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WIN322

Chalk Talk - Designing A Migration Strategy For Your SQL Server Infrastructure

Brian Scarr
Sr Solutions Architecture

MinSeok Kang
Sr MSFT Tech Specialized
AWS Solutions Architecture

Stefan Minhas
Sr Consultant – Professional Services
Microsoft Specialty Practice

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ABOUT TODAY'S CHALK TALK

- Why move SQL Server workloads to AWS?
- Microsoft licensing on AWS
- Options for Deploying SQL Server on AWS
- Migrating Schemas and Data to & from AWS
- Migration Steps & Tools
- Q&A with Chalk talk

Why are customers choosing to move their SQL Server workloads to AWS?

Why are customers choosing to move their SQL Server workloads to AWS?

"We concluded that migrating to AWS would be the most cost-effective strategy, and the agility of the AWS Cloud model fit our SQL Server workloads perfectly. The Ven.ue platform has definitely benefited from the scalability and performance of AWS, so that gave us a lot of confidence." – *Mike Gassner, Sr. Vice President, Technology Solutions, Sony DADC New Media Solutions*

"A lot of our SQL Server workloads can push 15,000 IOPs continuously, for long periods of time. We really liked the performance and value we saw in the Amazon EC2 I2 instances." – *Randy Young, Director of Cloud Operations, Infor*

Options for Deploying SQL Server on AWS

Amazon RDS for SQL Server

- **Consider Amazon RDS first**
- Focus on business value tasks
- High-level tuning
- Schema optimization
- No in-house database expertise
- Automatic Host Replacement

Scaling
High Availability
Database Backups
DBMS Patching
DBMS Install/Maintenance
OS Patching
OS Install/Maintenance
Power, HVAC, net

SQL Server on Amazon EC2

- Need full control over DB instance
- Replication
- Clustering
- Options that are not available in Amazon RDS

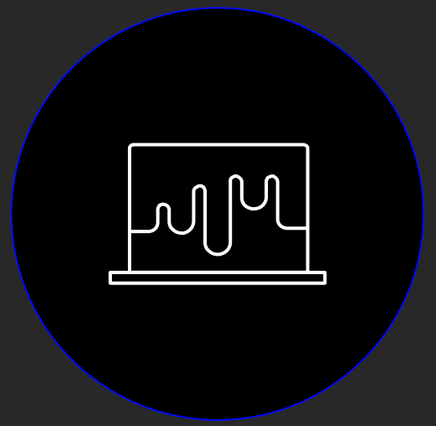
Scaling
High Availability
Database Backups
DBMS Patching
DBMS Install/Maintenance
OS Patching
OS Install/Maintenance
Power, HVAC, net

AWS managed

Customer managed

Microsoft licensing on AWS

License Optimization with Optimize CPUs



- Control active vCPUs and Hyper-Threading status when launching new EC2 instances
- Reduce the number of SQL Server licenses

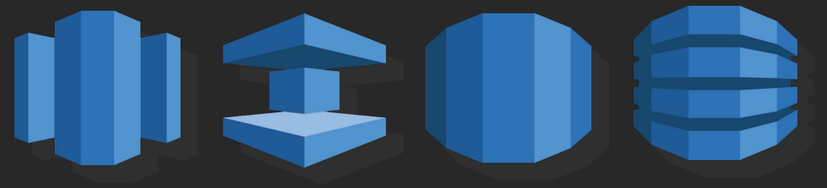
Instance Type	Total vCPUs	Active vCPUs with Optimize CPUs	SQL Server license savings
r4.4xlarge	16	8	50%
r4.8xlarge	32	8	75%

*Sample licensing example only

Which migration strategy is right for you?

Amazon EC2

Amazon RDS



Rehost:
SQL Server on EC2

- Familiar administration experience
- Full control over the environment
- All SQL Server features available
- All SQL Server versions supported

Replatform:
SQL Server on RDS

- Optimized architecture
- Automated patching
- Automated backups
- Proven high availability

Refactor:
Adopt Cloud Native Services

- Amazon Aurora – SQL/OLTP
- Amazon Redshift – SQL/OLAP
- Amazon DynamoDB – NoSQL
- Amazon Neptune – Graph
- Eliminate SQL Server licensing costs

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Migration Options

What is On Prem?

