

Customers ♥ SQL

5 million

database instances
in Azure SQL

Thousands

of customers on Azure
SQL DB Serverless

1 million

databases migrated
to Azure

30 million

downloads of
SQL Server 2017

SQL on ARM

less than 300mb
footprint

50% more

adoption of
SQL Server 2019

STEVEN SPIELBERG PRESENTS



BACK TO THE FUTURE

ROBERT ZEMECKIS FILM



Sales Amount

Sales Territory Group

Subcategory

Month

5.5M Components

4.3M North America

1.1M Europe

125K Pacific

1.7M Mountain Frames

1.4M Road Frames

624K Touring Frames

205K Wheels

83K Cranksets

75K Pedals

72K Handlebars

30K Brakes

28K Saddles

28K Derailleurs

25K Forks

22K Headsets

21K Bottom Brackets

3,745 Chains

242K September 2006

226K August 2007

187K July 2007

172K November 2006

172K December 2006

149K May 2007

135K June 2007

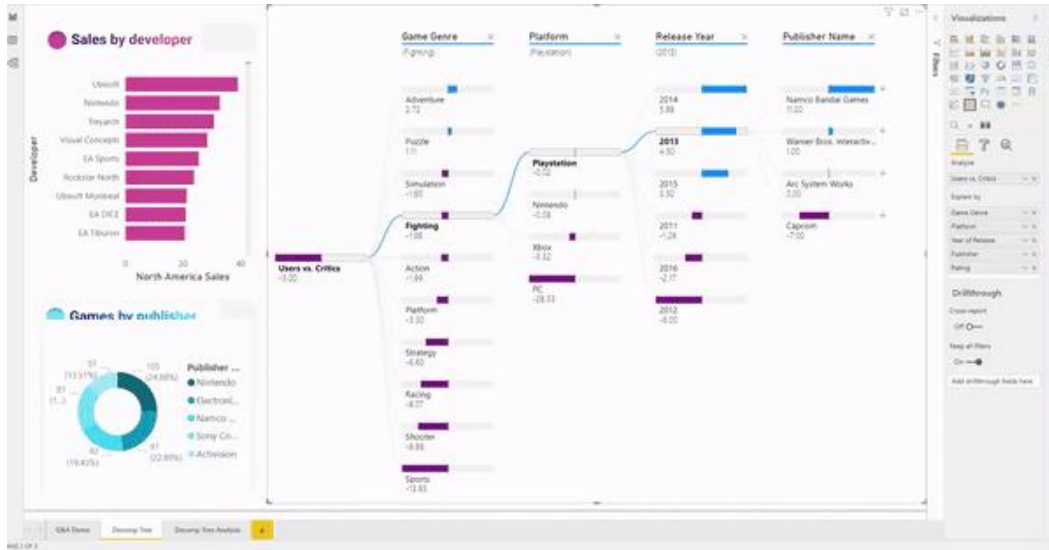
106K April 2007

103K October 2007

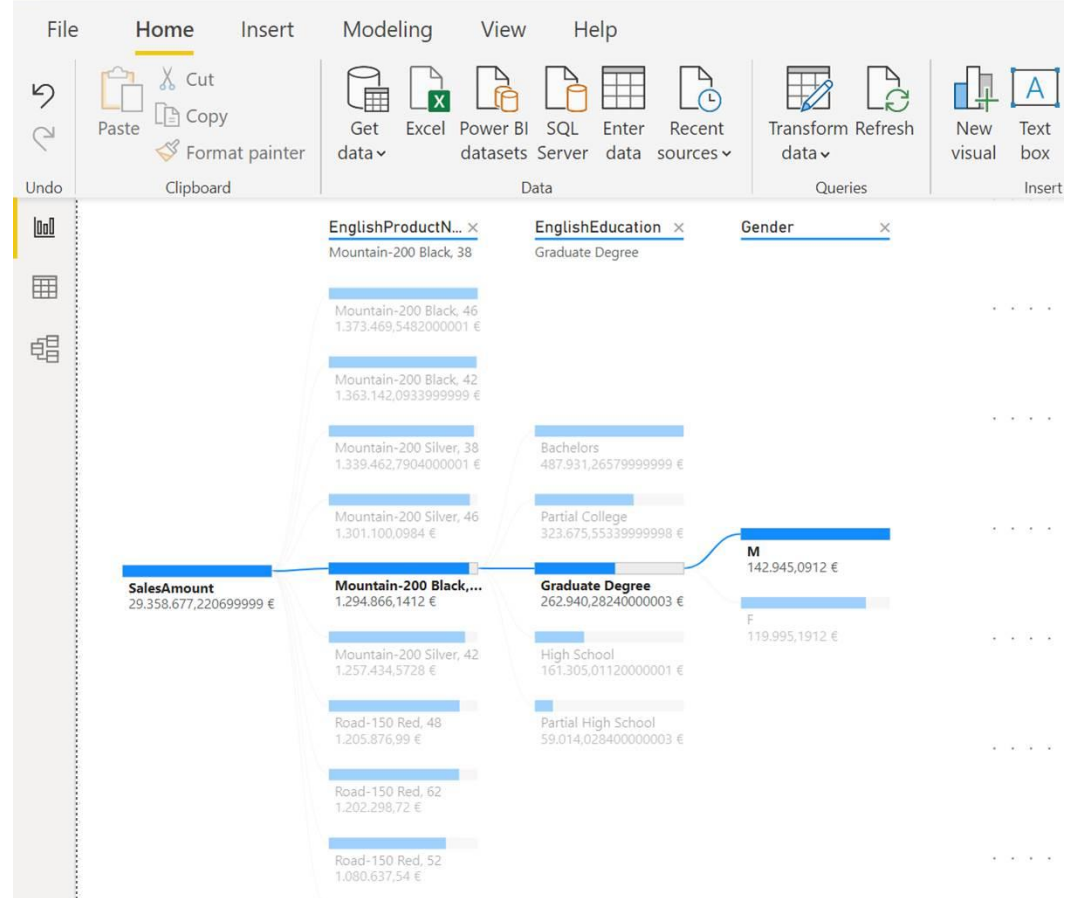
87K February 2007

74K March 2007

43K January 2007



Untitled - Power BI Desktop



Azure Synapse



Structured and
unstructured data

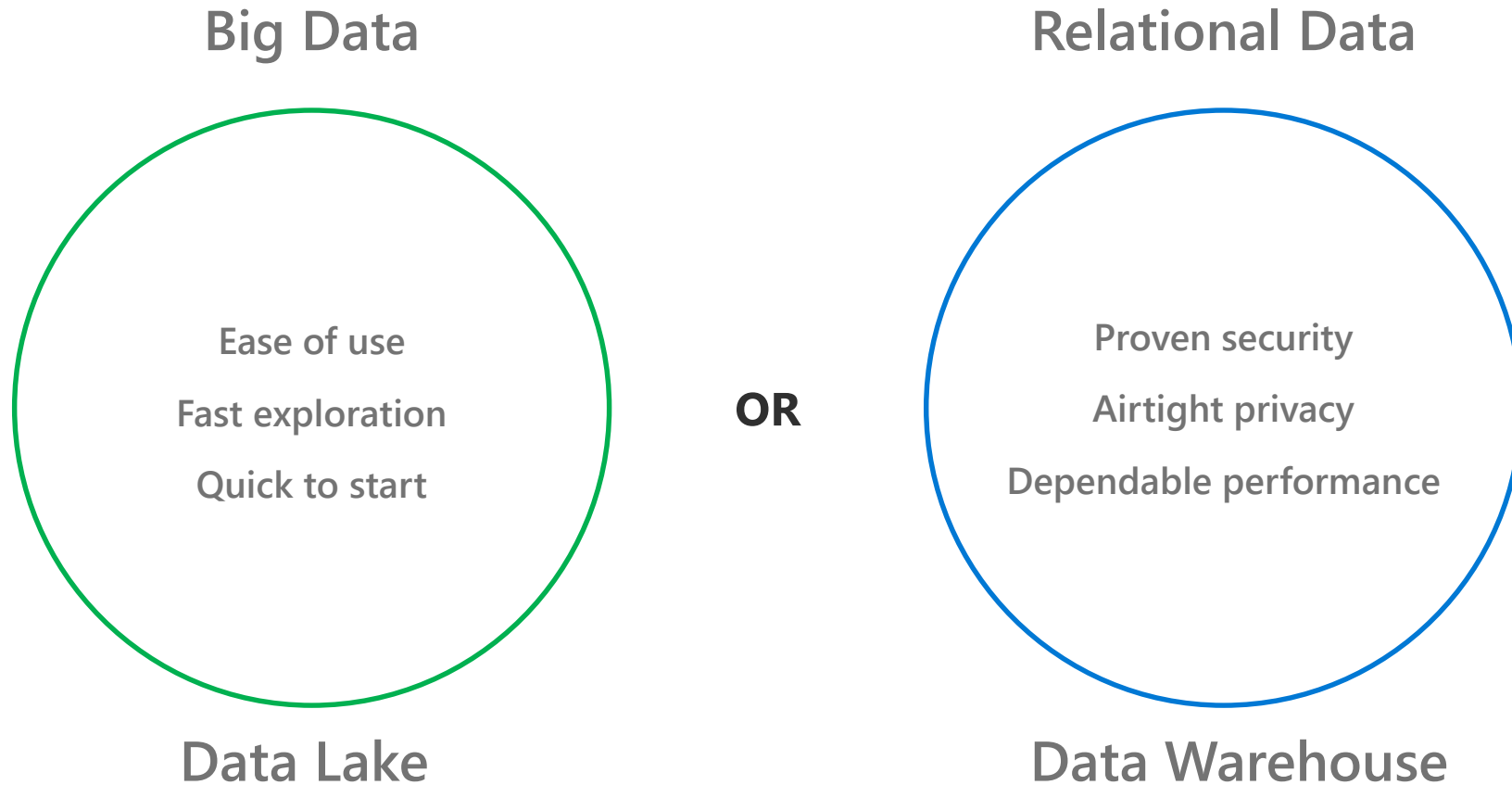


Data warehousing and
big data analytics

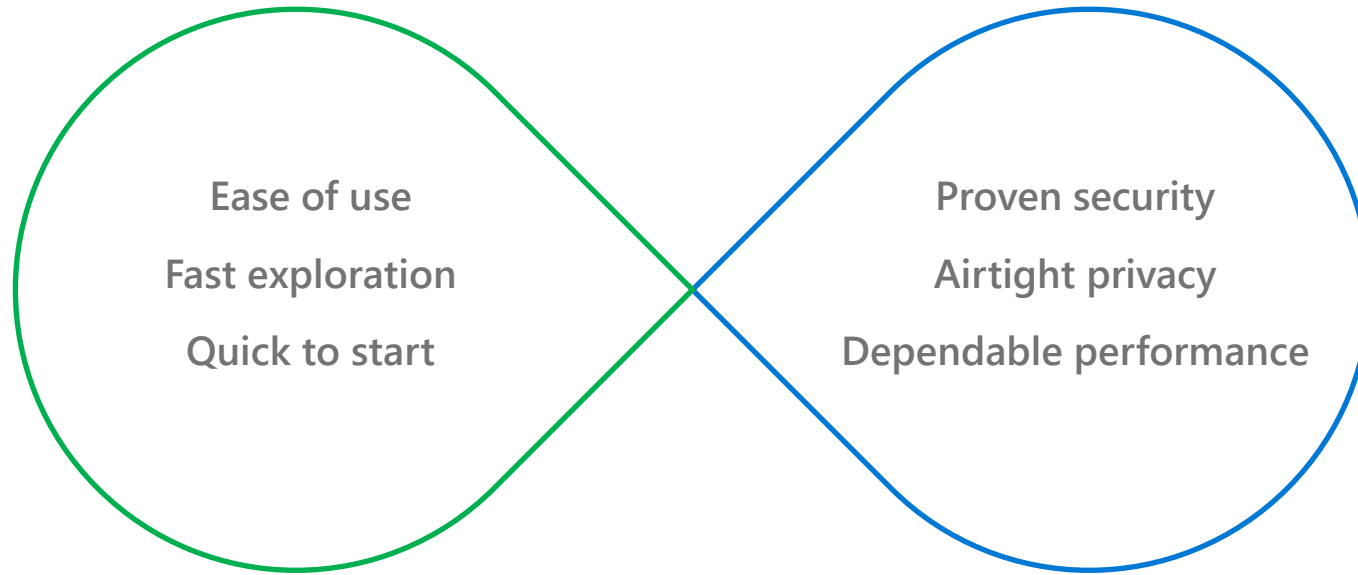


Cloud-native

This is a result of businesses being forced to maintain two critical, yet independent analytics systems

