cloud computing
And databases

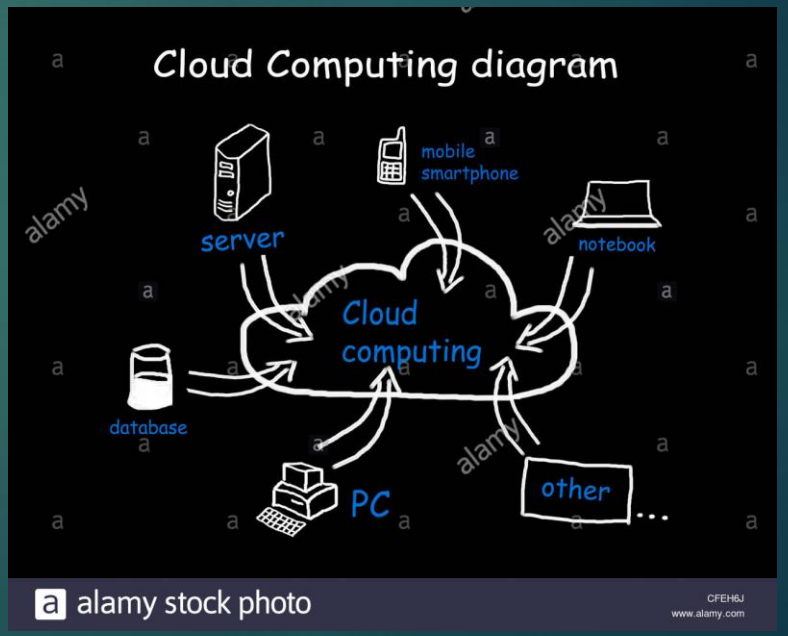
Cloud database

- A cloud database is a type of database service that is built, deployed and delivered through a cloud platform.
- Cloud databases typically run on a cloud computing platform

Cloud computing

- Cloud computing is shared pools of configurable computer system resource that can be rapidly provisioned with minimal management effort.

- It relies on sharing of resource to achieve coherence and e conomies of scale



- Third party clouds help organizations to focus on their core business instead
- The perks of cloud computing are:

1. Avoiding or minimizing up-front IT infrastructure cost
2. Allowing enterprises to get their applications up and running faster
3. Enabling IT teams to more rapidly adjust resource to meet fluctuating and unexpected demand

- Usually cloud providers use a "pay-as-you-go" model
- A lot of adoptions and improvements have led to the growth in cloud

Deployment models Cloud database

- There are 2 primary ways to run a database in a cloud:

1. Virtual machine image
2. Database as a service (DBaaS)

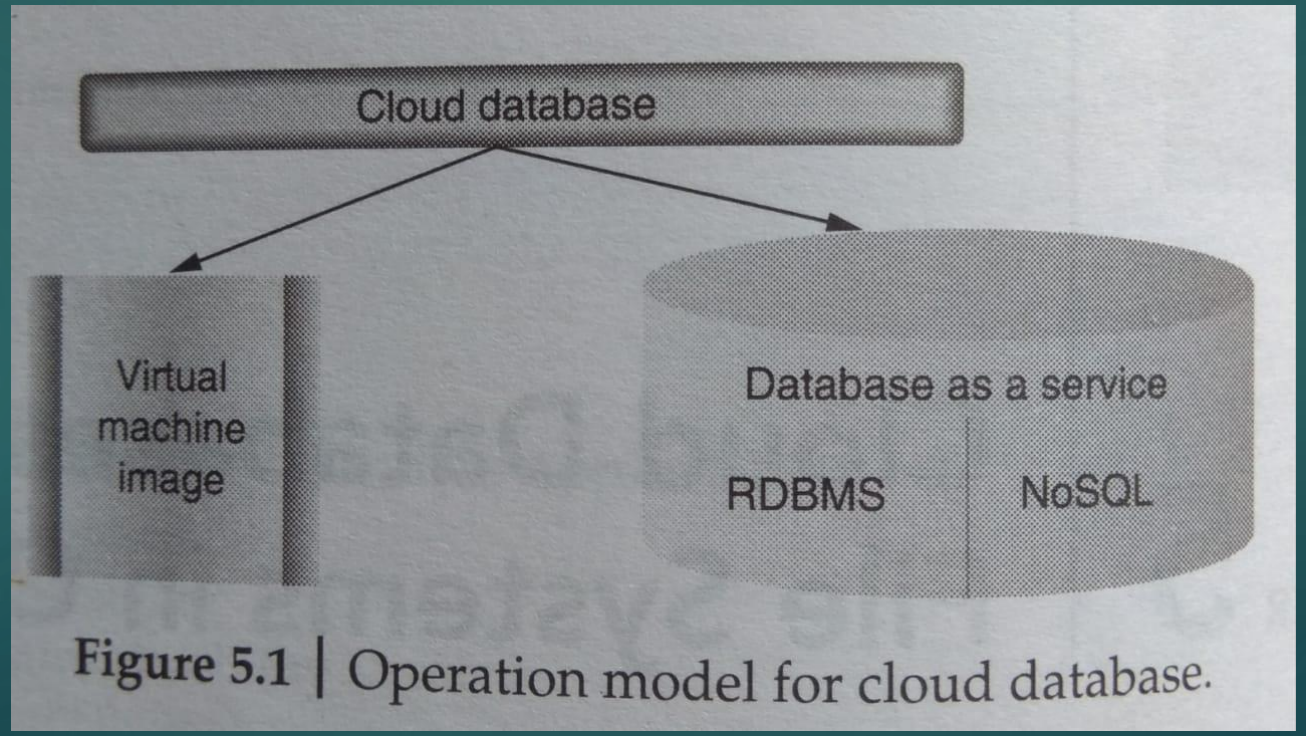


Figure 5.1 | Operation model for cloud database.

