

Webinar Gratis

Modernizando a

SQL Server 2019

Fecha: Lunes 6 de abril de 2020

Instructor: Maximiliano Accotto

Inscripción: <https://cursos.triggerdb.com>

SQL Server 2019





Acerca de mi

- Argentino nacido en Adrogue Provincia de Buenos Aires
- Data platform Geek
- Microsoft MVP Data Platform desde el 2005.
- Speaker internacional con mas de 500 charlas impartidas
- Especialista en tecnologías de Data y BI con mas de 15 años de trayectoria.



<https://twitter.com/maxiaccotto>



<https://ar.linkedin.com/in/maxiaccotto>



<https://blogs.triggerdb.com>





Sobre TriggerDB

TriggerDB Consulting SRL es una empresa Argentina fundada por **Maximiliano Accotto**, experto reconocido a nivel mundial en Microsoft SQL Server y BI.

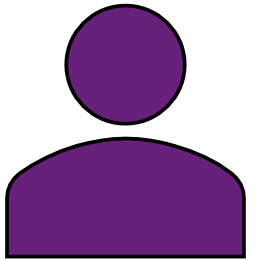
Somos partner certificados de Microsoft en las competencias de SQL Server, Data Analytics y Powerbi.

Mas de 15 años de trayectoria , alto expertice y mas de 150 clientes en America y Europa.

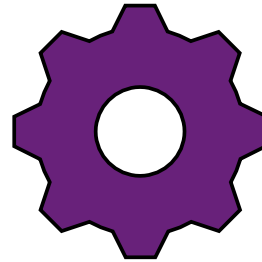




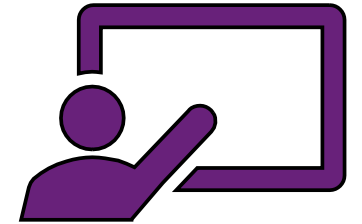
Servicios que ofrecemos



Consultoría



Soporte Premier



Training



Productos en los que trabajamos



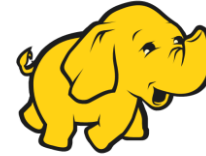
SQL Server



Analysis Services



Azure Data Factory



HDInsight



PowerBI



Azure
SQL Data Warehouse



Azure
Data Lake



Machine
Learning



Azure SQL Server



Power Pivot
Power Query

SQL is everywhere

SQL Server 2019



Best for modernizing your databases in your private cloud

SQL on Linux



Best for a compatible SQL running on Linux

SQL in containers



Best for portable, consistent, and easy to patch SQL

SQL on Kubernetes



Best for database containers at scale with built-in HA

SQL virtual machines



Best for migrations and applications requiring OS-level access

SQL managed instances



Best for most lift-and-shift migrations to the cloud. Instance pool options are available

SQL databases



Best for modern cloud applications. Elastic pools, Hyperscale and Serverless options are available

SQL Edge



Best for data and machine learning applications on IOT Edge



Challenges

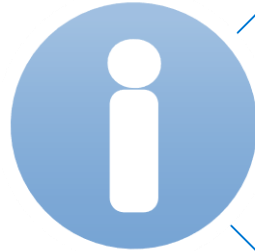
- Perf with no app changes
- Reduce need for ETL
- Integrate with Big Data
- Increase confidential computing
- Increased uptime
- Extend T-SQL
- Apps certified on a SQL release



Solution

SQL Server 2019

Best for modernizing databases in your private cloud



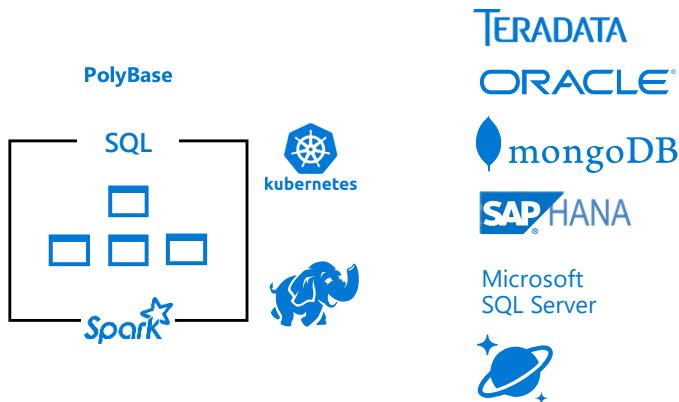
- SQL Server Big Data Clusters
- Polybase for Data Virtualization
- Intelligent Query Processing
- Always Encrypted with Secure Enclaves
- Accelerated Database Recovery
- SQL Server Language Extensions



- Certify using latest SQL with Database Compatibility
- Boost performance 90+% with no code changes
- Database recovery in seconds
- Platform of choice with compatibility
- Integrate Java with security, isolation, governance

SQL Server 2019 solves modern data challenges

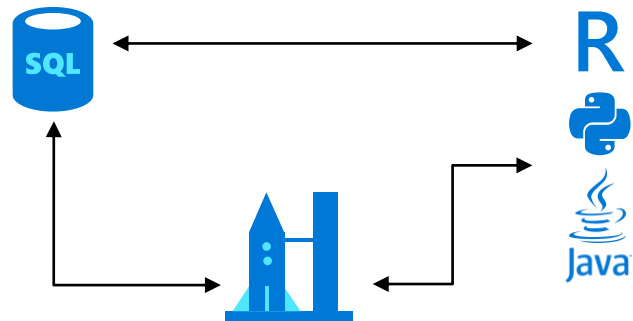
Data virtualization and Big Data Clusters



