

SQL School TM

Quality Training Assured

Azure Managed Instance

Complete Practical: Real-time Job Oriented Training

	PLAN A	PLAN B	PLAN C
Description	Azure Managed Instance (MI)	Azure DBA + Azure MI	SQL DBA + Azure DBA + Azure MI
Course Curriculum	Chapters 37 to 48	Chapters 25 to 48	Chapters 1 to 48
SQL Server, DB, Agent Architecture	X	X	✓
Query Tuning, Tuning Tools, Locks	X	X	✓
DB Repairs, Rebuilds, Troubleshooting	X	X	✓
Migrations, Updates, Upgrades, DAC	X	X	✓
Security Management, Containment DBs	X	X	✓
HA DR:Replication,Log Shipping,Mirroring	X	X	✓
New Features: SQL 2016, 2017, 2019	X	X	✓
SLA-OLA, Incident Process, 3 rd Party Tools	X	X	✓
Azure Cloud Fundamentals, Azure AD	X	✓	✓
Azure SQL DB Security and Maintenance	X	✓	✓
Azure Power Shell, CLI, Virtual Machines	X	✓	✓
Windows Clusters & Active Directory	X	✓	✓
HA - DR, Clustering, Always-On (AAG)	X	✓	✓
DP 300 Certification Exams : Guidance	X	✓	✓
Azure Managed Instance (Azure MI)	✓	✓	✓
Basic to Advanced Azure MI Concepts	✓	✓	✓
Azure MI Clusters, Virtual Networks	✓	✓	✓
Azure MI Connections From Azure VM	✓	✓	✓
Azure MI : Query Tuning, Troubleshooting	✓	✓	✓
P2S Connections, On-Premise Migrations	✓	✓	✓
Peer Gateway, VPN, MI Pools & HA-DR	✓	✓	✓
TOTAL DURATION	3 Weeks	6 Weeks	11 Weeks

Trainer: Mr. Sai Phanindra T, 15+ Yrs of Real-time Exp. Profile @ [linkedin.com/in/saiphanindra](https://www.linkedin.com/in/saiphanindra)

Azure Managed Instance (MI) Training Course Plans

Training Module		Dur	Az MI Plan A	Az MI Plan B	Az MI Plan C
Module 1	Core SQL DBA [HA-DR, AlwaysOn, Errors, Upgrades]	5 W	X	X	✓
Module 2	Azure SQL DBA [Azure SQL Database, Azure SQL VM]	3 W	X	✓	✓
Module 3	Azure Managed Instances	3 W	✓	✓	✓
Total Duration [Including Real-time Project, Resume]			3 W	6 W	11 W

Module 1: CORE SQL DBA

Chapter 1: INTRODUCTION, INSTALLATIONS

Introduction to Databases, DBMS; Microsoft SQL Server : Advantages, Use; Versions and Editions of SQL Server; SQL DBA Job Roles, Responsibilities; Routine Maintenance DBA Activities; Emergency SQL DBA Activities; SQL Server Pre-requisites : S/W, H/W; SQL Server 2019/2017/2016 Installation; Default Instance, Named Instances; Port Numbers, Instance Differences; Service and Service Account Use; Authentication Modes and Logins; SSMS Tool Installation and Server Connections;

Chapter 2: SSMS TOOL, SQL BASICS - 1

SQL Server Management Studio; Local and Remote Connections; System Databases: Master and Model; MSDB, TempDB, Resource Databases; Creating Databases : Files [MDF, LDF]; Creating Tables in GUI; Data Insertion & Storage; SQL : Real-time Usage; DDL, DML, SELECT, DCL and TCL Statements; Data Storage, Inserts - Basic Level; SELECT; Table Data Retrieval; Limitations with SSMS GUI Options;

Chapter 3: SQL BASICS - 2, TEMP TABLES

Data Inserts and SELECT Statement; WHERE Conditions and Keywords; IN Operator and NOT IN Operator; Between, Not Between Operators; UPDATE Statement & Conditions; DELETE & TRUNCATE Statements; Logged and Non-Logged Operations; ADD, ALTER and DROP Columns; Aliases and Batch Statements; Import and Export Wizard in SSMS; Performing Bulk Operations in SSMS; Local and Global Temporary Tables; # and ## Prefix, Scope of Usage; Session Level, Connection Level Use;

