Microsoft

Azure SQL Data Warehouse

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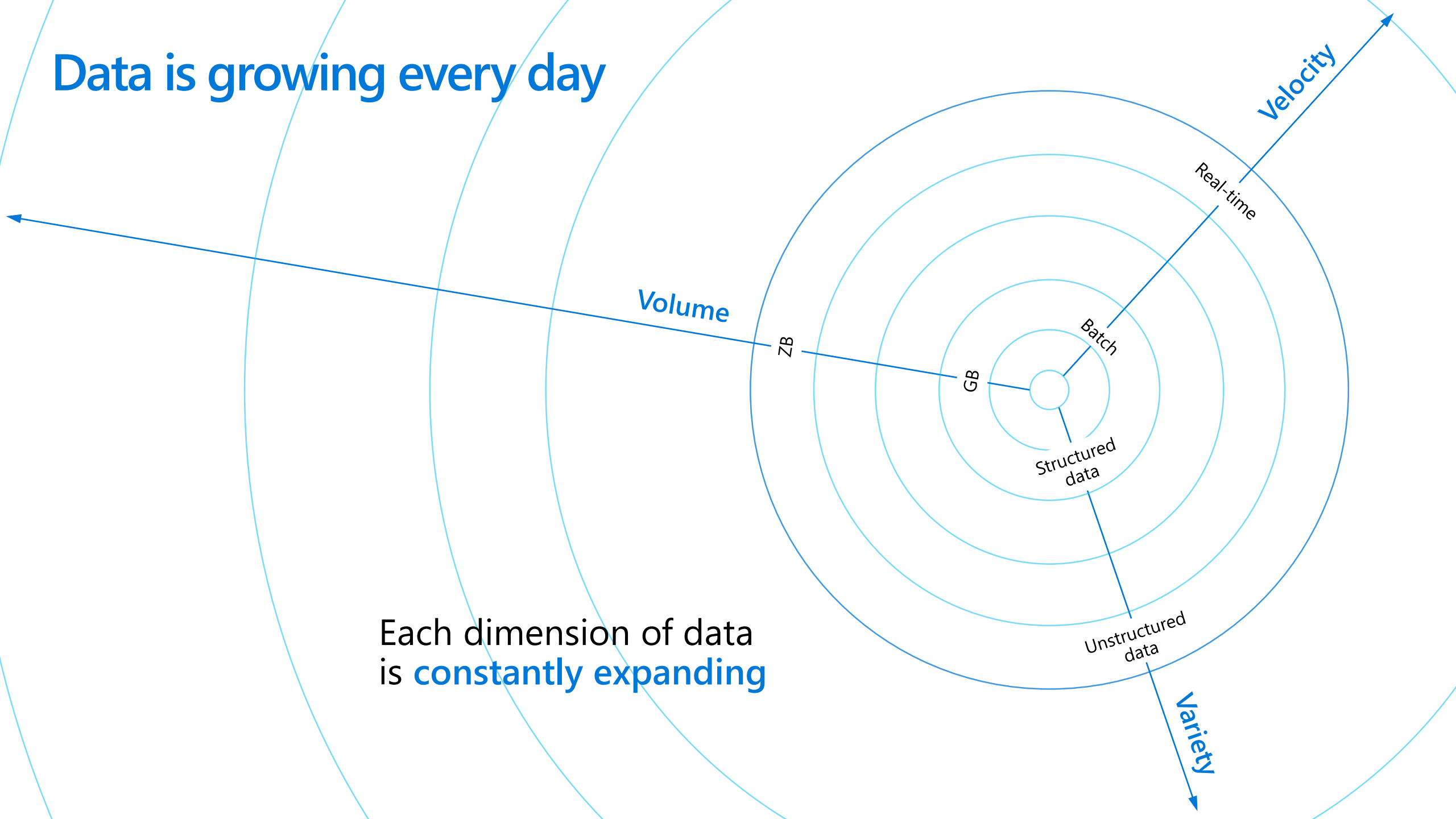
Data is growing every day



Each dimension of data
is **constantly expanding**

Get the benefits of a modern cloud data warehouse with Azure

Unlimited scale and integration for the future of data

Adaptable to flexible needs and budgets

Advanced and real-time analytics for deeper insights

Companies that take control of their data outperform

$40k

more revenue per employee

50%+

higher average net income on revenue

$100M

in additional operating income each year

Source: Keystone Strategy 2016

Organizations that fully harness their data outperform

Data consolidation using Azure SQL Data Warehouse

> This architecture performs significantly better than the legacy on-premises solutions it replaced.
>
> Chetan Kundavaram, Global Director, AB InBev

Migration to the cloud for efficient business operations

> By migrating off legacy data infrastructure and running reports on a more cost-efficient Azure platform, we've reduced costs.
>
> Roberto Pasquier, Senior Manager, Newell Brands

Using Azure SQL Data Warehouse for predictive analytics

> Because the Personalization Cloud is in Azure, we're confident we can handle any volume of data coming from our clients.
>
> Brian Muenks, IT Manager, Maritz Motivation Solutions

How are these customers analyzing their data in the cloud?

Cloud Scale Analytics

Modern data warehousing

" We want to analyze data coming from multiple sources and in varied formats"

Advanced analytics

" We want to leverage the analytics platform for advanced fraud detection"

Real-time analytics

“We’re trying to get insights from our devices in real-time”

Azure SQL Data Warehouse & Data Lake

Azure SQL Data Warehouse

The fast, flexible, and secure hub for all your data

Fast

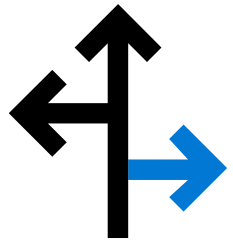
Unlimited scale

Best in class
price-performance

Secure

Trusted. Compliant. Reliable.

Industry
leading security



Flexible

Fits your needs

Intelligent workload
management and
enhanced concurrency

Fast

Best-in-class price performance

Leader in price per performance

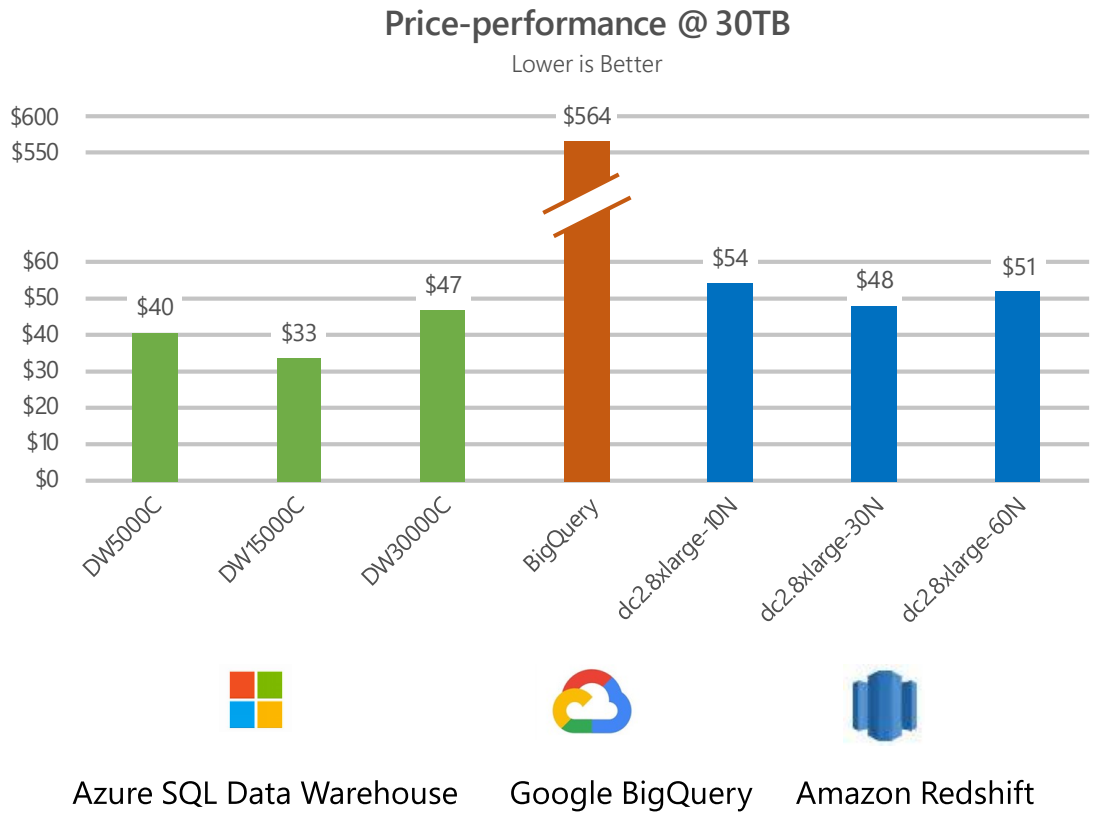
- 25% less expensive than Redshift
- 94% less expensive than BigQuery

Price-performance is calculated by GigaOm as the TPC-H metric of cost of ownership divided by composite query.

Results based on GigaOm's TPC-H results, published in January 2019

Fast

Best-in-class price per performance



Azure SQL Data Warehouse Google BigQuery Amazon Redshift

Price-performance is calculated by GigaOm as the TPC-H metric of cost of ownership divided by composite query.

Results based on GigaOm's TPC-H results, published in January 2019

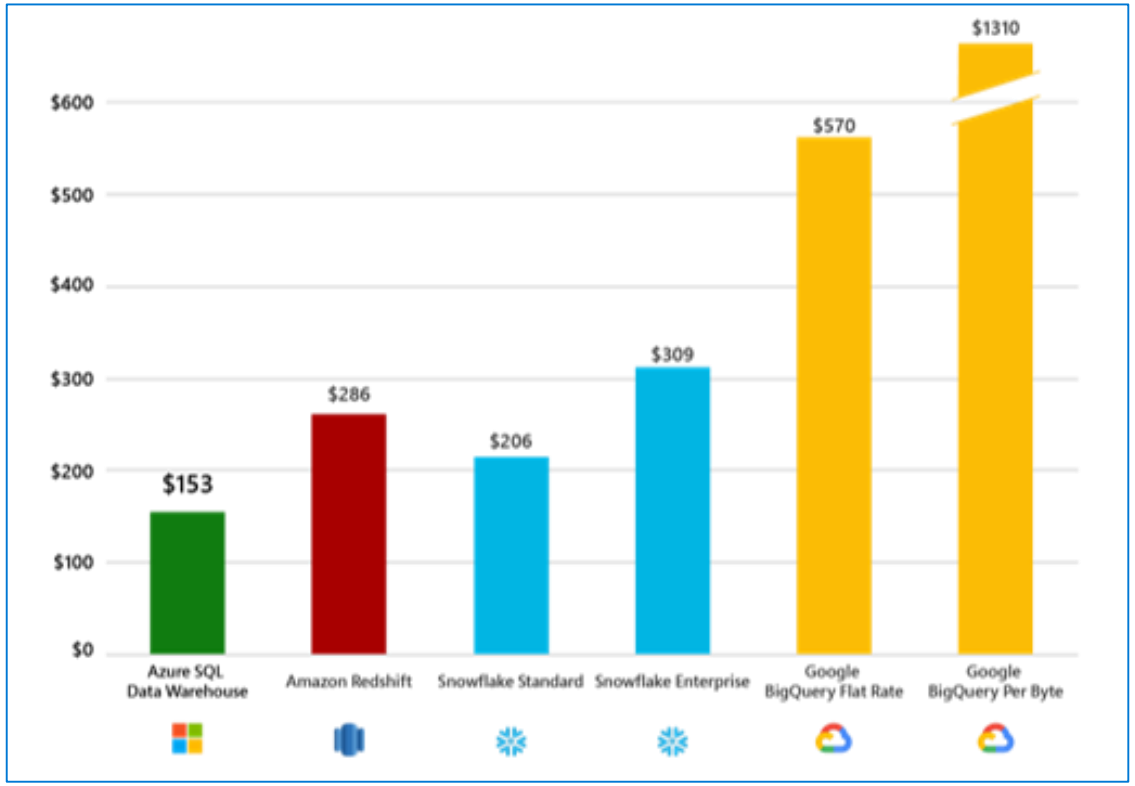
Fast

Best-in-class price per performance

Price-performance is calculated by GigaOm as the TPC-DS metric of cost of ownership divided by composite query.

