
AWS
re:Invent

DAT208

What is new in Amazon RDS for SQL Server?

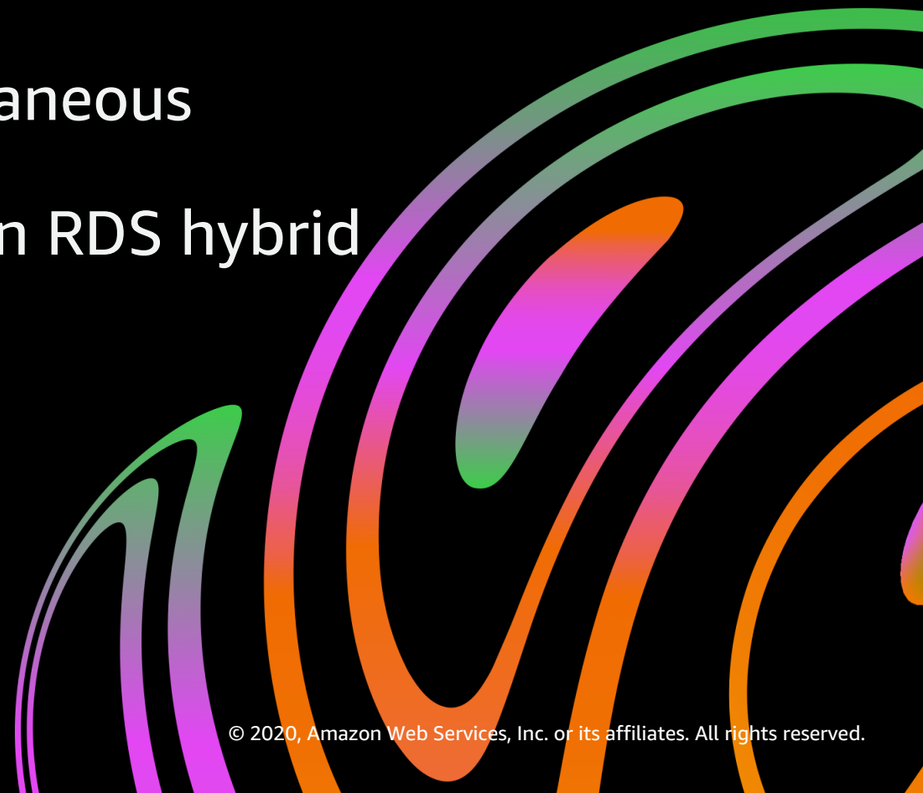
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Agenda

- Price reduction
- R5b family support
- AD integration enhancements
- TLS version control
- In-region read replicas
- MSDTC support
- Multi-file backups
- DB Mail support
- SSIS, SSRS, and SSAS (tabular)
- Miscellaneous
- Amazon RDS hybrid



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Price reduction

Effective as of July 1, 2020, AWS is reducing the price for both the on-demand and reserved DB instances prices on Enterprise edition multi-AZ

On-demand prices are reduced by an average of 25% depending on region and instance class