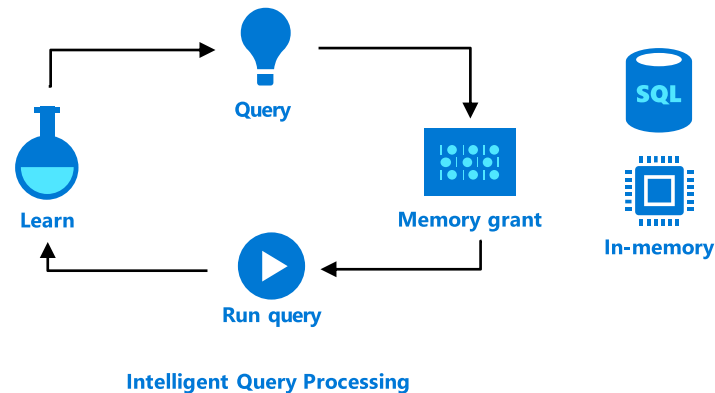
Modern platforms with compatibility



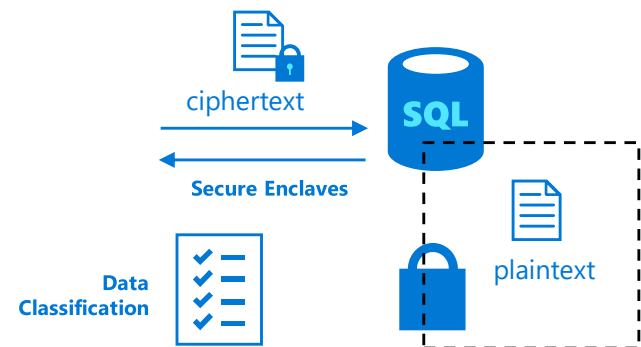
Built-in Machine Learning and extensibility



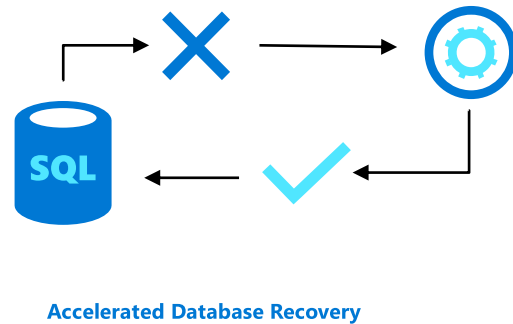
Intelligent performance



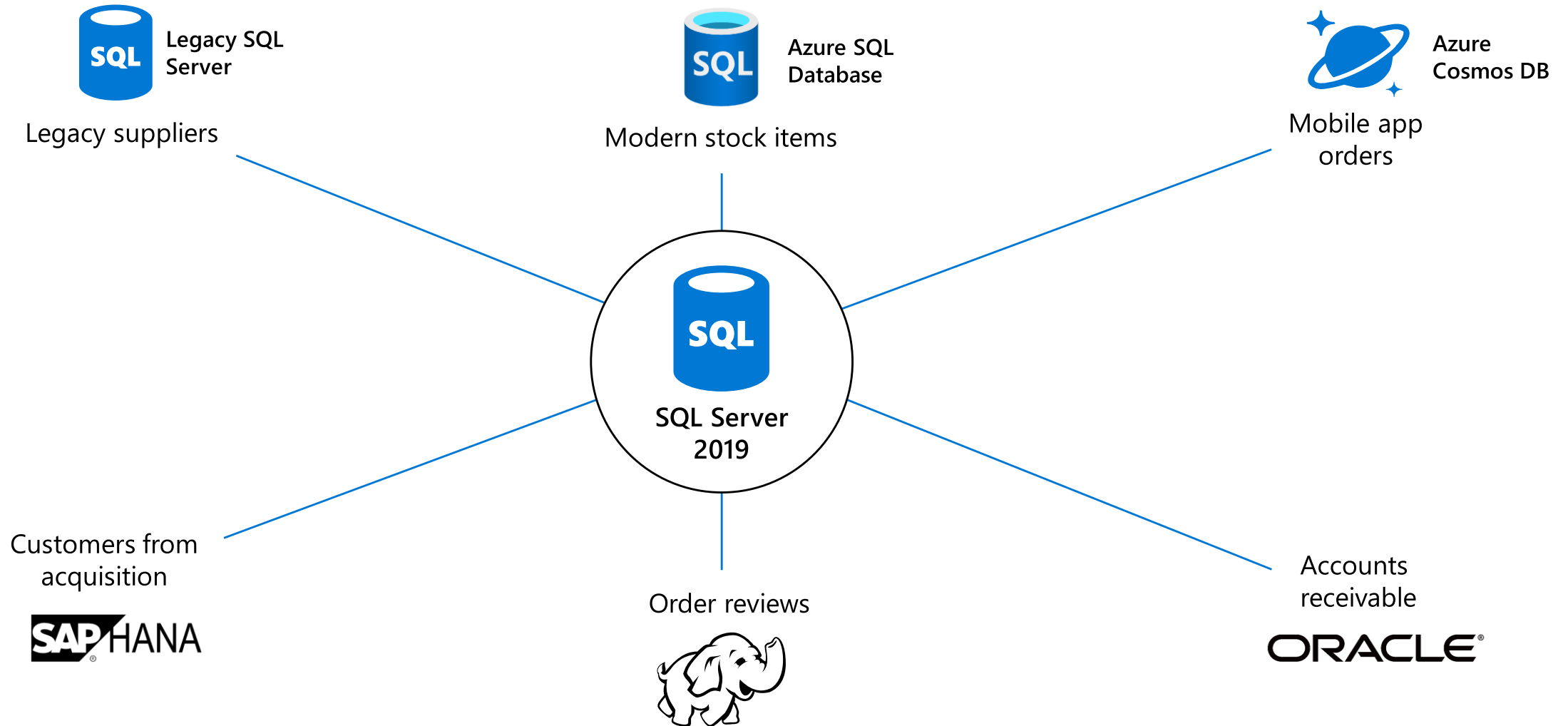
Layers of security and compliance



Business critical high availability



SQL Server 2019 serves as the hub for all your data





Challenges

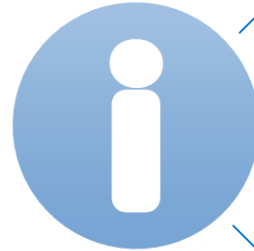
- Part of my company uses Linux
- Desire consistent db in my company
- I want the best of Linux with SQL
- I need a better price/perf db on Linux