Price-Performance @ 30TB

Lower is Better

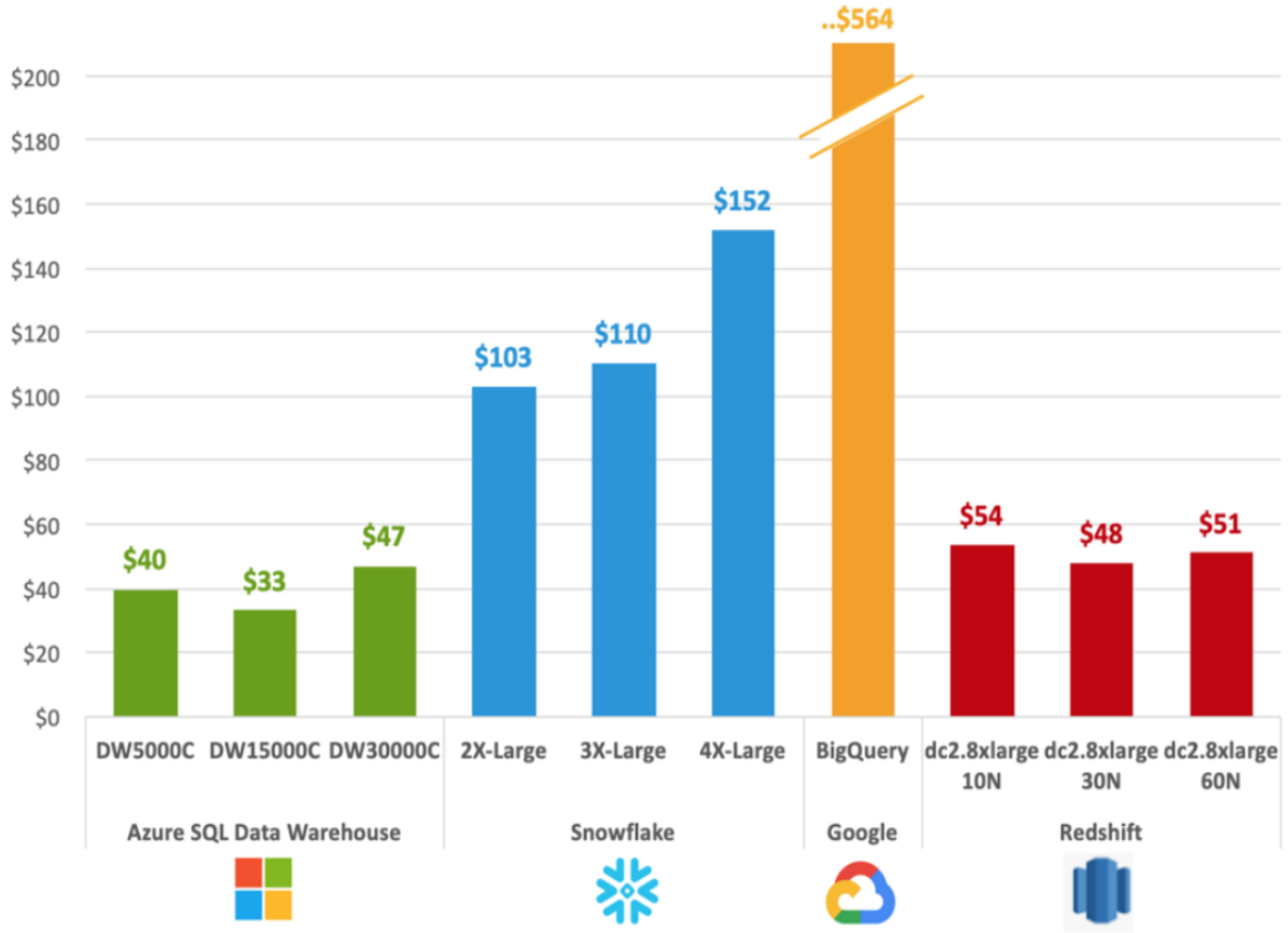


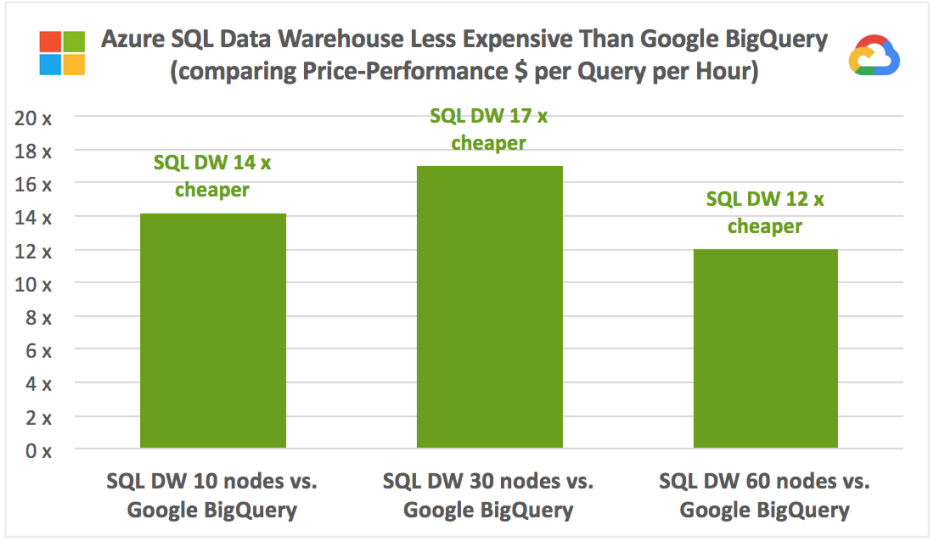
Results based on GigaOm's TPC-DS results, published in February 2019

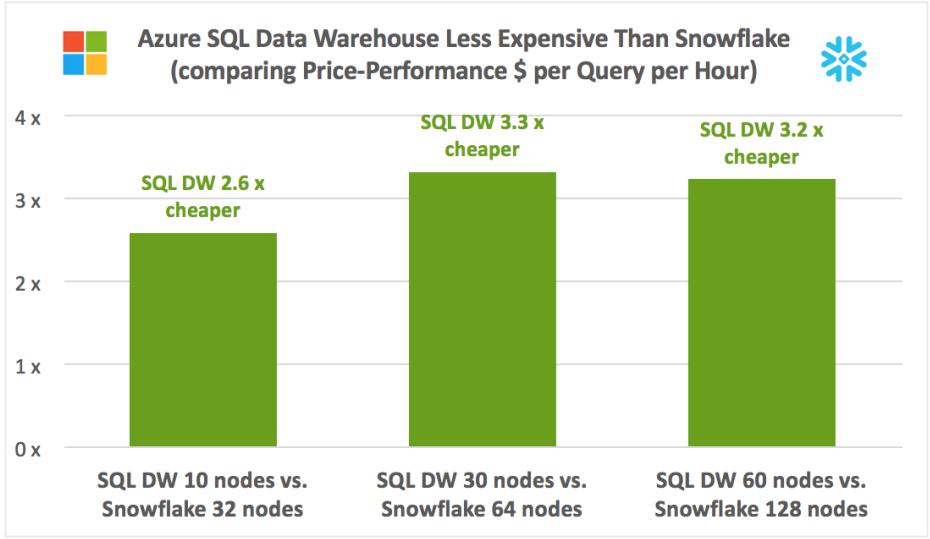
Industry-leading price performance

Source: GigaOm TPC-H 30TB Cloud DW Benchmark (February 2019)

Price-Performance @ 30TB ($ per Query per Hour)
(Lower is Better)





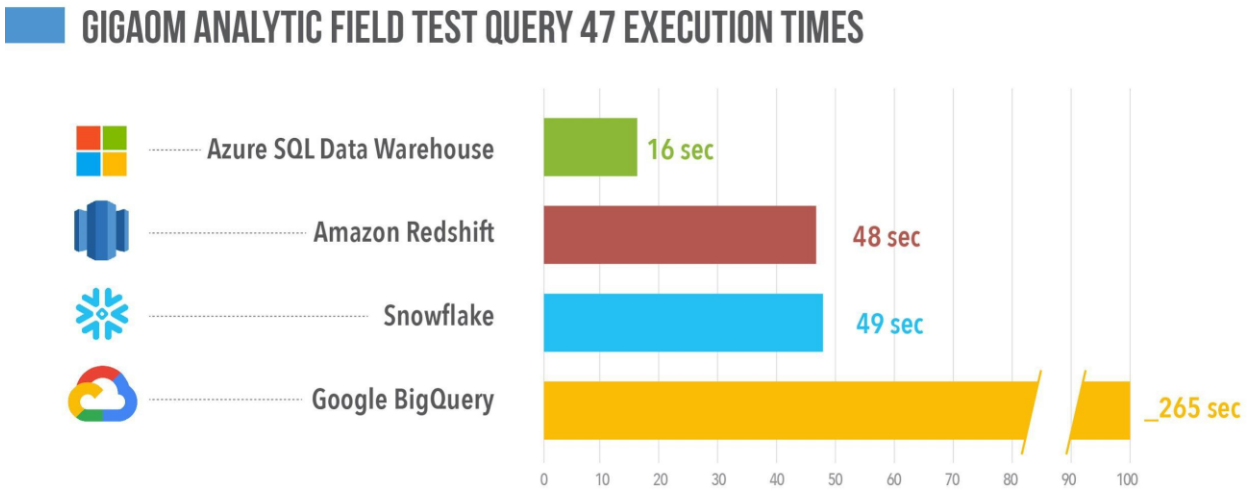


Azure SQL Data Warehouse performance advantage

```
with v1 as(
 select i_category, i_brand,
        s_store_name, s_company_name,
        d_year, d_moy,
        sum(ss_sales_price) sum_sales,
        avg(sum(ss_sales_price)) over
          (partition by i_category, i_brand,
                     s_store_name, s_company_name, d_year)
          avg_monthly_sales,
        rank() over
          (partition by i_category, i_brand,
                     s_store_name, s_company_name
           order by d_year, d_moy) rn
 from item, store_sales, date_dim, store
 where ss_item_sk = i_item_sk and
       ss_sold_date_sk = d_date_sk and
       ss_store_sk = s_store_sk and
       (
         d_year = [YEAR] or
         ( d_year = [YEAR]-1 and d_moy =12) or
         ( d_year = [YEAR]+1 and d_moy =1)
       )
 group by i_category, i_brand,
          s_store_name, s_company_name,
          d_year, d_moy),
 v2 as(
 select [SELECTONE]
        [SELECTTWO]
        ,v1.avg_monthly_sales
        ,v1.sum_sales, v1_lag.sum_sales psum, v1_lead.sum_sales nsum
 from v1, v1 v1_lag, v1 v1_lead
 where v1.i_category = v1_lag.i_category and
       v1.i_category = v1_lead.i_category and
       v1.i_brand = v1_lag.i_brand and
       v1.i_brand = v1_lead.i_brand and
       v1.s_store_name = v1_lag.s_store_name and
       v1.s_store_name = v1_lead.s_store_name and
       v1.s_company_name = v1_lag.s_company_name and
       v1.s_company_name = v1_lead.s_company_name and
       v1.rn = v1_lag.rn + 1 and
       v1.rn = v1_lead.rn - 1)
 [_LIMITA]
 select [_LIMITB] *
 from v2
 where  d_year = [YEAR] and
        avg_monthly_sales > 0 and
        case when avg_monthly_sales > 0 then abs(sum_sales - avg_monthly_sales) / avg_monthly_sales else null end > 0.1
 order by sum_sales - avg_monthly_sales, [ORDERBY]
 [_LIMITC];
```

TPC-DS 30TB Cloud DW Benchmark

Query 47



GIGAOM

Figure 8 -- Query 47. GigaOm Analytic Field Test Execution Time.

