ISEngineering
Wirtschaftsinformatik –
Information Systems Engineering

Technische Universität Berlin

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Your name:_____

Enterprise Computing (WS 2016/17)

Exercise 7 (3 Portfoliopunkte)

Info:

- The solution to this exercise must be handed in by Wednesday, Jan 4th 2017, 12AM.
- Any written solution must be in an accessible PDF. Any source code in a separate ZIP File. All Files are uploaded in the Information System for Instructors and Students in a single ZIP File (https://isis.tu-berlin.de/course/view.php?id=8586).
- Please write your name on the solution sheet.

Task 1 – Web Benchmarks (20%)

Name four relevant reasons why benchmarks such as TPC, OLTPBench, YCSB or YCSB++ are not optimal for benchmarking cloud database systems or cloud database services.

Answer:

Task 2 – Benchmarking with BenchFoundry (80%)

Setup and perform a cloud based Benchmark with BenchFoundry.

Read about BenchFoundry:

https://isis.tu-berlin.de/pluginfile.php/583974/mod_folder/content/0/BenchFoundry.pdf

Instantiate and configure minimum of five t2.micro instances on AWS from where you want to run BenchFoundry from.

1. Create 5 t2.micro instances which are reachable from any TCP Port outside of AWS
2. Update the Operating System (sudo apt-get update, sudo apt-get upgrade)
3. OPTIONAL: Install Thrift compiler (sudo apt-get install thrift-compiler) if you want to build the original BF
4. OPTIONAL: Install Maven (sudo apt-get install maven) if you want to build the original BF
5. Install Java (sudo apt-get install default-jre, sudo apt-get install default-jdk)

Use the build for OS: Ubuntu to start BenchFoundry:
https://github.com/marcopeise/BenchFoundry

Or do your own Build: https://github.com/dbermbach/BenchFoundry

Instantiate and configure one t2.medium instance where you want to install and configure a MariaDB single instance.

1. https://mariadb.com/ (sudo apt-get install mariadb-server)
2. Create User “benchfoundry” with password “benchfoundry” and grant privileges on the SQL command line:

   ```
   CREATE USER 'benchfoundry'@'%' IDENTIFIED BY 'benchfoundry';

   GRANT ALL PRIVILEGES ON *.* TO 'benchfoundry'@'%' WITH GRANT OPTION;
   ```

3. Create a Database called “test” with the SQL command line
4. Make DB available to the clients (/etc/mysql/mariadb.conf.d/50-server.cnf -> comment out bind-address)

Now start the listening Slave Instances of BenchFoundry and start the Master instance.

On **each Slave** start BenchFoundry:

```
java -jar target/BenchFoundry-1.0-SNAPSHOT-jar-with-dependencies.jar <port>
```

(should correlate with slaves.properties on Master Instance)

On the **Master** instance start BenchFoundry:

java -jar target/BenchFoundry-1.0-SNAPSHOT-jar-with-dependencies.jar bench-foundry.properties

a) How many rows should your MariaDB “test” of Table “HISTORY”, “ITEM”, “ORDER” and “CUSTOMER” contain after you successfully executed the benchmark?

TABLE NAME	Number of ROWS
HISTORY	
ITEM	
ORDER	
CUSTOMER	

b) Analyse the outcome of your benchmark and explain it. (Please attach the logs within your submission)