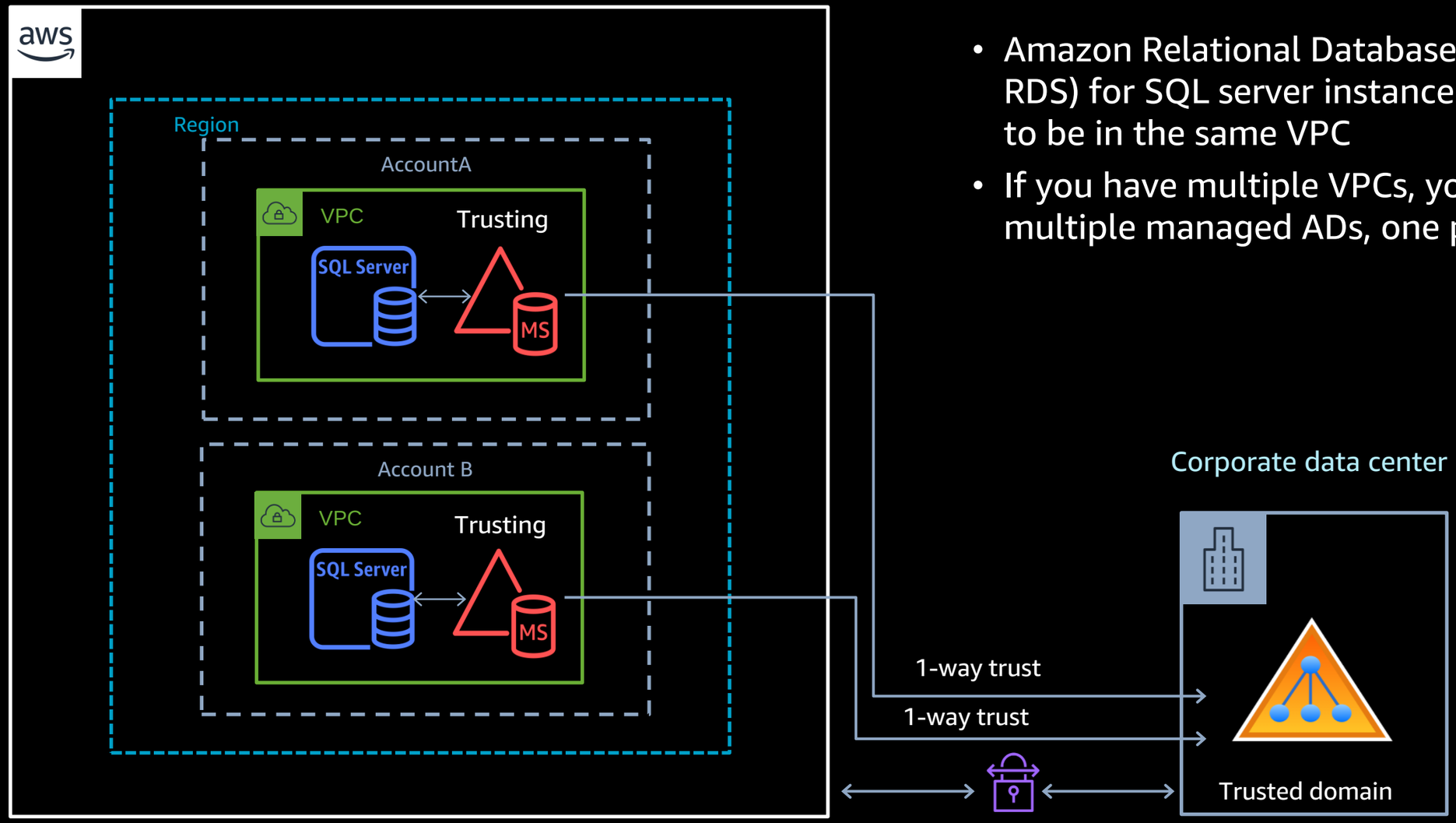
Region	M5	R5	T3	X1	X1e	Z1D
APAC	28%	28%	32%	25%	3%	22%
EMEA	28%	27%	34%	27%	5%	22%
North America	28%	27%	34%	30%	10%	23%
South America	24%	25%	30%	20%	n/a	n/a

R5b instance family

Powered by the AWS Nitro System to provide the best network-attached storage performance available on EC2, delivering 3x higher EBS-optimized performance compared to R5 instances

