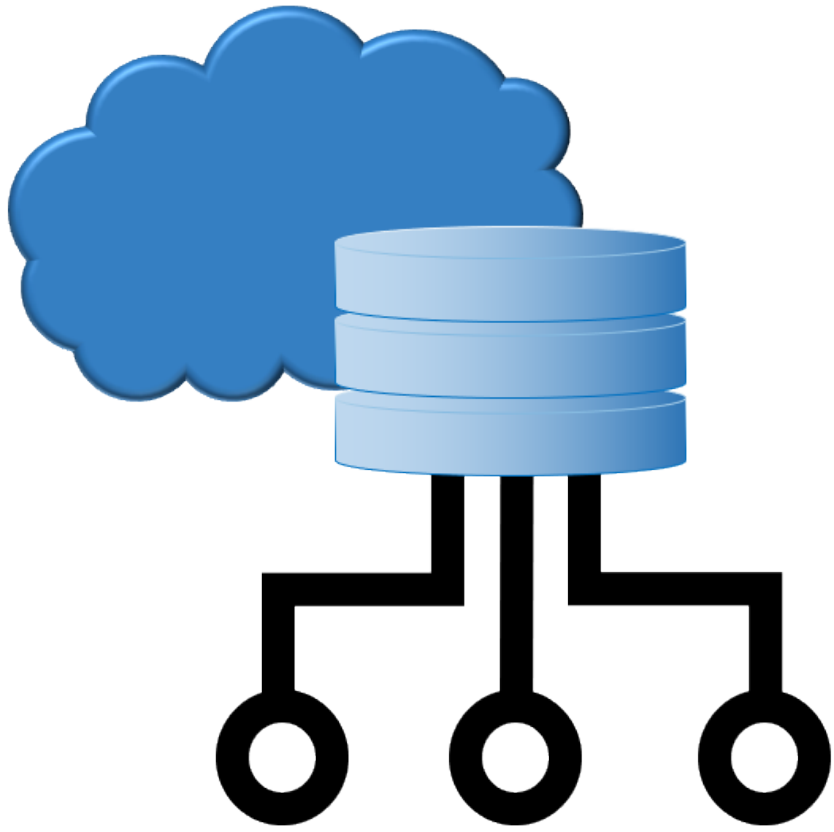


An Introduction to Oracle NoSQL Database Technology

Introduction

Effective data management is the crux for every successful business. Prior to the boom of Cloud technology, we experienced the power of Relational Database Management System (RDBMS), and Structured Query Language (SQL). Today also, RDBMS and SQL are very much relevant.

However, with the emergence of Cloud Technology, Big Data, and Artificial Intelligence, we started experiencing a sudden boom in the use of data, in terms of storage, transmission, and type. Just think about Facebook or Instagram. Every second, they are dealing with zillions of data, in the form of text, image, audio, and video format. Imagine the volume of transactional data for Amazon, Flipkart, and other e-commerce market.

Today we are experiencing significant increase in demand for meaningful utilization of data. With relational database model, it is not quite easy to collect, store and manipulate large volume of heterogeneous data in a meaningful way. The ***Volume***, ***Velocity***, and ***Variety*** of data are considered to be the three major challenging areas.

Managing the Volume

The RDBMS has its own limitation when it comes about managing large sets of data. Scaling is an obvious solution for managing the data volume. The question is how to scale, Horizontally or Vertically? RDBMS supports only Vertical scaling, at the cost of high investment in physical database components and other resources. Also, there is always a limit of scaling up a storage.

Maintaining high Velocity

Following the data volume, the velocity automatically comes into the picture. With the growing number of transactional data, we are experiencing the need high rate of data ingestion. RDBMS responds effectively as long as you maintain a steady data ingestion rate. The performance of RDBMS falls significantly, if there is a need for real-time data ingestion at a very high rate.

Dealing with Variety

With the rise of Big Data, we get more interested in meaningful utilization of data. Accordingly, our main focus shifted to collection and storage of structured, semi-structured, and unstructured data. Just think the variety of complete and incomplete data you may need to analyze customers' behavior! RDBMS strictly follows pre-defined schemas, and hence not a good choice for managing such heterogeneous data.

The Rise of NoSQL

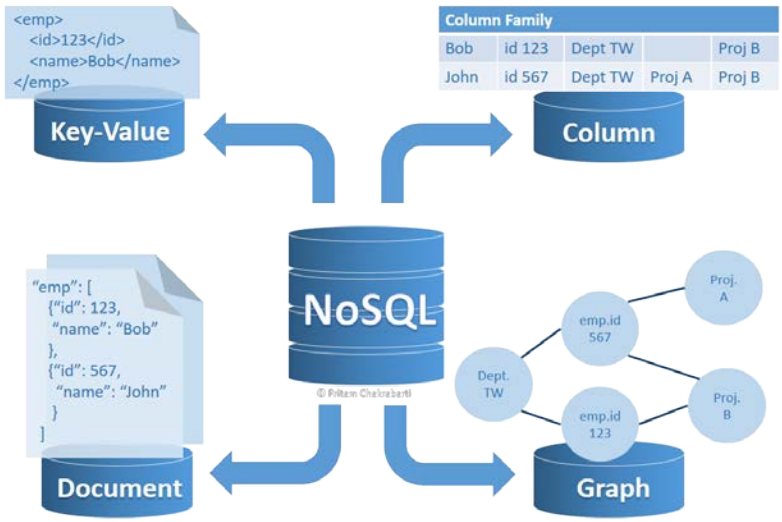
Welcome to the world of NoSQL. It is all about storing and managing data without 'relation', compared to RDBMS, where 'relationship among data' is the crux. NoSQL is completely a non-relational approach for managing data. It is not the replacement of SQL.

