Just Thorning Blindbæk

End-to-end Business Intelligence solution in Azure

BIG Thanks to SQL Sat Denmark sponsors

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Raffle and goodbye Beer

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Join our sponsors for a lunch break session in :
cust 0.01 and **cust 1.06**

We hope you'll all have a great Saturday.

Regis, Kenneth

Just Thorning Blindbæk

Consultant in justB

Trainer at Orange Man

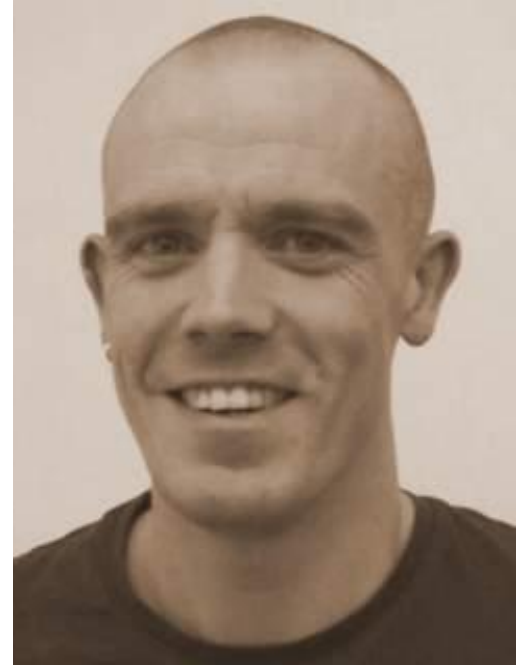Founder and leader of MsBIP Denmark

Co-leader of Power BI UG Denmark

11 years of experience with Microsoft BI

Strong focus on the front-end tools

- Analysis Services
- Reporting Services
- Excel and Power Pivot
- Power BI

just@blindbaek.dk / blog.justB.dk / @justblindbaek

SSAS MAESTRO by Microsoft

Microsoft CERTIFIED IT Professional

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Agenda

The project
The architecture

- Ingest
- Store
- Prep and train
- Model and serve
- Presentation
- Orchestration

Wrapping up

Arlagården Plus

The project

The project: Arlagården Plus

Quality Assurance Program

- 11.000 suppliers in 7 European countries
- Opt-in gives 1 Eurocent per kg delivered milk
- Story telling: Makes the milk worth more
- Retail requirements to document wellbeing and sustainability

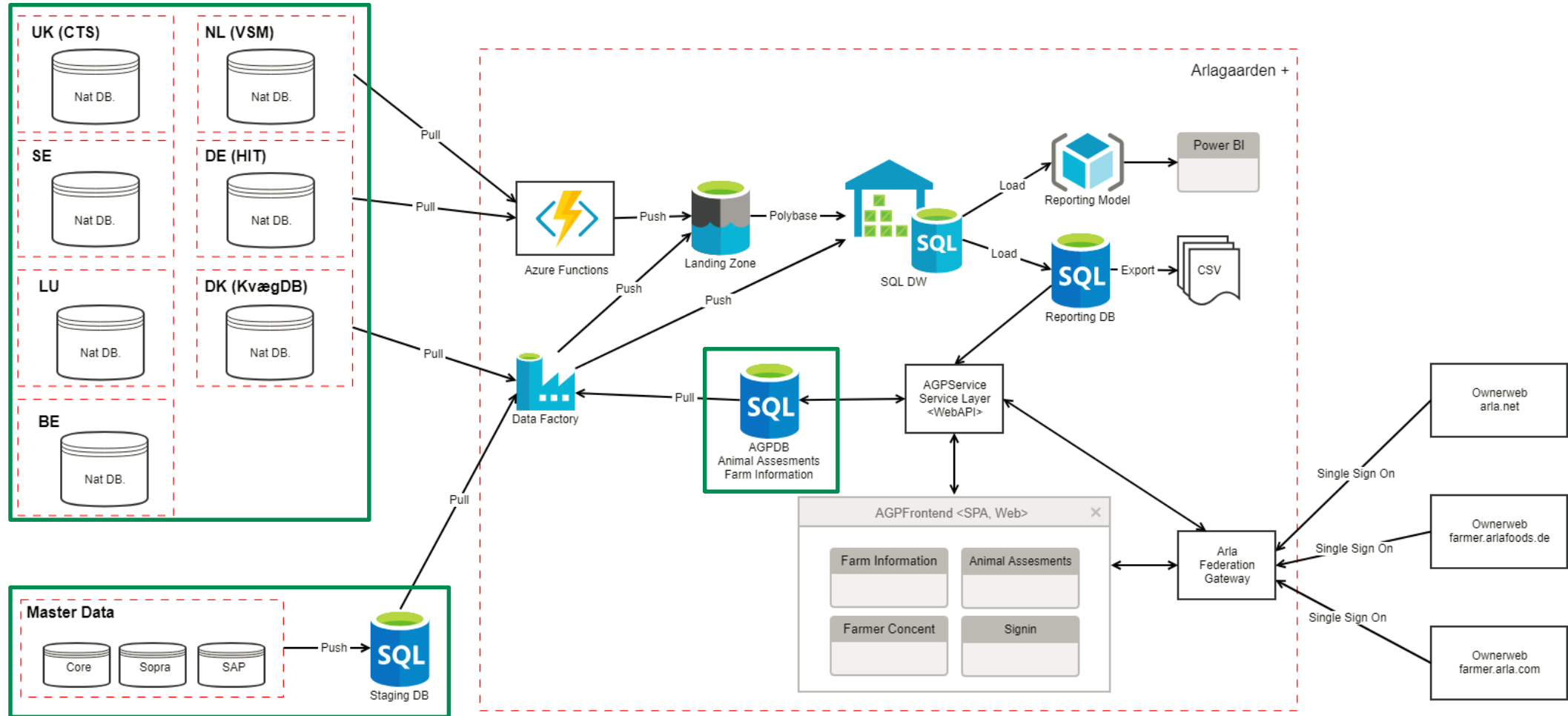## Collect data and calculate animal welfare indicators