Industry-leading security

Category	Feature	SQL Data Warehouse	[redacted]		
Data Protection	Data In Transit	Yes	Yes	Yes	No
	Data encryption at rest (Service & User Managed Keys)	Yes	Yes	Yes	Yes
	Data In Use (Always Encrypted)	No	No	No	No
	Data Discovery and Classification	Yes	No	No	No
Access Control	Native Row Level Security	Yes	No	No	No
	Table and View Security (GRANT / DENY)	Yes	Yes	Yes	Yes
	Column Level Security	Yes	No	No	No
Authentication	SQL Authentication	Yes	Yes	Yes	No
	Native Azure Active Directory	Yes	No	No	No
	Integrated Security	Yes	Yes	Yes	Yes
	Multi-Factor Authentication	Yes	Yes	Yes	Yes
Network Security	Virtual Network (VNET)	Yes	Yes	Yes	Yes
	SQL Firewall (server)	Yes	Yes	Yes	No
	Integration with ExpressRoute	Yes	No	No	No
Threat Protection	SQL Threat Detection	Yes	Yes	No	No
	SQL Auditing	Yes	Yes	No	Yes
	Vulnerability Assessment	Yes	Yes	No	No

Most-comprehensive data optimization & caching features

Category	Feature	SQL Data Warehouse	Amazon Redshift	Snowflake	Google Big Query
Data storage	Columnstore table storage *(Columnstore tables)*	Yes	Yes	Yes	Yes
	Rowstore table storage *(Heap tables)*	Yes	No	No	No
	In-memory table storage *(Replicated tables)*	Yes	No	No	Yes
Clustered Indexes	Ordered columnar indexes	Yes	Yes	Yes	Beta
	Clustered Index	Yes	No	No	No
Non-Clustered Indexes	Non-Clustered Index *(Secondary indexes)*	Yes	No	No	No
Table Partitions	Columnar Rowgroups (micro-partitions)	Yes	No	Yes	No
	Range-based table partitioning	Yes	No	No	Yes
Result Caching	Result-set caching	Yes	Yes	Yes	Yes
Materialized Views	Materialized views	Yes	No	Yes	No

Most secure data warehouse in the cloud

Multiple levels of security between the user and the data warehouse

...at no additional cost

The largest compliance portfolio in the industry

ISO 27001

SOC 1 Type 2

SOC 2 Type 2

PCI DSS Level 1

Cloud Controls Matrix

ISO 27018

Content Delivery and Security Association

Shared Assessments

FedRAMP JAB P-ATO

HIPAA / HITECH

FIPS 140-2

21 CFR Part 11

FERPA

DISA Level 2

CJIS

IRS 1075

ITAR-ready

Section 508 VPAT

European Union Model Clauses

EU Safe Harbor

United Kingdom G-Cloud

China Multi Layer Protection Scheme

China GB 18030

China CCCPPF

Singapore MTCS Level 3

Australian Signals Directorate

New Zealand GCIO

Japan Financial Services

ENISA IAF

workload management

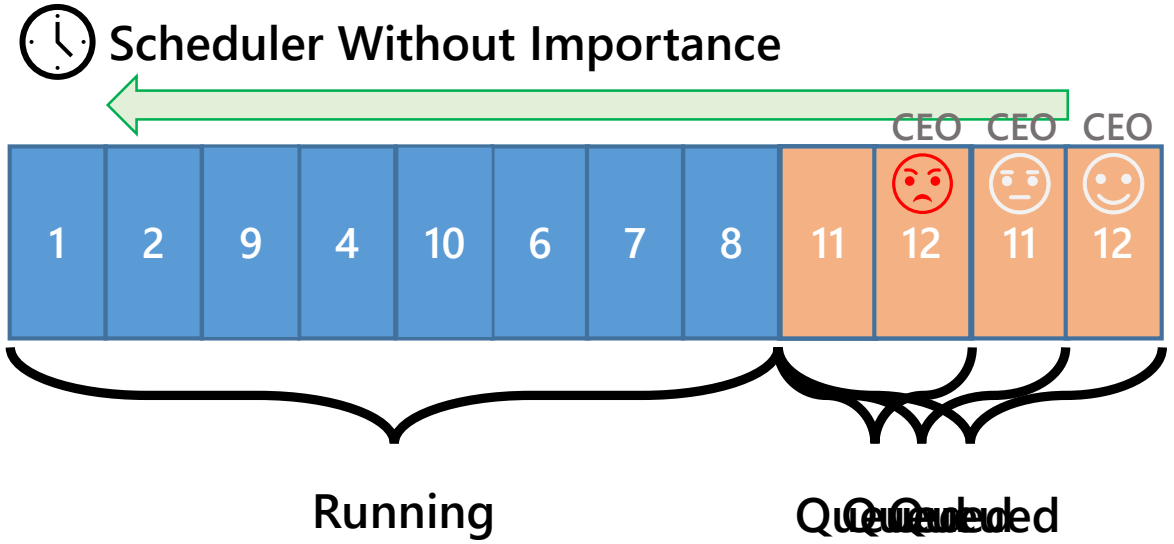
Flexible

Prioritize your workloads using workload management

- Maximize your ROI through granular workload control
- Dynamically allocate your data warehouse resources using classifiers
- Prioritize your most essential tasks with workload importance

Flexible

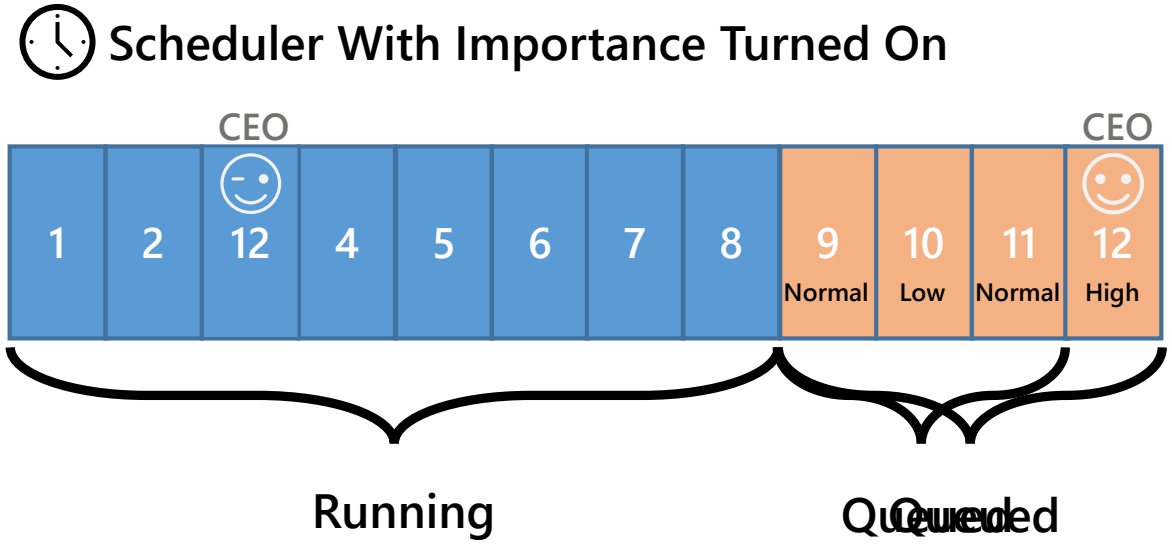
What if you want to prioritize the workloads that get access to resources?



By default, workloads are run on a first-in first out basis.

Flexible

With workload importance, prioritized workloads take precedence



Resource classes

Overview

Pre-determined resource limits defined for a user or role.

Govern the system memory assigned to each query.

Effectively used to control the number of concurrent queries that can run on a data warehouse.

```
/* View resource classes in the data warehouse */
SELECT name
FROM   sys.database_principals
WHERE  name LIKE '%rc%' AND type_desc = 'DATABASE_ROLE';

/* Change user's resource class to 'largerc' */
EXEC sp_addrolemember 'largerc', 'loaduser';

/* Decrease the loading user's resource class */
EXEC sp_droprolemember 'largerc', 'loaduser';
```

Exemptions to concurrency limit:

CREATE|ALTER|DROP (TABLE|USER|PROCEDURE|VIEW|LOGIN)

CREATE|UPDATE|DROP (STATISTICS|INDEX)

INSERT VALUES

SELECT from system views and DMVs

EXPLAIN

Resource class types

Static Resource Classes

Allocate the same amount of memory independent of the current service-level objective (SLO).

Well-suited for fixed data sizes and loading jobs.

Dynamic Resource Classes

Allocate a variable amount of memory depending on the current SLO.

Well-suited for growing or variable datasets.

All users default to the *smallrc* dynamic resource class.

Static resource classes:

```
staticrc10 | staticrc20 | staticrc30 |
staticrc40 | staticrc50 | staticrc60 |
staticrc70 | staticrc80
```

Dynamic resource classes:

```
smallrc | mediumrc | largerc | xlargerc
```

Resource Class	Percentage Memory	Max. Concurrent Queries
smallrc	3%	32
mediumrc	10%	10
largerc	22%	4
xlargerc	70%	1

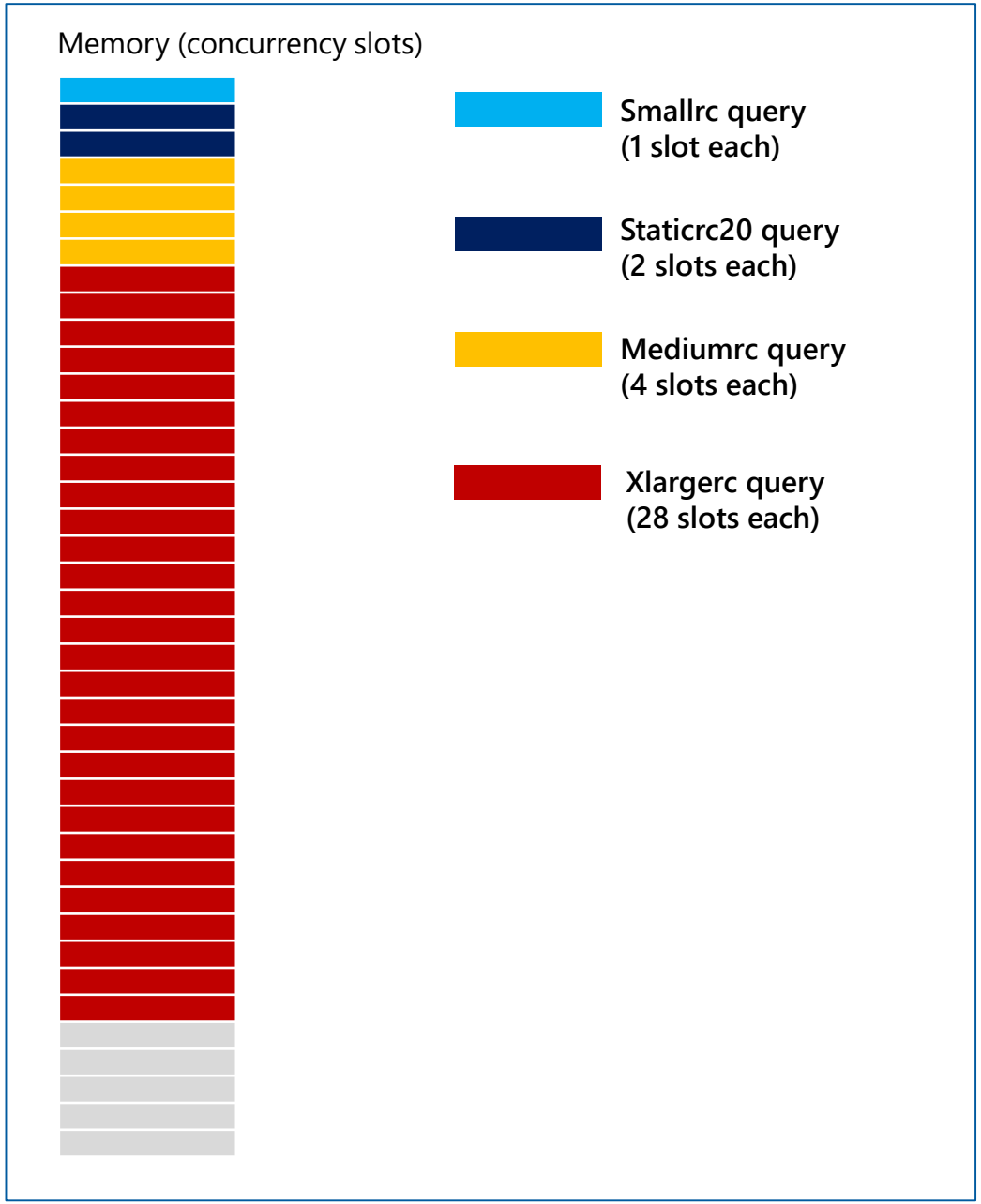
Concurrency slots

Overview

Queries running on a DW compete for access to system resources (CPU, IO, and memory).

