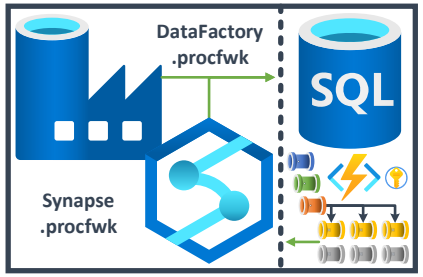
Creating a Metadata Driven Orchestration Framework



With Azure Data Factory

Paul Andrew | Principal Consultant & Solution Architect

Microsoft® MVP Most Valuable Professional

altius

@MrPaulAndrew

In/MrPaulAndrew

MrPaulAndrew.com

https://github.com/mrpaulandrew

CommunityEvents

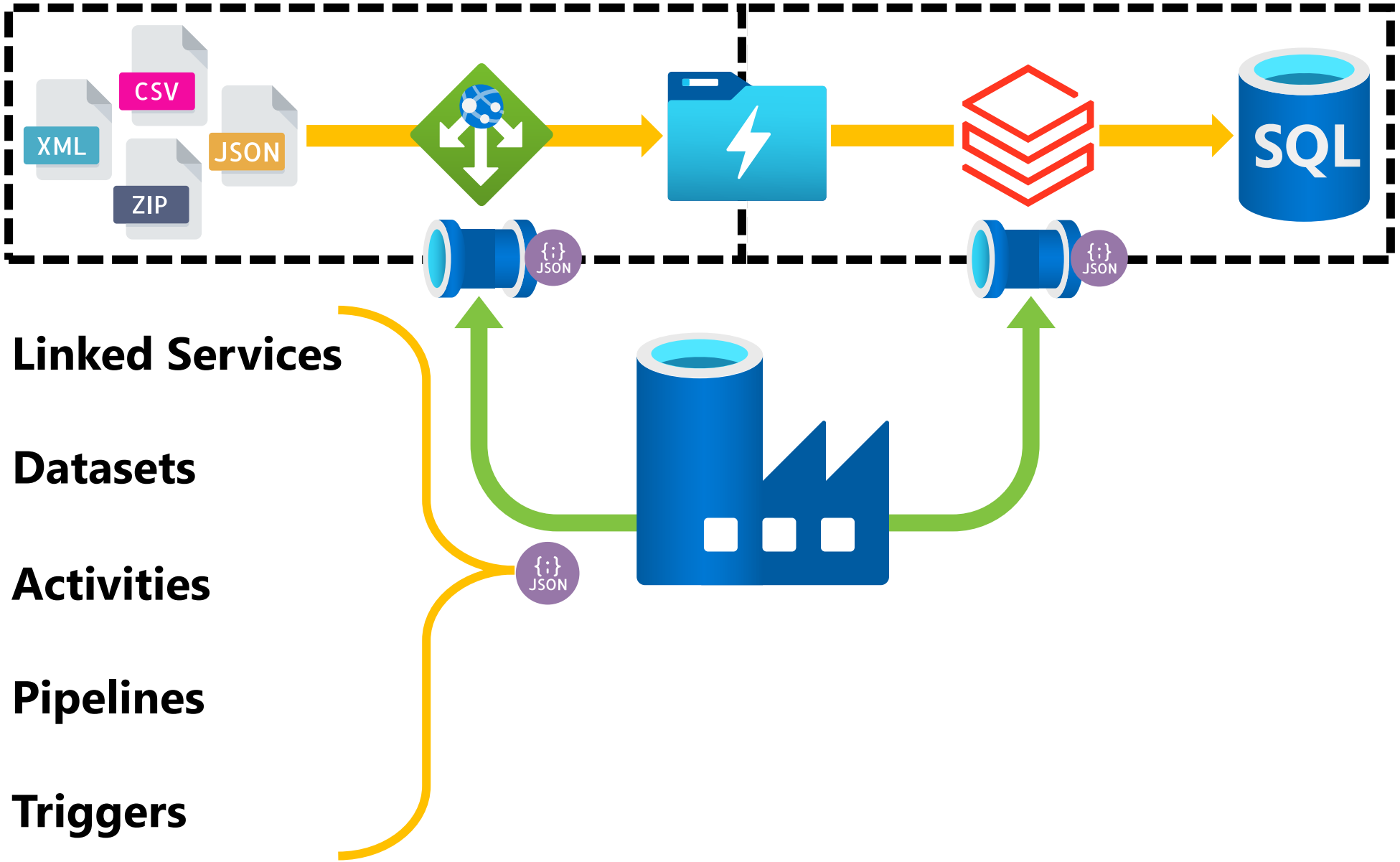
Demo code, content and slides from various community events.

C++

{Event/Location}-{Month}-{Year}

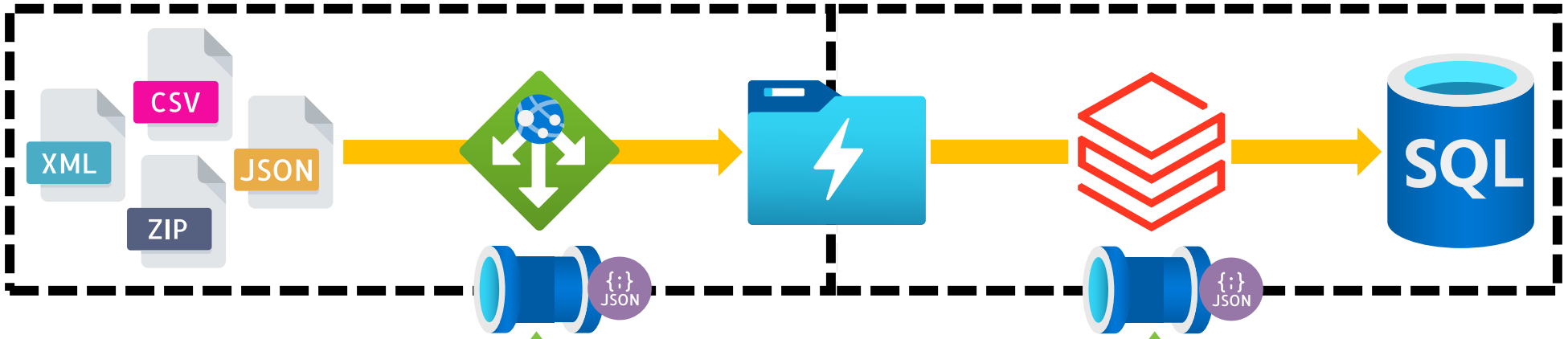
Data Factory

Data Factory A Quick Overview



1. **Linked Services**
2. **Datasets**
3. **Activities**
4. **Pipelines**
5. **Triggers**

Data Factory Components – Add Dynamic Content



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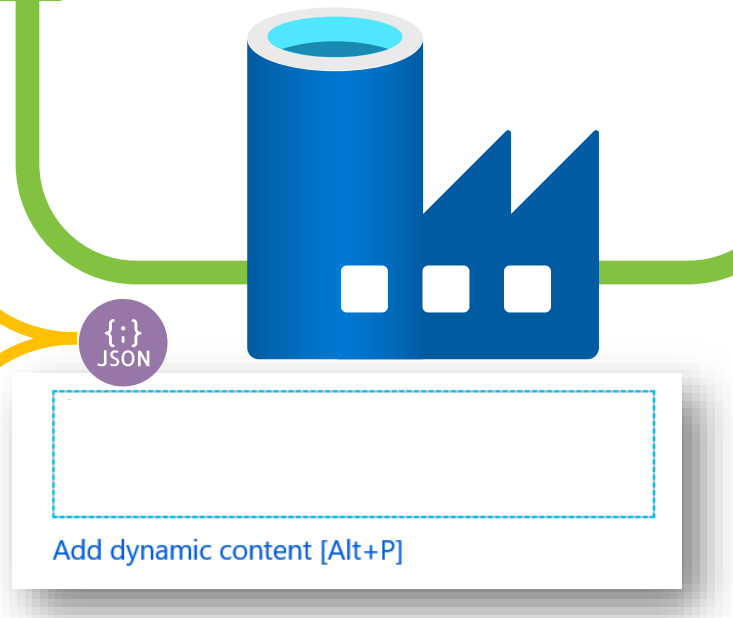
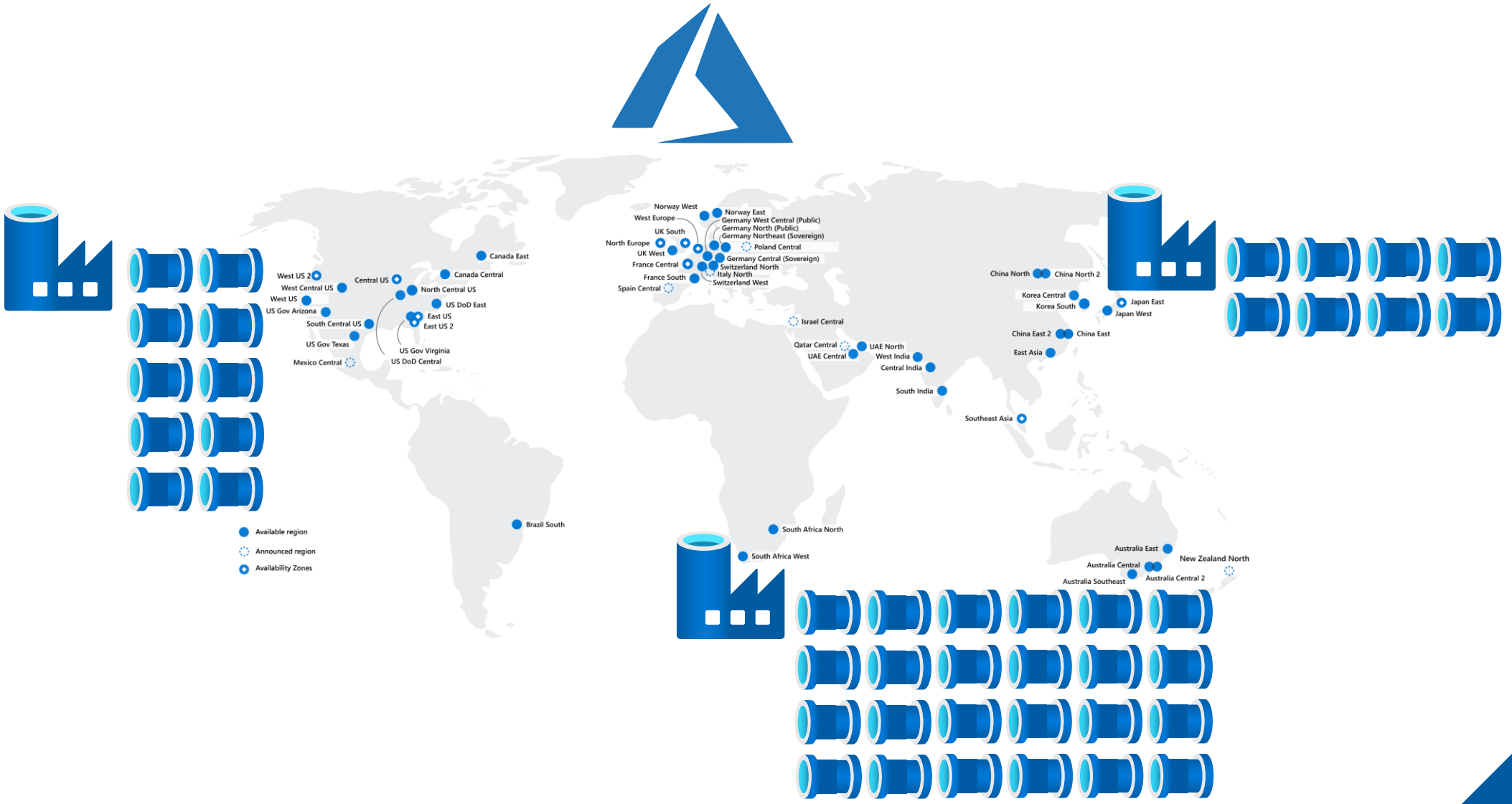


Problem

Problem: How should we structure our Data Factory Pipelines?



