

Welcome to the

2018

Global Azure
BOOTCAMP

Migrating SQL Server Databases to Azure

Migrating SQL Server Databases to Azure

Boonthawee Tangsoonthornthum
MCT, MCSE, MCSA



Agenda

- Overview of SQL Server in Microsoft Azure
- Getting started with SQL Server in an Azure virtual machine
- Getting started with an Azure SQL Database
- Migrating a database to Azure

Session Objective and Key Takeaway

- Understand the positioning and key benefits of the Microsoft Azure SQL Database platform
- Understand how to migrate your data to Microsoft Azure SQL



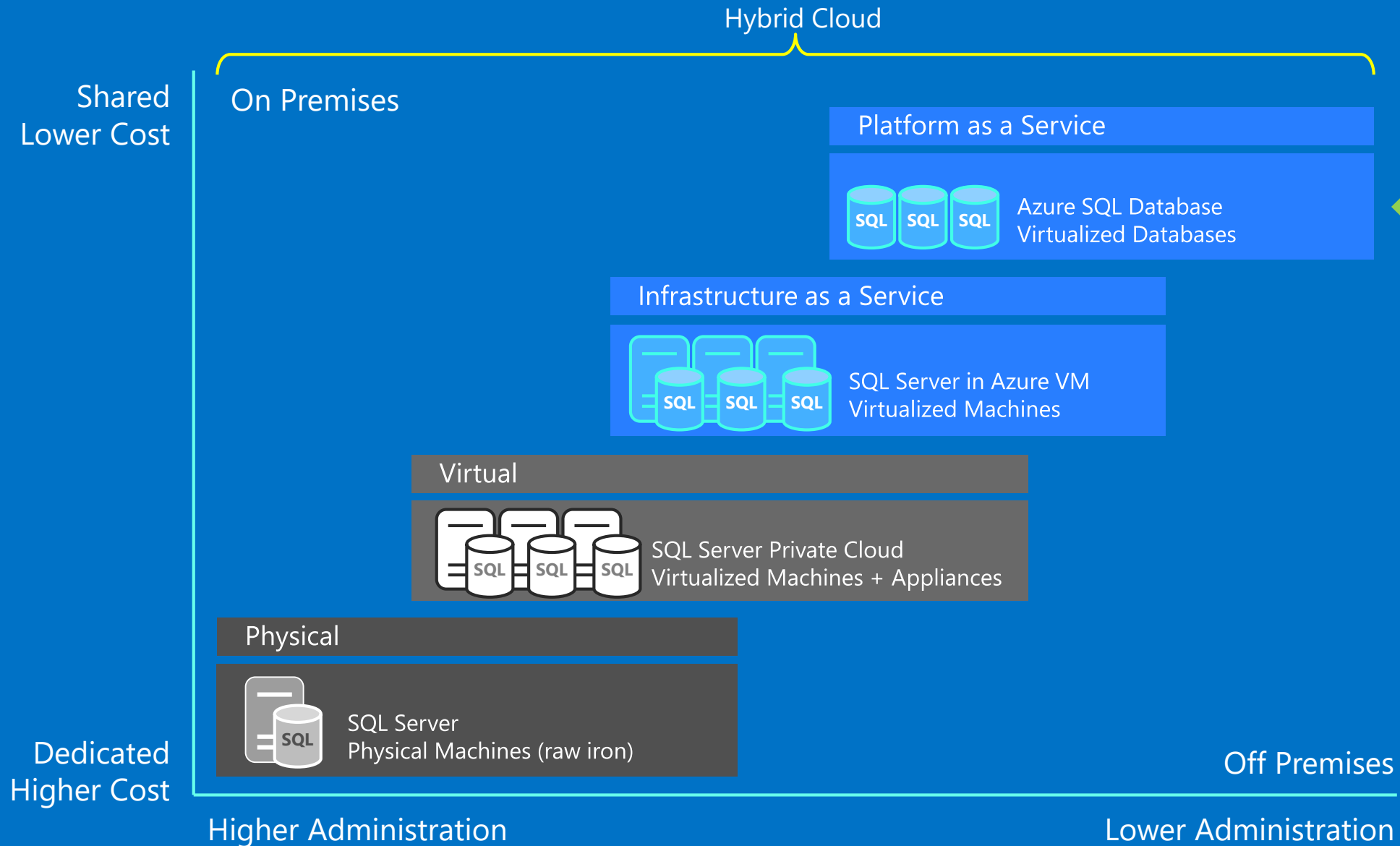
An enterprise-grade database-as-a-service platform with easily accessible tier-1 capabilities

What do I need to know about Azure SQL?