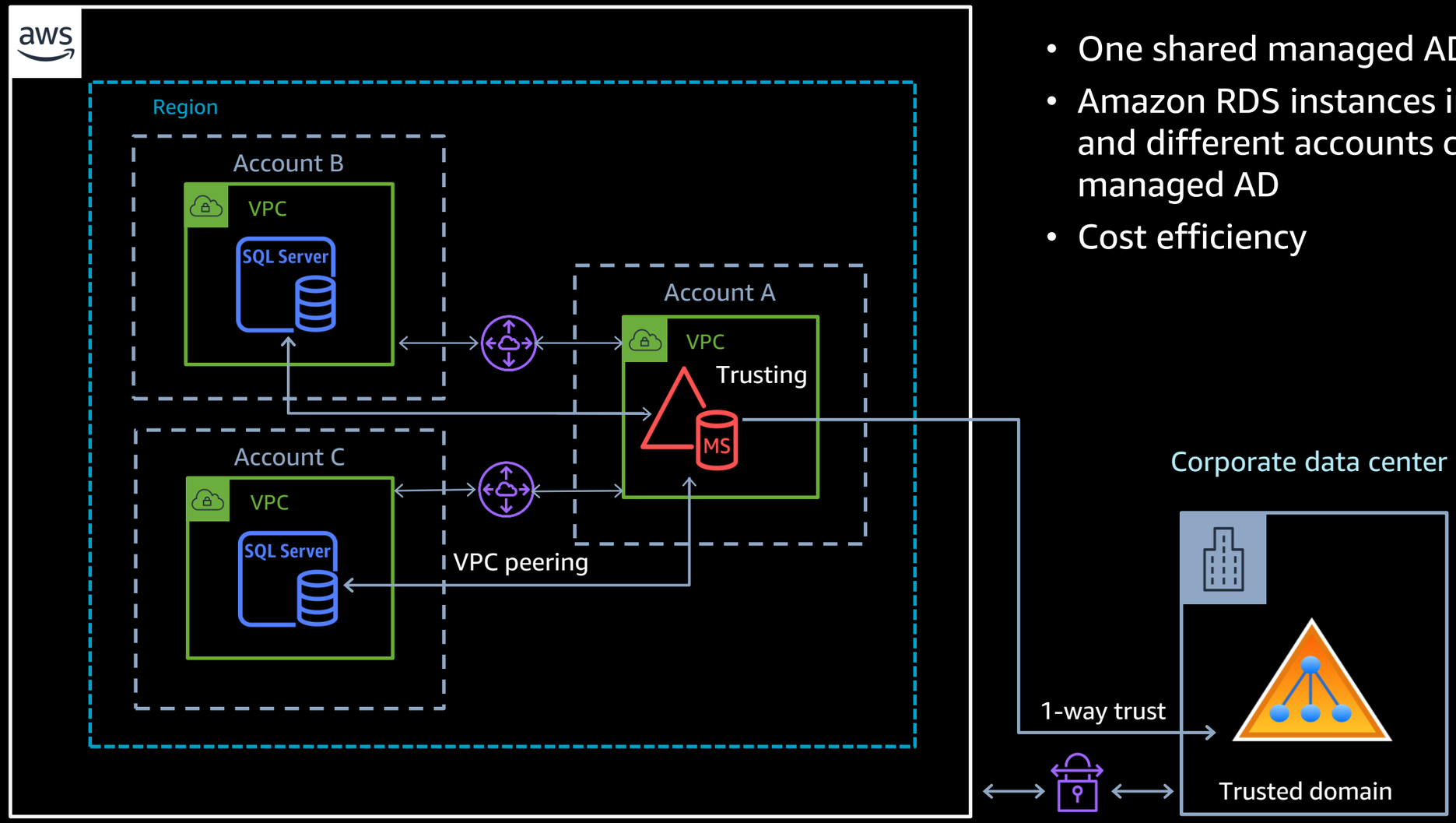
Size	vCPU	RAM (Gb)	EBS IOPS (IO/sec)	EBS bandwidth (Mbps)
L	2	16	Up to 43,333	Up to 10,000
xl	4	32	Up to 43,333	Up to 10,000
2xl	8	64	Up to 43,333	Up to 10,000
4xl	16	128	43,333	10,000
8xl	32	256	86,667	20,000
12xl	48	384	130,000	30,000
16xl	64	512	173,333	40,000
24xl	96	768	260,000	60,000

AD integration (before)



- Amazon Relational Database Service (Amazon RDS) for SQL server instance and managed AD had to be in the same VPC
- If you have multiple VPCs, you had to provision multiple managed ADs, one per VPC

AD integration (now)