- Master data (SAP, Sopra, CORE)
- Survey and assessment (Web app)
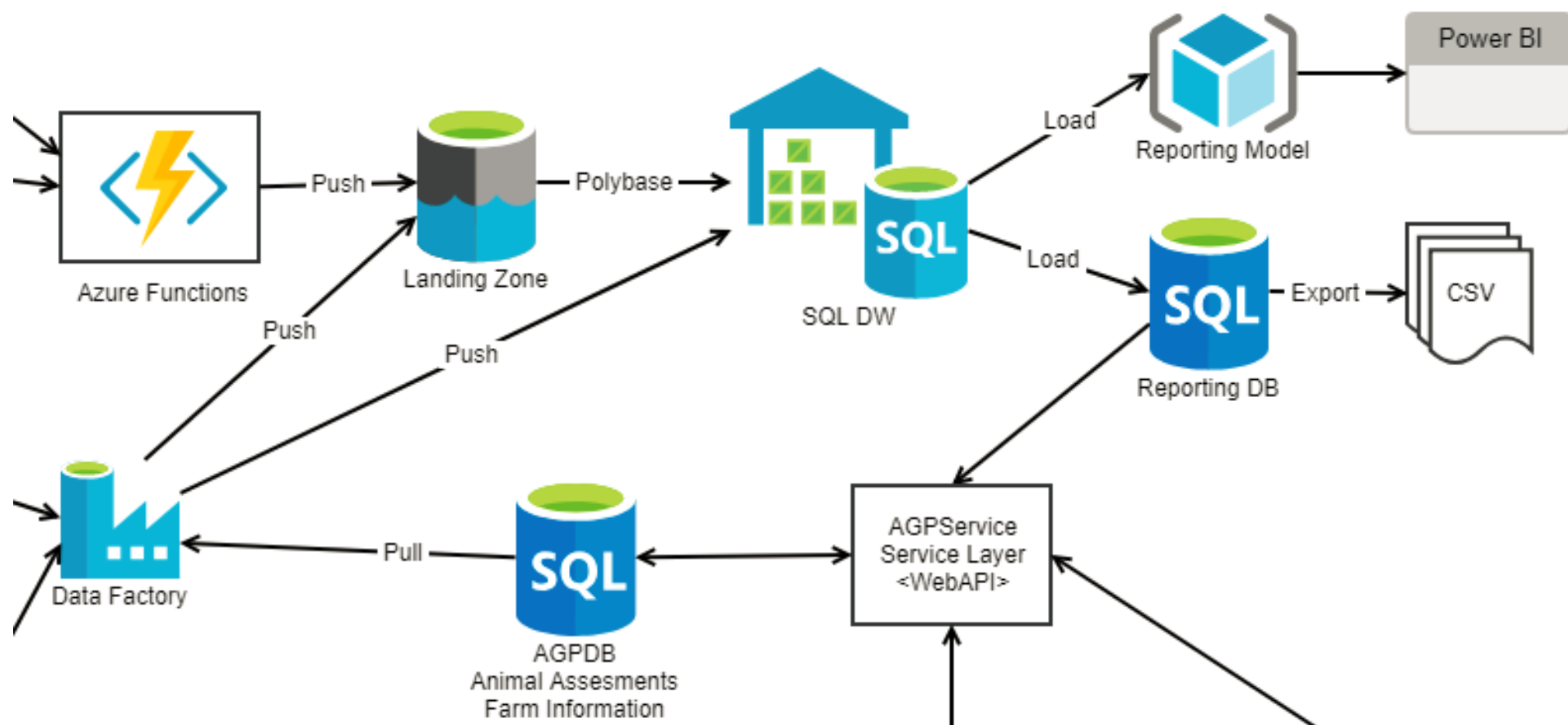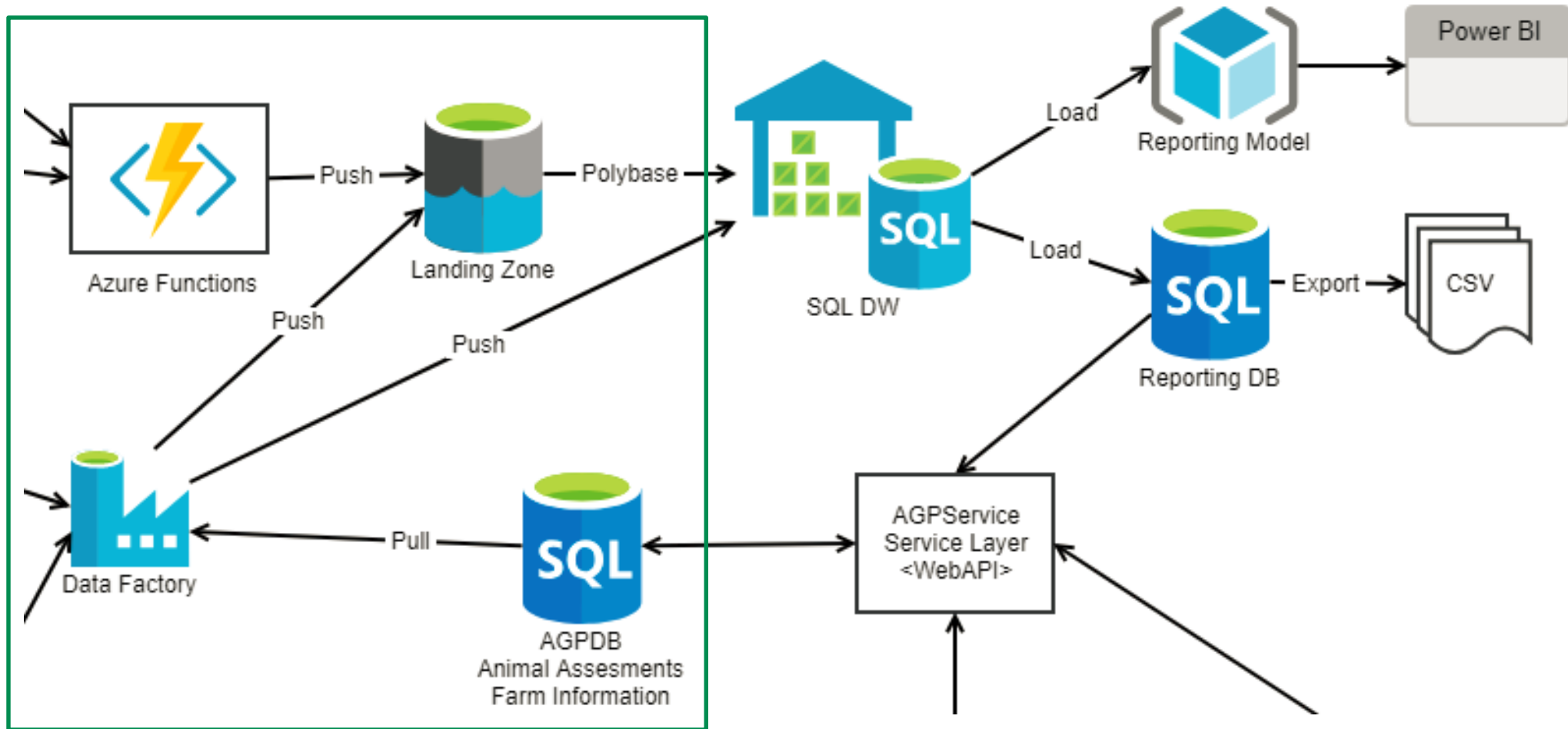- National herd and animal databases