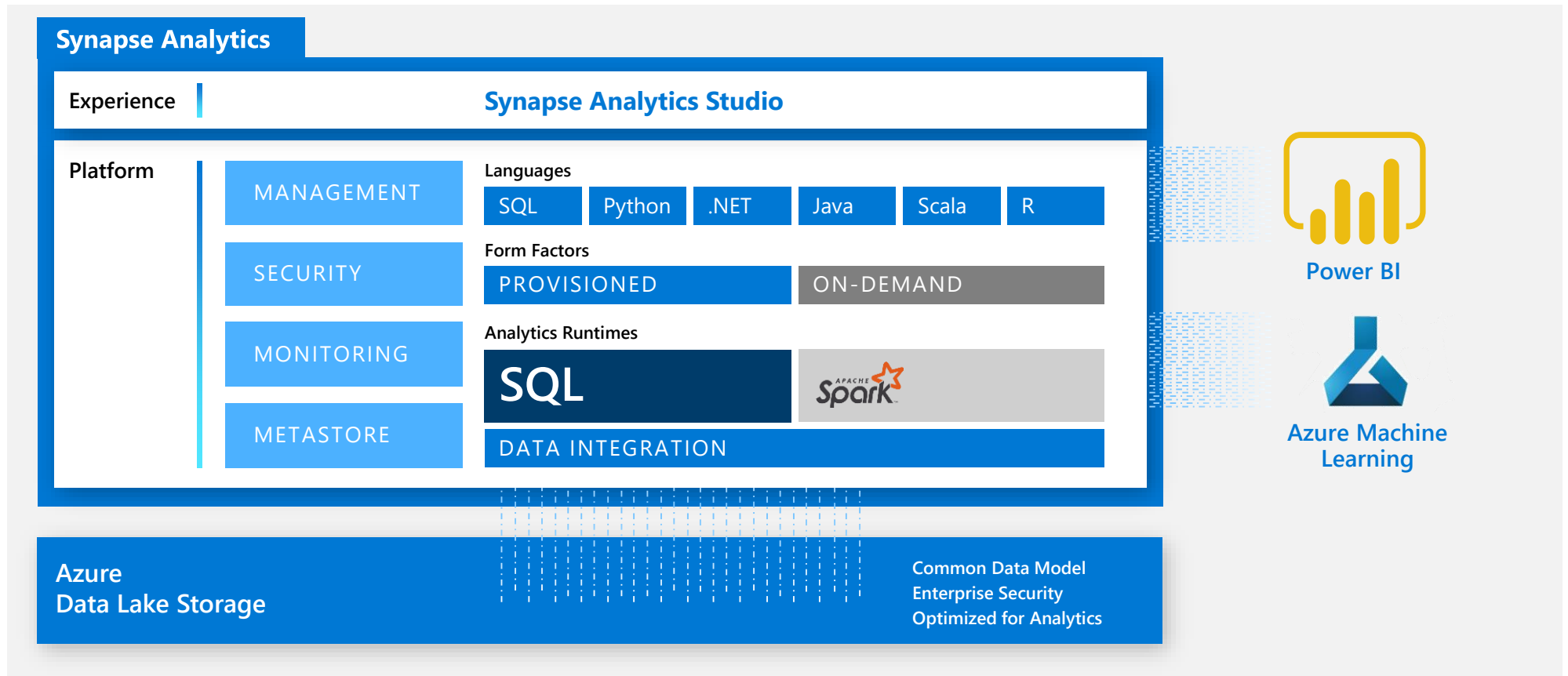
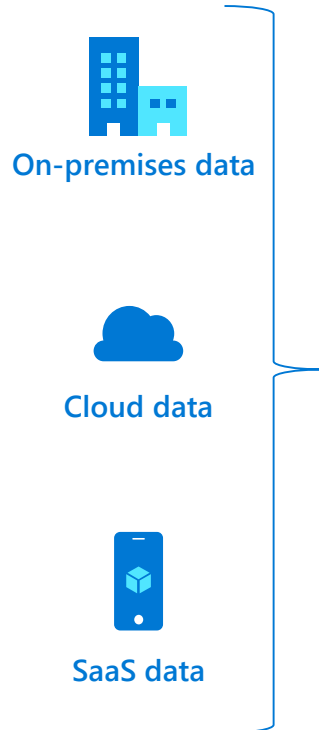
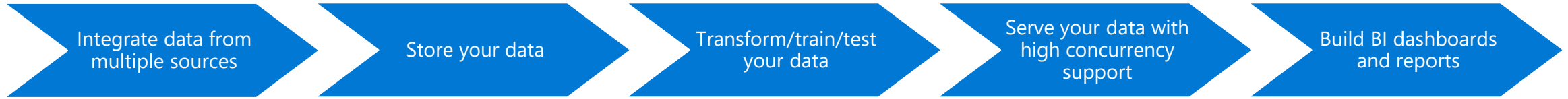


Azure brings these two worlds together, in a single service



Welcome to Azure Synapse Analytics

Analytics using Synapse



Power BI



Large models in Power BI Premium

- Preview

Large models remove limitation, so dataset cache sizes are limited only by the Power BI Premium capacity size (up to 400GB)