Chapter 4: CONSTRAINTS, JOINS

Constraints and Keys - Data Integrity; NULL, NOT NULL Property on Tables; UNIQUE KEY Constraints: Importance; PRIMARY KEY Constraint: Importance; FOREIGN KEY Constraint: Importance; REFERENCES, CHECK and DEFAULT; Candidate Keys and Identity Property; JOINS - Table Comparisons Queries; INNER JOINS For Matching Data; OUTER JOINS For (non) Match Data; Left Outer Joins with Example Queries; Right Outer Joins; FULL Outer Joins - Real-time Scenarios; Join Queries with "ON" Conditions;

Chapter 5: Views & Stored Procedures

Views : Types, Usage in Real-time; Creating Views For SELECT Statement; Views: Executions, Metadata Audits; Views: Refresh, Recompilations; System Predefined Views; Listing Databases, Tables, Schemas; Procedures: Types, Usage in Real-time; User & System Predefined Procedures; Parameters and Dynamic SQL Queries; Static Joins and Metadata Audits; Dynamic Joins and Metadata Audits; Sp_help,

Sp_helpdb and sp_helptext; sp_pkeys, sp_rename, sp_help; sp_recompile, sp_who, sp_who2, sp_lock;

Chapter 6: UDF, Triggers, Stored Procedures

Functions : Types, Usage in Real-time; Scalar, Inline and Multi-Line Functions; System Predefined Functions, Audits; DBID, DBName, ObjectID, ObjectName; Date and Time Functions: Getdate(); User & System Predefined Procedures; Parameters and Dynamic SQL Queries; Triggers: Real-time Usage in SQL Server; DDL Triggers and DML Triggers; Automations with Triggers: DML,DDL; INSERTED, DELETED Memory Tables; Table Data Replication using Triggers; System Objects & Recompilations with Triggers;

Chapter 7: Transactions, Lock Management

Transactions: Types, ACID Properties; Transaction Types and Auto Commit; EXPLICIT & IMPLICIT Transactions; COMMIT and ROLLBACK Statements; Lock Hints: READPAST, NOLOCK; LOCKS : Types and Isolation Levels; S, X, IX,U, MD, Sch-M and Sch-S; Lock Audits: SP_WHO2, SP_LOCK; Deadlock Audits and Deadlock Graphs; Deadlock Avoidance and Deadlock Prevention; Deadlock Graphs & SQL Profiler;

Chapter 8: SERVER ARCHITECTURE, DB ARCHITECTURE

Linked Servers and Real-time Usage; Creating Linked Servers in SQL Server; Security Options and Access Options; Remote Data Access RPC Settings; RPC Out, Remote Login Credentials; Server Architecture and Protocols; Database Engine and Query Processor; Parser, Optimizer, SQL & DB Manager; Storage Engine Components, SQL OS; Transaction Services, Buffer Manager; Lock Manager, IO Manager, MDAC;CLR, WAL, Lazy Writer, Checkpoint; DB Architecture - Data Files and Log Files; Primary (mdf), Secondary Files (ndf); Filegroups; ReadOnly Filegroups; Files Size, Location; Pages, Extents. Uniform, Mixed Extents; Transaction Log File [LDF], LSN, VLF; Schemas Creation & Migrations; Creating Tables with Filegroups;

Chapter 9: BACKUPS - DB, FILE, FILEGROUP

Database Backups; Filegroup Backups; Log File Backups; COPY_ONLY Backups; Mirror Backups; Split Backups; FORMAT; Partial Backups and Backup Media Files; UNLOAD; INIT; FORMAT; VERIFY; SKIP; Compression; Checksum; RetainDays; Stats; ContinueOnError and Backup Validations; Backup History Tables in MSDB – Joins; Backup Audits. HOT and COLD Backups; Backup Devices Usage; Database Recovery Models; **Common Errors and Solutions**

Chapter 10: RESTORES & DB RECOVERY

Restore Phases – COPY, REDO, UNDO; RECOVERY and NORECOVERY Options; STANDBY; REPLACE Options in Restores; File; File Group and Meta Data Restores; Backup Verifications using GUI; Scripts; FILELISTONLY and VERIFYONLY Options; HEADERONLY; STATS; UNLOAD; STOPAT; PARTIAL / PIECEMEAL Restores – Use; Tail Log Backups. UNDO; REDO Phases; Restores using GUI and T-SQL Scripts; MOVE Options for File Level Restores; Point-In-Time Restore; Checkpoint LSN; Standby Restores and Read-Only State; **Common Errors and Solutions**

