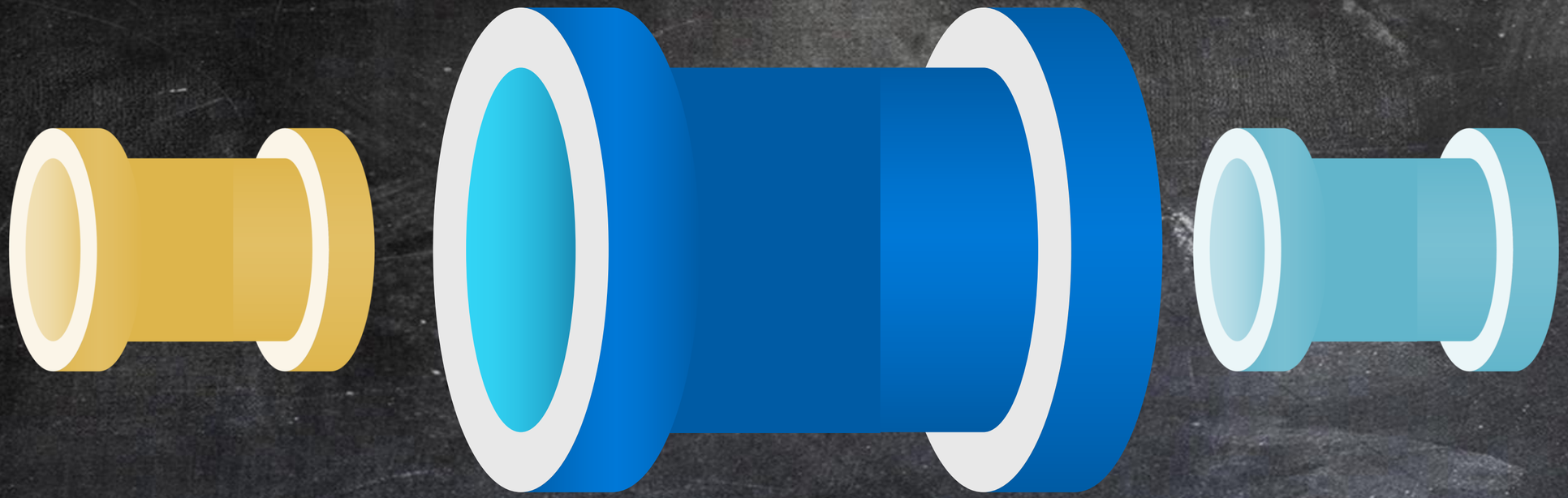
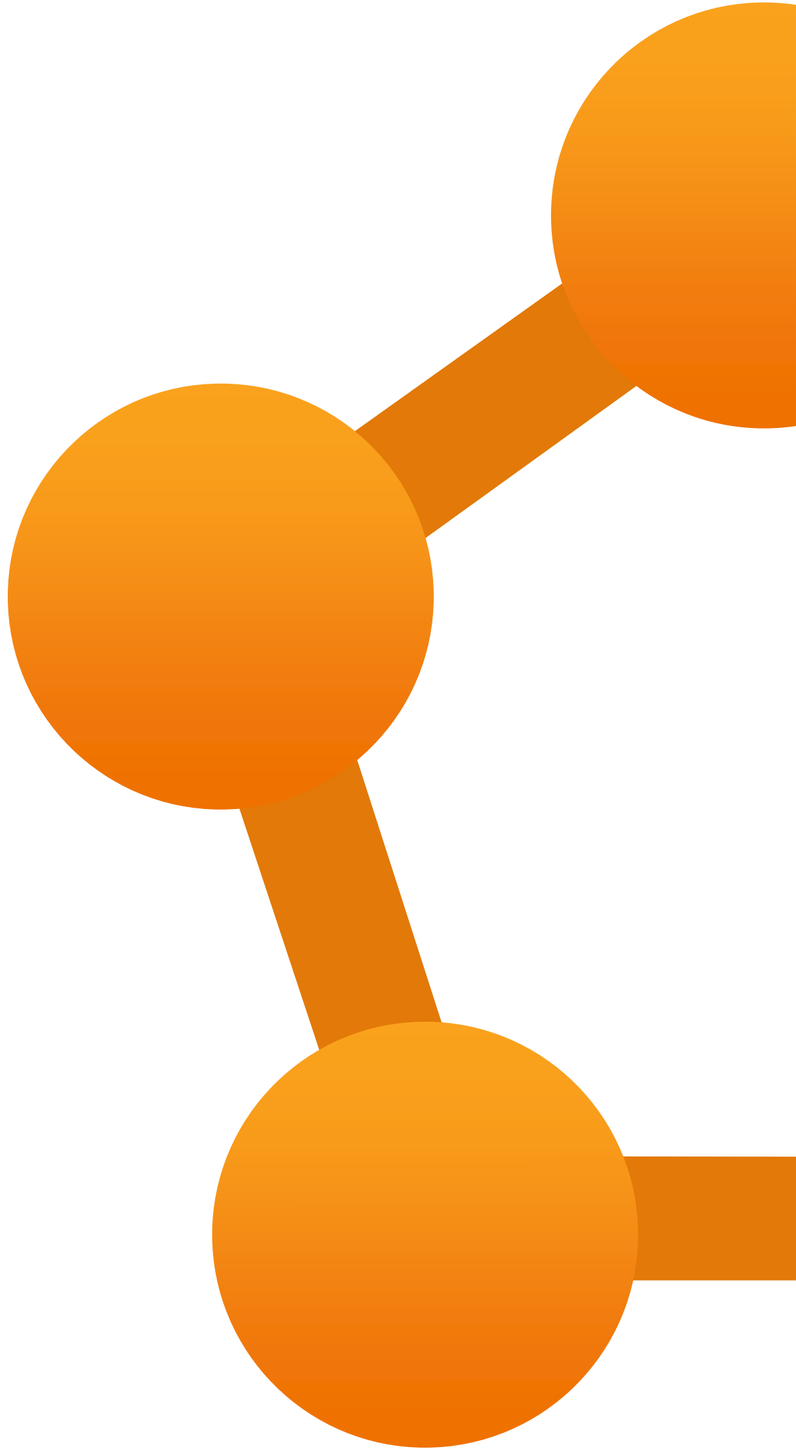
Cloud Formations

Proudly presents...

