

Designing and Implementing Cloud-Native Applications Using Microsoft Azure Cosmos DB (DP-420T00)

Duration: 4 days

Audience: Professionnel TI

Who is this training for?

Software engineers responsible for building cloud-native solutions that leverage the Azure Cosmos DB SQL API and its various SDKs. They know C#, Python, Java or JavaScript. They also have experience writing code that interacts with a SQL or NoSQL database platform.

Training objectives

- Create and configure the Azure Cosmos DB SQL API account, database, and container.
- Use the SDK's .NET to manage resources and perform operations.
- Run queries of varying complexity.
- Design a data modeling and partitioning strategy.
- Optimize queries and indexes based on application characteristics.
- Use Azure Resource Manager to manage accounts and resources with CLI or JSON and Bicep templates.

Summary

This course allows developers to learn how to build an application with the SQL API and the Azure Cosmos DB Software-Defined Kit (SDK). They learn how to write efficient queries, create indexing policies, manage and configure resources, and perform common operations with the SDK.

Course outline

- Get started with Azure Cosmos DB for NoSQL.
- Plan and implement Azure Cosmos DB for NoSQL.
- Connect to Azure Cosmos DB for NoSQL with the SDK.
- Access and manage data using the Azure Cosmos DB for NoSQL SDKs.
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Run queries in Azure Cosmos DB for NoSQL.

- Define and implement an indexing strategy for Azure Cosmos DB for NoSQL.
- Integrate Azure Cosmos DB for NoSQL with Azure services.
- Implement a data modeling and partitioning strategy for Azure Cosmos DB for NoSQL.
- Design and implement a replication strategy for Azure Cosmos DB for NoSQL.
- Optimize the performance of queries and operations in Azure Cosmos DB for NoSQL.
- Monitor and troubleshoot an Azure Cosmos DB for NoSQL solution.
- Manage an Azure Cosmos DB for NoSQL solution using DevOps practices.
- Create server-side programming constructs in Azure Cosmos DB for NoSQL.

Approach and methodology

Practical and structured approach combining focused theory and guided workshops. Participants gradually design and implement cloud-native applications with Azure Cosmos DB through real-world exercises inspired by business scenarios, promoting immediate application of learnings. They learn how to model NoSQL data, develop and optimize distributed applications, and configure solution performance and scalability. Led by a Microsoft certified trainer, the training focuses on interactivity and the development of directly transferable technical skills to design robust and high-performance cloud applications in a professional context.

Prerequisites

- Proficiency in Microsoft Azure and navigation in the Azure portal (AZ-900 equivalent).
- Experience writing code in a language supported by Azure at the intermediate level (C#, JavaScript, Python, or Java).
- Ability to write code to connect and perform operations on a SQL or NoSQL database product (SQL Server, Oracle, MongoDB, Cassandra, or other similar product).

Recommendations

In order to maximize learning, it is recommended that participants:

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Have intermediate experience in software development in a supported language (Java, Python or JavaScript).

- Have functional knowledge of database, relational, and NoSQL concepts, as well as hands-on experience with CRUD operations and queries.
- Be comfortable with the fundamental concepts of Microsoft Azure, including portal navigation and resource management (level equivalent to AZ-900).
- Understand the principles of cloud-native applications (scalability, partitioning, performance) and be exposed to development or application architecture contexts.