Chapter 11: JOBS, MAINTENANCE PLANS

SQL Server Agent Service & Agent XPs; SQL Agent Jobs - GUI; Script Creations; Job Steps - Creation; Edits and Parse; Job Executions; Disable/Enable Options; Job History Purge. Job Activity Monitor; Database Maintenance - Backup Jobs; Maintenance Plans; Backup Cleanup & History Cleanup Jobs; Backup Strategies For Minimal Data Loss; Backup Options: Block Size; Transfer Size; DB Mail Configurations and Alert System; DB Mail Profiles; SMTP Email Accounts; Operators; Job Notifications

Chapter 12: SECURITY MANAGEMENT

Authentication Types & Modifications; Windows Logins & SQL Server Logins; Logins - Users Mapping, DB Access; Server Roles & Database Roles - Usage; Object, Column and Schema Security; GRANT, WITH GRANT, DENY, REVOKE; CONTROL, OWNERSHIP, Authorization; Data Encryption: Keys and Certificates; Job Security : Credentials and Proxies; Using Proxies for SSIS Jobs, Repl Jobs; Detecting and Resolving Orphan Users; Containment Databases; Security Scripts; DMVs for Security Audits, Orphan Users;

Chapter 13: DATABASE MIGRATIONS, PERFORMANCE TUNING - 1

CDW : Copy Database Wizard @ SSMS; Database Detach and Attach Options; SMO Method and Database Scripting; CDW SSIS Packages, SSIS Proxies Use; Scheduling Database Migration Jobs; Detecting and Resolving Orphan Users; Containment Databases Authentication; Audit Long Running Queries : DMV, DMF; Activity Monitor Tool, Server Dashboards; Logical I/O, Physical I/O, Database I/O; Recent Expensive Queries, Wait Time; Active Expensive Queries, Statistics; Plan Handle, Execution Time - Audits; CPU, IO, Memory Consumption Reports;

Chapter 14: Tuning 2 - Indexes, Partitions

Indexes: Architecture and Index Types; B Tree Structure, IAM Page [Root]; Clustered & Non Clustered Indexes; Included, Columnstore, Online; Filtered, Covering, Indexed Views; Fill Factor and Pad Index Options; Query Store - Settings and Advantages; PARTITIONS : Advantages, Performance; Partition Functions & Partition Schemes; Partitioning Un-partitioned Tables: GUI; Partition Compression : ROW and PAGE; Auditing Table Partitions; Statistics: Auto Creation; NUMA Nodes, Processor, IO Affinity;

Chapter 15: Tuning 3 - INDEX MANAGEMENT, TUNING TOOLS

Index Management : Internal, External Fragmentation; Audits : DMFs; Index Reorganization and Index Rebuild Options; Database Maintenance Plans (DMP) For Index Reorg; Degree Of Parallelism; Resumable Indexes: ONLINE, RESUME; PAUSE & RESUME in Index Rebuilds; Tuning Tools; SQL Profiler - Tuning Template; DTA Tool; Perfmon Counters; Index Scan, Index Seek, Tables Scan, Spooling; Query Costs : IO, CPU Cost, SubTree Cost, Operator Cost; NUMA Nodes, IO Affinity; Parameter Sniffing;

Chapter 16: HEALTH CHECKS, REAL-TIME ISSUES & SOLUTIONS

Alerts : Creation and Notifications; DB Suspect Event Alerts (023); Perfmon Counters for Alerts; Log Space, Memory, Tempdb Alerts; Scheduling Alerts & Notifications; Allocation Errors, Consistency Errors; DBCC ShowContig, Extent Fragmentation; Trace Flags and EstimateOnly; DBCC Page: GAM, SGAM and PFS; Consistency Errors : Cause & Solutions; Allocation Errors : Cause and Solutions; Log Space Issues and Log Rebuilds; Memory & TempDB Issues, Solutions; DBCC ShrinkDB and Page Restores;

Chapter 17: REPLICATION For HA - LEVEL 1

Replication Architecture and Topology; Publication Types - Purpose; Importance; DB Articles; Publications; Subscriptions; Distribution DB Configuration; Snapshots; Snapshot Replication and Repl Agents; Adding Articles to Existing (LIVE) Replica; PUSH; PULL Subscriptions. N/W Shares; Transactional Replication Configuration; Log Reader Agent - Configuration; Keys; Tracer Tokens Latency; Ranking Options; Replication Monitor - Usage; Replication Warnings and Agent Alerts;

Chapter 18: REPLICATION For HA - LEVEL 2

Merge Replication and Merge Agent Job; Replication Conflicts and ROWGUIDCOL; Subscription