Solution

SQL Server on Linux

Best for a compatible SQL running on Linux



- Compatibility with SQL Windows using SQLPAL
- SQL Server 2019 has all the features you need
- Deployment and Configuration native to Linux
- Surface area, tools, and T-SQL the same



- Restore a database from Windows with no changes
- Run on Ubuntu, Red Hat Enterprise Linux, or SLES
- Deploy SQL Server fast with Linux package mgmt
- AD auth, HADR, Security integrated with Linux
- #1 TPC-H 3 and 10TB on Linux

Linux loves packages

- Major Linux distributions follow the pattern of using a package manager.
 - RHEL: RPM and yum.
 - Ubuntu: Debian and apt-get
 - SUSE: RPM and zypper.
- Package: binaries + instructions to install.
- Benefits: dependency management, automatic versioning, one-tool-to-rule-them-all, architecture control.



mssql-server

mssql-tools

mssql-server-
fts

mssql-server-
ha

mssql-server-
is

mssql-
extensibility-
java

mssql-server-
polybase



Challenges

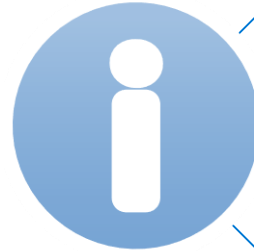
- I want to stop using a Dev SQL Server
- My devs use all OS platforms
- I need superspeed deployment
- I need a fast way to patch SQL
- Dedicated VM for SQL is heavy
- I have to keep the same performance



Solution




SQL Server on Containers

Best for portable, consistent, and easy to patch SQL

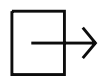


- A consistent SQL image for all developers on any OS
- Containers are isolated but share an OS
- Same surface area, tools, and T-SQL
- Deployment fast and integrated with your CI/CD



- 20M+ container image pulls
- Only way to easily run SQL on   
- SQL Server pre-installed. deploy in seconds
- Patch SQL Server in < 1 min and roll it back
- Containers on Linux are an isolated process
- Multi-instance on Linux with containers

Why SQL Server Containers?