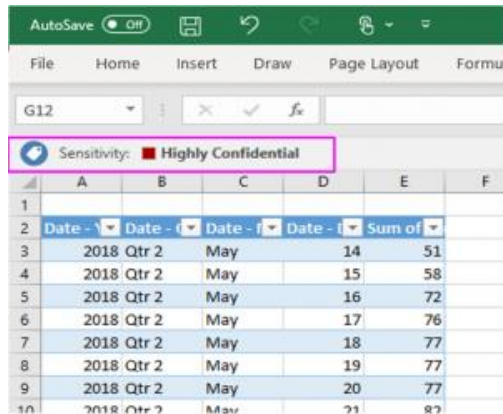
- <https://aka.ms/LargeModels>



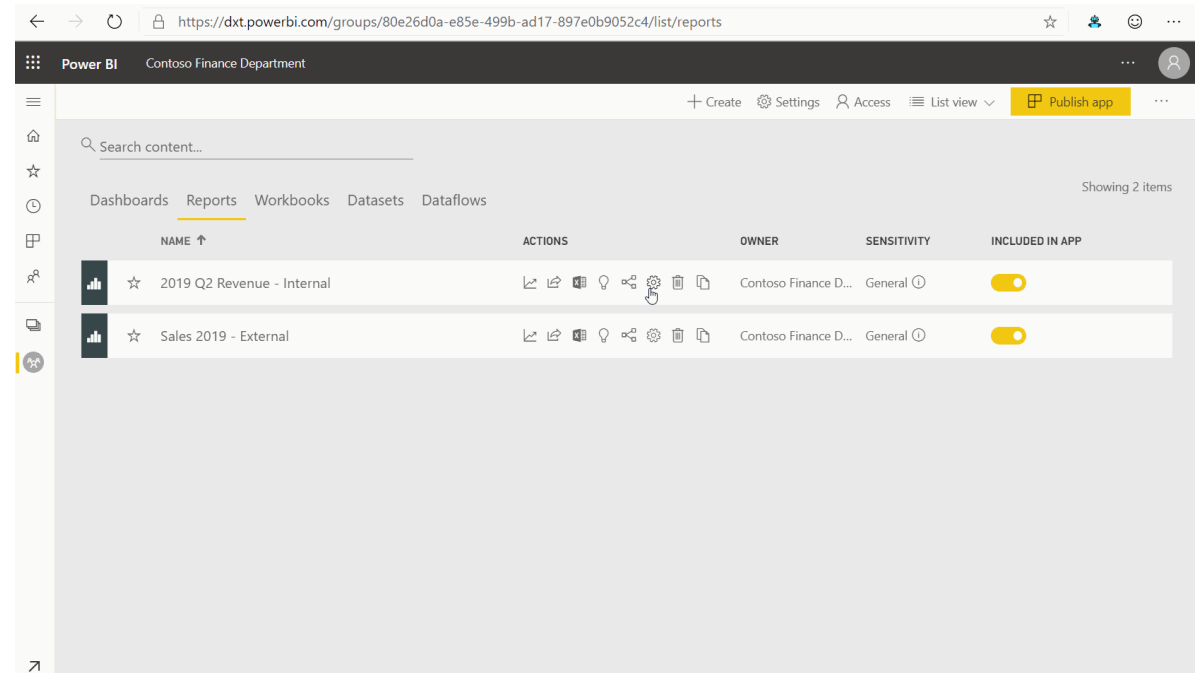
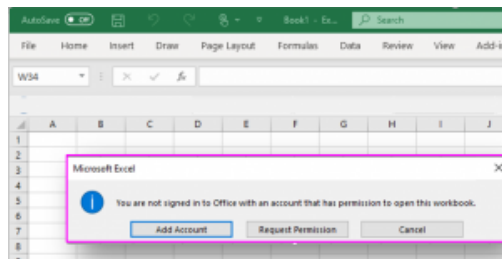
** Up to available memory on your capacity, excluding memory required for query execution and processing, which is often 20-30% of total memory.*

Power BI Data Protection

- Based on the same MS Information Protection built into Office
- The first BI product to protect your data even after it is exported out



With that policy in place, any Power BI data exported to Excel, PowerPoint or PDF file will carry that sensitivity label with it, and only authorized, authenticated users will be able to access the exported data





Microsoft®
SQL Server®

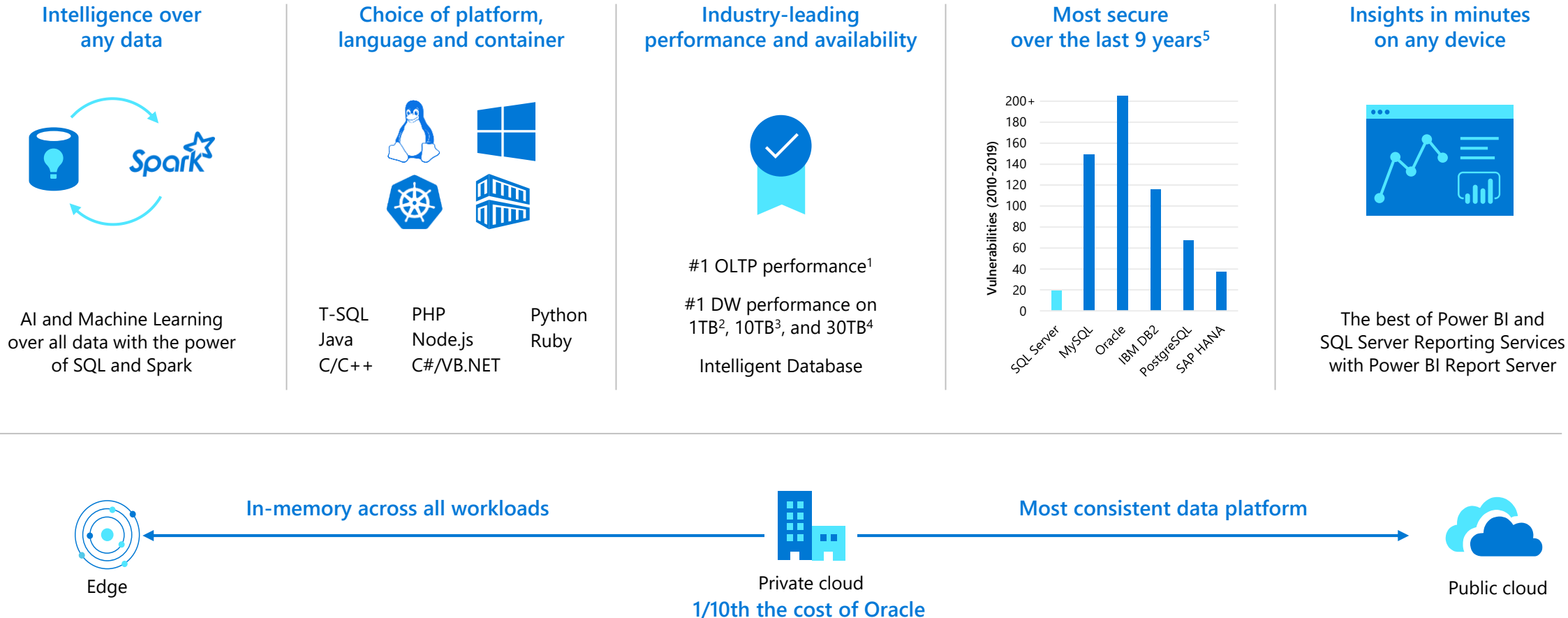
You need a data platform that keeps up with the changing world

Continual innovations built into SQL Server, giving you higher return on your investments

- SQL Server 2019
[Intelligence over All your data](#) with support for both structured and unstructured data
[Intelligent Database](#) for automation of DB management task
- SQL Server 2017
[Available on any platform](#) — Linux or Windows
[AI built-in](#) with support for R and Python
- SQL Server 2016
[Everything built in](#) — Mission critical performance and availability, Always Encrypted security, and in-database analytics

SQL Server 2019

Industry-leading performance and security, with intelligence over all your data



All TPC Claims as of 9/23/2019.

