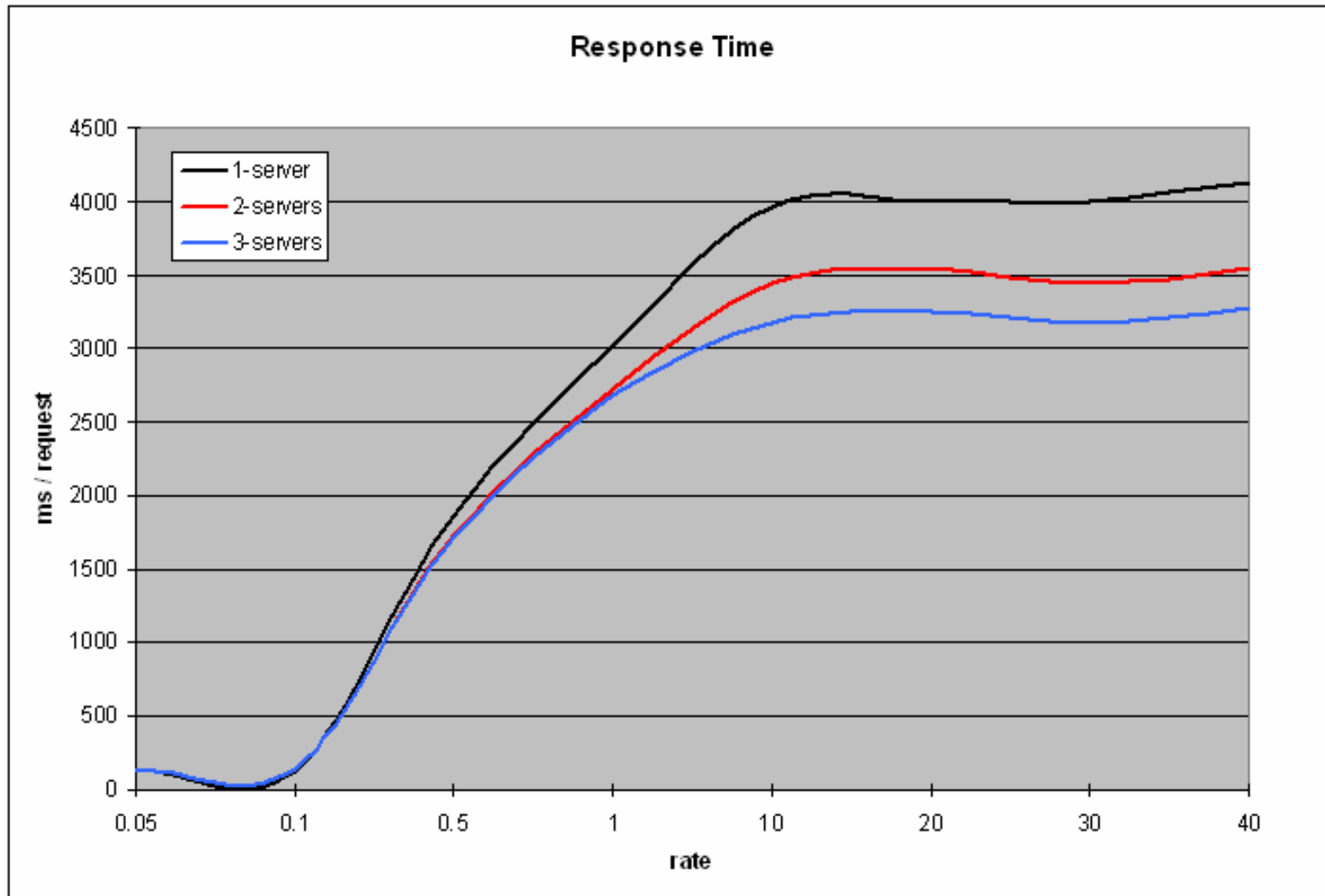
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- Scalability Issues
  - Atomic Operation
    - Add/Remove items to/from shopping cart
  - User Session Data
- Set-Up
  - Apache web server (reverse-proxy)
  - Application server(s) (1 to 3)
  - MemCached server
  - Database server

# Response Rate



# Response Time





Thank you.



Questions?