



Desafíos del DBA SQL Server en la nueva era

Speaker

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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



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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.

Nuestros mas de 15 años de trayectoria , alto expertice y mas de 150 clientes en toda la región, nos hace lideres en servicios de consultoría y capacitación en tecnologías de SQL Server , analytics y Powerbi.



El desafío del
DBA en la
actualidad





¿Que puede pasar con nuestro role?

<https://willrobotstakemyjob.com/>

WILL ROBOTS TAKE MY JOB?

Database Administrators

3%

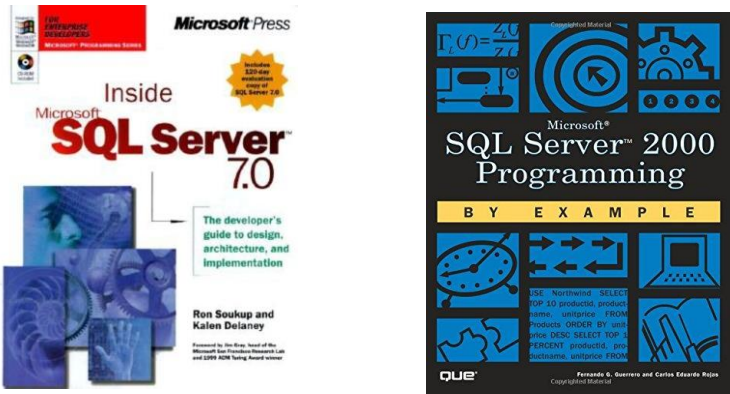
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La evolución



Mi evolución aprendiendo como DBA

Mis inicios

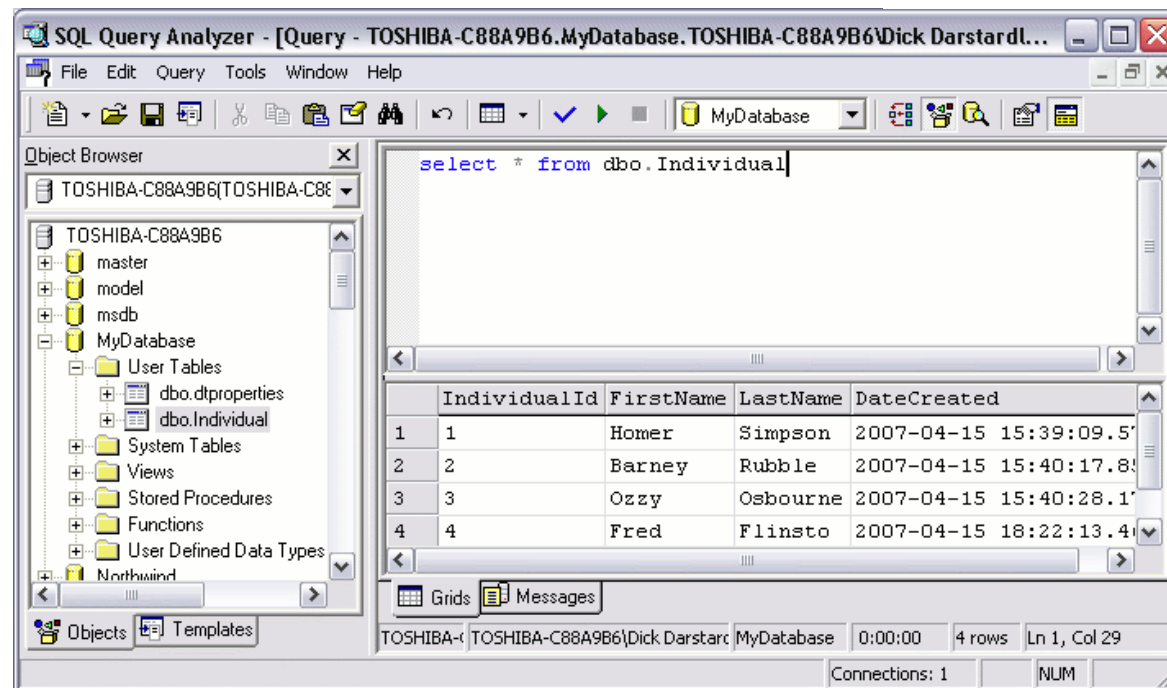
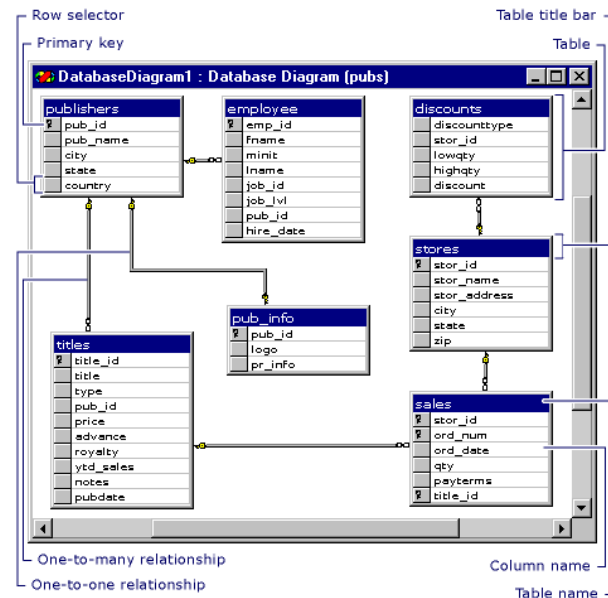
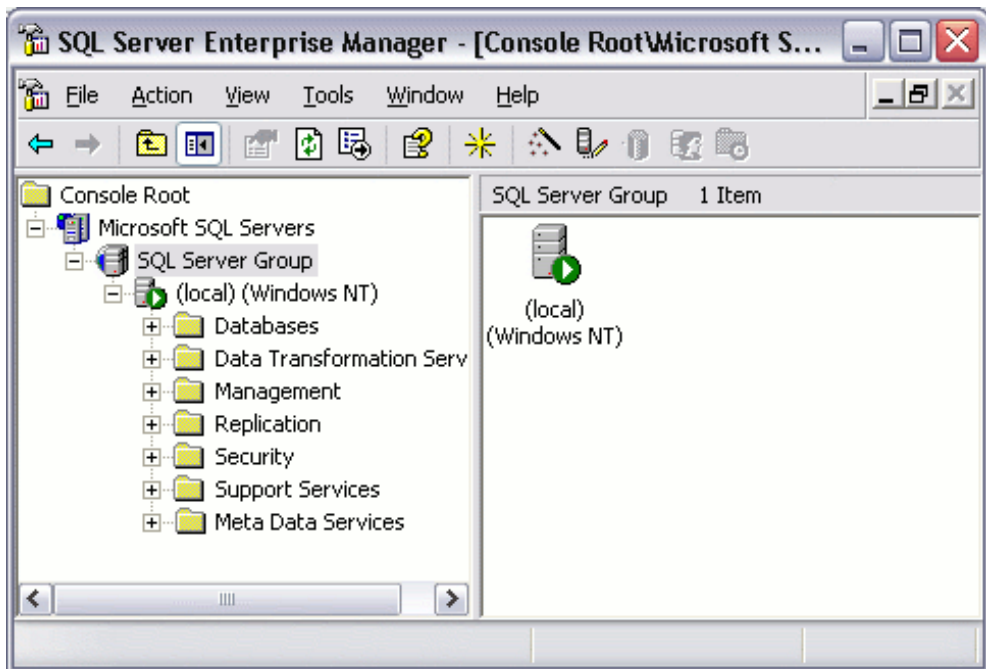


