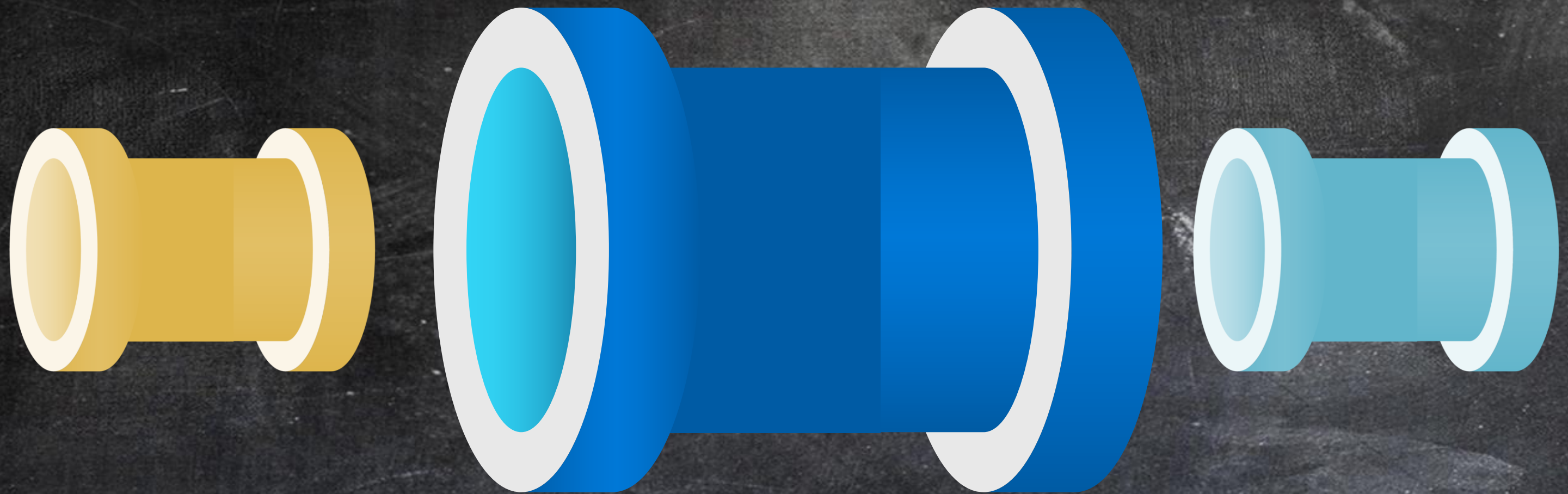


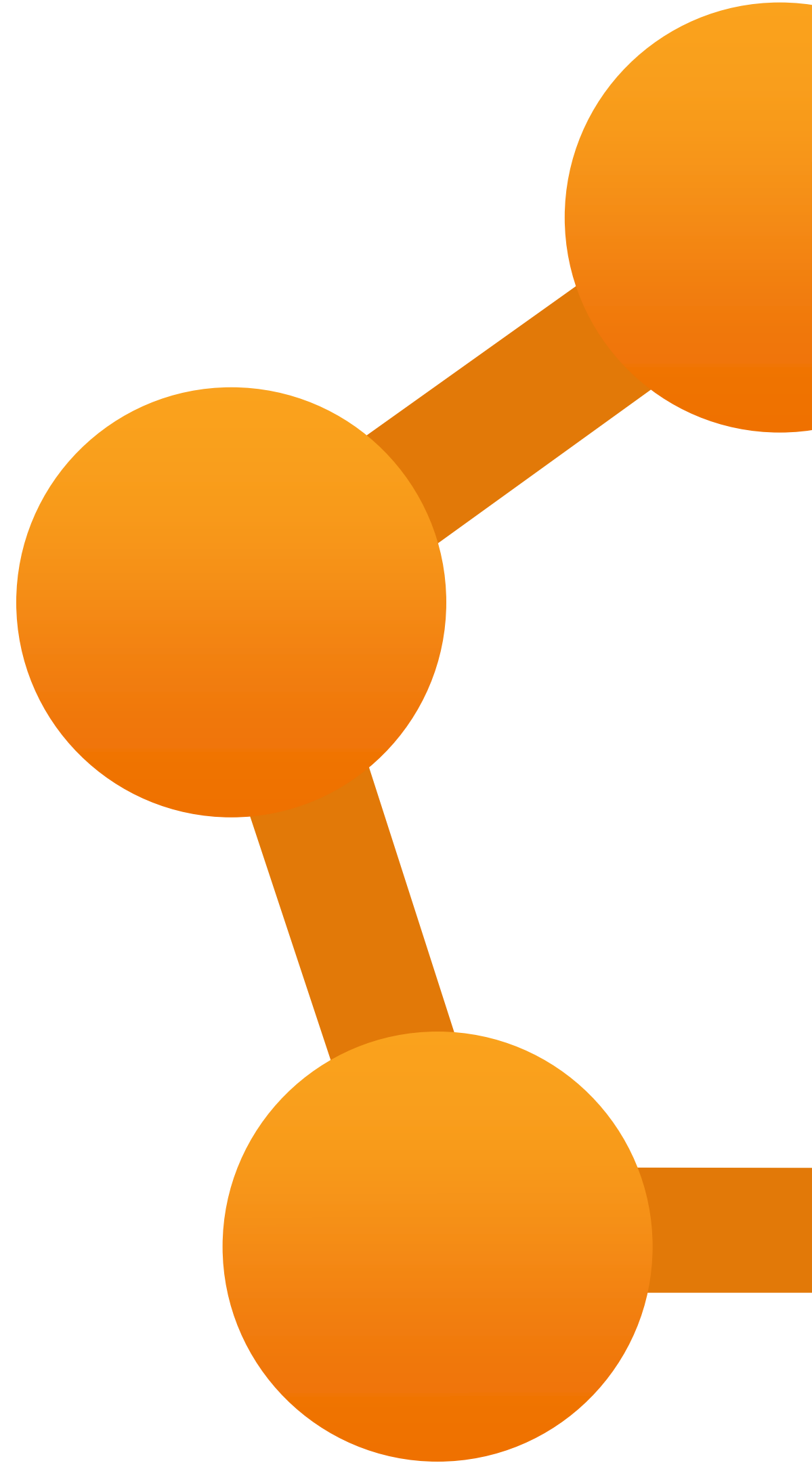
Integration Pipelines



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

= £ ???