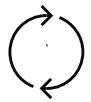
Portable

Run anywhere containers are supported



Lightweight

Reduced disk, CPU, and memory footprint



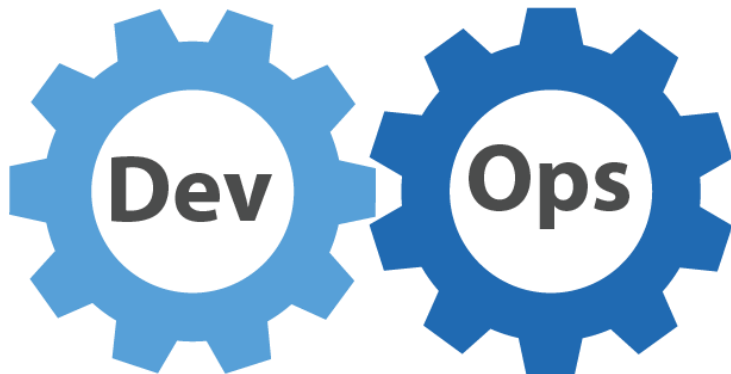
Consistent

Consistent image of SQL Server, scripts, and tools

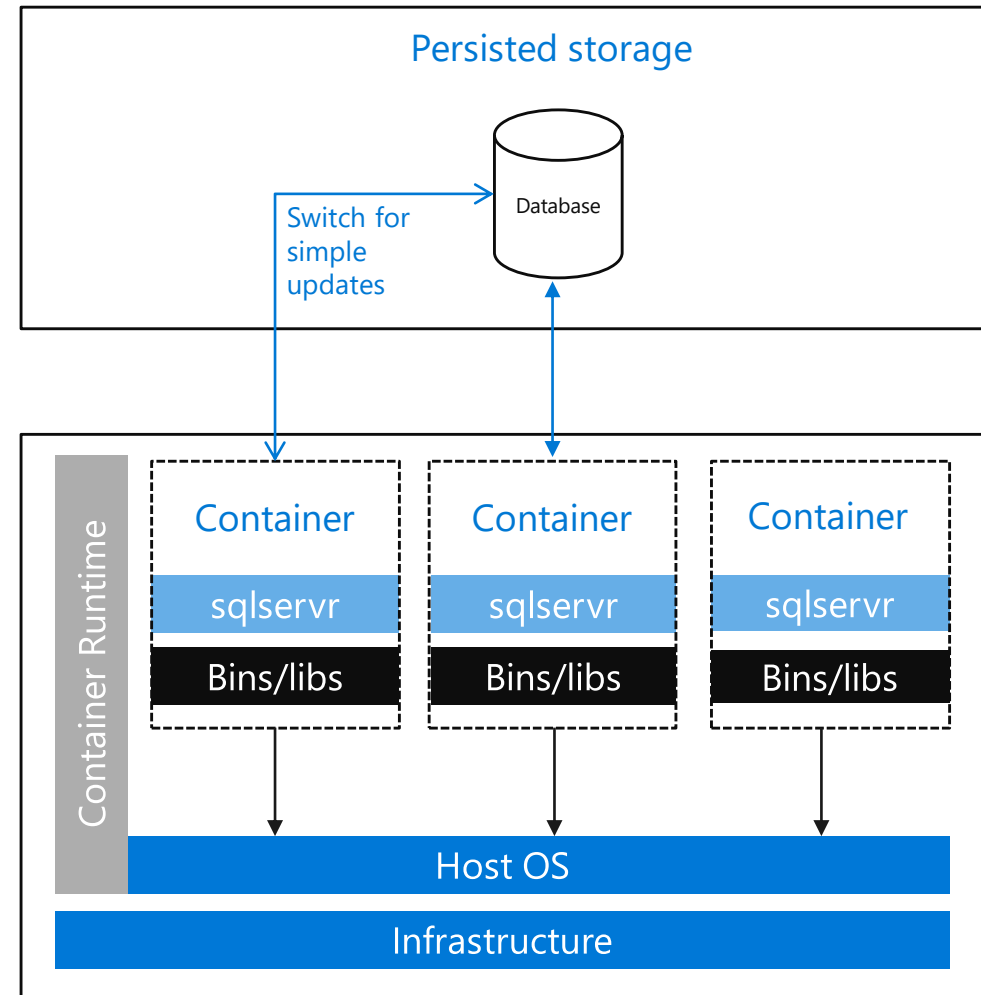


Efficient

Faster deployment, reduced patching, and less downtime



Container configuration





Challenges

- I need containers at scale
- I need HA for database containers
- I need containers in any cloud
- Kubernetes is our preferred platform
- I need to integrate Big Data with SQL
- I need an end-to-end ML platform

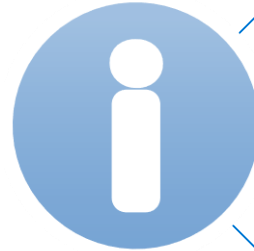


Solution

SQL Server on Kubernetes



Best for database containers at scale with built-in HA



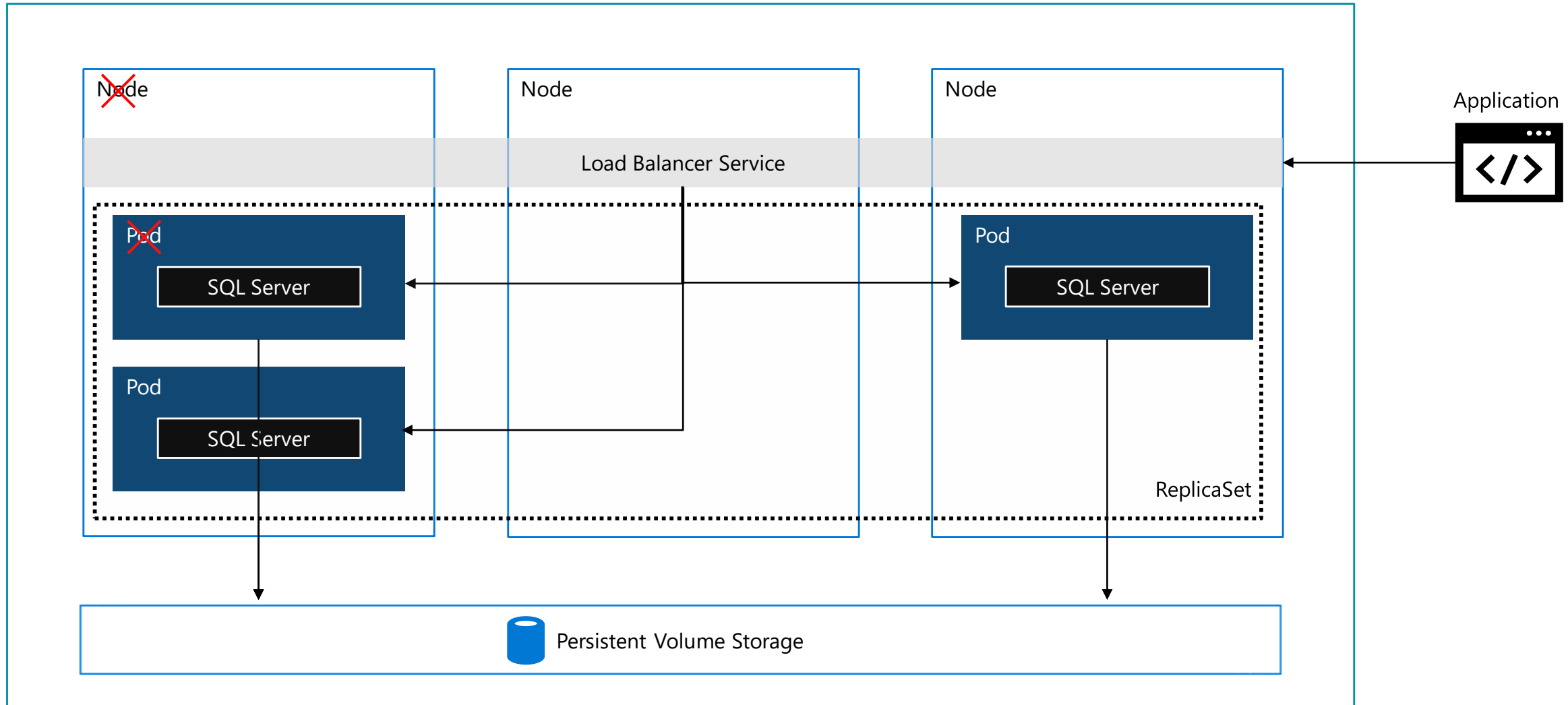
- SQL Server containers natural for the k8s ecosystem
- k8s comes storage, networking, and resource mgmt
- k8s provides built-in basic HA
- k8s great fit for a complete container solution
- Same surface area, tools, and T-SQL



