U.PORTO

FEUP **FACULDADE DE ENGENHARIA**
UNIVERSIDADE DO PORTO

What is it?

Use Cases

Couchbase

Features

A NO SQL DATABASE SOLUTION

SDKs

Non-Relational Data Bases 2023/2024
Group 4

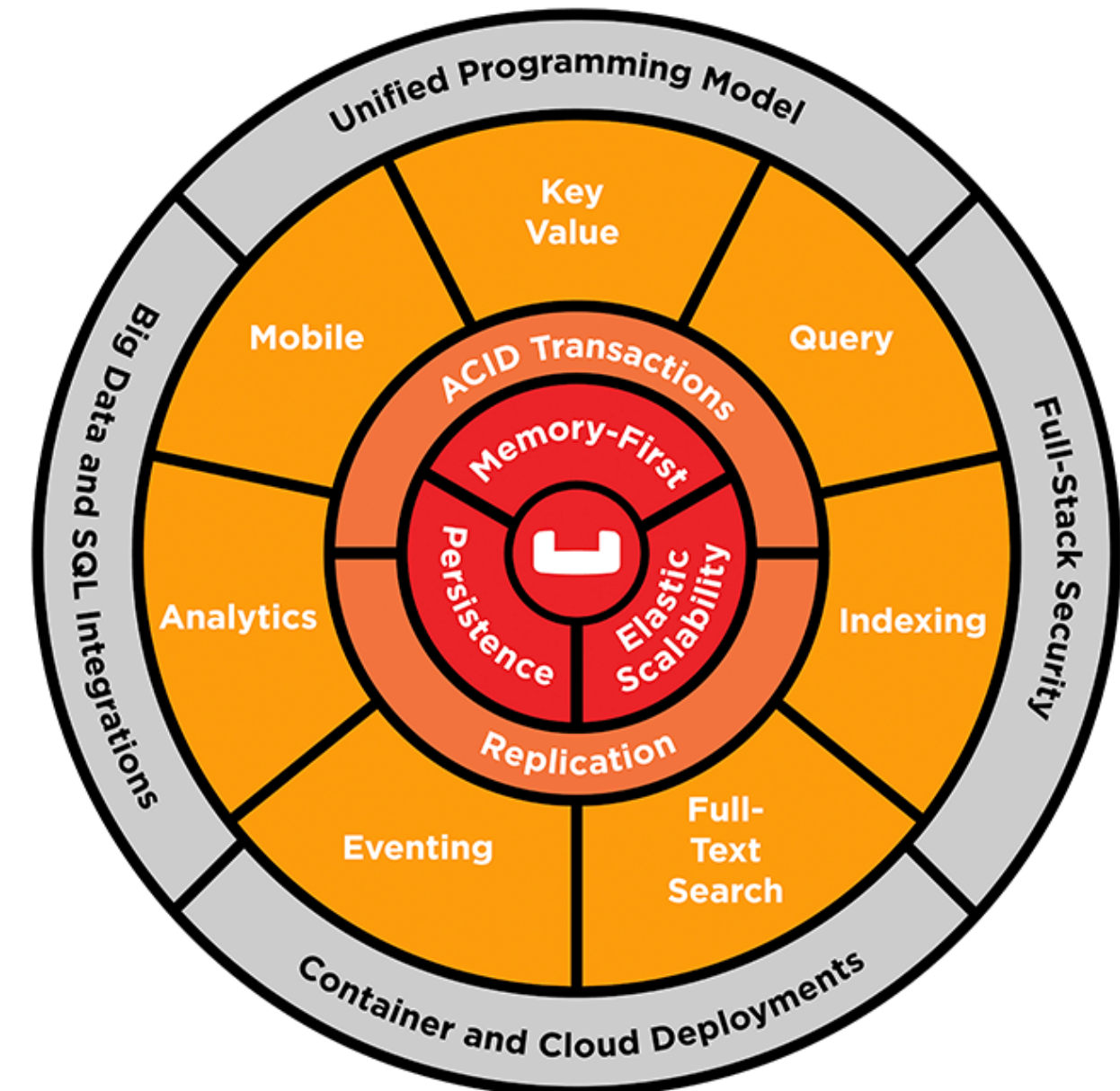Francisco Prada
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WHAT IS COUCHBASE?