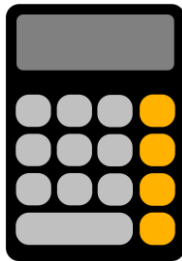
Chat with Sales

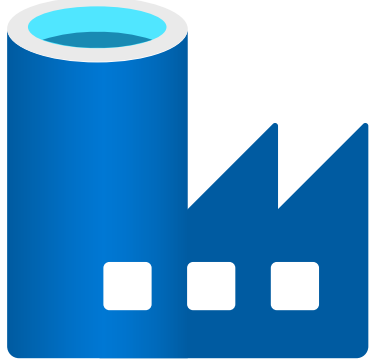

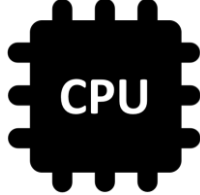


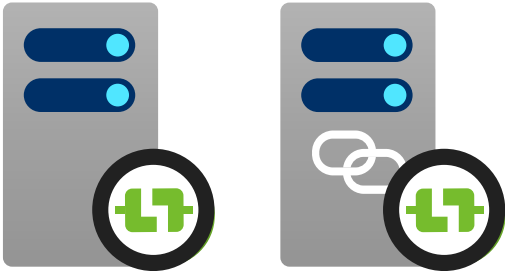
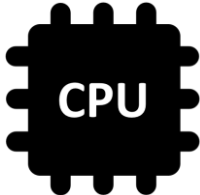
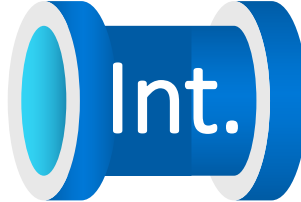



Data Factory Pricing – IR Type




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

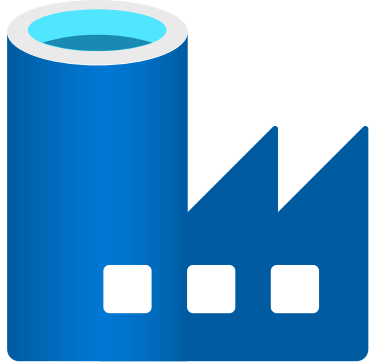
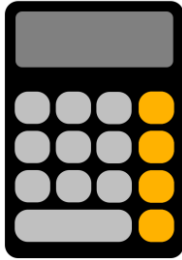

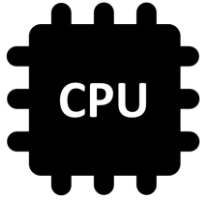
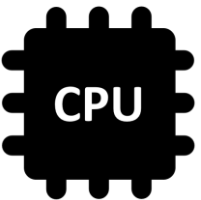




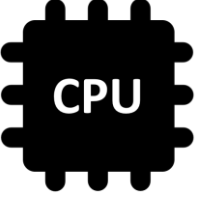
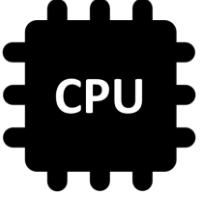




 Run Function

£2.13 per Month

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

Data Factory Pricing – Data Flow & SSIS Compute

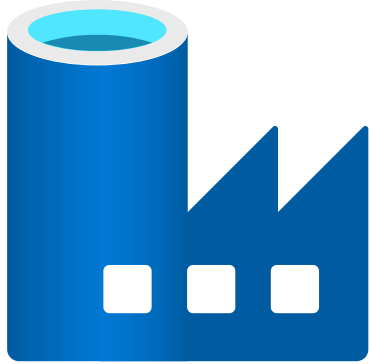

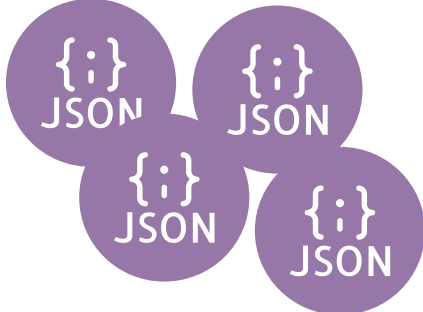



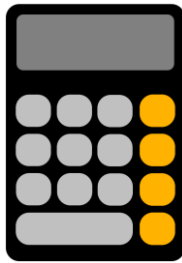
|  | | Number of Compute Cores | Number of VM Instances | VM Uptime Per Hour | SQL Server Licence Type |  |
|----------------------------------------------------------------------------------------------|--|-------------------------------------------------------------------------------------------------------------------------------------------------------------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

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

Data Factory Pricing – Operations

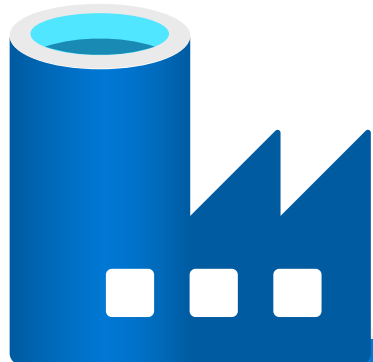


| | | |
|----------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
|  | Entity Read/Write | 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 26th Feb 2024.

How Much Does My Pipeline Cost?



Consumption

Microsoft Azure | Data Factory | FrameworkFactory

»

Dashboards

Runs

Pipeline runs

Trigger runs

Runtimes & sessions

Integration runtimes

Data flow debug

Notifications

Alerts & metrics

Pipeline runs

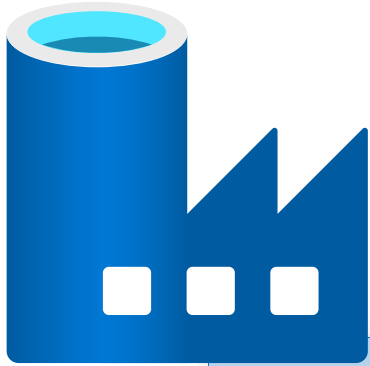
Triggered Debug Rerun Cancel Refresh Edit columns List Gantt