- Use the skillsets you already possess and the technologies with which you already are familiar to develop and deploy solutions using SQL Server.
- Work with a wide range of operating systems, programming languages, databases, and devices.
- Integrate Azure with your existing IT environment, including Active Directory for single sign-on.
- Scale up and scale down your Azure services based on demand so you only pay for what you need when you need it.
- Maintain data privacy. Microsoft with Azure services was the first major cloud provider to adopt the new international cloud privacy standard, ISO 27018.
- Encrypt your SQL Server data both at rest and on the wire.
- Have enterprise-grade service-level agreements (SLAs) on services, 24/7 tech support, and round-the-clock service health monitoring

Microsoft SQL Platform Continuum



Microsoft Azure SQL Comparison

Which to use?

SQL Server in Azure VM	Azure SQL Databases
Need a specific version of SQL Server or Windows	Don't need a specific version of SQL Server or Windows
Need instance-level SQL features (Agent Jobs, Linked Server etc.)	Don't need instance-level features
Requires configuring and managing Windows and SQL Server	Don't want to configure and manage SQL Server and Windows
Great for migrating existing apps	Great for new apps

Many use both

In addition to on-premises, SQL Server is available in two cloud environments: Azure virtual machines and SQL Azure Database

Use SQL Server in a VM to maintain control over the operating system and SQL Server instance, with related responsibilities, or to match an existing requirement, such as version.

Use SQL Database for new apps, or to get out of the overhead of managing the infrastructure.

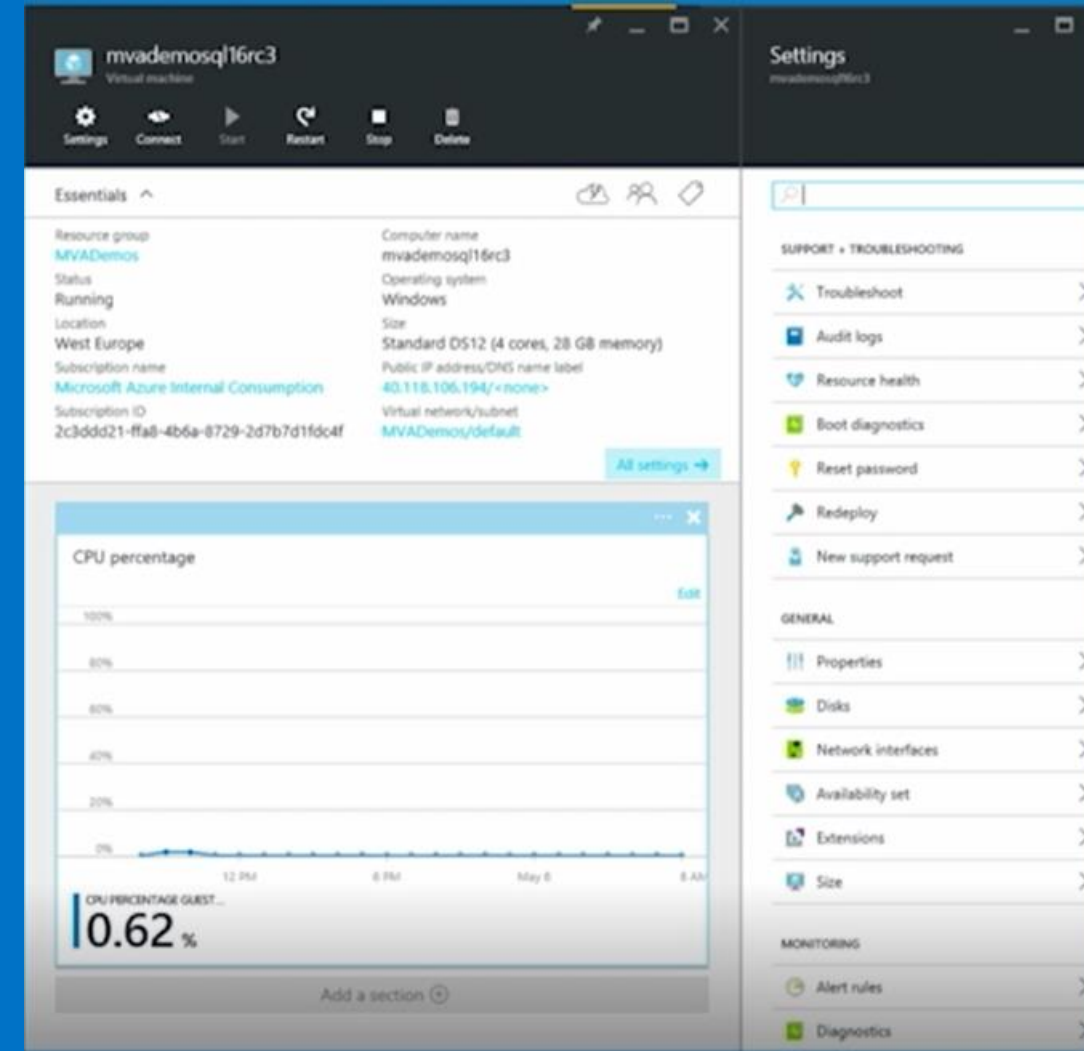
Getting started with SQL Server in an Azure Virtual machine

