

# Comparison of SQL Server® Deployment Options on the Azure® Cloud Platform

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In this article, we will be performing a comparison of the SQL Server deployment options on the Azure cloud platform.

## Overview of SQL Server Deployment Option on Azure

When it comes to options for deploying SQL Server databases on the Azure cloud platform, there are many options that can cover all needs. There are Infrastructure as a Service (IaaS) offerings, as well as, different flavors of Platform as a Service (PaaS) offerings.

Each option has its own characteristics and should always be evaluated against the database infrastructure needs, when it comes to migrating a database on the Azure cloud platform.

## Azure SQL Virtual Machines (IaaS)

Azure SQL Virtual Machines, is the Infrastructure as a Service deployment option for SQL Server on Azure.

Based on this option, a full version of SQL Server is deployed on an Azure Virtual machine, thus making the specific instance of SQL Server 100% compatible with on-premises SQL Server instances.

Below, you can find the main characteristics of this deployment option for SQL Server on Azure:

- **Compatibility with on-premises SQL Server instances:**
  - 100%
- **Maintenance:**
  - Automated patching within a given patching window with Windows and SQL Server patches marked as “Important” or “Critical”. The rest of the patches need to be applied manually
  - Automated SQL Server backups can be set using the [SQL Server IaaS Agent extension](#).
- **Availability:**
  - 99.95% (when using at least two VMs in an [availability set](#))
- **Security:**
  - Encrypted connections can be enabled
  - Transparent Data Encryption (TDE) can be enabled
- **Supports SQL Server Agent?**
  - Yes
- **Other Remarks:**
  - Migration and assessment tools:
    - [Data Migration Assistant](#)
    - [Azure Database Migration Service](#)

## Azure SQL Database (PaaS)

Azure SQL Database, is one of the two available Platform as a Service deployment options for SQL Server on the Azure cloud platform.

Based on this option, the SQL database service is provided as a platform, where the main philosophy is that you create, use and manage your database using this service.

Below, you can find the main characteristics of this deployment option for SQL Server on Azure:

- **Compatibility with on-premises SQL Server instances:**
  - It depends. Assessment is required on a per-case manner, since there are some SQL Server on-premises features that are not supported (i.e., SQL Server Agent, etc.).
- **Maintenance:**
  - Automated patching and version updates
  - Automated backups
  - High availability
- **Availability:**
  - 99.99%
- **Security:**
  - SSL/TLS encryption is enforced by default for all connections
  - All newly created databases are encrypted by default
- **Supports SQL Server Agent?**
  - No
- **Other Remarks:**
  - Migration and assessment tools:
    - [Data Migration Assistant](#)
    - [Azure Database Migration Service](#)

## Azure SQL Managed Instance (PaaS)

Azure SQL Managed instance is another Platform as a Service deployment option for SQL Server on the Azure cloud platform. Its main difference from Azure SQL Database, is that it combines the benefits of the Azure cloud platform (i.e., fully managed data platform, etc.), with the broadest support for SQL Server Database Engine compatibility.

Below, you can find the main characteristics of this deployment option for SQL Server on Azure:

- **Compatibility with on-premises SQL Server instances:**
  - Near 100%
- **Maintenance:**
  - Automated patching and version updates
  - Automated backups
  - High availability
- **Availability:**
  - 99.99%
- **Security:**
  - SSL/TLS encryption is enforced by default for all connections
  - All newly created databases are encrypted by default
- **Supports SQL Server Agent?**
  - No
- **Other Remarks:**
  - Additional security features – Isolated security
  - Native VNet implementation and private IP addresses
  - Migration and assessment tools:
    - [Data Migration Assistant](#)
    - [Azure Database Migration Service](#)

## About this Guide

This guide, was create by Artemakis Artemiou, within the context of his online course on Udemy, titled "[Introduction to Azure SQL Database for Beginners](#)".