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

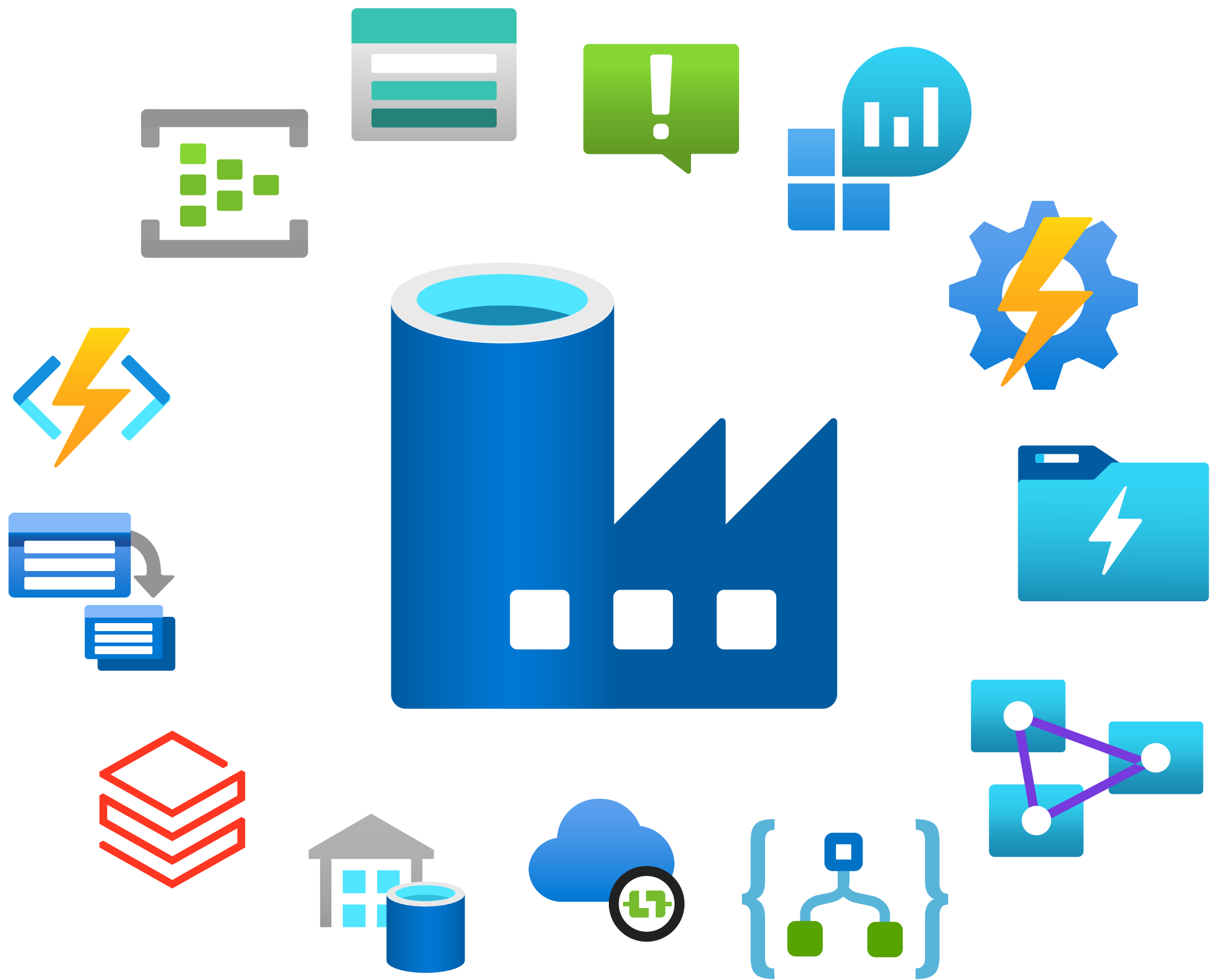
Showing 1 - 19 items

| <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:

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

£338.16*

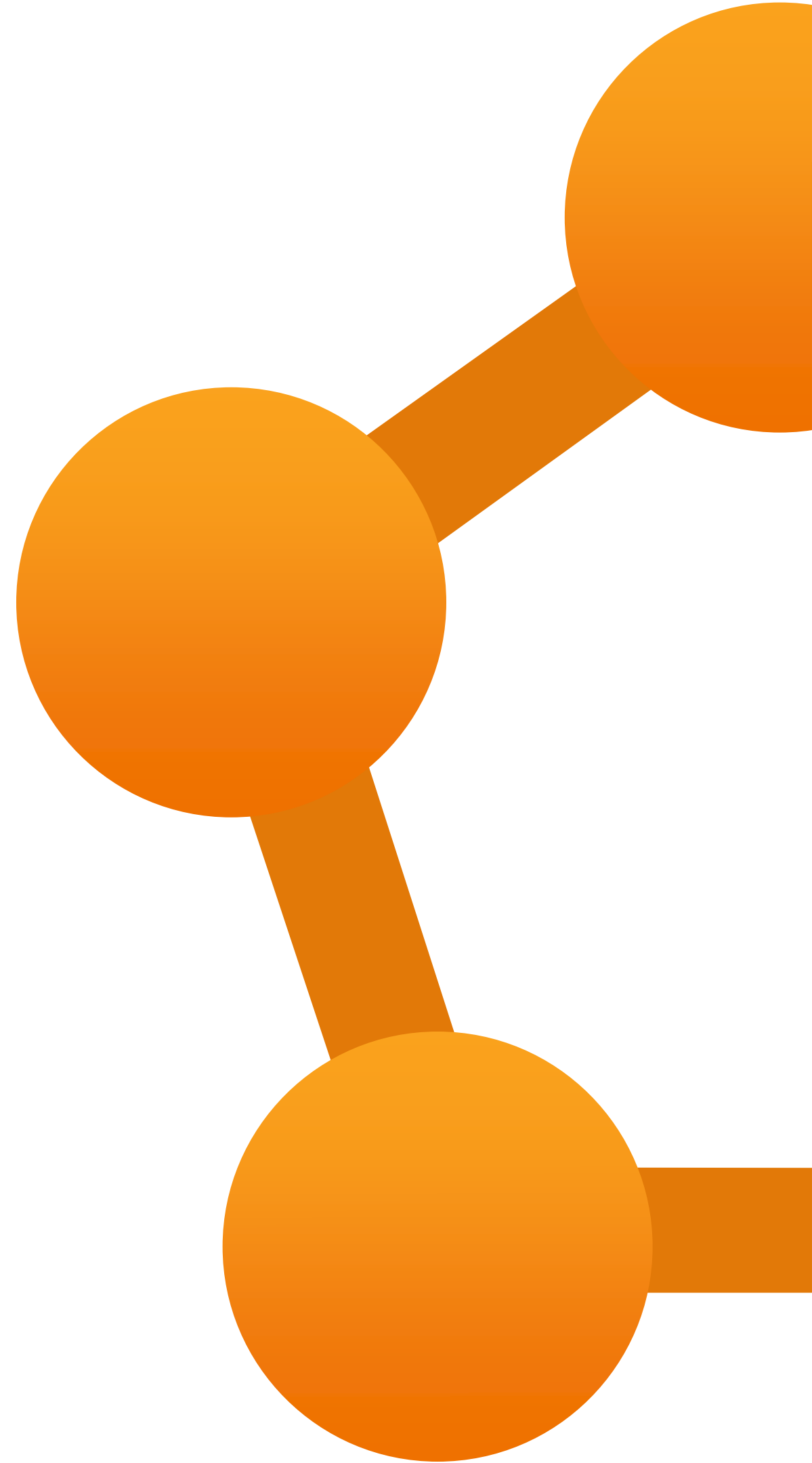
*With every customer implementation data volumes, table complexity and serving queries (to dashboards) may differ. All affecting the above run costs.