Azure Virtual machines

VM hosted on
Microsoft Azure Infrastructure

Pay per use

Elasticity



Security

- Physical Security
- Network and Storage Security
- SQL Server Security
- Certifications



VM Storage

Every VM is a BLOB in Azure Storage
Standard storage (HDD) or Premium storage (SSD)

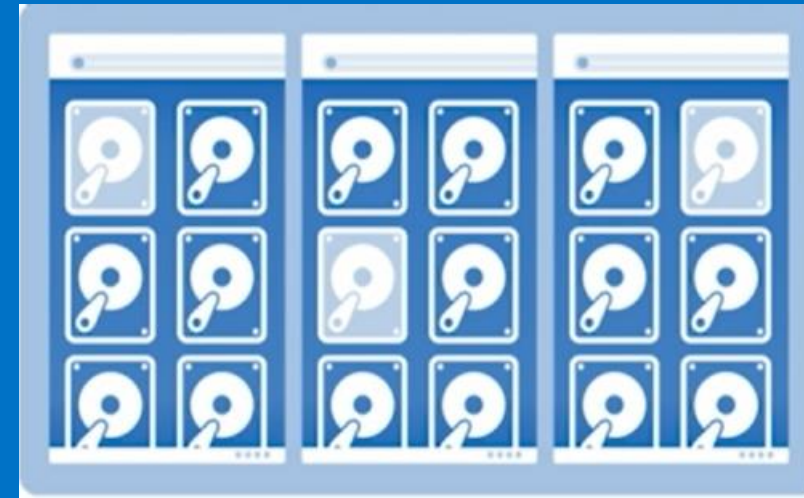
Attached storage or store directly to BLOB

3 synchronized local copies

No data loss

Highly available

3 additional asynchronous remote copies (if geo-replication enabled)

