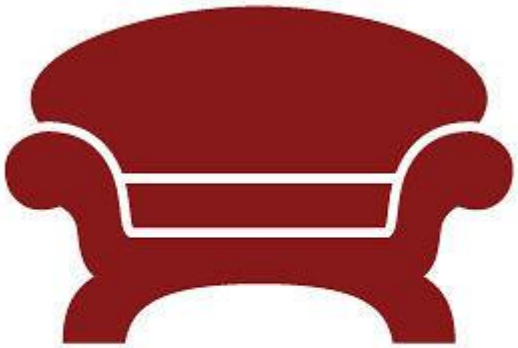
Couchbase 2.0



İşbaran Akçayır, Kaan Özdinçer

CouchOne(CouchDB+support)

+

Membase

=

Couchbase

(Apache 2.0 lisanslı)

Sağladıkları

- Servis kesintisi yok (teoride)
- Küme büyütme/küçültme
- Otomatik hata (sunucu) tespiti
- Veri yansıları/yedekleme
- İzleme araçları / yönetim (Webui veya API)
- Diske kayıt

Cluster Overview

Cluster

RAM Overview

Total Allocated (1.66 GB)

Total in Cluster (1.95 GB)

In Use (94.5 MB)

Unused (1.57 GB)

Unallocated (300 MB)

Disk Overview

Usable Free Space (70.4 GB)

Total Cluster Storage (73.3 GB)

In Use (110 MB)

Other Data (2.83 GB)

Free (70.4 GB)

Buckets (3 buckets active)