Couchbase is a NoSQL distributed document database (JSON) with many of the best features of a relational Data Base Management Service.

- A flexible database to store JSON data without a rigid schema.
- A familiar SQL standard for queries on your JSON data.
- The speed of a built-in managed cache, providing microsecond latency.
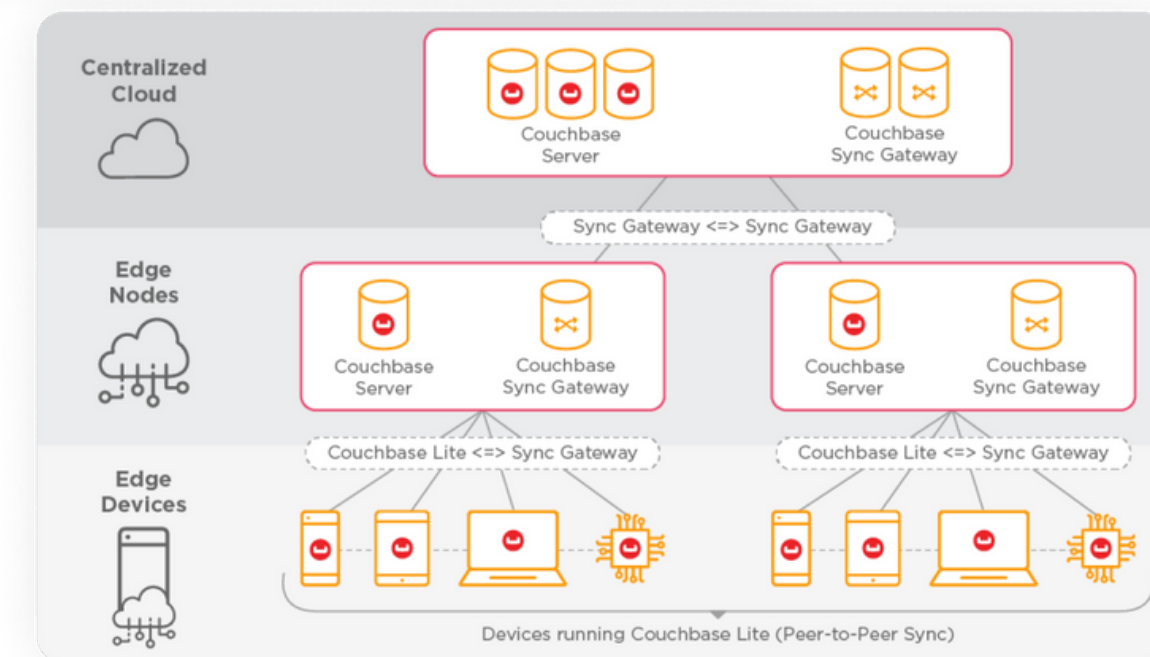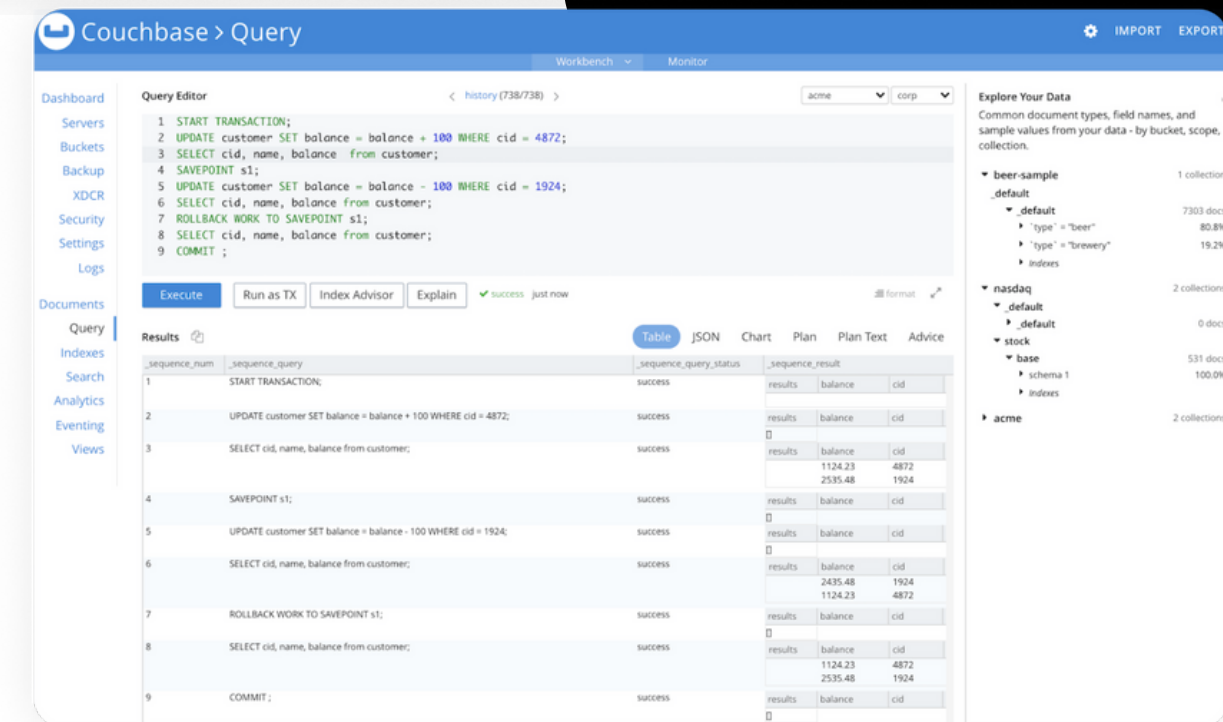- Scale that can accommodate a startup and grow to support a massive enterprise.
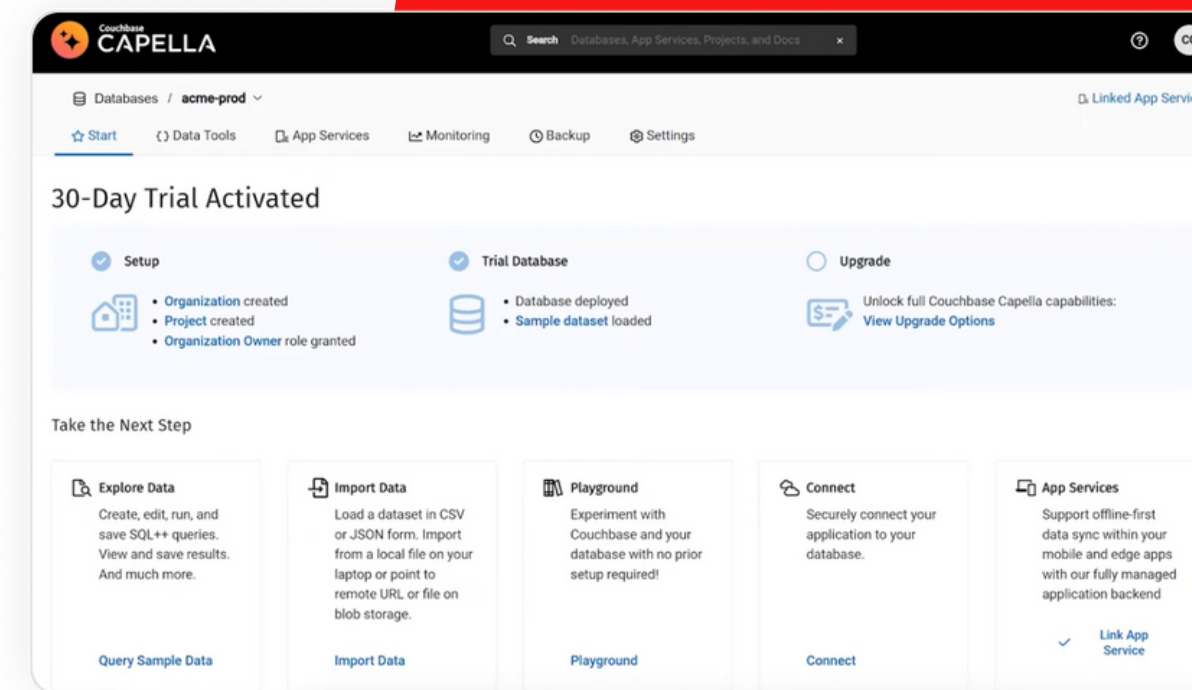
COUCHBASE PRODUCTS