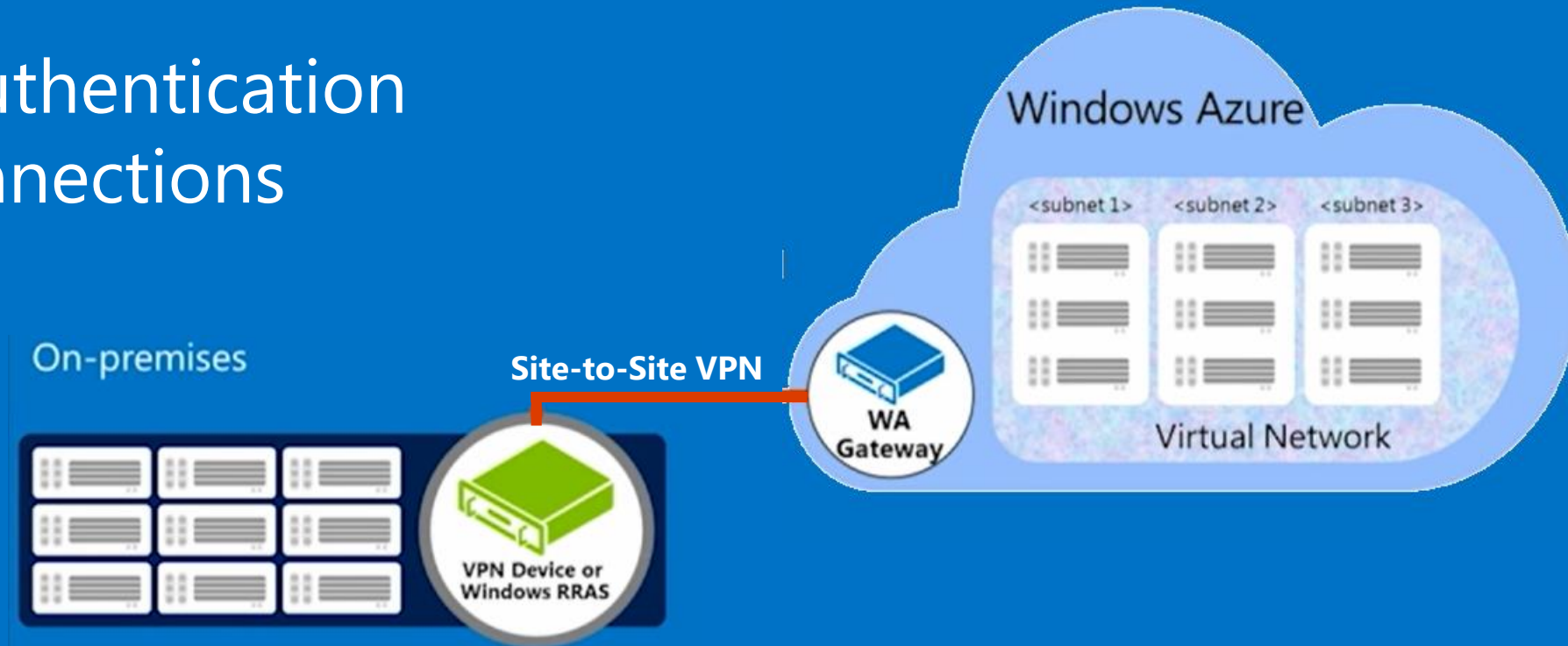


VM Connectivity

Over the internet

Over a site-to-site tunnel

Use Windows Authentication
Encrypt SQL Connections



Provisioning SQL Server in Azure VM

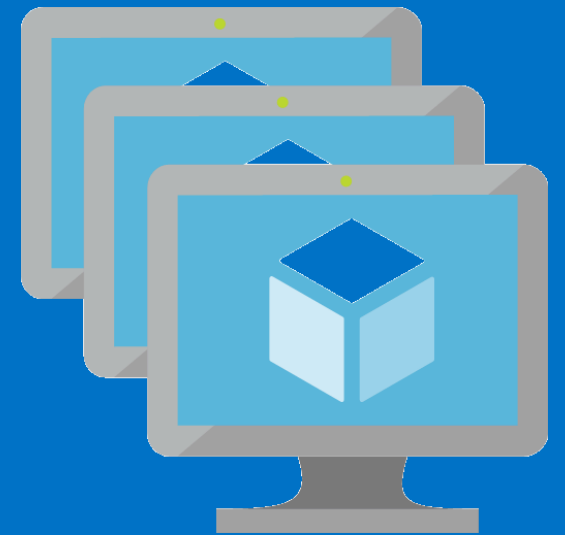
Key steps

Step 1: Select storage, network and compute resource

Step 2: Provision OS and SQL Server

Step 3: Configure SQL Server in the VM

Step 4: Configure connectivity



Getting started with Azure SQL Database

Azure SQL Database Service Tiers

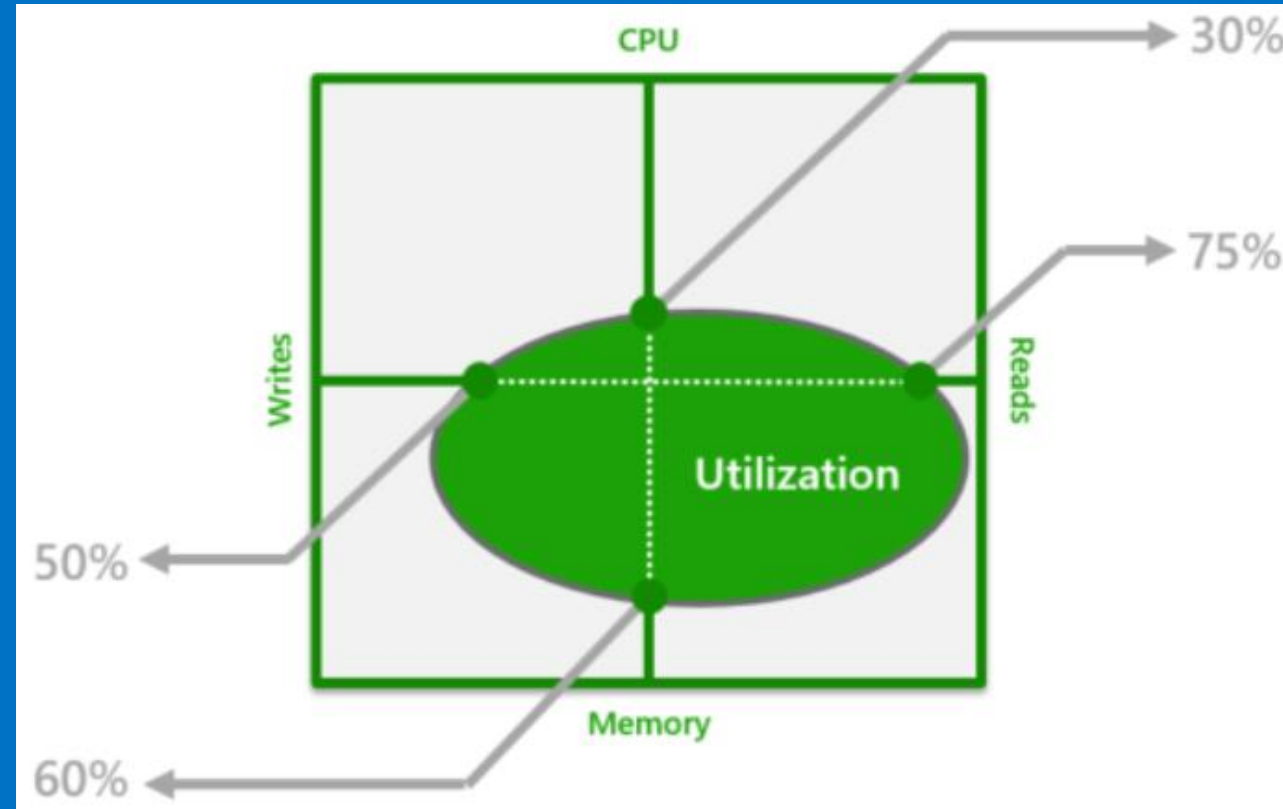
	Basic	Standard	Premium
Intended Use	Light transactional loads	Go-to option for most business applications	High throughput and business-critical databases
Availability	99.99%*		
Size	2 GB	250 GB	500 GB
Performance	•	• •	• • •
Business Continuity	•	• •	• • •

Database Transaction Unit - DTU

Represent the relative power (resource) assigned to the database

Blended measure of CPU, memory, and read-write rates

Compares the power across performance levels



Creating a Database – The Portal

The screenshot displays the Microsoft Azure portal interface. The top navigation bar includes the 'Microsoft Azure' logo, a search bar, and user information for 'boonthawee_t@hotmail.com' with the role 'MIDNIGHT CYBERNET'. The breadcrumb trail indicates the path: Home > New > SQL Database > Server > New server.

