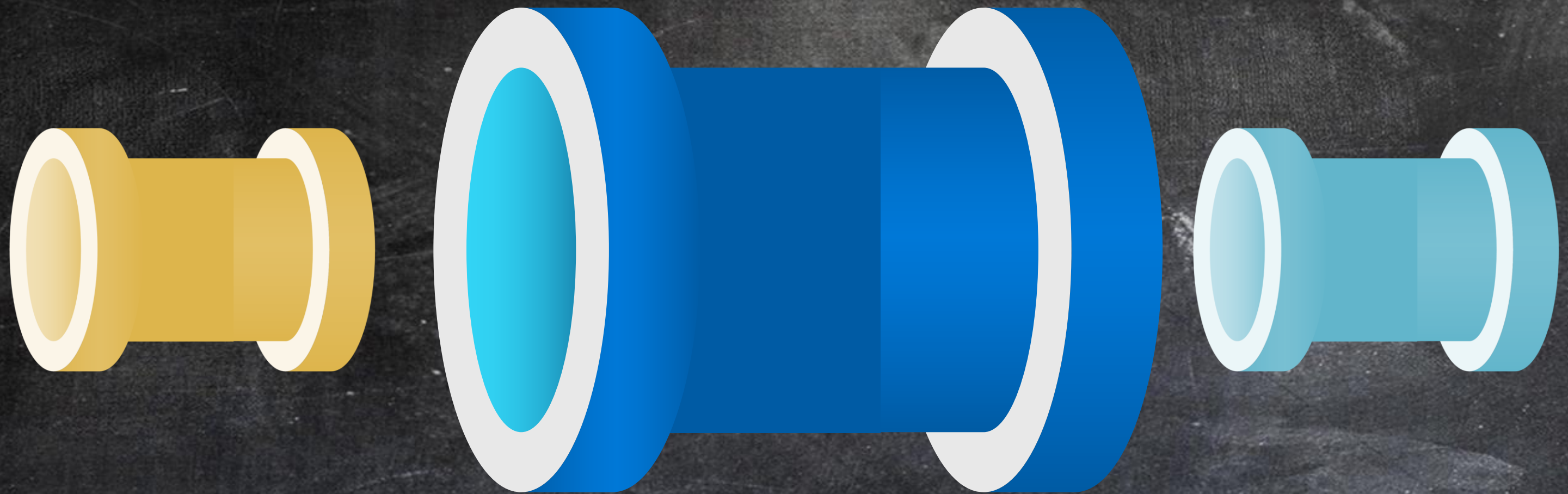


# Integration Pipelines

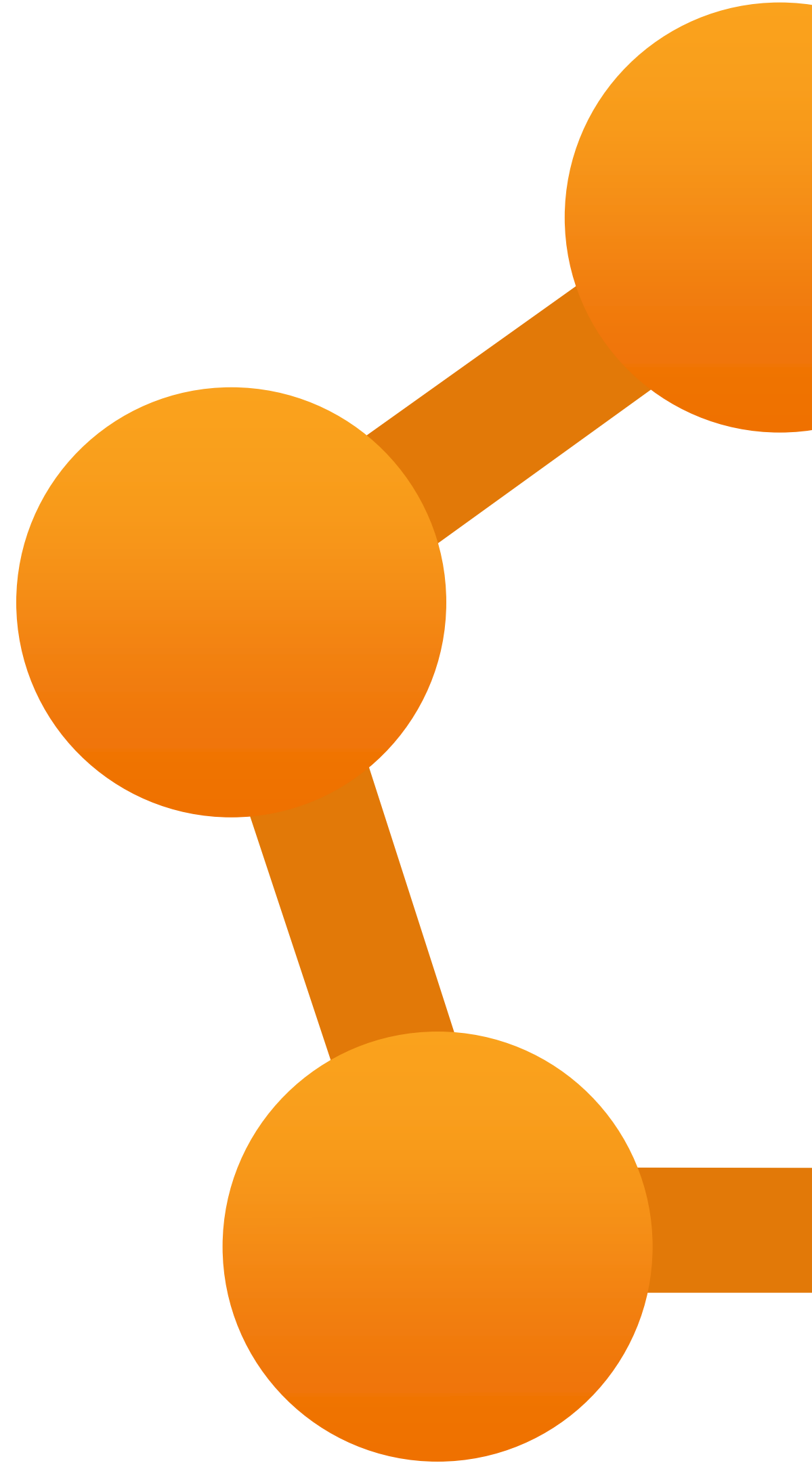




# Module 12 – Final Thoughts

Running Costs

Cloud Formations



# Azure Price Calculator – Data Factory



Microsoft Azure

Contact SalesSearchMy accountPortalSign in

OverviewSolutionsProductsDocumentationPricingTrainingMarketplacePartnersSupportBlogMoreFree account

Pricing calculator

Configure and estimate the costs for Azure products

ProductsExample ScenariosSaved EstimatesFAQ

Select a product to include it in your estimate.

Search products

Featured

Compute

Networking

Storage

Web

Mobile

Containers

Databases

Analytics

AI + Machine Learning

Internet of Things

X

= £ ???