Integration Pipelines



Module 2 –
Integration Runtimes & Gateways
Orchestration Compute



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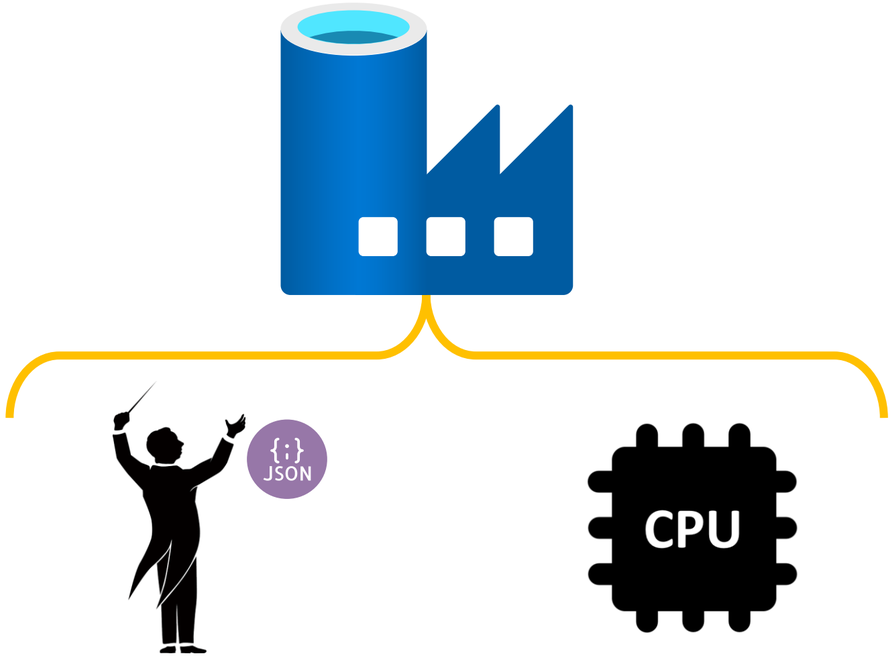
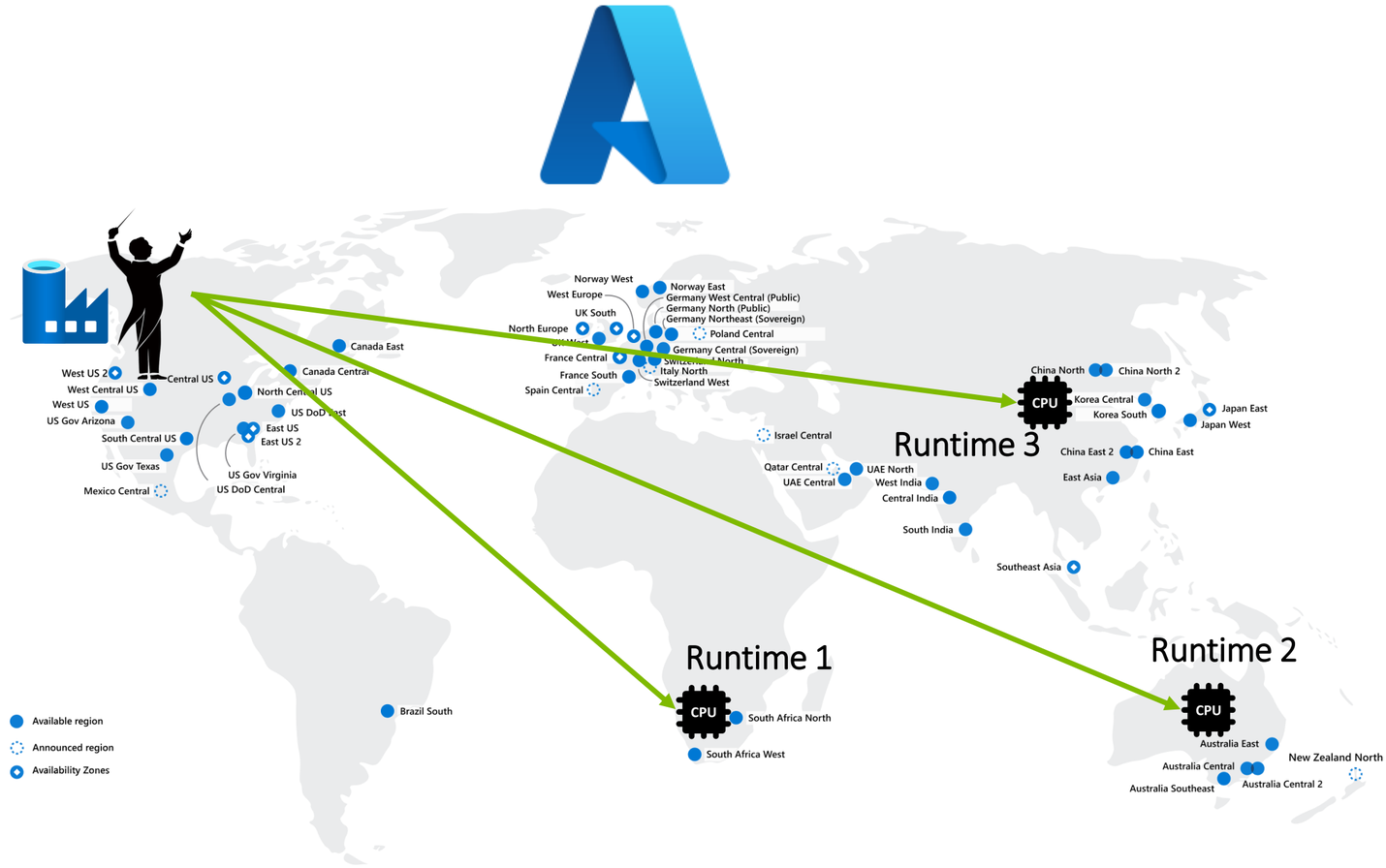
What is an Integration Runtime?