The left sidebar contains a 'Create a resource' button and a list of services under 'All services' and 'FAVORITES'. The 'Databases' category is highlighted in the 'All services' list.

The main content area is divided into three panes:

- New:** Displays the Azure Marketplace with a search bar and a list of featured services. The 'SQL Database' service is highlighted, with a 'Quickstart tutorial' link.
- SQL Database:** Shows the configuration options for a new SQL Database. The 'Database name' field is empty. The 'Subscription' is set to 'Visual Studio Ultimate with MSDN'. The 'Resource group' is set to 'Create new'. The 'Select source' is set to 'Blank database'. The 'Server' section is expanded, showing 'Configure required settings'. The 'Pricing tier' is set to 'Configure required settings'. The 'Collation' is set to 'SQL_Latin1_General_CP1_CI_AS'. The 'Want to use SQL elastic pool?' option is set to 'Not now'. The 'Pin to dashboard' checkbox is unchecked. The 'Create' button is visible.
- Server:** Shows the 'Create a new server' button. Below it, it says 'No servers found'.
- New server:** Shows the configuration options for a new server. The 'Server name' field is empty. The 'Server admin login' is set to '.database.windows.net'. The 'Password' and 'Confirm password' fields are empty. The 'Location' is set to 'West Europe'. The 'Allow azure services to access server' checkbox is checked. The 'Select' button is visible.

Creating a Database

key steps

Step 1: Choose a service tier

Step 2: Select or create a logical server

Step 3: Create a database

Step 4: Create an administrator account

Step 5: Configure a server firewall

Migrating Your SQL Database

Migrating to SQL Server in a VM

Backup and Restore

Full backup and restore

Or manual full/differential/log backup-similar approach to log shipping

Transactional Replication

On-premise distributor role to azure subscriber

AlwaysOn Availability Groups

Extend availability group to SQL Server in the VM when ready, fail over to Azure

SQL Database Migration tools



Azure Portal

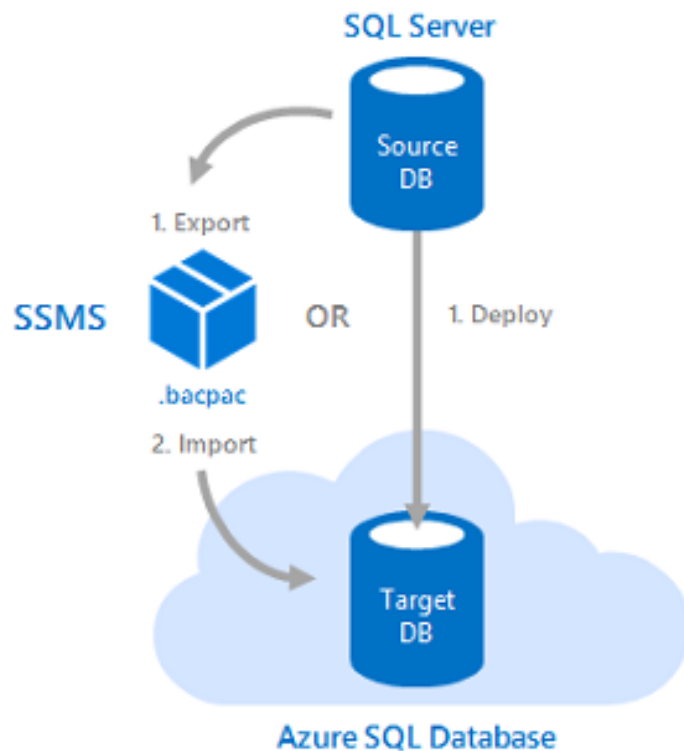
Data Migration Assistant (DMA)

SQL Server Management Studio (SSMS)