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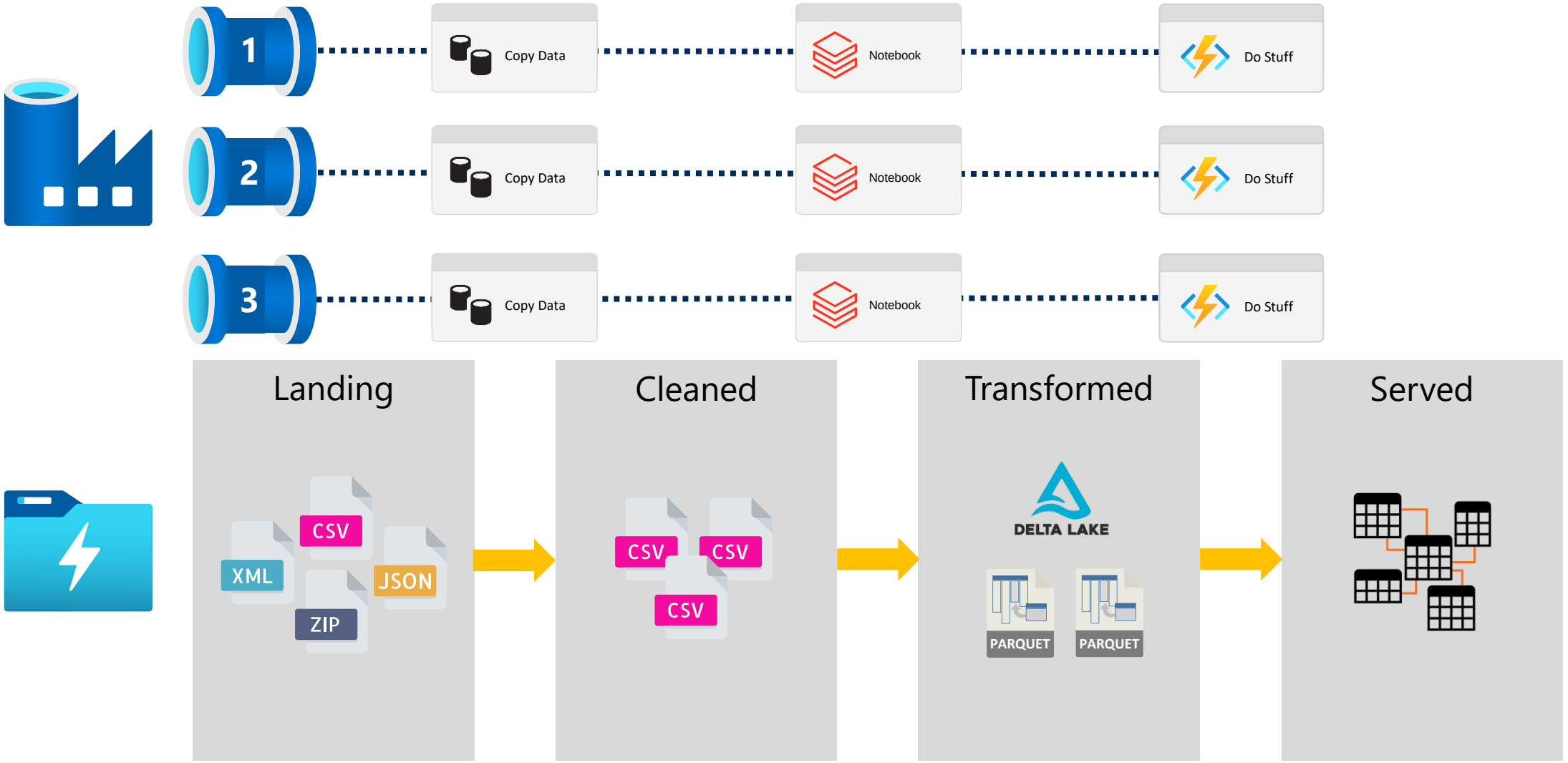
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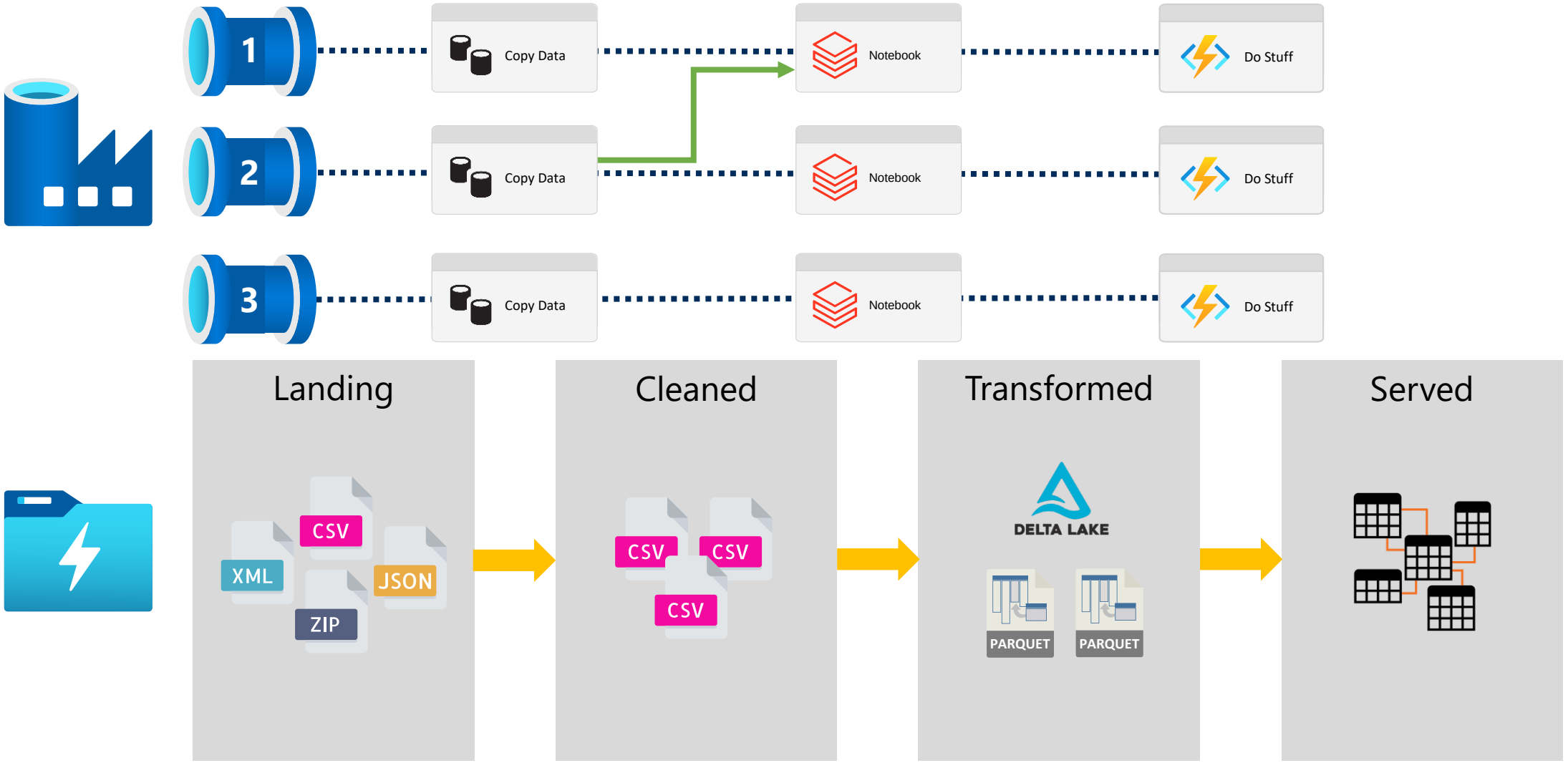
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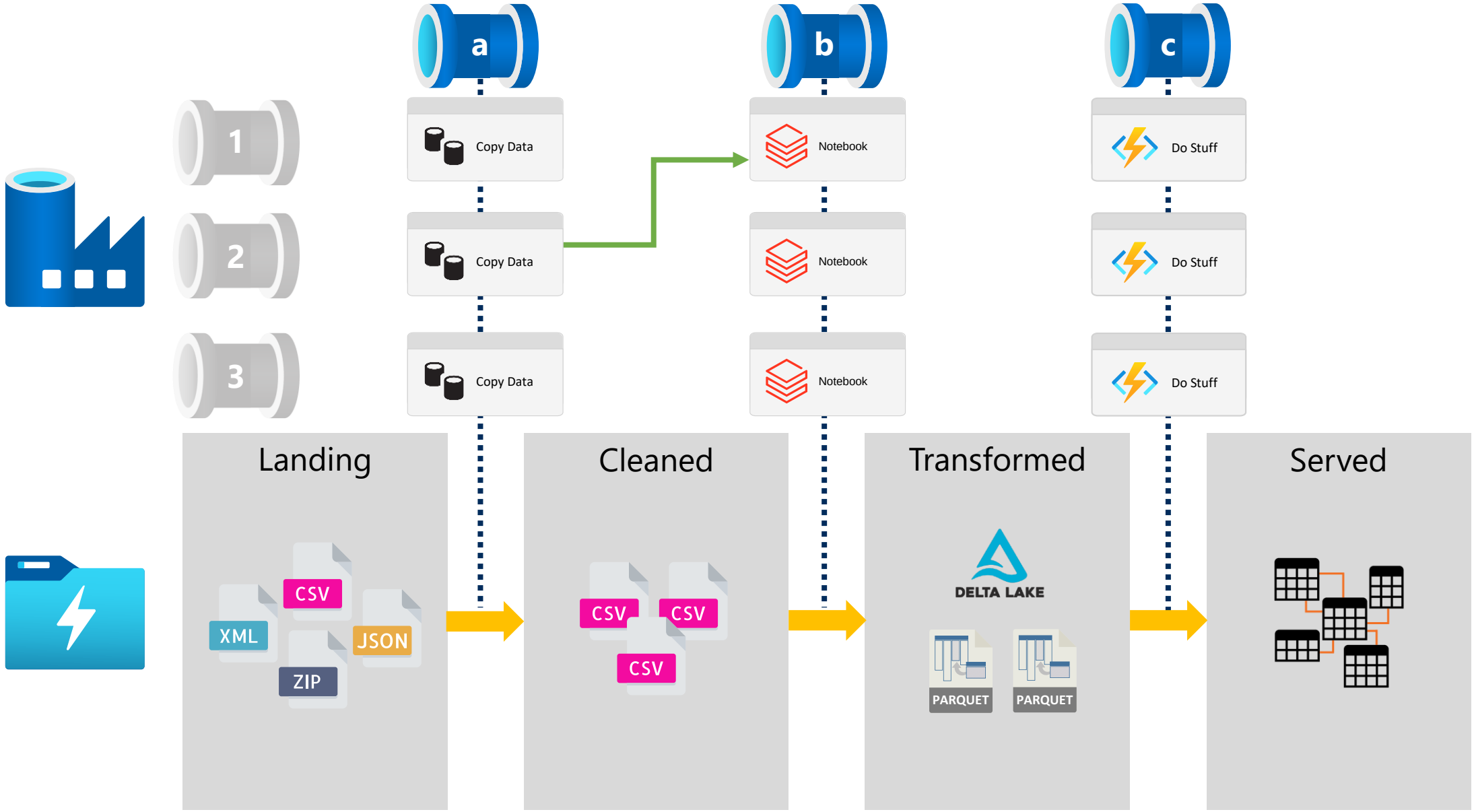
