Partition Tolerance in NoSQL

# Introduction

Documenting the journey of experimenting partition tolerance in NoSQL databases for CP and AP models. There is a CAP theorem in NoSql databases that say in case of partition tolerance either of the consistency or availability can be achieved but not both.

**C**

**A** **P**

I am going to work on MongoDB that is a CP model and Riak which support AP model. The databases will be hosted on amazon ec2 instances.

# MongoDB on EC2 Instances:

* In amazon management console, set up the free tier ubuntu instance and install the mongo DB on an instance.
* Create the amazon AMI image.
* Launch 4 more instance using the image.
* Name the instances as primary, secondary1, secondary2, secondary3, secondary4.

Following the steps, you can setup instances with mongodb running.

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| Launch Instance | Ubuntu Server 16.04 LTS (HVM). |
| Instance Type | T2.micro |
| VPC | Cmpe-281 |
| Assign auto IP | Disable |
| security group | mongodb cluster  Add Inbound rules. Open ports 22, 27017 |

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## Install Mongo DB on Instance:

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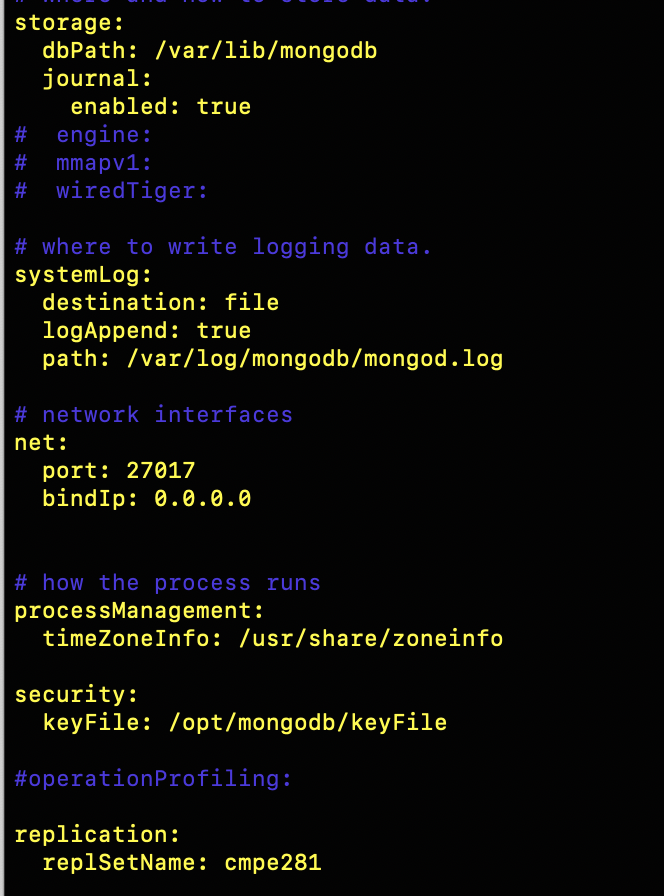
* sudo apt-key adv --keyserver hkp://keyserver.ubuntu.com:80 --recv 9DA31620334BD75D9DCB49F368818C72E52529D4
* echo "deb [ arch=amd64,arm64 ] https://repo.mongodb.org/apt/ubuntu xenial/mongodb-org/4.0 multiverse" | sudo tee /etc/apt/sources.list.d/mongodb.list
* sudo apt update
* sudo apt install mongodb-org

## Generate MongoDB KeyFile

* openssl rand -base64 741 > keyFile
* sudo mkdir -p /opt/mongodb
* sudo cp keyFile /opt/mongodb
* sudo chown mongodb:mongodb /opt/mongodb/keyFile
* sudo chmod 0600 /opt/mongodb/keyFile

## Configure MongoDB

* sudo vi /etc/mongod.conf
* replace bindIp with 0.0.0.0
* uncomment security and write keyFile : /opt/mongodb/keyFile.
* Uncomment replication and write replSetName : cmpe281



## Mongod Service

* sudo vi /etc/systemd/system/mongod.service. Add the following text in it.

*[Unit]*

*Description=High-performance, schema-free document-oriented database After=network.target*

*[Service]User=mongodb*

*ExecStart=/usr/bin/mongod --quiet --config /etc/mongod.conf*

*[Install]*

*WantedBy=multi-user.target*

Now Enable Mongo Service

* sudo systemctl enable mongod.service
* sudo service mongod restart
* sudo service mongod status