Apache Zookeeper

Report Title

BUILDING A DISTRIBUTED KEY VALUE STORE-

BIG DATA 2017 - CLASS PROJECT

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Introduction

A distributed data store is a computer network where information is stored on more than one node, often in a replicated fashion. It is usually specifically used to refer to either a distributed database where users store information on a number of nodes, or a computer network in which users store information on a number of peer network nodes.

Related work

https://zookeeper.apache.org/

Studied the main pages to understand the server client connections.

ALGORITHM/DESIGN

1.Creation of a Client and Server java files using socket programming.

2. Start ZooKeeper and creation of Master Znode

3. Check for the presence of Master using ZooKeeper

SERVER OPERATION

· Clients will send requests to the server

· Server will determine request type – put, get

· Server will determine if it can process the request or the request has to be serviced by other servers

· For self-served requests – it will process the request and send back status of response

SERVER REPLICATION

· Based on the server name a hash code function assigns a random number.

· This random number is used to assign the last 8 bytes of the IP Address for the server.

Example: If the hash code returns a value 1234. Then required value = (1234) %255
Required value = 214

So, IP Address for the server will be 127.0.0.214 Its replica would be hash code return value of hashcode(servername+r).

HANDLING SERVER FAILURE

· Client tries connecting to server with key.

· On server failure, connects to master to get new list of keysserver mapping.

