

# Azure Synapse Analytics

An Introduction

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altius



@MrPaulAndrew



In/MrPaulAndrew



MrPaulAndrew.com



<https://github.com/mrpaulandrew>

### CommunityEvents

Demo code, content and slides from various community events.

● C++

[{Event/Location}-{Month}-{Year}](#)

# Agenda

- What is it?

- Development

- Compute
- Common Metadata
- Notebooks
- SDK/Endpoint

- Security

- Source Control

- Deployments

# Agenda

## ● What is it?

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### Everything Else

## ● Development

- Compute
- Common Metadata
- Notebooks
- SDK/Endpoint

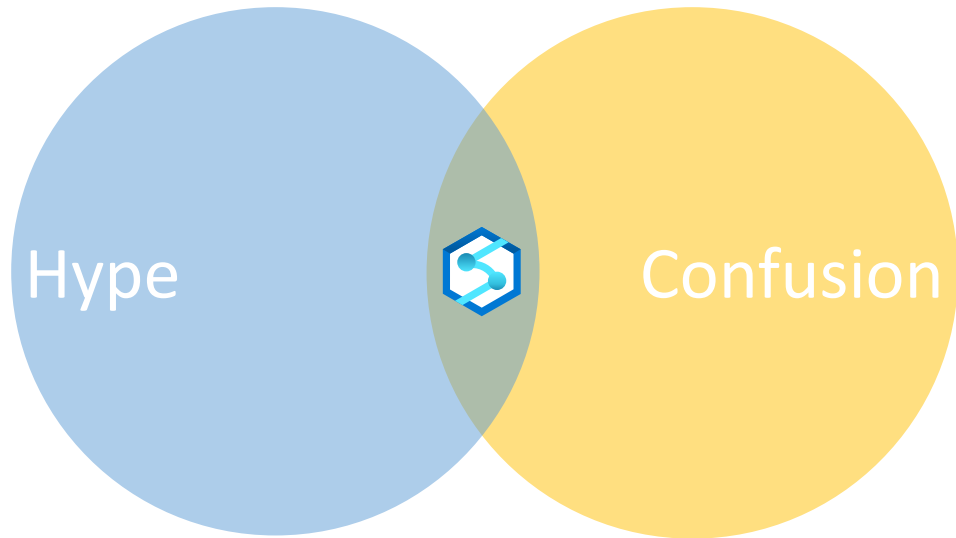
## ● Security

## ● Source Control

## ● Deployments

# Q: What is Azure Synapse Analytics?

**A:** *NULL*



**Q:** What is Azure Synapse Analytics?

**A:** *Lots of things!*

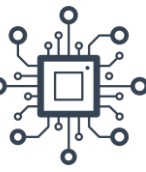
*A complete suite of  
Cloud native data  
processing services.*



**A:** *Lots of things!*

*A complete suite of  
~~Cloud native~~ data  
processing services.*





**A:** *Lots of things!*

*A complete suite of  
~~Cloud native~~ data  
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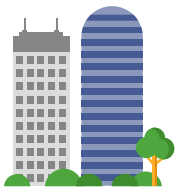
TM



# Synapse is to data processing in **Azure** what **SQL Server** is to data processing **on premises**.



\* Especially SQL 2019 Big Data Clusters



# What is it? – A Timeline View

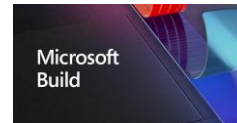
November  
2019



<https://docs.microsoft.com>

Ctrl + H  
Find: SQLDW  
Replace: Synapse

May 2020



November 2020  
Source Control  
Support

December  
2020



Synapse  
Announced

???????



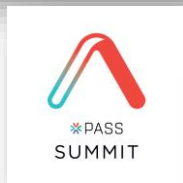
March 2020  
Workspace  
Private Preview



June 2020  
Spark AI Summit  
Hyperspace



Synapse GA  
Announced



Paul Andrew @mrpaulandrew · Nov 6, 2019

So my summary of what #Azure Synapse is in terms of tech we already know after the keynote...

Data Factory  
SQLDW/SQLDB  
Polybase  
Spark  
PowerBI

All in one place! #PASSummit

2

8

27



Oops!

[www.synapse-analytics.io](http://www.synapse-analytics.io)