Reinitialization; Expiry Setting; Server Subscription & Client Subscription; Peer-Peer Replication Connections; Nodes; NodeID and Conflict Detection Options; Replication Options on Conflicts: sp_MSRepl; sp_changedbowner; backup initialization; Replication Conflicts; Disabling; Cleaning Replication; Strategies for HA and DR; Replication for Load Balancing; **Common Errors and Solutions**

Chapter 19: LOG SHIPPING (HA - DR)

Log Shipping Topology for HA and DR; Primary and Secondary: Recovery Plan; Log Shipping Monitor; Jobs and Alerts; NORECOVERY Mode – Configuration; STANDBY Mode Configuration & Jobs; Log Shipping Jobs and Manual Failover; Log Shipping Mode Changes – cautions; Re-Restoring Log Backups for Recovery; LSCopy; LSCopy & LSRestore Jobs; LS Job Audits; Dashboards (Reports); TUF Files & Standby Options in LS; Broken Chains & Issues; **Common Errors and Solutions**

Chapter 20: DB MIRRORING (HA - DR)

DB Mirroring Architecture For HA & DR; Log Shipping Versus Database Mirroring; TCP Endpoints; TCP Network Security; Heartbeat and Polling Concepts in DM; Automatic Fail-Over Procedures; Tests; PARTNER OFFLINE Conditions; Options; DB Mirroring Monitors and Commit Loads; SYNCHRONOUS & ASYNCHRONOUS; DB Mirroring & Port Configurations; Mirroring Monitor; Stop/Resume;

Chapter 21: PATCHES, UPGRADES, CUs

Establishing Downtime For Maintenance; Precautions for Maintenance Activities; DB Backups; Scripting and Services; Service Packs and Patch/Hotfix Activities; Cumulative Updates (CU); Hotfix Process; Instance Selectivity for Updates; Cautions; Verifications; Smoke Test and Rollbacks; SERVER Upgrades; VERSION Changes; Silent Installation & Installation Repairs; Verifications; Smoke Test and Rollbacks; System Database REBUILDS @ CMD; Silent Installation & Repairs; SQLCMD Tool, Instance Connections; DAC : Dedicated Administration Console; Service Startup Issues and Solutions;

Chapter 22: Clusters and Always-On [Overview]. Detailed Practice in Plan B Classes

Windows Clusters For HA and DR; Domain Controller (DC) Configuration; Active Directory (AD) Accounts, se; SAN [Storage Area Network] and LUN; Public IP Address, Private IP Address; Windows Level Clusters, MSCS Service; Active-Active, Active-Passive Clusters; Always On Availability Group [AOAG]; Synchronous and Asynchronous Modes; Synchronization, Automated Seeding; Data Synchronization for AOAG ; Backup Preferences, Location;

Chapter 23, 24: SQL DBA PROJECT WORK

Routine SQL DBA Activities: Audit Login Failures : Server Logs; Monitoring Connectivity Issues; Database Refresh and MSDTC; Adhoc Memory Dump Files; PLE (Page Life Expectancy) Issues; Object Refresh and Recompilations; Backup and HA-DR Strategies; Configuration Manager Tool, Usage; Server Aliases and Startup Modes; Port Settings and Firewall Config; Lock Monitoring & LIVE Locks; Firewall Configuration in Real-time; SQLServr.exe and SQLBrowser.exe; Online and Offline Backups - Issues;

Emergency SQL DBA Activities: Server Down Issues and Solutions; Database Down Issues and Solutions; Data Missing Issues and Solutions; Hot CPU and Resource Allocations; Health Checks, Issues, Solutions; Automated Backups, Log File Readers; Ticketing Tools : SLA & OLA Concepts; Incident Management and Ticketing; Immediate, High and Medium Priority; Levels of Support for Production DBA; Licensing and Pricing Options; Versions, Editions Comparisons; 3rd Party Tools: Real-time Use; 3rd Party Tools: Dell Litespeed, Usage;

Module 2: AZURE SQL DBA

Chapter 25: CLOUD INTRO, AZURE CONFIG

Introduction to Cloud & Advantages; Cloud Architecture: IaaS, PaaS and SaaS; Microsoft Cloud Advantages, Azure Platform; Azure Products and Services - Marketplace; Database Implementations in Azure Platform; Comparing PaaS and IaaS Implementations; PaaS Implementations For SQL Server; IaaS Implementations For SQL Server; Logical, Virtual Machine, Managed Instance; Installing SSMS and Azure Data Studio; Azure Account and Free Subscription; Azure Resources: Resource Groups Usage; Azure Active Directory: User & Groups; Azure Active Directory Authentication;