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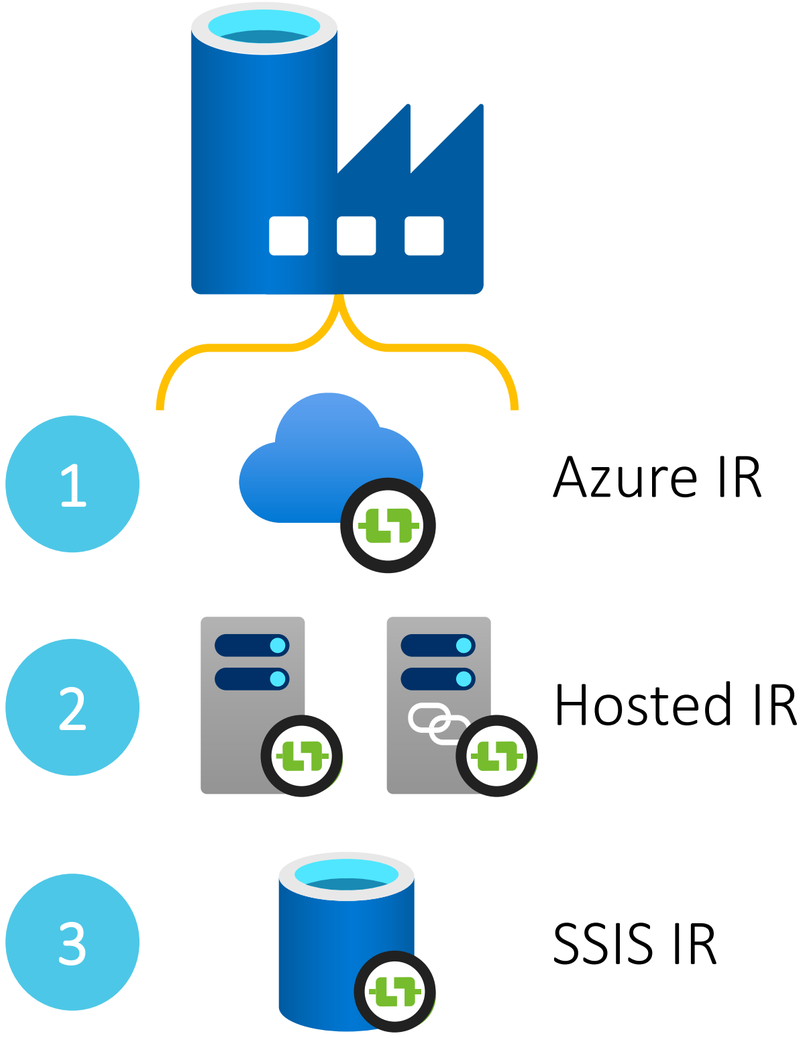
What can an Integration Runtime do?



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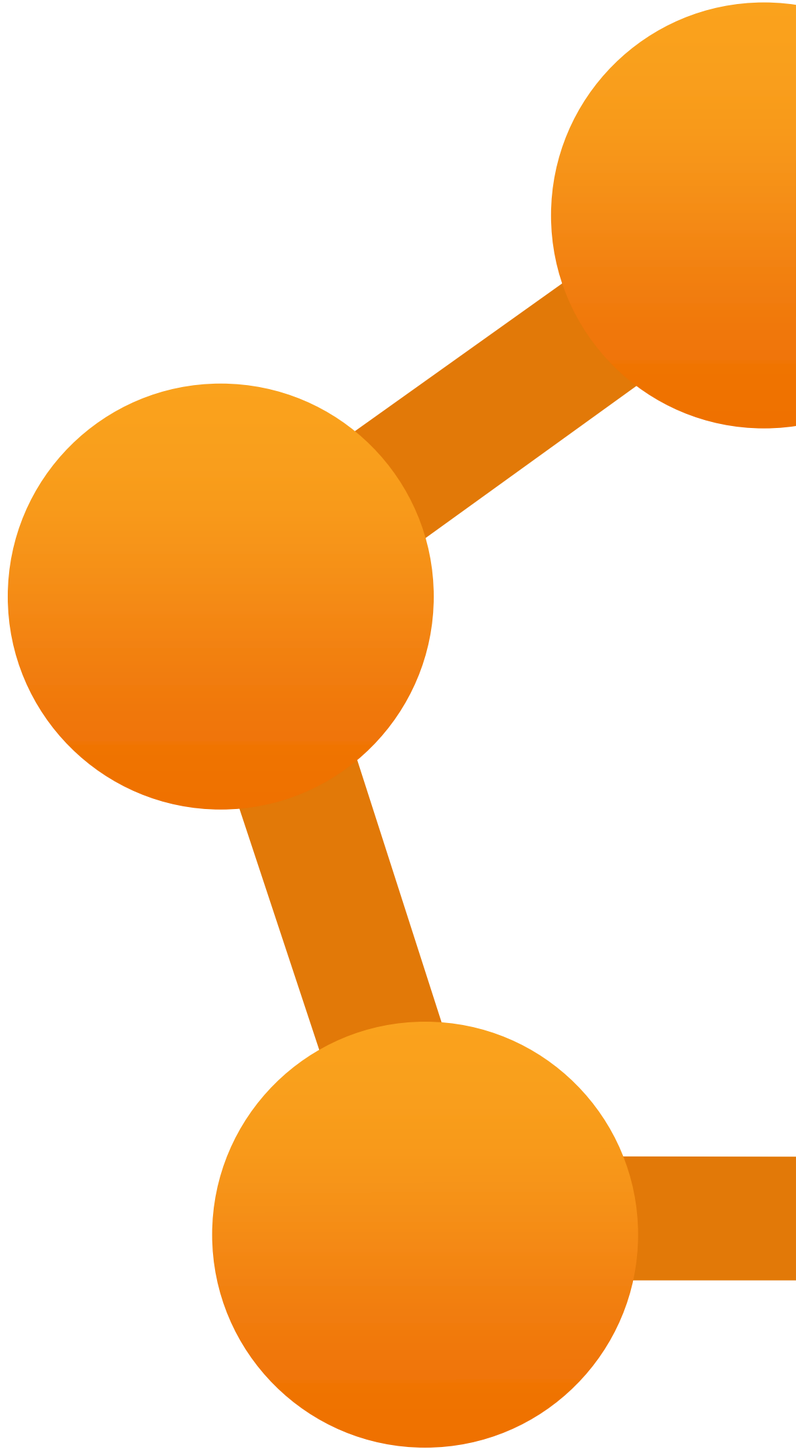
Module 2 –
Integration Runtimes & Gateways
Azure + Design Patterns



