

Couchbase

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What is Couchbase Server?

- Couchbase is an open-source, NoSQL document-oriented database.
- Optimized for interactive applications:
 - Serve multiple concurrent users by creating, storing, retrieving, manipulating, and presenting data.
- “The highest performing NoSQL distributed database. Powering enterprise web, mobile, and IoT applications”
- Flexible data model that scales to support large data sets with low latency and strong consistency.

What is Couchbase Server?

- High Performance: Integrated object caching
 - Provides lower read and write latency as well as higher throughput
- Global Deployment: Cross-data center replication
 - Increases the data locality and availability
- Real-Time Big Data: Streaming data for integration
 - Real time with Hadoop, Storm, Kafka, and more

Why NoSQL?

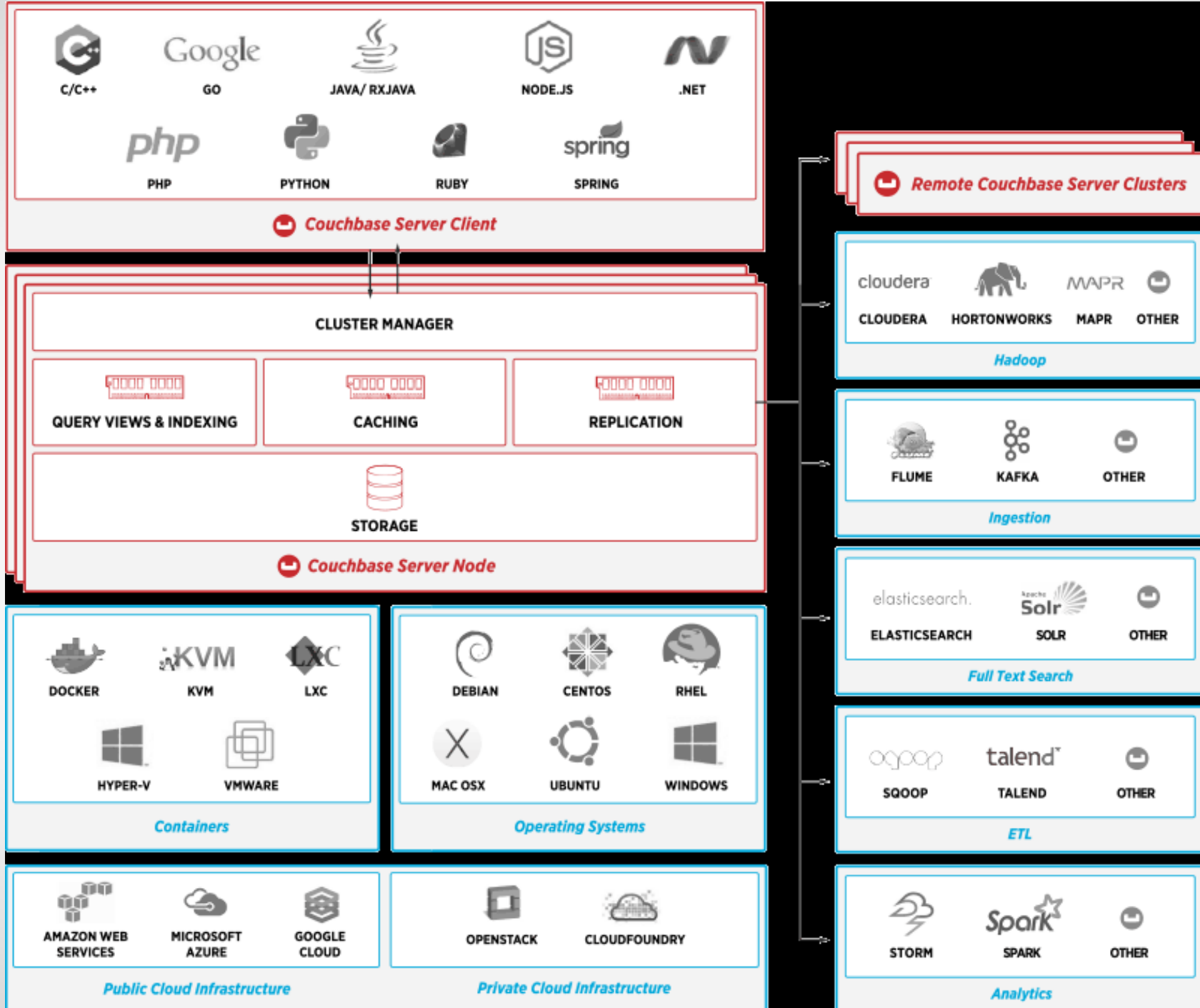
- NoSQL provides a flexible, schemaless data model that simplifies the interaction between the application and the database.
 - This results in less code to write, debug, and maintain
- NoSQL technology allows for scaling concurrent data access to millions of connected devices and systems
 - These technologies can also store billions of data points, and meet important performance requirements of critical infrastructure and operations.

Why NoSQL

- NoSQL databases are built to be distributed, scalable technologies and are a better fit for things like Cloud Computing.
- NoSQL models are schemaless, as are document databases, allowing one to freely add fields to JSON documents without having to define changes, increasing flexibility.
- So, why is Couchbase preferred?