¹ <http://www.tpc.org/4081>; ² <http://www.tpc.org/3331>; ³ <http://www.tpc.org/3336>; ⁴ <http://www.tpc.org/3337>; ⁵ National Institute of Standards and Technology Comprehensive Vulnerability Database

SQL Server 2019 Hero Features



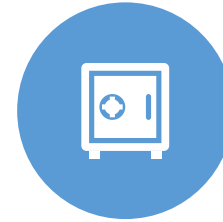
BIG DATA CLUSTERS



DATA
VIRTUALIZATION



INTELLIGENT
DATABASE



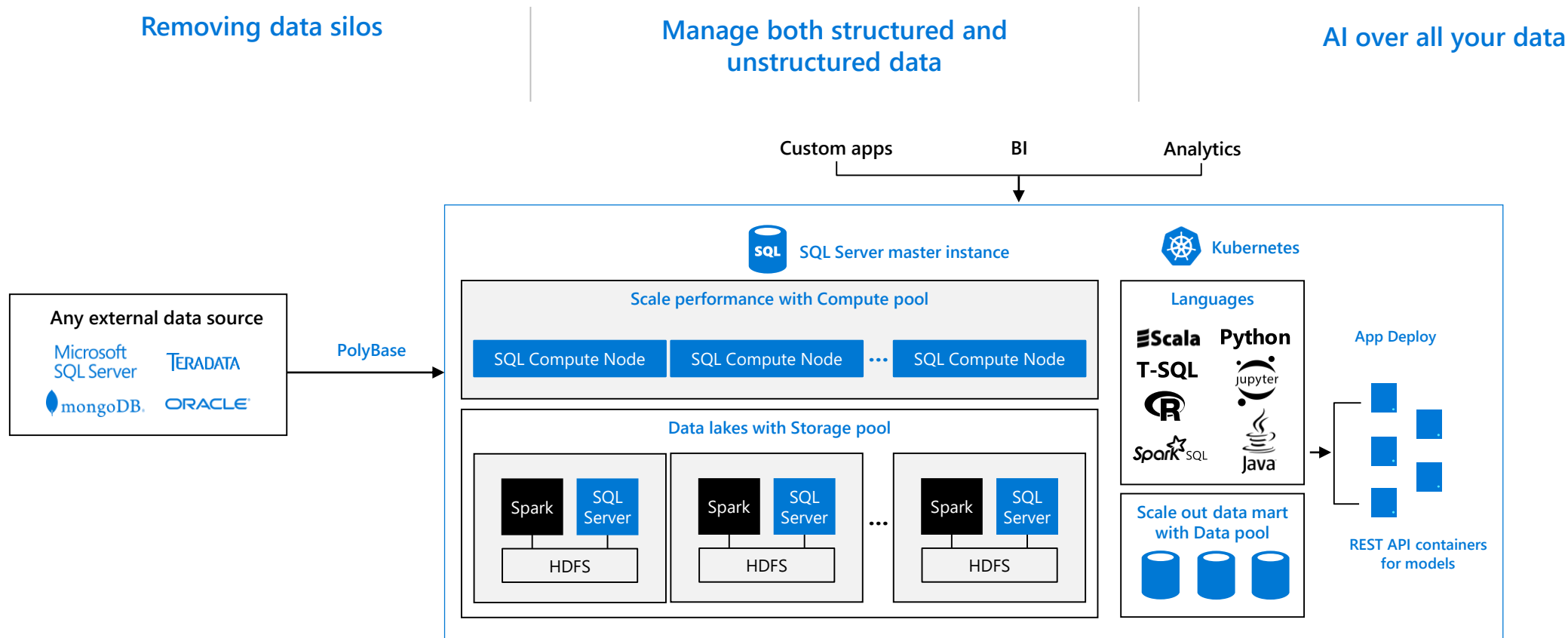
SECURE ENCLAVES



ACCELERATED
DATABASE
RECOVERY

SQL Server 2019 Big Data Clusters

The combination of SQL Server database engine, Spark, and HDFS enable diverse big data scenarios



SQL Server 2019 Editions

Same Editions Continued



Enterprise

Access mission-critical capabilities to achieve unparalleled scale, security, high availability, and leading performance



Standard*

Find rich programming capabilities, security innovations, and fast performance for mid-tier applications and data marts

**both per core and Server/CAL*



Express

Build small, data-driven web and mobile applications up to 10 GB in size with this entry-level database. Available for free.



Developer

Build, test, and demonstrate applications in a non-production environment with this full-featured edition of SQL Server 2017.

What's new in SQL Server 2019



SQL Server 2019 new features		Express/web	Standard	Enterprise
Compute and storage	Maximum number of cores	4/16	24	OS Max
	Maximum memory utilized per instance	1/64 GB	128 GB	OS Max
	Maximum size	10 GB/524 PB	524 PB	524 PB
Intelligence over all your data	SQL Server 2019 Big Data Clusters with Apache Spark and HDFS built into SQL Server engine		×	×
	Data virtualization using PolyBase (including additional data sources like Oracle, Teradata, MongoDB, and other SQL Server databases)		×	×
	Unified AI platform to train and operationalize models with SQL Server ML Services	×	×	×
Choice of language and platform	Compatibility certification	×	×	×
	UTF-8 support	×	×	×
	Support for SQL Server Java extension	×	×	×
Industry-leading performance and availability	Free DR replicas in Azure and on-premises		×	×
	Intelligent Query processing : Scalar UDF inlining, table variable deferred compilation, approximate count distinct		×	×
	Intelligent Query processing features: row mode memory grant feedback , batch mode for row store and automatic tuning			×
	Automatic read-write connection re-routing			×
	In-Memory Database: memory-optimized tempdb			×
	In-Memory Database: Persistent Memory support		×	×
	Accelerated Database recovery		×	×
Secure and reliable	Always Encrypted with secure enclaves	×	×	×
	Transparent database encryption		×	×
	Data classification and auditing	×	×	×
	Vulnerability assessment	×	×	×
Quick business insights	Azure Data Studio to manage SQL Server including support for T-SQL using Notebooks	×	×	×
	SQL Server Analysis Services Direct Query		×	×