To guarantee access to resources, running queries are assigned a chunk of system memory (**a concurrency slot**) for processing the query. The amount given is determined by the resource class of the user executing the query. Higher DW SLOs provide more memory and concurrency slots

@DW1000c: **40 concurrency slots**



Concurrent query limits

Overview

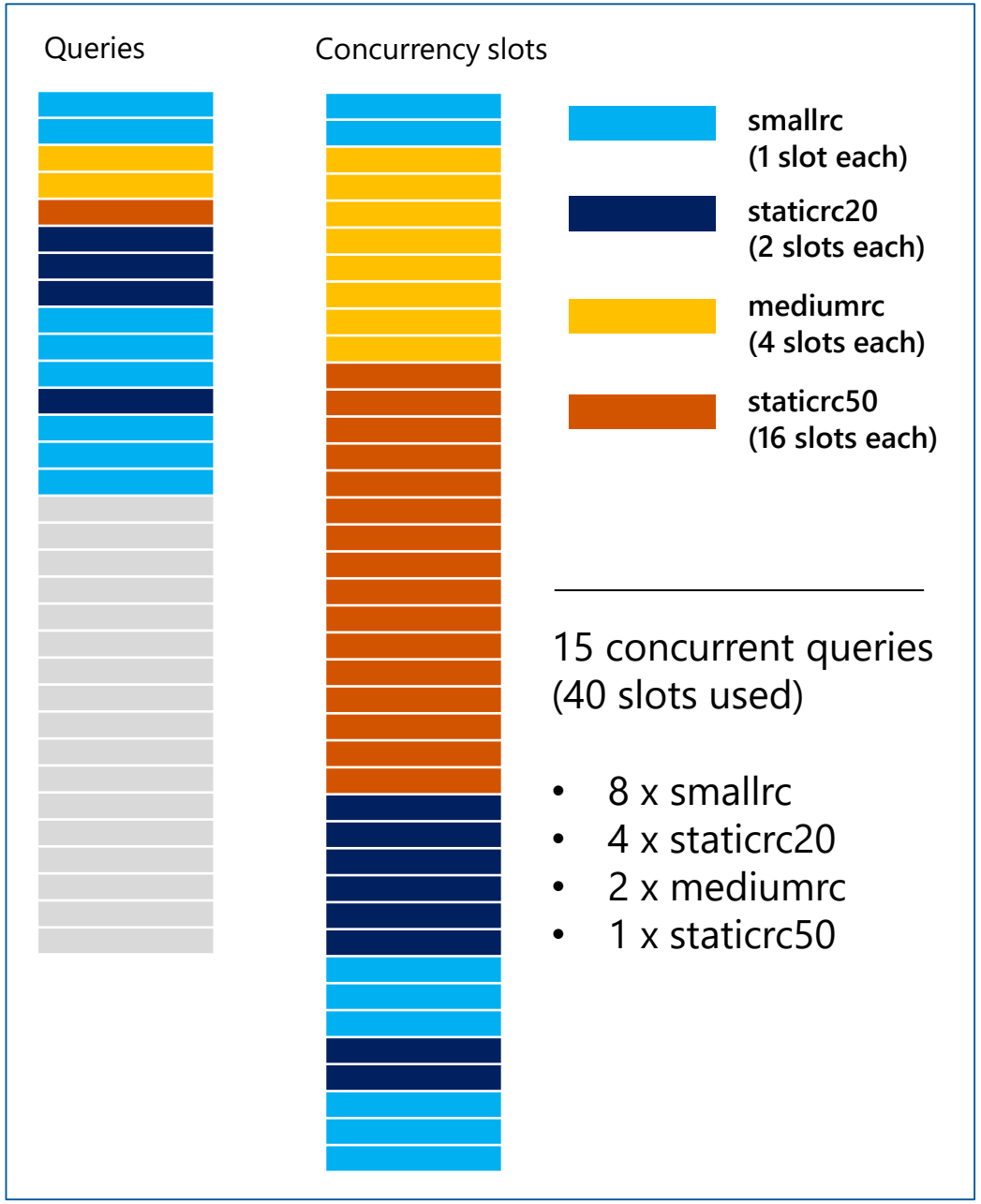
The limit on how many queries can run at the same time is governed by two properties:

- The max. concurrent query count for the DW SLO
- The total available memory (concurrency slots) for the DW SLO

Increase the concurrent query limit by:

- Scaling up to a higher DW SLO (up to 128 concurrent queries)
- Using lower resource classes that use less memory per query

@DW1000c: **32 max concurrent queries, 40 slots**



Concurrency limits based on resource classes

Service Level	Max Concurrent Queries	Max Concurrency Slots	Dynamic Resource Classes				Static Resource Classes							
			smallrc	mediumrc	largerc	xlargerc	staticrc10	staticrc20	staticrc30	staticrc40	staticrc50	staticrc60	staticrc70	staticrc80
DW100c	4	4	1	1	1	2	1	2	4	4	4	4	4	4
DW200c	8	8	1	1	1	5	1	2	4	8	8	8	8	8
DW300c	12	12	1	1	2	8	1	2	4	8	8	8	8	8
DW400c	16	16	1	1	3	11	1	2	4	8	16	16	16	16
DW500c	20	20	1	2	4	14	1	2	4	8	16	16	16	16
DW1000c	32	40	1	4	8	28	1	2	4	8	16	32	32	32
DW1500c	32	60	1	6	13	42	1	2	4	8	16	32	32	32
DW2000c	48	80	2	8	17	56	1	2	4	8	16	32	64	64
DW2500c	48	100	3	10	22	70	1	2	4	8	16	32	64	64
DW3000c	64	120	3	12	26	84	1	2	4	8	16	32	64	64
DW5000c	64	200	6	20	44	140	1	2	4	8	16	32	64	128
DW6000c	128	240	7	24	52	168	1	2	4	8	16	32	64	128
DW7500c	128	300	9	30	66	210	1	2	4	8	16	32	64	128
DW10000c	128	400	12	40	88	280	1	2	4	8	16	32	64	128
DW15000c	128	600	18	60	132	420	1	2	4	8	16	32	64	128
DW30000c	128	1200	36	120	264	840	1	2	4	8	16	32	64	128

Workload classification

Overview

Map queries to allocations of resources via pre-determined rules.

Use with workload importance to effectively share resources across different workload types.

If a query request is not matched to a classifier, it is assigned to the default workload group (smallrc resource class).

Benefits

Map queries to both resource management and workload isolation concepts.

Manage groups of users with only a few classifiers.

Monitoring DMVs

`sys.workload_management_workload_classifiers`
`sys.workload_management_workload_classifier_details`
Query DMVs to view details about all active workload classifiers.

```
CREATE WORKLOAD CLASSIFIER classifier_name
WITH
(
   [WORKLOAD_GROUP = '<Resource Class>' ]
   [IMPORTANCE = { LOW                  |
                                BELOW_NORMAL      |
                                NORMAL            |
                                ABOVE_NORMAL      |
                                HIGH
                         }
   ]
   [MEMBERNAME = 'security_account']
)
```

WORKLOAD_GROUP: maps to an existing resource class
IMPORTANCE: specifies relative importance of request
MEMBERNAME: database user, role, AAD login or AAD group

Workload importance

Overview

Queries past the concurrency limit enter a FiFo queue

By default, queries are released from the queue on a first-in, first-out basis as resources become available

Workload importance allows higher priority queries to receive resources immediately regardless of queue

Example Video

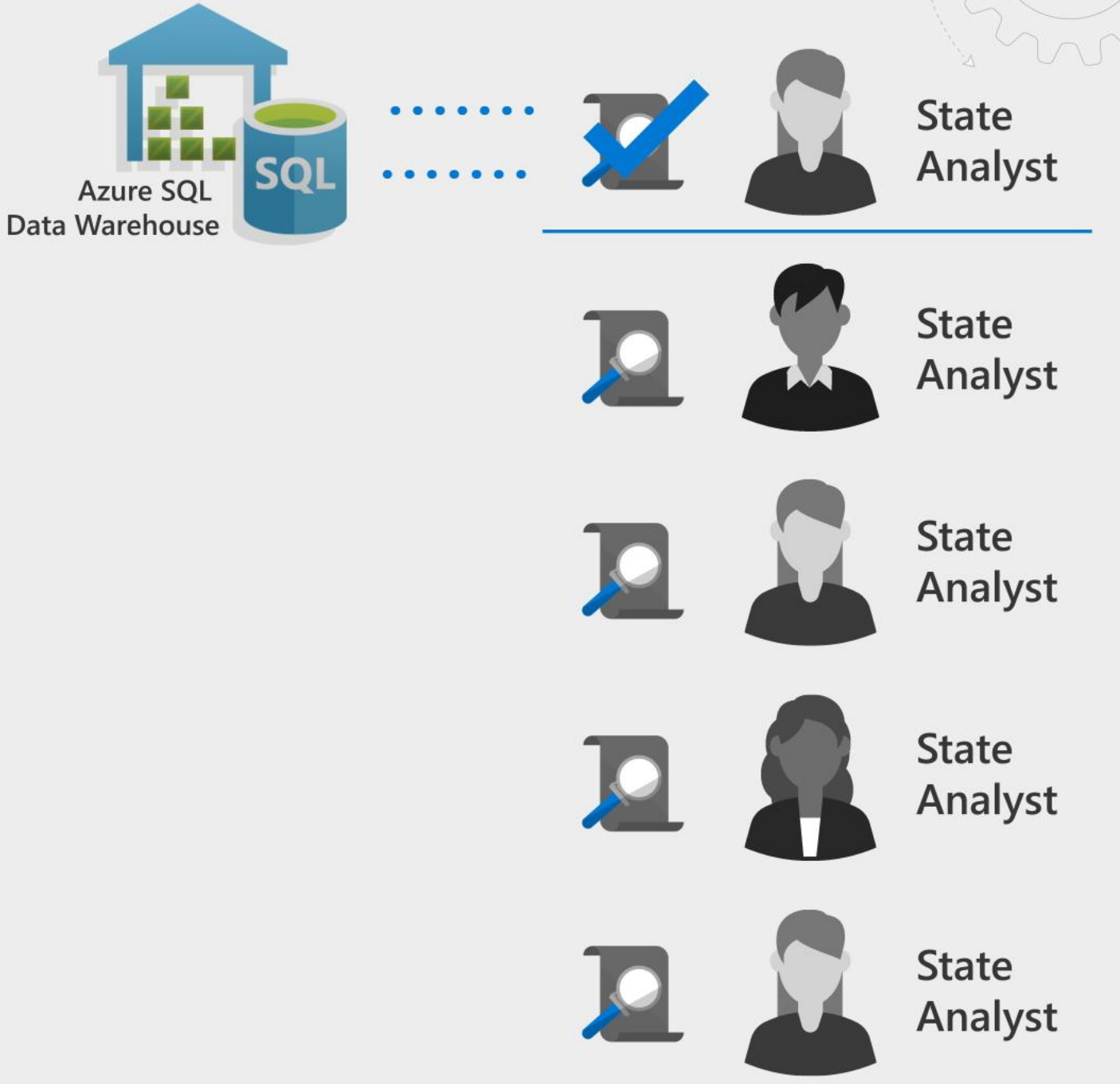
State analysts have normal importance.

National analyst is assigned high importance.

State analyst queries execute in order of arrival

When the national analyst's query arrives, it jumps to the top of the queue

```
CREATE WORKLOAD CLASSIFIER National_Analyst
WITH
(
    [WORKLOAD_GROUP = 'smallrc']
    [IMPORTANCE = HIGH]
    [MEMBERNAME = 'National_Analyst_Login']
```



Result-set caching

Overview

Cache the results of a query in DW storage. This enables interactive response times for repetitive queries against tables with infrequent data changes.

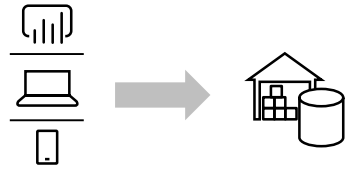
The result-set cache persists even if a data warehouse is paused and resumed later.

Query cache is invalidated and refreshed when underlying table data or query code changes.