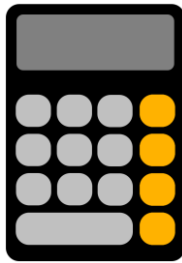
Chat with Sales

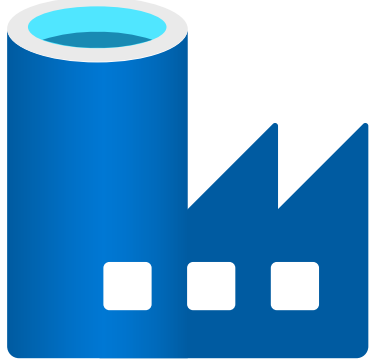

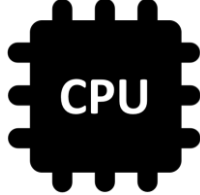


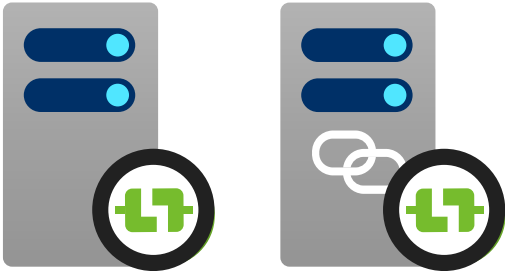
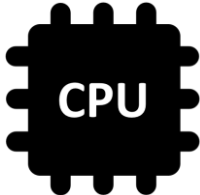
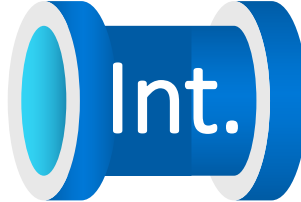



# Data Factory Pricing – IR Type




Based on 1 Hour Running




	Activity Runs	Data Handling Compute per Hour	Pipeline Activity Execution Duration per Hour	
 Azure IR	<div>x1000</div> <div>£0.75</div>	 <div>£0.19</div>	 <div>£0.004</div>	 <div>£0.00019</div>
 Hosted IR	<div>x1000</div> <div>£1.12</div>	 <div>£0.07</div>	 <div>£0.001</div>	 <div>£0.0001</div>


Copy

 Copy A to B

Delete

 Delete File

Azure Function

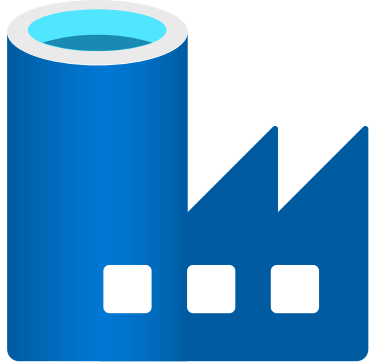
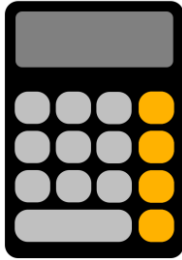

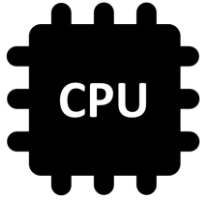
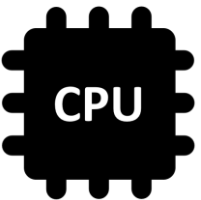




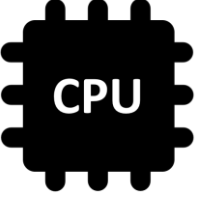
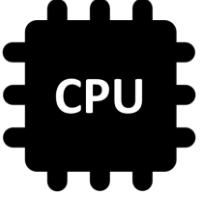




 Run Function

£2.13 per Month

\* Prices quoted for UK South Azure Region charged in Pounds Sterling (£) captured on 26<sup>th</sup> Feb 2024.

# Data Factory Pricing – Data Flow & SSIS Compute

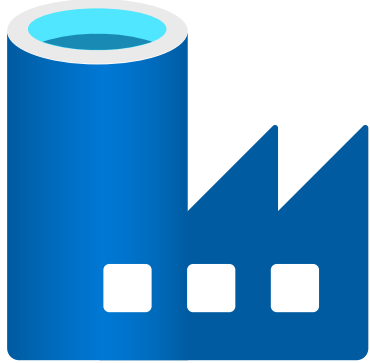

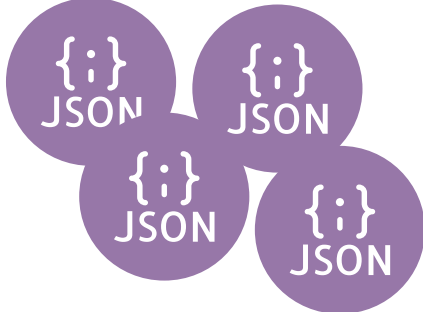



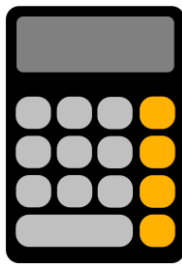
		Number of Compute Cores	Number of VM Instances	VM Uptime Per Hour	SQL Server Licence Type	  8x Cores General Purpose 8 Hours a day £426.30 per Month  8x Cores Standard 8 Hours a day £443.97 per Month
	Data Flows	 	 		N/A	
	SSIS IR	 	 		 <ul style="list-style-type: none"><li>Standard</li><li>Enterprise</li></ul>	

\* Prices quoted for UK South Azure Region charged in Pounds Sterling (£) captured on 26<sup>th</sup> Feb 2024.

# Data Factory Pricing – Operations

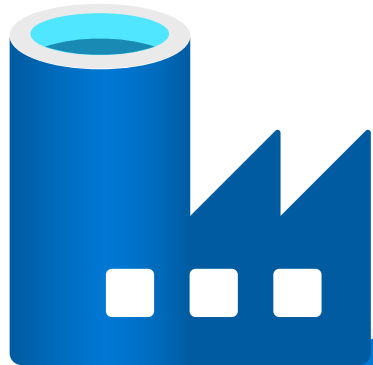


	Entity Read/Write	Monitoring
 Operations		
	Per 50,000 = £0.37	Per 50,000 = £0.19



\* Prices quoted for UK South Azure Region charged in Pounds Sterling (£) captured on 26<sup>th</sup> Feb 2024.

# How Much Does My Pipeline Cost?



Consumption

Microsoft Azure | Data Factory | FrameworkFactory

**Pipeline runs**

Triggered Debug Rerun Cancel Refresh Edit columns List Gantt

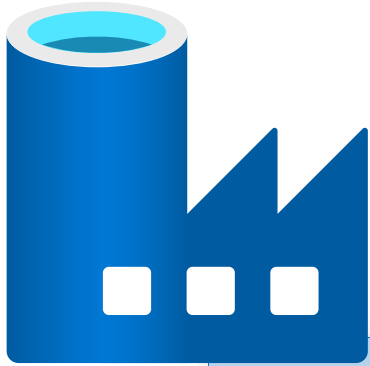
Search by run ID or name Local time : Last 24 hours Status : All Runs : Latest runs Add filter