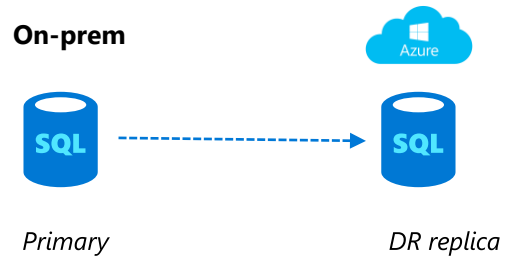
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	Automatic read-write connection re-routing			×
	In-Memory Database: memory-optimized tempdb			×
	In-Memory Database: Persistent Memory support		×	×
	Accelerated Database recovery		×	×
Secure and reliable	Always Encrypted with secure enclaves	×	×	×
	Transparent database encryption		×	×
	Data classification and auditing	×	×	×
	Vulnerability assessment	×	×	×
Quick business insights	Azure Data Studio to manage SQL Server including support for T-SQL using Notebooks	×	×	×
	SQL Server Analysis Services Direct Query		×	×

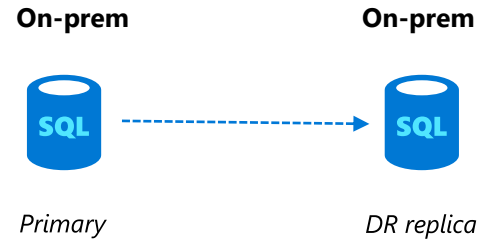
New SA Benefits

Free Hybrid DR only on Azure



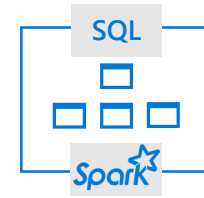
One async replica for each primary SQL Server Instance on-prem for backup in Azure

Reduced DR costs on-prem



Simplified backup licensing with free replica for DR in addition to existing replica for HA and replica for DR

SA entitlement for free Big Data Node cores



For each core of SQL Server license used in the BDC master node, SA customers get free big data node cores:

- 8 free big data node core for each SQL Server EE core in master node
- 1 free big data node core for each SQL Server SE core in master node

SQL SERVER 2019

Tips for Developers

- «Sviluppare pensando al Compatibility Level»
 - fino ad oggi, grazie al retaggio on-premise, si è sviluppato/certificato rispetto ad una versione di SQL (2012 SP1, 2014 RTM, ...)
- Da SQL Server 2017 non esistono più SP → sviluppatori hanno nuovo riferimento: Compatibility Level