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

Module 12 – Final Thoughts

Best Practices

Cloud Formations

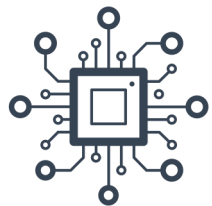


Key Points

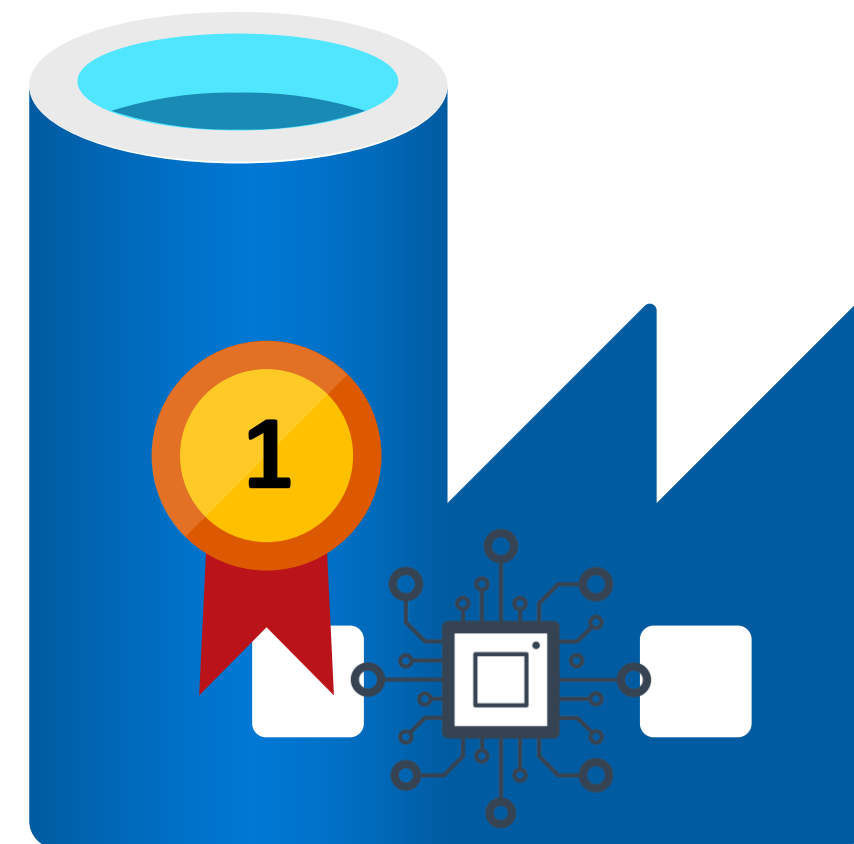


- Environment Setup & Developer Debugging
- Deployments
- Automated Testing
- Naming Conventions
- Pipeline Hierarchies
- Pipeline & Activity Descriptions
- Factory Component Folders
- Linked Service Security via Azure Key Vault
- Dynamic Linked Services
- Generic Datasets
- Metadata Driven Processing

- 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



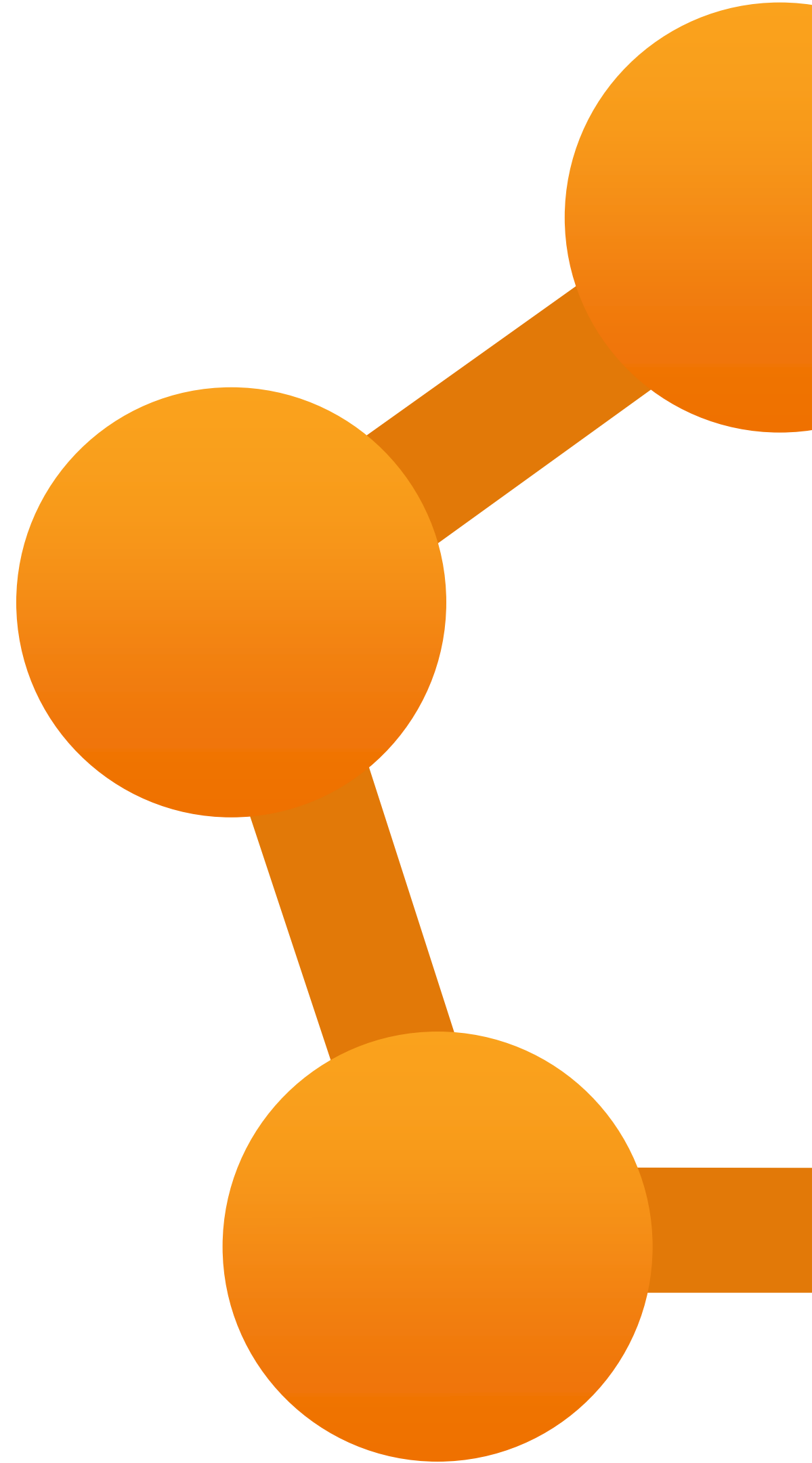
mrpaulandrew.com/2019/12/18/best-practices-for-implementing-azure-data-factory/