Mi actualidad





Tools que usaba





Tools que uso hoy

SQLQuery2

```
1 SELECT TOP (1000) [optname]
2     , [value]
3     , [major_version]
4     , [minor_version]
5     , [revision]
6     , [install_failures]
7 FROM [master].[dbo].[MSreplication_options]
```

Query 1
SELECT TOP (1000) [optname] , [value] , [major_version] , [minor_version] , [revision] , [install_failures] FROM [master].[dbo].[MSreplication_options]

Table Scan [MSreplication_options]
Cost: 100%

Server Dashboard
on TRIGGERDB-MAXI at 8/15/2019 9:50:00 AM

This report provides overview data about the SQL Server instance, its configuration, and activity on it.

Configuration Details:

Server Startup Time	Aug 13 2019 4:29PM	Server Collation	SQL_Latin1_General_CI_AS
Server Instance Name	TRIGGERDB-MAXI	Is Clustered	No
Product Version	14.0.3076.1	Is Full Text Installed	No
Edition	Developer Edition (64-bit)	Is Integrated Security Only	No
Scheduled Agent Jobs	2	# Processors (used by instance)	8

Non Default Configuration Options:

Activity Details:

Active Sessions	1	Blocked Transactions	0
Active Transactions	7	Distinct Connected Logins on Sessions	3
Active Databases	18	Traces Running	1
Total Server Memory (KB)	1286216		
Idle Sessions	10		

Script File: Customers.sql

Name	Data Type	Allow Nulls	Default
CustomerID	int	<input type="checkbox"/>	(NEXT VALUE FOR [Sequences].[CustomerID])
CustomerName	nvarchar(100)	<input type="checkbox"/>	
BillToCustomerID	int	<input type="checkbox"/>	
CustomerCategoryID	int	<input type="checkbox"/>	
BuyingGroupID	int	<input checked="" type="checkbox"/>	
PrimaryContactPersonID	int	<input type="checkbox"/>	
AlternateContactPersonID	int	<input checked="" type="checkbox"/>	
DeliveryMethodID	int	<input type="checkbox"/>	
DeliveryCityID	int	<input type="checkbox"/>	
PostalCityID	int	<input type="checkbox"/>	

Keys (2)

- PK_Sales_Customers (Primary Key, Clustered: CustomerID)
- UQ_Sales_Customers_CustomerName (CustomerName)

Check Constraints (0)

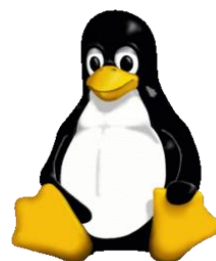
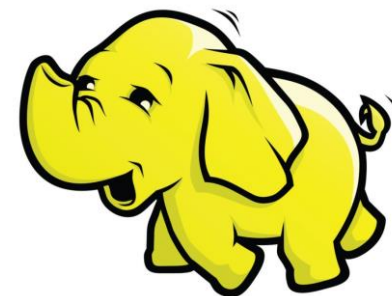
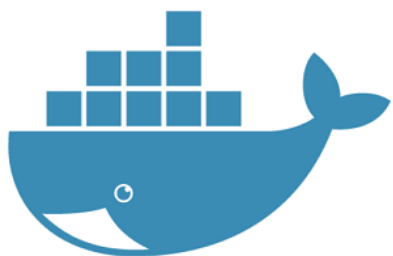
Indexes (0)

Design | **T-SQL**

```
CREATE TABLE [Sales].[Customers] (
    [CustomerID] INT NOT NULL,
    (NEXT VALUE FOR [Sequences].[CustomerID]) NOT NULL,
    [CustomerName] NVARCHAR (100) NOT NULL,
    [BillToCustomerID] INT NOT NULL,
    [CustomerCategoryID] INT NOT NULL,
    [BuyingGroupID] INT NOT NULL,
    [PrimaryContactPersonID] INT NOT NULL,
    [AlternateContactPersonID] INT NOT NULL,
    [DeliveryMethodID] INT NOT NULL,
    [DeliveryCityID] INT NOT NULL,
    [PostalCityID] INT NOT NULL,
    CONSTRAINT [DF_Sales_Customers_CustomerID] DEF
```

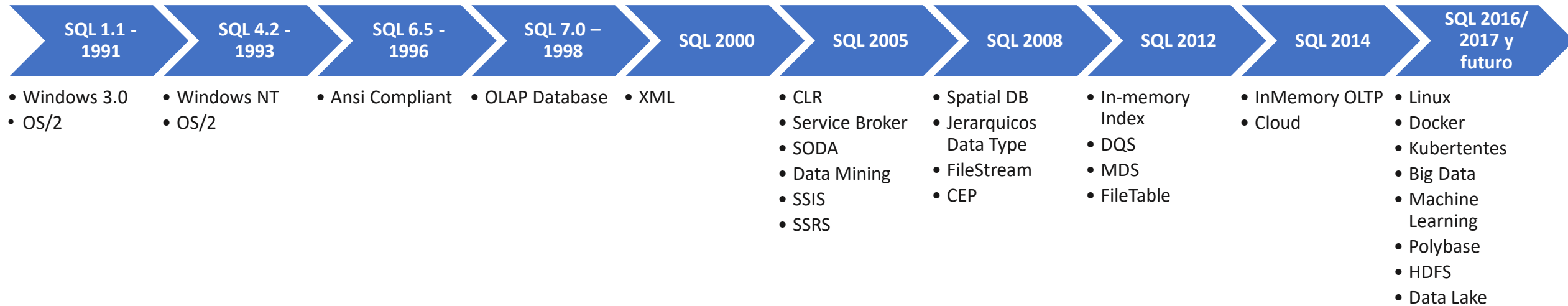


La actualidad del DBA SQL Server





Evolución de SQL Server en el tiempo



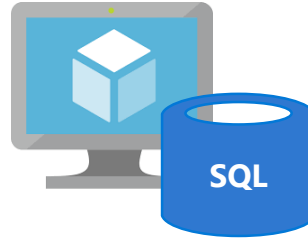
SQL y Cloud

SQL y Cloud



SQL Server y “Cloud”