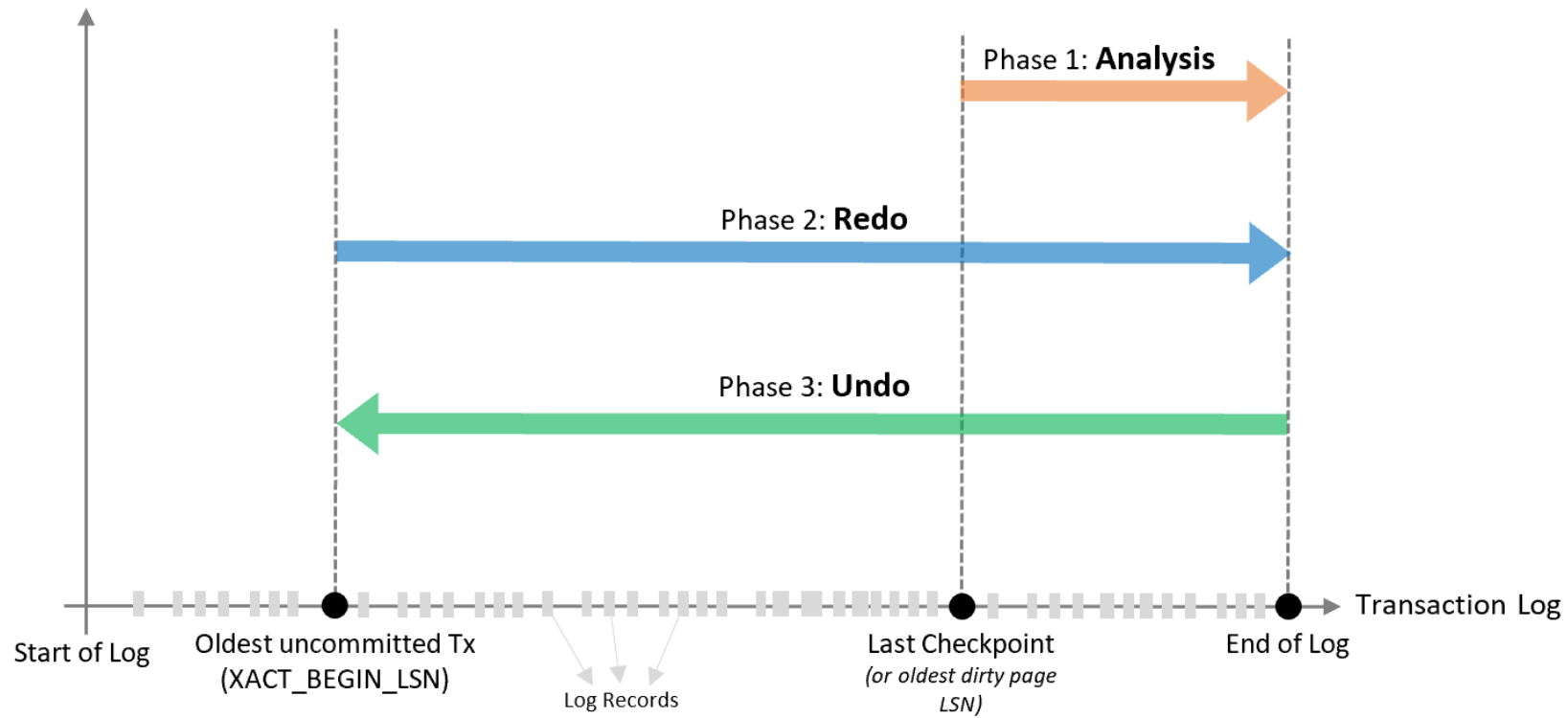




Azure SQL Database

Accelerated Database Recovery

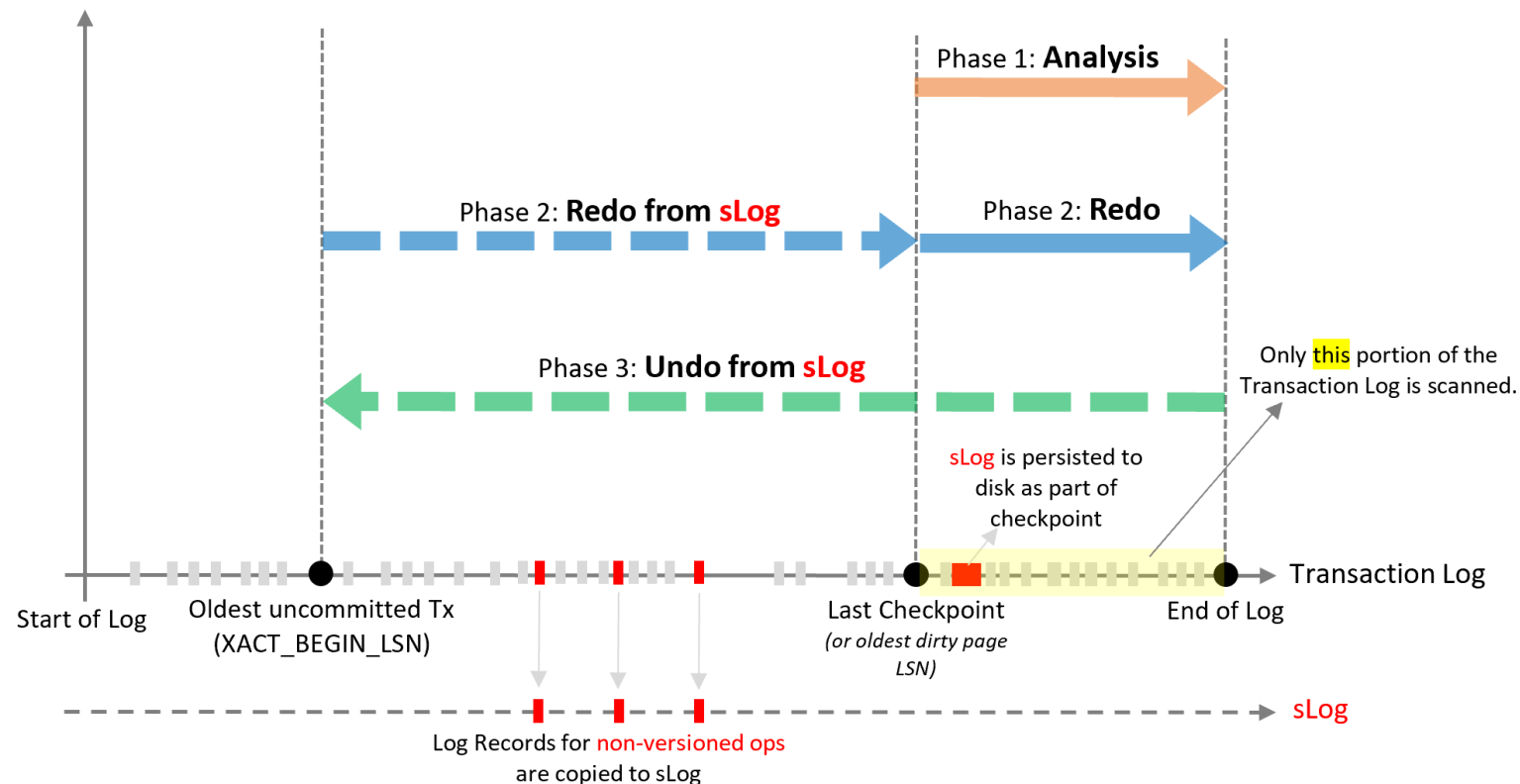
Recovery Phase / Transaction Log (without ADR)



Accelerated Database Recovery

- db engine feature that greatly improve database availability
- primary benefits
 - **Fast and consistent database recovery**
 - **Instantaneous transaction rollback**
 - **Aggressive log truncation**

Recovery Phase / Transaction Log / sLog (with ADR)





Cosmos DB

Azure Cosmos DB Enhancements



Azure Cosmos DB new analytics storage engine (preview)

Now internally backed by two storage engines:

- A transactional storage engine
- A new analytical storage engine.



Azure Cosmos DB autopilot mode (preview)

Cosmos DB will automatically scale RU/s up and down as needed

Customers won't have to manage or adjust provisioned throughput to match traffic



GROUP BY support

Cosmos DB Autopilot

- Scale-out your instances dynamically based on load
- Define a maximum throughput so you don't get slapped with an enormous bill
- Dynamic scaling is the key to saving you 💰 on bursty workloads.

Add Container

* Database id ⓘ
☒ Create new ☐ Use existing
CosmosDatabase

☐ Provision database throughput ⓘ

* Container id ⓘ
AutopilotContainer

Where did 'fixed' containers go? ⓘ

* Partition key ⓘ
/id

☐ My partition key is larger than 100 bytes

* Throughput (Autopilot) ⓘ
☒ Autopilot ☐ Provisioned Throughput

Choose Max RU/s ▼

Choose Max RU/s

4,000 RU/s (50GB)
20,000 RU/s (200GB)
100,000 RU/s (1TB)
500,000 RU/s (5TB)

Select max RU/s you want Cosmos DB to scale to

Create Azure Cosmos DB Account

↑ Create a new Azure Cosmos DB account with multi-region writes in North Europe, West Europe, South Central US, or North Central US by

[Basics](#) [Network](#) [Tags](#) [Review + create](#)

Azure Cosmos DB is a globally distributed, multi-model, fully managed database service. [Try it for free](#), for 30 days with unlimited renewals. Go to production starting at \$24/month per database, multiple containers included. [Learn more](#)

Project Details

Select the subscription to manage deployed resources and costs. Use resource groups like folders to organize and manage all your resources.

Subscription *

Resource Group * [Create new](#)

Instance Details

Account Name *

API * ⓘ

Apache Spark ⓘ ☒ None [Sign up for Apache Spark preview](#)

Location *

Version

Geo-Redundancy ⓘ

Multi-region Writes ⓘ ☐ Enable ☒ Disable

*Up to 33% off multi-region writes is available to qualifying new accounts only. Accounts must be created between Aug 1, 2019 and Aug 31, 2020. Multi-region writes are limited to accounts with both account locations and geo-redundancy only in North Europe, West Europe, South Central US, or North Central US. Multi-region writes are only to multi-region writes in those same regions. Both Geo-Redundancy and Multi-region Writes must be enabled. Discount is based on number of qualifying regions selected.