- Deploy SQL containers with k8s in any cloud
- Built-in HA for SQL no clustering software
- Integrate Big Data with SQL with Big Data Clusters
- Build end-to-end ML apps with Big Data Clusters

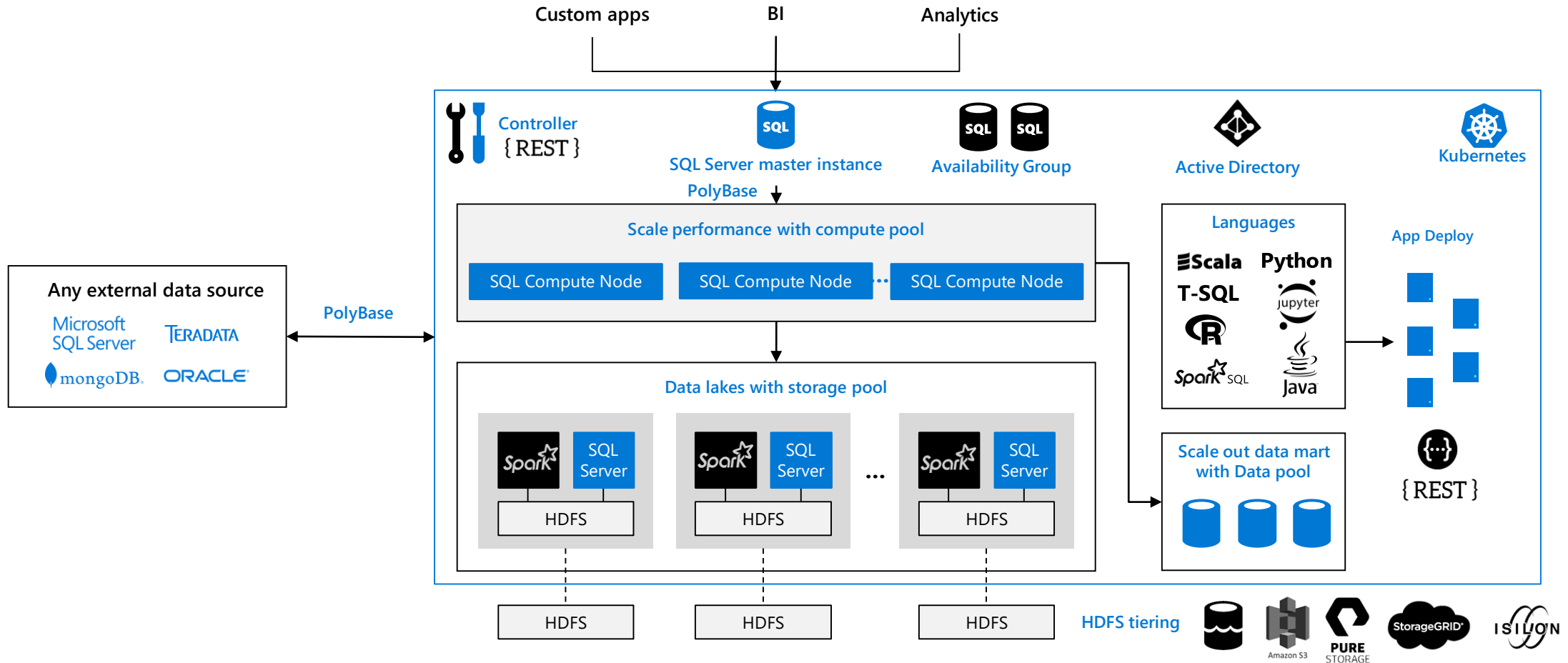
SQL Server - Shared storage HA in Kubernetes

Built-in HA orchestration with no clustering required



SQL Server 2019 Big Data Clusters

The combination of SQL Server, Polybase, HDFS, Spark, and Machine Learning in one solution



Azure SQL

SQL virtual machines



Best for migrations and applications requiring OS-level access

Managed instances



Best for most lift-and-shift migrations to the cloud

Databases



Best for modern cloud applications. Hyperscale and serverless options are available

