LESSER-KNOWN CLOUD SERVICES FOR DBAs

THE LESSER-KNOWN CLOUD SERVICES THAT CAN BE HELPFUL TO DATABASE ADMINISTRATORS

Cloud platforms like Microsoft Azure and Amazon Web Services (AWS) have now matured to the point where they are ready for enterprises. Many organizations are planning to migrate their existing infrastructures to the cloud, and startups typically consider the cloud as the first choice for hosting their websites and applications. The cloud provides SQL Server DBAs with new opportunities as it does for other roles but capitalizing on them requires you to learn new skills.

If you are a SQL Server DBA, you probably have SQL Server set up on a virtual machine (VM). You may also already be using Azure SQL Database or Amazon RDS for SQL Server. However, you may not yet know how to perform essential DBA functions in the cloud, such as storing backup files, balancing loads, controlling user access, and monitoring your setup with a mobile device. The following types of cloud services can help you accomplish these tasks:

- Identity

- Management

- Migration

- Mobile

- Networking

- Security

- Storage

- Backup

IDENTITY

Identity services control access to your infrastructure by managing user identities across devices, applications, and data.

Azure Active Directory synchronizes multiple on-premises directories, enabling a single sign-on for each user. Azure Information Protection helps secure sensitive data that you share outside your organization, including documents and email messages.

AWS Identity and Access Management (IAM) allows you to create and manage AWS users and groups by granting and denying access to AWS resources. It provides multi-factor authentication (MFA), which requires users to provide more information than just a user id and password before gaining access.

MANAGEMENT

Management services automate many of the management tasks for your cloud resources, including regulatory compliance.

Microsoft Azure Portal monitors everything on your platform from a single console, including databases, VMs, networks, storage, and web applications. Cloud Shell integrates the graphical user interface (GUI) of Azure Portal with a command-line interface.

AWS Management Console is a web application that manages AWS services, including account information. It has a built-in GUI that performs a variety of administrative tasks in AWS such as launching Amazon EC2 instances. You can also use the Management Console to work on Amazon S3 buckets and set Amazon CloudWatch alarms.

MIGRATION

Migration services provide guidance, tools, and other resources that help you migrate your infrastructure to the cloud.

Azure Migrate allows you to execute and assess your Azure migration, which often requires the use of VMs and hypervisors on a large scale. It can handle multiple physical servers, managed instances, and databases, including Azure SQL Database.

AWS Database Migration Service (DMS) helps you migrate databases to AWS. The database remains operational during this process to minimize downtime for your database applications. DMS can migrate a variety of commercial and open-source databases, including homogeneous and heterogeneous operations.

MOBILE

Mobile services help you build and deploy native and cross-platform apps for any mobile device.

The Azure mobile app lets you stay connected to your Azure resources with your iOS or Android device, no matter where you are. You can restart web apps, connect directly to a VM, check alerts, and view metrics. These services allow you to respond to database issues and take corrective action more quickly. The Azure mobile app also lets you access the command line from your mobile device so that you can run Azure CLI and PowerShell commands.

NETWORKING

Networking services connect the components of on-premises and cloud infrastructure, including other cloud services.

Virtual Network allows you to implement your private network in an Azure cloud, including your DNS servers and IP addresses. You can also use it to secure your connections with ExpressRoute or a virtual private network (VPN) that uses the IPsec protocol. Load Balancer allows you to

balance your network load between VPN and internet traffic, improving the availability and performance of network applications. It also uses network address translation (NAT) rules for greater flexibility in implementing network security.

Amazon Virtual Private Cloud (VPC) lets you provision and isolate a section of an AWS cloud in which you can define a virtual network. This solution allows you to control a virtual networking environment by creating subnets, selecting IP address ranges, and configuring route tables. You can use both IPv4 and IPv6 in VPC to access applications and resources.

SECURITY

Security services protect your infrastructure from threats, manage events, and provide information on protection.

Azure Sentinel provides analytics that allows you to identify threats quickly, including security information and event management (SIEM) data. This capability provides you with a birds-eye of your enterprise's security based on Microsoft's experience with large-scale threat detection. Sentinel also scales to meet your infrastructure's need without the setup and maintenance this protection often requires.

Amazon GuardDuty protects AWS workloads from unauthorized access and malicious behavior by monitoring your cloud environment. It simplifies the collection of data on account and network events without the need for security personnel to continuously monitor this data. For example, GuardDuty can detect EC2 instances that are hosting malware.

STORAGE

Storage services for applications, data, and workloads on the cloud need to be secure and massively scalable.

Azure Disk Storage provides persistent disk storage for VMs, including hard-disk drive (HDD) and solid-state drive (SSD) formats. HDD stores blocks of data that can be accessed randomly and is

the most cost-effective storage option. Standard SSD also provides consistent performance at a low cost, while Premium SSD offers the higher performance that production workloads require. Ultra SSD is a Disk Storage option with very low latency and highly scalable performance.

AWS users can store data with Amazon Simple Storage Service (S3). Amazon S3 has a web service interface. It uses at least three devices within an AWS region to store a particular data set. S3 provides object-level backups, allowing you to store objects such as internet applications and data archives. Amazon guarantees 99.9 percent uptime in its service-level agreement.

BACKUPS

Cloud backup services help protect data from human error and ransomware.

Azure Backup simplifies backups and recoveries because it is built into the Azure platform. It supports the recovery of entire SQL databases and VMs as well as individual files and folders. You can also continuously track assets in Azure Backup with dynamic reports.

AWS Backup is a fully managed service that allows you to automate backups to an AWS cloud as well as on-premises devices by using AWS Storage Gateway. You can configure backup policies and monitor activity from a central location for a variety of AWS resources, including Amazon RDS databases, AWS Storage Gateway volumes, EBS volumes, and DynamoDB tables. AWS Backup also consolidates jobs that are currently performed by individual services, eliminating the need to write custom scripts.

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