SQL Server Migrations Options				
	SQL Server 2005	SQL Server 2008	SQL Server 2008 R2	SQL Server 2012-2017
On-Prem				
EC2				
RDS Homogeneous				
RDS Heterogeneous				

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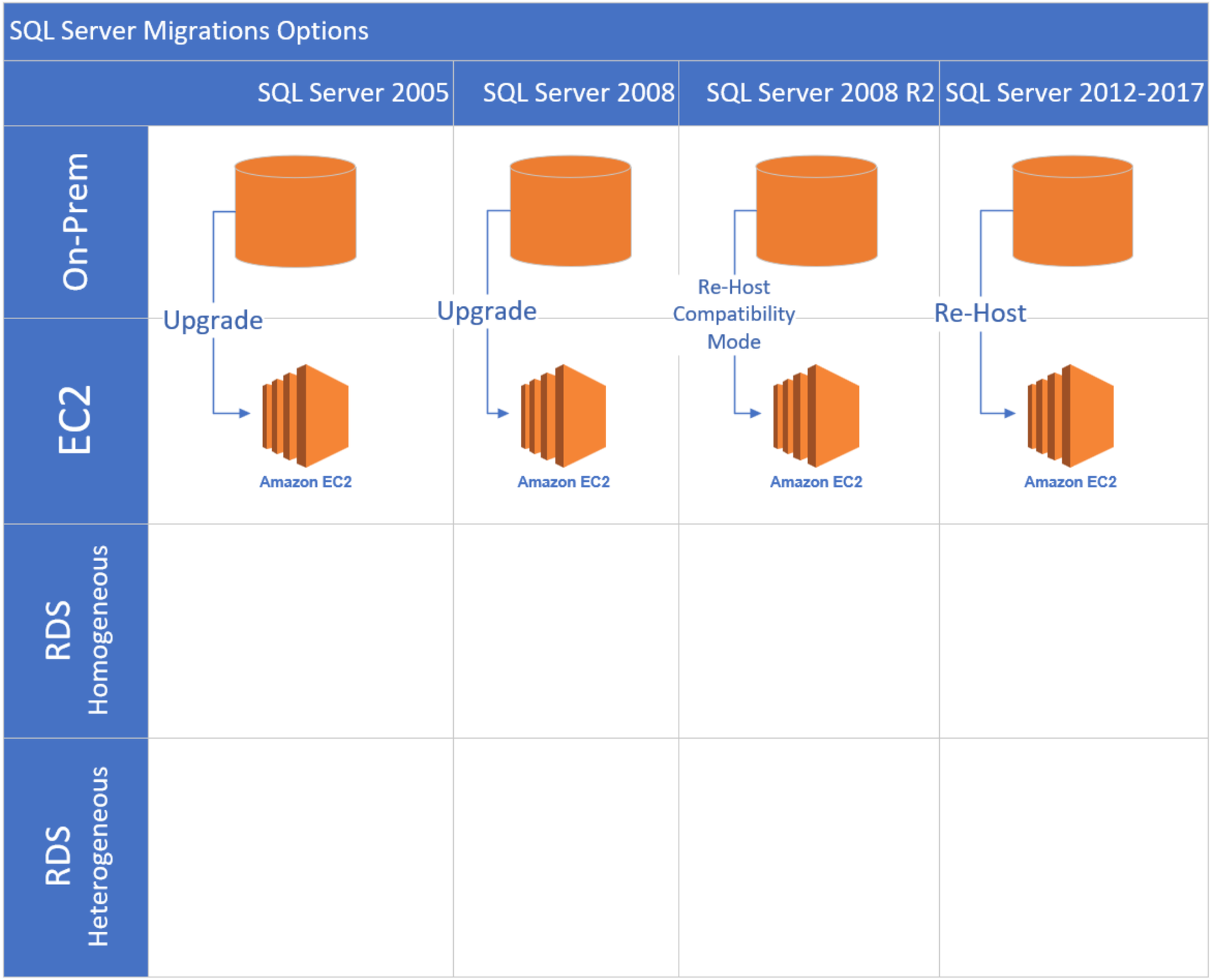
Migration Options

