CS15-319 / 15-619
Cloud Computing

Recitation 10
October 29\textsuperscript{nd} and Nov 1\textsuperscript{st}, 2013
Announcements

• Encounter a general bug:
  – Post on Piazza
• Encounter a grading bug:
  – Post Privately on Piazza
• Don’t ask if my answer is correct
• Don’t post code on Piazza
• Search before posting
• Post feedback on OLI
Piazza Questions

• Storage Options
  – Ramdisk
  – Elastic Block Storage (EBS)
Project 3, Module 3 Reflections

• Custom Metrics

• Queries per Second = Queries / Uptime
• Transactions Per Second (TPS)
  • Factor in the two queries used to find queries per second and uptime.
  • \textit{sysbench} transaction equals to 16 queries

• Send TPS information to CloudWatch using API
Project 3, Module 3 Reflections

• Horizontal Scaling of Databases

Auto Scaling Database Pool

Elastic Load Balancer

Launchpad

DB Instance: 1
DB Instance: 2
DB Instance: 3
DB Instance: 4
Module to Read

• UNIT 4: Cloud Storage
  – Module 12: Cloud Storage
  – Module 13: Case Studies: Distributed File Systems
  – Module 14: Case Studies: NoSQL Databases
  – Module 15: Case Studies: Cloud Object Storage
  – Quiz 4: Cloud Storage
Project 3

• Files vs. Databases
  – File vs. Database

• Vertical Scaling in Databases
  – Vertical Scaling

• Horizontal Scaling in Databases
  – Horizontal Scaling

• Working with NoSQL: DynamoDB / Hbase
  – Amazon DynamoDB
  – DynamoDB vs. HBase
Project 3 Module 4

• Amazon DynamoDB
  – NoSQL vs. SQL
    • Larger Scale Data vs. Limited Size Data
    • Consistency Differences
    • High Performance at Very Large Scales
  – Items and Attributes vs. Rows and Columns
  – Solid State Disks (SSDs)

• Your Task
  – Load data into the DynamoDB using the API
  – Configure the web server to read from the DynamoDB
DynamoDB Cost

• Provisioned Throughput Capacity

• Cost Structure
  – **Write**: $0.0065 per hour for every 10 units of Capacity
  – **Read**: $0.0065 per hour for every 50 units of Read Capacity

DynamoDB Cost

- Example:
- Read: 500 Units
- Write 500 Units
- Each Student’s Cost
  - $290 per month
  - $10 per day
- Class Cost: $1,500 per day
- Switch to free tier or terminate DynamoDB when done or face a grade penalty.
Review

• What do you do after you finish using DynamoDB?
  – Should be immediately set to 10-read / 5-write (the free usage tier), or simply deleted if you are done.

SWITCH TO FREE TIER
(10-read & 5-write)

OR

TERMINATE
Upcoming Deadlines

• Project 3:

<table>
<thead>
<tr>
<th>Working with NoSQL: DynamoDB / HBase</th>
<th>Checkpoint</th>
<th>Available Now</th>
</tr>
</thead>
<tbody>
<tr>
<td>Amazon DynamoDB</td>
<td></td>
<td>Due 11/3/13 11:59 PM</td>
</tr>
</tbody>
</table>

• Unit 4:

UNIT 4: Cloud Storage

Module 12: Cloud Storage

Module 13: Case Studies: Distributed File Systems

Module 14: Case Studies: NoSQL Databases

Module 15: Case Studies: Cloud Object Storage
Demo Outline

• 1. Monitor AWS costs
  – Account Activity
  – Create Billing Alert

• 2. DynamoDB
  – Create DynamoDB Table
  – Check Table Status
  – Put Item into Table
  – http://docs.aws.amazon.com/AWSJavaSDK/latest/javadoc/