

Updated 07/27/2023

Sign up

NoSQL Fundamentals Training

2 days (14 hours)

Presentation

NoSQL is a family of database management systems (DBMS) that can handle large volumes of data for analysis and storage. Invented in 1998 by Carl Strozz, the term "NoSQL" stands for "Not Only SQL".

NoSQL databases enable data to be stored freely, without following a fixed schema or presenting tables in columnar form.

These tables are manipulated using an object-oriented programming language. The main advantage of this technology is its ability to handle large datasets efficiently, and to solve the scalability and flexibility problems of modern applications.

There are many different types of NoSQL database. They are used on social networks like Facebook and for search engines like Google, as well as in other sectors such as healthcare, aeronautics and education.

Our NoSQL training course will teach you the characteristics of databases, the [main differences](#) between a SQL SGDB and a NoSQL SGDB, and the differences in terms of architectures and data models.

At the end of this training course, you'll have a thorough understanding of the fields of application of operational NoSQL databases and their main characteristics.

Objectives

- Understanding the differences between a SQL DBMS and a NoSQL DBMS
- Understanding the NoSQL ecosystem
- Assess the advantages and disadvantages of NoSQL technologies
- Get to know the main players

- Find the right market solutions for each data model
- Know the fields of application of NoSQL systems in operations and analytics
- Understand the differences between architectures, data models and technical implementations
- Identify selection criteria

Target audience

- IT managers
- Project managers
- Architects
- Developers
- Decision-makers

Prerequisites

- Basic knowledge of technical architectures
- Knowledge of IS and database management

NoSQL Fundamentals training program

Introduction to NoSQL

- The history of Big Data and database management systems
- The 5 Vs (Volume, Variety, Veracity, Velocity, Value)
- What is NoSQL?
- Presentation of unstructured data
- Introducing a NoSQL database
- NoSQL vs RDBMS
- Distribution mode

NoSQL vs SQL

- The strengths and weaknesses of SQL
- ACID vs. BASE qualities
- The CAP theorem (Consistency, Availability and Partition Tolerance)
- Executing a query on a relational database vs. a non-relational database
- Introducing NewSQL
- The limits and strengths of NoSQL
- Combining NoSQL and SQL systems

Key features

- Data structure
 - Serialization
 - Hash tables
 - JSON
- Client-side processing
- Data access protocol
- Distributed storage
- Data consistency
- Concurrent access management

Fields of application

- Main fields of application for NoSQL DBMSs
- Operating mode
- Analytical mode
- Assessing benefits and drawbacks

NoSQL in detail

- Introducing a NoSQL database
- Database categories
 - Document-oriented
 - From graph
 - Key/Value
 - Column-oriented
 - Search engine
 - Time
- Architecture
 - Data storage
 - Data nesting
 - Data recovery
 - Querying your data
 - Defining synoptic views

The main players

- Identify key players
- NoSQL solutions
- Find market solutions adapted to each data model
- Technical choice of solutions
 - CouchDB
 - MongoDB
 - Cassandra
 - HBase (Hadoop)
 - ElasticSearch
- Identifying selection criteria

Big data analytics

- Introduction to the Hadoop ecosystem
- The role of the Hadoop project
- Collecting data
- Different types of processing (MapReduce, flows, Machine Learning, graphs, etc.)
- Connection with operational engines (ETL and Apache Sqoop)
- Presentation of an Apache Spark big data analytics platform

Companies concerned

This training course is aimed at both individuals and companies, large or small, wishing to train their teams in a new advanced computer technology, or to acquire specific business knowledge or modern methods.

Teaching methods

Practical course: 60% Practical, 40% Theory. Training material distributed in digital format to all participants.

Organization

The course alternates theoretical input from the trainer, supported by examples, with brainstorming sessions and group work.

Validation

At the end of the session, a multiple-choice questionnaire verifies the correct acquisition of skills.

Sanction

A certificate will be issued to each trainee who completes the course.