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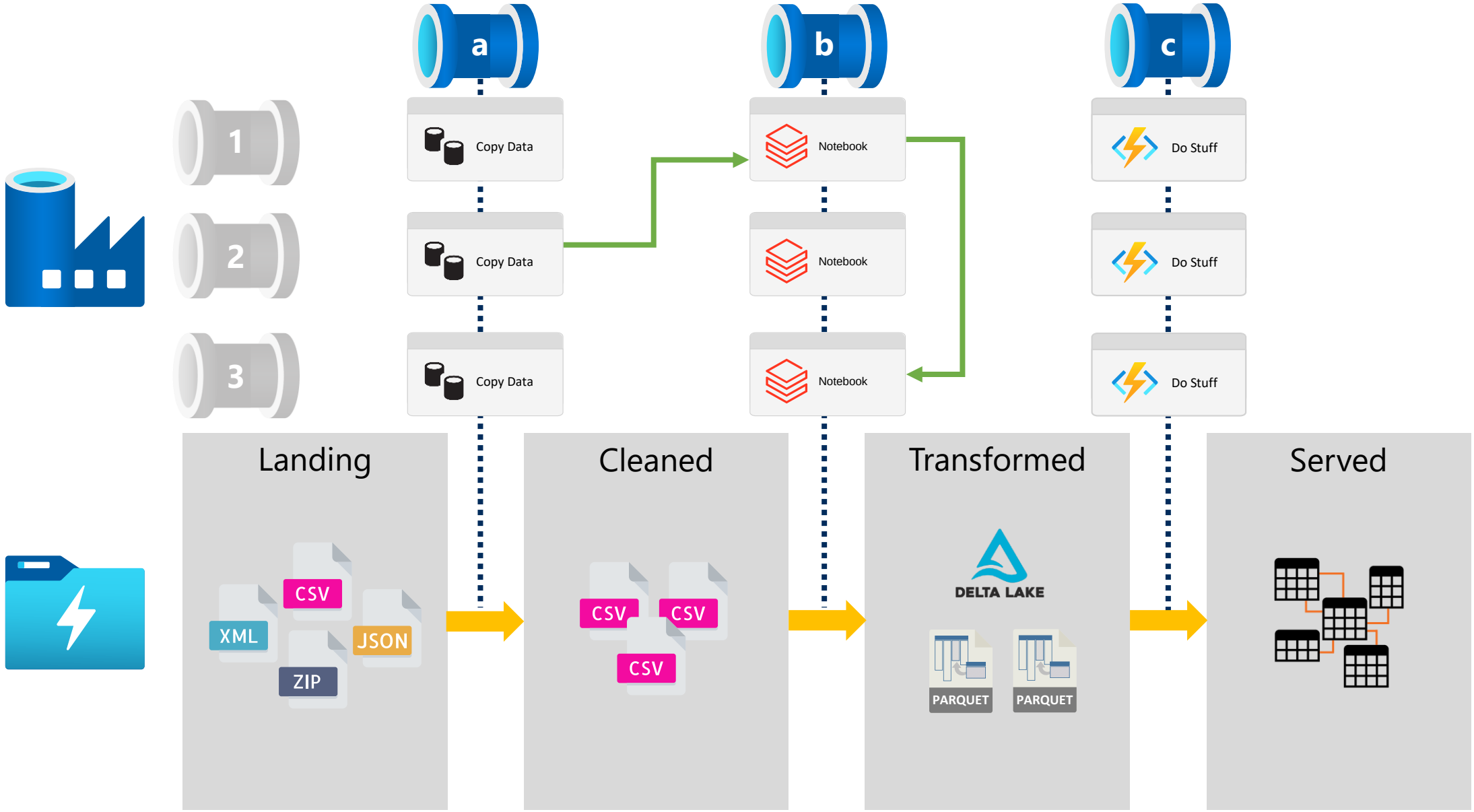
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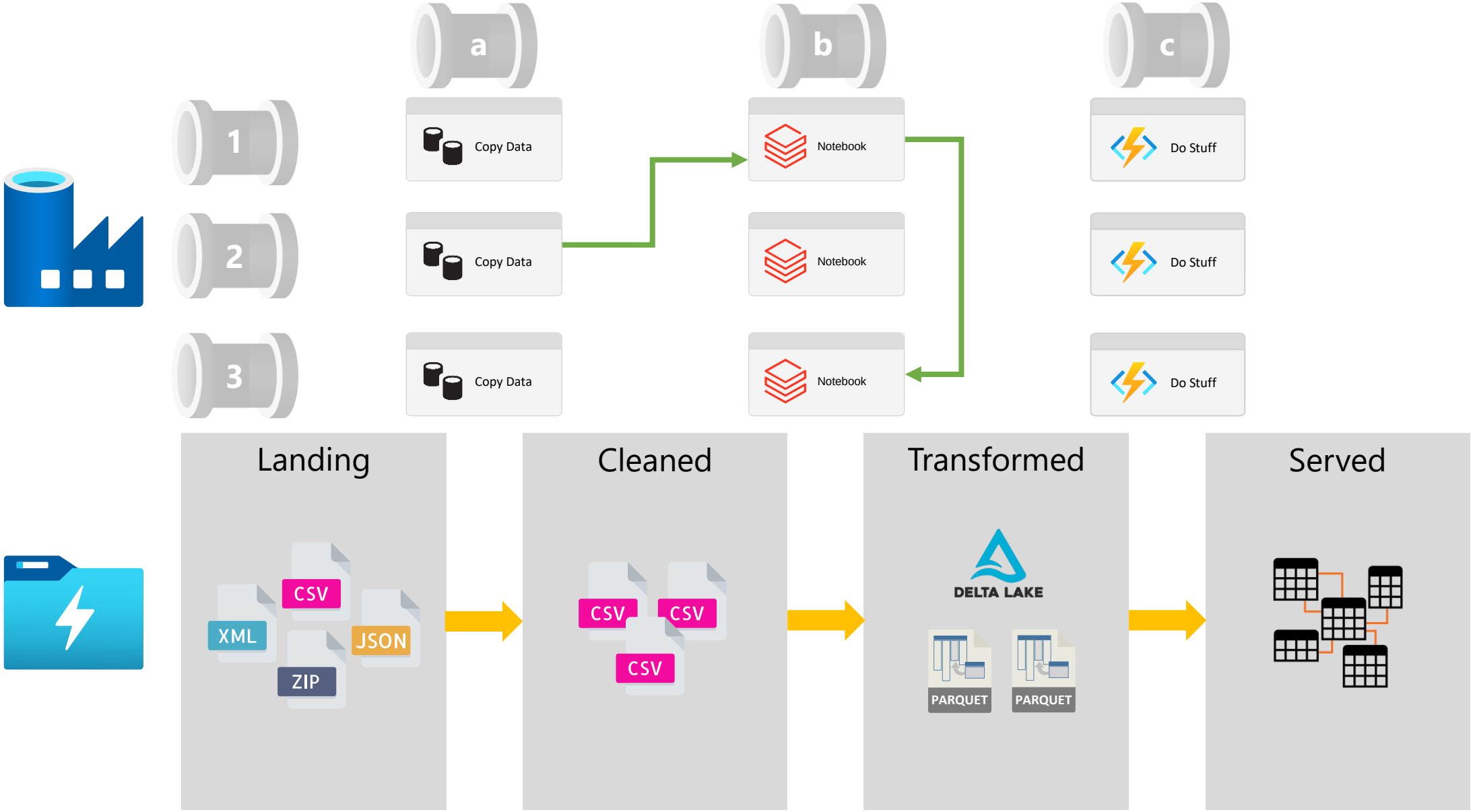
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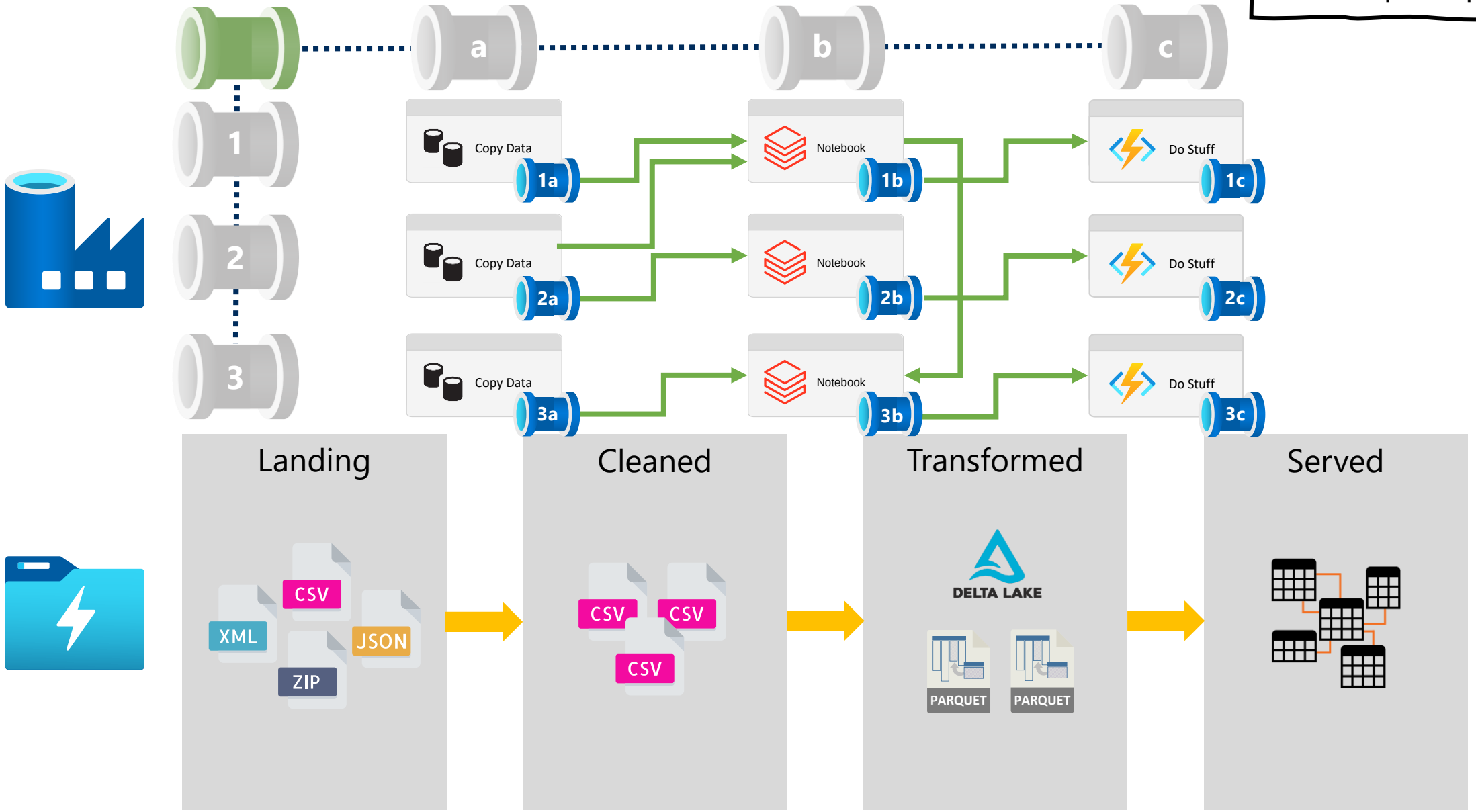
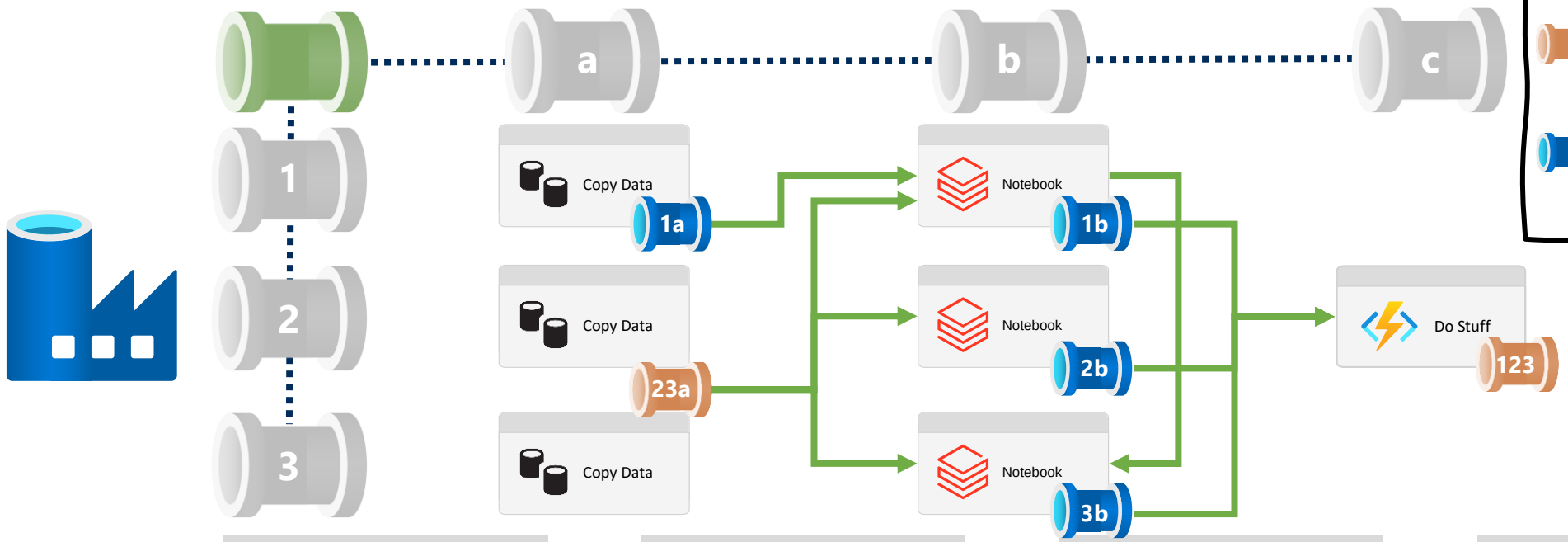
Problem