- Cloud Privada
- Cloud Publica
- Cloud hibrida



SQL Server in
Virtual Machine (IAAS)



Azure SQL Database
Azure SQL Database Managed Instance
(PAAS)



Azure SQL Data
Warehouse

MSSQL y Linux



SQL Server y Linux

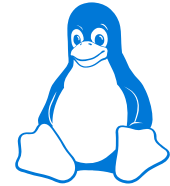
SQL 2017 o sup

Support for RedHat Enterprise Linux (RHEL),
Ubuntu, and SUSE Enterprise Linux (SLES)

Package-based installation: Yum Install, Apt-Get,
and Zypper

Database Compatibility on all Platforms

Linux





SQL Server y Linux – Admin tools



Windows SQL Server Management Studio (SSMS)

Windows SQL Server Data Tools (SSDT)

3rd party tools continue to work

Existing drivers/frameworks supported



Azure Data Studio

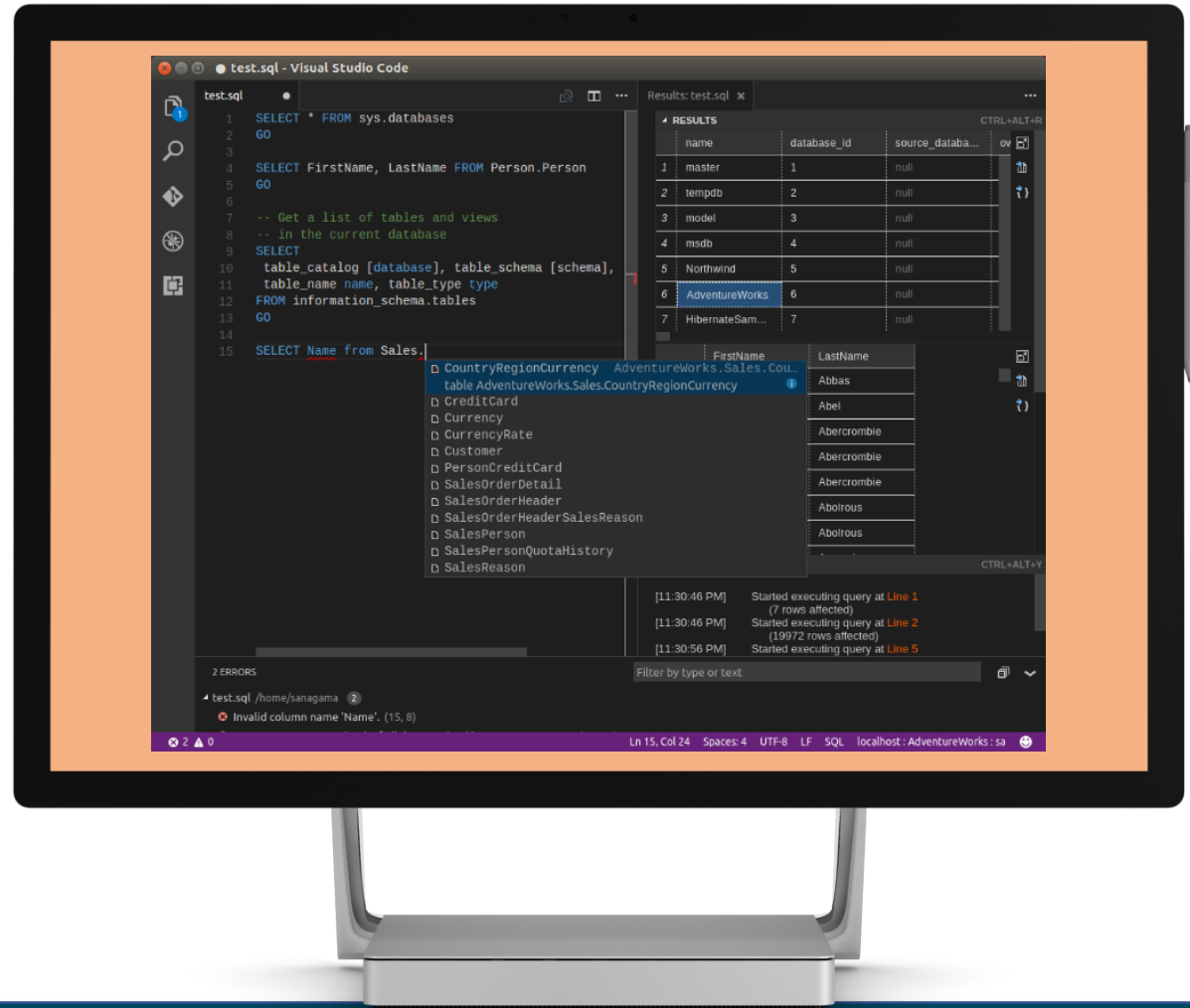
Visual Studio Code mssql extension

Native OS command line tools

- sqlcmd, bcp, sqlpackage

mssql-cli

mssql-scripter



MSSQL y Containers



Why Containers?