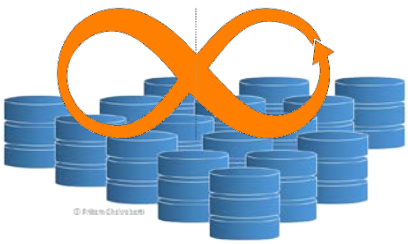
NoSQL do not follow traditional aspects of relational database technology. It is a flexible approach that supports storing and managing large volume of data with high degree of variety and velocity. The interesting part is, absence of predefined schema in NoSQL! You can store and manage structured, semi-structured, and even unstructured data without thinking about data completeness. NoSQL works well with big data and real time web applications.

Actually, it is all about what database technology you should choose, and when. Today also the RDBMS and SQL are very much relevant. However, to manage Big Data, you should go for NoSQL. Let's see some of the key features of NoSQL.

NoSQL Data Models

- ✓ **Key-Value** is considered as the simplest data model to store huge datasets and supports fast transaction.
- ✓ **Document** data model stores information in terms of JSON object, with key-value pairs.
- ✓ **Column** data model is optimized approach that supports column-wise read-write of data. It is widely used in analytics.
- ✓ **Graph** data model is formed by a network of relational nodes.



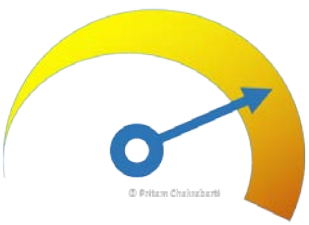


Infinitely Horizontal Scalability

Scale-out architecture is another key feature of NoSQL. With this feature you can easily manage the growing volume of semi-structured and unstructured data. There is no limit in the number of servers you can add for horizontal scaling. Also, with Sharding, you can specify each servers to work on specific data sets.

Seamless Data Ingestion & Extraction

Effective data ingestion and extraction using low level programming languages are key features of NoSQL. Also, you can take the full advantage of horizontal scalability for node-wise data replication and splitting a job into multiple processes. All these features ensure efficient ingestion/extraction, and zero data loss.



Key Features of Oracle NoSQL Cloud Database

Oracle NoSQL Database has everything you need to collect, store, and meaningfully utilize large volume of heterogeneous data, in an integrated business environment. Some of the key features of Oracle NoSQL Database are:

- ✓ Stores every un-structured and semi-structured data using the Key-Value Pair, JSON Document, and Column data models.
- ✓ Supports quick execution of CRUD operation by means of REST APIs and popular programming languages (Java, Python, Node.JS).

Airbus selected Oracle NoSQL to scale their IT operations for managing 150TB data and 130 billion Keys in databases, including legacy applications.

- ✓ Offers full compatibility with 'on premise' and 'other Cloud' application and database.
- ✓ High level of security in terms of auto-encryption of entire database, auto-execution of patches and upgrades (without interrupting your business operation), and execution of API methods with authorization.

Turkish Notary Union selected Oracle Big Data and NoSQL to revamp their document management system to achieve reliability, flexibility, and high performance.

- ✓ Indexing at every level of a document hierarchy. Breaking down data to smaller, independent modular unit with index helps in making database queries faster.
- ✓ No compromise with performance and reliability for achieving full flexibility of scaling out the database.
- ✓ Ensures transactional consistency for each query. The horizontal scaling and replication of data across the nodes allows you to perform fast transaction with zero data loss.

Business Benefits

Value for Money

Oracle NoSQL Cloud Database is available at half the cost of other Cloud databases. It comes with no hidden costs, and dynamically adjusts the database space based on the Oracle NoSQL Cloud utilization. So, you need to pay only for what you consume.

Flexibility, Reliability, Consistency

Take the full advantage of schema-less storage and replication of structured, semi-structured, and un-structured data across the nodes. With Oracle NoSQL, facilitates effective management of heterogeneous data in an integrated business environment. So, just rely on Oracle NoSQL, and stay focused in development.

Conclusion

Turn the developer's dream into reality with Oracle NoSQL Cloud Database. Take the advantage of Key-Value Pair, Document, and Columnar data models, infinitely horizontal scalability, across nodes data replication, zero data loss, super fast CRUD operations, and end-to-end secured data encryption.

What are you waiting for? Give it a try!