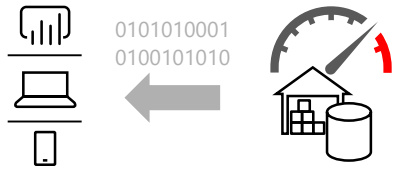
Result cache is evicted regularly based on a time-aware least recently used algorithm (TLRU).

```
-- Turn on/off result-set caching for a database
-- Must be run on the MASTER database
ALTER DATABASE {database_name}
SET RESULT_SET_CACHING { ON | OFF }

-- Turn on/off result-set caching for a client session
-- Run on target data warehouse
SET RESULT_SET_CACHING {ON | OFF}

-- Check result-set caching setting for a database
-- Run on target data warehouse
SELECT is_result_set_caching_on
FROM   sys.databases
WHERE  name = {database_name}

-- Return all query requests with cache hits
-- Run on target data warehouse
SELECT *
FROM   sys.dm_pdw_request_steps
WHERE  command like '%DWResultCacheDb%'
       AND step_index = 0
```

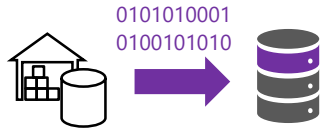
Result-set caching flow



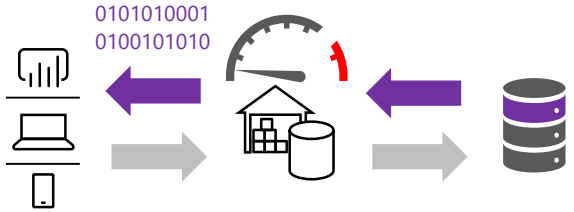
1. Client sends query to DW



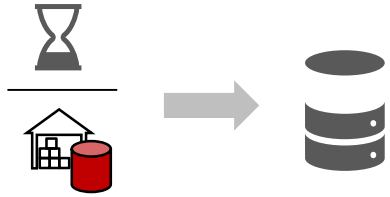
2. Query is processed using DW compute nodes which pull data from remote storage, process query and output back to client app



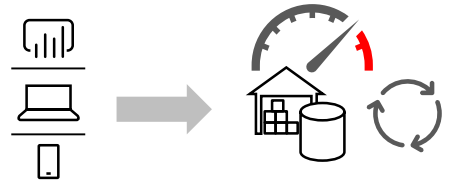
3. Query results are cached in remote storage so subsequent requests can be served immediately



4. Subsequent executions for the same query bypass compute nodes and can be fetched instantly from persistent cache in remote storage



5. Remote storage cache is evicted regularly based on time, cache usage, and any modifications to underlying table data.



6. Cache will need to be regenerated if query results have been evicted from cache

Empower more users per data warehouse

Flexible

- Leverage up to 128 concurrent slots, simultaneously, on a single data warehouse
- Number of simultaneous workloads increases with data warehouse capacity
- Utilize preset functions to allocate resources that need them the most

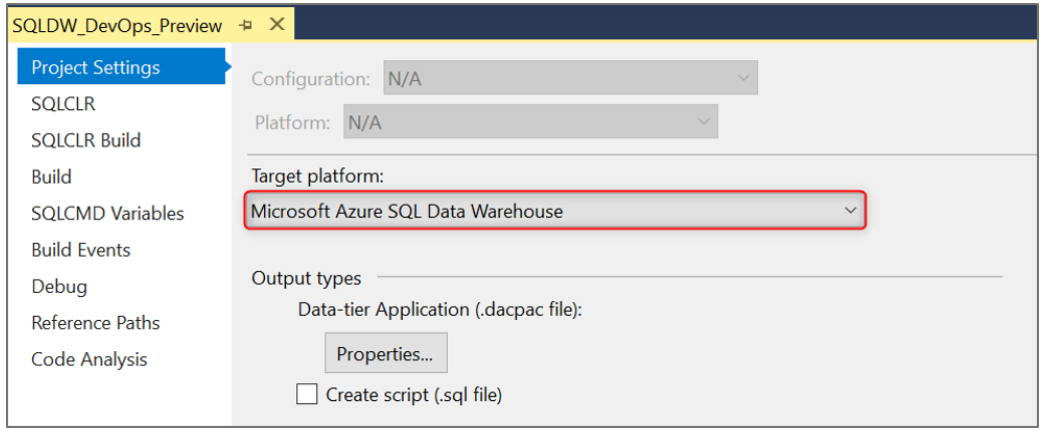
Use preferred tools for Azure SQL Data Warehouse development

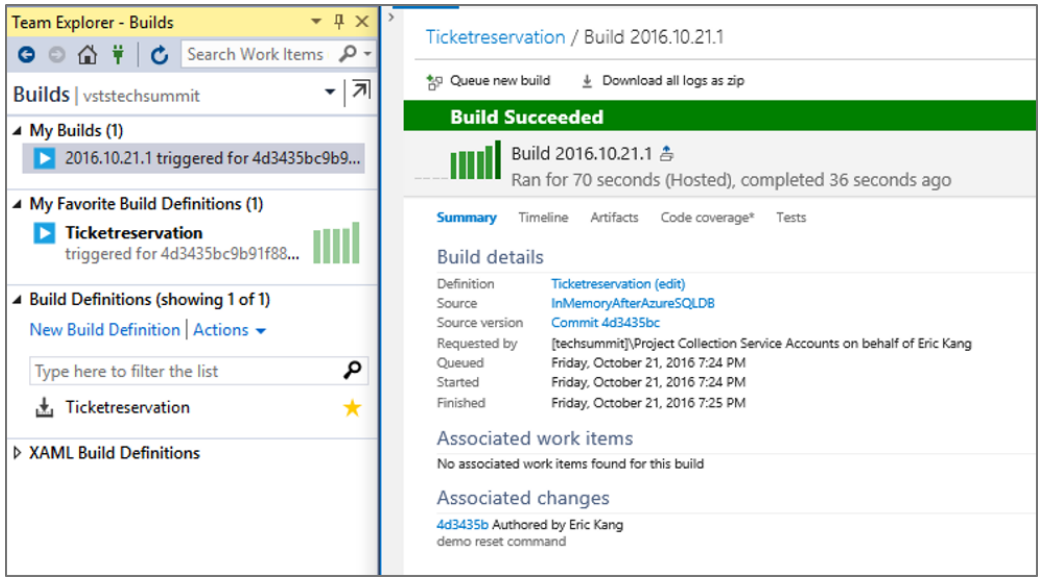
Flexible

- Familiar SQL experience with SQL Server Management Studio
- Track, apply, and deploy changes with Azure DevOps in Visual Studio
- Cross platform functionality with Azure Data Studio and VSCode

Flexible

Use preferred tools for Azure SQL Data Warehouse development





Reserved capacity pricing

Overview

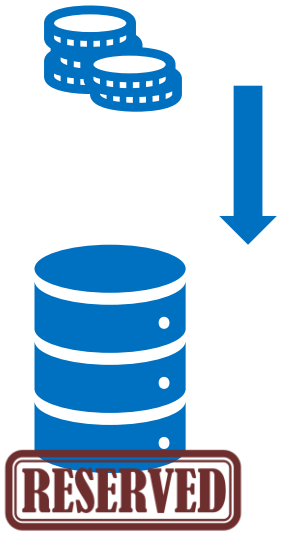
Provides customers with a significant discount (up to 65%) compared to on-demand instance pricing for signing up for an upfront monetary commitment in an Azure region.

Size flexibility: Reserved instance pricing applies to a purchased capacity amount, and is independent of instance size. So, a customer who reserves DW3000c can deploy 1x DW3000c, or 3x 1000c etc. within the same region.

Capacity returns: Paused DW's do not count towards a customer's reservation purchase. This capacity (and associated discount) can be re-used for additional data warehouses.

Pricing details: Reserved capacity discounts are based on full upfront payment and are determined as follows:

- 1 year: 37% discount
- 3 years : 65% discount



Customer buys 1 year's worth of DW10,000c capacity in US West2 region

Customer deploys DW10,000c warehouse in US West2 region and receives reserved capacity discount (37% discount)