The architecture

Overall architecture

BI architecture

Ingest and Store (Extract)

Ingest: Azure Data Factory V2

Hybrid data integration at scale

Create, plan, administer and monitor data pipelines

Execute activities (copy or transform)

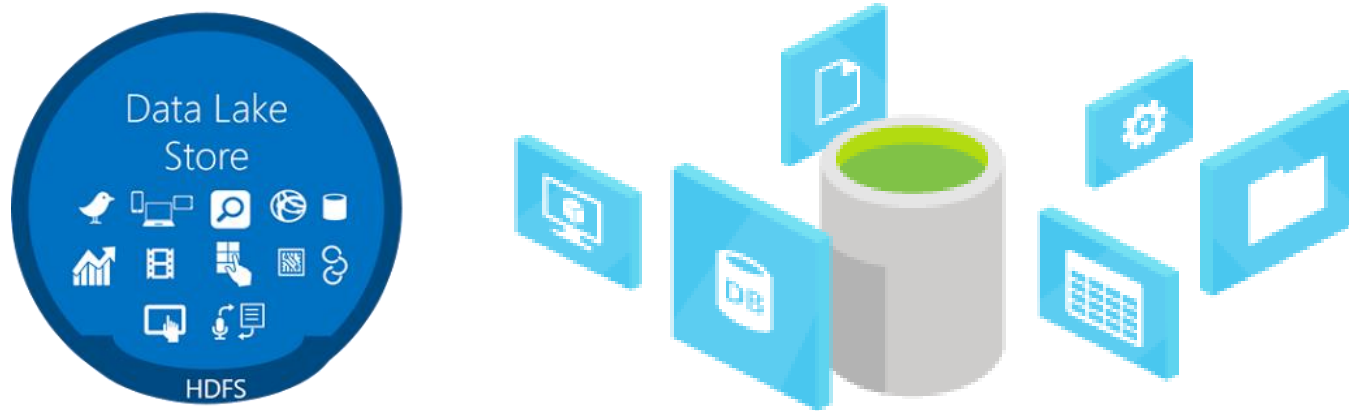V2 has parameters, control flow and triggers