Capella: Couchbase as a service. Cloud database platform for modern applications.

Server: Self-managed NoSQL database offering. Multipurpose, distributed database that fuses the strengths of relational databases such as SQL and ACID transactions with JSON's versatility, with a foundation that is extremely fast and scalable.
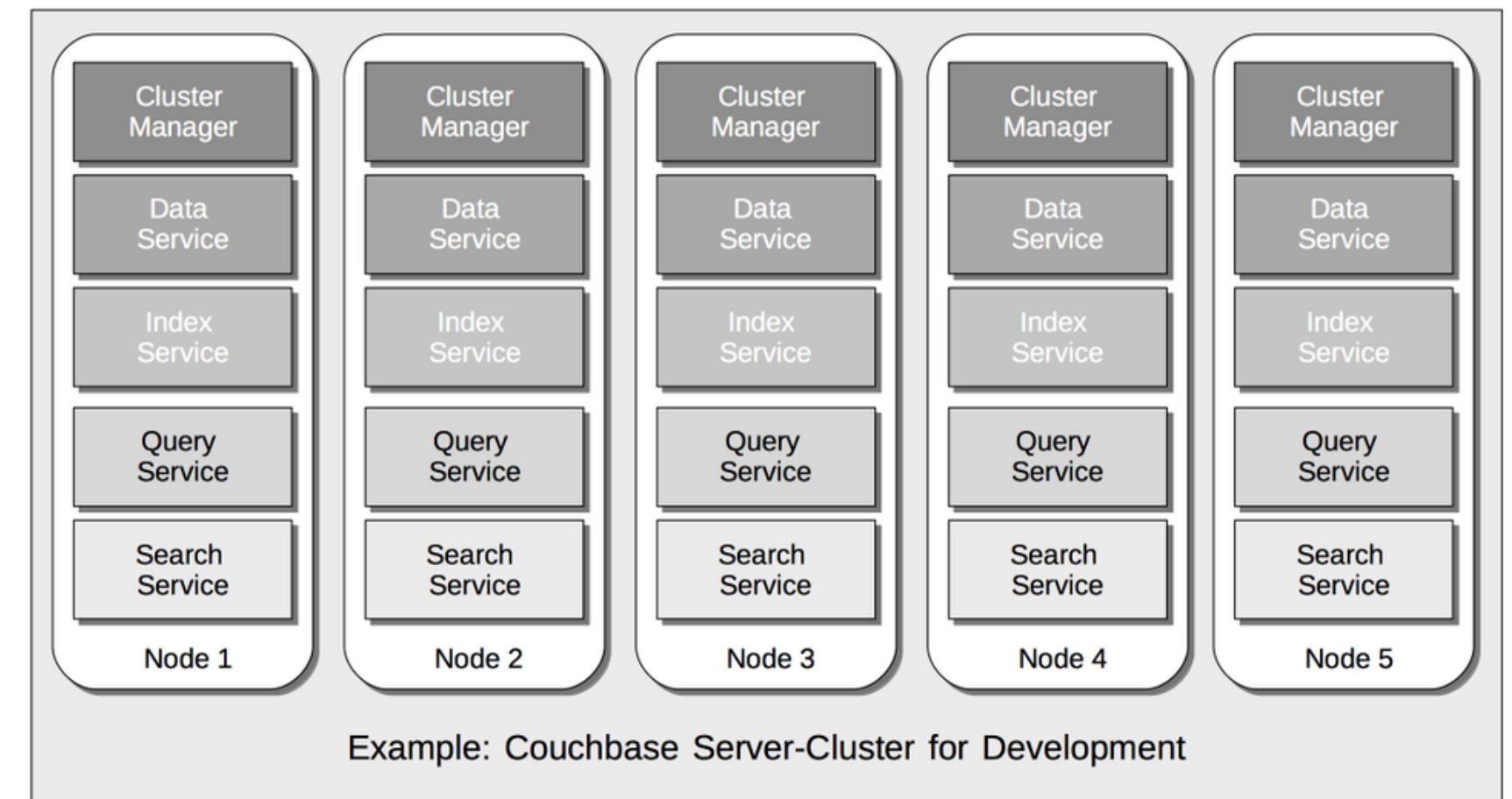
Mobile: Embedded NoSQL on your device, anywhere. Mobile database platform that includes a cloud database, an embedded database, and automatic data sync.