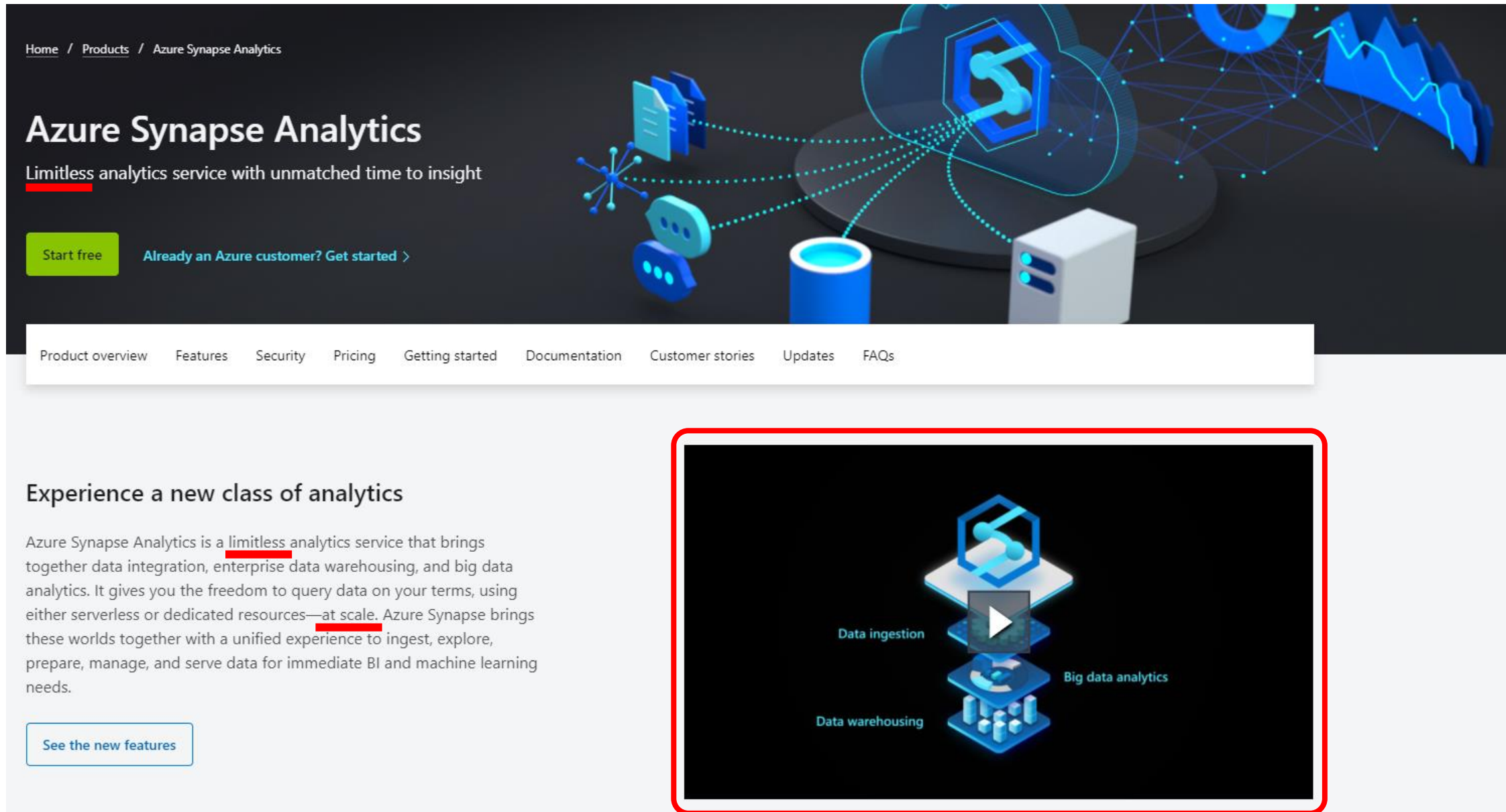


June 2020  
Namespace Appeared  
Azure.Analytics.Synapse.Artifacts



July 2020  
Workspace  
Public Preview

# What is it? – According to Microsoft



The screenshot shows the Azure Synapse Analytics homepage. At the top, there is a navigation bar with links for Home, Products, and Azure Synapse Analytics. The main heading is "Azure Synapse Analytics" with the tagline "Limitless analytics service with unmatched time to insight". Below this, there are two buttons: "Start free" and "Already an Azure customer? Get started >". A horizontal menu contains links for Product overview, Features, Security, Pricing, Getting started, Documentation, Customer stories, Updates, and FAQs. The main content area has a section titled "Experience a new class of analytics" with a paragraph describing the service as a limitless analytics service that integrates data integration, enterprise data warehousing, and big data analytics. A video player is embedded in the page, showing a diagram of the data architecture with labels for Data ingestion, Data warehousing, and Big data analytics. The video player is highlighted with a red border.

Home / Products / Azure Synapse Analytics

## Azure Synapse Analytics

Limitless analytics service with unmatched time to insight

[Start free](#) [Already an Azure customer? Get started >](#)

[Product overview](#) [Features](#) [Security](#) [Pricing](#) [Getting started](#) [Documentation](#) [Customer stories](#) [Updates](#) [FAQs](#)

### Experience a new class of analytics

Azure Synapse Analytics is a limitless analytics service that brings together data integration, enterprise data warehousing, and big data analytics. It gives you the freedom to query data on your terms, using either serverless or dedicated resources—at scale. Azure Synapse brings these worlds together with a unified experience to ingest, explore, prepare, manage, and serve data for immediate BI and machine learning needs.

[See the new features](#)

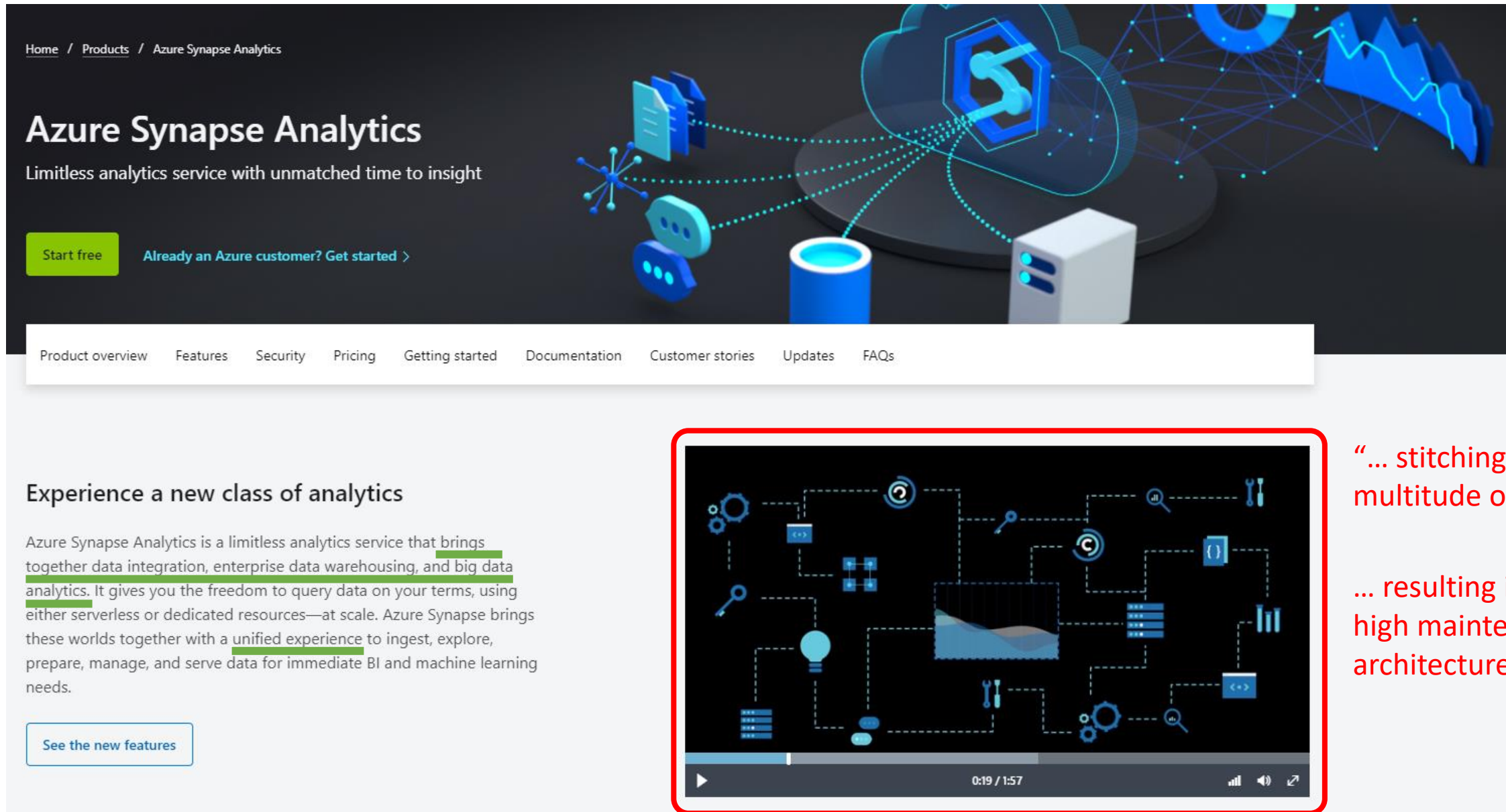
**Data ingestion**

**Data warehousing**

**Big data analytics**

<https://azure.microsoft.com/en-gb/services/synapse-analytics/>

# What is it? – According to Microsoft



The image is a composite of two parts. The top part is a screenshot of the Azure Synapse Analytics website. It features a dark header with navigation links: Home / Products / Azure Synapse Analytics. The main heading is 'Azure Synapse Analytics' with the tagline 'Limitless analytics service with unmatched time to insight'. Below this are two buttons: 'Start free' and 'Already an Azure customer? Get started >'. A horizontal menu contains links for Product overview, Features, Security, Pricing, Getting started, Documentation, Customer stories, Updates, and FAQs. The bottom part of the image shows a video player with a red border. The video content is a diagram illustrating a complex data architecture. It shows various data sources and services connected by dashed lines, representing a 'stitching together' of multiple services. The video player has a progress bar at 0:19 / 1:57 and standard playback controls.