Only 40 Activities per Pipeline.



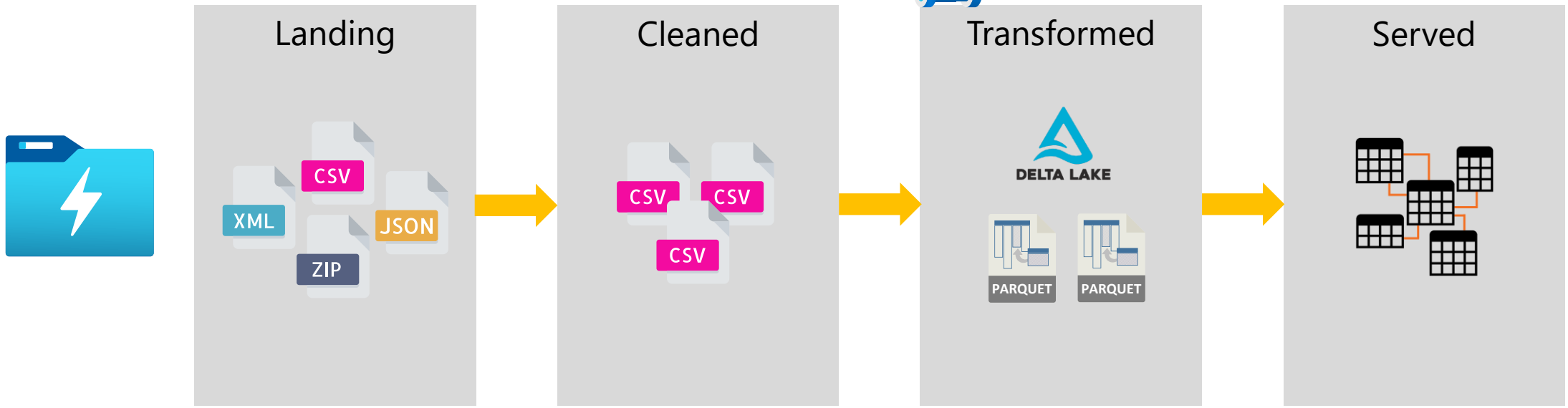
Problem



Grandparent pipeline for all processing.

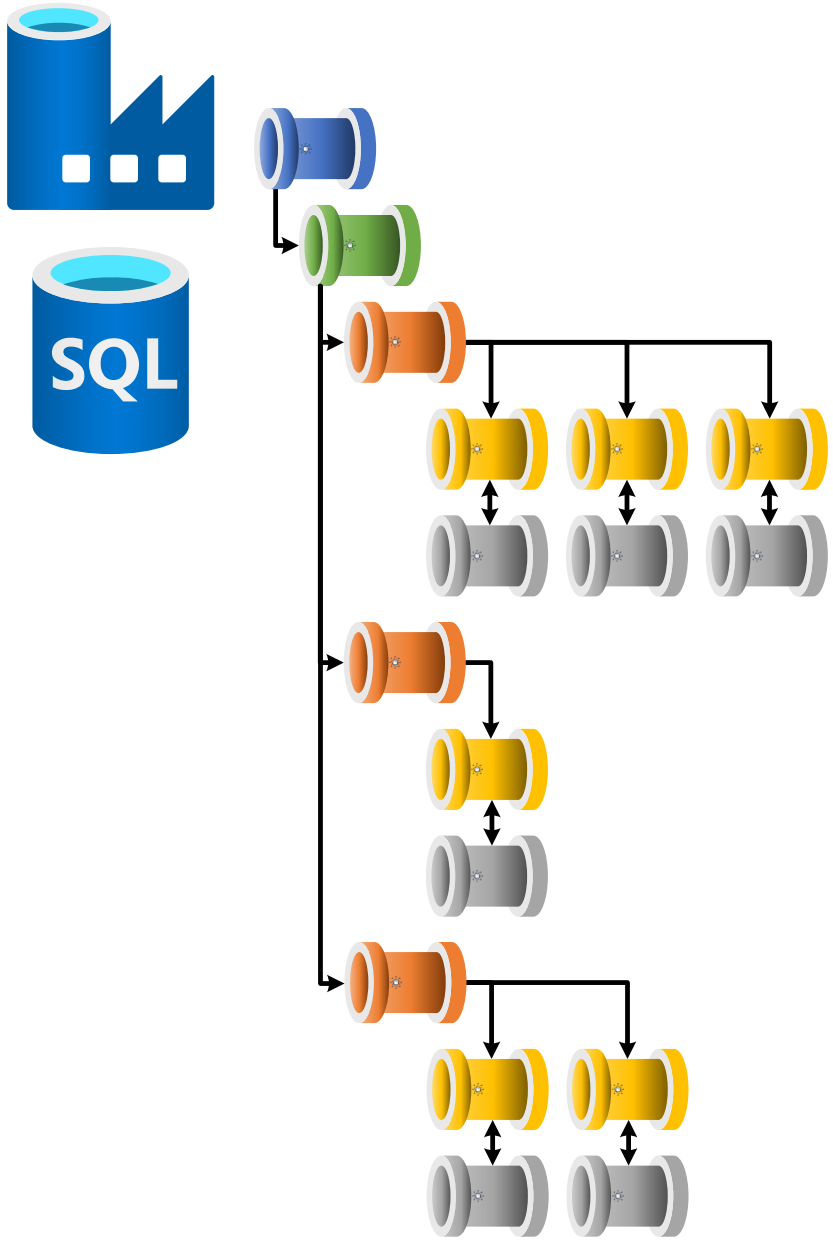
Parent pipeline to consolidate work.

Child pipelines for low level dependencies.

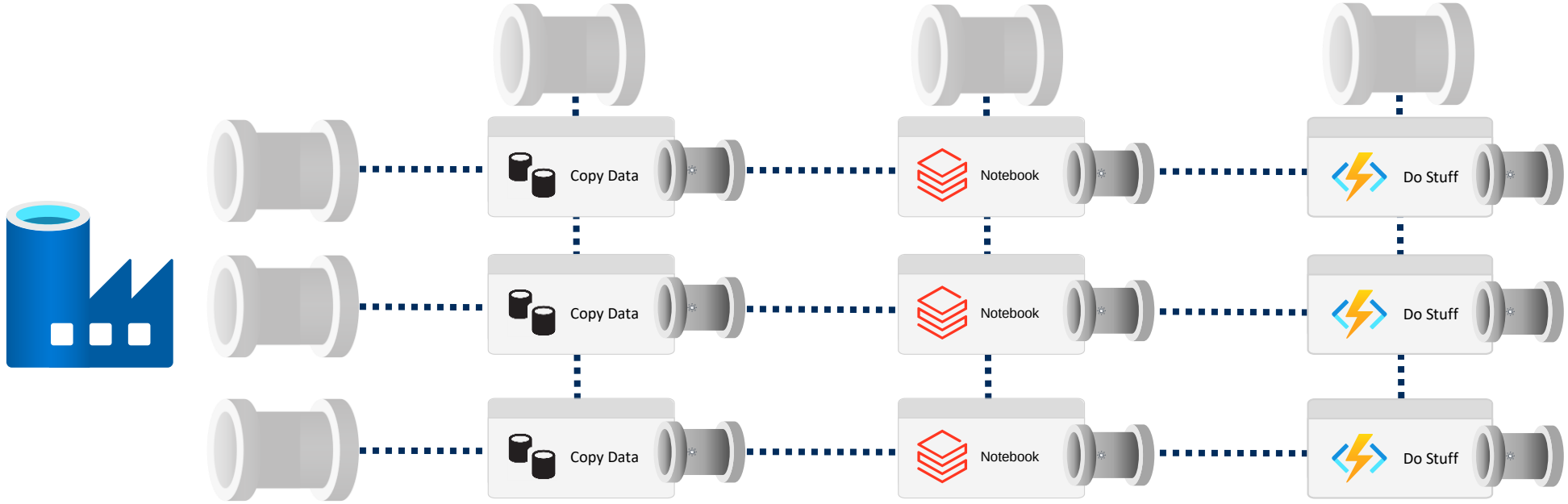


Solution

Solution: Use Metadata to Drive Data Factory Pipelines



Solution



Stages
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Pipelines
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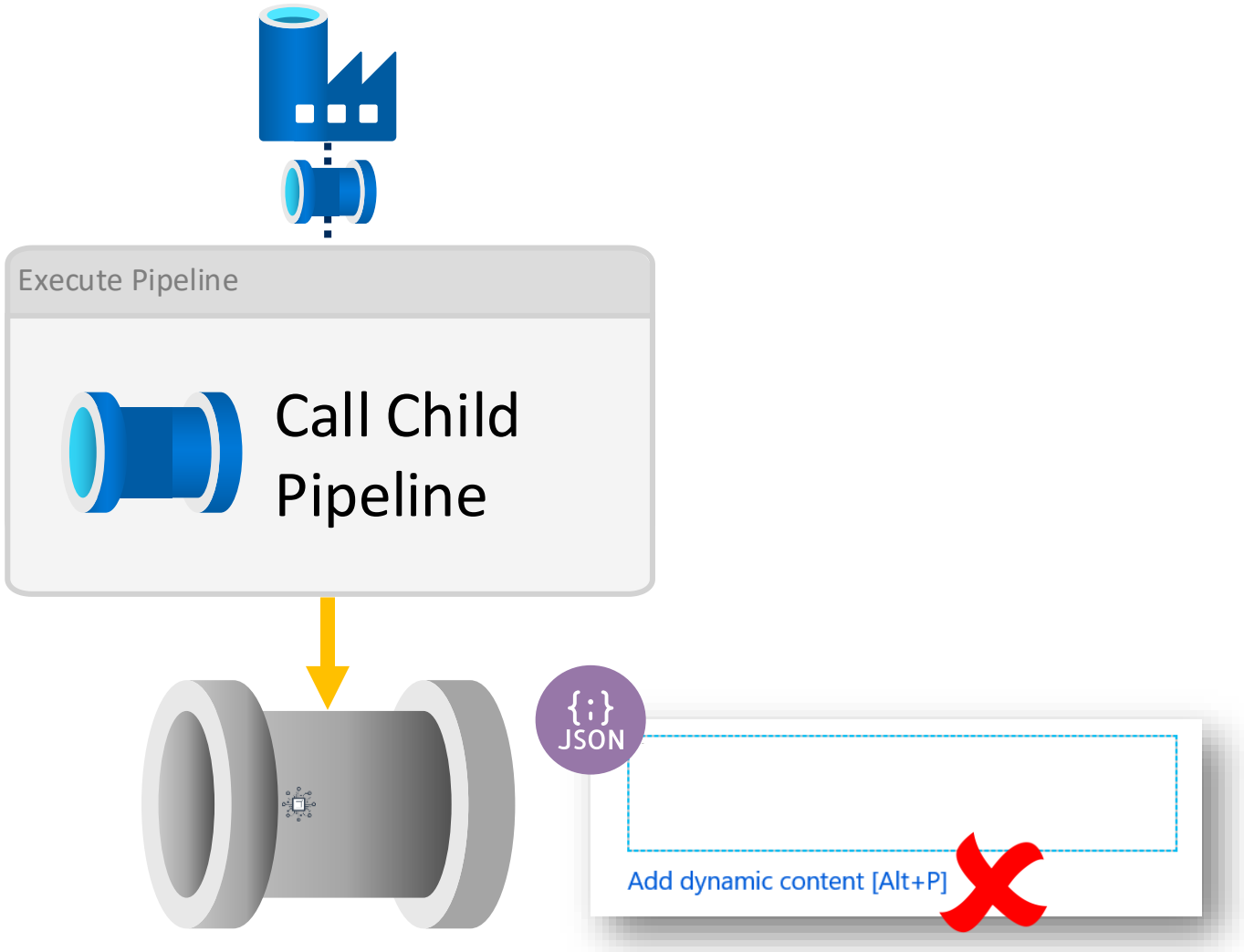
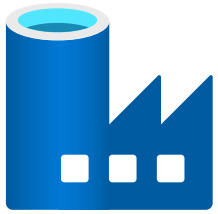
c
d
e
f
g
h
i