Innovative, Scalable Architecture

- Couchbase is uniquely engineered with a memory-centric architecture
 - This enables Couchbase Server to “remove unnecessary disk IO from read and write paths”.
- Example:
 - Updating the index in-memory based on writes to the cache when it's queried.
- Database Change Protocol (DCP):
 - Streams writes from the in-memory cache to in-memory queues within the indexing and replication components to increase performance



Various Use Cases

- Couchbase is a general-purpose database
 - It meets the requirements for a large number of use cases:
- Examples include:
 - Digital Communication – Real-time interaction and communication
 - Profile Management – Maintains user profiles over multiple channels
 - Customer 360 Degree View – Ability to aggregate customer information from various sources with varying schemas within a single database
 - “Internet of Everything” – Able to collect high volume, high velocity data from industrial and consumer devices
 - Mobile Applications – Mobile apps with offline support through an embedded database and auto-sync.
 - Etc...

Couchbase Mobile

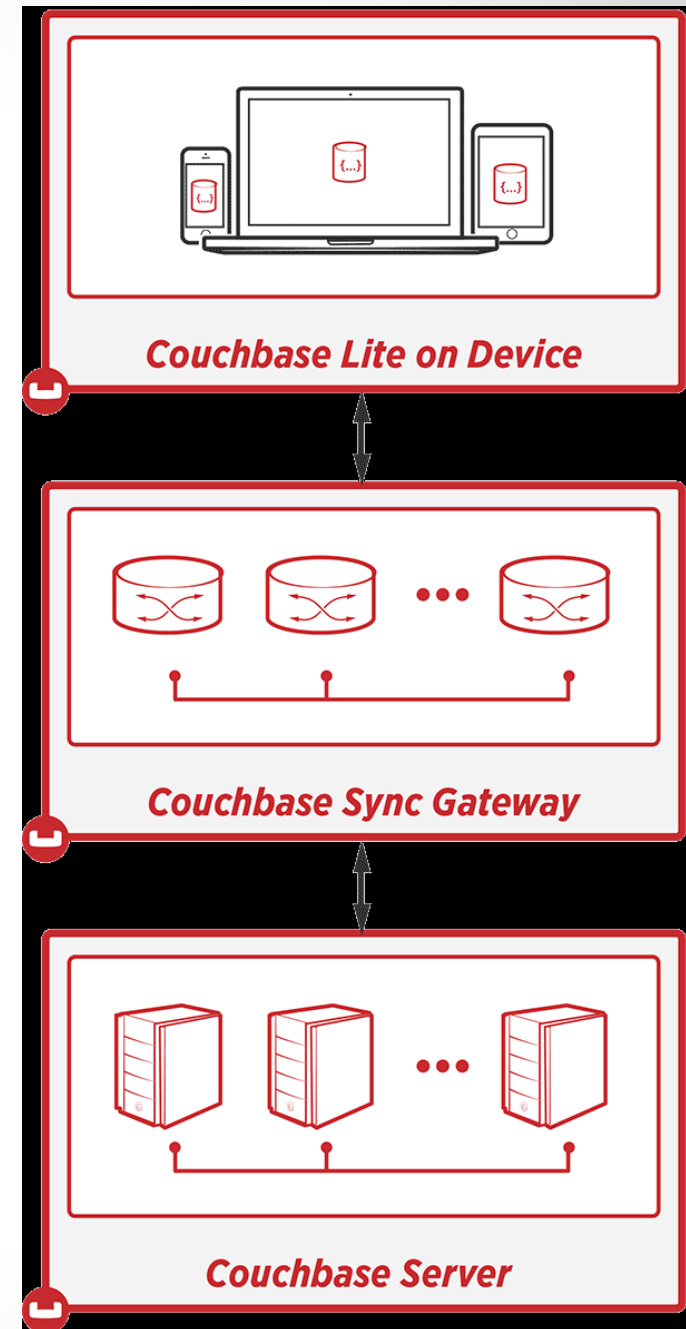
- Couchbase allows for NoSQL power and flexibility to be brought to mobile.
 - This allows for fast and consistent access to one's data, even without a network connection
 - Removes the network dependency that other service-based approaches require.

Couchbase Mobile

- Comprised of three components:
- Couchbase Sync Gateway
 - Cloud component that synchronizes data between mobile device and the cloud
- Couchbase Server
- Couchbase Lite
 - Embedded NoSQL database that lives locally on the mobile device

Mobile Use Cases

- Field Services
 - Push data to remote database for analysis
- Games
 - Push top scores to online users
- Field Sales
 - Push customer info and sales collateral
- eCommerce
 - Push product catalogs and promotions
- Education
 - Store assignments, articles, and e-books



Main Points

- Couchbase is a NoSQL distributed Database
- Has a flexible data model that allows for scalability
- Supports large data sets with a high number of concurrent reads and writes
- Maintains low latency and strong consistency
- Can be deployed as a document database, Key/Value store, and a distributed cache
- Used by Ebay, Linkedin, nielsen, Paypal, and more!

Resources

- <http://www.couchbase.com/nosql-databases/couchbase-server>
- http://en.wikipedia.org/wiki/Couchbase_Server