**CS550 Advanced Operating Systems**​

**Programming Assignment 2**

​

**Evaluation**

**submitted by:**

Chiranjeevi Ankamreddy

A20359837

The assignment carries out Evaluation of the DHT on 100k operations.

I’ve evaluated the time taken to put , get, and delete operations on a server a single node ,two nodes ,four nodes and eight running concurrently over 100k operations.

The 100k strings put operations on single server and key size less than 20 bytes and value size lessthan1000 bytes.

And get 100k strings and delete 100k strings on single server.

**1. Put:**

***single node:*** ​The time taken to put 100k strings on a single node at is 27 **millisecs**​.

Two  ***nodes :*** ​ time taken to put 100k strings on each of 2 nodes is :

node 1 ­ 38 millisecs

node 2 ­ 68 millisecs

Average time taken by a node to put 100k strings is : 38+68/2

=​ **53 millisecs**

***Four nodes :*** ​Time taken to put 100k strings on each of four nodes is :

node 1 ­ 75 millisecs

node 2 ­ 100 millisecs

node 3- 124millisecs

node 4- 174millisecs

Average time taken by a node to make 100k put operations is 75+101+124+174/4= **118.5 millisecs**

***Eight nodes :*** ​Time taken to put 100k strings on each of Eight nodes is :

node 1 ­ 98 millisecs

node 2 ­ 119 millisecs

node 3- 146millisecs

node 4 ­ 214 millisecs

node 5 ­ 269 millisecs

node 6- 324 millisecs

node 7 ­ 426 millisecs

node 8 ­ 540millisecs

Average time taken by a node to put 100k strings is 98+119+146+214+269+324+426+540/8= **267 millisecs**

**Average time taken for a single node per 100kput operations : 27millisecs**

**Average time taken for two concurrent nodes per 100kput operations : 53 millisecs**

**Average time taken for four concurrent nodes per 100kput operations : 118.5 millisecs**

**Average time taken for a eight concurrent nodes per 100kput operations : 267 millisecs**

**PLOT FOR PUT :**

**X­axis : nodes**

**Y­Axis : time (millisecs)**

**2. Get :**

***single node:*** ​The time taken to get 100k strings on a single node at is 38 **millisecs**​.

Two  ***nodes :*** ​ time taken to get 100k strings on each of 2 nodes is :

node 1 ­ 46 millisecs

node 2 ­ 67 millisecs

Average time taken by a node to get 100k strings is : 46+67/2

=​ **56.5millisecs**

***Four nodes :*** ​Time taken to get 100k Strings on each of four nodes is :

node 1 ­ 72 millisecs

node 2 ­ 98 millisecs

node 3- 148 millisecs

node 4- 189 millisecs

Average time taken by a node to make 100k put operations is 72+98+148+189/4= 126.7  **millisecs**

***Eight nodes :*** ​Time taken to get 100k Strings on each of Eight nodes is :

node 1 ­ 84 millisecs

node 2 ­ 108 millisecs

node 3- 136 millisecs

node 4 ­ 168 millisecs

node 5 ­ 192 millisecs

node 6- 224 millisecs

node 7 ­ 287 millisecs

node 8 ­ 319 millisecs

Average time taken by a node to get 100k strings is 84+108+136+168+192+224+287+319/8= **189.75 millisecs**

**Average time taken for a single nodes per 100k get operations : 38 millisecs**

**Average time taken for two concurrent nodes per 100k get operations : 56.5 millisecs**

**Average time taken for four concurrent nodes per 100k get operations :126.7 millisecs**

**Average time taken for a eight concurrent nodes per 100k get operations : 189.5 millisecs**

**PLOT FOR Get:**

**X­axis : nodes**

**Y­axis : time (millisecs)**

**3. Delete:**

***single node:*** ​The time taken to delete 100k Stirngs at a single node at is ​ **38 millisecs**.​

***two nodes :*** ​ Time taken to delete 100k Strings at 2 nodes concurrently i.e., 200k files on both nodes is :

node 1 ­ 52 millisecs

node 2 ­ 64 millisecs

Average time taken by a node to delete 100k strings is : 52+64/2

58=​ **millisecs**

***Four nodes :*** ​Time taken to delete 100k Strings on each of four nodes is :

node 1 ­ 69 millisecs

node 2 ­ 84 millisecs

node 3- 104 millisecs

node 4- 158 millisecs

Average time taken by a node to make 100k delete operations is 69+84+104+158/4= 103.75  **millisecs**

***Eight nodes :*** ​Time taken to delete 100k Strings on each of Eight nodes is :

node 1 ­ 82 millisecs

node 2 ­ 98 millisecs

node 3- 128 millisecs

node 4 ­ 177 millisecs

node 5 ­ 219 millisecs

node 6- 256millisecs

node 7 ­ 309 millisecs

node 8 ­ 375 millisecs

Average time taken by a node to get 100k strings is 82+98+128+177+219+256+309+375/8= 205.5 **millisecs**

**Average time taken for a single node per 100k delete operations : 38 millisecs**

**Average time taken for two concurrent nodes per 100k delete operations : 58millisecs**

**Average time taken for four concurrent nodes per 100k delete operations :103.75 millisecs**

**Average time taken for a eight concurrent nodes 100k delete operations :205.5 millisecs**

**PLOT FOR DELETE:**

**X­axis : nodes**

**Y­axis : time(millisecs)**