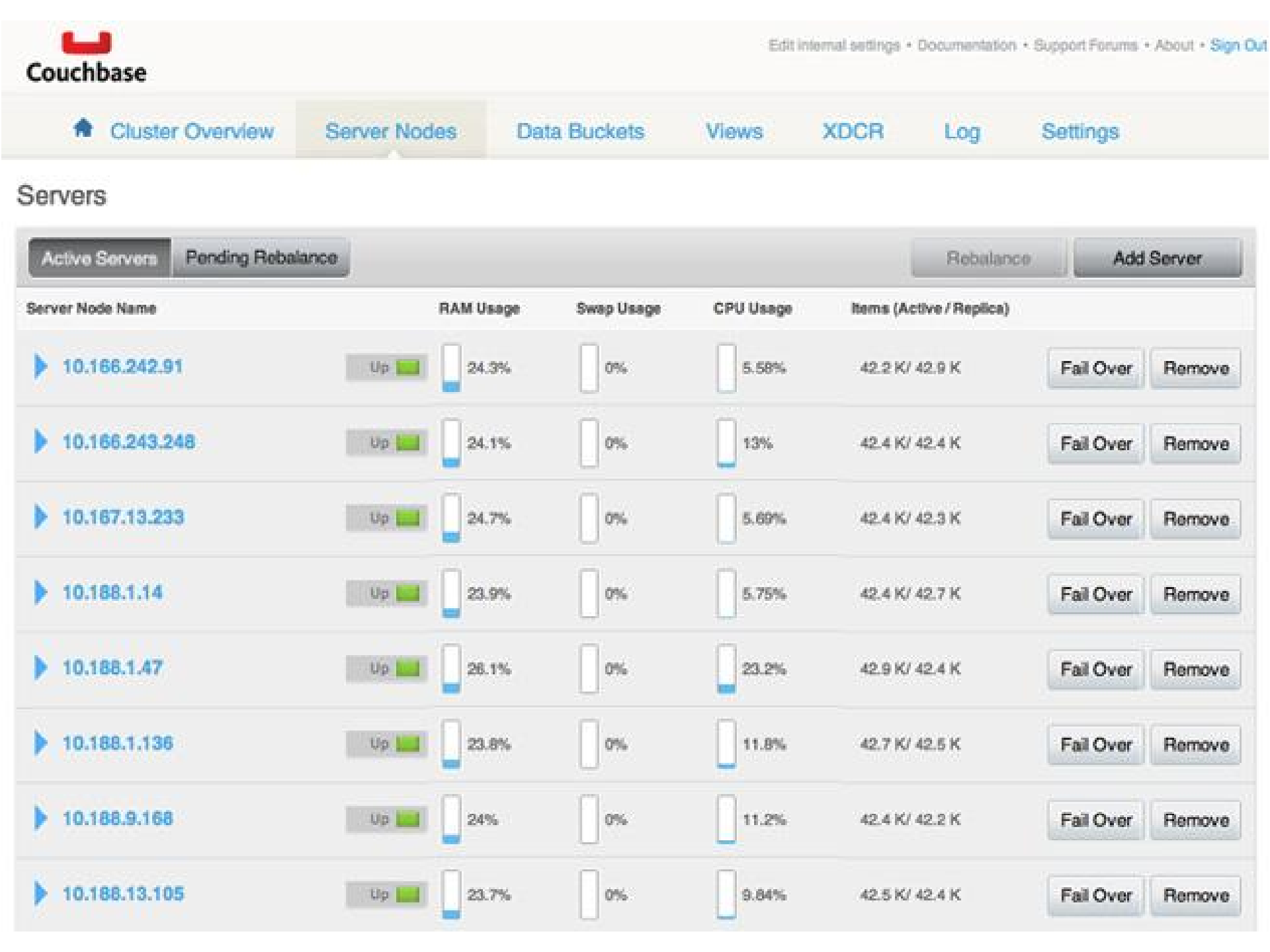
Servers

Active Servers: 1

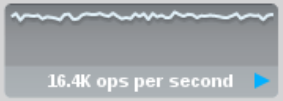
Servers Failed Over: 0

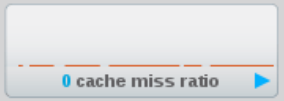
Servers Down: 0

Servers Pending Rebalance: 0


Couchbase
Edit internal settings • Documentation • Support Forums • About • Sign Out
Cluster Overview
Server Nodes
Data Buckets
Views
XDCR
Log
Settings
Servers
Active Servers
Pending Rebalance
Rebalance
Add Server
Server Node Name
RAM Usage
Swap Usage
CPU Usage
Items (Active / Replica)
10.166.242.91 Up 24.3% 0% 5.58% 42.2 K/ 42.9 K Fail Over Remove
10.166.243.248 Up 24.1% 0% 13% 42.4 K/ 42.4 K Fail Over Remove
10.167.13.233 Up 24.7% 0% 5.69% 42.4 K/ 42.3 K Fail Over Remove
10.188.1.14 Up 23.9% 0% 5.75% 42.4 K/ 42.7 K Fail Over Remove
10.188.1.47 Up 26.1% 0% 23.2% 42.9 K/ 42.4 K Fail Over Remove
10.188.1.136 Up 23.8% 0% 11.8% 42.7 K/ 42.5 K Fail Over Remove
10.188.9.168 Up 24% 0% 11.2% 42.4 K/ 42.2 K Fail Over Remove
10.188.13.105 Up 23.7% 0% 9.64% 42.5 K/ 42.4 K Fail Over Remove

SUMMARY

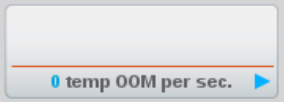

16.4K ops per second


0 cache miss ratio


70 creates per sec.

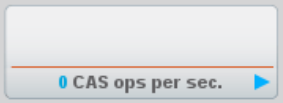

5.81K updates per sec.


0 disk reads per sec.

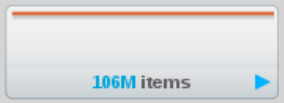

0 temp OOM per sec.


11.9K gets per sec.

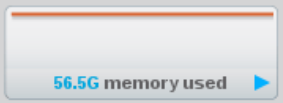

4.51K sets per sec.

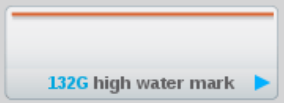

0 CAS ops per sec.

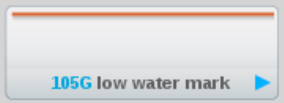

12 deletes per sec.


106M items


25.1K disk write queue


56.5G memory used


132G high water mark


105G low water mark


17.4 disk update time

VBUCKET RESOURCES

ACTIVE	REPLICA	PENDING	TOTAL
1024 vBuckets	1024 vBuckets	0 vBuckets	2.04K vBuckets
106M items	106M items	0 items	212M items
97.4 resident %	99 resident %	0 resident %	98.2 resident %
54 new items per sec.	16 new items per sec.	0 new items per sec.	70 new items per sec.
0 ejections per sec.	0 ejections per sec.	0 ejections per sec.	0 ejections per sec.
24.8G user data in RAM	25G user data in RAM	0 user data in RAM	52.4G user data in RAM
805M metadata in RAM	805M metadata in RAM	0 metadata in RAM	1.61G metadata in RAM

DISK QUEUES

TAP QUEUES

Client / SDK

- Resmi geliştirme araçları (java, .net, php, ruby, c, python)
- Camia tarafından geliştirilen istemciler

  (clojure, erlang, node.js, tcl, python)
- Hadoop connector (cb - hadoop arasında veri taşınması) veri / analiz (2.0)
- ...