Home / Products / Azure Synapse Analytics

## Azure Synapse Analytics

Limitless analytics service with unmatched time to insight

[Start free](#) [Already an Azure customer? Get started >](#)

[Product overview](#) [Features](#) [Security](#) [Pricing](#) [Getting started](#) [Documentation](#) [Customer stories](#) [Updates](#) [FAQs](#)

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[See the new features](#)

0:19 / 1:57

“... stitching together a multitude of services...”

... resulting in brittle high maintenance architectures.”

# What is it? – In Terms of Established Services



Data Factory



SQL Data Warehouse



SQL Database



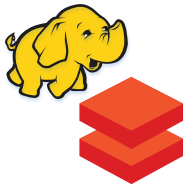
Data Lake



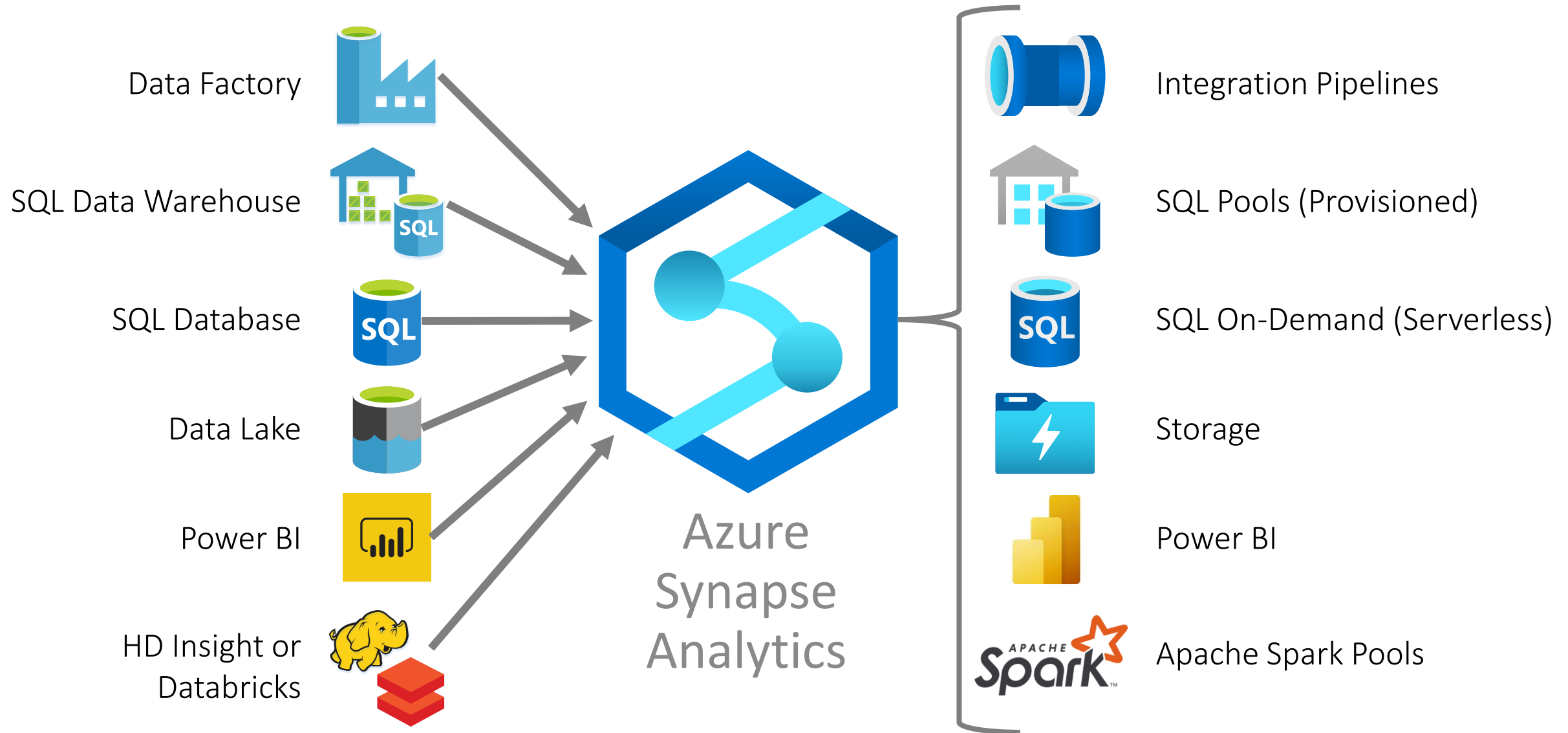
Power BI



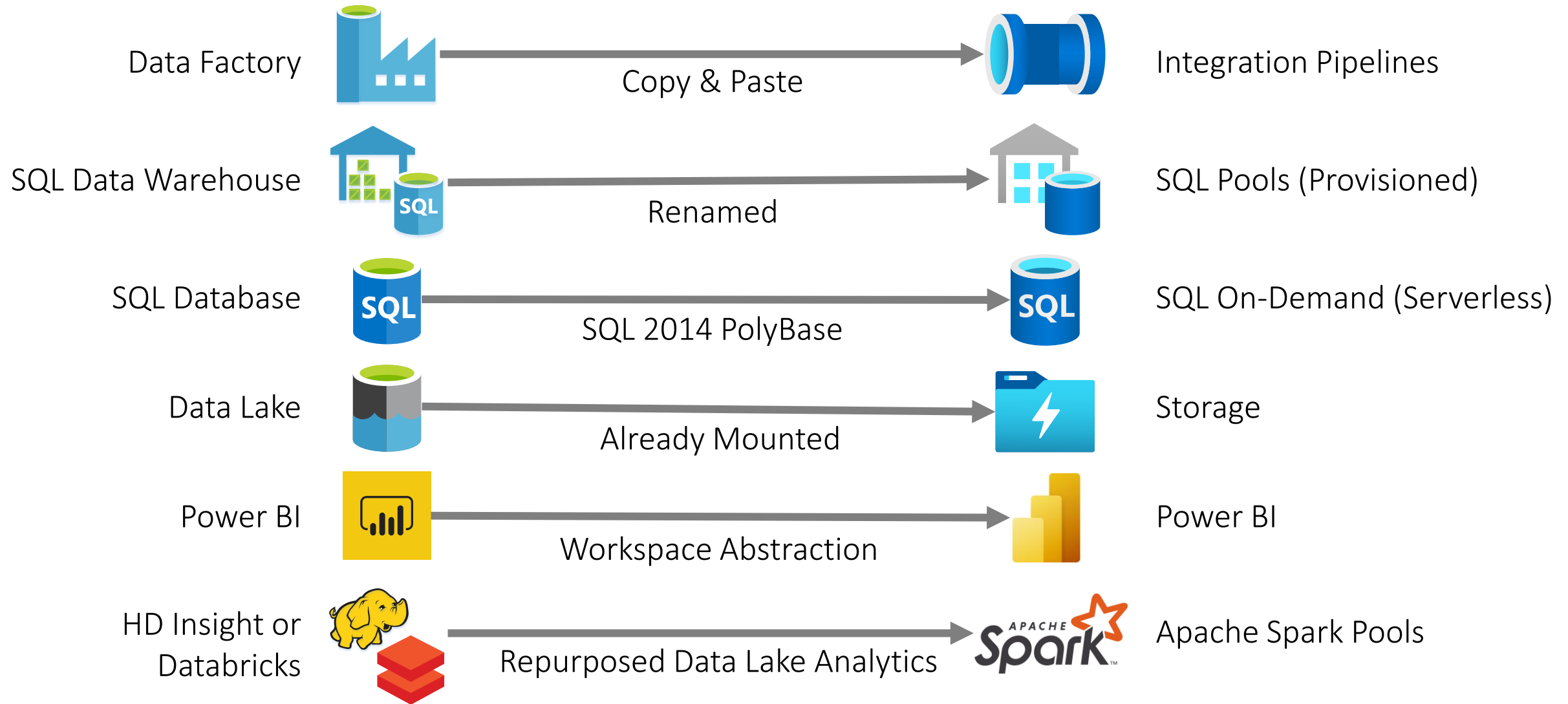
HD Insight or  
Databricks



# What is it? – In Terms of Established Services



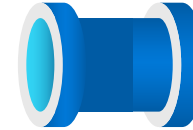
# What is it? – In Terms of Established Services



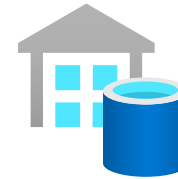
# What is it?



Azure  
Synapse  
Analytics



Integration Pipelines



SQL Pools (Provisioned)



SQL On-Demand (Serverless)