Module 12 – Final Thoughts

Conclusions

Cloud Formations





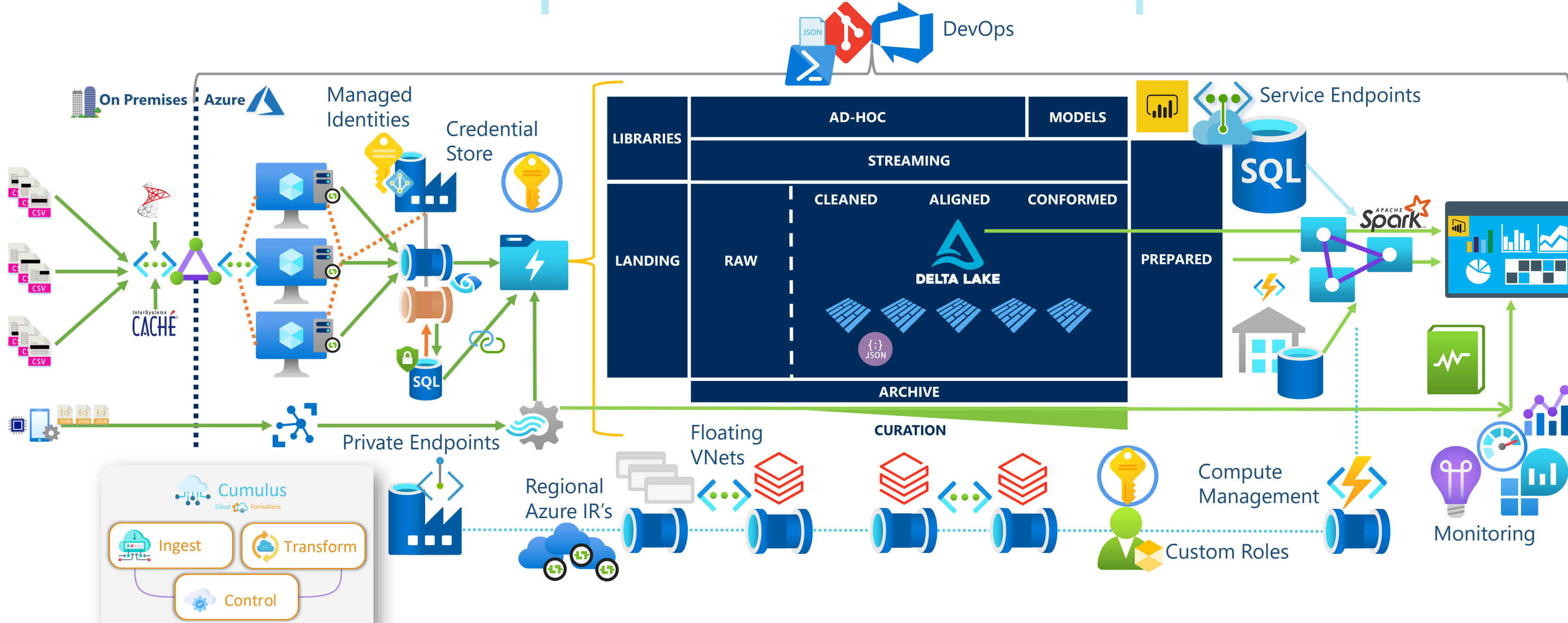
Overall Architecture



Extract

Transform

Load



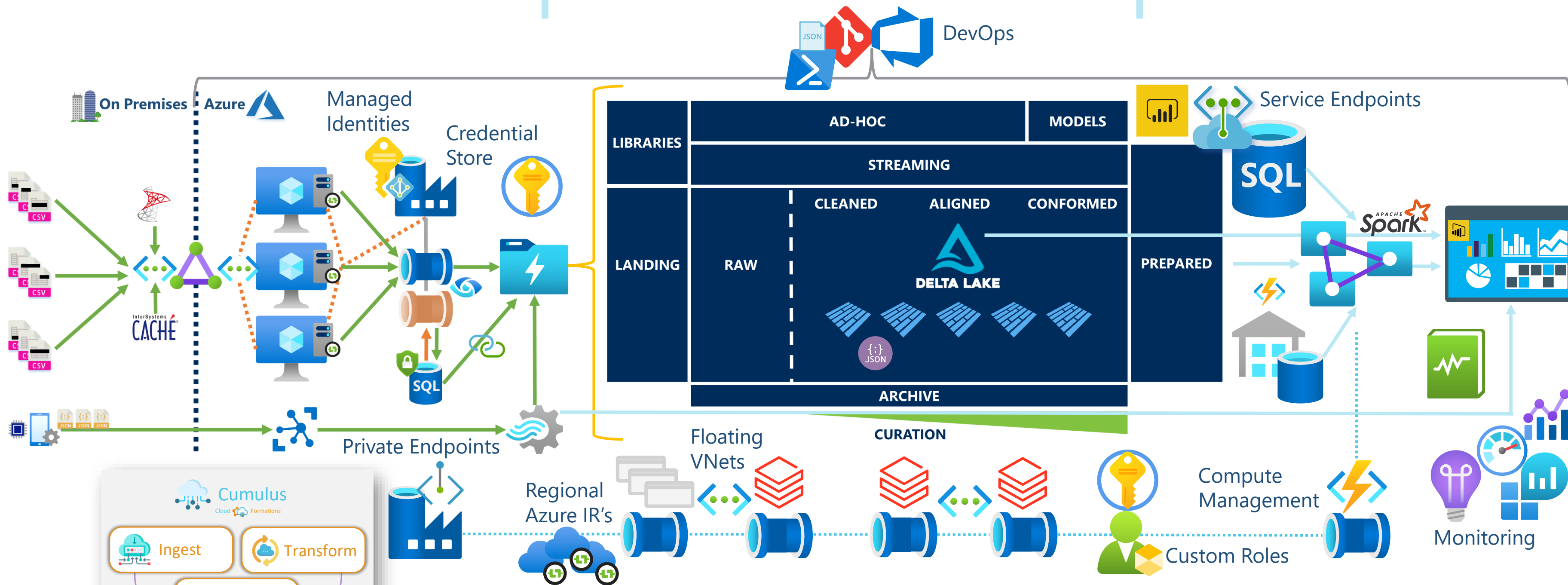
Overall Architecture