Store: Azure Data Lake Store

Unlimited cheap cheap storage

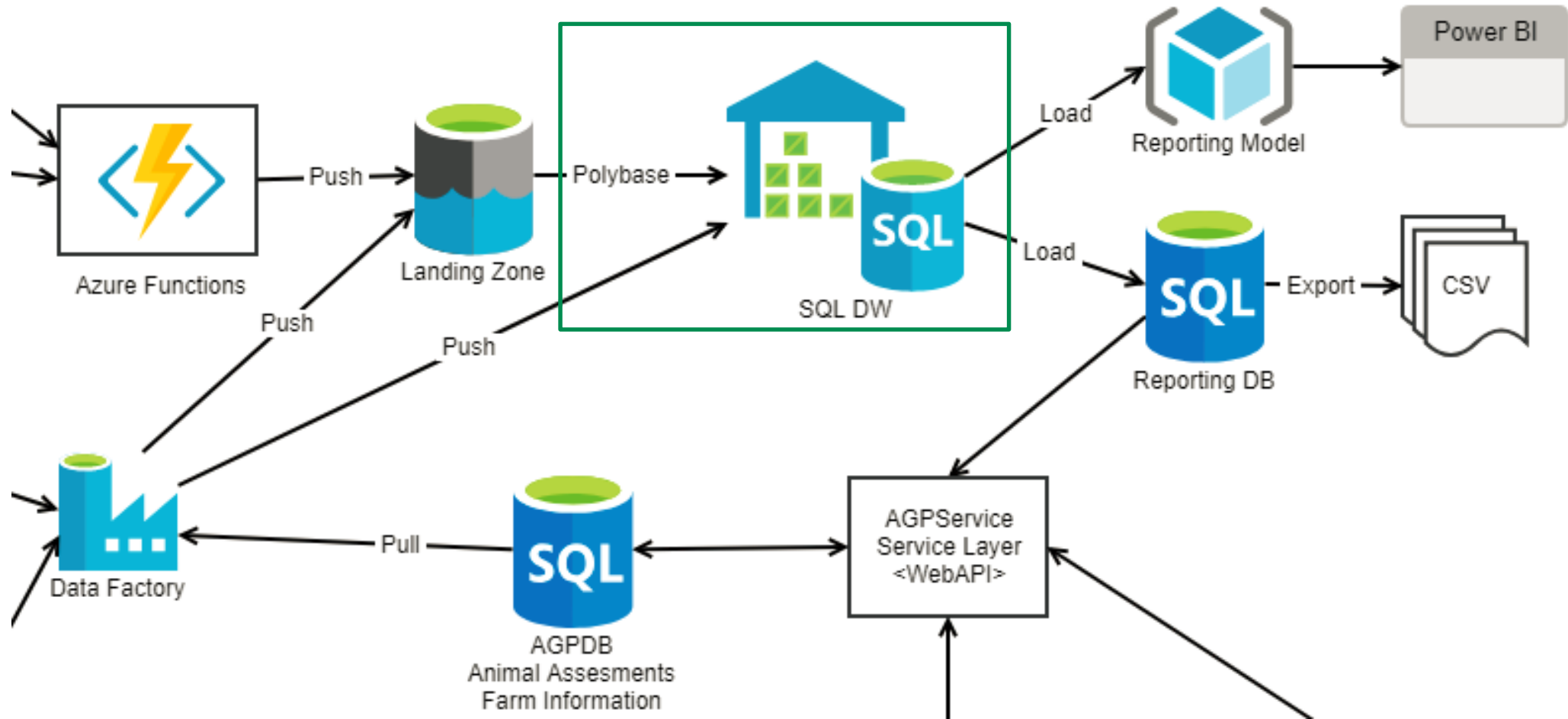Can handle structured, semi-structured, and unstructured data

Apache Hadoop file system compatible (HDFS)

Alternative: Azure Blob Storage
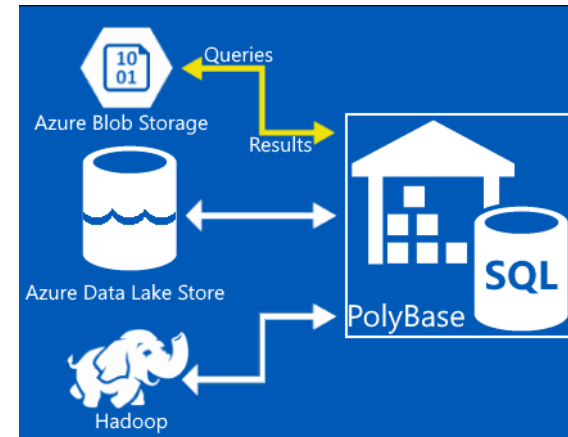
Prep and model (Transform)