Showing 1 - 19 items

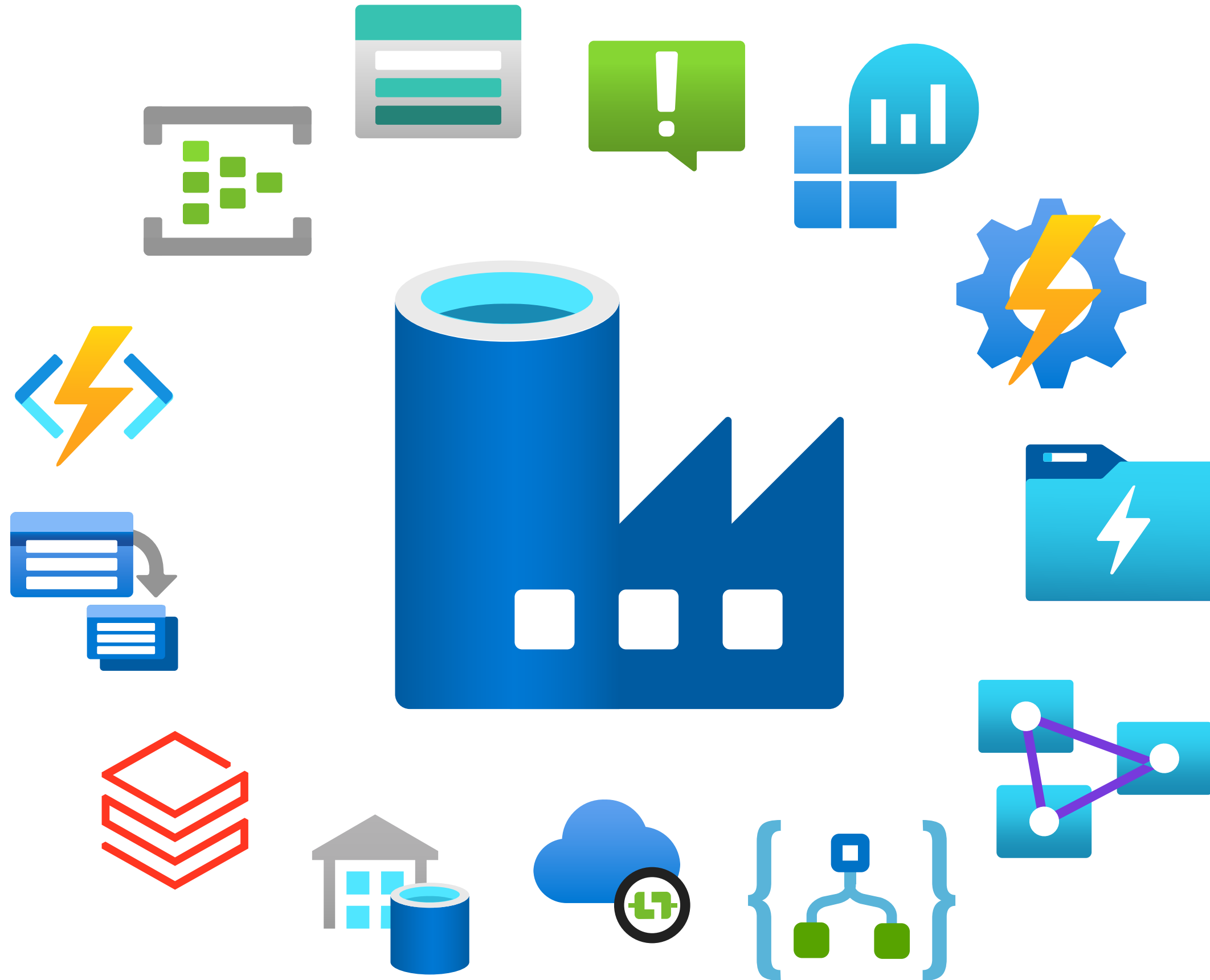
<input type="checkbox"/> Pipeline name	Run start ↑↓	Run end	Duration	Triggered by	Status	Parameters
<input type="checkbox"/> 03-Child	9/26/20, 8:31:00 PM	9/26/20, 8:31:04 PM	00:00:04	2647c753-3099-4442-b7	✓ Succeeded	[@]
<input type="checkbox"/> Wait 8	9/26/20, 8:29:53 PM	9/26/20, 8:30:03 PM	00:00:09	Manual trigger	✓ Succeeded	[@]
<input type="checkbox"/> 04-Infant	9/26/20, 8:29:46 PM	9/26/20, 8:30:50 PM	00:01:04	c283b771-c589-4667-8e	✓ Succeeded	[@]
<input type="checkbox"/> 03-Child	9/26/20, 8:29:41 PM	9/26/20, 8:30:52 PM	00:01:10	69615837-3077-4f05-8b	✓ Succeeded	[@]
<input type="checkbox"/> Wait 7	9/26/20, 8:28:40 PM	9/26/20, 8:28:44 PM	00:00:04	Manual trigger	✓ Succeeded	[@]
<input type="checkbox"/> Wait 4	9/26/20, 8:28:38 PM	9/26/20, 8:28:40 PM	00:00:01	Manual trigger	✓ Succeeded	[@]
<input type="checkbox"/> 04-Infant	9/26/20, 8:28:32 PM	9/26/20, 8:29:09 PM	00:00:36	e4d9a228-ad1b-4ac6-b8	✓ Succeeded	[@]
<input type="checkbox"/> 04-Infant	9/26/20, 8:28:32 PM	9/26/20, 8:29:31 PM	00:00:58	89dacd6c-9e08-473e-a0	✓ Succeeded	[@]
<input type="checkbox"/> 03-Child	9/26/20, 8:28:19 PM	9/26/20, 8:29:33 PM	00:01:14	6d8ad6c6-d97e-4a85-93	✓ Succeeded	[@]
<input type="checkbox"/> Wait 1	9/26/20, 8:27:02 PM	9/26/20, 8:27:05 PM	00:00:02	Manual trigger	✓ Succeeded	[@]



# Cloud Formations - Knowledge Transfer & Training



# How Much Does My Data Platform Solution Cost?













# CF.Cumulus Indicative Run Costs



Assuming the use of an Azure UK Region priced for GBP, with all CF.Cumulus compute processes running for 4 hours every day of the year, with locally redundant storage, the following Azure run costs **per month** can be assumed:

<b>SQL Database</b> 250GB of Metadata  £12.08 	<b>Data Factory</b> Azure IR Usage  £25.84 	<b>Functions</b> 2 Node Dedicated App Service Plan  £44.30 	<b>Databricks</b> 3 Node Cluster with 4 vCPUs & 16GB RAM  £152.92 
<b>Blob Storage</b> 1TB of Log Data  £18.45 	<b>Data Lake</b> 1TB Analytics Data  £38.82 	<b>Key Vault</b> 50,000 Requests  £0.14 	<b>Monitoring</b> 500MB Log & App Insights Data per Day  £45.61 

£338.16\*

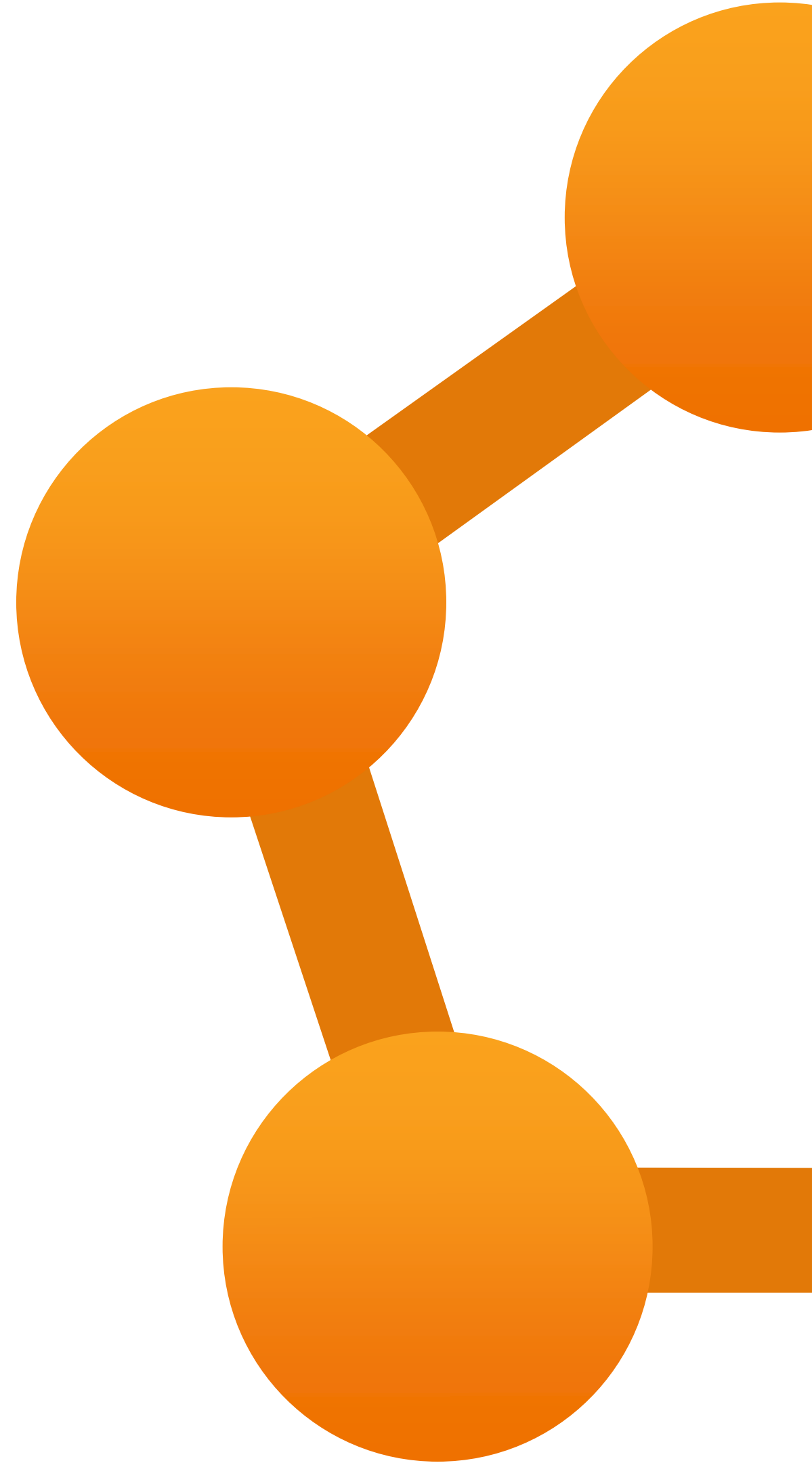
\*With every customer implementation data volumes, table complexity and serving queries (to dashboards) may differ. All affecting the above run costs.