Extract

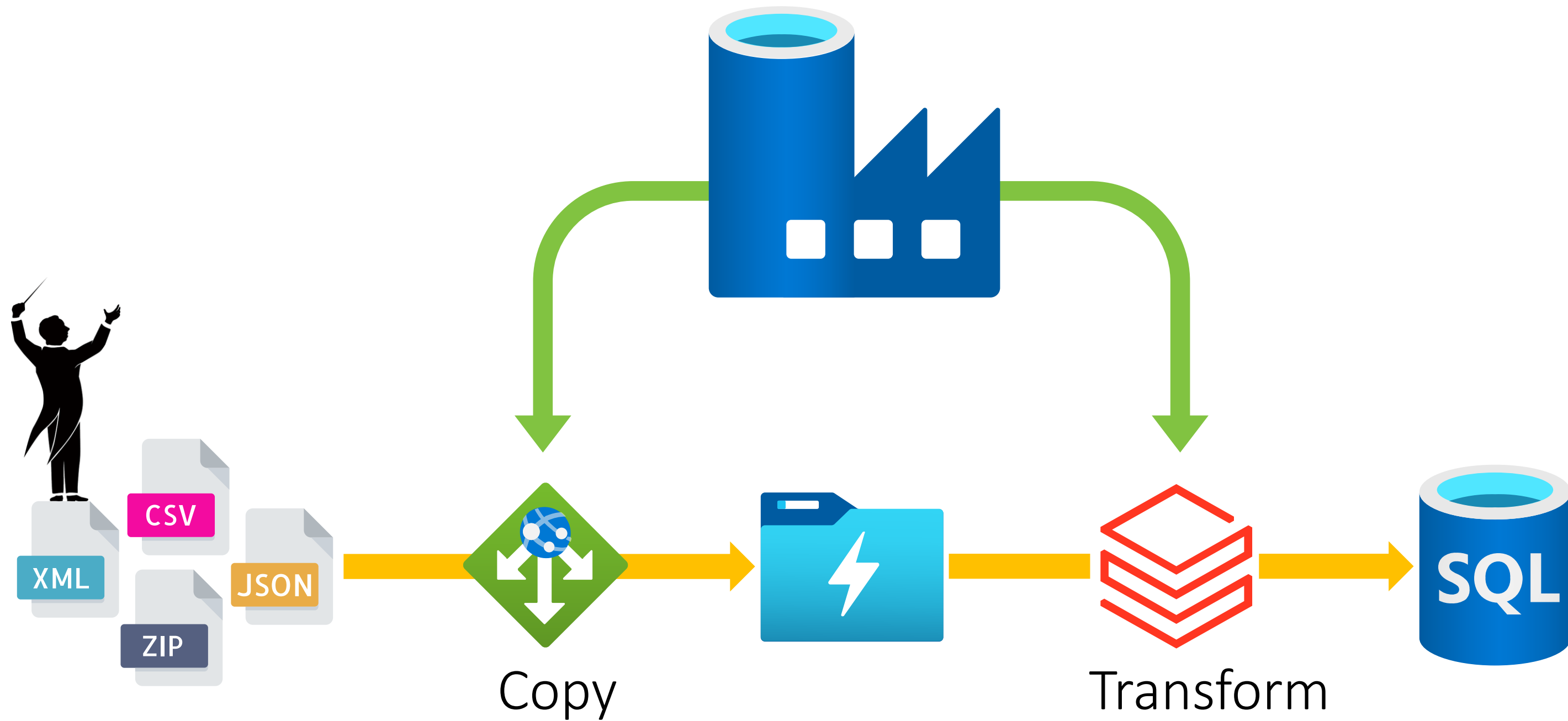
Transform

Load



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

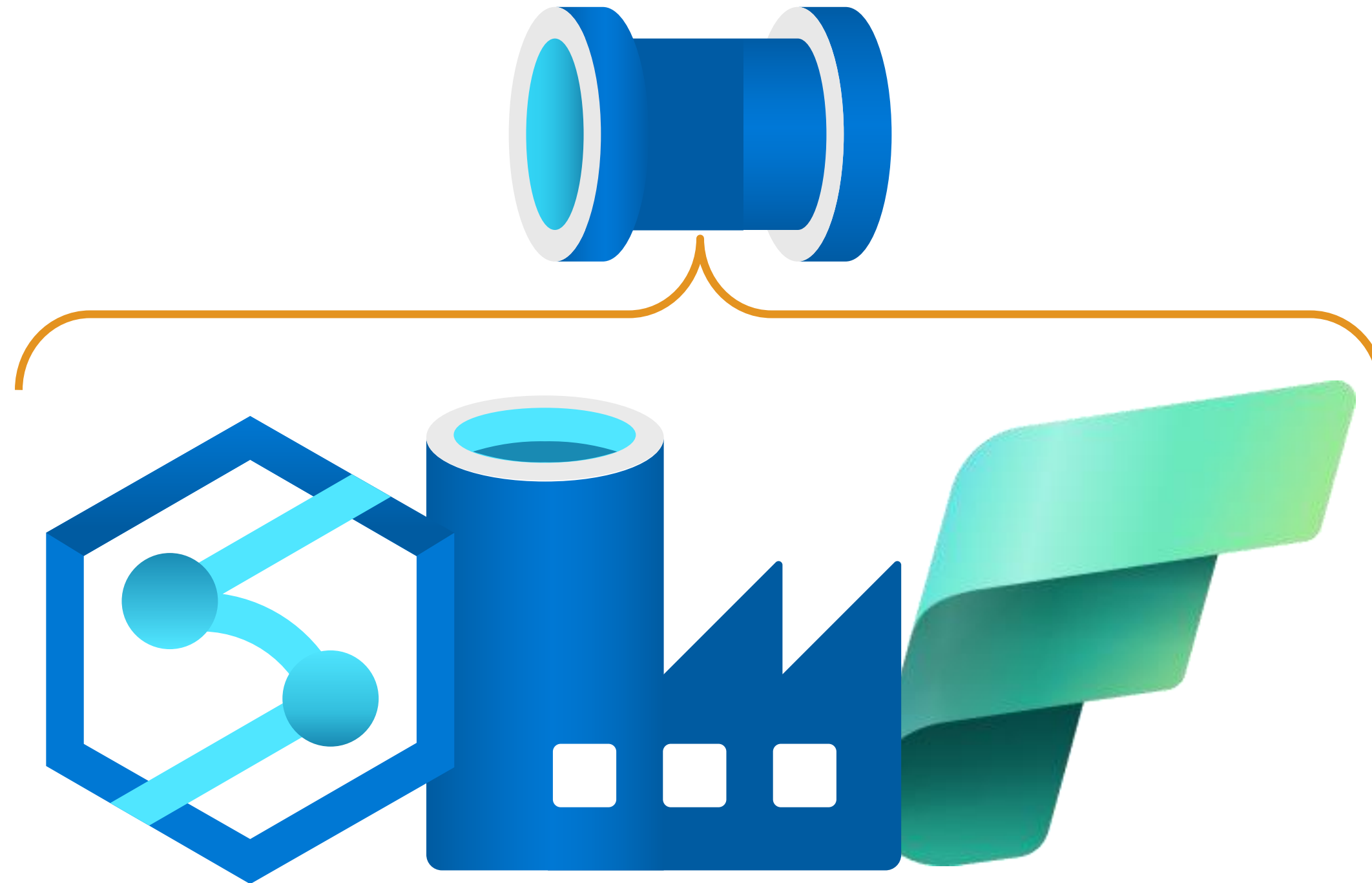
What is Azure Data Factory (ADF)?