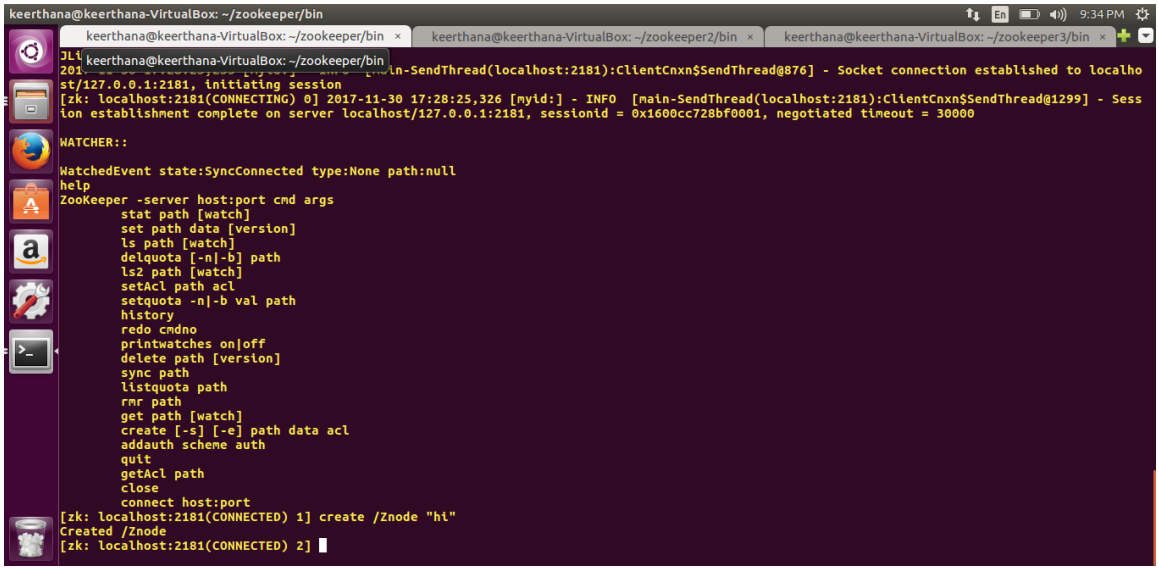
· Talks to the replica to retrieve data

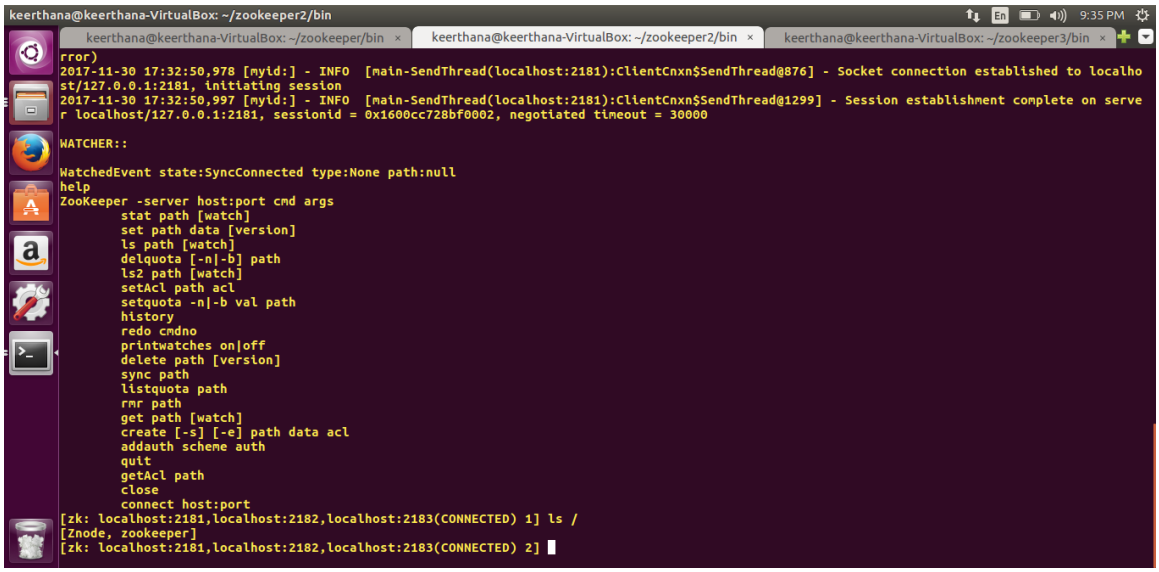
EXPERIMENTAL RESULTS

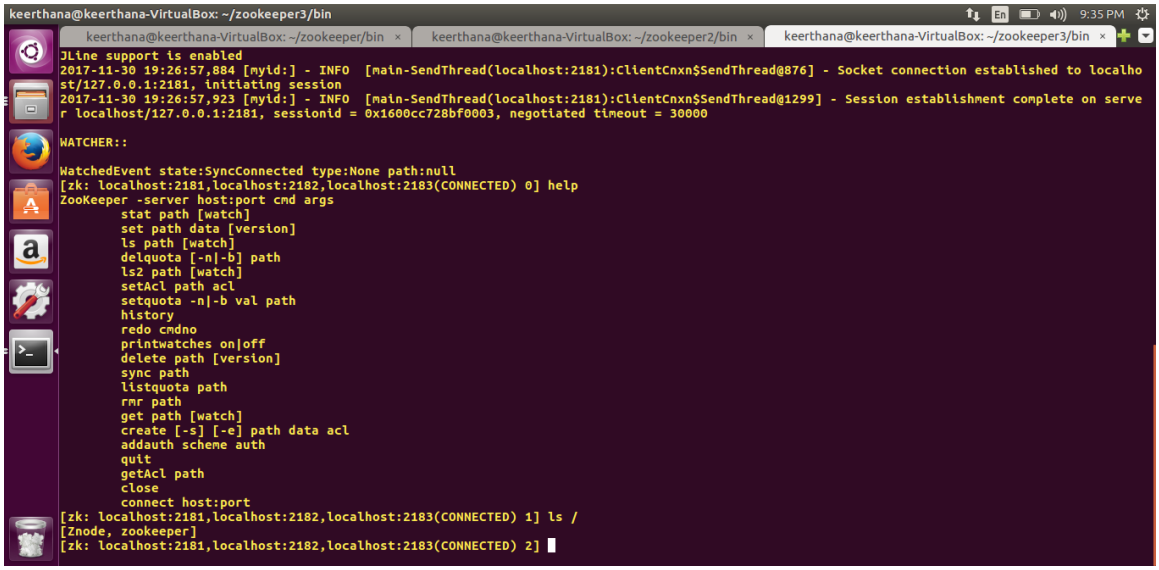
· Successfully established connection between client and server.

· Successful querying of keys by the client from various servers with distributed key value pairs.

· Server failure handled, its contents replicated in a replica-server and client retrieval from replica-server.







FUTURE ENHANCEMENTS

Handling additional servers, more than three

REFERENCES

https://askubuntu.com/questions/

https://tutorialpoint.com/zookeeper

https://zookeeper.apache.org/hadoop/zookeeper

https://myjeeva.com/zookeeper/clustering/setup.html

https://javatpoint.com/socket-programming