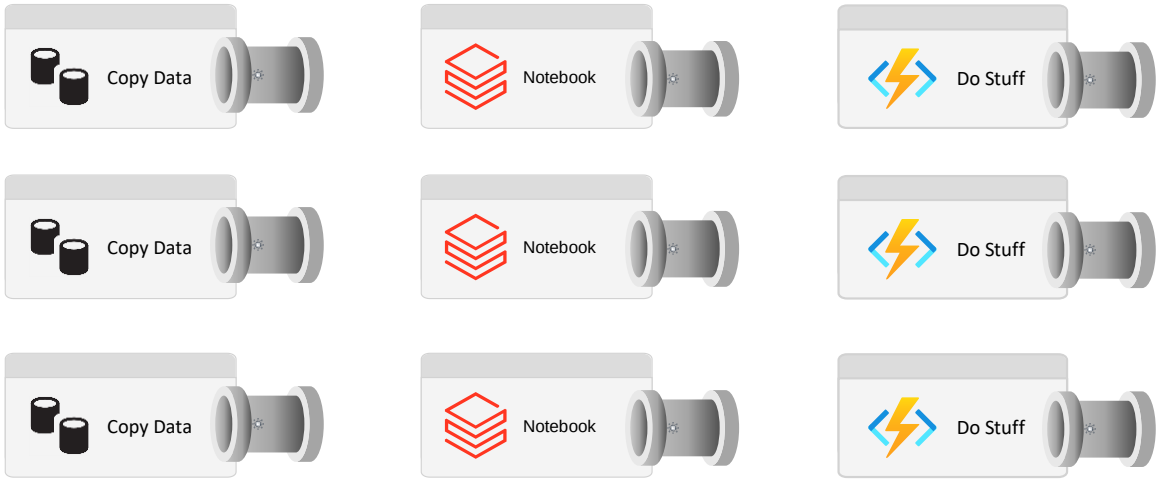
Stage	Pipeline
1	a
1	b
1	c
2	d
2	e
3	f
3	g
3	h
3	i

One More Problem



Calling Our Worker Pipelines





Stages
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Pipelines
a
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Stage	Pipeline
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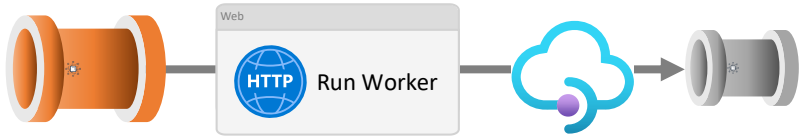
Option 1:



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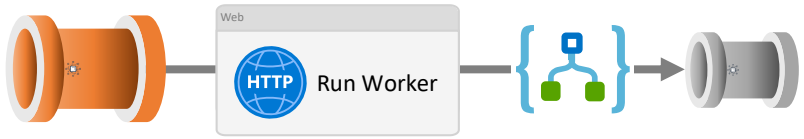
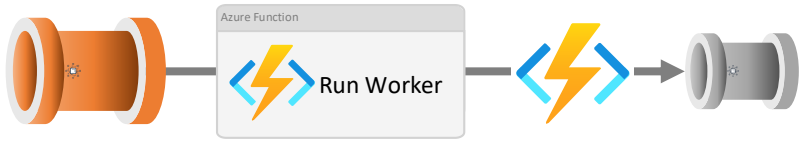
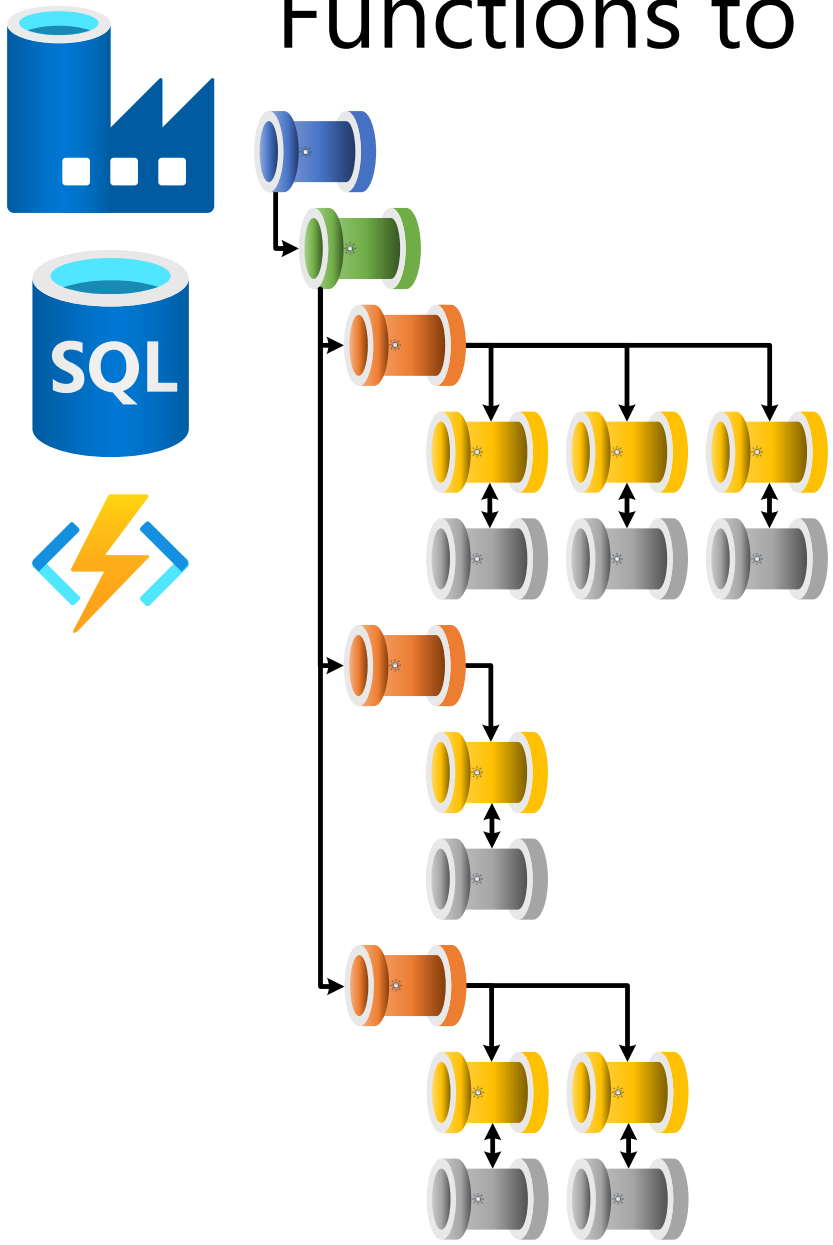


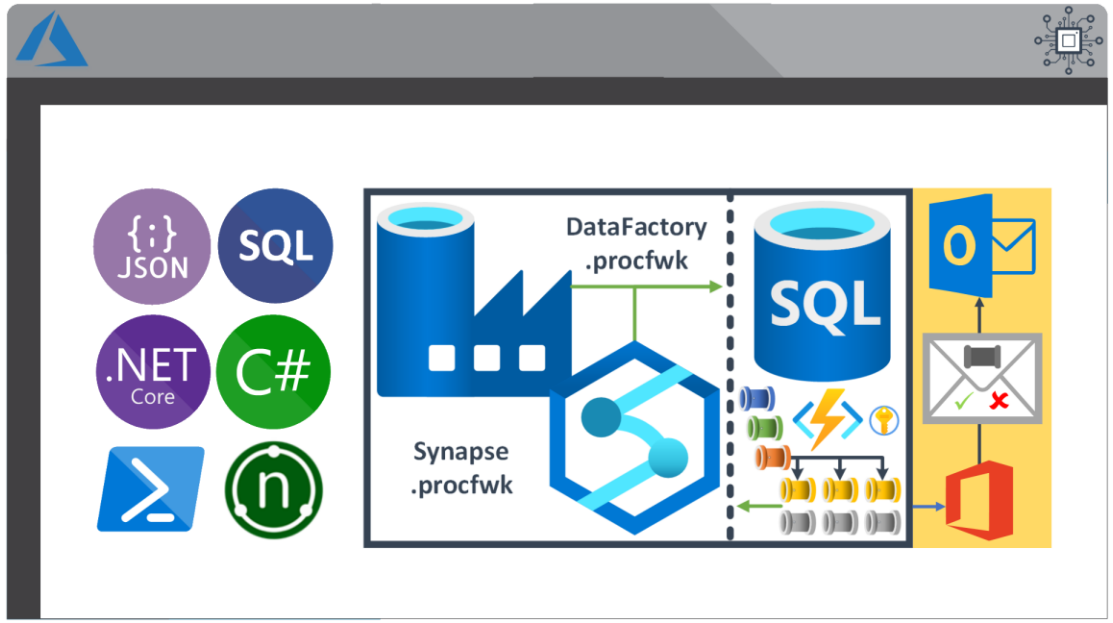
Option 3:



Solution: Use Metadata to Drive Data Factory Pipelines & Functions to Handle the Worker Execution