Storage



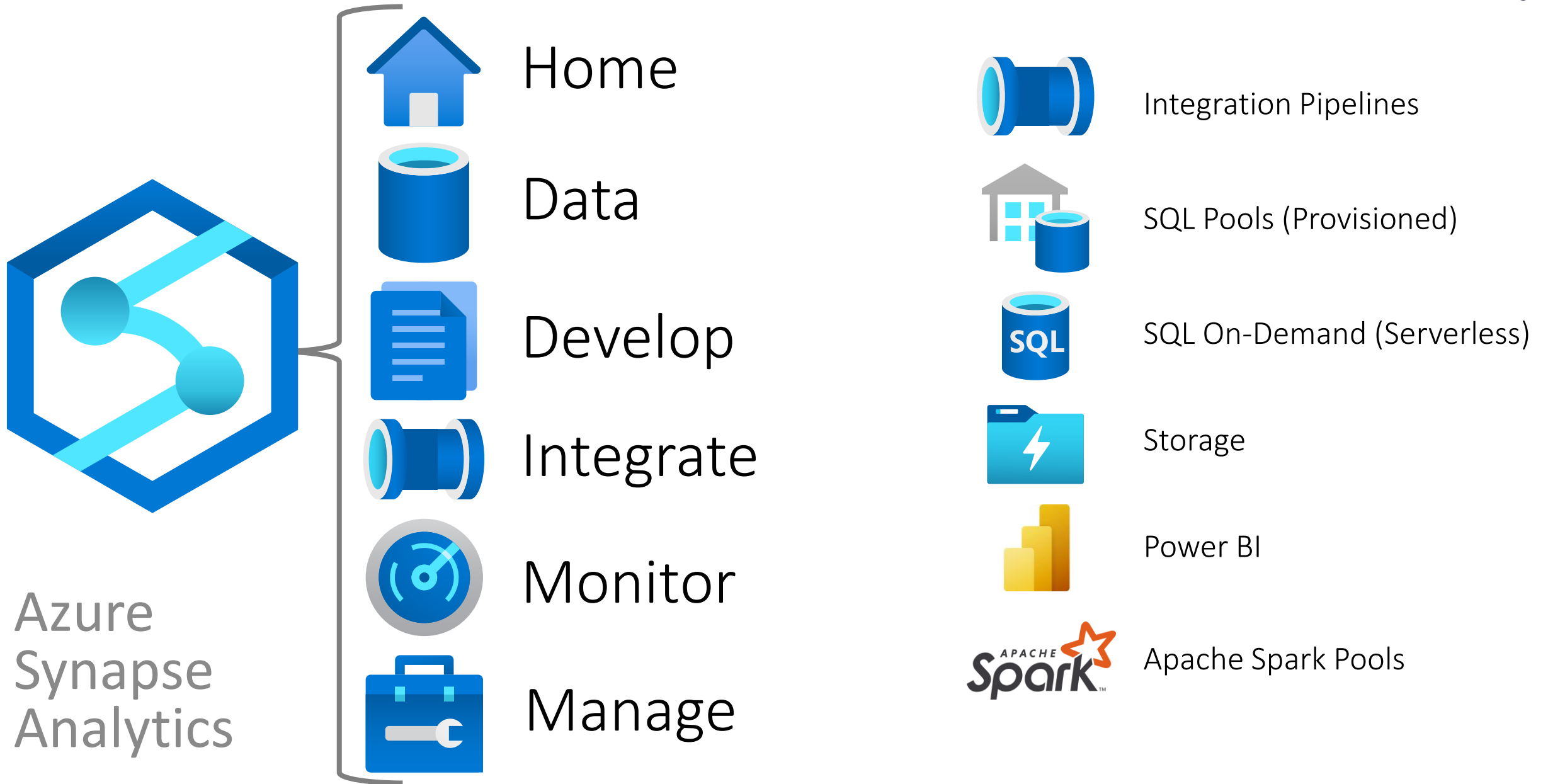
Power BI



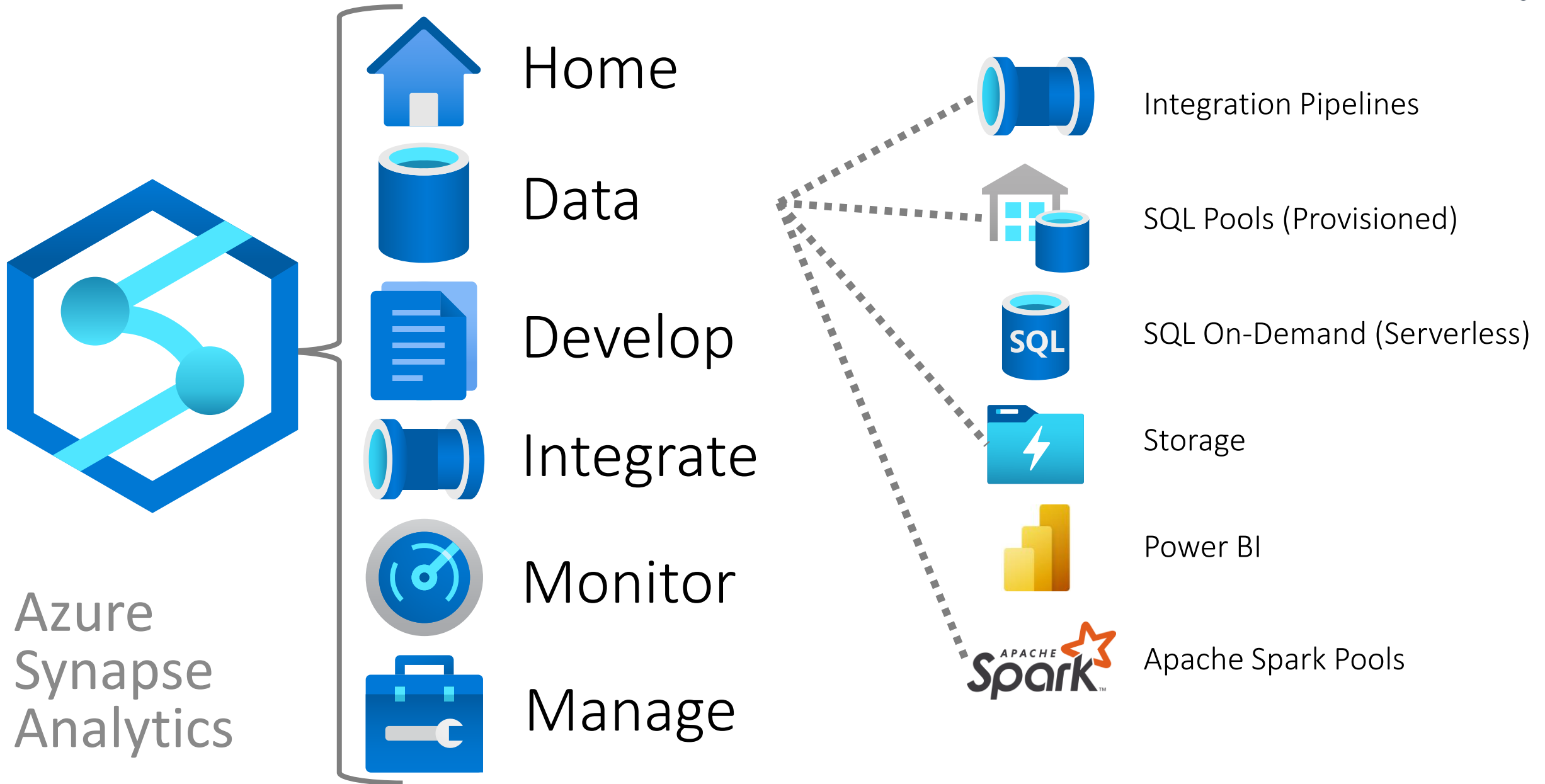
Apache Spark Pools