Portable

Run anywhere Docker is supported



Lightweight

Reduced disk, CPU, and memory footprint



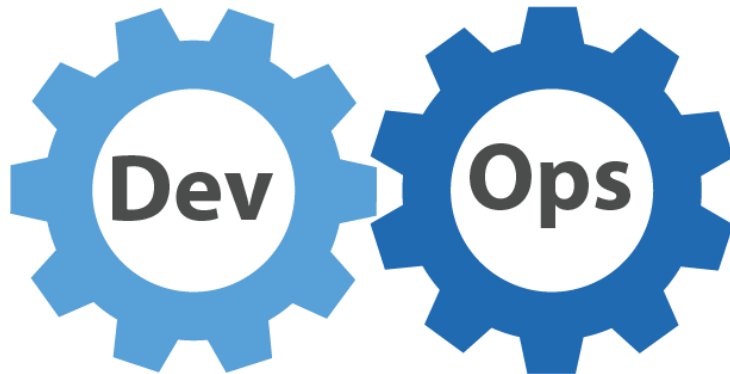
Consistent

Consistent image of SQL Server, scripts, and tools

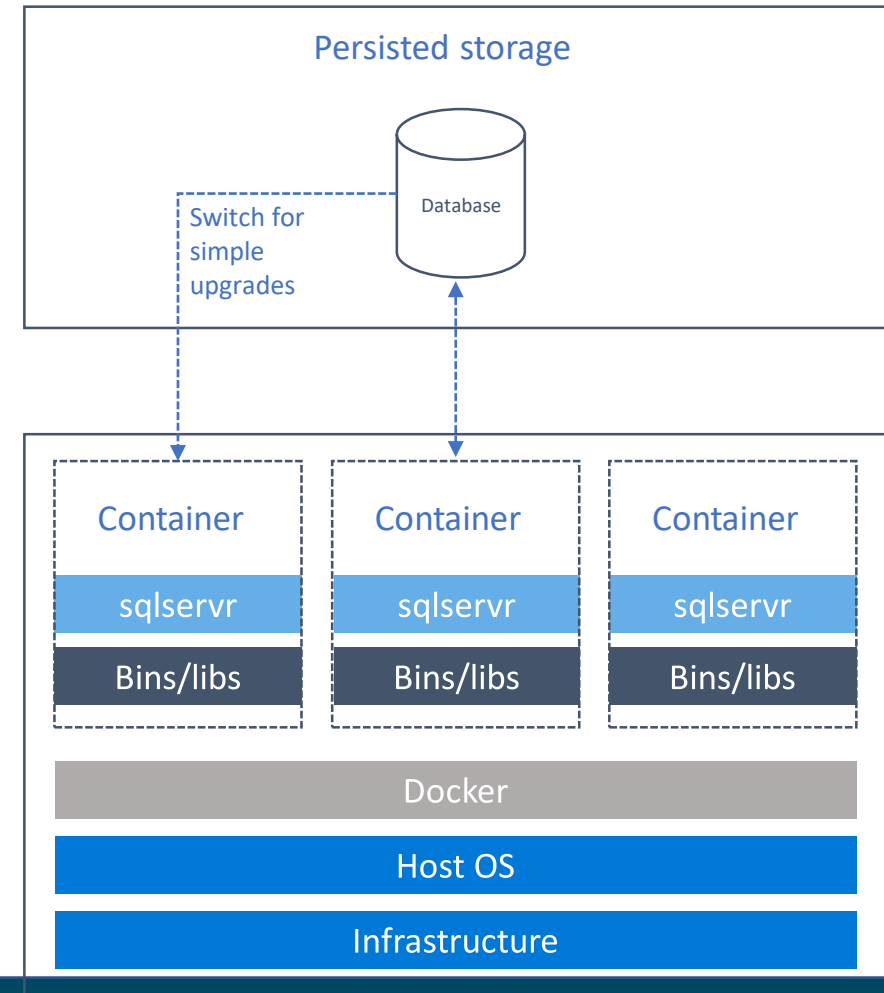


Efficient

Faster deployment, reduced patching, and less downtime



Container configuration





k8s implementations

minikube

- Single node on your laptop

Kubeadm

- Install your own cluster

RedHat OpenShift

- K8s platform private or public cloud

Azure Kubernetes Service (AKS)

- Azure hosted k8s

OpenShift on Azure (OSA)