Chapter 26: AZURE SQL SERVER CONFIG

Installing SSMS and Azure Data Studio; Azure Account and Free Subscriptions; Azure SQL Server (Logical Server); Azure SQL Server Logical Server Firewall; Firewall Rules - IP for Remote Access; Server Properties and Status Format; Password Resets in Azure SQL Server; Azure SQL Databases & Pricing Tiers; Azure SQL DB Access; Elastic Scaling with Azure DBs; General Purpose and Business Critical; Basic, Standard and Premium Plans; vCore Based Purchasing : Gen 4, Gen 5;

Chapter 27: ELASTIC DTUs, MIGRATION

Azure Storage: Creation & Containers; LRS, GRS and RA-GRS Storage Accounts; Storage Containers, Storage Explorer Tool; Data and Database Migration in Azure; Data Migration Assistant (DMA) Tool; DB Migrations To Azure SQL Databases; Database Exports and Imports in Azure; Migration Scopes: Schema and Data; Schema Generation, Migration Compatibility; Data Migration Verification and Row Counts; DTU: Data Transaction Unit and Resources; Bounding Box Model, Elastic Pool Queries; eDTUs, Elastic Pool. Per Database Settings; Performance Recommendations in Azure;

Chapter 28: AZURE SQL DATABASE TUNING

Azure SQL Server Level Tuning Options; Azure SQL Database Level Tuning Options; Automated Tuning Options and Peak-Loads; Force Plan, Create Index and Drop Index; Query Performance Insight, Recommendations; IO Metrics, CPU Metrics & Query Statistics; Data File IO, Log File IO, Custom Reports; Azure Search Service; Suggester and Analyzer Index Mode; Retrievable, Facetable, Filterable Indexes; Facetable and Searchable Indexes for Tuning; Change Tracking Options, Watermark Columns;

Chapter 29: XEL GRAPHS, STRETCH DATABASES

SQL Traces : Creation; SQL Traces : Event Class, Category, Filter, Conditions; Extended Events Package, Target, Action, Session; TSQL and SP Debug Events with Global Fields; XE Objects : Catalog & Dynamic Management Views; XE Profiler - Templates for Event Profiling; Comparing XE Profiler with SQL Profiler Tool; Stretch Databases in Azure SQL Databases; Stretch Databases; Table Level Migrations; Performance Levels and DSU Pricing; Data Storage and Snapshots; Geo Backup Of Tables and Hybrid Cloud Settings; Remote Data Archive; Database Master Key [DMK], Cold Data Migration;

Chapter 30: ALERTS, AZURE BACKUPS & RESTORES

Azure SQL Server Activity Log and Options; Events, Operations and Event Categories; Quick Insights from Events and Filters; Events Exports to Event Hub, Log Analytics; Log Analytics Workspace, Alert Rules; Email / SMS Notifications and Schedules; Log Analytics Settings and Azure Storage; Activity Logs

and Audit Reports, Insights; Automated Backups; Long Term & Automated Backup Retentions (bacpac); Backups - Retentions, Audits. LTR Policy; Restore Points, Database Recovery; Geo-Redundant Backups in Azure; Azure Storage Explorer For Backups; Disaster Recovery (DR) Advantages in Azure;

Chapter 31: HA - DR : GEO REPLICATION, DB SYNC

Failover Groups and Active Geo-Replication; Read-Write Failover Policy, Automated Failover; Geo Replication Configurations - Azure Locations; Primary-Secondary and Read / Write Modes; Geo Replication: Monitoring and Forced Failover; Azure Server Failover Process, Strategies; Automated SQL Data Sync Service and Sync Groups; HUB, MEMBER and SYNC DATABASE; Sync Direction, Sync Schema and Sync Interval; bi-directional Load Balancing and Failover; Conflict Resolution Policy;

Chapter 32: SECURITY MANAGEMENT, RLS

Firewall and Virtual Network Configurations; Server-level Firewall & Database Firewall Rules; System Stored Procedures for Firewall Settings; Logins, Users, Roles and Permissions using T-SQL; Creating Logins without Logins. Containment Users; GRANT, DENY, REVOKE, WITH GRANT Permissions; Threat Detection, Transparent Database Encryption; Vulnerability Assessment, Dynamic Data Masking; Implementing RLS - Row Level Security; Users with & without Logins; RLS Functions; Creating Security Predicates and Filters; Policies for Row Level Security; EXECUTE AS options for RLS. STATE ON/OFF;