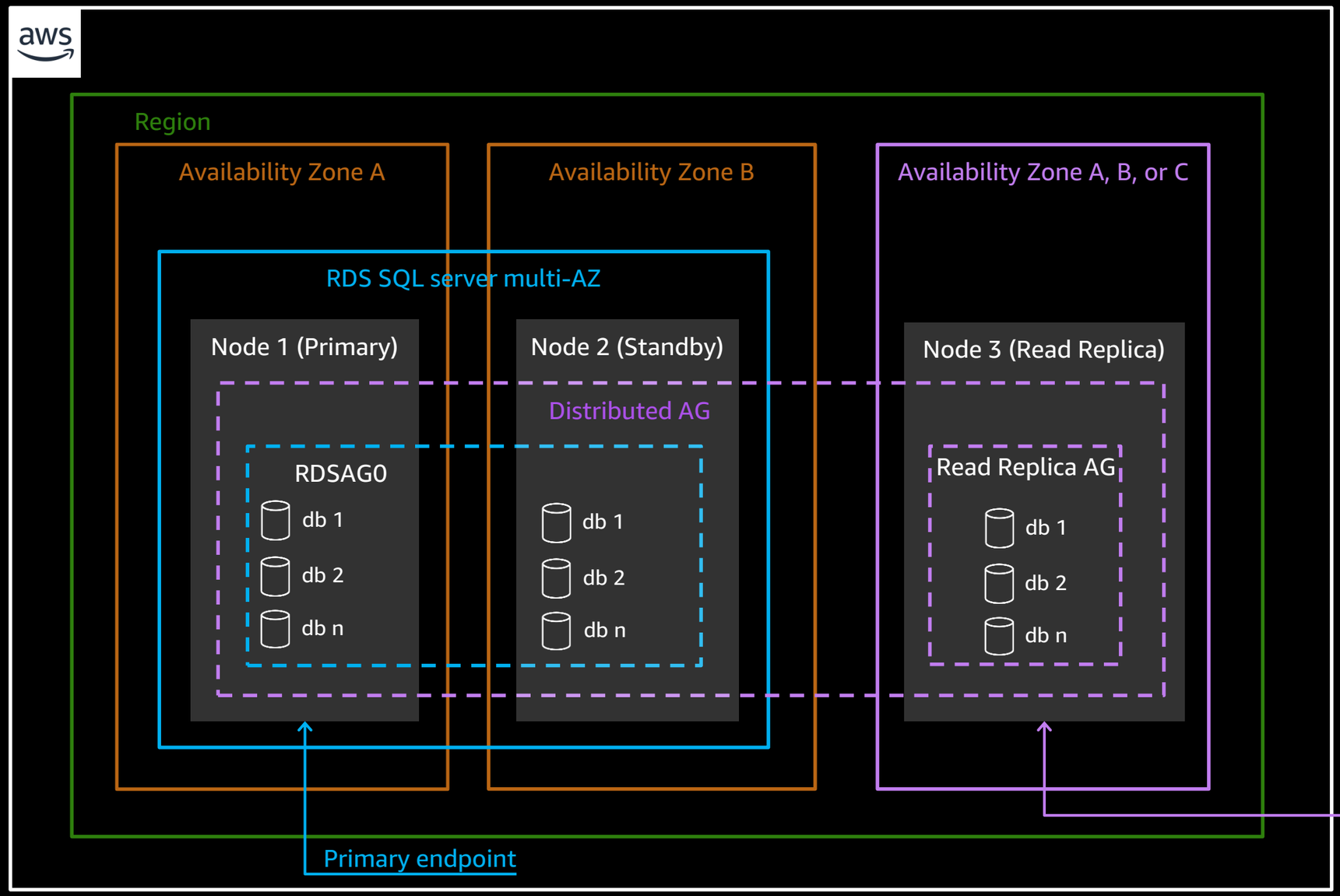
- One shared managed AD in shared VPC
- Amazon RDS instances in different VPC and different accounts can join one shared managed AD
- Cost efficiency

TLS version control

Support for enabling and disabling security protocols and ciphers
You can disable older versions of TLS such as 1.0 and 1.1
You can disable older cyphers such as RC4 and Triple DES
Essential for many compliance frameworks such as NIST, PCI, HIPAA, FedRAMP, FIPS
Accessed through custom Parameter group