2.0

- Incremental Map reduce
- Veri merkezleri arası yansılama
- Indexing, querying
- Json
- Disk yazma yönteminde değişiklikler (compaction) (2.0) (couchdb)

Operasyon

- Rebalance
- Veri tüm sunuculara eşit dağılır (bucket/vbucket)
- Aktif/yedek veri (working set + metadata + active / replicas (share ram))
- Tüm metadata ram'e sığmalı
- Veri çalışma seti uygulama gereksinimine göre değişir

Operasyon

- İstemci key/vbucket haritasına sahip, uygulamada hashing/sharding gerekmiyor
- Memcache uyumlu

Destek

- Var ama yok
- Çok yavaş
- Dökümanlarda yazandan daha fazlasını bekliyoruz.
- Bug fix yerine el altından patch.
- Backport yerine update ??
- Topluluk daha iyi.

Topluluk

- Çok küçük
- Yetersiz
- Tek bir mail grubu(Günde ~2 e-posta)
- Forum

Lisans

- Apache 2.0
- Couchbase Özgür mü? Ne kadar?
- Gittikçe gelişiyor.

Dokümantasyon

- Çok kısıtlı
- Sadece yazdıkları kadar
- Blog yazısı, karşılaştırma yok
- Hatalı/Eski olabiliyor. (1.8)

Rebalance

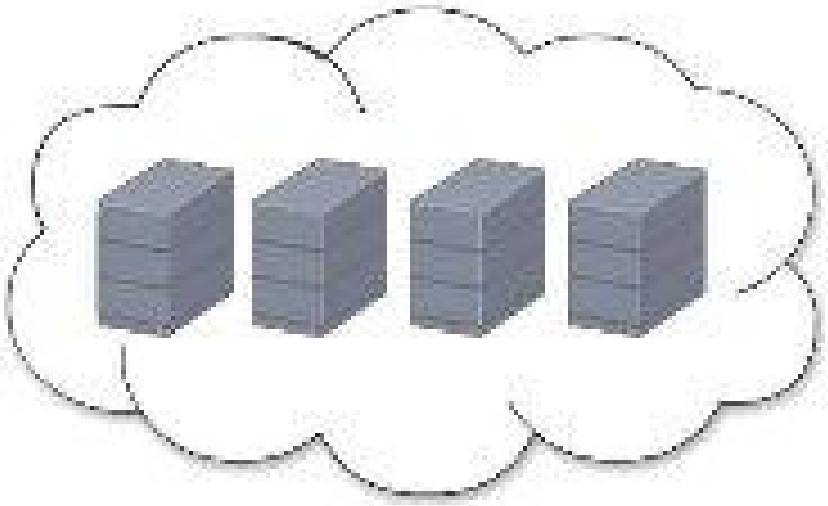
- Yüksek trafik altında kötü/imkansız
- Warmup ile çok uzun sürebiliyor (20 saat)
- 1.8.x yarıda kalabiliyor.
- 7/24 iddası
- Büyük makinalar
- I/O + Disk I/O tavsiye
- SSD tavsiye

Cluster specification

Amazon m1.xlarge Instance

YCSB Client

15 GB memory
4 virtual cores
4 EBS 50 GB volumes in RAID0
64-bit Amazon Linux (CentOS binary compatible)



Amazon m1.xlarge Instances * 4

15 GB memory
4 virtual cores
4 EBS 50 GB volumes in RAID0
64-bit Amazon Linux

* Extra nodes for masters, routers, etc

ALTOROS SYSTEMS

Couchbase Configuration

- 4 node Couchbase cluster
- 1 replica setting
- Each node has some active and some replica data
- 12GB used as the (12288 MB) Couchbase bucket size per node