- Managed OpenShift on Azure

Other

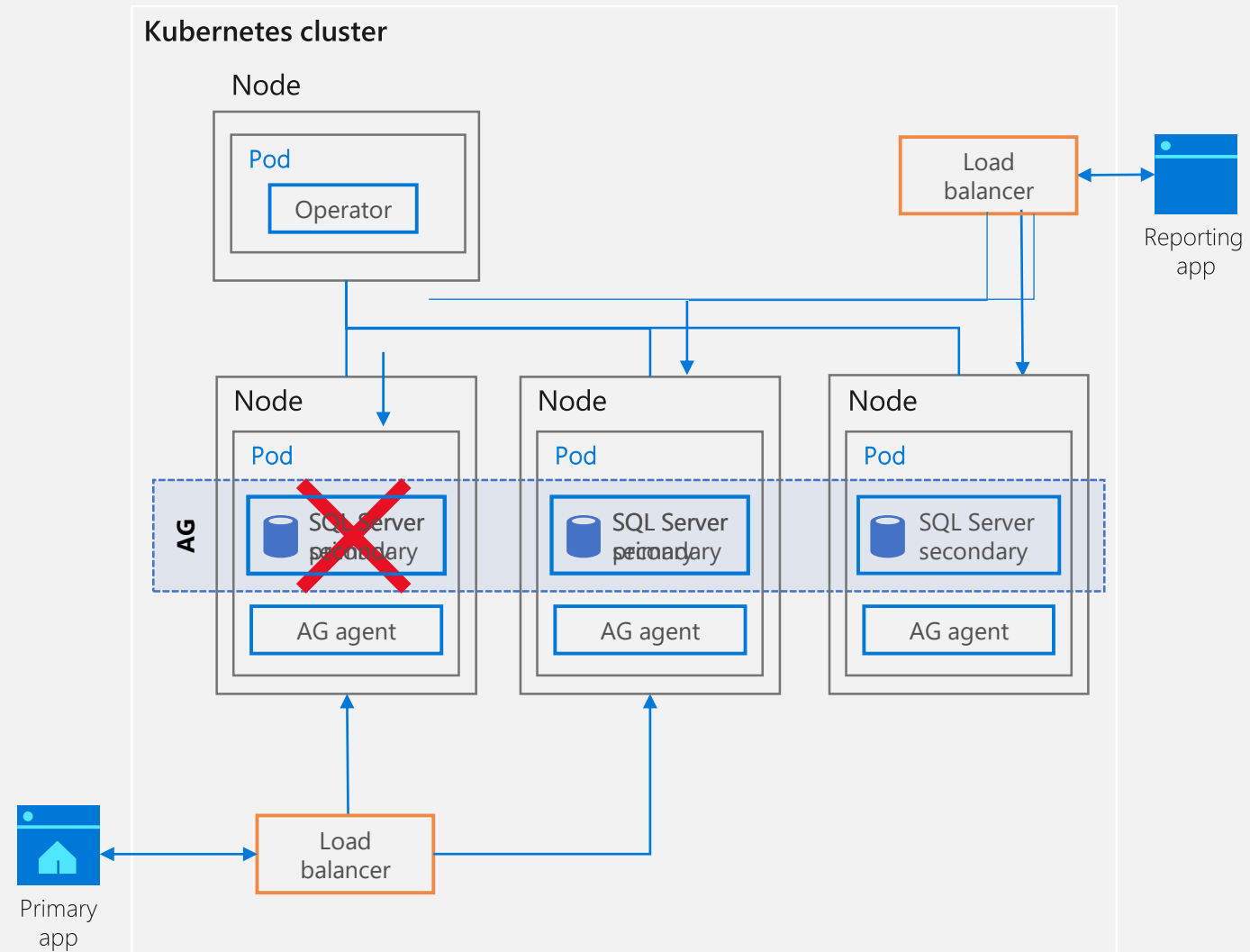
- Azure Stack
- Windows Server



Always On Availability Groups on Kubernetes

- SQL Server/k8s failover integration
- Operator deployment
- AG concepts all apply
- Load Balancer for Primary App
- Load Balancer for Secondary Replica Readers

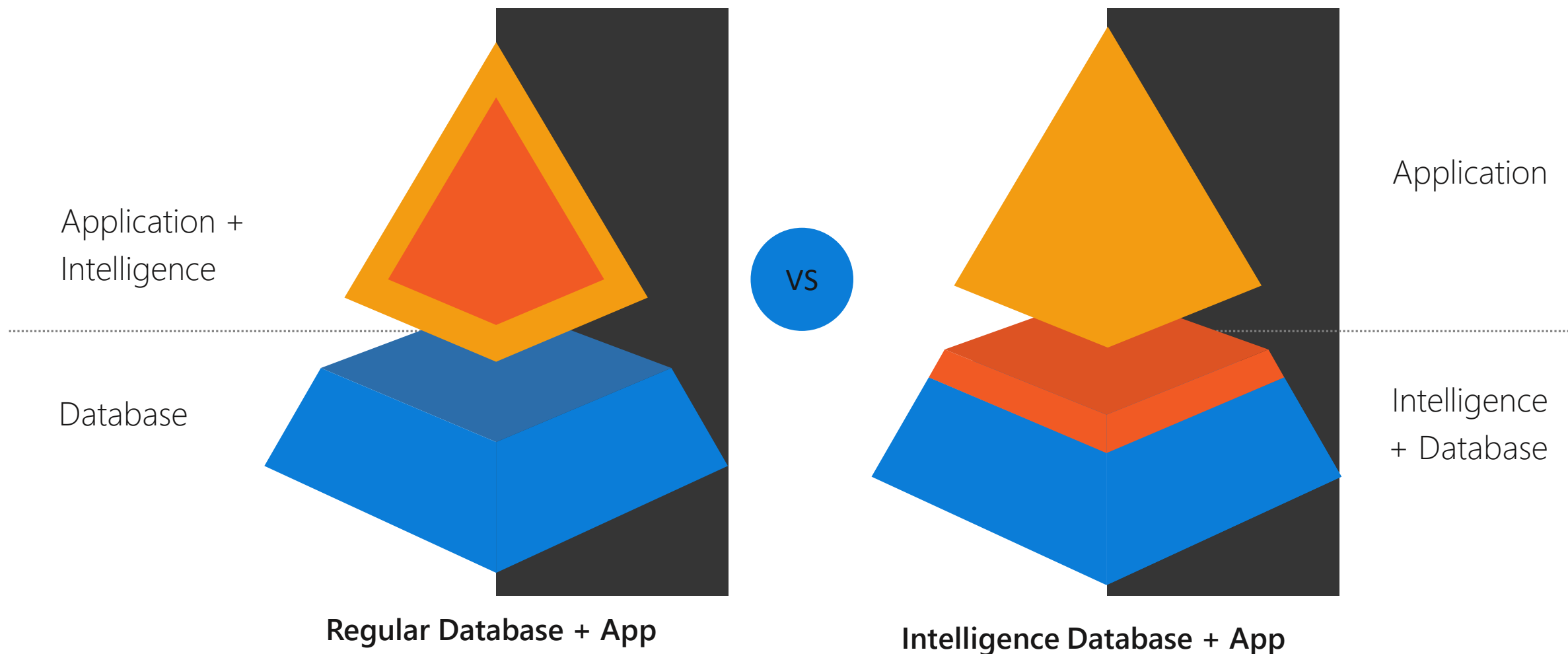
Availability groups on Kubernetes



MSSQL y ML



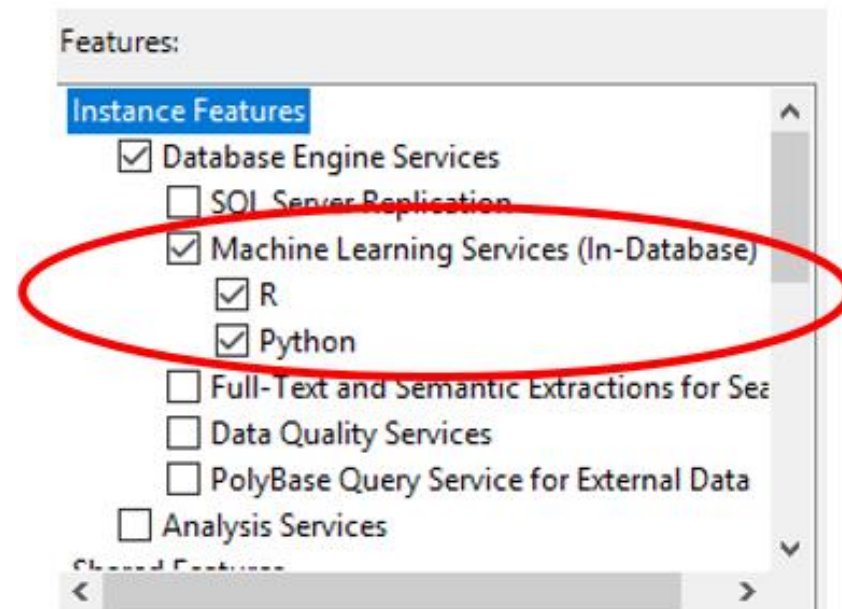
Llevar la inteligencia a donde están los datos





