Java Plays :
Introduction to Database Services

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Agenda

- ❑ Purpose of This Section
- ❑ Cloudant NoSQL Service provides JSON document based DB service that is invoked using RESTful APIs using document id or MapReduce function views
- ❑ dashDB provides in-memory columnar database Optimized for accelerated analytics
- ❑ SQL Database provides relational database service to handle highly transactional workloads.
- ❑ Time Series Database provides massive time series data storage with optimized query performance and simplicity
- ❑ Summary

Purpose of this section

In this section, we will introduce key database services and high level features available in Bluemix including Cloudant NoSQLDB, dashDB, SQL Database, and Time Series Database.

Cloudant NoSQL Service provides JSON document based DB service that is invoked using RESTful APIs using document id or MapReduce function views.

What is Cloudant NOSQL Service?

- A fully managed NoSQL Database as a Service
- Transactional JSON document database with Restful API
- Support of distributed data across data centers & devices
- Ideal for apps that require:
    1. Massive, elastic scalability
    2. High availability
    3. Geo-location services
    4. Full-text search

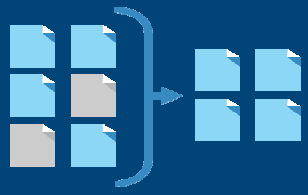
Cloudant API Feature HIghlights

JSON Documents

- ❑ Create
- ❑ Read
- ❑ Update
- ❑ Delete

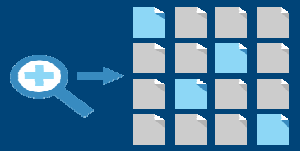
Primary Index

- ❑ Exists for every database “OOTB”
- ❑ Find docs by their primary key → _id



Secondary Indexes

- ❑ Built using MapReduce
- ❑ Use when you need to analyze data
- ❑ Ex: count data fields, aggregate/sum results, etc.



Search

- ❑ Built using Lucene
- ❑ Ad-hoc queries
- ❑ Find documents based on their contents

Cloudant Synch

- Native replication feature that allows you to push database access to mobile devices, remote facilities, sensors, and Internet-enabled devices

- Enables mobile and distributed apps to scale by replicating and syncing data between multiple readable, writable copies of a database even on mobile iOS and Android devices

- Simplifies large-scale mobile development by enabling you to create a single local database for every user.
    1. Reduces round-trip database requests with the server because when there is no network connection, the app runs off the database on the device.
    2. When the network is restored local data is synced with server

dashDB provides in-memory columnar database Optimized for accelerated analytics

Service	Use Case	Free Tier (30-day) Sizing	Entitled (Paid) Sizing
dashDB	Data warehousing and accelerated analytics	• Includes perpetual free tier up to **1 GB** stored data	• Up to 20GB (Entry) • Dedicated instances from 64GB up to 256GB of data

- ❑ Stores relational data for querying and advanced analytics
  1. Data mining
  2. Predictive Analytics
  3. Geospatial Analytics

- ❑ Powered by IBM BLU Acceleration and Netezza in-Database Analytics
  1. IBM BLU Acceleration is fast and simple. It uses dynamic in-memory columnar technology and innovations such as actionable compression to rapidly scan and return relevant data.
  2. In-database analytic algorithms integrated from Netezza bring simplicity and performance to advanced analytics.

SQL Database provides relational database service to handle highly transactional workloads.

Service	Use Case	Free Tier (30-day) Sizing	Entitled (Paid) Sizing
SQL Database	Web, transactional	• Includes perpetual free tier up to **100MB** stored data	• Small - 10 GB per instance • Premium – 500GB per instance

- ❑ On-demand relational database powered by DB2.
- ❑ Provides a managed database service to handle web and transactional workloads
- ❑ Offers high availability, automated backups and data privacy.

Time Series Database provides massive time series data storage with optimized query performance and simplicty

Service	Use Case	Free Tier (30-day) Sizing	Entitled (Paid) Sizing
Time Series Database	Internet of Things	• Includes perpetual free tier up to **1 GB** stored data	• **10 GB** stored data per instance

- ❑ Highly efficient storage, lowering costs for storing massive amounts of time series data in the cloud

- ❑ Time Series functions (extended SQL) make writing applications much simpler than standard SQL, faster iteration

- ❑ Time Series offered alongside a fully functional, enterprise-class relational database framework (Informix)
  1. Support for both SQL and NoSQL (JSON) within the same database
  2. Allows for data movement between the two interfaces

Summary

After this session, you should be aware of key database as services provided via Bluemix and their high level capabilities.

This ends Introduction to Database Services.

Thank you !