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.

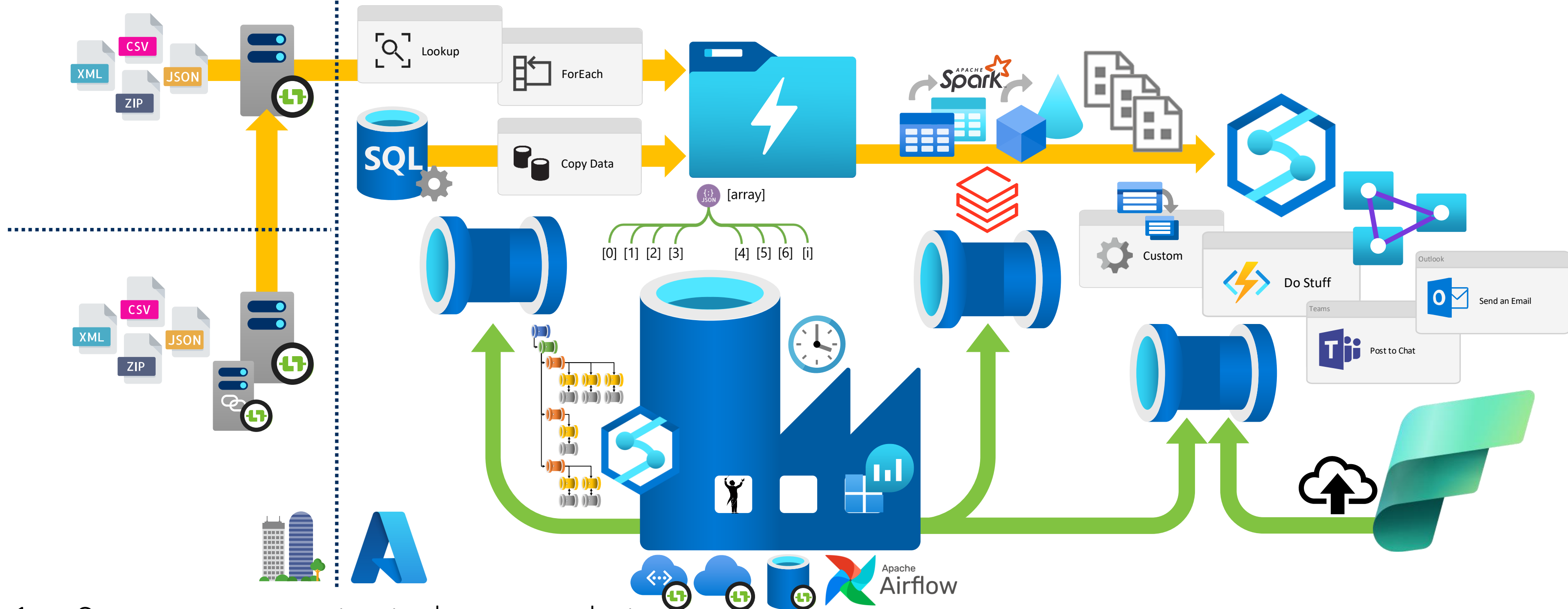


In the context of Azure Data Factory, Azure Synapse Analytics, and Microsoft Fabric, integration pipelines represent a common component or tool across products for engineering teams to utilise in the delivery of a data platform solution.

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.