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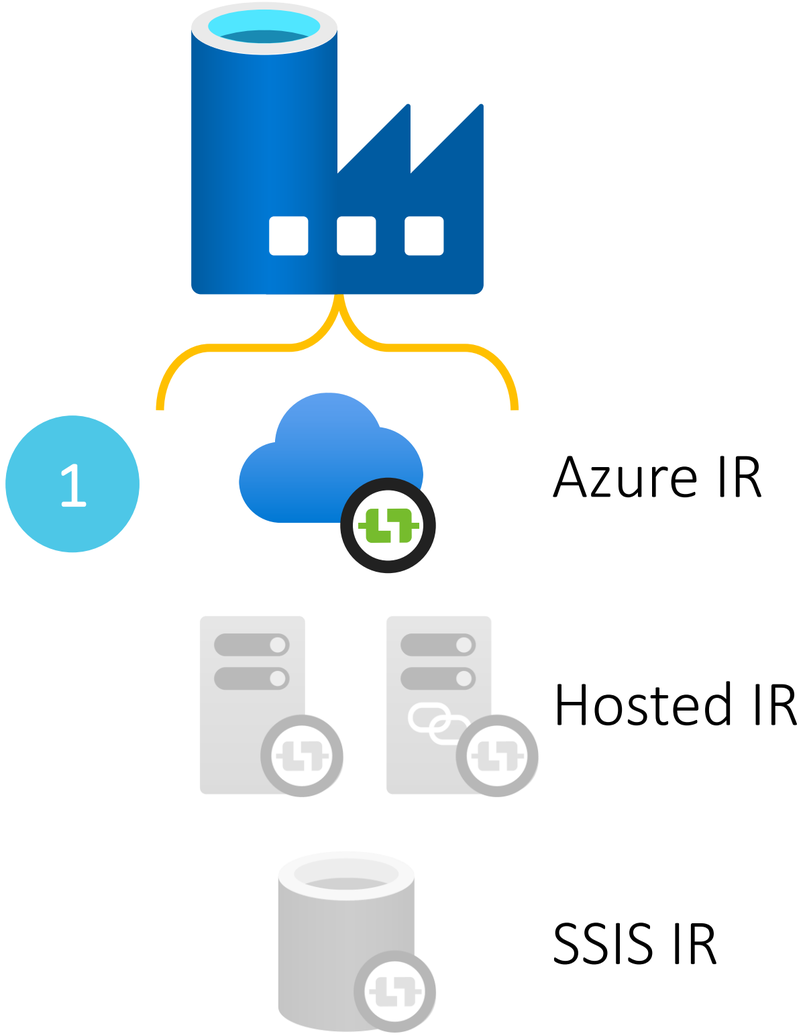
What can an Integration Runtime do?