AWS Options

Amazon EC2

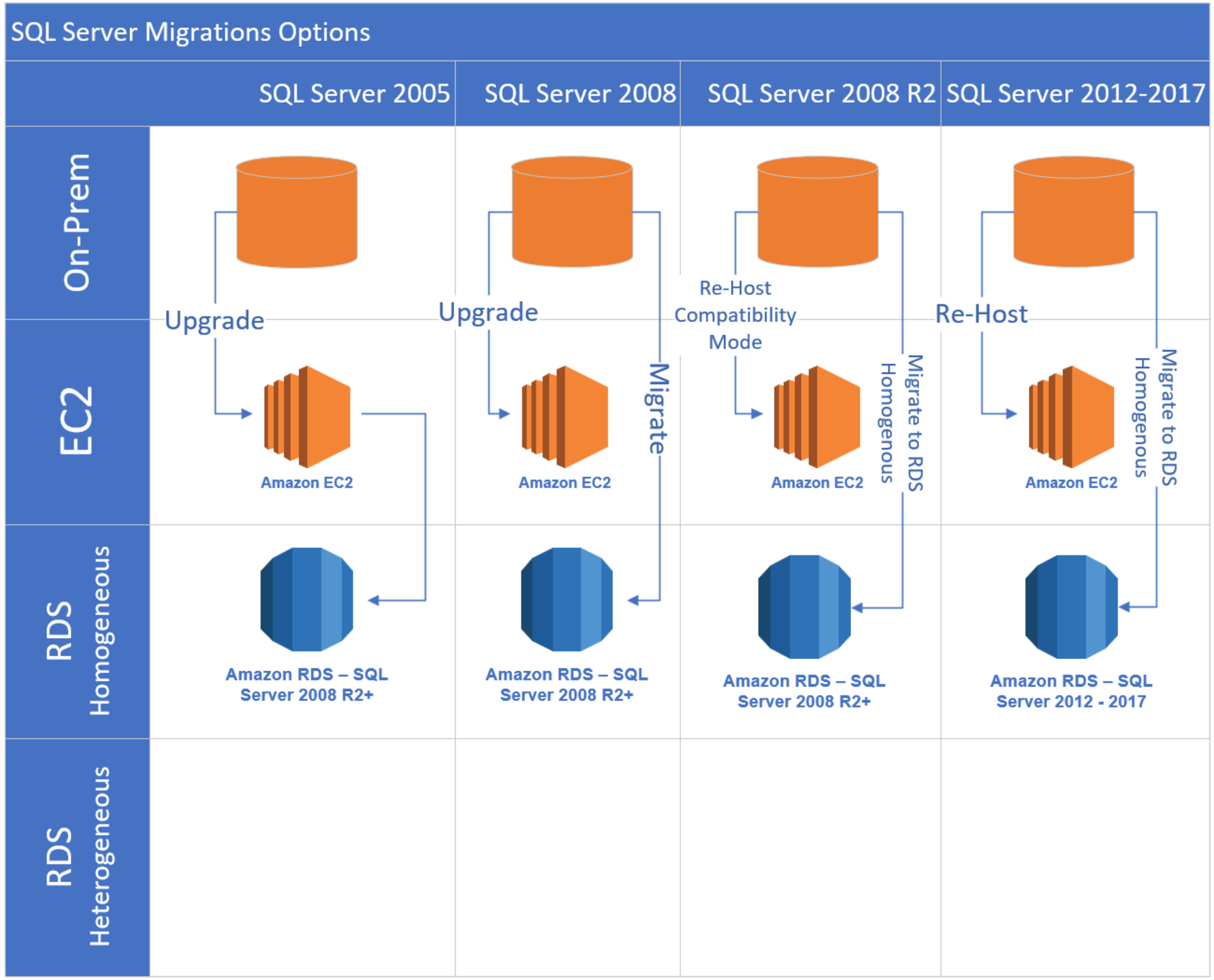


Migration Options

AWS Options

Amazon EC2

Amazon RDS Options: Homogeneous



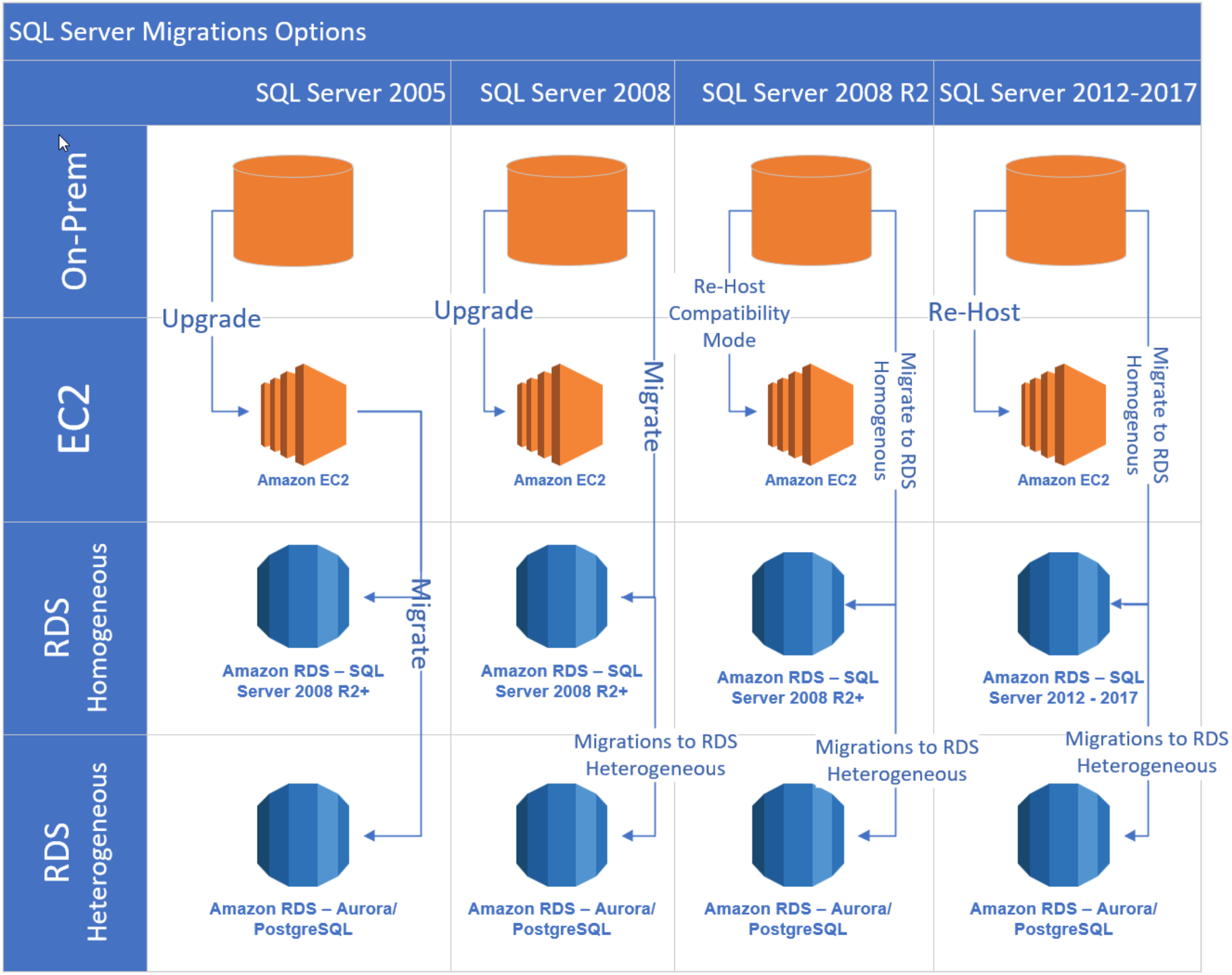
Migration Options