Maximize the value of your data

Power BI

Powerful visualization and reporting

+

Azure SQL Data Warehouse

Petabyte scale analytics

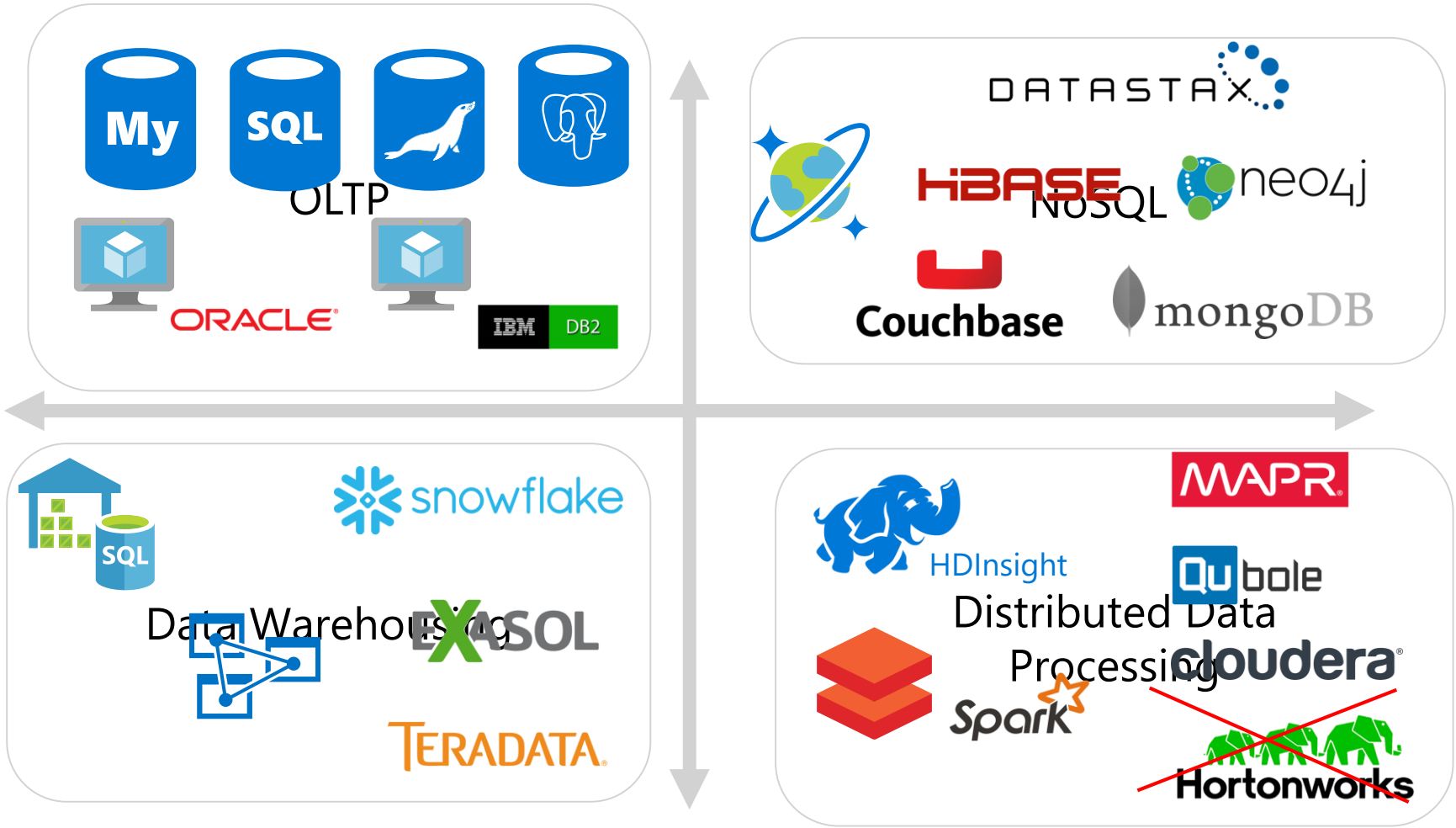
+

Azure AI

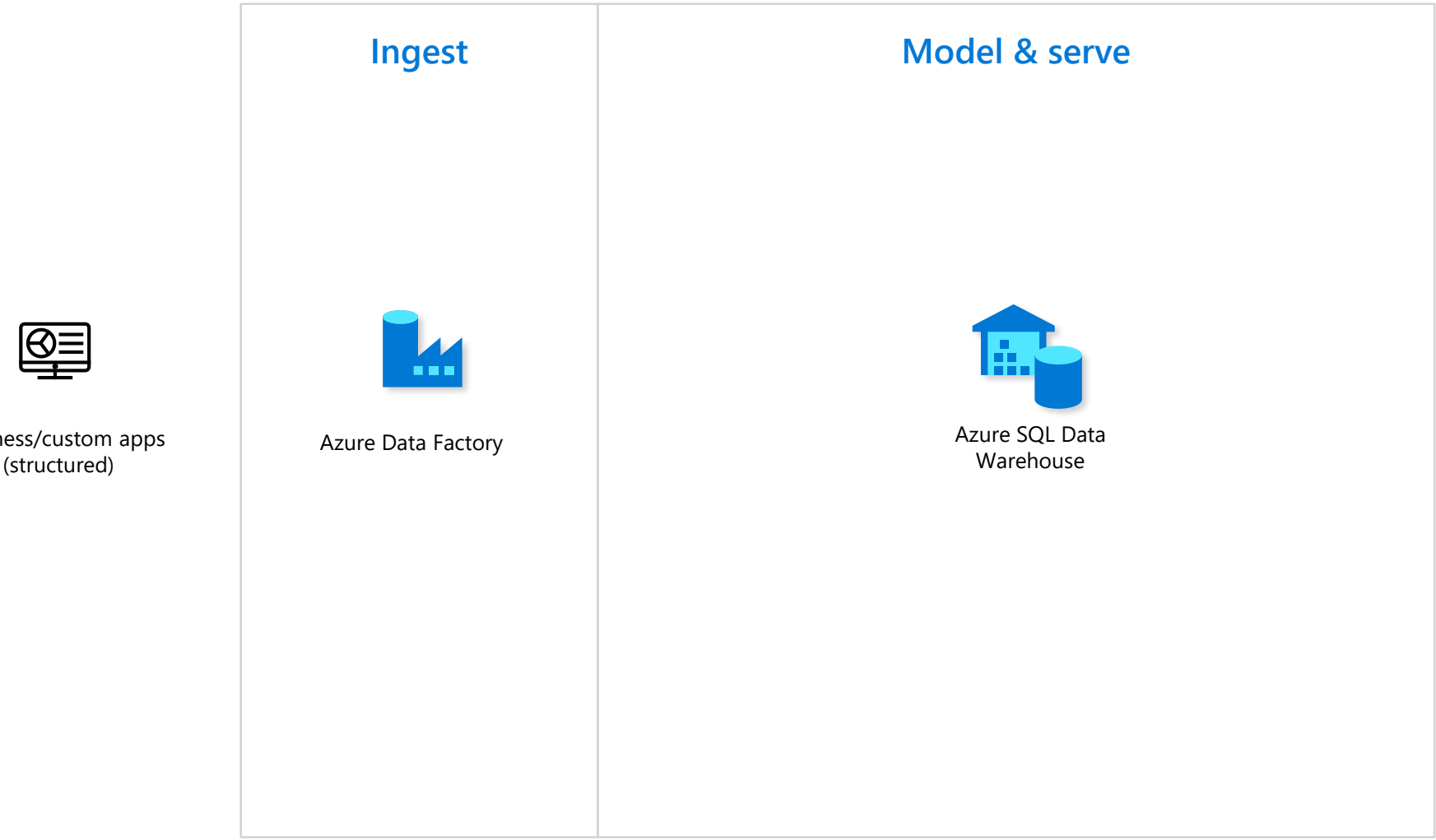
Advanced analytics and AI

Common SQL DW use case patterns

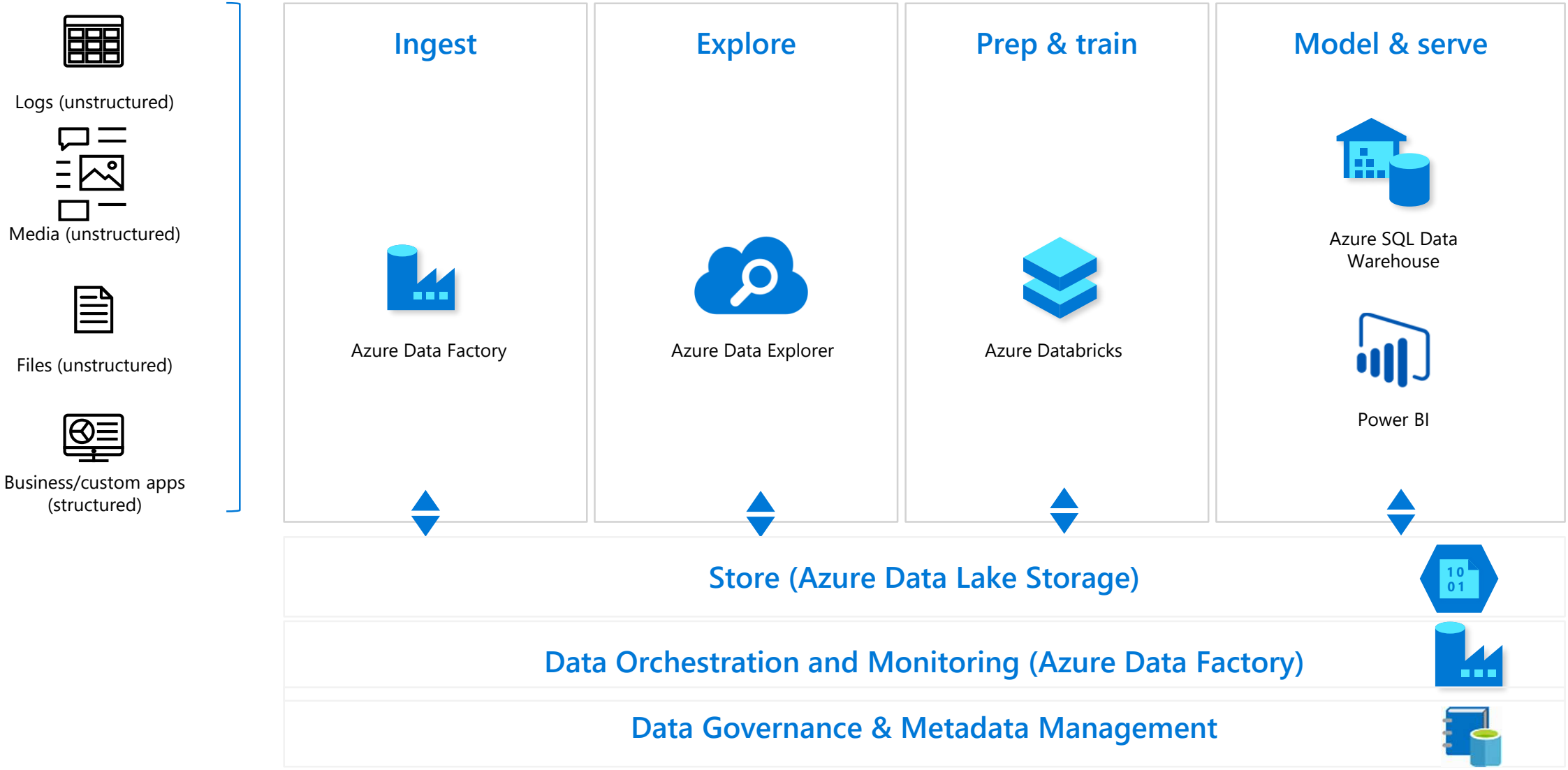
When to use what?