Enhance the developer experience

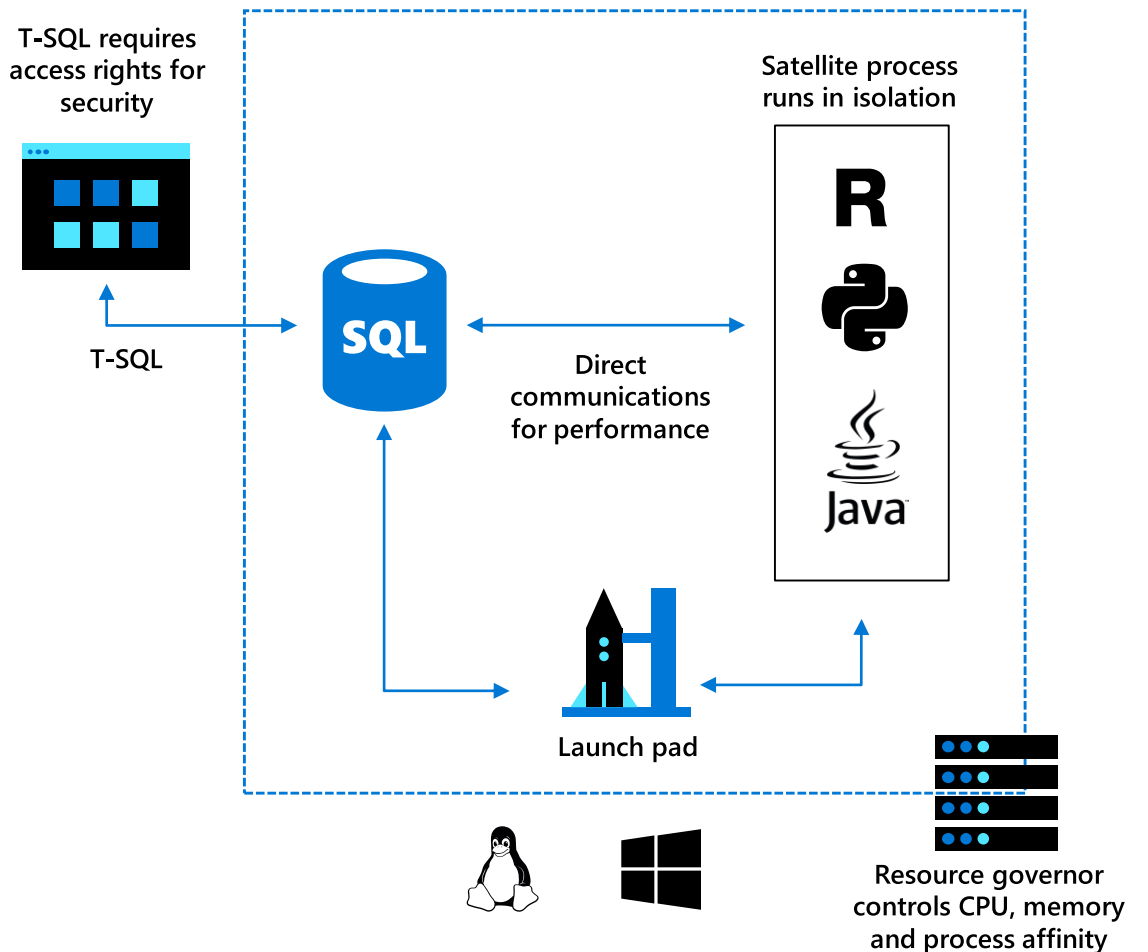
SQL Graph enhancements

UTF-8 support

Machine Learning Services enhancements

SQL Server Language Extensions and the Extensibility Framework

Security, isolation, and governance built-in



SQL Server confidential computing

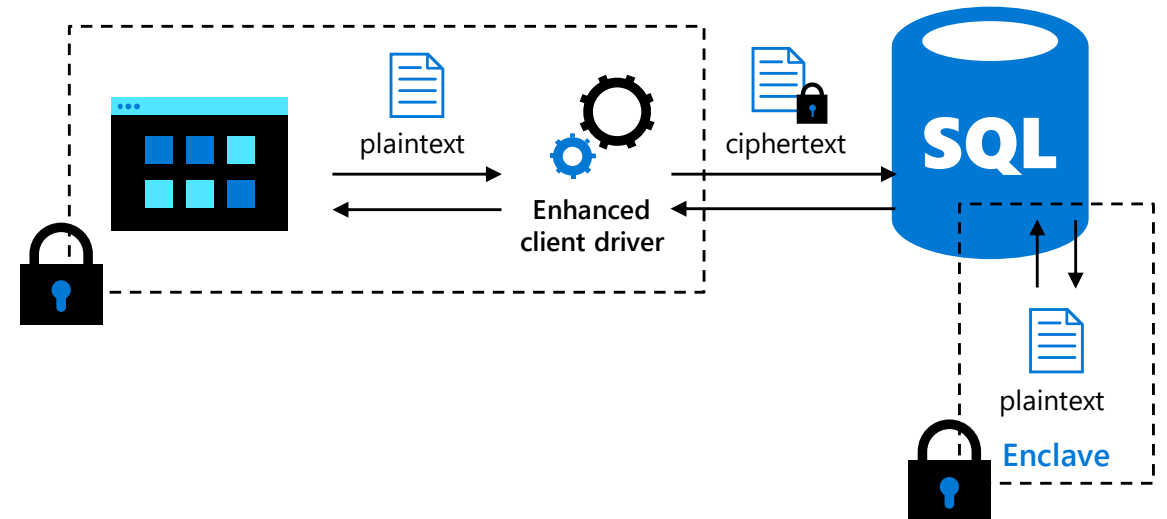
Always Encrypted with secure enclaves

Data Classification and auditing built-in

TDE scan suspend and resume

Simplified certificate management

Always Encrypted with secure enclaves



SQL Server is always available



Challenge

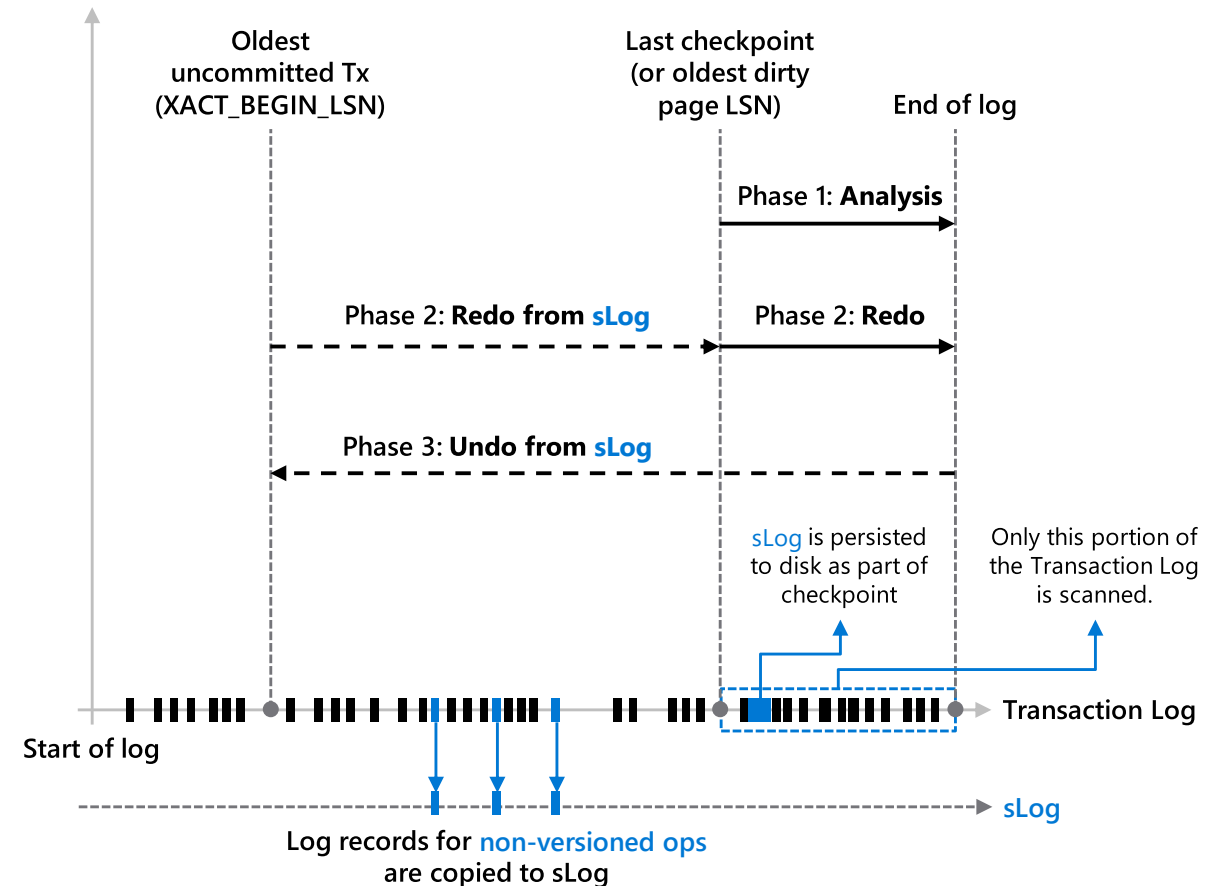
- Log Grows out of Control
- Long rollback blocks applications
- Long Recovery prolongs downtime
- Index operations resource intensive



Solution

- Accelerated Database Recovery (ADR)
- Online Index enhancements
- Availability group enhancements

The New Recovery Process with ADR



Accelerated Database Recovery (ADR)



Read the [paper](#)



How it works

- Enable/disable as a database option
- Uses a Persisted Version Store (PVS)
- Independent of locking and isolation levels
- Rollback faster than you can react
- Undo recovery faster than you can look it up
- Transaction log truncation not tied to active transactions



Key questions

- Does it require more space?
- Will it affect performance?
- Will I still see versions in tempdb?
- How does it work with Always On Availability Groups?



Voice of the customer



User experience

- #1 voted customer feedback item: String Truncation
- MAXDOP and Memory Config during Setup
- Memory Grant Percent in Resource Governor
- Estimate compression for Columnstore indexes



Diagnostics

- Troubleshoot page waits with new built-in T-SQL
- Diagnostics for auto stats blocking
- Custom capture policy for the Query Store