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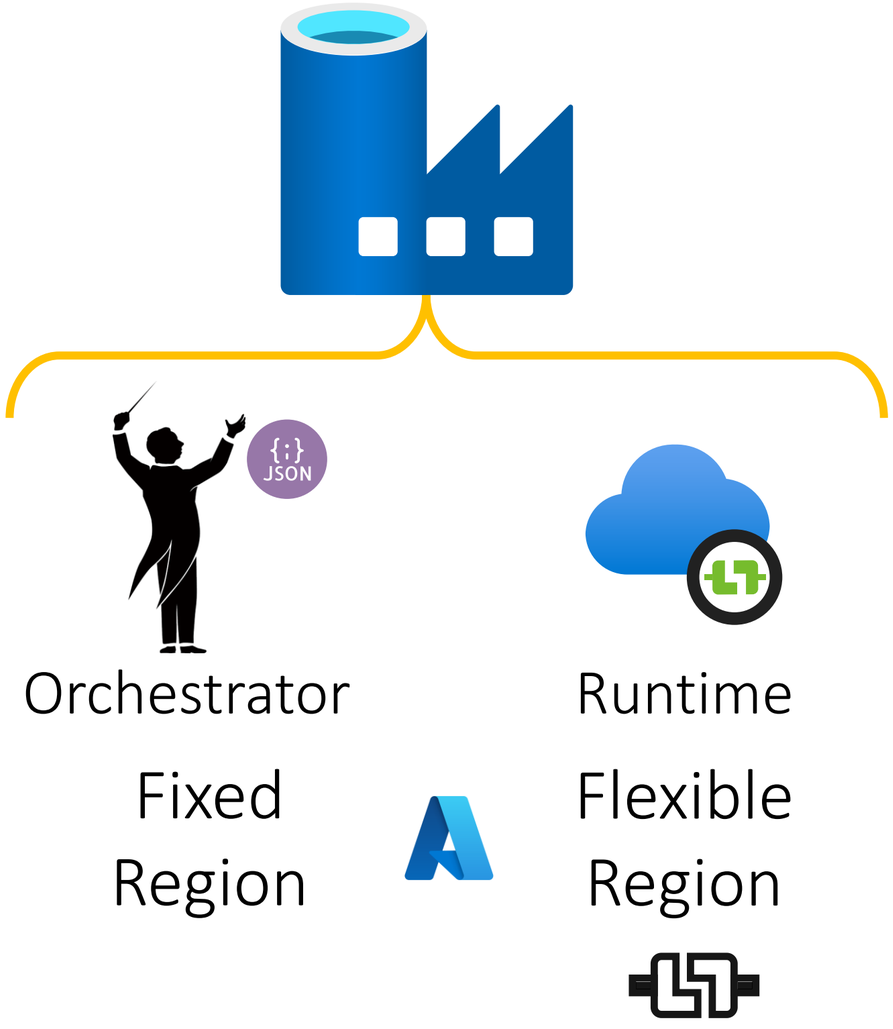
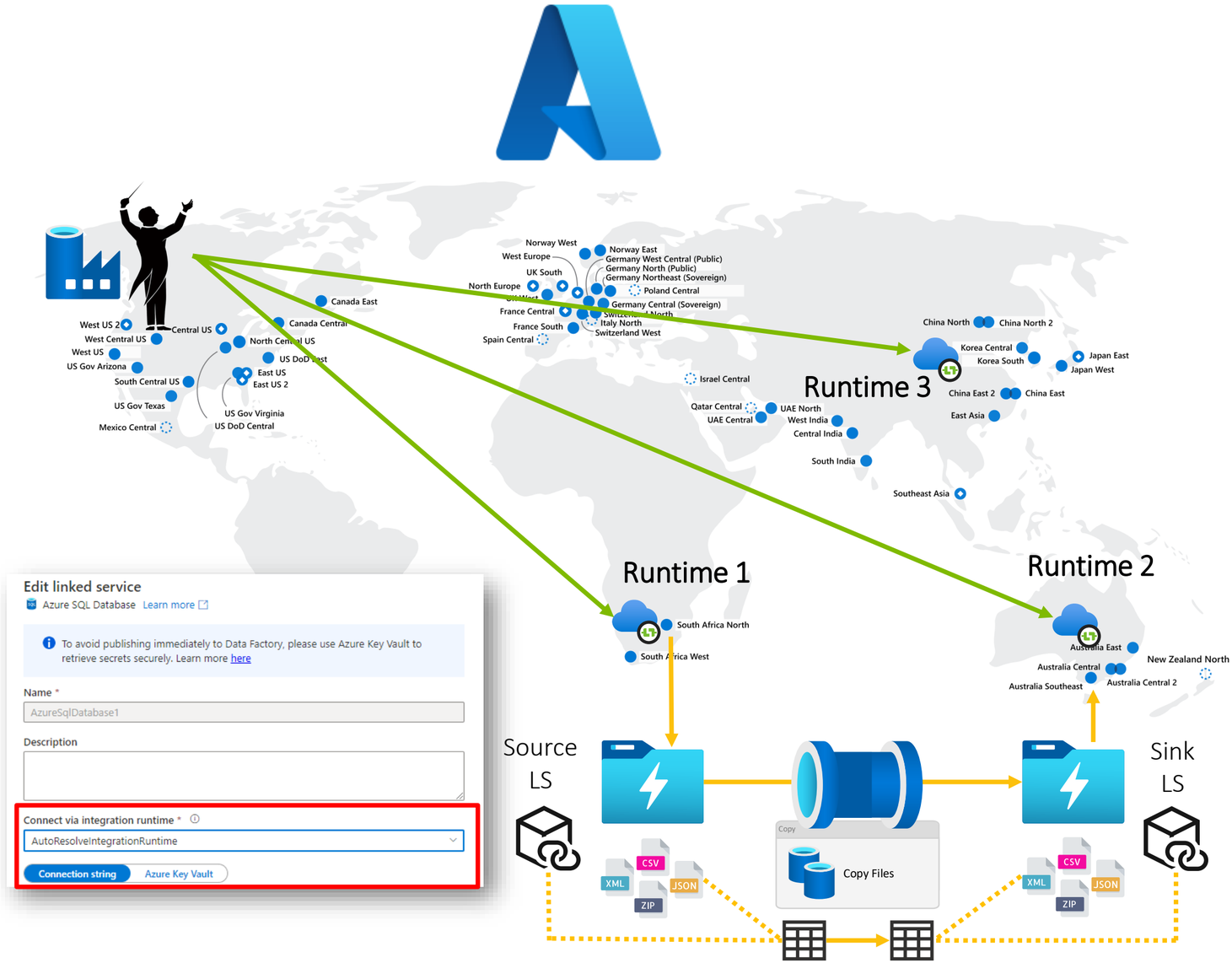
What is an Integration Runtime?