SQL Machine Learning Services

- **SQL Server 2016**
 - R support (3.2.2 version)
 - Microsoft R Server
- **SQL Server 2017**
 - Scoring native en TSQL usando PREDICT function
 - EXTERNAL LIBRARY DDL para el manejo de paquetes R
 - Ejecución en batch para la entrada de datos
 - Soporte para R (3.3.3 version)
 - Soporte para Python (Anaconda 3.5.2)
- **SQL Server 2019**
 - Soporte para Java
 - Big Data Cluster





Data Scientists - Exploración de Datos y Desarrollo de Modelos



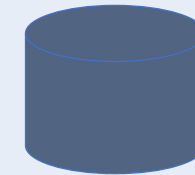
Data Scientist
Workstation

Any R/Python
IDE

```
train <- RxSqlServerData(query,  
connectionString, computeContext)  
rxLogit(formula, train)
```

1 Script

3 Results



SQL Server

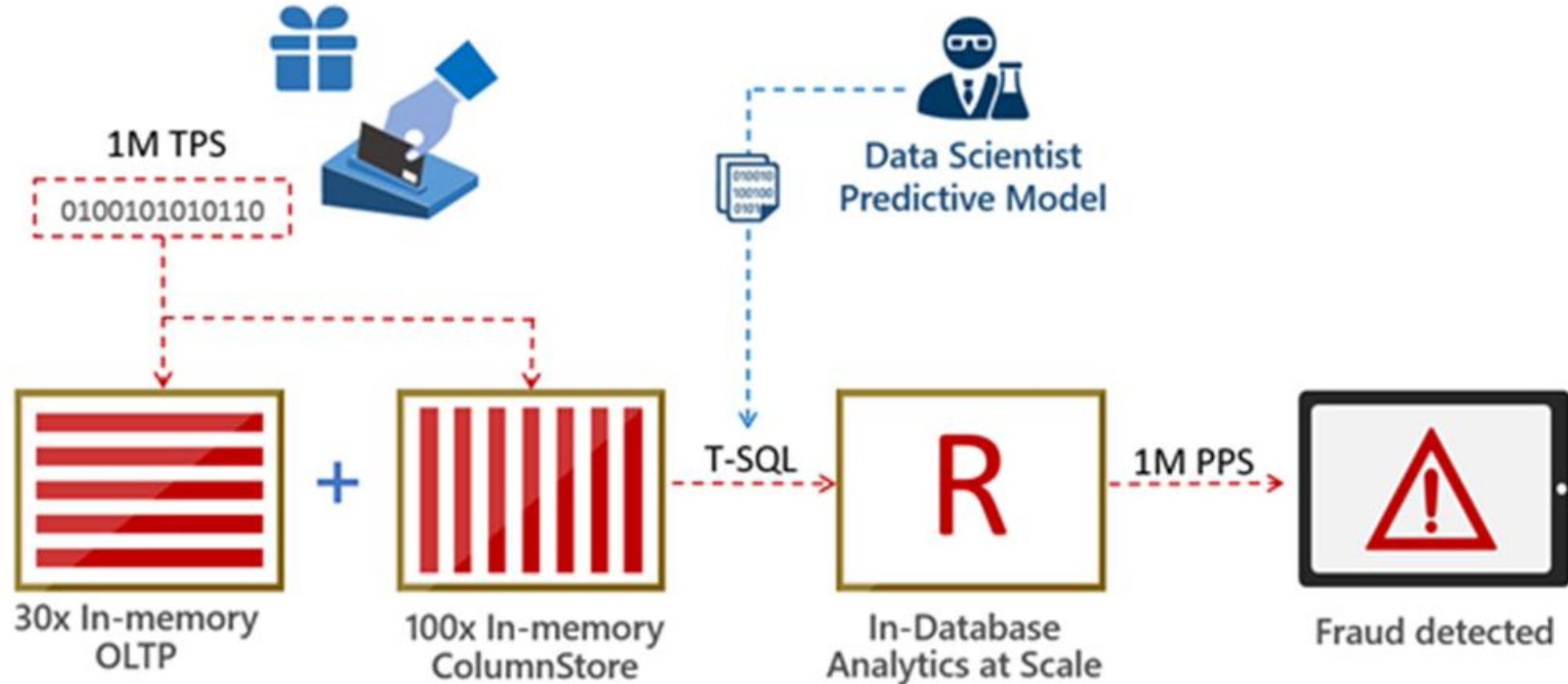
Machine Learning
Services

R/Python Runtime

2 Execution



1,000,000 predictions per second

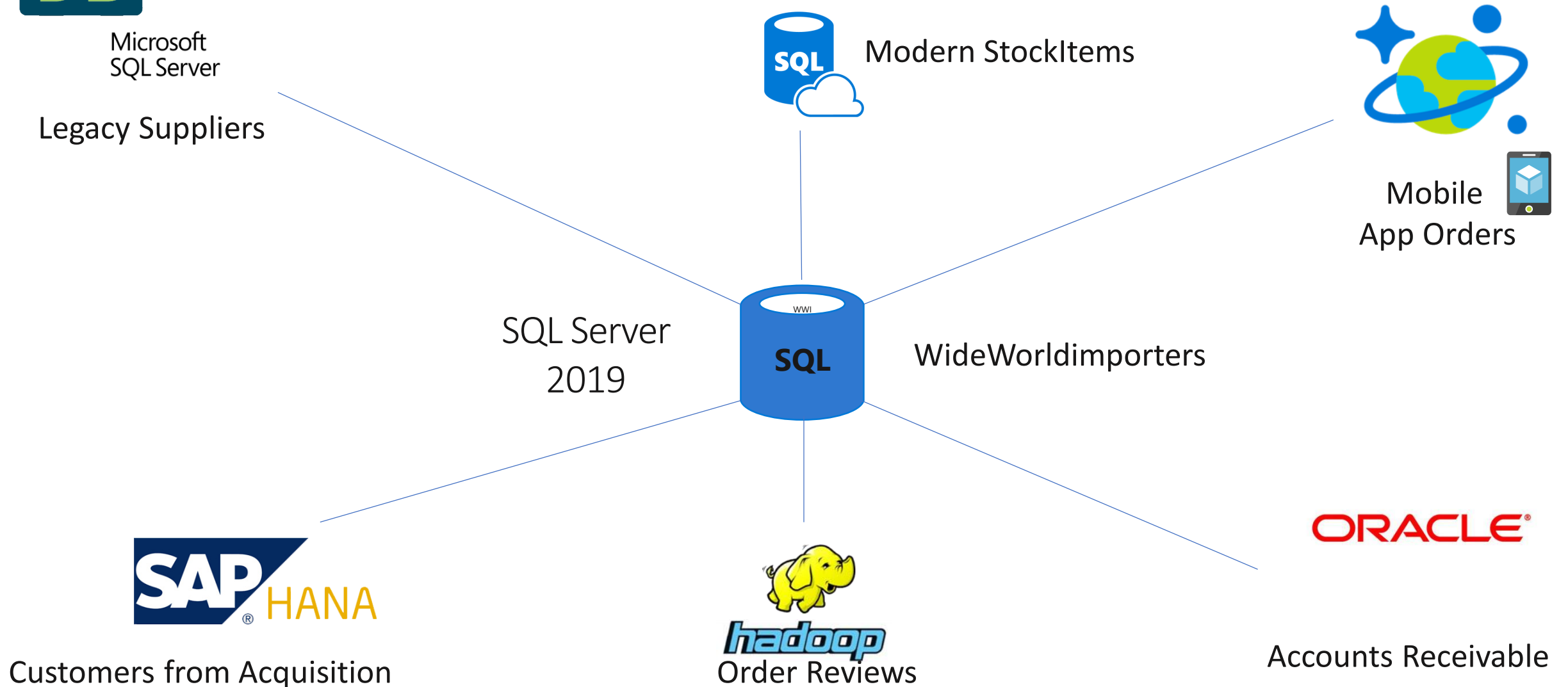


<https://blogs.technet.microsoft.com/dataplatforminsider/2016/10/11/1000000-predictions-per-second/>

MSSQL Data Virtualization



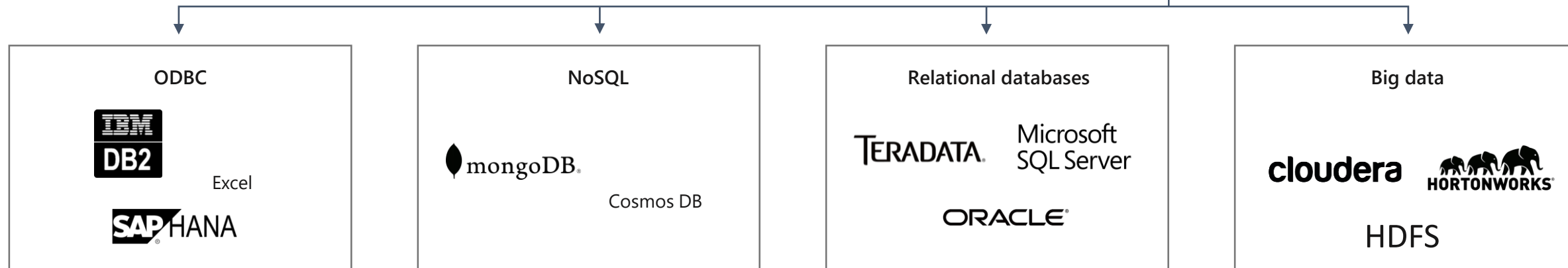
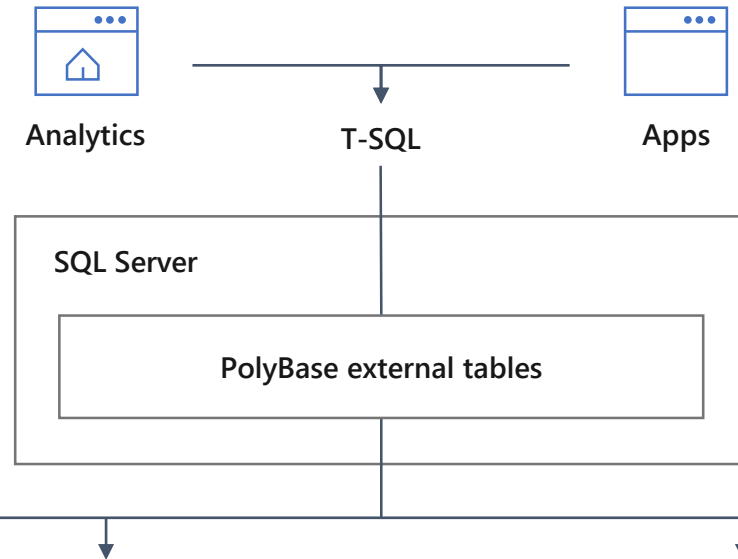
SQL Server 2019: Data Virtualization





SQL Server Polybase?

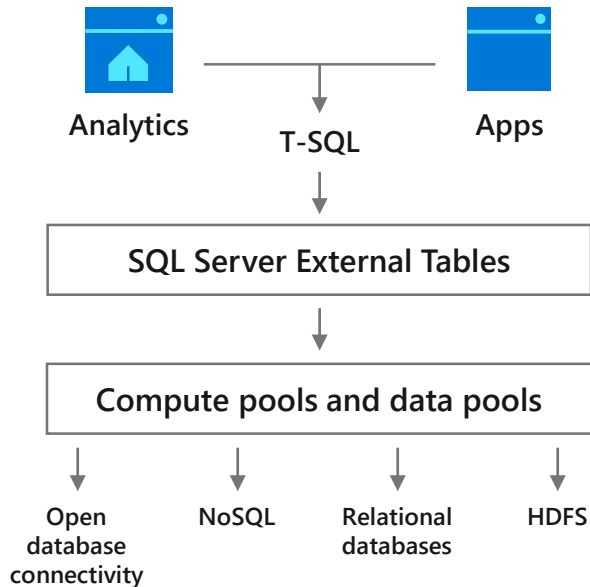
- ✓ Distributed compute engine integrated with SQL Server
- ✓ Query data where it lives using T-SQL
- ✓ Distributed, scalable query performance
- ✓ Manual/deploy with SQL Server
- ✓ Auto deploy/optimize with Big Data Clusters