- Columnstore stats in DBCC CLONEDATABASE



Performance

- Reduce recompiles for tempdb workloads
- Indirect Checkpoint Scalability
- Concurrent PFS updates
- Worker stealing
- Inline log writing

String or binary data would be truncated

String or binary data would be truncated
in table '%.*ls', column '%.*ls'.
Truncated value: '%.*ls'

```
SELECT page_info.*  
FROM sys.dm_exec_requests AS d  
      CROSS APPLY  
      sys.fn_PageResCracker(d.page_resource) AS r  
      CROSS APPLY sys.dm_db_page_info(r.db_id,  
r.file_id, r.page_id, 'DETAILED')  
      AS page_info;
```

SQL Server 2019 Editions

Build once and deploy across any SQL Server edition without changing your app



Express/web

Free, entry-level database for small web and mobile apps

Feature highlights

- Up to 16 cores of CPU
- Up to 64 GBs of memory
- Encryption with secure enclaves **NEW**
- UTF-8 character encoding **NEW**
- Data classification and auditing **NEW**
- In-memory OLTP and Columnstore
- Full T-SQL surface area
- Support for Linux containers



Standard

Full featured database with Big Data Clusters for mid-tier applications and data marts

Feature highlights

- Up to 24 cores of CPU
- Up to 128 GBs of memory
- SQL Server 2019 Big Data Clusters **NEW**
- Data virtualization through PolyBase **NEW**
- Accelerated Database Recovery **NEW**
- Transparent Data Encryption **NEW**
- Enhanced in-memory performance
- Automatic intelligent database tuning

+ Express/web features



Enterprise

Mission-critical performance and intelligence for tier 1 databases

Feature highlights

- Unlimited cores of CPU
- Unlimited memory
- Industry-leading performance with unmatched scalability
- Unlimited virtualization benefits
- Petabyte scale data warehousing
- Business critical HA on Windows and Linux
- Access to Power BI Report Server