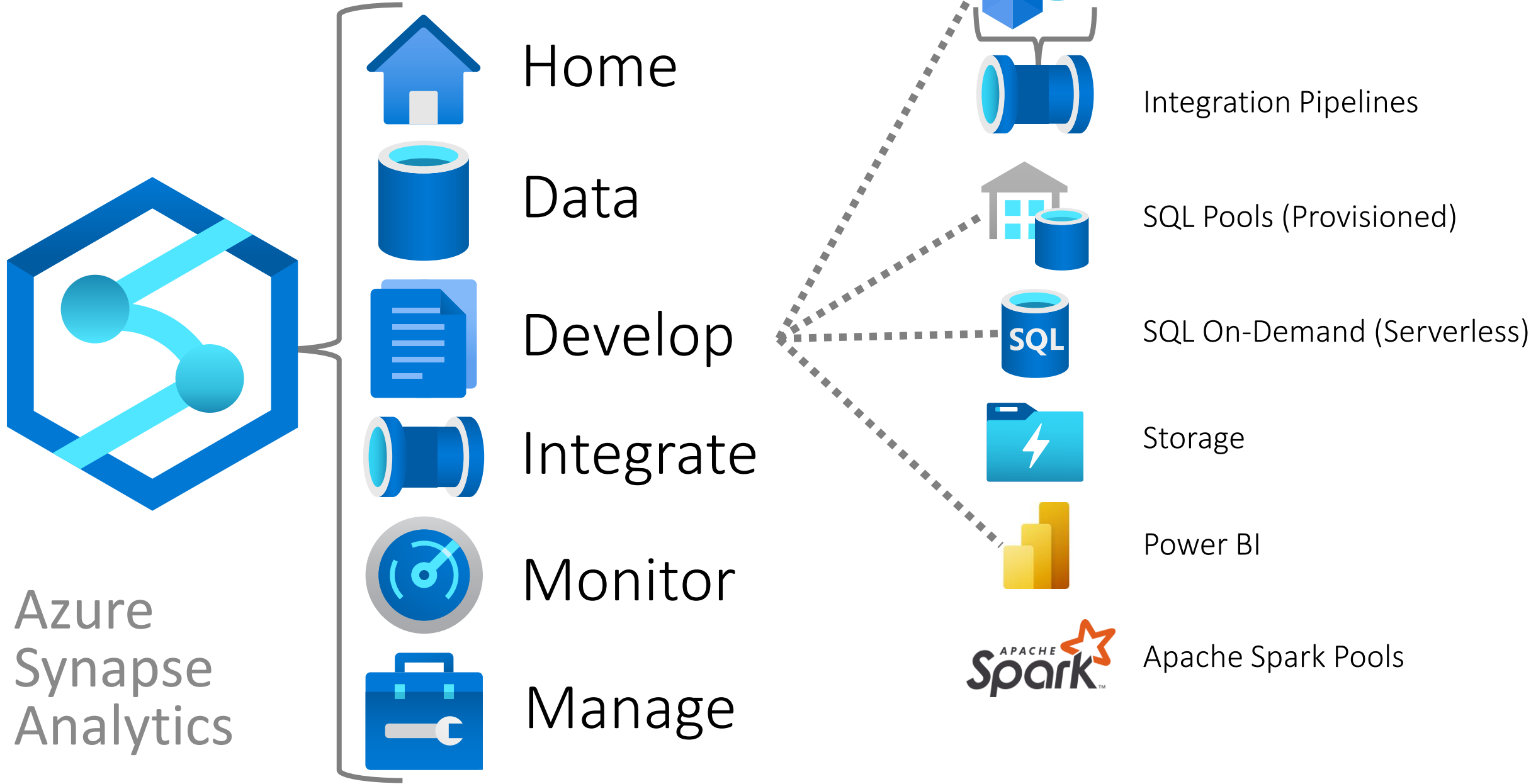
# What is it? – When We Look Inside



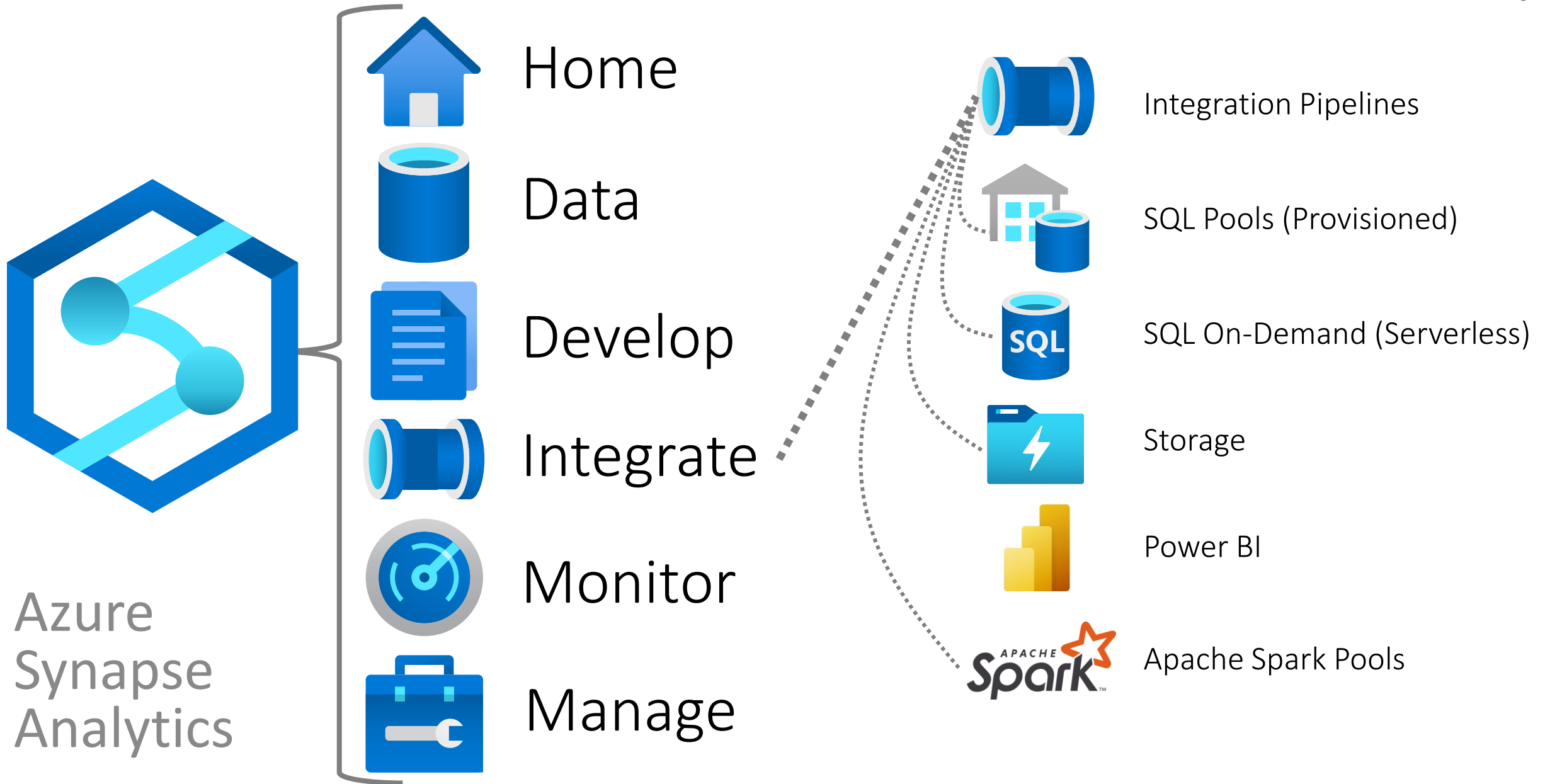
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