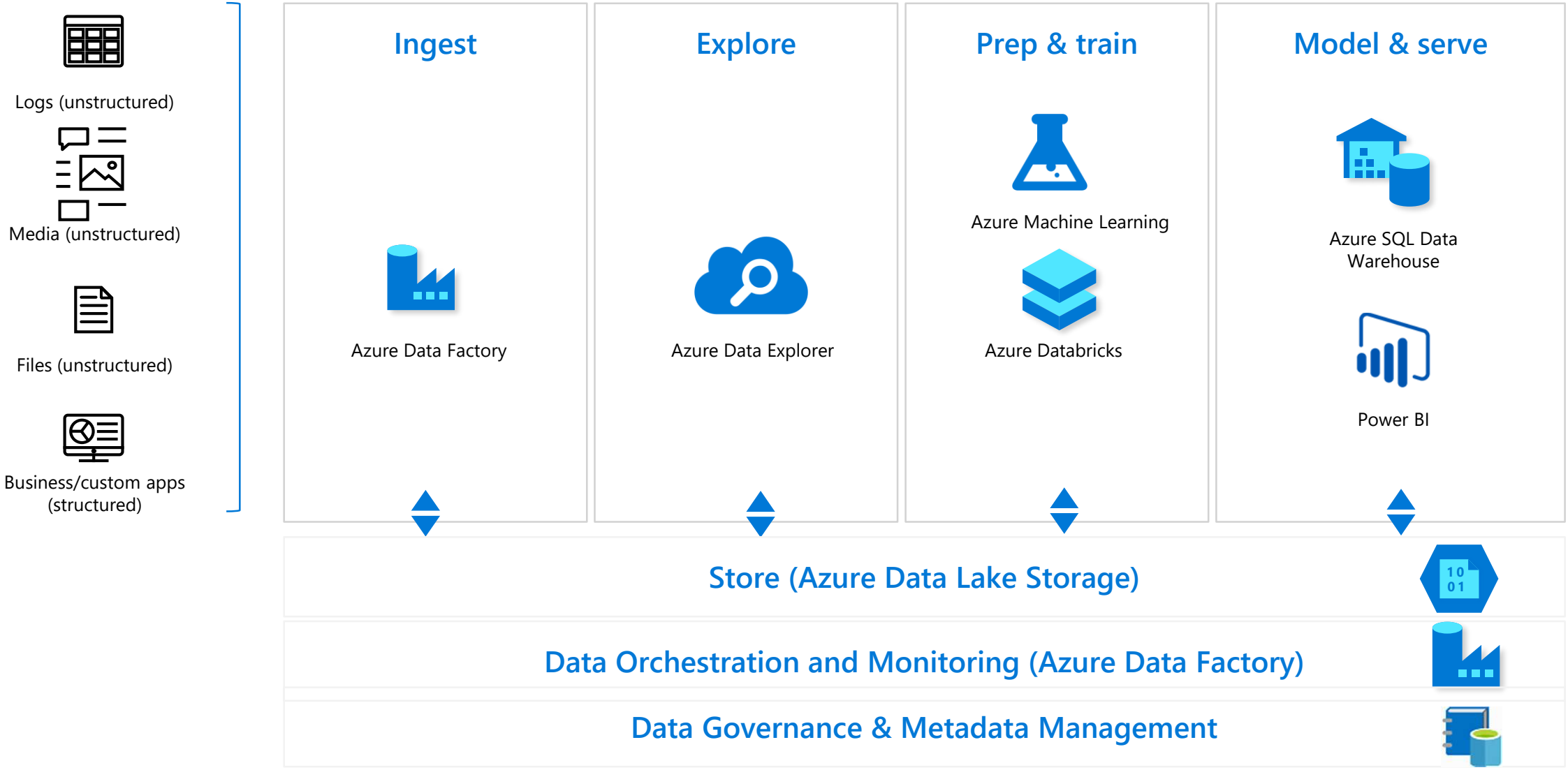
Traditional data warehouse



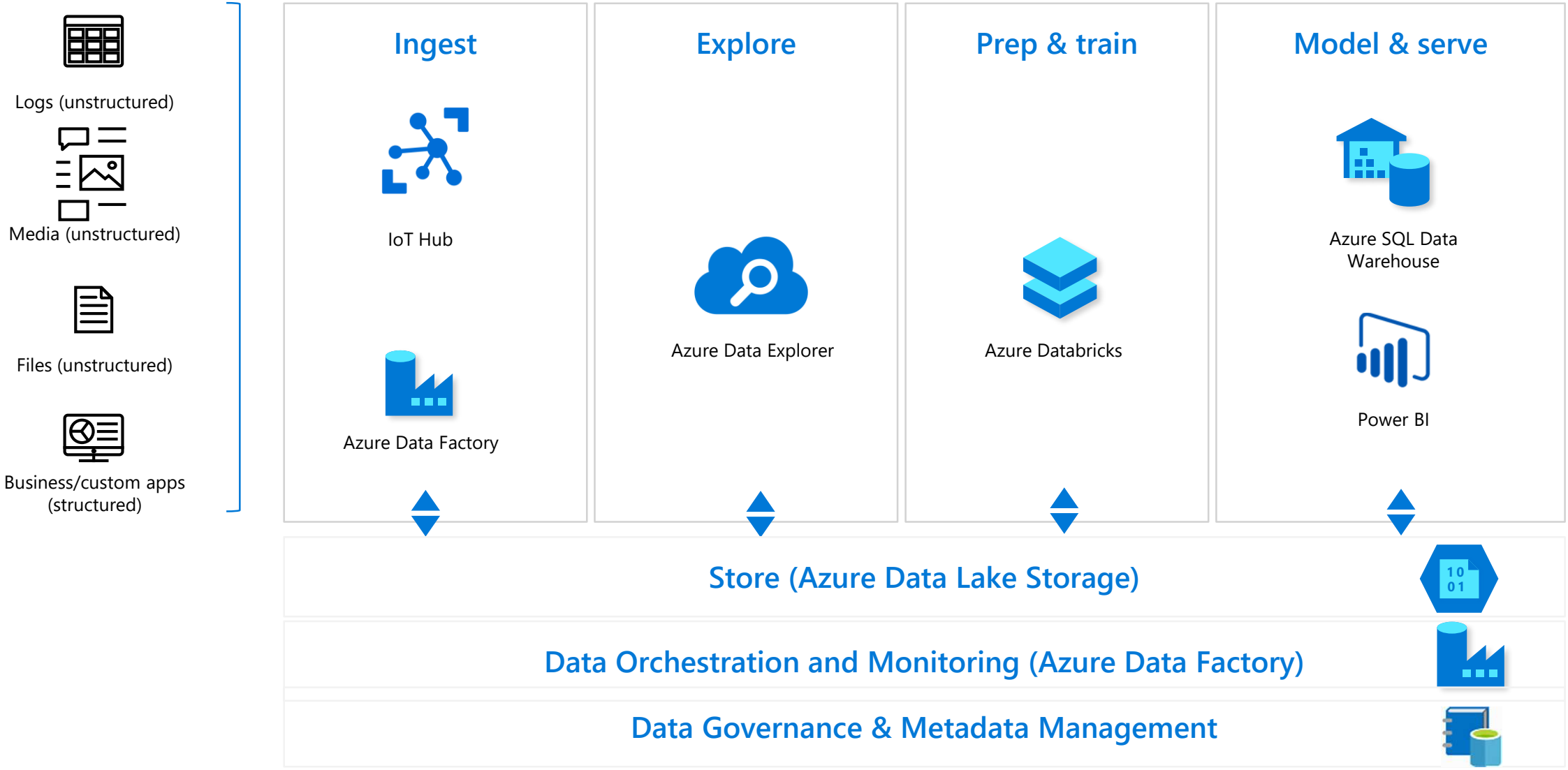
Modern data warehouse



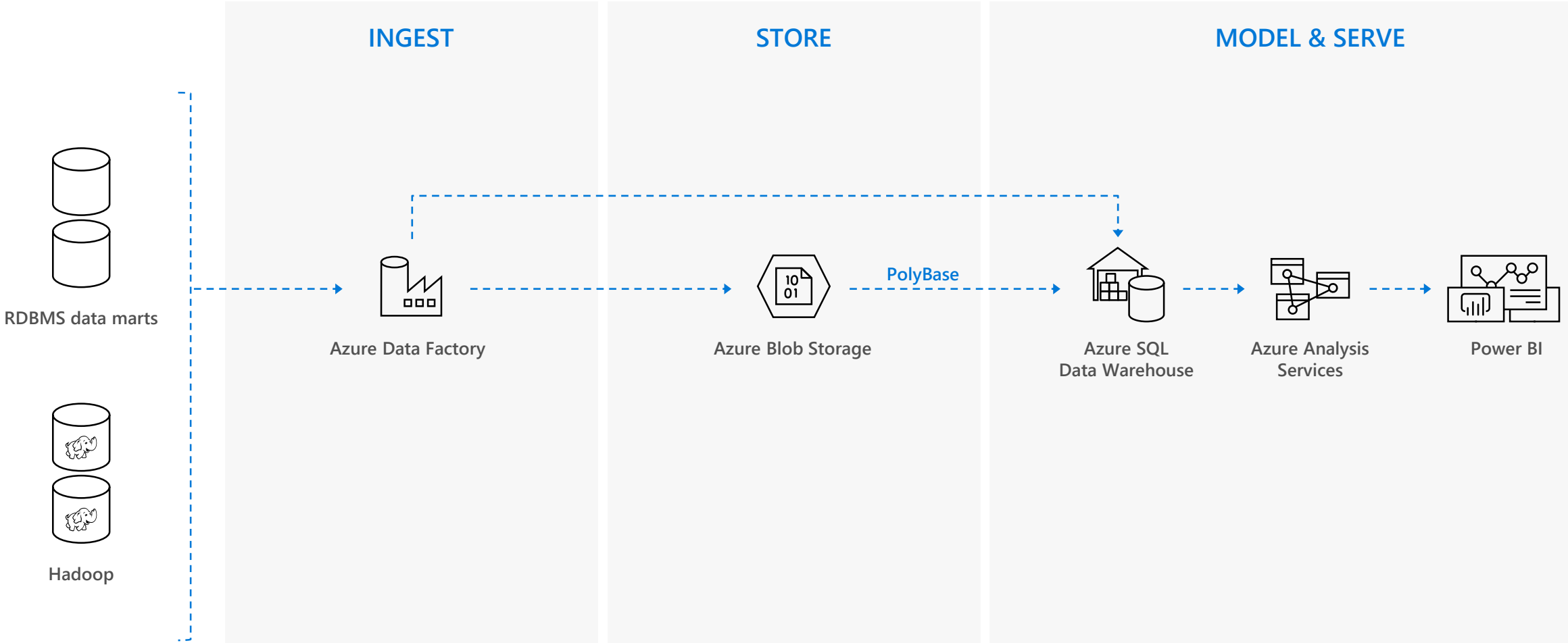
Advanced Analytics



Real time/stream Analytics

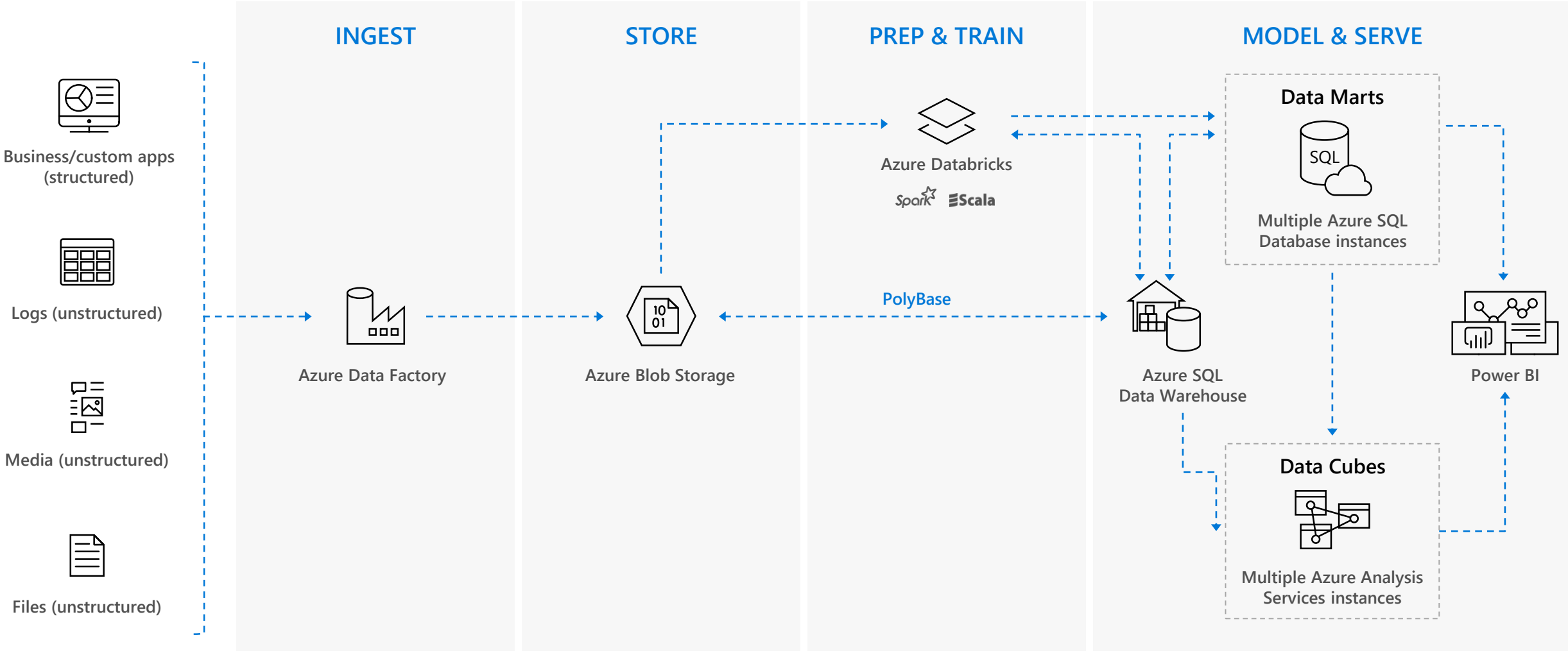


Data Mart Consolidation



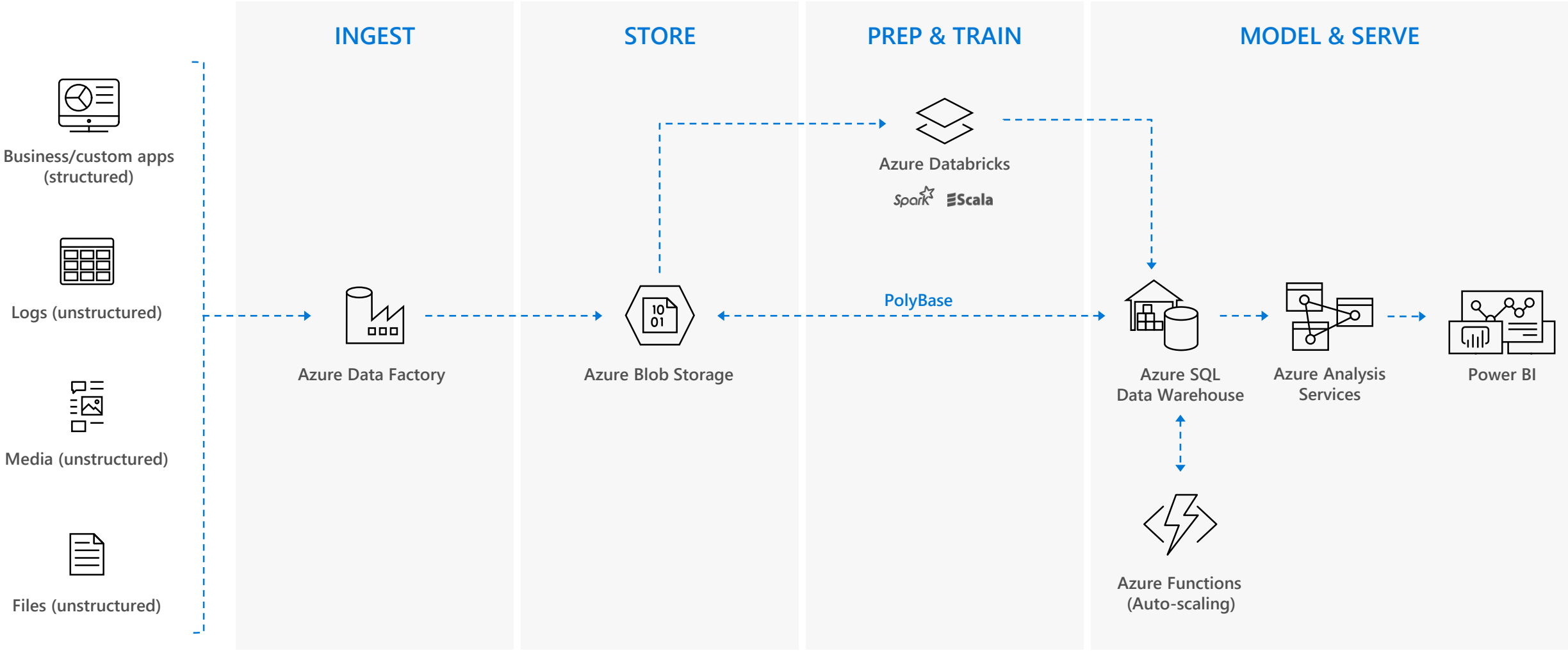
Microsoft Azure also supports other Big Data services like Azure HDInsight and Azure Data Lake to allow customers to tailor the architecture to meet their unique needs.

hub & Spoke Architecture for Bi



Microsoft Azure supports other services like Azure HDInsight and Azure Data Lake in various layers to allow customers a truly customized solution.