Azure Price Calculator workings available for review and adjustment: <https://azure.com/e/30f8aeedfd564ba189d33f278845bb89>

# Module 12 – Final Thoughts

## Best Practices

Cloud Formations



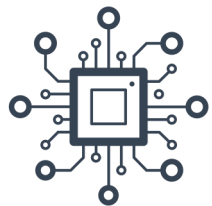


# Key Points

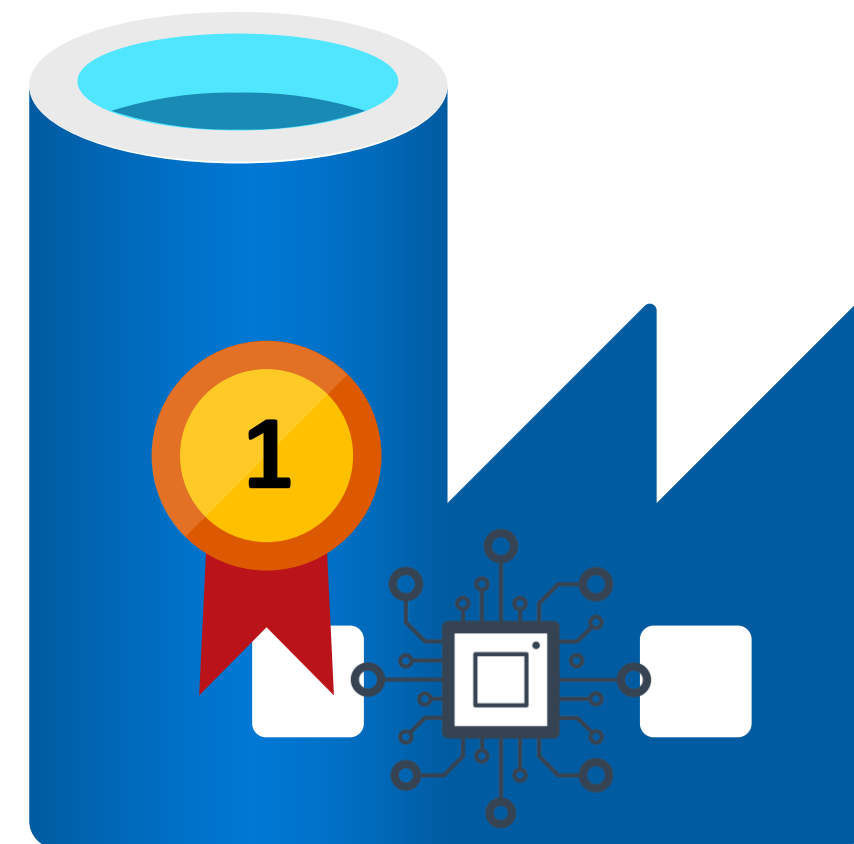


- Environment Setup & Developer Debugging
- Deployments
- Automated Testing
- Naming Conventions
- Pipeline Hierarchies
- Pipeline & Activity Descriptions
- Factory Component Folders
- Linked Service Security via Azure Key Vault
- Dynamic Linked Services
- Generic Datasets
- Metadata Driven Processing

- Parallel Execution
- Hosted Integration Runtimes
- Azure Integration Runtimes
- Wider Platform Orchestration
- Custom Error Handler Paths
- Monitoring via Log Analytics
- Service Limitations
- Using Pipeline Templates
- Documentation



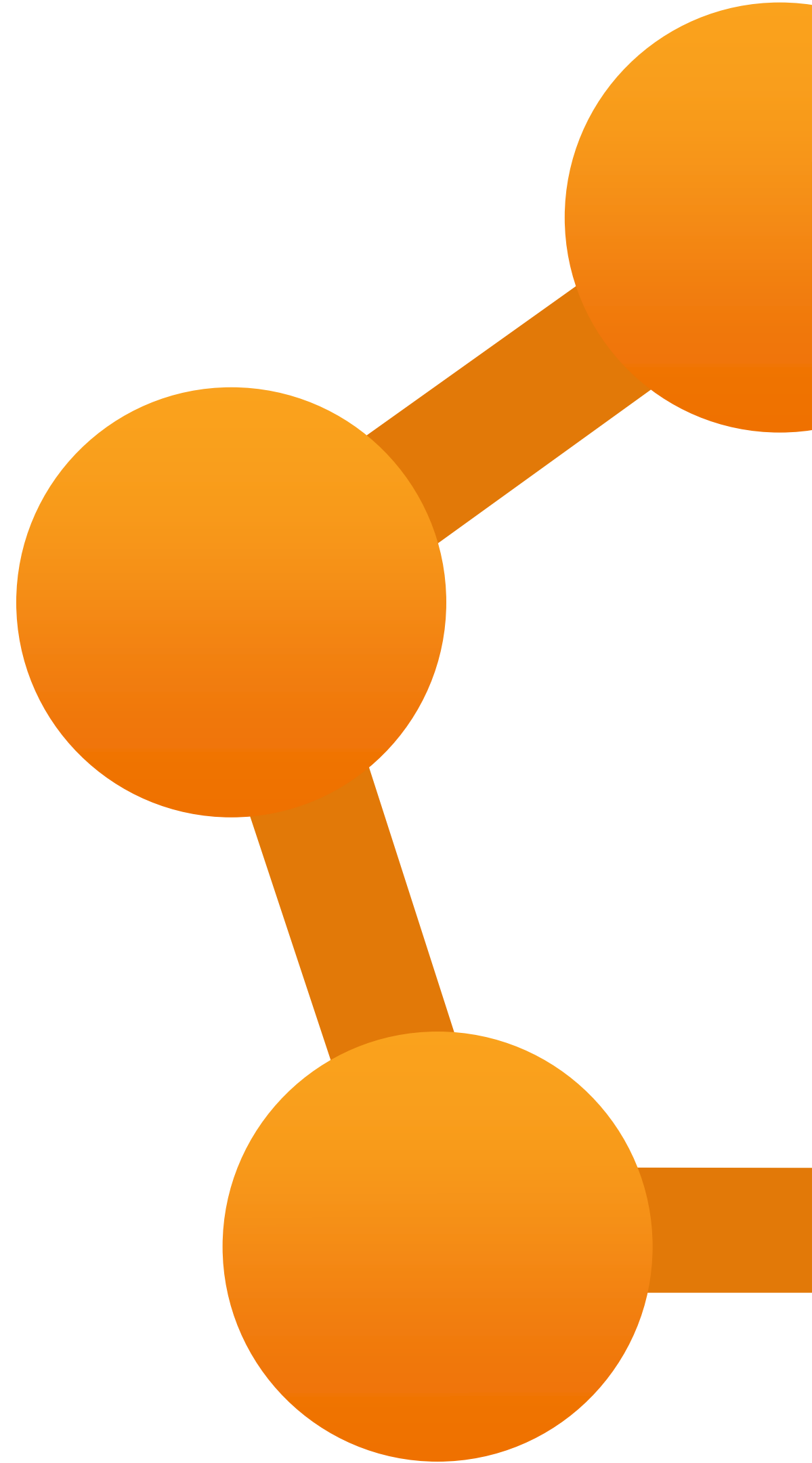
[mrpaulandrew.com/2019/12/18/best-practices-for-implementing-azure-data-factory/](https://mrpaulandrew.com/2019/12/18/best-practices-for-implementing-azure-data-factory/)