Prep: PolyBase

Best practice data loading technique from Azure Data Lake Store to Azure SQL DW

Massively Parallel Processing Architecture

External data source

External tables

CTAS – Create Table As Select

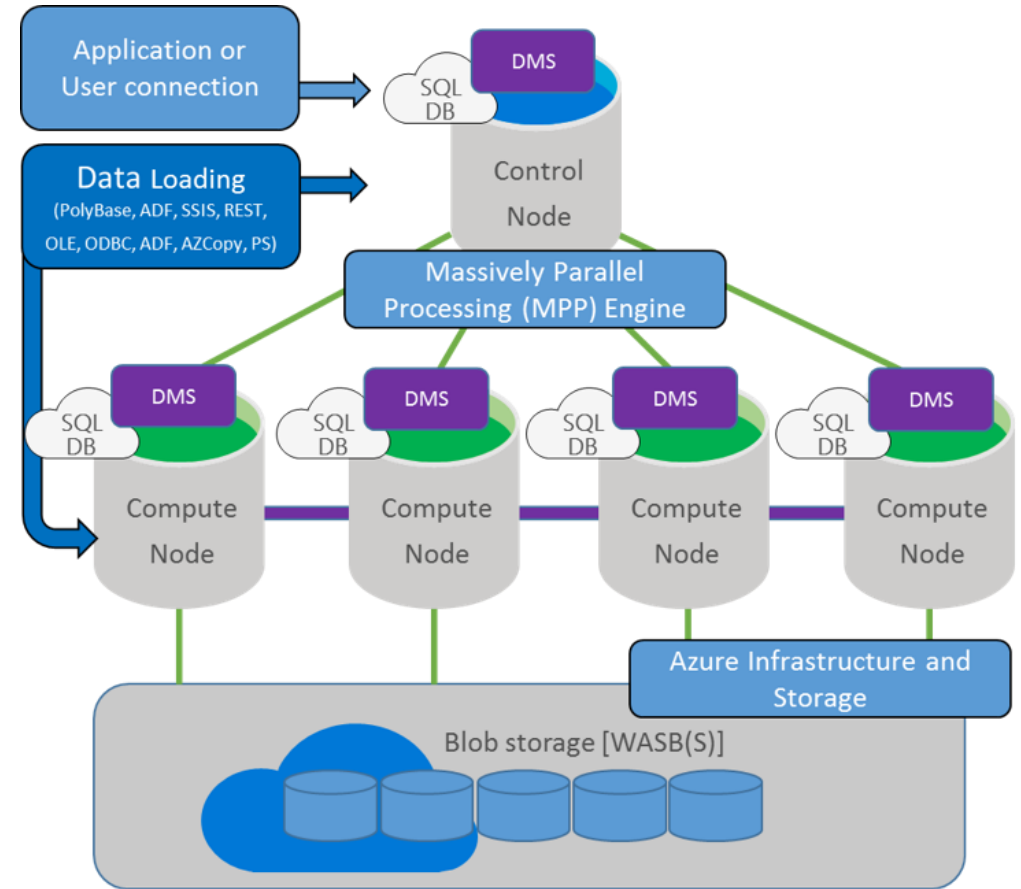# Prep and Model: Azure SQL Data Warehouse

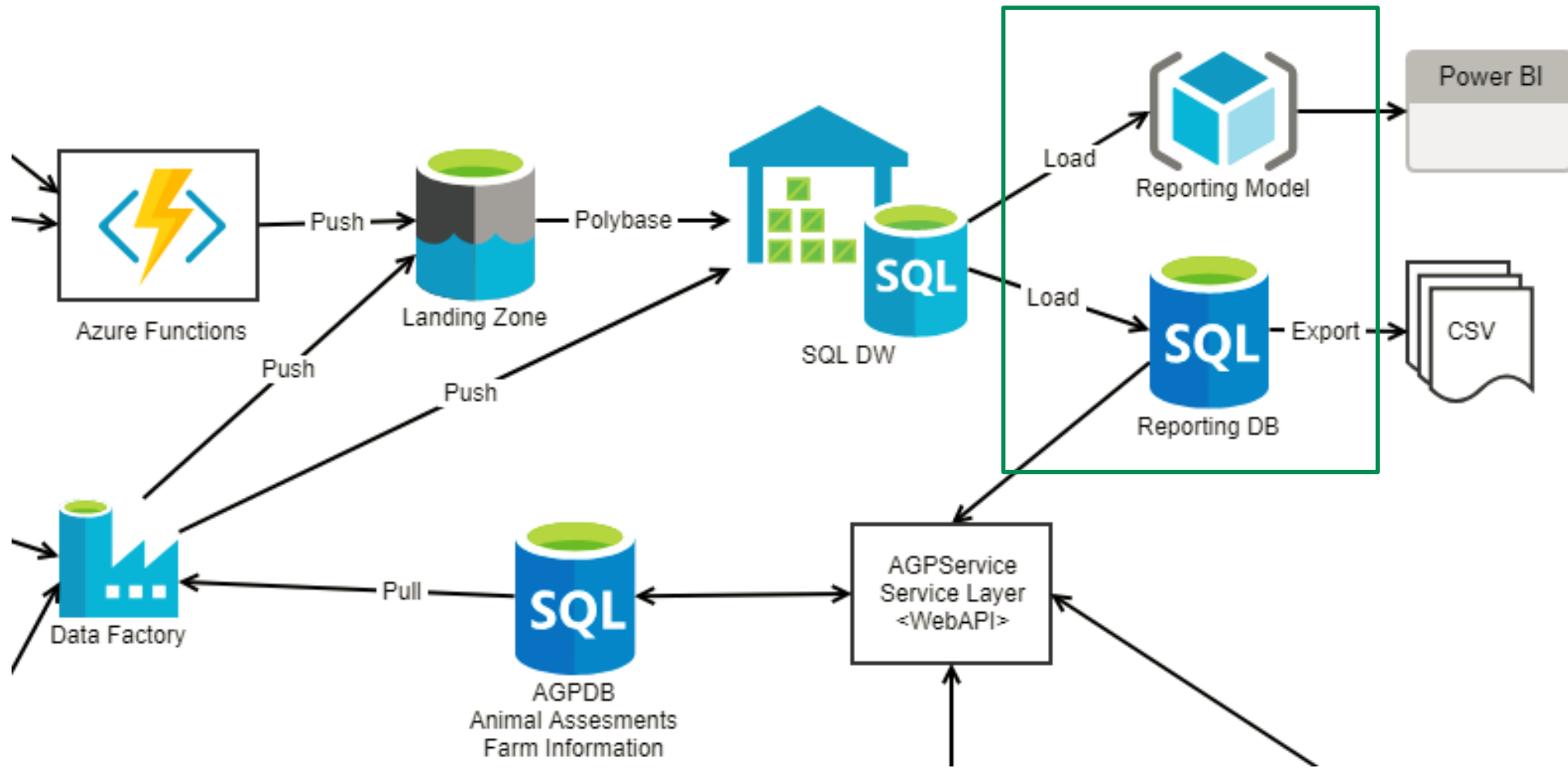Built on SQL Server
MPP architecture
Pause and scale
Limited concurrency