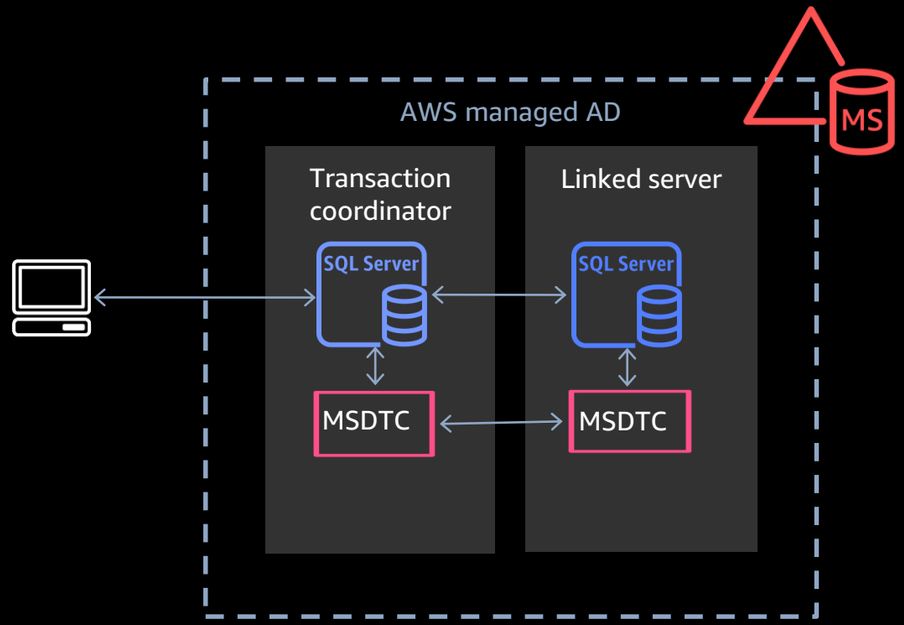
In-region read replica



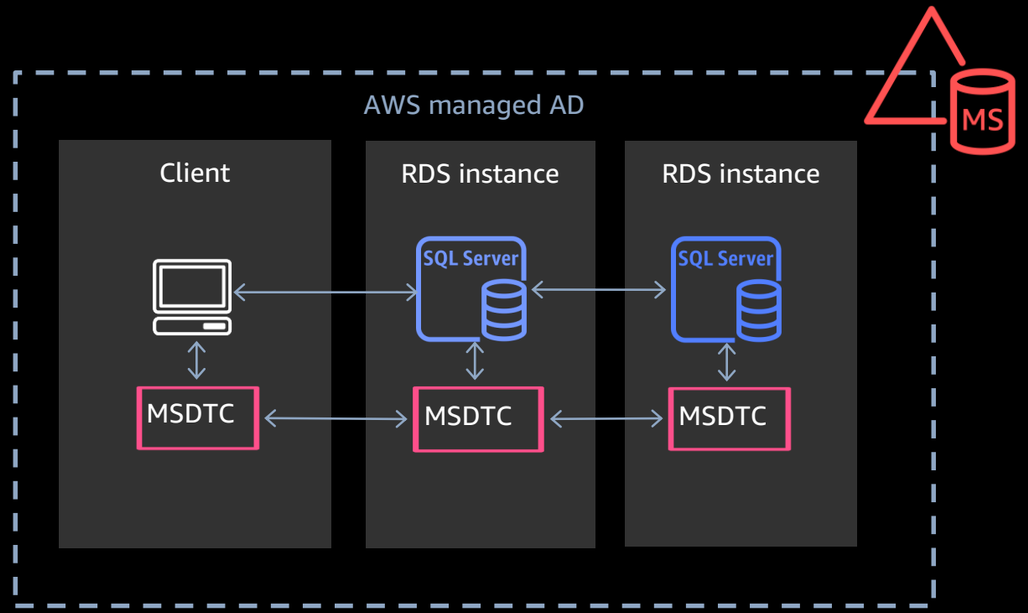
- Enterprise edition only
- 2016, 2017, and 2019
- Multi-AZ
- backup retention > 0
- Up to 5
- Asynchronous
- Separate endpoint
- No failover
- Promotion only

MS DTC

Linked server



TransactionScope class



- MSDTC isn't supported on instances using DB mirroring
- If in multi-AZ, 2016, 2017, and 2019 Enterprise edition only
- MSDTC must be enabled in Option Group
- In-doubt xact resolution must be set to 1 or 2 in Parameter Group

Multi-file native backup

```
exec msdb.dbo.rds_backup_database
@source_db_name='mydatabase',
@s3_arn_to_backup_to='arn:aws:s3:::mybucket/backup*.bak',
@number_of_files=4;
```

Enables us to –

- Backup and restore databases larger than 5TB
- Download and upload to Amazon Simple Storage Service (Amazon S3) much faster
- Backup databases much faster (see examples below)

Test (Instance R5.8XL)	Single-File	Multi-file (4)	Perf Improvement
1 TB backup (EBS: gp2, 1.5TB)	179 min	65 min	~2.7x
1 TB restore (EBS: gp2, 1.5TB)	247 min	73 min	~3.3x
4 TB backup (EBS: gp2, 4.5TB)	542 min	202 min	~2.6x
4 TB restore (EBS: gp2, 4.5TB)	740 min	281 min	~2.6x
1 TB backup (EBS: io1, 9000 IOPS)	172 min	55 min	~3.1x
1 TB restore (EBS: io1, 9000 IOPS)	175 min	50 min	~3.5x
4 TB backup (EBS: io1, 30000 IOPS)	540 min	173 min	~3.1x
4 TB restore (EBS: io1, 30000 IOPS)	826 min	168 min	~4.9x