# Module 12 – Final Thoughts

## Conclusions

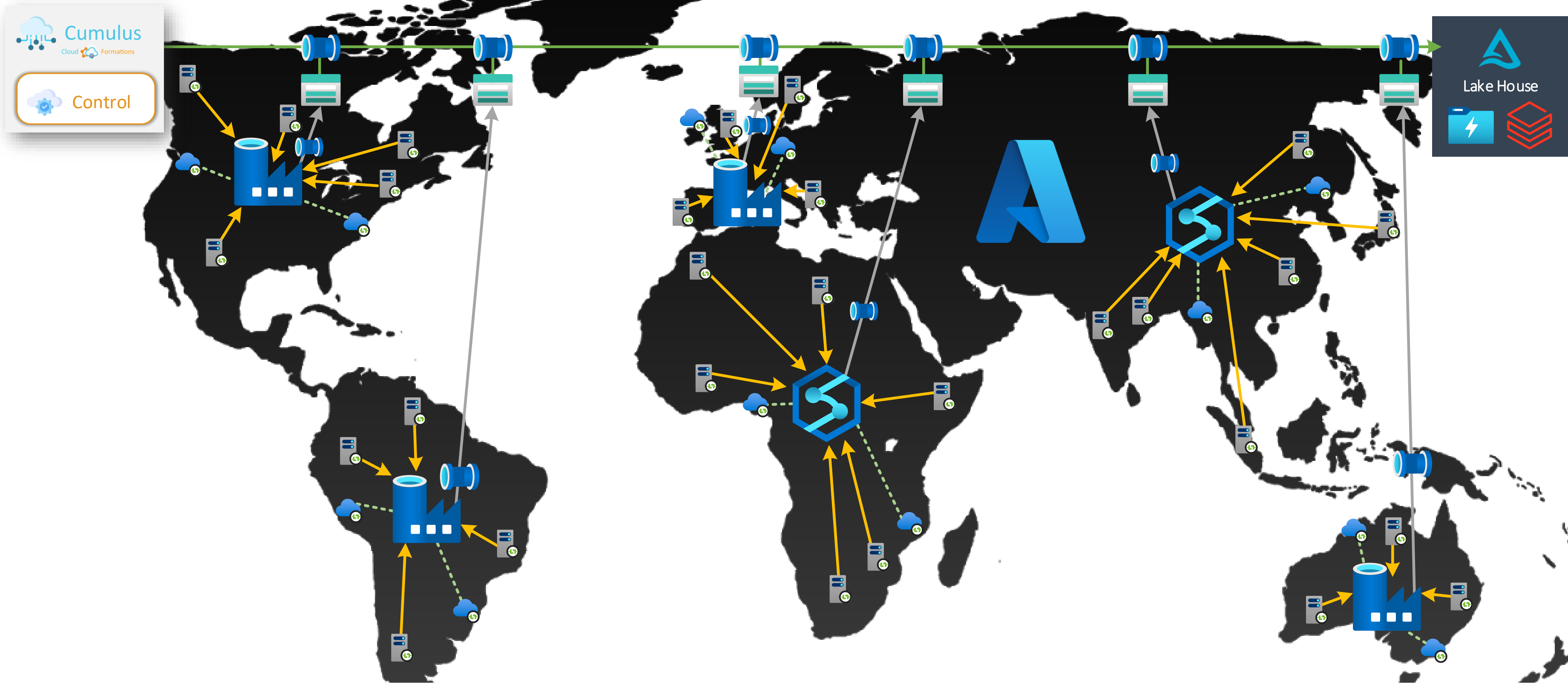
Cloud Formations



# Exploring Data Factory at Enterprise Scale



Cloud Formations - Knowledge Transfer & Training



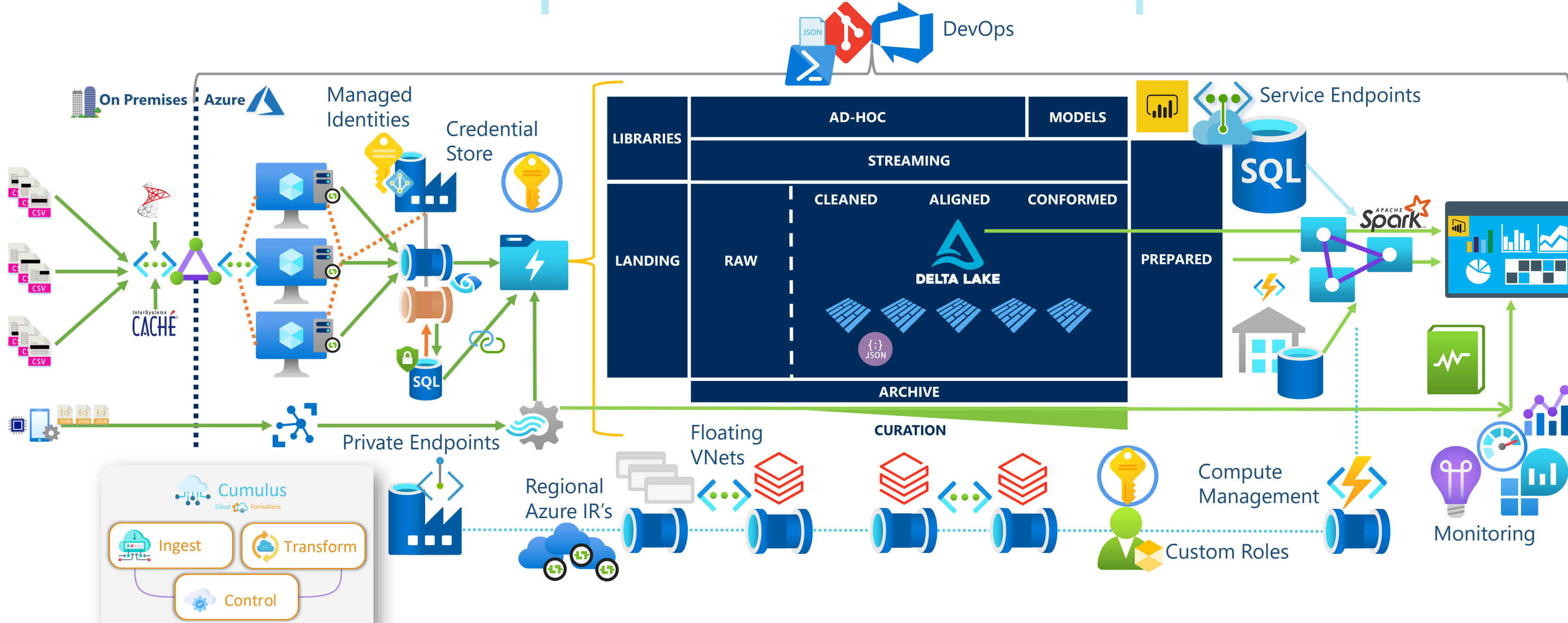
# Overall Architecture



Extract

Transform

Load





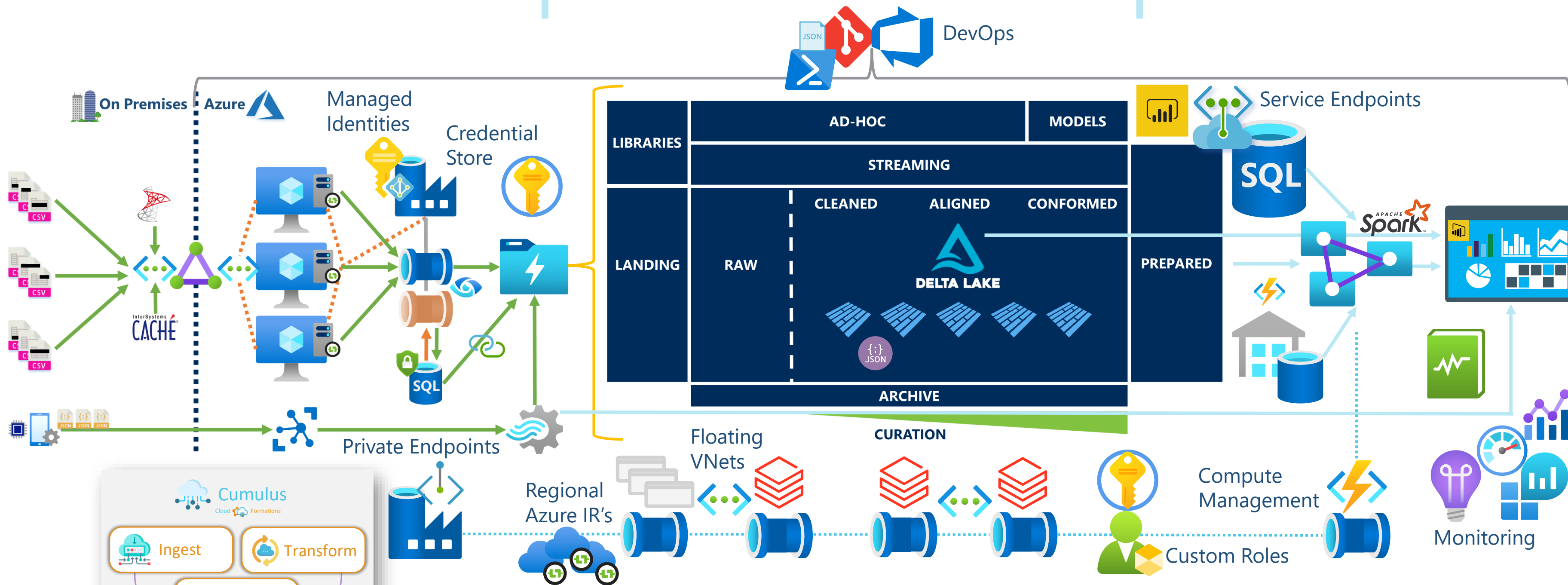
# Overall Architecture



Extract

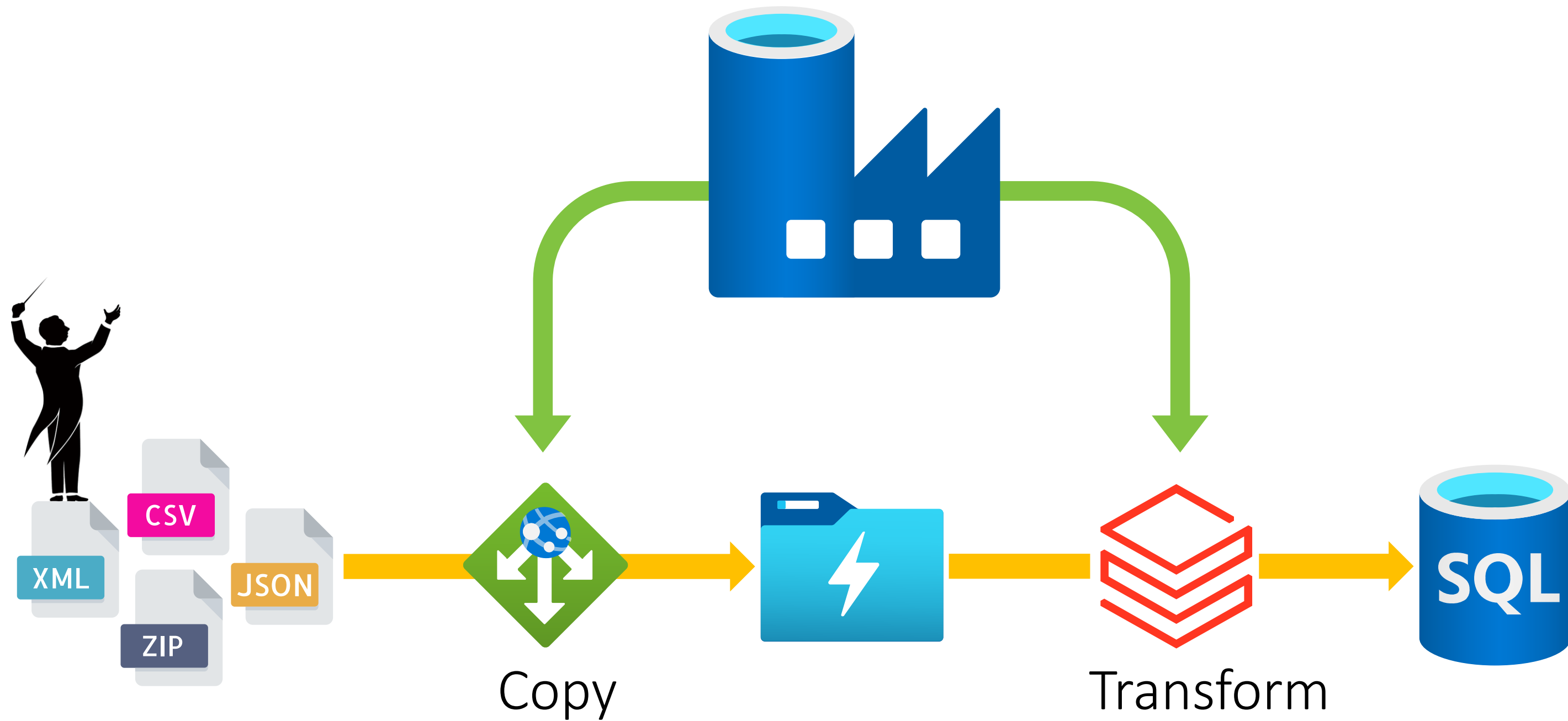
Transform

Load



Q: Should we build our data platform solution like this?... **A: It depends!**