Alternatives:
- Azure Databricks
- Azure Data Lake Analytics
- Azure HDInsight

Serve (Load)

Serve: Azure SQL Database
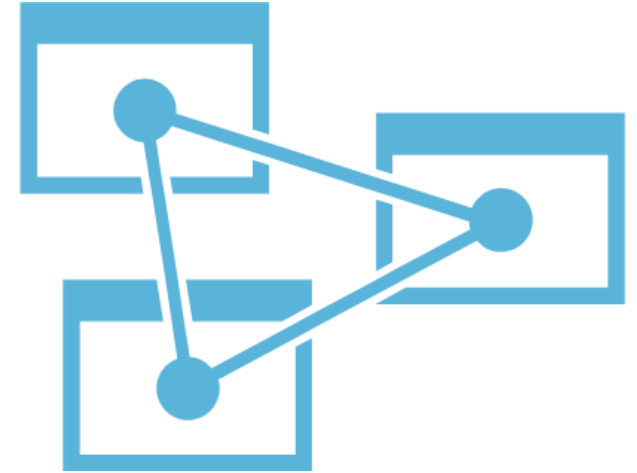
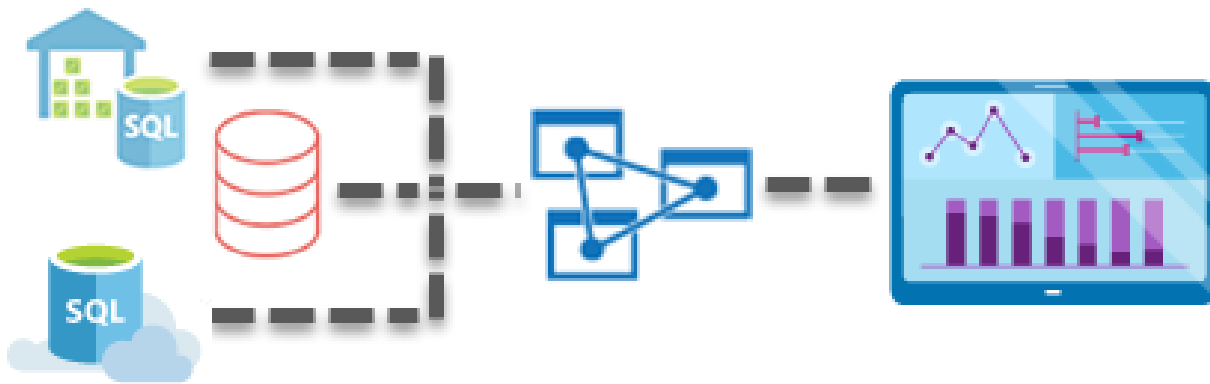Relational database-as-a service
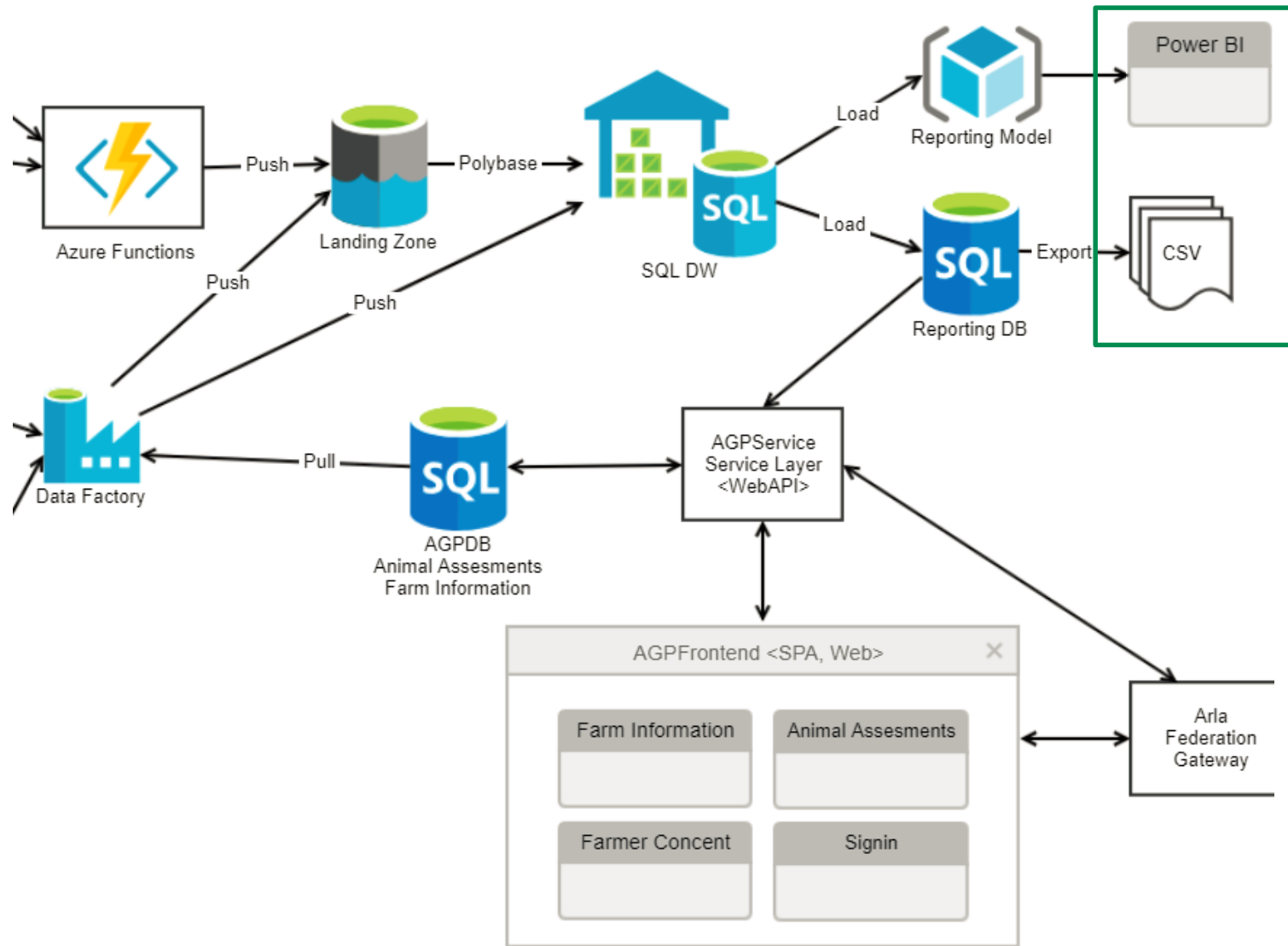Scale to your needs