COUCHBASE ARCHITECTURE

- **Data** stored as items with key-value pairs (binary or JSON).
- Items organized into named **Buckets**; some stored in memory, others on disk.
- **Services** deployed for various data access (e.g., Data Service - key, Query Service - queries).
- **Indexes** support high-performance data access for services.
- **Clusters** distribute and replicate data across nodes for fault tolerance.
- **Security** features include Authentication, Authorization, and Auditing.

https://docs.couchbase.com/server/current/learn/architecture-overview.html

Example: Couchbase Server-Cluster for Development

FEATURES

SQL++

Access NoSQL JSON data with a full implementation of the familiar and popular SQL syntax.

Full-text search

Add a real-time search engine-like index to your data without copying or moving it into another tool.
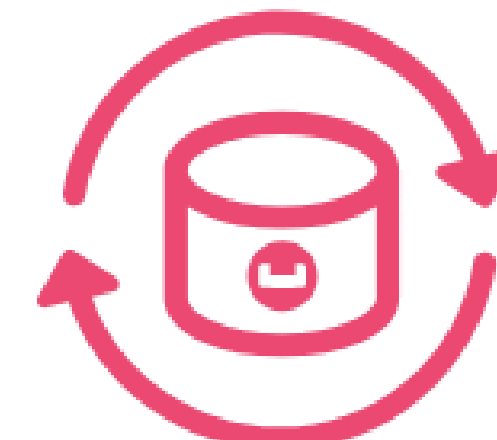
Key-value

Look up data as efficiently as possible with a direct key lookup.

Analytics

Perform complex BI and analytics queries on your data without impacting performance. Includes a full SQL implementation.

Eventing

Use the Eventing service to execute custom code whenever data is modified.

https://developer.couchbase.com/what-is-couchbase/

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SDKs

Couchbase provides SDKs for many programming languages and gives instructions on how to get started, build applications and get help.

https://www.couchbase.com/developers/sdks/

USE CASES

Organizations of every kind choose **Couchbase** to transform their businesses, provide exceptional user experiences, and lower cloud operational costs.

https://www.couchbase.com/use-cases/

- **FIX SLOW APPLICATION PERFORMANCE**

- **ENABLE DISTRIBUTED WORKLOADS**

- **IMPROVE APPLICATION FLEXIBILITY**

- **REDUCE THE COST OF OPERATIONS**

- **CREATE MOBILE, EDGE, AND IOT APPS**

- **BOOST DEVELOPER PRODUCTIVITY**

COUCHBASE CUSTOMERS

Couchbase is trusted by a diverse range of customers across industries.

"Viber switched from MongoDB™ to Couchbase to meet the demands of over 1B mobile users, and reduced its server count from 300 to 120."

https://www.couchbase.com/customers/

CONCLUSION

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THANK YOU

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