AWS Options

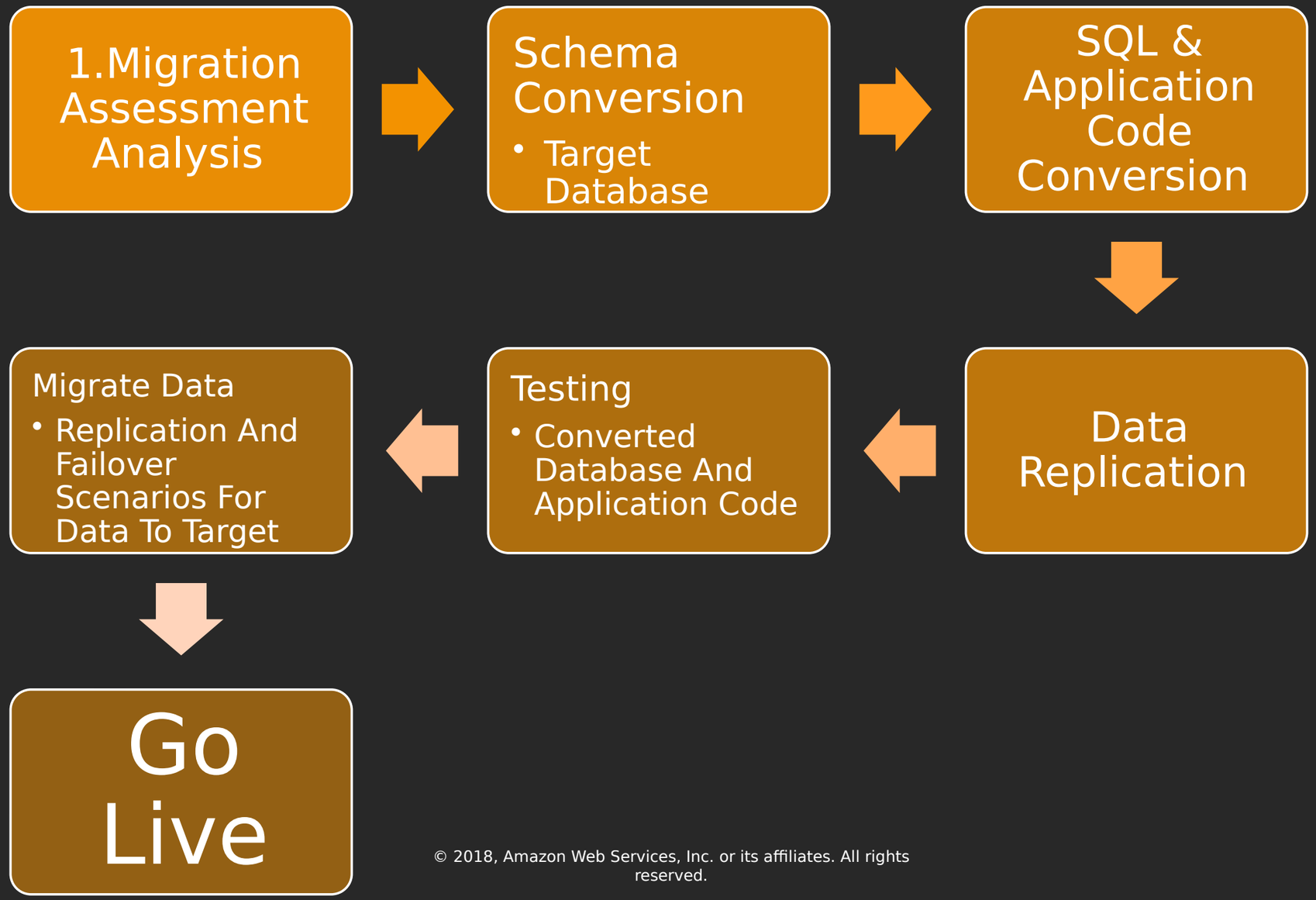
Amazon EC2

Amazon RDS Options: Homogeneous

Heterogeneous



Migration Steps & Tools



Heterogeneous: Percentages for each migration phase

Step	Percentage of Overall Effort
Migration Assessment	2%
Schema Conversion	30%
Embedded SQL and Application Code Conversion	15%
Data Migration	5%
Testing	45%
Data Replication	3%
Go Live	5%