SQL Server 2019 Big Data Clusters

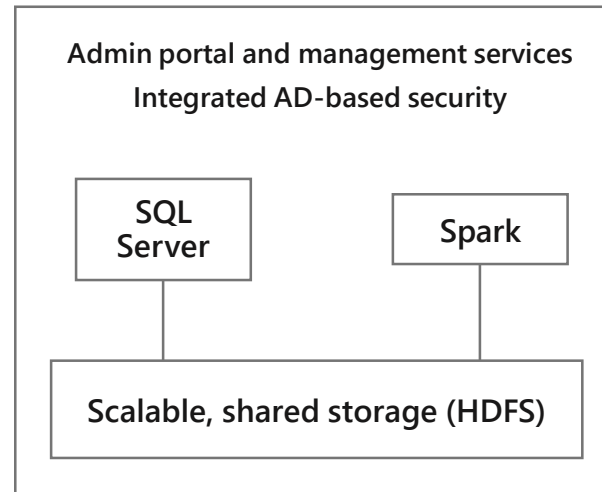
Data virtualization



Combine data from many sources without moving or replicating it

Scale out compute and caching to boost performance

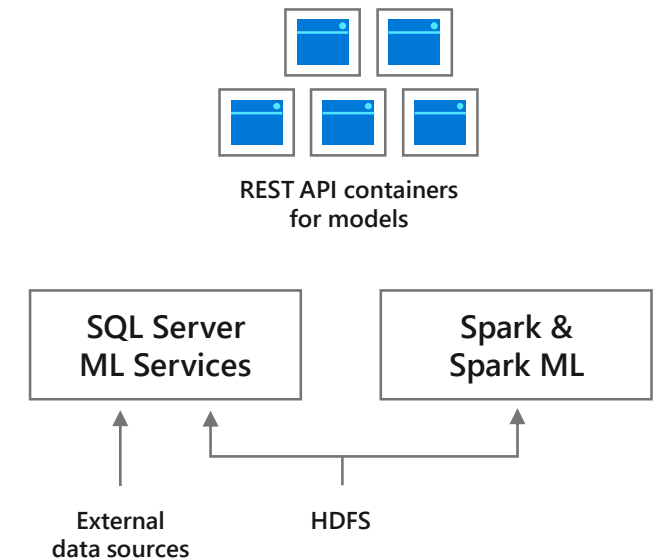
Managed SQL Server, Spark, and data lake



Store high volume data in a data lake and access it easily using either SQL or Spark

Management services, admin portal, and integrated security make it all easy to manage

Complete AI platform

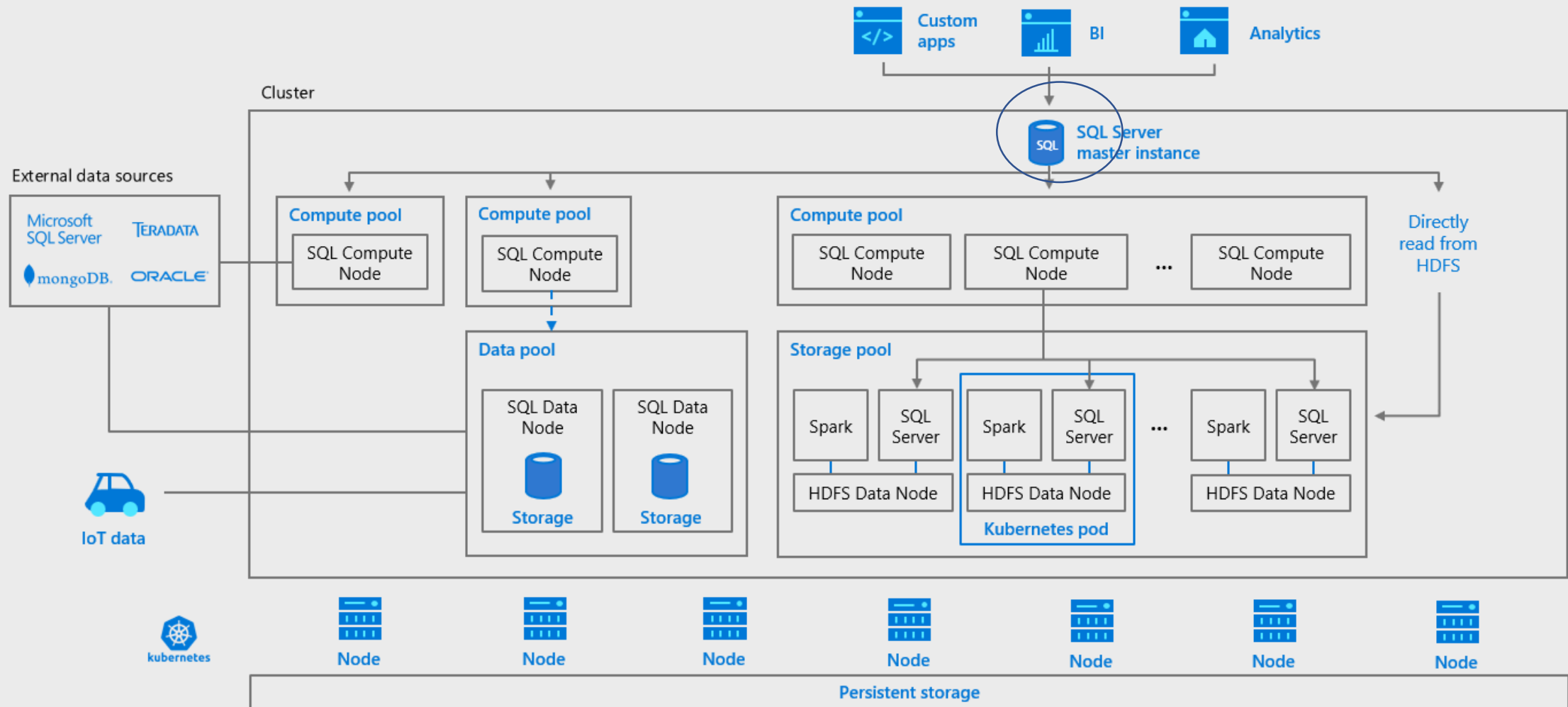


Easily feed integrated data from many sources to your model training

Ingest and prep data and then train, store, and operationalize your models all in one system



SQL Server 2019 y ML (big data Cluster)





Links

MS Build 2019

<https://www.microsoft.com/en-us/build>

SQL Server 2019 big data cluster

<https://docs.microsoft.com/en-us/sql/big-data-cluster/big-data-cluster-overview?view=sqlallproducts-allversions>

SQL Server containers

<https://docs.microsoft.com/en-us/sql/linux/quickstart-install-connect-docker?view=sql-server-2017&pivots=cs1-bash>



Muchas gracias