Serve: Azure Analysis Services

Analysis Services Tabular

Easy scale up and out

Power BI on top

Presentation

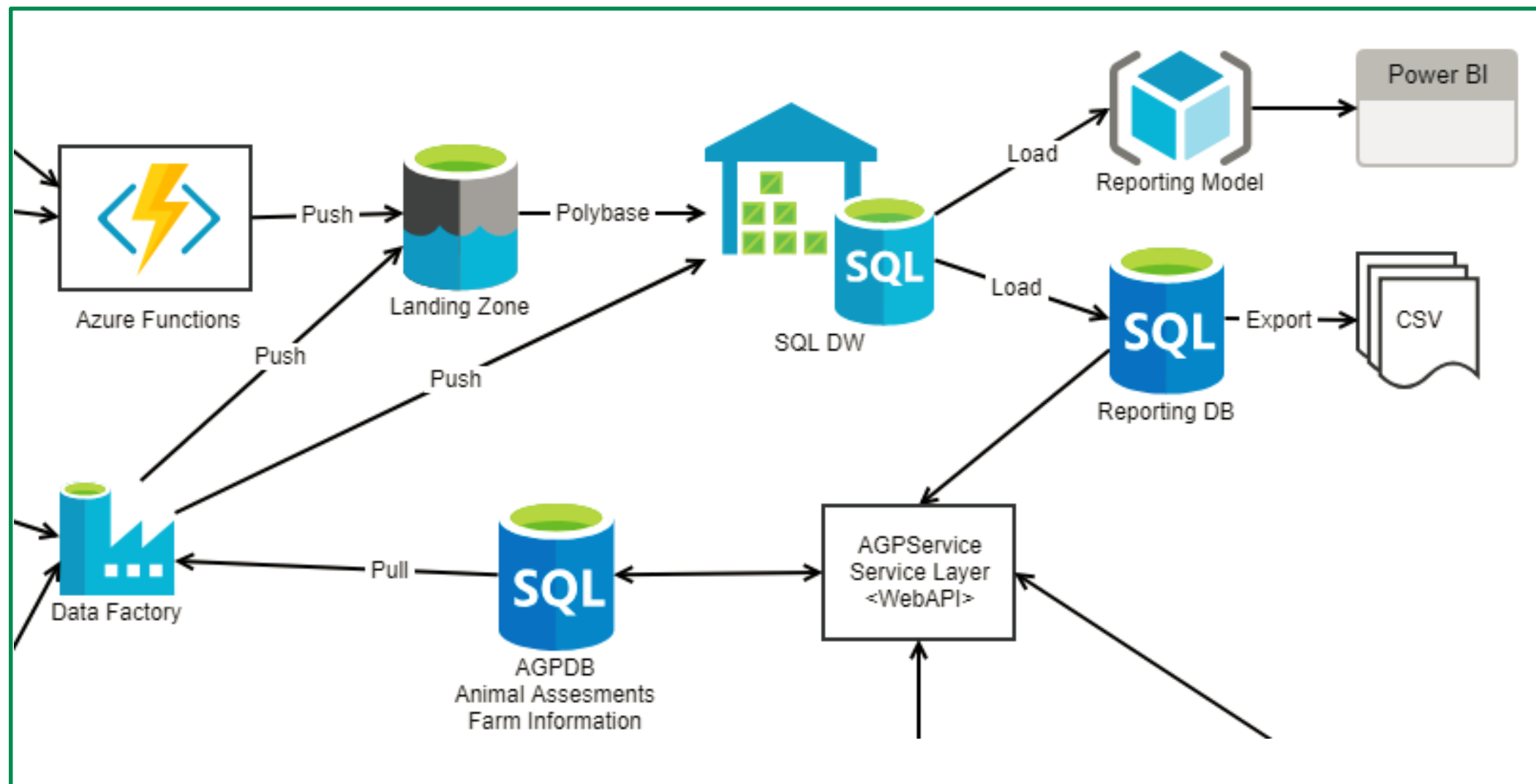# Presentation: Power BI Embedded

Stunning visuals, reports and dashboards directly into the application

Easy implementation

Security handled with RLS in the Data Model

Orchestration

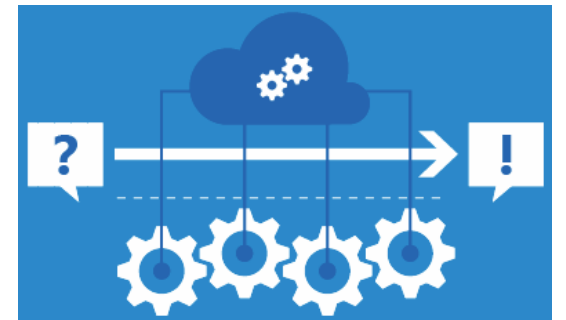# Orchestration: Azure Automation Runbooks