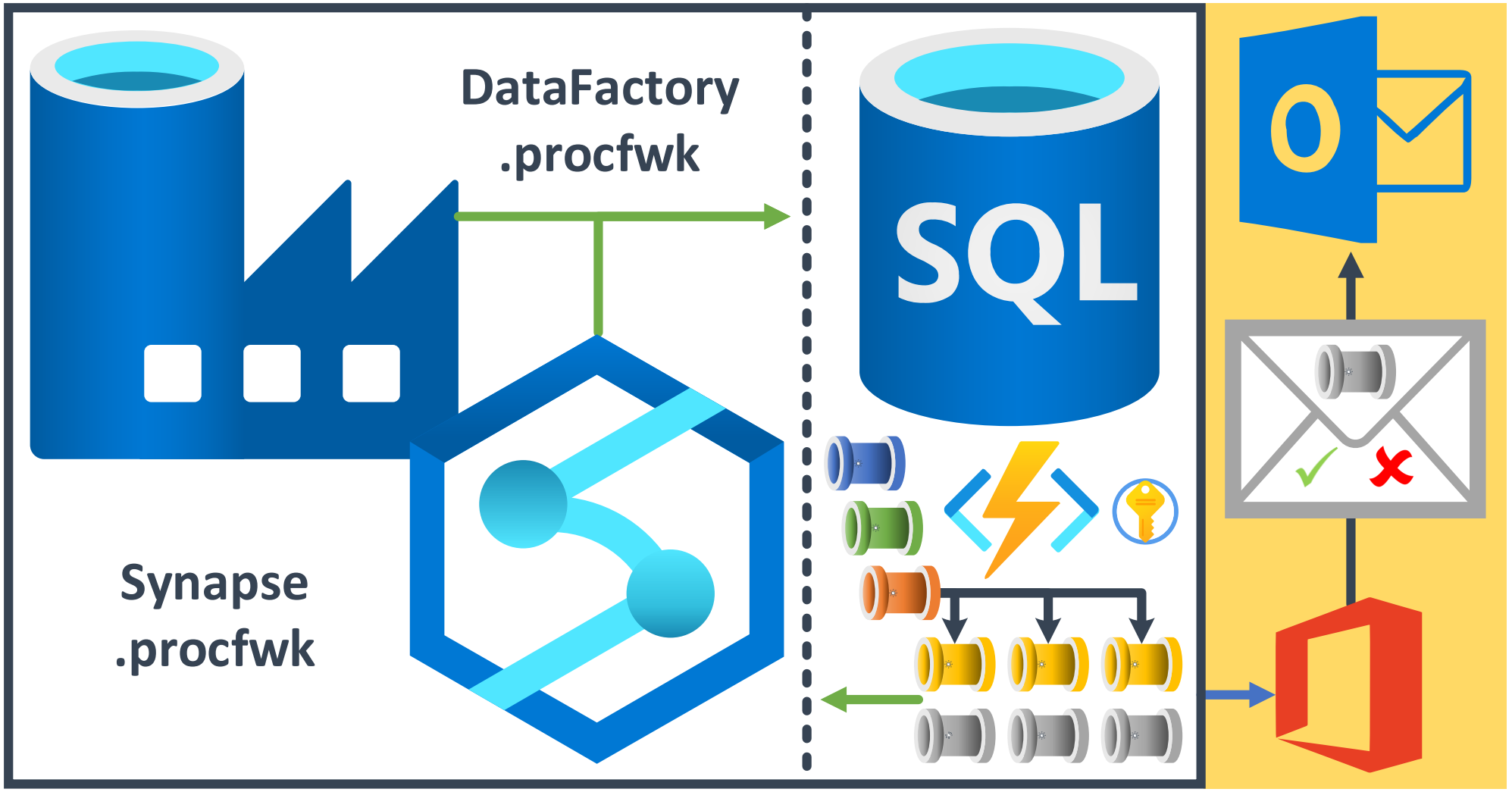


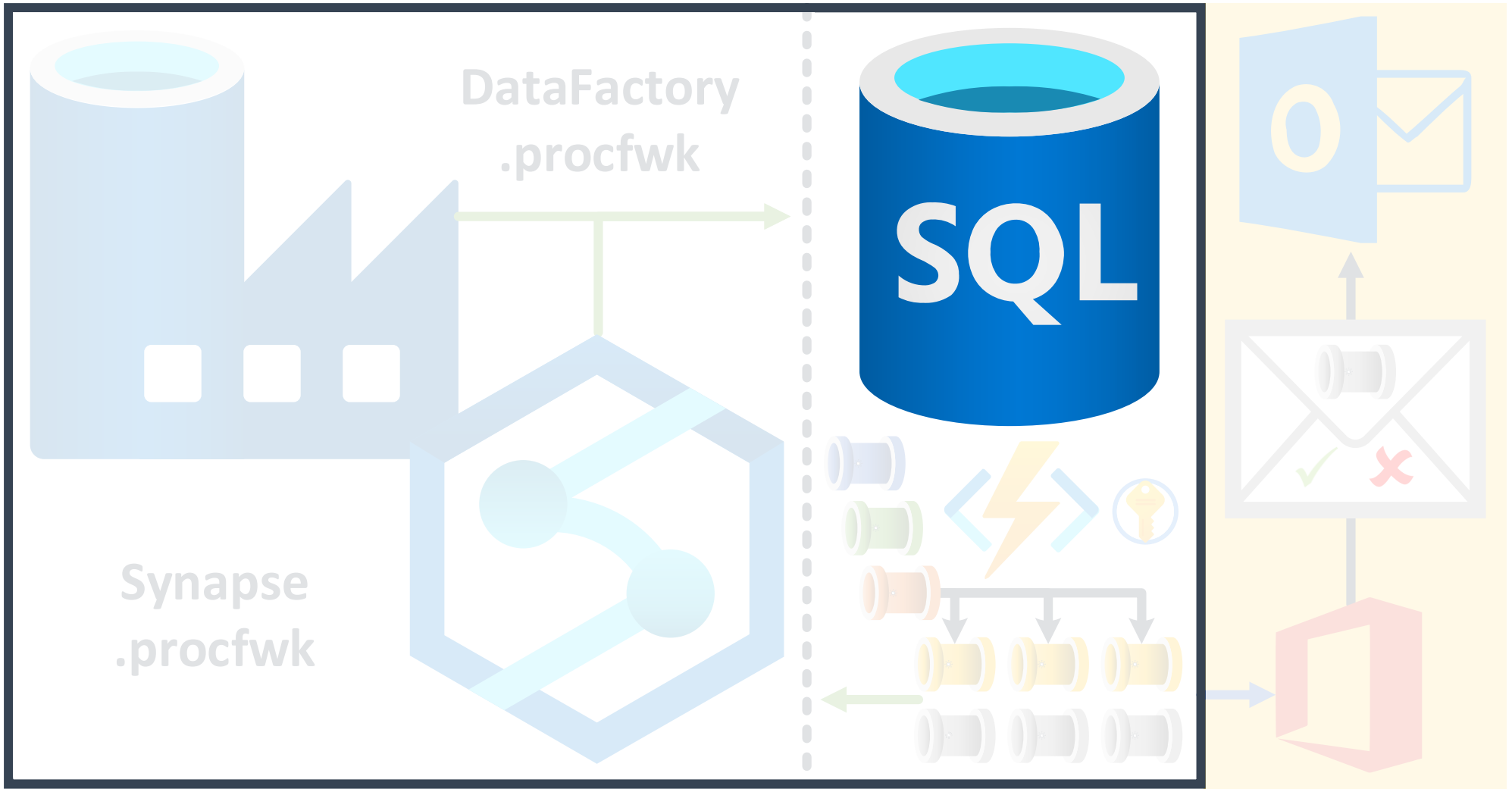
Introducing procfwk.com



procfwk Features

- Granular metadata control.
- Metadata integrity checking.
- Global properties.
- Complete pipeline dependency chains.
- Execution restart-ability.
- Parallel execution.
- Full execution and error logs.
- Operational dashboards.
- Low cost orchestration.
- Disconnection between framework and worker pipelines.
- Cross Tenant/Subscription/Data Factory control flows.
- Pipeline parameter support.
- Simple troubleshooting.
- Easy deployment.
- Email alerting.
- Automated testing.
- Azure Key Vault integration.


DataFactory
.procfwk
SQL
Synapse
.procfwk


DataFactory
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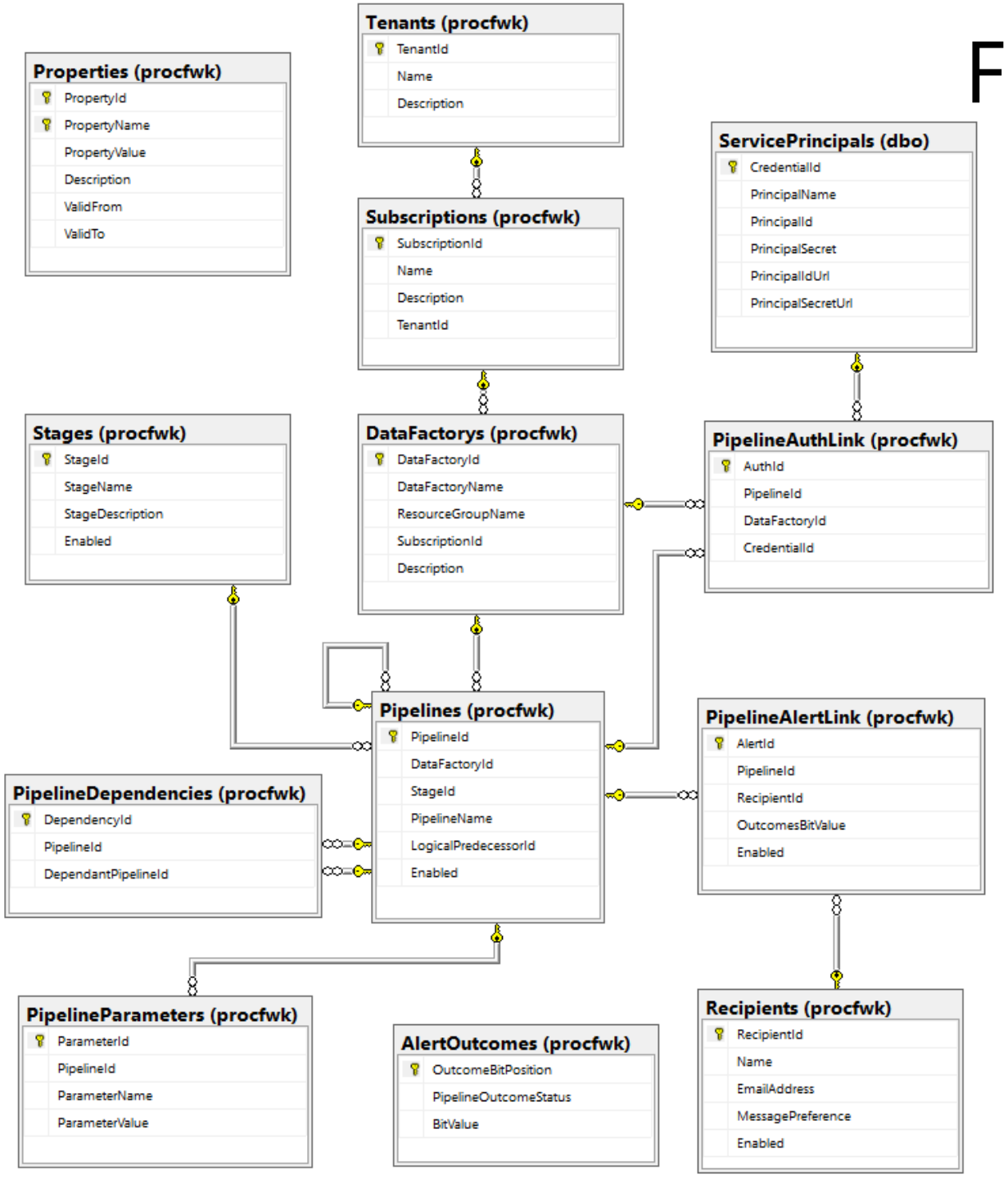
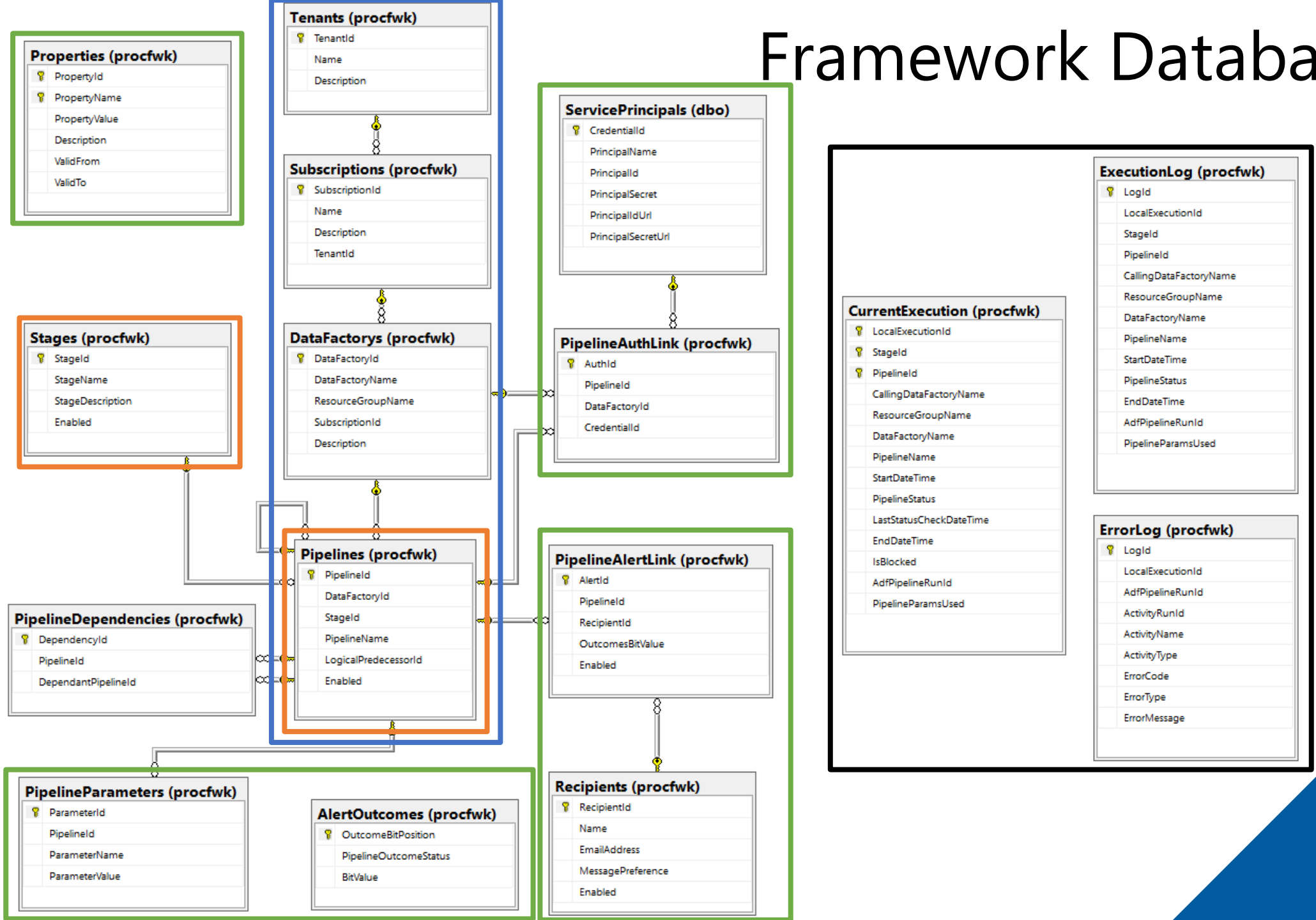
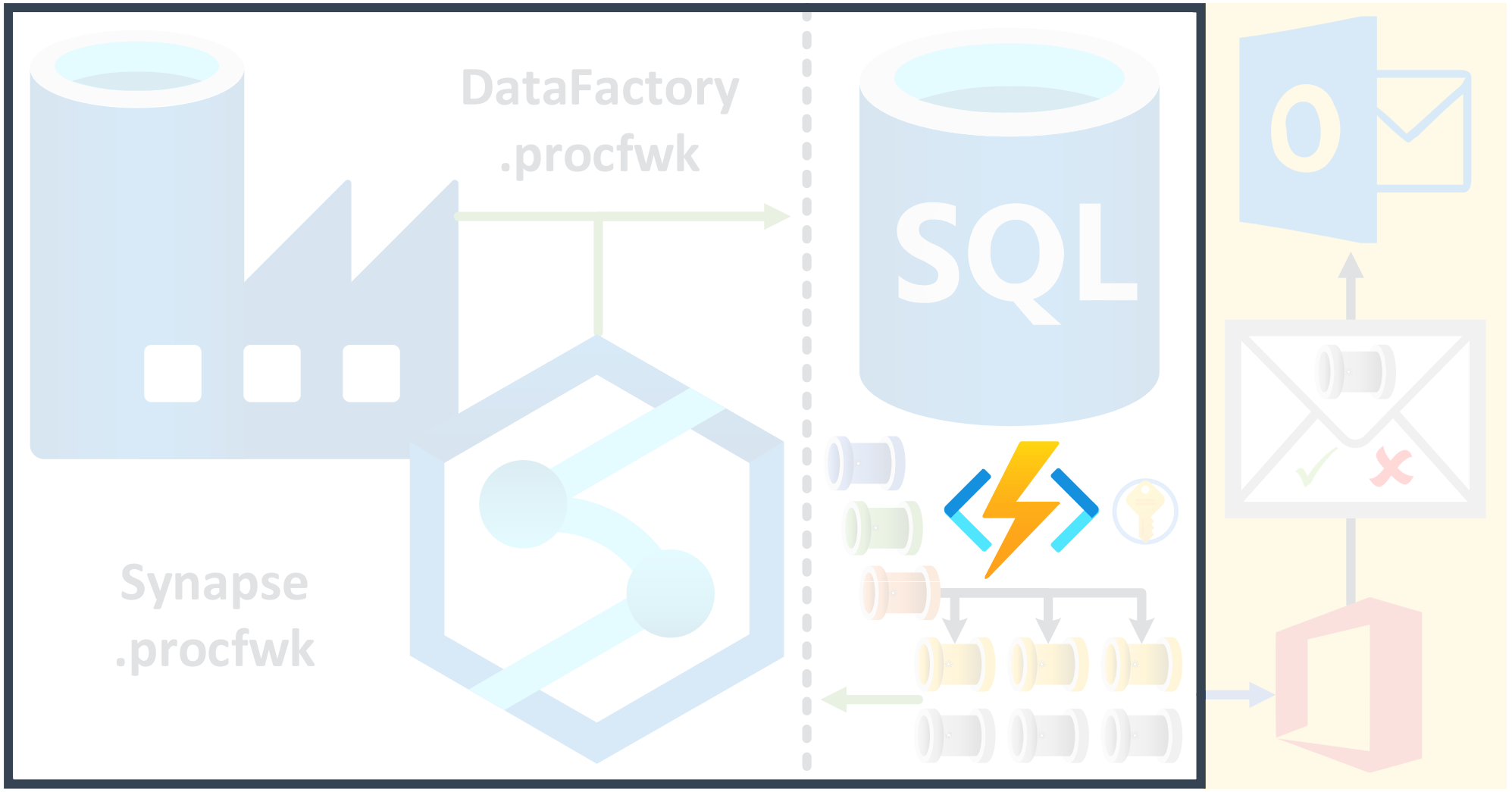
Framework Database