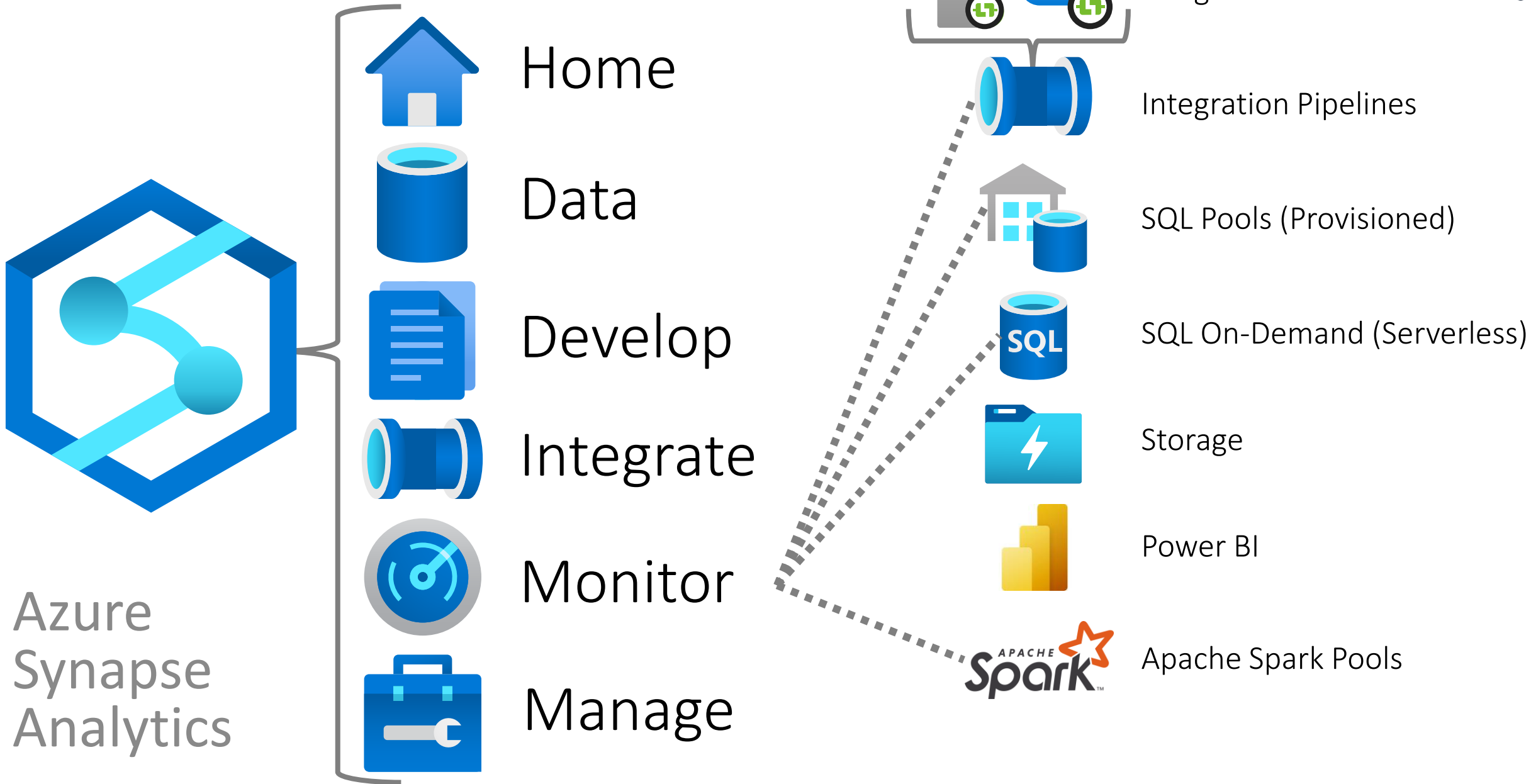
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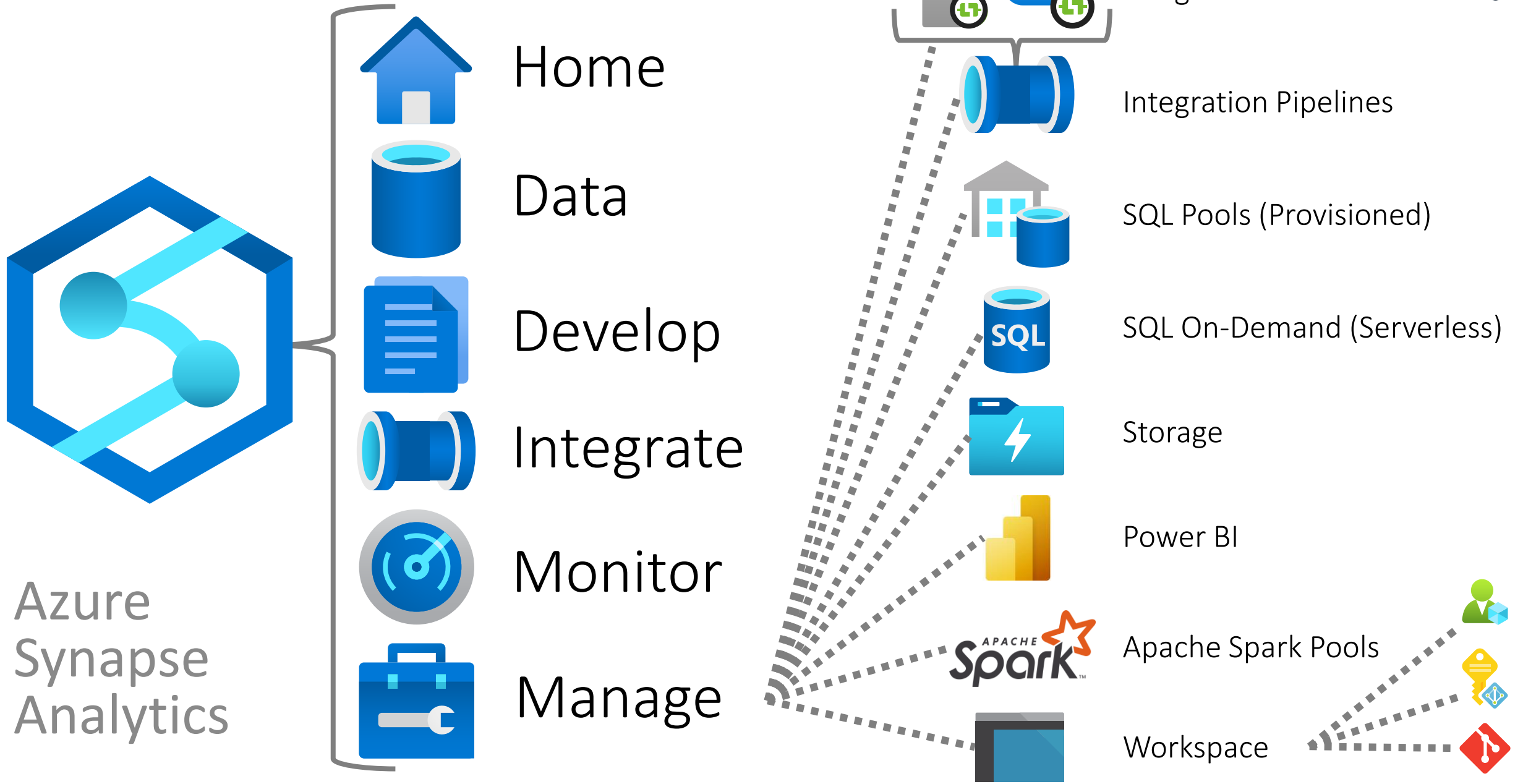