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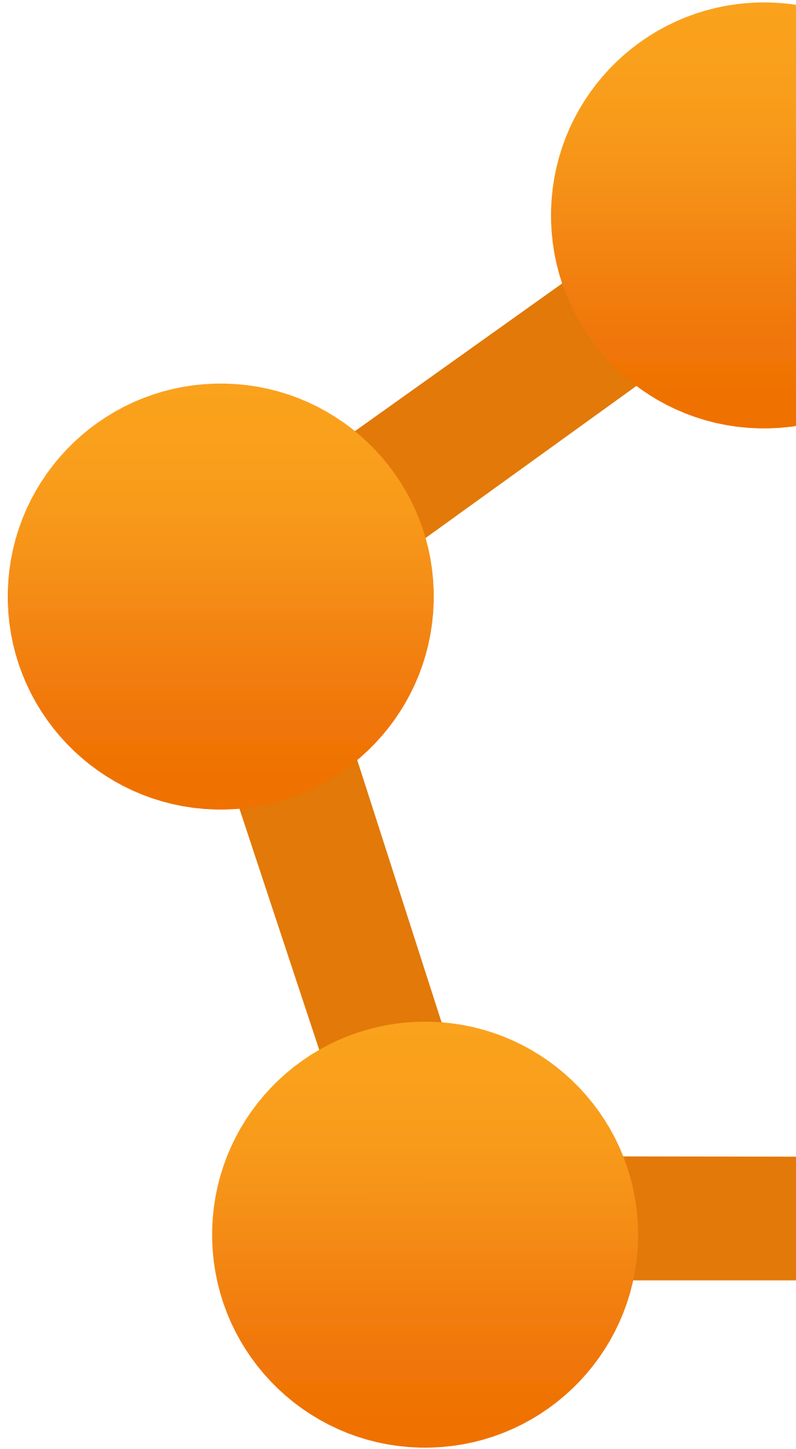
Module 2 –
Integration Runtimes & Gateways
Hosted + Design Patterns



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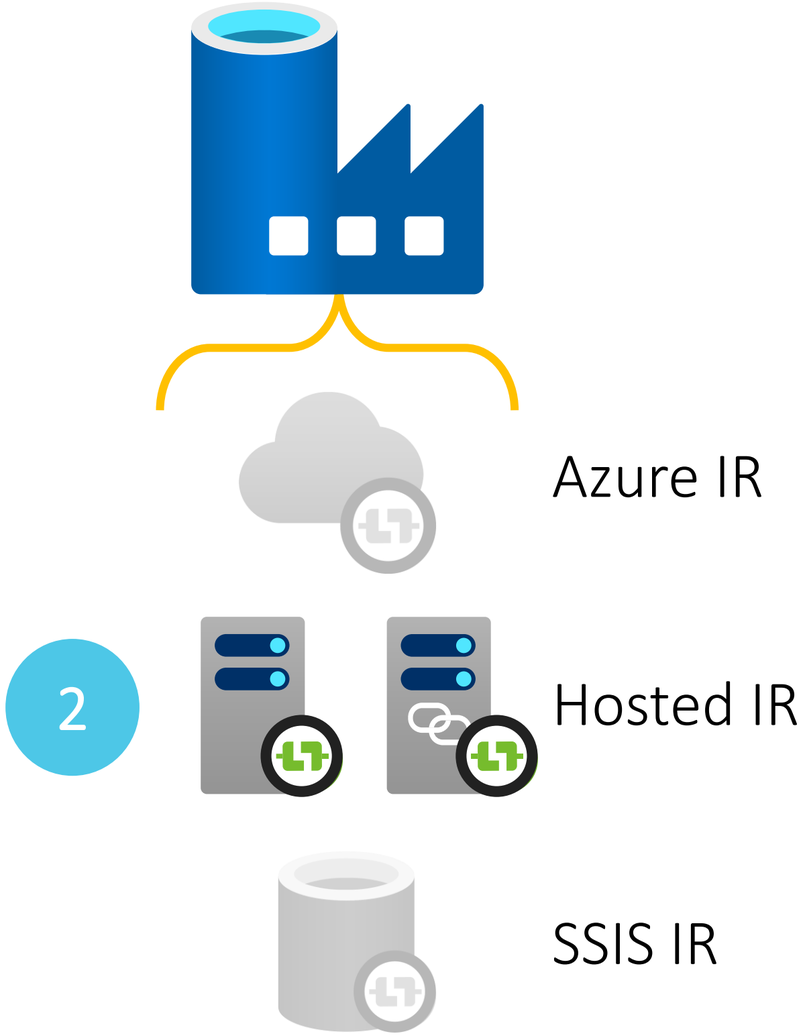
What can an Integration Runtime do?