Virtual machine image

- Cloud platforms allow users to purchase virtual-machine instances for a limited time
- Users can upload their own machine image or use ready made machine images

Database as a service (DBaas)

- With this model, owners don't have to install and maintain the database themselves.
- Instead the provider takes responsibility for installing and maintaining the database, while the owner gets apropriately charged

Data model

- The design and development of typical systems utilize data management and relational databases as their key building blocks
- Advanced queries expressed in SQL work well with relational databases
- However relational database technology was not initially designed or developed for use over distributed systems

- Modern relational databases have shown poor performance on data-intensive systems, and so has risen the idea of utilizing NoSQL with database management systems
- Within the NoSQL implemented storage, there are no requirements for fixed table schemes
- NoSQL databases provide efficient horizontal scalability, good performance and ease of assembly into cloud applications
- It is important to differentiate between relational cloud databases as to opposed non-relational or NoSQL databases

SQL databases

- Or relational databases, can either run in the cloud or a virtual machine as a service
- While they are easily vertically scalable, horizonatal scalability poses a challenge

NoSql databases

- Are another type of database which can run in the cloud.
- They are built to service heavy read/write loads and can scale up and down easily
- But most contemporary applications are built on a SQL data model so working with NoSQL can require complete rewrite of application code
- Key-value store: based on table keys and values
- Document-based store:document based database stores records that are made of tagged elements. couchDB
- Column based store: Data divided into multiple columns and every storage block contains data of each column.(Apache Hbase, Cassandra)
- Graph based store: A network graph storage that uses edges and nodes for storing data(Neo 4j)

- A multi model database provides a SQL interface to users and thus facilitates the usage of such databases for contemporary applications bulit around a SQL data model

Sql data model examples

Virtual machine deployment

1. EDB Postgress advanced server
2. IBM DB2
3. MySQL

Database as a service

1. Amazon reletional database service
2. Clustrix DBaaS
3. Google could SQL

Nosql data model examples

Virtual machine deployment

1. Apache Casandra
2. Clusterpoint database virtual box
3. CouchDB

DAtabase as a service

1. Amazon dinamoDB
2. Azure document DB
3. Google cloud bigtable

Google File System

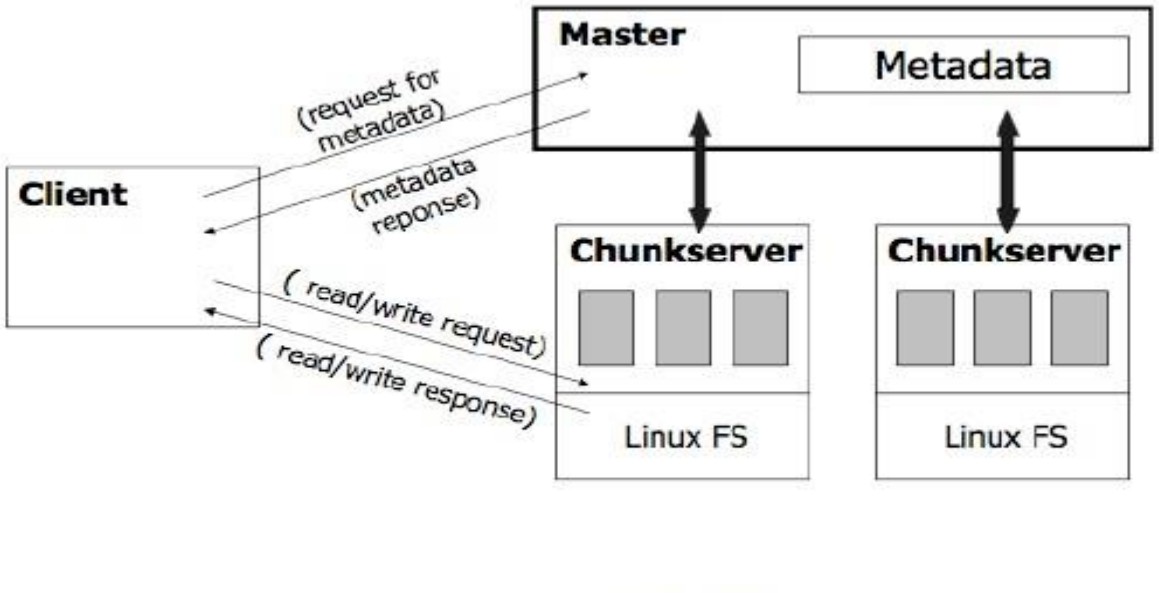


Figure 1