

Experiment 1Date of Practical: 1/10/22Aim: Case study of professional & commercial databaseDatabase: ScyllaDB

ScyllaDB is an open-source distributed NoSQL wide-column data store. It was designed to be compatible with Apache Cassandra while achieving significantly higher throughputs and lower latencies.

ScyllaDB uses a sharded design on each node, meaning that each CPU core handles a different subset of data. Cores do not share data but rather communicate explicitly when they need to.

Why is ScyllaDB preferred?

1) Price performance

Building on the NoSQL DBaaS achieves millions of OPS throughput from single node, resulting in huge cost savings.

2) Low latencies

consistent single-digit millisecond P99 latencies ensure dependable performance

3) No vendor lock-in

Built in full portability, you can easily migrate data to other clouds or on-premise deployments

4) Cassandra/DynamoDB compatible

Migrate to ScyllaDB cloud from Apache Cassandra or Amazon DynamoDB without changing your application code

Company: Hotstar (Disney+ Hotstar), India's most popular streaming service, accounts for over 40% of global Disney+ subscribers, offers 100,000 hours of content on-demand and most-watched sporting event (IPL, with over 25 million concurrent viewers)

The Hotstar database previously consisted of a new data model then they moved to a high-performance low-latency database-as-a-service called as Scylla Cloud. It lowered the latency issues for both read and write to ensure snappy user experience that today's streaming users expect. - even with rapidly growing content library and skyrocketing subscriber base.

A main-engaging feature that they used was of "continue-watching" which majority of the user based had been keen to use. As it would promote the watching again from that particular time-stamp. So they use ScyllaDB to process 100 to 200GB of data daily for this feature to be in use.

### Comparison.

#### DynamoDB

Def:- It is a fully managed proprietary NoSQL database service that supports the document data structures as well as key-value pairs.

#### ScyllaDB

It is a open-source distributed NoSQL database with wide-column data store. It was designed to be compatible with Apache Cassandra to lower latencies.

ANS:-

Sort of ?

Compatible



	Dynmode	Spillmode
License and based only	Commercial ✓	open-source X
Built in security	Yes with encryption of data	-
Continuous Backup	✓	X
Cost	quite high	very low
Multi region Application	Possible	not compatible
Scalability performance	Tracks how close usage is to the upper bound allowing the user to auto-scale	Highly scalable too but doesn't adjust itself according to the instance
Access controls	permits fine-grained access controls with the data by table owner smooths the workflow to avoid creating bottlenecks	Access rights are defined per object, no granular distinguishing available
Pricing	Only factor where Dynomo falls apart, estimated yearly cost \$525,000	\$119,000
Database Transaction Group Application Kinds	✓ ACID	X X A & I for Single operations
REB workload	Overall Throughput: 857 2-3M READ operations: 50M 2-3M UPDATE operations: 50M 2-3M	202K (Ops/Sec) 50 2-3M (Avg) 50 2-3M (Avg)

Page No. \_\_\_\_\_  
Date \_\_\_\_/\_\_\_\_/\_\_\_\_

Recommendation: As the previously used database which is SyllaDB has some drawbacks of its own and which DynamoDB shines in. Some of the features are like the persistence of event-stream data, which has time-ordered streams within the AWS database that enables the developers to receive and update item-level data both before and after DynamoDB updates. In case of the system failure the SyllaDB also doesn't hold the backup database in which there can be stored the data; it has some backup of the data but not comparable to the AWS services provided by DynamoDB. There are many AWS options to use as a services for DynamoDB and on its data analysis and maintenance of which dynamoDB has a few. As Hotstar needs high performance and low latency database <sup>SyllaDB</sup> ~~DynamoDB~~ satisfies its job but dynamoDB is a very good option.

Conclusion: SyllaDB has both its advantages and disadvantages but overall it is working perfectly for the intended work of Hotstar in serving the customers to their requirements. The only major deciding factor of the usage of SyllaDB is because of its cost and the vast open source community. Apart from these factors dynamoDB is a far better alternative to it and can be used extensively instead of SyllaDB to manifest all the AWS cloud services as well.