DB mail

```
EXEC msdb.dbo.sp_send_dbmail
@profile_name = 'Notifications',
@recipients = ‘eugenest@amazon.com',
@body = ‘BusinessRule Engine has completed successfully',
@subject = 'Automated Success Message';
```

Prior to this release –

- One of the most frequently asked about features!
- Required workarounds such as AWS Lambda or an additional SQL server instance on Amazon Elastic Compute Cloud (Amazon EC2)

Now –

- Set up your SMTP server using Amazon Simple Email Service (Amazon SES) or Amazon EC2
- Create custom parameter group and enable
- Create DB Mail account and profile
- Send e-mail straight from t-sql
- Support for file attachments (.xlsx, .txt, etc.)

Amazon RDS support for SSIS, SSRS, and SSAS (tabular)

Prior to this release –

- Had to be hosted outside of Amazon RDS instance on Amazon EC2
- Required additional Amazon EC2 instance and SQL server license

Now –

- Supported on the Amazon RDS for SQL server instance
- Enabled in the Options Group
- Amazon RDS instance must be managed AD joined
- Supported for 2016, 2017, and 2019 (pay attention to the build numbers)

Miscellaneous

- SQL Server 2019 available now!
- Z1D instance family support
- Windows authentication available in more regions – N. California, São Paulo, Mumbai, Paris, Hong Kong, Beijing, Ningxia, and Govcloud
- More time zones
- Support for Trace Flag 692
- Support for Bulk Insert on multi-AZ instances
- Native restores supported on DB instances with read replicas
- Support for Service Master Key replication

Amazon RDS hybrid use cases

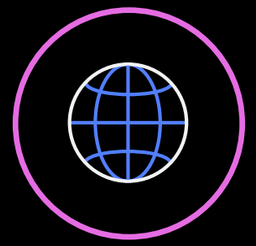


Latency

Applications and processes sensitive to network and disk latency

Financial services applications such as trading and brokerage

Security and fraud applications that require a quick response time



Residency

Regulations dictate that data and infrastructure reside locally

Contracts specify where applications are deployed

Information security or other reasons prevent adoption of AWS Regions

Amazon RDS on VMware

Overview

- Database managed services for the hybrid cloud (AWS Regions and on-premises data centers)
- Available on VMware vSphere

Benefits

- Unified Amazon RDS interface to manage databases on-premises and AWS Regions
- Comprehensive database management services for a hybrid cloud environment

Feature	RDS on VMware
DB engines	• SQL Server 2016 SP2 Enterprise edition • MySQL 5.7, PostgreSQL 10.9
Performance and scalability	• Instances from M to 24XL • Read replica (MySQL, PostgreSQL)
Availability and durability	• Event integration • Amazon Cloudwatch events and metrics • On-premises storage for data residency
Infrastructure	• VMware vSphere 6.5+ • VMFS, NFS, or vSAN

Additional resources

Creating Read Replicas in RDS for SQL Server

In this video, you will learn prerequisites, limitations, and process of deploying read replicas

Amazon RDS support for SQL Server Reporting Services

In this video, you will learn prerequisites, limitations, and the process of deploying SSRS reports on Amazon RDS

Amazon RDS support for SQL Server Analysis Services

In this video, you will learn prerequisites, limitations, and the process of deploying tabular SSAS models on Amazon RDS

Amazon RDS support for SQL Server Integration Services

In this video, you will learn prerequisites, limitations, and the process of deploying SSIS packages on Amazon RDS instances

Amazon RDS support for MSDTC

In this video, you will learn prerequisites, limitation, and the process of configuring MSDTC on Amazon RDS

Amazon RDS support for cross-account and cross-VPC domain join

In this video, you will learn how to join your SQL Server RDS instance to a directory in another account and another VPC

Additional resources

Customizing security parameters on Amazon RDS for SQL Server

In this blog post, you will learn how to enable or disable certain security protocols and ciphers

Amazon RDS for SQL Server lowers the cost for High Availability DB Instances

This is a price reduction announcement

Using Database Mail on Amazon RDS for SQL Server

In this blog post, you will learn how to configure DB mail

Using native backup and restore

This is user guide on how to use native backup and restore

Related sessions

DAT207

What's new in Amazon RDS for Oracle

DAT302

Deep dive on Amazon Aurora with MySQL compatibility

DAT303

Deep dive on PostgreSQL databases on Amazon RDS

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