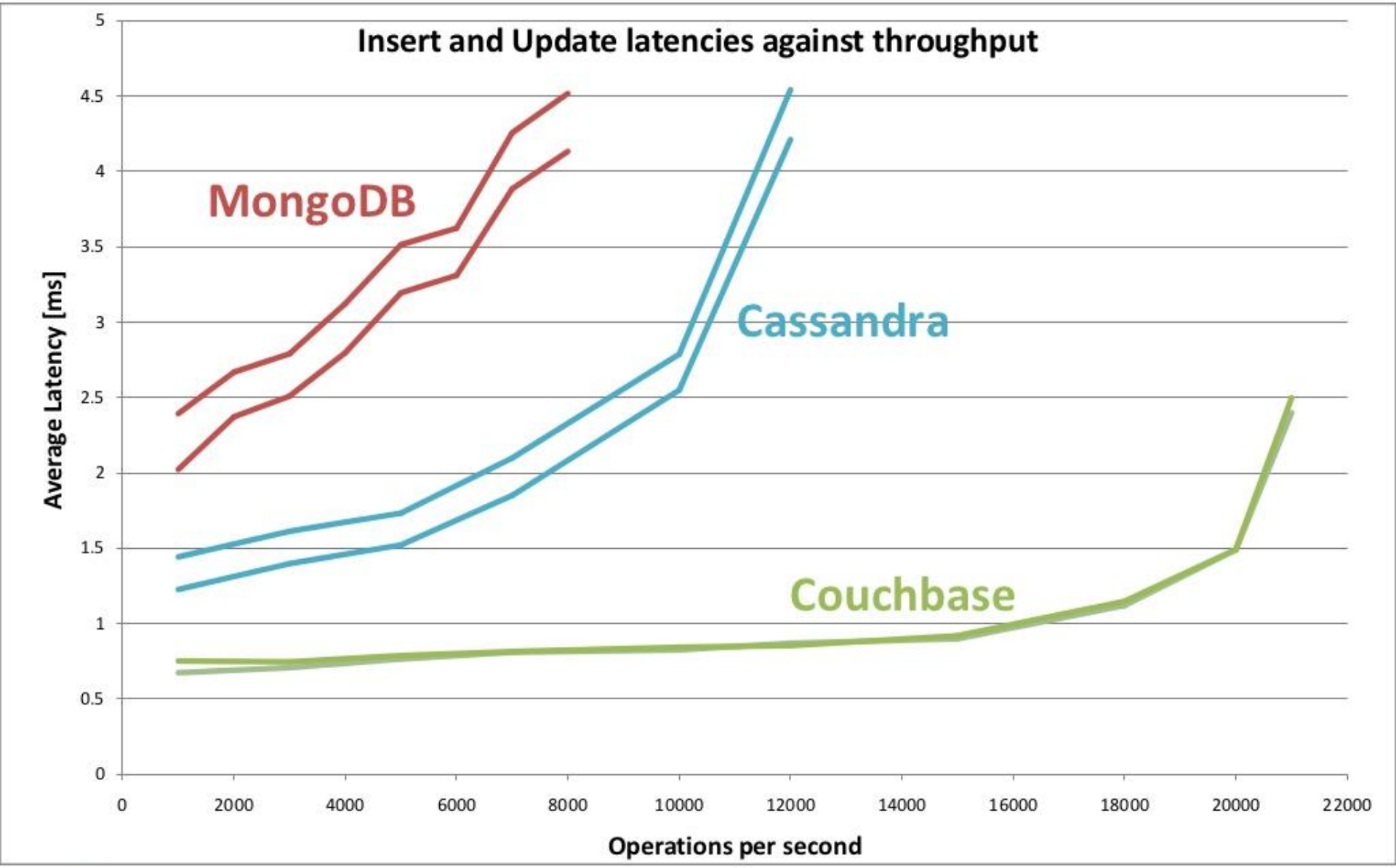
MongoDB Configation

- 4 shards each has 1 replica (replication factor – 1), where each shard is a set of 2 nodes - primary and secondary
- Journaling disabled (trying to maximize performance)
- var shards = [
  "shard1/ycsb-node1:27017,ycsb-node2:27018",
  "shard2/ycsb-node2:27017,ycsb-node1:27018",
  "shard3/ycsb-node3:27017,ycsb-node4:27018",
  "shard4/ycsb-node4:27017,ycsb-node3:27018"];

  Each node running
  - 2 mongod processes (all together 8 mongod processes on 4 nodes)
  - 4 mongos processes, which is the MongoDB router, process on 27019 port

- Cassandra JVM settings:
  - 1.1) MAX_HEAP_SIZE, which is a total amount of memory dedicated to the Java heap - 6G
  - 1.2) HEAP_NEWSIZE, total amount of memory for the new generation of objects - 400M
- Cassandra settings:
  - 2.1) RandomPartitioner was used which distributes rows across the cluster evenly by MD5
  - 2.2) Memtable size 4048 MB

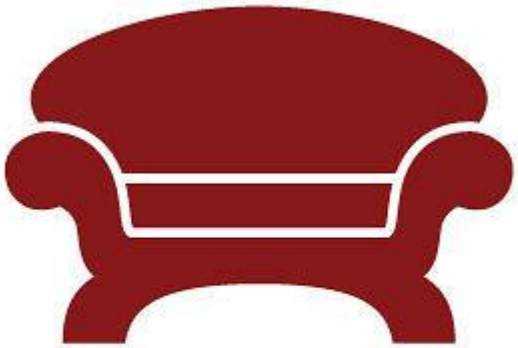
Writes (Average time)



```php
<?php
$cb = new Couchbase("127.0.0.1:8091", "", "", "default");
$cb->set("a", 101);
var_dump($cb->get("a"));
?>
```

Sorular ?

Couchbase 2.0



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