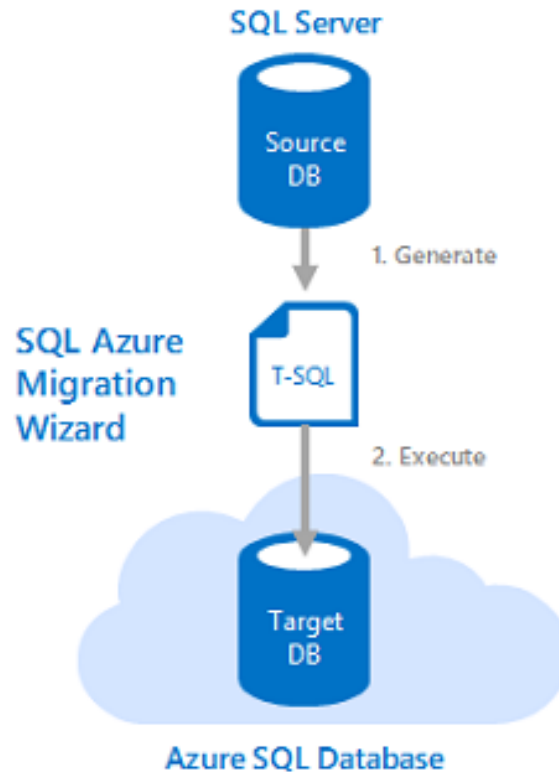
SQL Server Data Tools in Visual Studio

SQL Database Migration methodologies

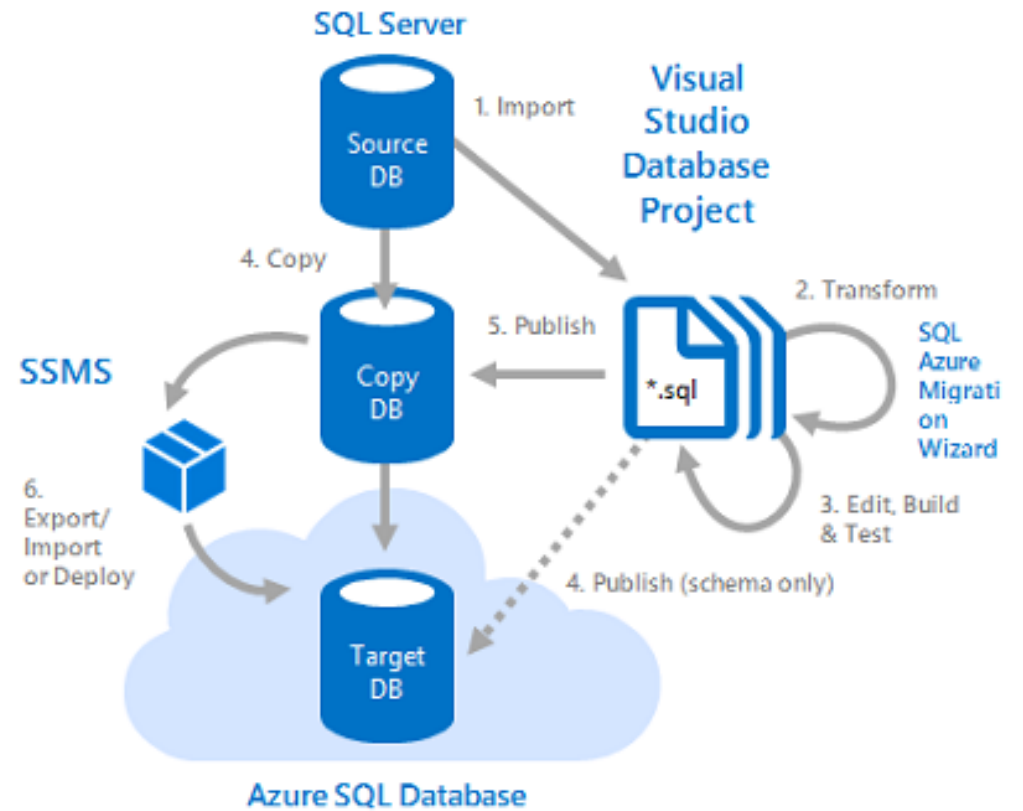
Method 1



Method 2



Method 3



Migrating a Database

key steps

Step 1: Determine database compatibility, make fixes if need

Step 2: Select a migration method

Step 3: Migrate your user database(s)

Step 4: Validate result



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Thanks you