Framework Database

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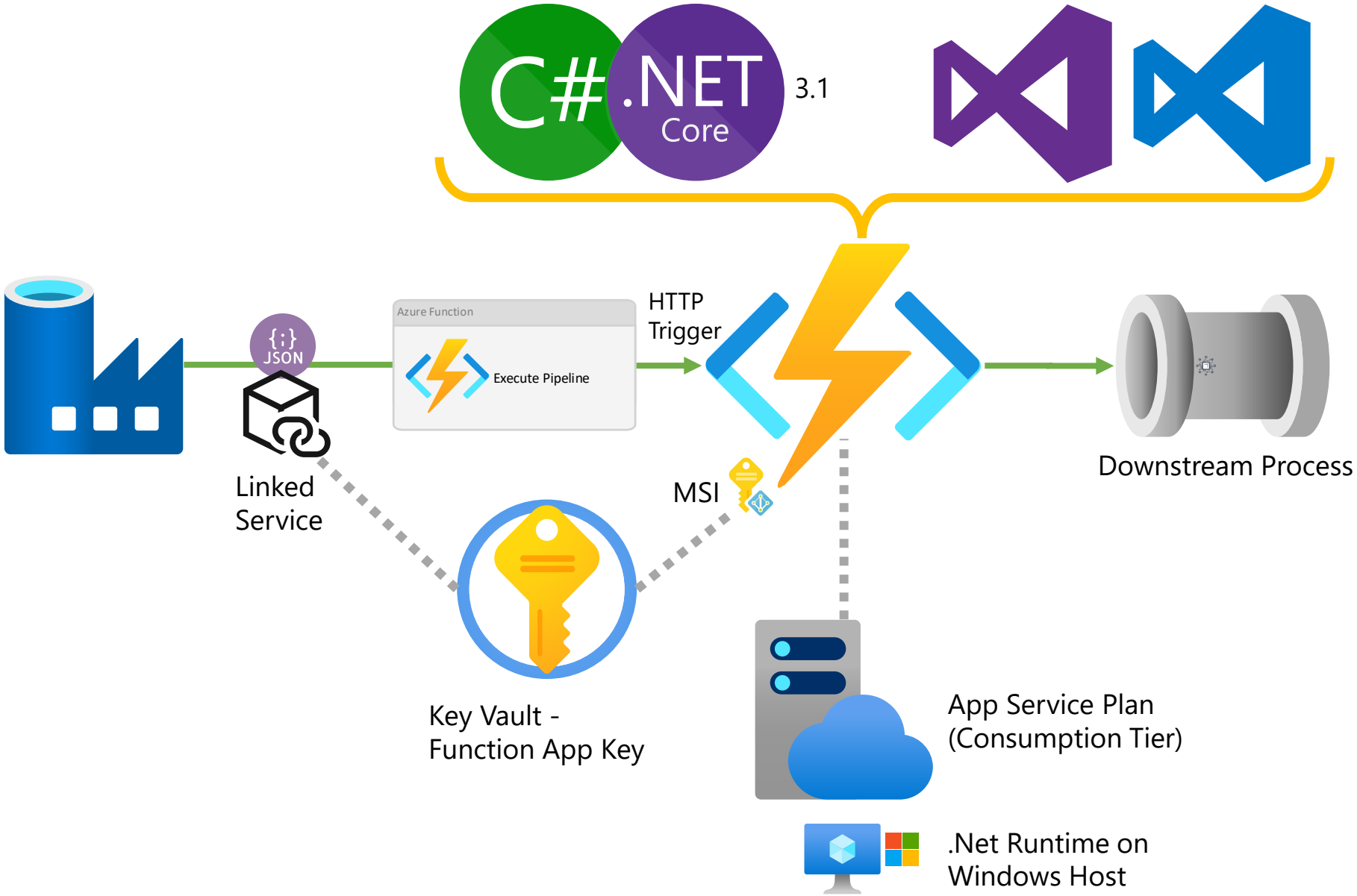
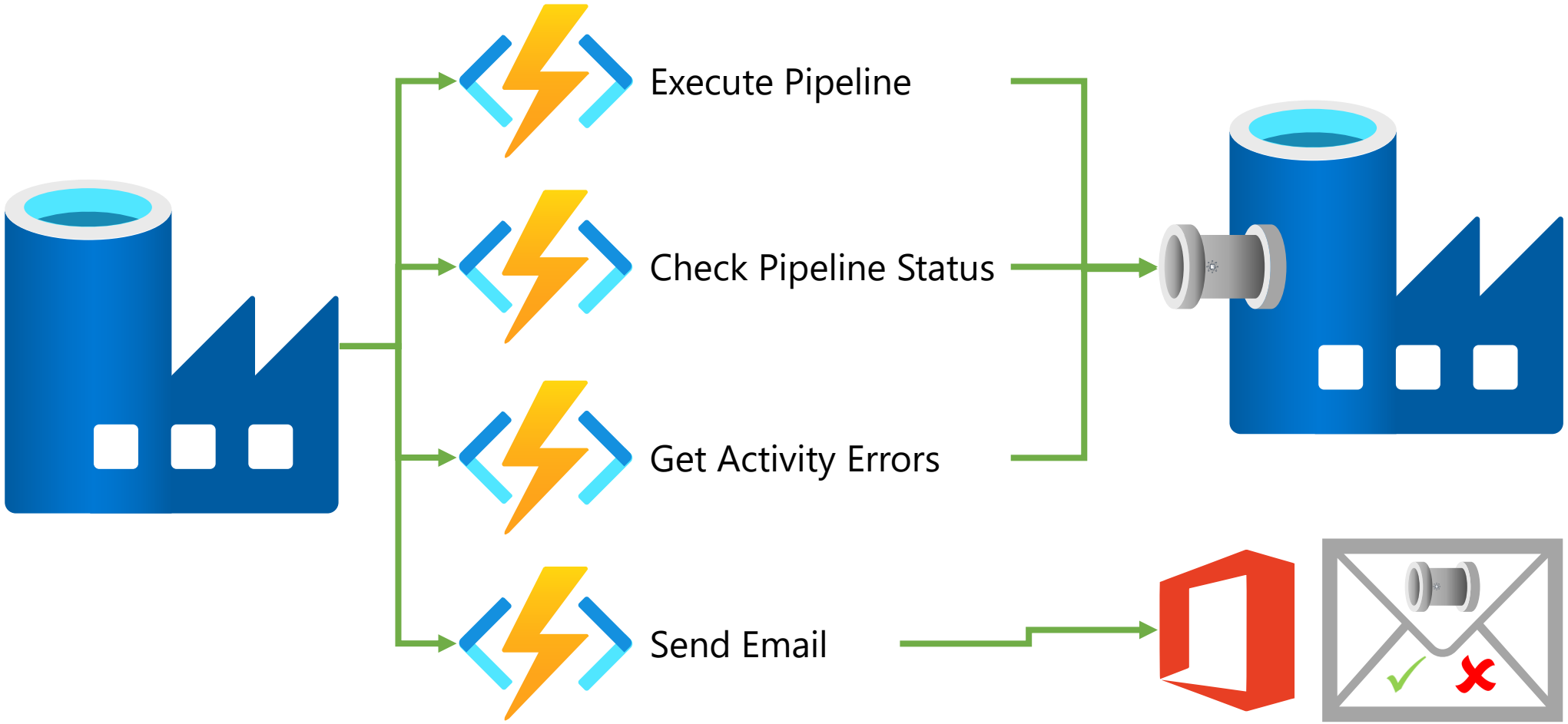
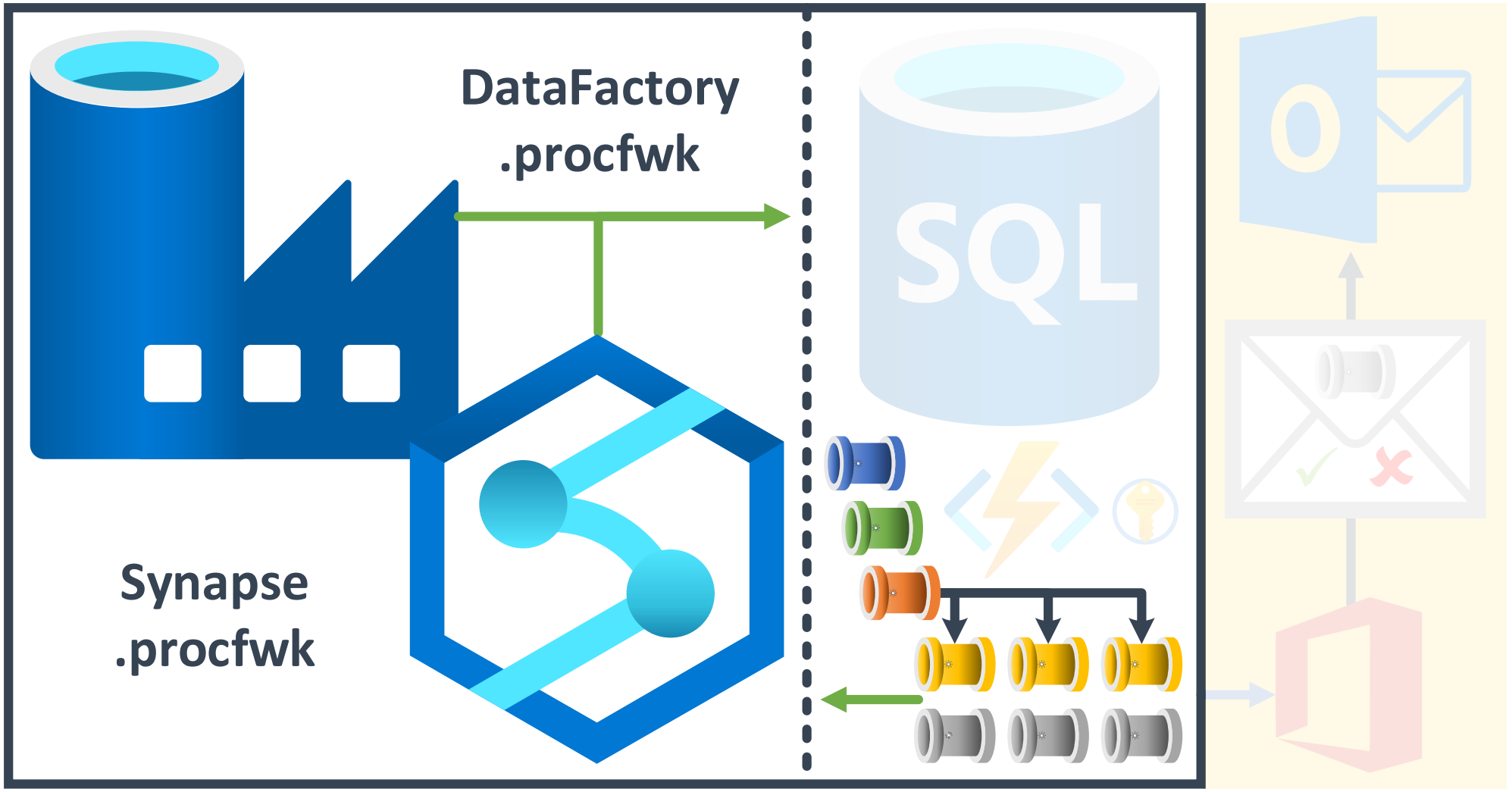
Functions Creation & Configuration