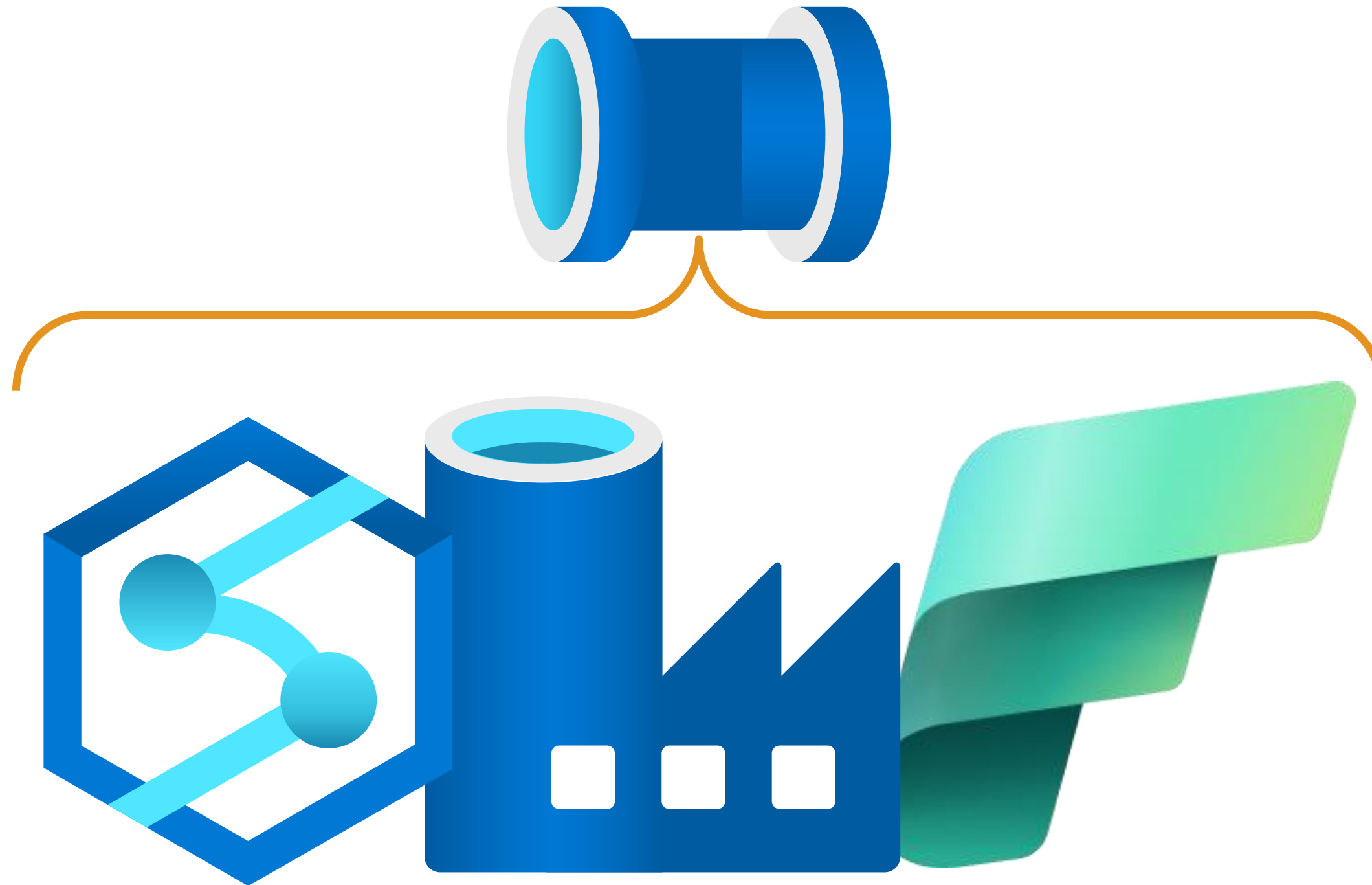
# What is Azure Data Factory (ADF)?



# What are Integration Pipelines?



**Answer:** A data integration pipeline is a logical package of work that can be used move, transform and orchestrate data tasks from and to various compute and storage resources.

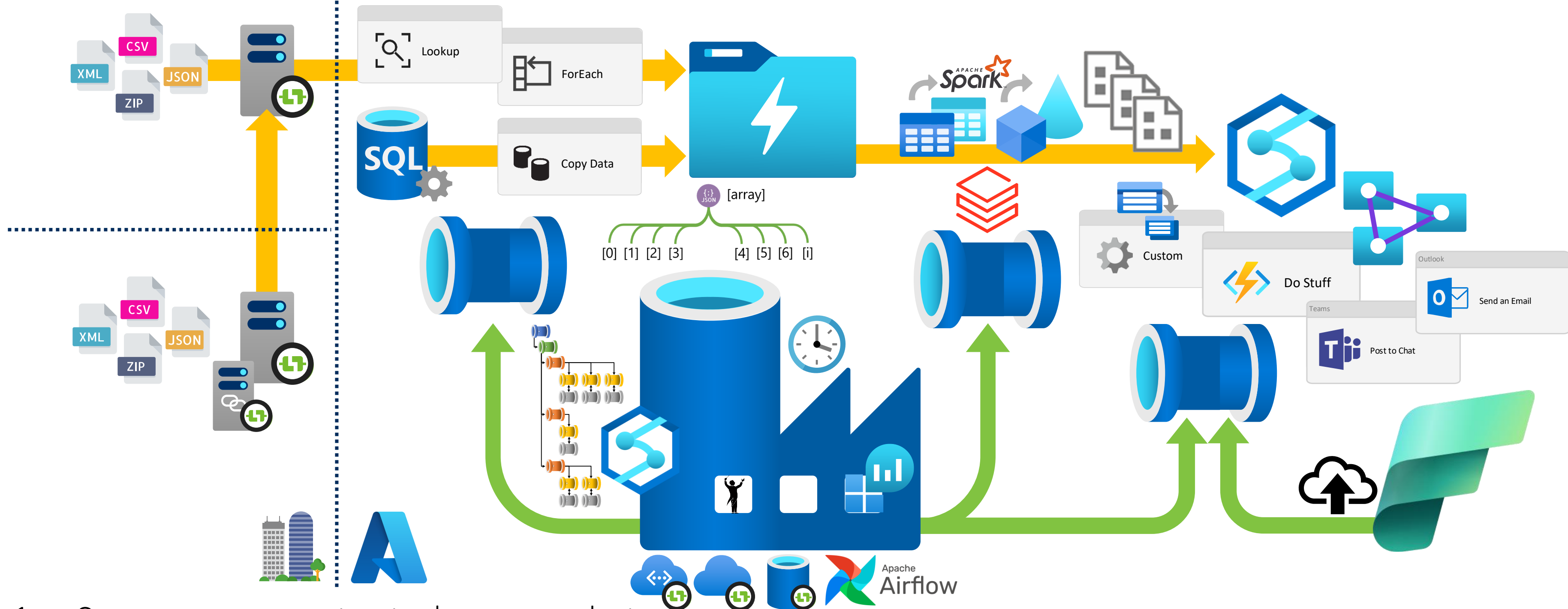


In the context of Azure Data Factory, Azure Synapse Analytics, and Microsoft Fabric, integration pipelines represent a common component or tool across products for engineering teams to utilise in the delivery of a data platform solution.

# What are Azure Data Factory Integration Pipelines?



Considering everything we've covered today.



1. Common component or tool across products.
2. The ability to orchestrate our Control Flow operations – with scale out Activities.
3. The ability to orchestrate our Data Flow transformations – using cloud native services.
4. The scheduler of solutions – using a variety of Pipeline Triggers and dynamic frameworks.