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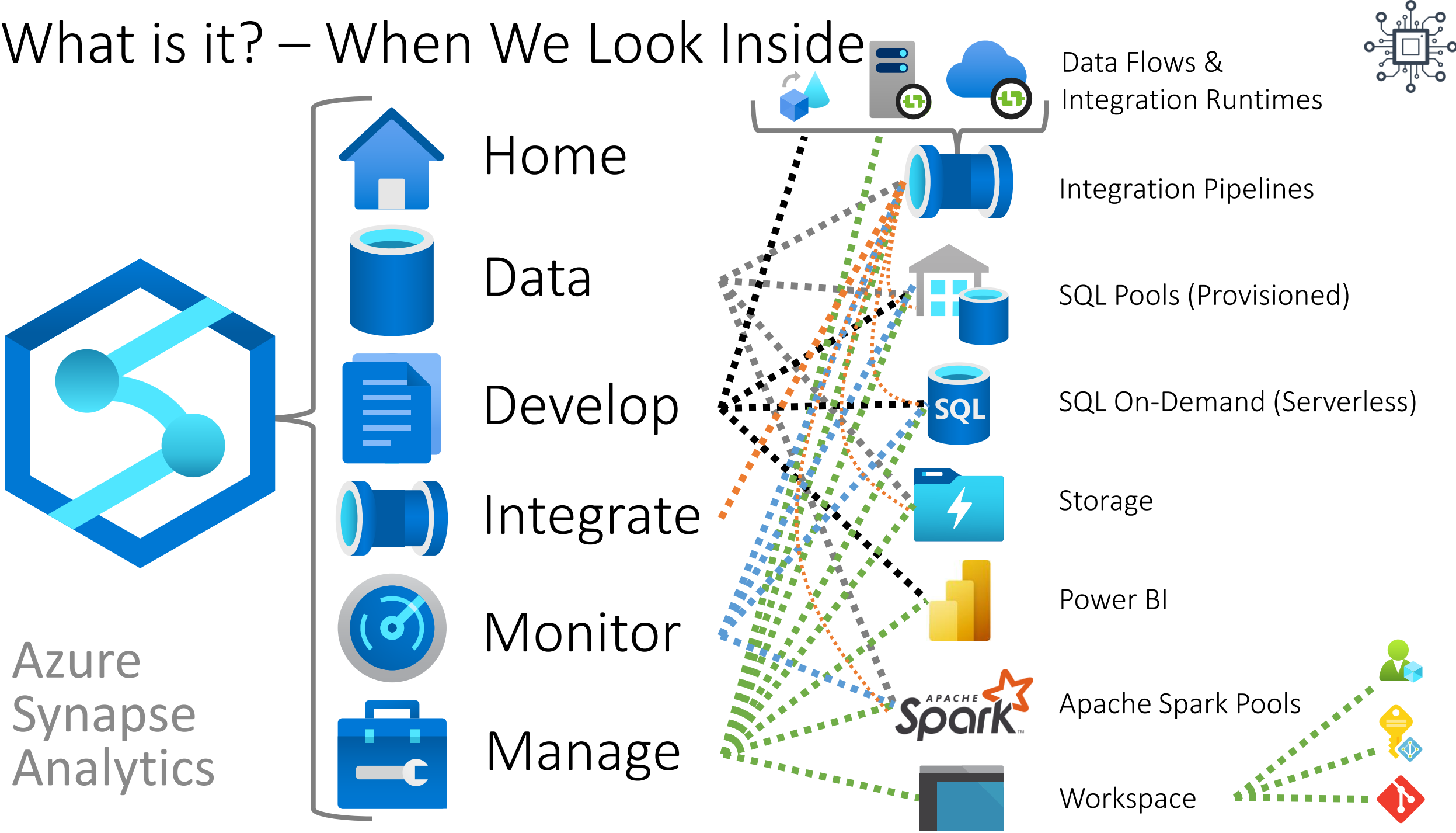
# What is it? – When We Look Inside