Process Automation
PowerShell scripts
Integration with other Azure services

- Start Azure Data Factory pipelines
- Turn Azure SQL DWH on and off
- Execute stored procedures in DWH
- Process Azure Analysis Services
- Refresh Power BI dataset

Alternative:

- Azure Data Factory
- Azure Logic Apps

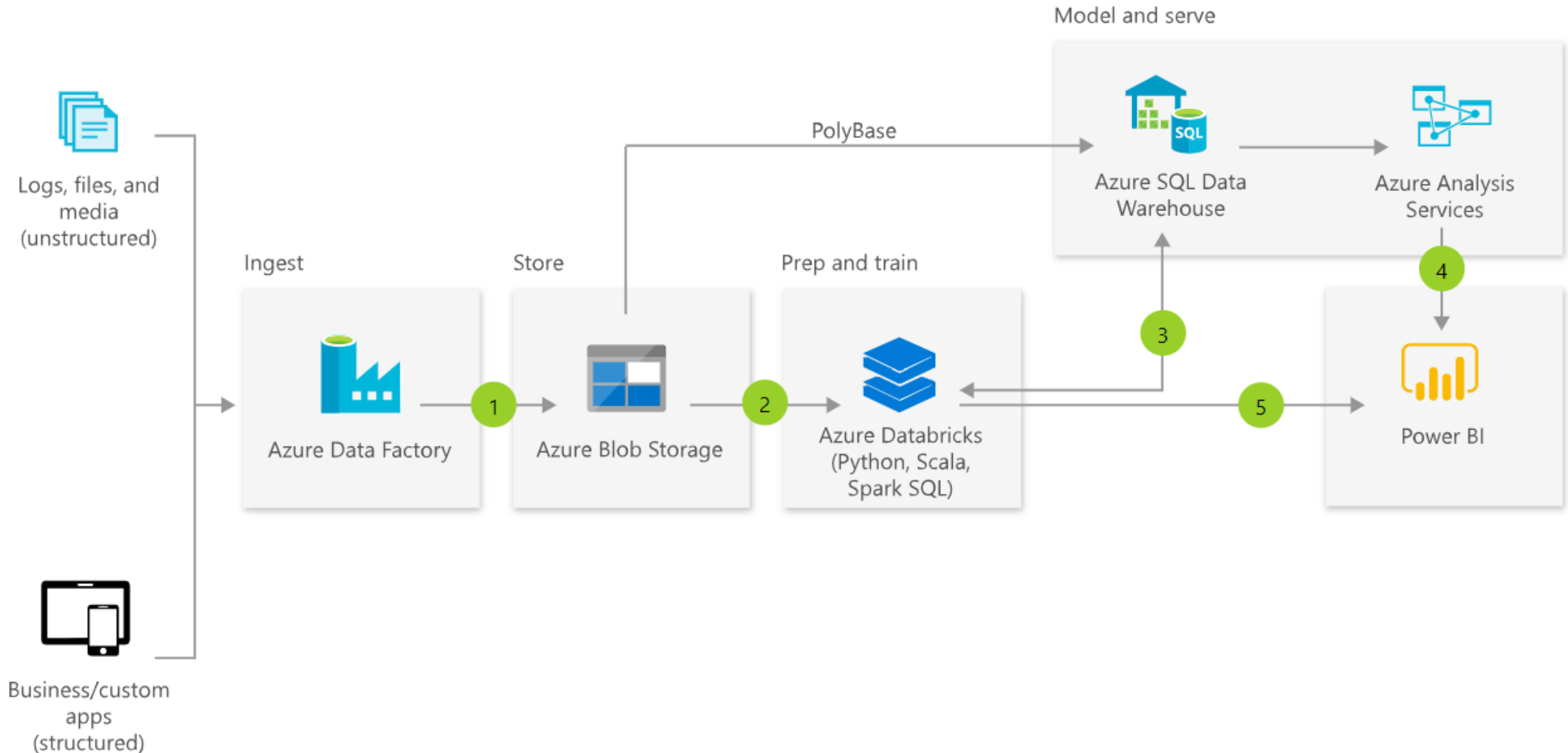# Wrapping up

Lessons learned

Plus

- Start service – fast going
- Easy to test different services
- Many options for mixing services
- Scale and pause services

Challenges

- Overview of possibilities and limitations
- Missing Visual Studio templates to Azure SQL DW and Data Factory
- Limited SQL syntax support in Azure SQL DW
- Azure Data Lake Store and GDPR
- No support for translations in Power BI

Modern Data Warehouse Architecture

Questions and time for Beer

Ressources

Arlagården Plus: https://www.arla.dk/om-arla/vores-ansvar/kvalitet-pa-garden/

Modern Data Warehouse: https://azure.microsoft.com/en-us/solutions/architecture/modern-data-warehouse/

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