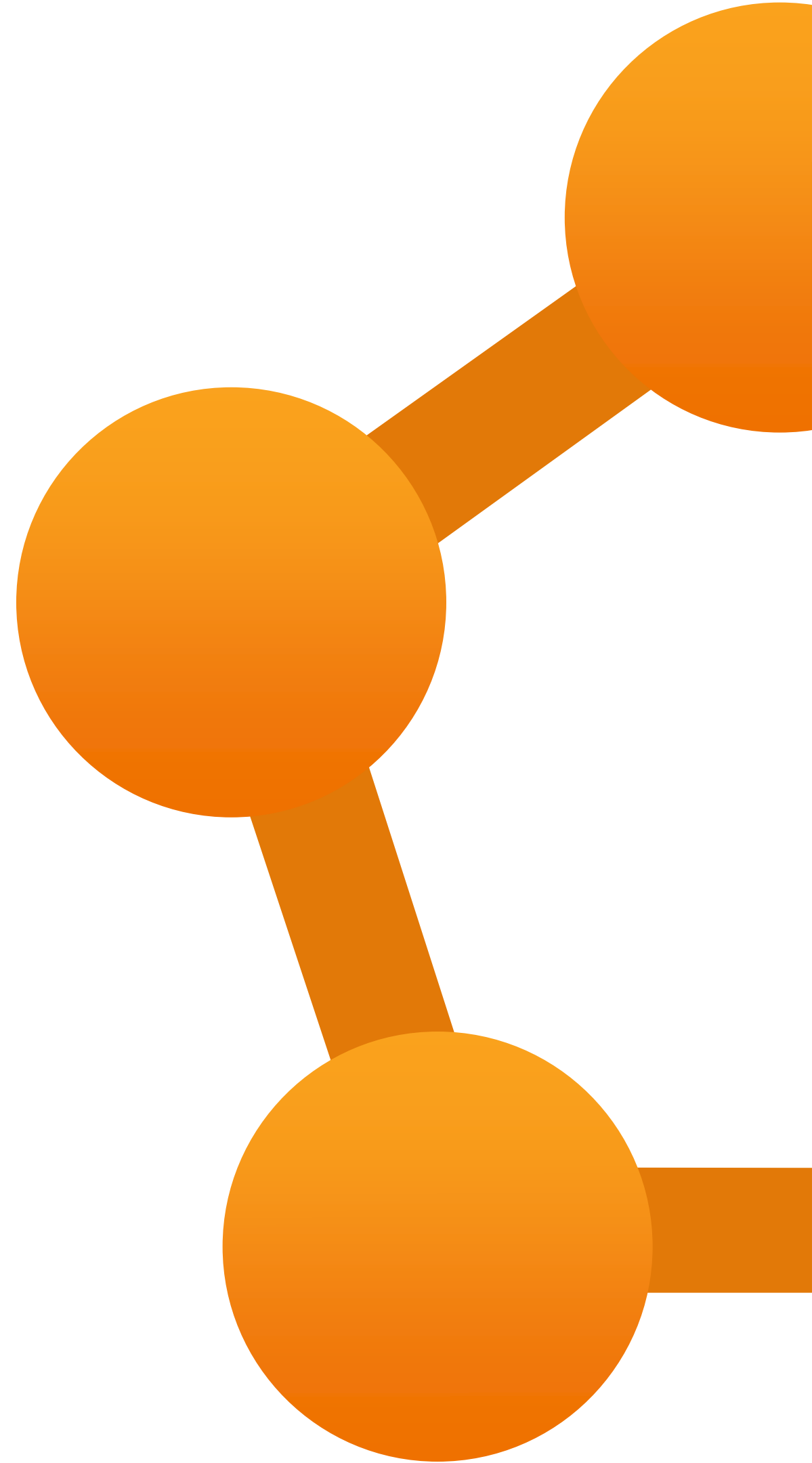


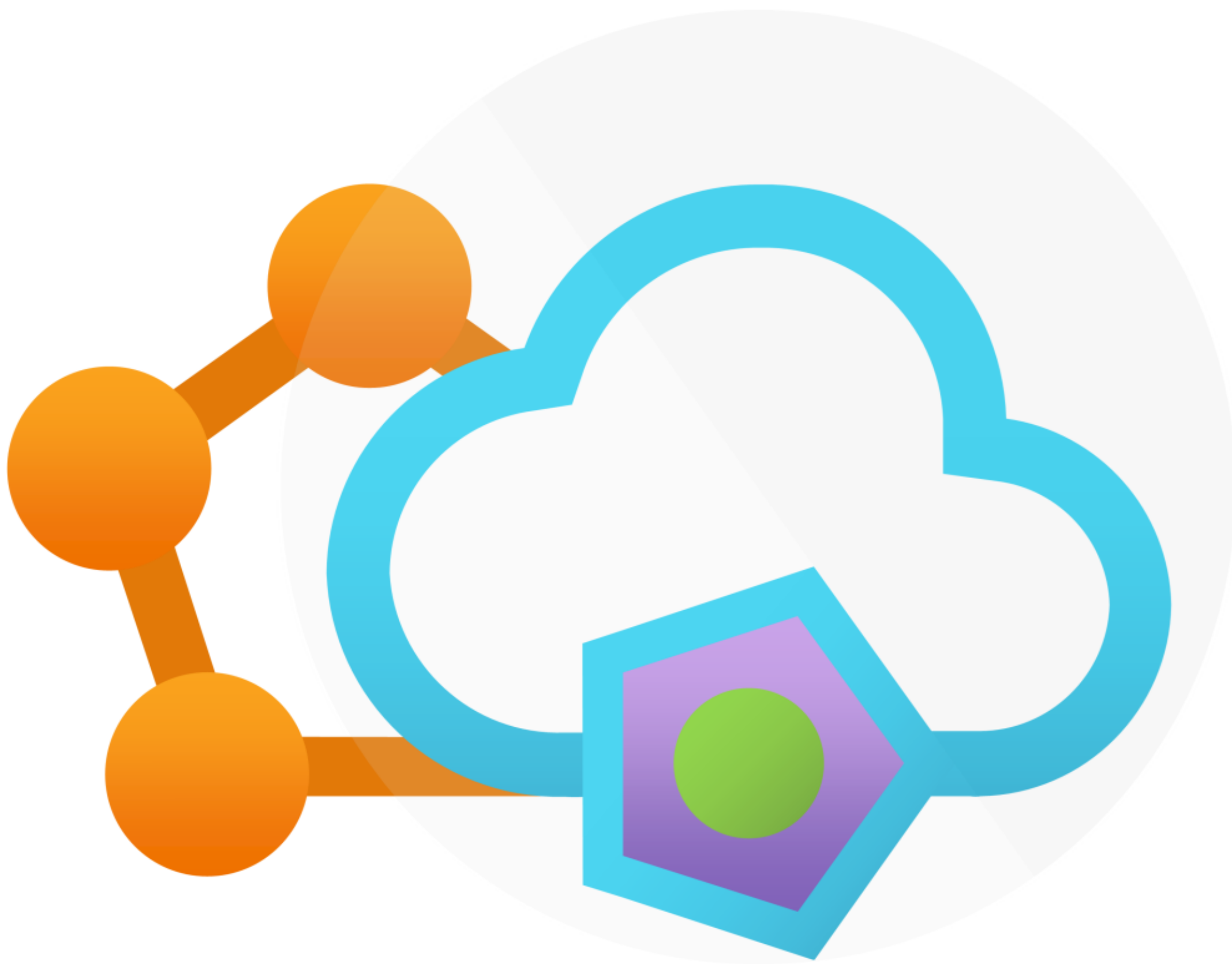
# Module 12

Final Thoughts ✓

Any questions?

Cloud Formations





# Thank You



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## Cloud Formations