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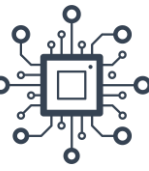


Everything Else

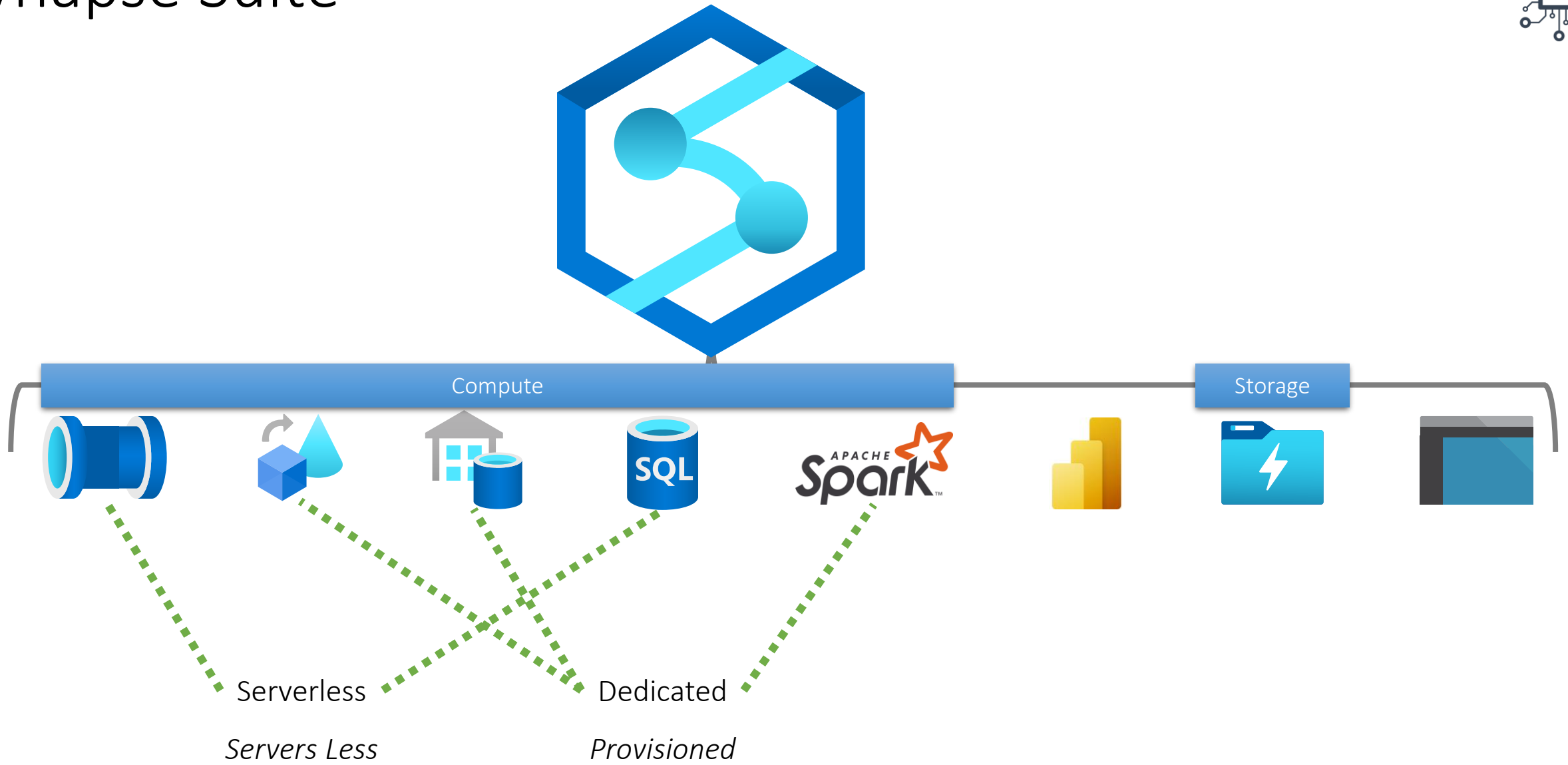
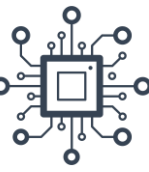




# Synapse Suite



# Synapse Suite



# Synapse Suite



<https://{workspace}.dev.azure.com/synapse>



[Azure.Analytics.Synapse.Artifacts](https://github.com/Azure/Azure.Analytics.Synapse.Artifacts)



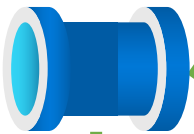
Granular Security Roles



Power BI  
Workspace  
Interaction

Query Parquet  
in Power BI

Compiled Data Flow Script Runs on Spark



APACHE  
**Spark**™ v2.4



DELTA LAKE v0.6.1

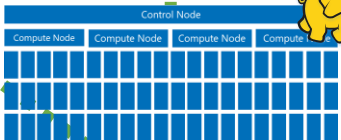


Samples  
Gallery

Hosted IR's

Azure IR's

SSIS IR's



60 Distributions



Streaming Jobs

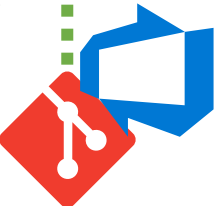


Common  
Hive Metastore

Notebooks  
(Python, Scala, C#, SQL)

Integrated  
Storage  
Explorer

Source Control





# Thank you for listening...

Paul Andrew



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**Email:** [paul@mrpaulandrew.com](mailto:paul@mrpaulandrew.com)

**Twitter:** [@mrpaulandrew](https://twitter.com/mrpaulandrew)

**LinkedIn:** [In/mrpaulandrew](https://www.linkedin.com/in/mrpaulandrew)

**GitHub:** [github.com/mrpaulandrew](https://github.com/mrpaulandrew)