Data Migration Options

Amazon EC2 Migration:

To SQL Server on Amazon EC2

- Backup/Restore
- SQL Server Always On
- SQL Server Replication
- Third Party Tools

Amazon RDS Migration:

To SQL Server on Amazon RDS

- Backup/Restore – *Requires outage*
- AWS Database Migration Service
- Third Party Tools

Data Migration:

To Cloud Native Services

- AWS Database Migration Service
- Third Party Tools

Migrating Schemas and Data to & from AWS

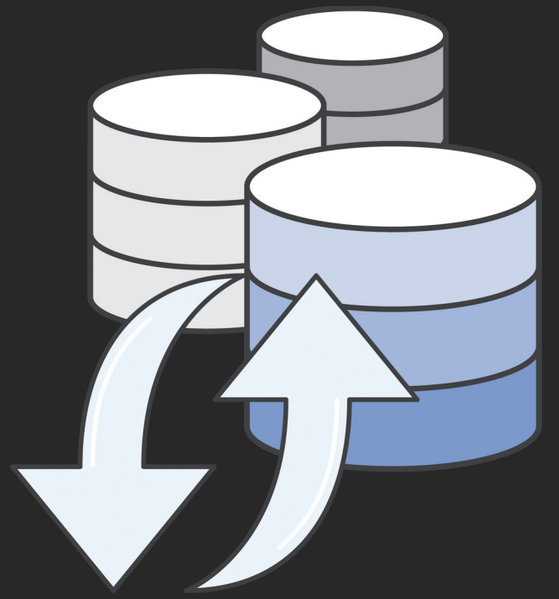
1. **.BAK File Save & Restore**
   Leverages SQL Server's native backup functionality

2. **Microsoft SQL Server Database Publishing Wizard, Import/Export**
   Export to T-SQL files, load using **sqlcmd**

3. **AWS DMS**
   Minimize downtime during migrations, migrate between different DB platforms, Schema Conversion Tool

4. **AWS Marketplace**
   Third-party data import and export tools and solutions

5. **SQL Server Replication**
   Push subscriptions to transactional replication



What are AWS DMS and AWS SCT?

AWS Database Migration Service (AWS DMS) easily and securely migrate and/or replicate your databases and data warehouses to AWS

AWS Schema Conversion Tool (AWS SCT) converts your commercial database and data warehouse schemas to open-source engines or AWS-native services, such as Amazon Aurora and Amazon Redshift

Over 64,000 databases migrated and counting ...

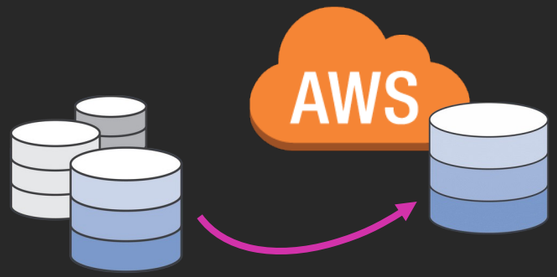
When to use AWS DMS and AWS SCT?

Modernize

Modernize your database tier

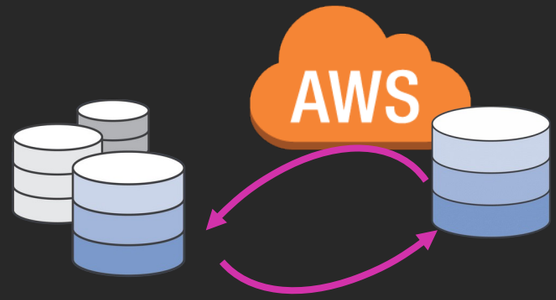
- SQL Server to open-source
- SQL Server to Amazon Aurora or PostgeSQL
- SQL Server to Amazon Redshift

Migrate



- Migrate business-critical applications
- Migrate data warehouse to Amazon Redshift
- Consolidate shards into Aurora

Replicate



- Create cross-regions Read Replicas
- Run your analytics in the cloud
- Keep your dev/test and production environment sync

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Q&A: RECAP ABOUT TODAY'S CHALK TALK

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Thank you!

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