Chapter 33: POWERSHELL, AZURE VIRTUAL MACHINE (VM)

Plan for IaaS, Azure VM. Install Azure Virtual Machines; Install/Configure Windows Server, Redhat, Ubuntu; SQL Server on Azure VM - Config Settings, Elastic Pools; Resource Groups, Resource Pools and eDTUs; Verify SQL Instances in Azure VM. sysadmin Account; Azure Storage Pricing Options; DB Creation in Azure VM; Azure Virtual Machines ; Security Options; Azure SQL Database in VM to SQL Cloud; Azure SQL Database in VM to on-Prem; Deployment Automation Process, Automation; Azure Cloud Shell - PowerShellGet, Versions; Power Shell Scripts for Job Schedules; Firewall, ARM; Azure CLI;

Chapter 34: Windows Clusters with Azure VM

Windows Clusters For HA and DR; Virtual Networks, Subnets and IPs; Availability Sets and Availability Zones; Fault Domains and Update Domains; DC Deployment & Configurations; Active Directory Domain Services; SAN [Storage Area Network] and LUN; DNS Server, DSRM and Private IP; Windows Level Clusters, MSCS Service; Active-Active, Active-Passive Clusters; DNS Tools, Actions & Adding AA Hosts; SQL Clustering Service & RAID Levels; SQL Cluster Groups, Domain Accounts; Quorum and MSDTC Disks. LUN Grows; MSCS Service : Startup, DNS; DSRM Passwords, Component Services;

Chapter 35 : Always-On with SQL Server Clusters

SQL Server VMs and File Share Witness (FSW); Joining Machines to Domain Network (AD); Adding Install Accounts to Active Directory; Install Failover Cluster (FCI) Features; Firewall Configurations and Port Exceptions; FSW File Shares and Usability Options; Need for Always - On Availability (AAG); Always On Availability Group [AOAG]; Multi-Database Replication Options; Backup Preferences, Location Options; Synchronous and Asynchronous Modes; Synchronization, Automated Seeding; Data Synchronization for AOAG; AOAG Dashboards & Automated Failover; Failover Connection Tests;

Chapter 36: DP 300 Certification Guidance, Material & Samples ++ Real-time Project

Module 3: Azure Managed Instance

CHAPTER 37: AZURE MANAGED INSTANCE INTRO

Azure Managed Instance Fundamentals; Azure SQL: Logical, Virtual & Managed; Deployment Options of Azure SQL?; SQL Server PaaS Implementation; Azure Managed Instance - Advantages; Azure Managed Instance - Architecture; Scaling Options & Vcore Purchasing; Flexible Service Tiers and Compliance; Frictionless Deployments in Azure MI; Comparing Azure MI with Azure VM; Comparing Azure MI with Logical Server; Database Engine Stability, Availability; Automated Tuning, Technical Features; Virtual Networks and Peer Connections;

CHAPTER 38: AZURE MI CONFIGURATIONS

Azure Managed Instance Architecture; Network Environment, VNets, EndPoints; Capacity and Compute with VCore; Gen 4 and Gen 5 Purchasing Options; CPU Cores, Processor and SSD Capacity; Proxy, Redirect & Default Connections; Connection Topology In/Out Azure; TLS Versions and Security Options; Azure MI Entities: Virtual Nets, Subnets; Routing Tables, Virtual Clusters, NSG; Network Watchers with Azure MI; Managed Instance Configurations; Deployment Monitoring with Azure MI; Azure Managed Instance Key Features;

CHAPTER 39: AZURE MI CONNECTIONS FROM VM

Accessing Azure Managed Instances; VM Connections and Peer Connections; Azure Managed Connections from VM; Configure Azure Virtual Machines with VN; Reusing Virtual Networks and Subnets; Azure SQL and Azure VM Deployments; Azure VM Connections to Azure MI; Installing and Using Azure Power Shell; Power Shell for Azure VM Deployments; PowerShell Commands & JS Templates; Azure Managed Instance Connections; Azure MI: SQL Server Authentication; Creating New Databases in Azure MI; Differences with On-Premise DB Creation;