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Hosted Integration Runtime

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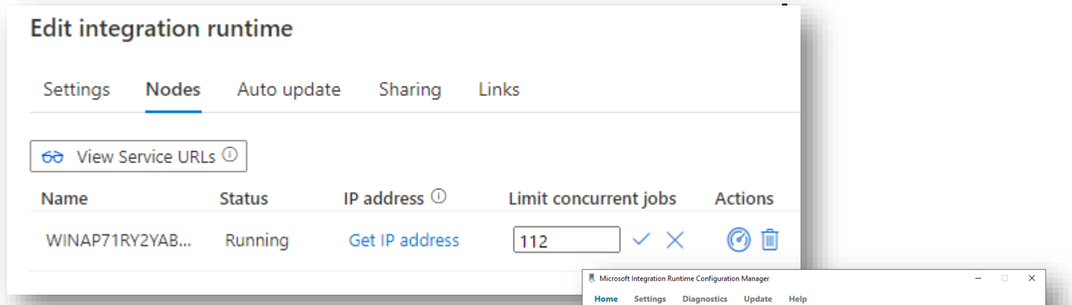
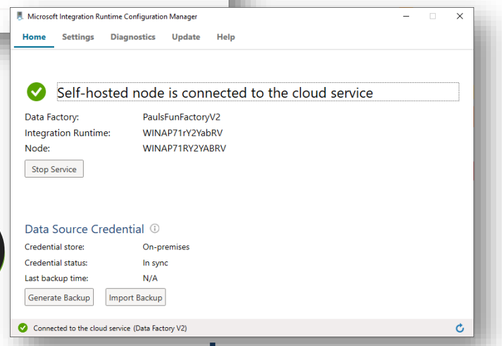
Windows OS
32GB RAM
6 CPU Cores
(12 Logical Cores)
80GB Storage

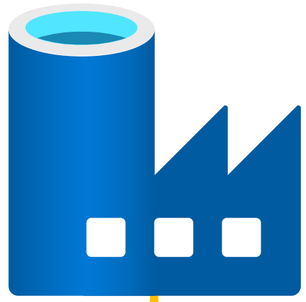
Data Sources

Windows OS
8GB RAM
4 CPU Cores
80GB Storage





Runtime
Self Hosted



Orchestrator
Fixed Region

Runtime
Flexible Region

```
cd "C:\Program Files\Microsoft Integration Runtime\5.0\Shared\"

.\dmgcmd.exe -DisableLocalFolderPathValidation
```

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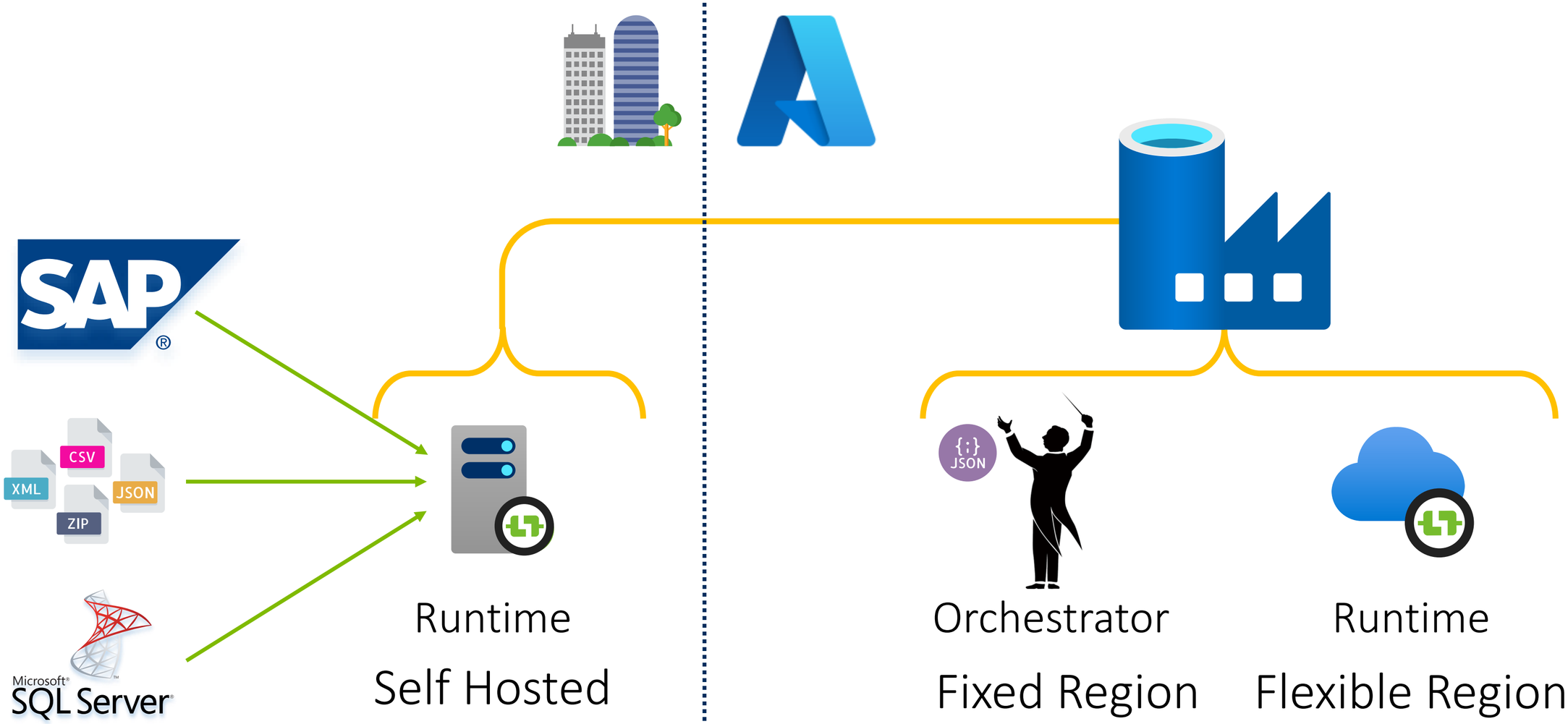
Hosted Integration Runtime



