Cassandra

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Introduction

- Apache Cassandra is a free and open source distributed NoSQL database management system
- Large amounts of structured data spread out across many commodity servers.
- Developed by Facebook.

Data model

- A table in Cassandra is a distributed multi-dimensional map indexed by a key.

- Each row key uniquely defines a row.
- Each row has multiple columns, each of which has a name, value, and a timestamp.
- Columns are grouped into sets called column families.
- A column family (called "table" since CQL 3) resembles a table in an RDBMS.

Writing data

- Logging data in the commit log
- Writing data to the memtable
- Flushing data from the memtable
- Storing data on disk in SSTables

Main features

- Fault tolerant
  - Data is automatically replicated to multiple nodes for fault-tolerance. Replication across multiple data centers is supported. Failed nodes can be replaced with no down time

- Decentralized
  - There are no single point of failure. Every node in the cluster is identical. Data is distributed across the cluster (so each node contains different data), but there is no master as every node can service any request.

- **Scalability**
  - Read and write throughput both increase linearly as new machines are added, with no downtime or interruption to applications.

- Supports replication and multi data center replication
  - Replication strategies are configurable. Key features of Cassandra's distributed architecture are specifically tailored for multiple-data center deployment, for redundancy, for failover and disaster recovery.

Thanks