CHAPTER 40: AZURE MI MIGRATIONS FROM VM

Azure Managed Instance Migrations; Pre and Post Migration Precautions; Database Exports using SSMS (bacpac); Database Backups using T-SQL Scripts; Database Imports and Restore; Using Azure Storage Accounts, Containers; Access Keys and Secured BAK File Store; T-SQL Differences with Azure MI; Database Creation Differences; DB Options, Security Differences; Backup and Restore Differences in MI; TempDB and MSDB in MI; SQL Agent, Replication Differences; Mirroring and Credentials;

CHAPTER 41: AZURE MI - TUNING CONCEPTS

Azure Managed Instance: Query Tuning; Automated and Manual Tuning in MI; Instance Level, Database, Object Level; Resource Dependencies: Service Plan; Memory, Disk Usage & Networking; General Purpose & Business Critical Plans; Memory Impact on Database Tuning; Disk and Virtual Core Impact on Tuning; Memory, Disk, Vcore Recommendations; Table Level Query Tuning Options; Implementing In-Memory OLTP; Benefits of Memory Optimized Tables; Temporal Tables : Creation and Usage; Data Capture with Temporal Tables;

CHAPTER 42: AZURE MANAGED INSTANCE BACKUPS

Azure MI: Backups Architecture; Azure MI: Automated & Manual Backups; Backups with Encrypted Databases; Backup Compression Ratio in Azure MI; Backup Frequency: Full, Differential, Log; Backup

Storage Redundancy Options; LRS, GRS and ZRS Options for Backups; Backup Scheduling - Automated, Manual; Backup Storage Consumption Tuning; Backups Retention Time, Encryption; Manual Backups: COPY_ONLY, FORMAT; Backups with Azure Storage Account; SAS: Shared Access Signature @ Security; Disable/Enable Encryptions with Backups;

CHAPTER 43: AZURE MI RESTORES, MONITORING

Data Recovery Options with DB Restores; Creating New Databases, DB Replace; Point In Time Recovery [PITR] in Azure MI; Recovery Time Factors and Challenges; Deleted Database Restore, Geo Restore; Manual Restores with Server Credentials; SAS Key Usage, Monitoring, Verifications; Azure Managed Instance Monitoring; Monitoring Azure MI from Azure Portal; Azure MI : Instance and Database Metrics; Overview Page, Resource Usage Reports; Metrics, Alerts and Diagnostics in MI; Monitoring Azure MI from SSMS Tool; Memory Consumption, Server Dashboards;

CHAPTER 44: AZURE MI SECURITY MANAGEMENT

Azure Managed Instance Security; Network Security, Access Management; Threat Protection, Information Protection; Customer Data Security & Encryptions; Encryption at REST and TRANSIT; Network Security with Subnets in VM; Endpoint Connections with Client, Public; Azure MI: Authentication Modes; SQL Authentication and Azure AD; Authorization Levels, Row Level Security; Threat Protection with Advanced Options; SSL, TLS and TDE Implementations; Always Encrypted, Key Management, VA; Creating Logins, Users, Roles. Privileges;

CHAPTER 45: AZURE MI - HA DR WITH REPLICATION

Replication with Azure Managed Instance; Replication Topology with Azure Shares; Creating Azure Storage Accounts; Configuring Azure File Share Services; Distributor Configuration with File Share; Articles, Publications & Publication Types; Snapshot, Transactional and Merge; Push and Pull Subscriptions in Azure MI; Replication Agents: Snapshot, Log Reader; Distribution Agent. Push / Pull Models; Replicating Azure MI with Azure VM; Create Distributor, Publication in Azure MI; Creating Subscriptions in Azure MI; Data Sync Verification; Alerts / Warnings;

CHAPTER 46: MANAGED INSTANCE POOLS

Azure Managed Instance Pools; Real-time Advantages with Az MI Pools; vCore Purchasing Options in Azure MI Pools; Vnet Integration & Multi Instance Pools; Deployment and Security Advantages; IP Allocations and Network Configurations; Gateway Configurations with Azure MI; Virtual Machine Partitions & Pricing; Application Scenarios with Az MI Pools; Multiple Single Instances, Resource Limits; Storage Size Pools, Databases in Pools; Azure Active Directory (AAD) Admins; Supported Features with Managed Pools; Performance & Security Considerations;

CHAPTER 47: On-Premise Connections

Azure Point to Site (P2S) Connections; Open VPN Connections with Azure MI; TLS VPN Solutions, Real-time Usage; P2S VPN Client Authentications; Azure Active Directory Authentication; Multi Factory Authentication in Azure; Azure MI : AD Connections with SSMS; Azure AD Tenants and Gateways; AD DS Domain Server Configurations; RADIUS Server Concepts for Azure MI; OnPremise Connections with Azure MI; Differences with On-Premise; Agent, Backups & Restores; OnPremise Migrations to MI;