Auto scaling Data Warehouse



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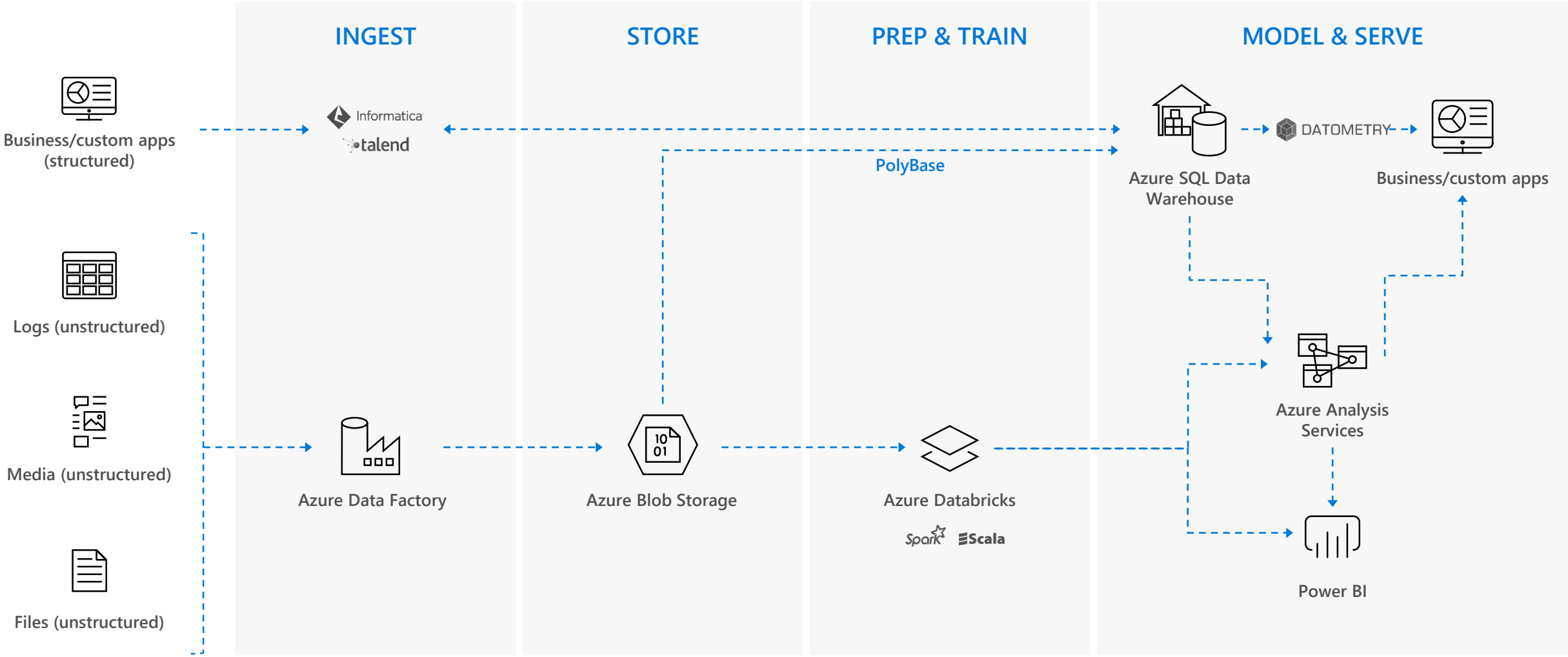
Data Warehouse Migration



Azure also supports other Big Data services like Azure HDInsight and Azure Data Lake to allow customers to tailor the architecture to meet their unique needs.

SQL DW Customer use cases

Predictive analysis to enhance product placement

Levering the Azure data stack to drive results

Challenge

Siloed data restricted customers from harnessing the power of all their data

Impact

Derived insights from their data, driving optimal product placement and marketing campaigns

Staff get instant answers to questions that would've taken days to answer before, so they can make decisions faster, leading to better business results.

newell BRANDS

Smarter incentive compensation

Faster insights at ¼ cost with SQL Data Warehouse

Challenge

Incentives company needed to consolidate and analyze employee behavior data at scale to create customized offerings

Impact

75% reduction in storage costs and 70% cut in time spent on data collection

Maritz rapidly scales up unified data model 2.5x and scales down to minimize costs

Intelligent water utilization saves $5.2M

Power of Advanced Analytics and AI

Challenge

Cruise line struggled to accurately predict water usage onboard ships, leading to costly water storage or production

Impact

Historical and real-time data brought together for analysis enables predictive maintenance

Advanced analytics helps optimize onboard water storage, saving $200k per ship annually

CARNIVAL
CORPORATION & PLC

Data consolidation helps optimize operations

Power of data warehousing and AI

Challenge

F&B leader had several data silos across the organization leading to slow and onerous analytics

Impact

Optimized performance and process time due to data consolidation

Significant cost savings from on-demand usage of SQL DW

Predictive analysis to set optimal product pricing

Power of data warehousing and Power BI

Challenge

Electronics retailer, with more than 5000 SKUs, was incurring losses due to manual pricing methods

Impact

Used analytics and Power BI to determine optimal pricing for each SKUs leading to profits

Power BI provided individual managers with the capability to set pricing based on sensitivity analysis

Levering Azure data services to enhance ebilling

Power of data warehousing

Challenge

Customer was unable to scale their existing system to meet growing global demands

Impact

Used Azure data stack to create a scalable billing hub, resulting in meeting their increased demands

Leveraged Single Sign-on and Azure Active Directory to help protect identities across their eBillingHub

Customer experiences 24x increase in invoice processing time

THOMSON REUTERS

Azure helps customer enhance efficiency

Hybrid business intelligence solution
with Microsoft Power BI and Azure

Challenge

Global consumer goods company struggled with poor performance on their existing business intelligence solution

Impact

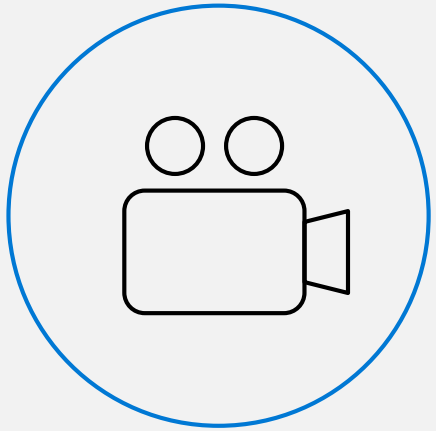
Easily accessible data

HEALTH · HYGIENE · HOME

SQL Data Warehouse Case Studies – Master List

Customer	Vertical	Location	Blurb/link
Adcorp Group	Professional Services	South Africa	Adcorp uses SQL Data Warehouse to drive advanced analytics
Adobe	Partner Professional Services	United States	Adobe uses global SQL DW for print to create, deliver, and manage better digital experiences
Agoop	Professional Services	Japan	Agoop optimizes data processing with Azure SQL Data Warehouse
Association Chilean de Seguridad	Nonprofit	Chile	Chilean nonprofit uses machine learning to process insurance claims 100 times faster
Bahrain Olympic Committee	Government	Bahrain	Bahrain prepares for digital Olympics with SQL Data Warehouse
Carnival Cruises	Hospitality & Travel	Germany	Carnival Maritime transform resource optimization with SQL Data Warehouse and machine learning
Centrica	Power and Utilities	United Kingdom	Centrica energy trading business innovated faster in the cloud
Coats	Process Mfg & Resources	United States	Coats spins its future in the cloud with SQL Data Warehouse
Coloplast	Health Provider	United States	Medical device provider builds on SQL Data Warehouse to future proof
Comune di Catania	Government	Italy	Italian municipality uses SQL Data Warehouse to help safeguard public data and service continuity
Dallas Zoo	Nonprofit	United States	The Dallas Zoo now knows what its elephants are really doing, thanks to SQL Data Warehouse
Damco	Logistics	Netherlands	Damco enables SQL Data Warehouse and analytics to transform supply chain management
Datometry	Professional Services	United States	Startup virtualizes data warehouse applications to run on SQL DW
DriveTime	Retail and Consumer Goods	United States	DriveTime better predicts loan profitability with SQL Data Warehouse solution
Civil Aviation of Kuwait	Government	Kuwait	Kuwait International Airport uses SQL Data Warehouse and Office 365 to handle growing air and passenger traffic
Evoqua Water Technologies	Discrete Manufacturing	United States	Evoqua Water is a 100-plus-year-old company that has reinvented itself for the digital age with SQL Data Warehouse
Fast Shop	Retail and Consumer Goods	Brazil	Brazilian retailer stands out from the crowd with data analytics platform on SQL Data Warehouse
FunRock	Computer Software	Sweden	FunRock takes mobile strategy games to next level with Azure SQL Data Warehouse
Integral Analytics	Power & Utilities	United States	Integral Analytics switches to Azure SQL Data Warehouse from AWS for high performance and cost-effective data warehousing
Jeju Air	Hospitality & Travel	Korea	Integrating sales data in SQL Data Warehouse allowed Jeju Air to reduce the time to create reporting template
Kansas State University	Education	United States	Kansas State sets sights on top 50 distinction with an enterprise data analytics platform on SQL Data Warehouse
LG Electronics	Discrete Manufacturing	Korea	Realizing Always-on Digital Signage Services with SQL Data Warehouse
Marico	Retail and Consumer Goods	India	Marico Gains Agility in Decision Making by Moving Data Warehouse to Cloud
Maritz Motivation Solutions	Professional Services	United States	Leading rewards program offers better insights with Azure SQL Data Warehouse
MediaBrix	Media & Cable	United States	Digital advertising company gets answers from terabytes of data with Microsoft SQL Data Warehouse
Miami-Dade Water and Sewer	Government	United States	How Miami-Dade Water gets smarter with SQL Data Warehouse
Microsoft Corporation	Discrete Manufacturing	United States	Delivering epic Xbox experiences by analyzing hundreds of billions of game events in SQL Data Warehouse
Microsoft Corporation	Professional Services	United States	By moving retail operations to SQL Data Warehouse, Microsoft Stores provides seamless customer service at 106 locations
Newell Brands	Retail and Consumer Goods	United States	Global Consumer goods company drives business value through SQL Data Warehouse
P:Cubed	Professional Services	South Africa	P:Cubed turns to Azure SQL Data Warehouse for disaster recovery
Precision Diagnostics	Healthcare	United States	Precision Diagnostics used SQL Data Warehouse to aggregate behavioral health
Presence Orb	Discrete Manufacturing	United Kingdom	Wi-Fi analytics firm gains real-time benefits with Azure SQL Data Warehouse
Reckitt Benckiser	Retail and Consumer Goods	United Kingdom	Reckitt Benckiser empowers sales teams with SQL Data Warehouse
Rubikloud	Retail and Consumer Goods	Canada	Rubikloud helps retailers improve customer experience with AI as a Service
Sejong	Discrete Manufacturing	South Kores	Auto parts specialist innovates with Azure SQL Data Warehouse
Sierra Pacific Mortgage	Banking & Capital Markets	United States	Mortgage banker unlocks data with cloud-based analytics service, gains insight, and boosts advantage
SnelStart	Discrete Manufacturing	Netherlands	SnelStart rapidly expanded its business services with SQL Data Warehouse
Targetbase	Professional Services	United States	Targetbase transforms customer engagement with SQL Data Warehouse
The Entertainer Middle East	Media & Telecommunications	United Arab Emirates	UAE consumer offers leader uses SQL Data Warehouse to improve their customers' experience
Thomson Reuters	Media & Telecommunications	United States	Thomson Reuters builds highly extensible and scalable system for customers with SQL Data Warehouse
Toshiba	Professional Services	United States	Toshiba uses IOT data services on SQL Data Warehouse to keep customers up and running
Track Revenue	Discrete Manufacturing	United States	Track Revenue moved from Amazon to Azure SQL Data Warehouse and boosted customer revenue-per-click by 38 percent

What do I do next?



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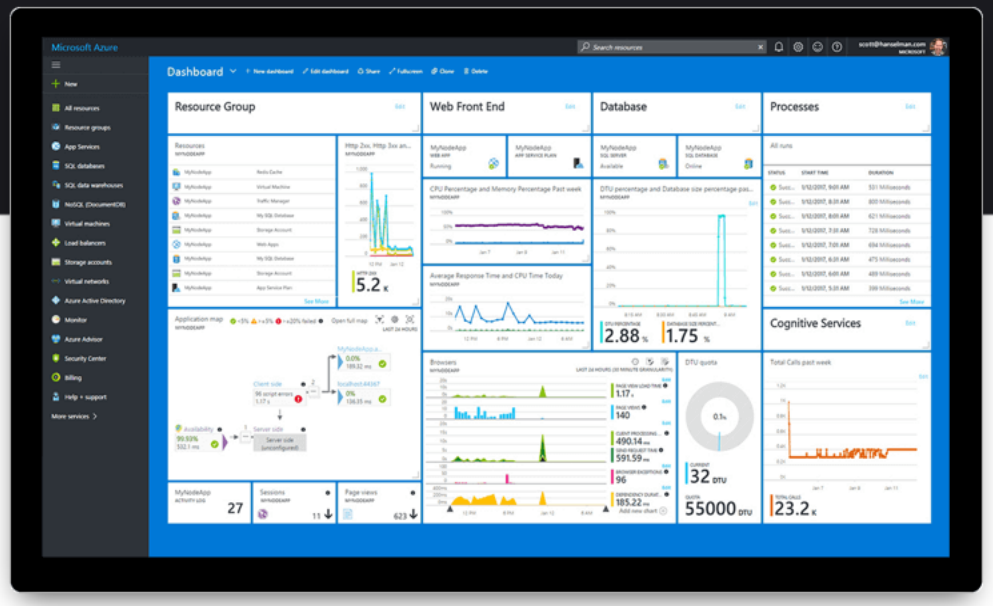

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