Lab 5
Introduction to Cloud Computing
-- Load Balancing

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Lab 5: Load Balancing

Dear Happy Vacationer

- The previous experiment was so easy that I'm ashamed to even talk about it

- Now you need to do one large experiment that worths a two-week time

- This is load balancing

Goal for Lab 5

- Objectives:
  - Understanding the concept of load balancing
  - Monitor the utilization status of each VM and each host
  - Moving VMs from hot spot to cold ones
  - Complete this experiment using at least two computers, the more the better

To Start

- Go to dockerhub and pull one image call mongo-express
  - https://hub.docker.com/_/mongo-express

- Test this mongodb web service with simple SQL statement
  - Hints, you can generate your own DB file on random data

- Write a HTTP request generator that wraps SQL statement
  - https://sourceforge.net/projects/http-req-gen/
  - https://github.com/Kong/httpsnippet

Combine Them Up

- First, connect your request generator to the MongoDB service, basically shooting different SQL statement at a self-defined rate
- Second, make multiple duplicates of the MongoDB service, and randomly distribute the SQL statement to all service hosts
- Third, based on your homework 2-3, use your hypercall to detect the runtime system status, including CPU utilization, memory utilization, etc.

- Set a threshold for such status and name it as the hotspot when it is over
  - E.g., when CPU util > 80%, this is a hot spot, you need to either move some hosts to other machines, or distribute less workloads to this spot

Lab 5: Submission Requirement

- Use the provided basic Markdown template for your lab report online
- Fill the report with the Markdown template, including all your test procedure
- Compile it and submit it to ncuhomework@outlook.com
- Subject shall be Course Z6110X0035 CC Lab 5 #name #ID
- The deadline for this lab is postponed to May. 8th, 11:59PM (Hard Deadline)