CHAPTER 48: Azure MI Features Comparison

Azure MI Features with Azure SQL DB; Azure MI Features with Azure VMs; Azure MI Features with OnPremise; Security Differences & Credentials; HA DR Differences and Compatibility; Performance Tuning Comparisons; Detach and Attach Options in Azure MI; Azure AD Authentication; BULK INSERT, Built-In Functions; CDC - Change Data Capture, CT Tables; Columnstore Indexes, Credentials; DB Mail & SMTP; DBCC Commands & Health Checks; Azure Managed Instance Advantages;

Resume, Project Oriented FAQs and Solutions

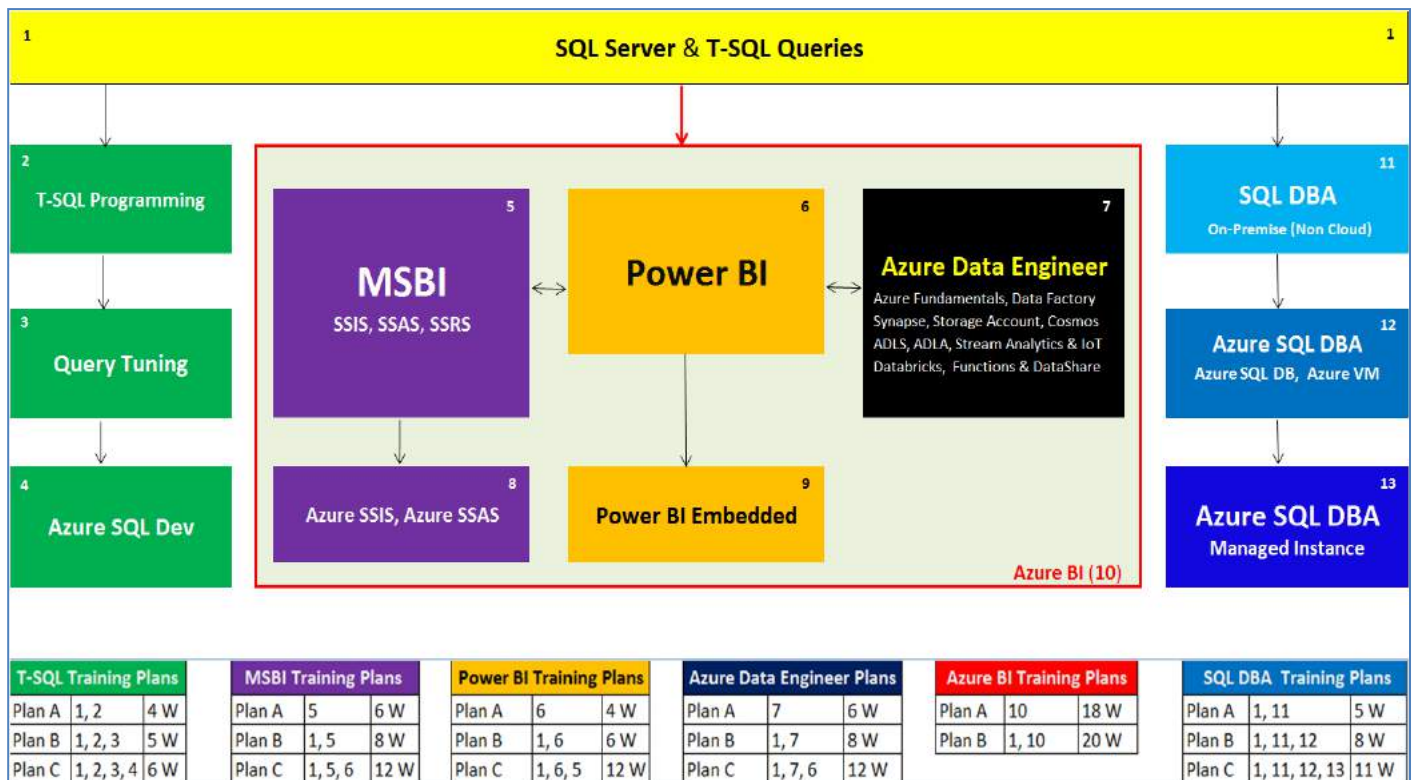
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