procfwk Functions

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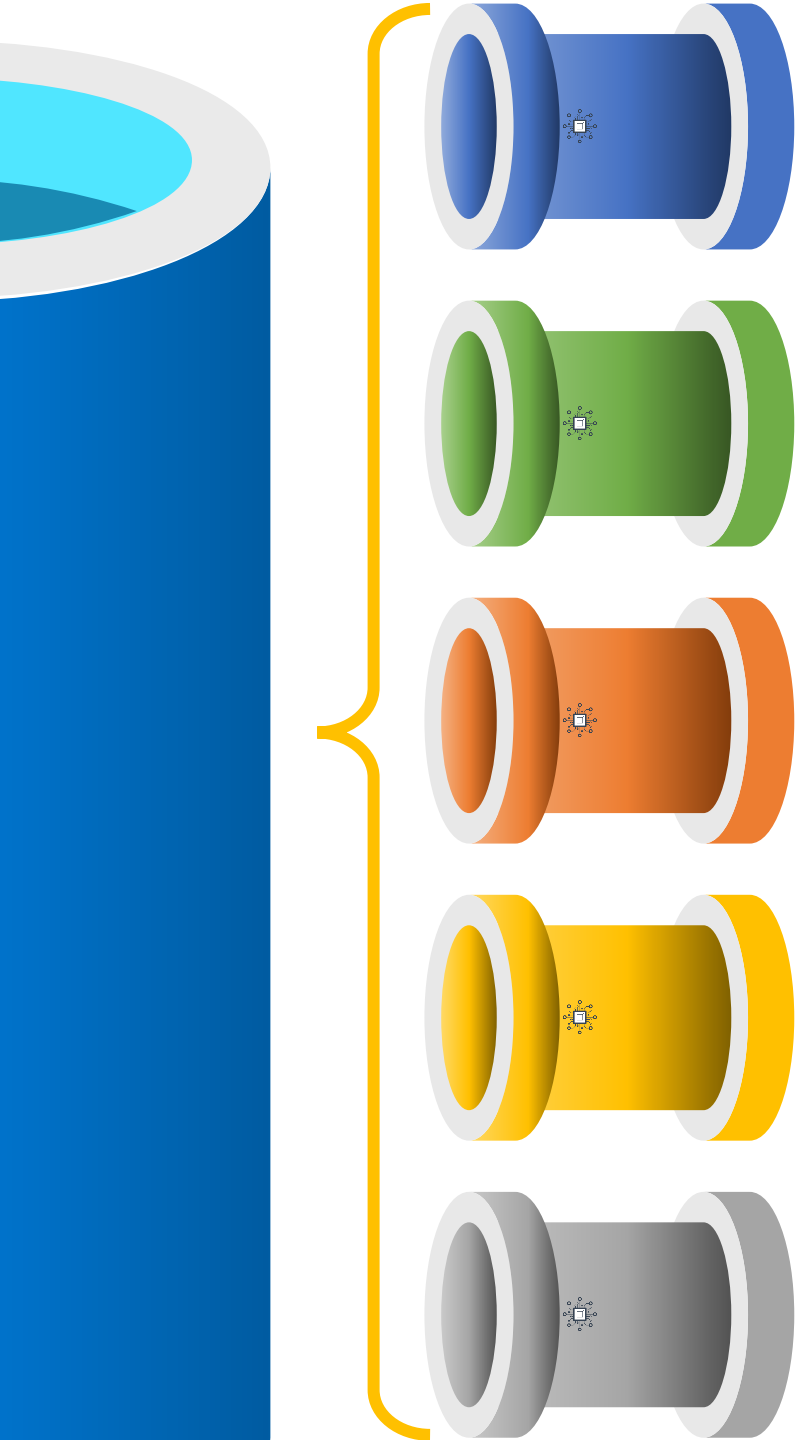
Framework Pipeline Hierarchy



- Grandparent

Role: Optional level platform setup, for example, scale up/out compute services ready for the framework to run.

- Parent

Role: Execution run wrapper and execution stage iterator.

- Child

Role: Scale out triggering of worker pipelines within the execution stage.

- Infant

Role: Worker executor, monitor and reporting of the outcome for the single worker pipeline.

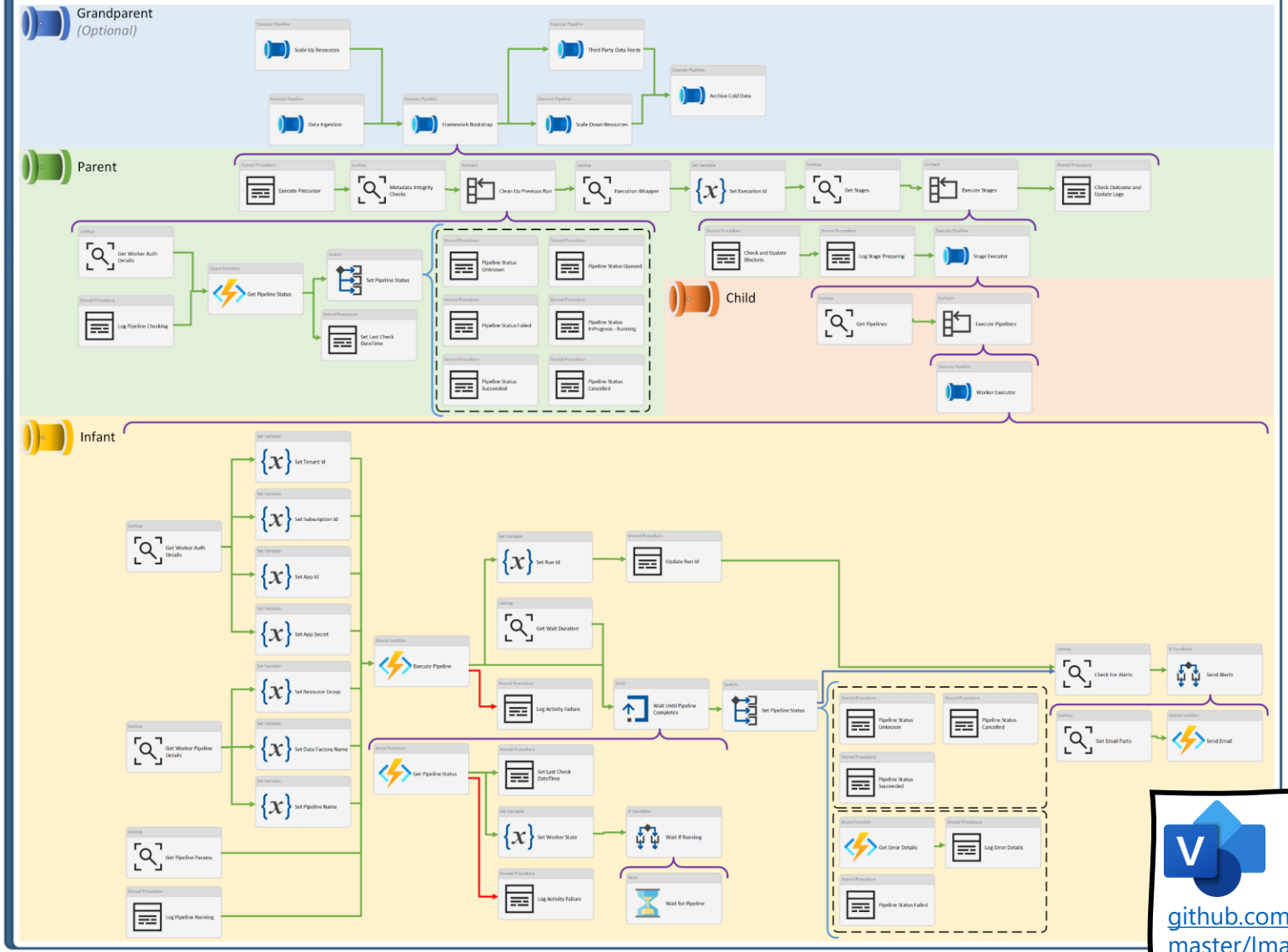
- Worker

Role: Anything specific to the process needing to be performed.

Processing Framework - Activity Chain

Orchestration Framework Support Resources

Orchestration Framework

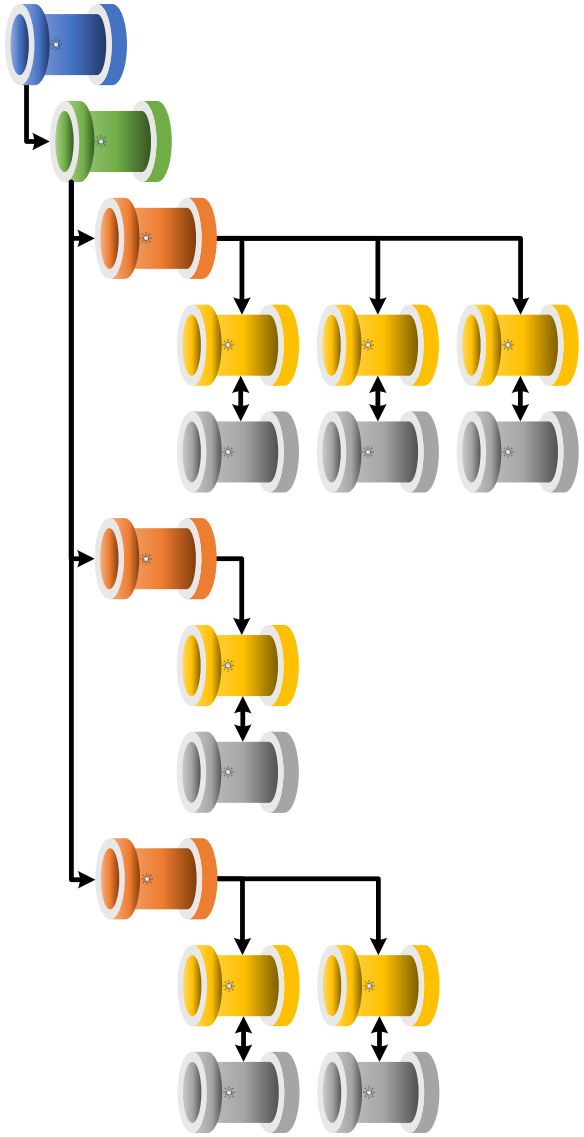


Worker Pipelines

Go to Visio file in GitHub:

github.com/mrpaulandrew/procfwk/blob/master/Images

DEMO



Thank you for listening…

Paul Andrew

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