+ Standard features

+ Express/web features

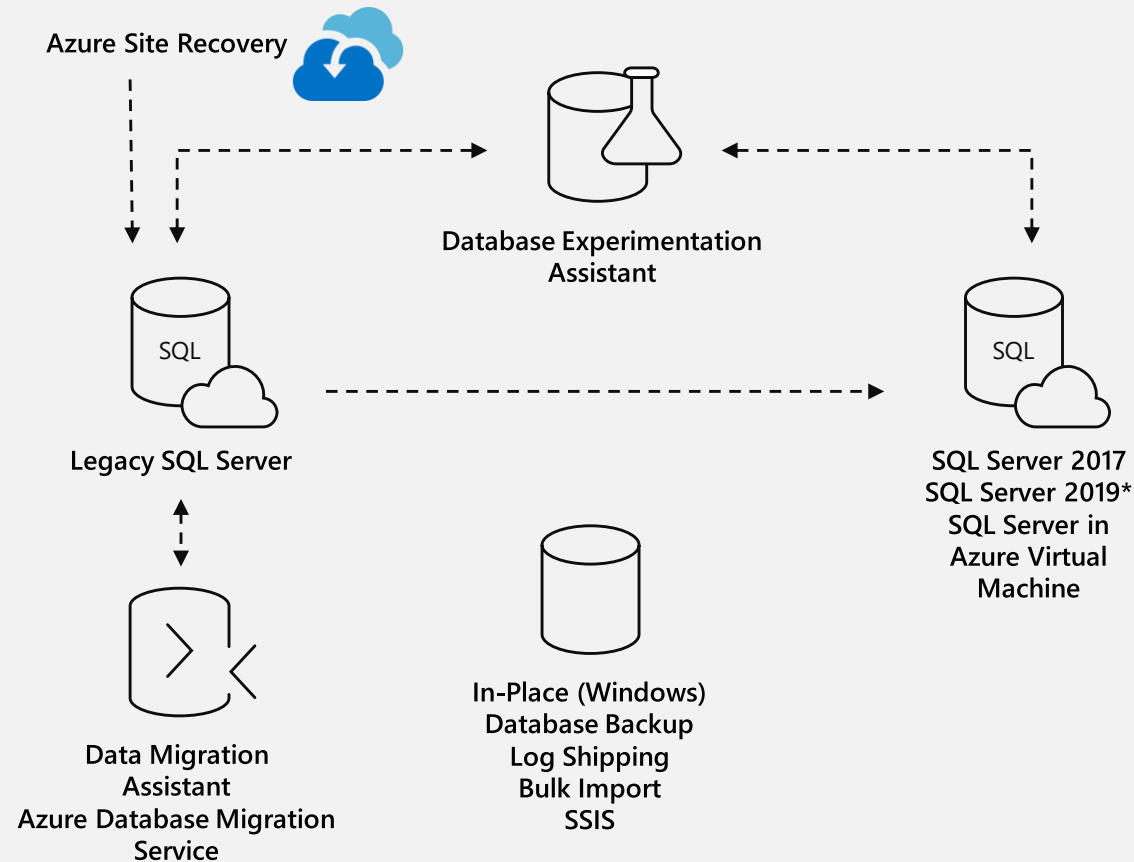


Developer

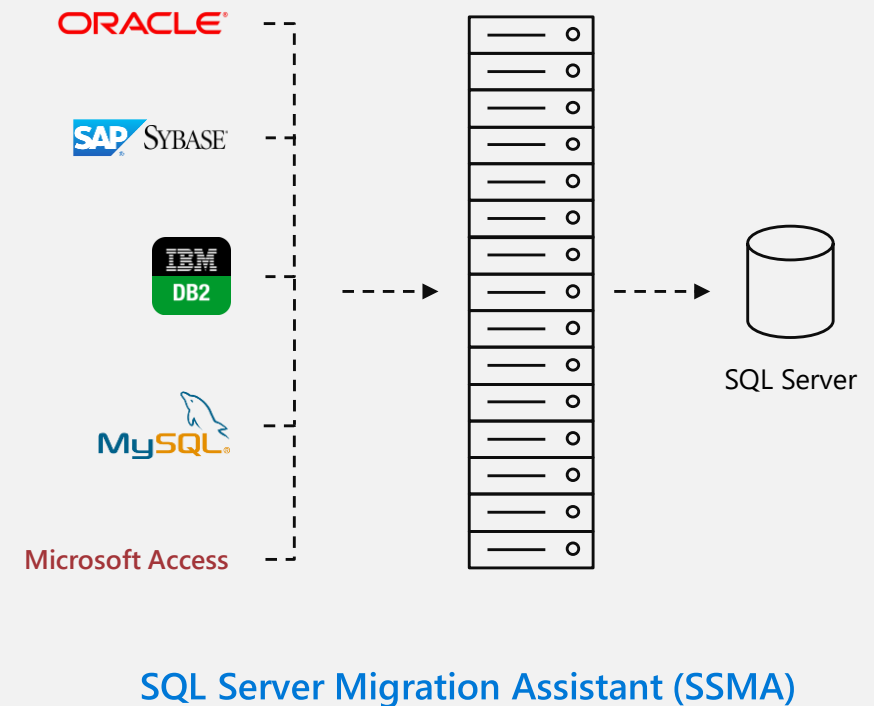
Free to use with all the features of Enterprise Edition specifically for dev/test in non-production environments

Migration to the Modern SQL Server

Migration from legacy SQL Server



Migration from external databases



Query Tuning Assistant (QTA)

Crucial to uncover query performance issues with the workload, as it runs on the newer version of SQL Server Database Engine.

User needs to follow documented DB Compatibility upgrade procedure, QTA will guide through steps.