[Review + create](#)

[Previous](#)

[Next: M](#)

Azure Cosmos DB's API for MongoDB now supports server version 3.6

MORE AND MORE ...

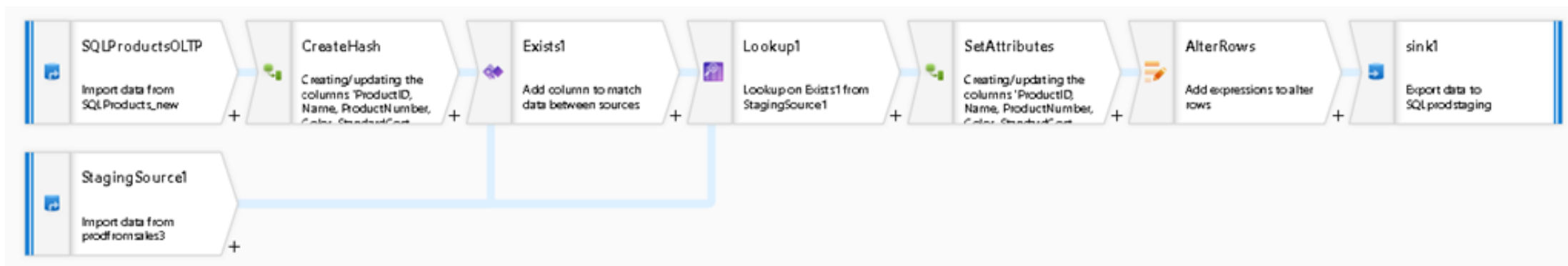
Azure Data Share is now in GA!

The screenshot shows the Microsoft Azure portal interface. The top navigation bar includes the Microsoft Azure logo, a search bar, and user information for 'joanpo@microsoft.com'. The breadcrumb trail indicates the location: 'Home > ContosoShare - Sent Shares'. The main heading is 'ContosoShare - Sent Shares'. Below this, there's a search bar and a list of navigation options on the left sidebar, including Overview, Activity log, Access control (IAM), Tags, Diagnose and solve problems, Settings, Properties, Locks, Data Share, Sent Shares (selected), Received Shares, Feedback, Monitoring, Alerts, Metrics, Diagnostic settings, Logs, Support + troubleshooting, Resource health, and New support request. The main content area shows the 'Sent Shares' page for 'Fabrikam'. It has tabs for Details, Datasets (selected), Share Subscriptions, Invitations, and History. Below the tabs are buttons for '+ Add Datasets', 'Remove', and 'Refresh'. A filter bar 'Filter by name...' is present. A table lists the datasets:

	DATASETS	TYPE	PATH
	AggregateSales	SQL Data Warehouse Table	balboa/ContosoRetailDW
	demandforecast	Azure Data Lake Storage Gen2 Filesystem	contosoproviderstorage
	Fabrikam Beverage Company	Azure Data Lake Storage Gen2 Folder	contosoproviderstorage/rawposdata
	inventory20171231.csv	Azure Blob Storage File	blobstorejp/data

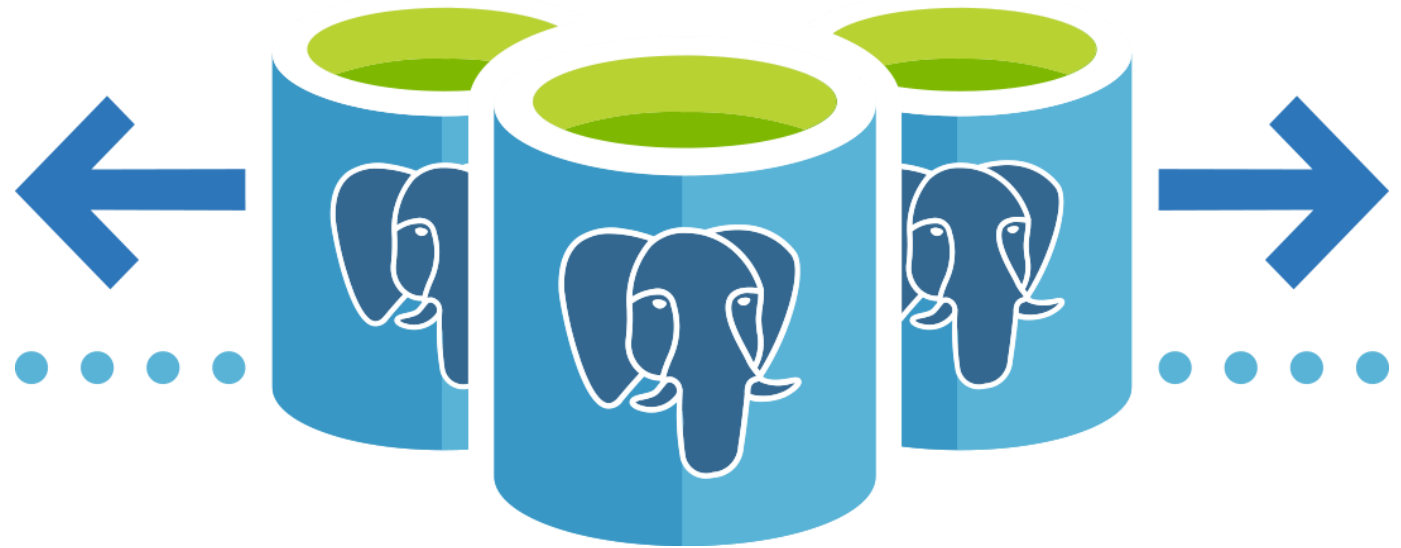
Azure Data Flows in Azure Data Factory is now GA

graphical data
transformation logic as
activities in ADF pipelines



Azure Database for PostgreSQL – Hyperscale (Citus) is now GA

- Scales out Postgres horizontally and is ideal for multi-tenant and SaaS applications that are growing fast—and for real-time analytics apps that need sub-second response times across billions of rows.



Azure SQL Database Edge - Public Preview

- Built-in ONNX runtime support for operationalizing the ML models
- Built-in data streaming and time-series
- Deploy from the Azure IoT Edge as a module
- <500MB small-footprint



Helpful hints for attendees to get the most out of #SQLSat895



follow your
personal interest



learn something
new



network and
engage people



share content



have fun



Microsoft Azure

Thank you!

Invent with purpose