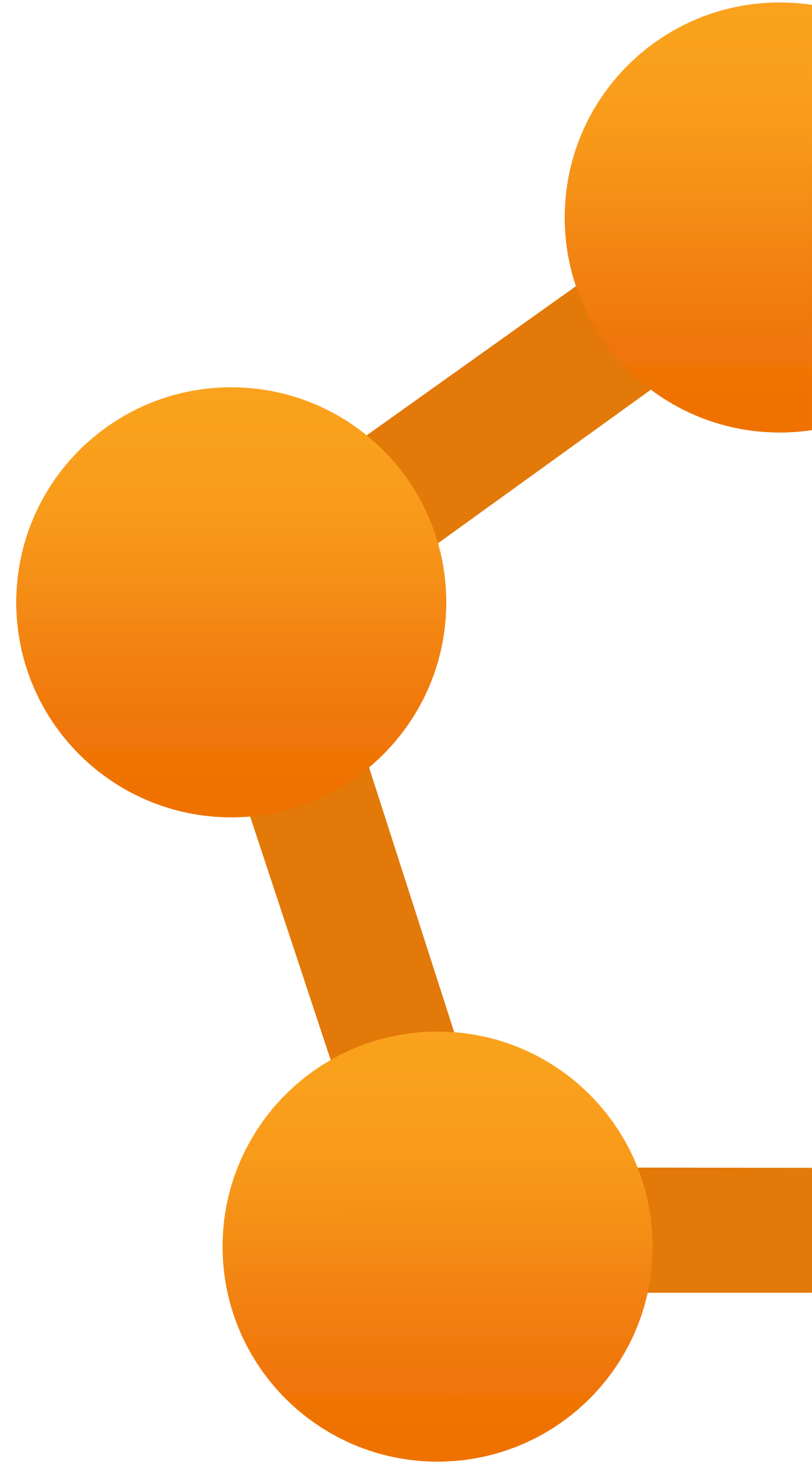
Module 12

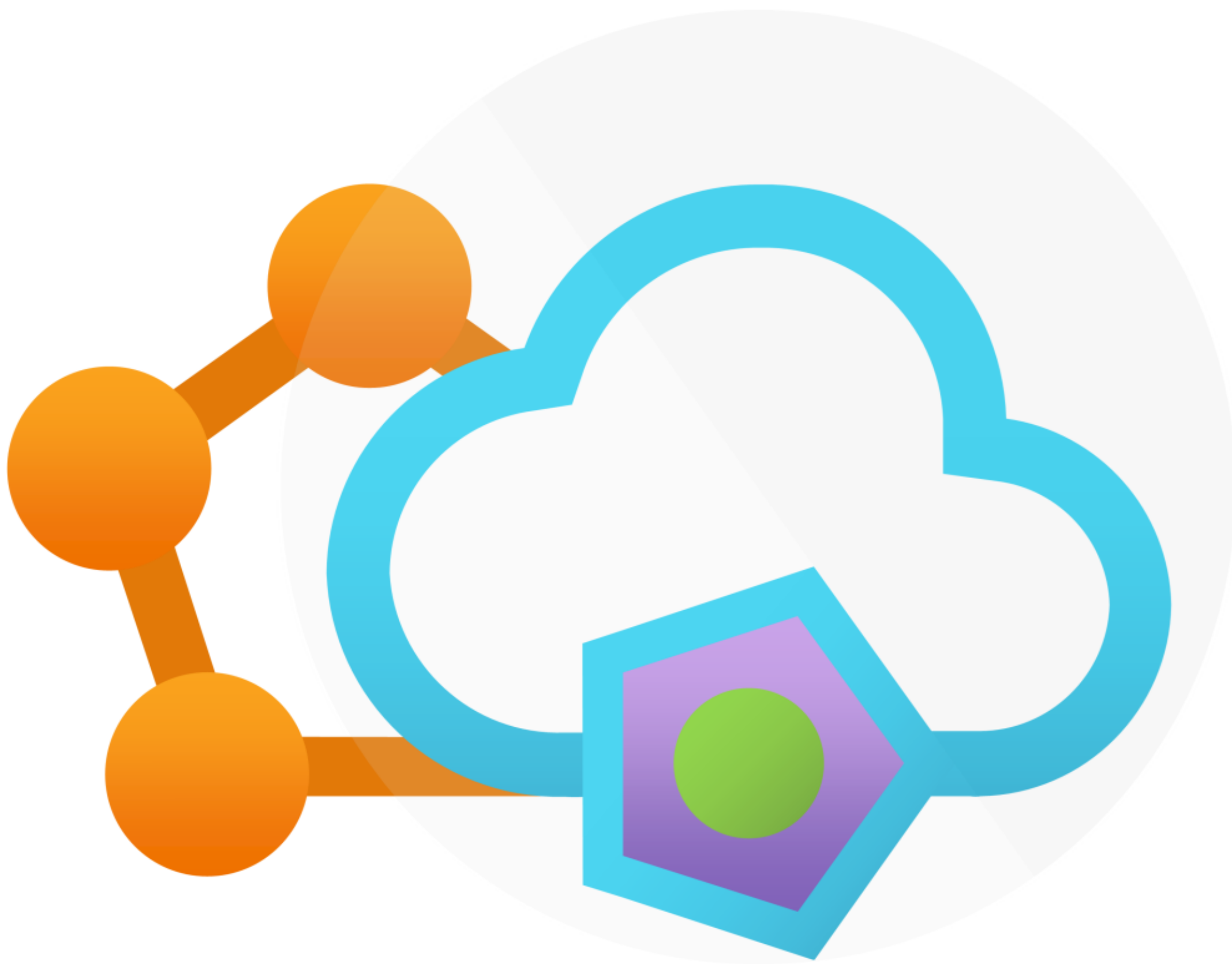
Final Thoughts



Any questions?

Cloud Formations





Thank You




 mrpaulandrew.com


 paul@mrpaulandrew.com


 [In/mrpaulandrew](https://www.linkedin.com/company/mrpaulandrew)

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



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