Configure & Migrate to Azure Database for PostgreSQL (DP-3021)

COURSE OVERVIEW

Azure Database for PostgreSQL is a Platform as a Service database service in the Microsoft cloud. It bases itself on the PostgreSQL open-source relational database and includes built-in high availability, automatic backup and restore, as well as comprehensive security features. The pay-as-you-go pricing model provides predictable performance and near-instant scaling. In this learning path, you learn the main features of PostgreSQL and how they work in Azure Database for PostgreSQL. You learn about the different Azure Database for PostgreSQL implementation options, and how to configure a server for your needs.

PREREQUISITES

- Demonstrate an understanding of relational databases.
- Demonstrate an understanding of basic SQL.

COURSE OBJECTIVES

Students will learn to:

- Explore PostgreSQL Architecture
- Understand Client-Server Communication in PostgreSQL
- Understand PostgreSQL Query Processing
- Secure Azure Database for PostgreSQL
- Procedures & Functions in PostgreSQL
- Understand Write-Ahead Logging
- Configure & Manager Azure Database for PostgreSQL
- Understand Concurrency in PostgreSQL
- Tune Queries in Azure Database for PostgreSQL
- Migrate to Azure Database for PostgreSQL Flexible Server

COURSE OUTLINE

Explore PostgreSQL Architecture

- Describe Azure Database for PostgreSQL
- Understand PostgreSQL architecture
- Understand PostgreSQL shared memory
- Exercise – Explore Azure Database for PostgreSQL

Understand Client-Server Communication in PostgreSQL

- Understand connection handling
- Understand the PostgreSQL client tools
- Exercise - Explore PostgreSQL with client tools

Understand PostgreSQL Query Processing
- Identify the query processing components
- Understand the EXPLAIN statement
- Exercise - Execute the EXPLAIN statement

Secure Azure Database for PostgreSQL
- Describe Azure Database for PostgreSQL security
- Describe built-in Azure Database for PostgreSQL server roles
- Grant permissions in Azure SQL Database for PostgreSQL
- Understand encryption in Azure Database for PostgreSQL
- Exercise: Configure permissions in Azure Database for PostgreSQL

Procedures & Functions in PostgreSQL
- Create a stored procedure in Azure Database for PostgreSQL
- Call a stored procedure in Azure Database for PostgreSQL
- Create and use a function in Azure Database for PostgreSQL
- Exercise - Create a stored procedure in Azure Database for PostgreSQL

Understand Write-Ahead Logging
- Describe write ahead logging
- Describe replication and logical decoding
- Exercise - List table changes with logical decoding

Configure & Manager Azure Database for PostgreSQL
- Understand the system catalogs and system views
- Investigate metadata with system catalogs and system views
- Explain the purpose of vacuum and autovacuum
- Configure autovacuum server parameters
- Exercise - Configure system parameters and explore metadata with system catalogs and views

Understand Concurrency in PostgreSQL
- Understand multi-version concurrency control (MVCC) and snapshots
- Describe isolation levels
- Understand locking
- Exercise - Understand locking

Tune Queries in Azure Database for PostgreSQL
- Understand statistics
- Assess query performance with the Query Store
- Exercise - Assess query performance using Query Store

Migrate to Azure Database for PostgreSQL Flexible Server
- Compare online and offline migrations
- Identify migration tool options
- Analyze the decision criteria for tool selection and migration model
- Exercise – Offline PostgreSQL database migration
- Exercise – Online PostgreSQL database migration

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