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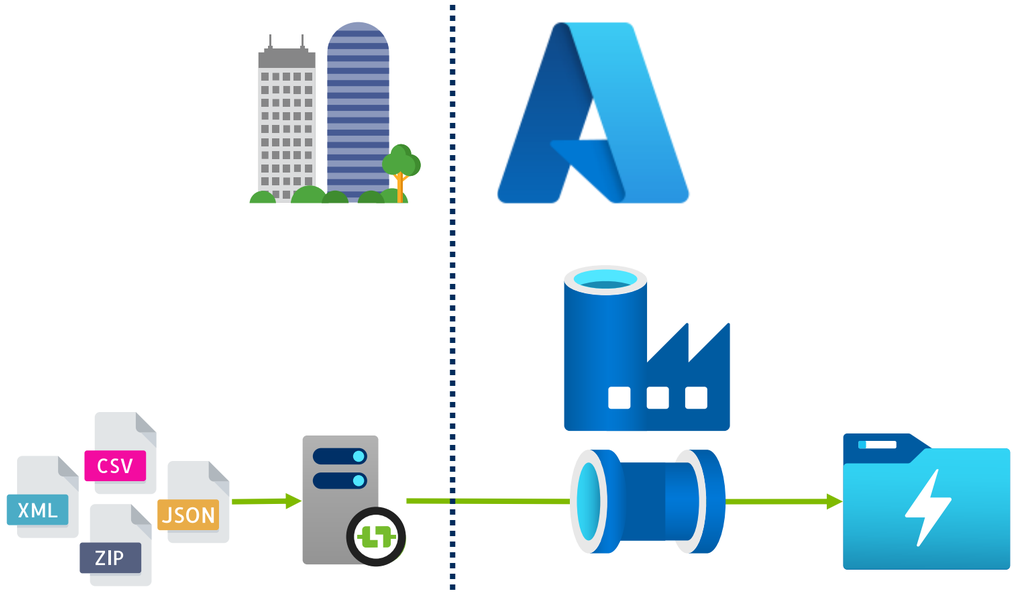
Single Hosted IR



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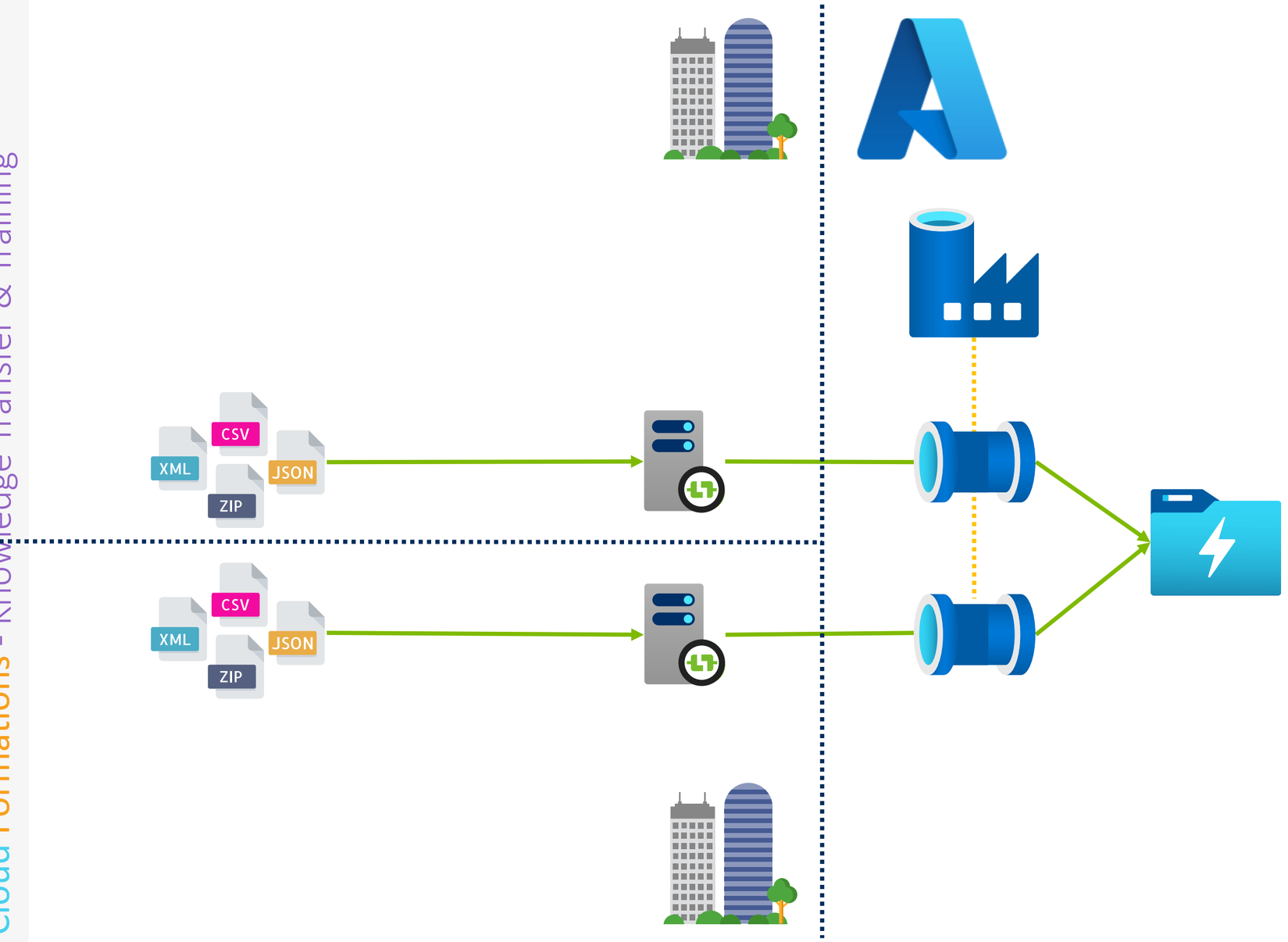
Multiple Hosted IR's at Different Sites



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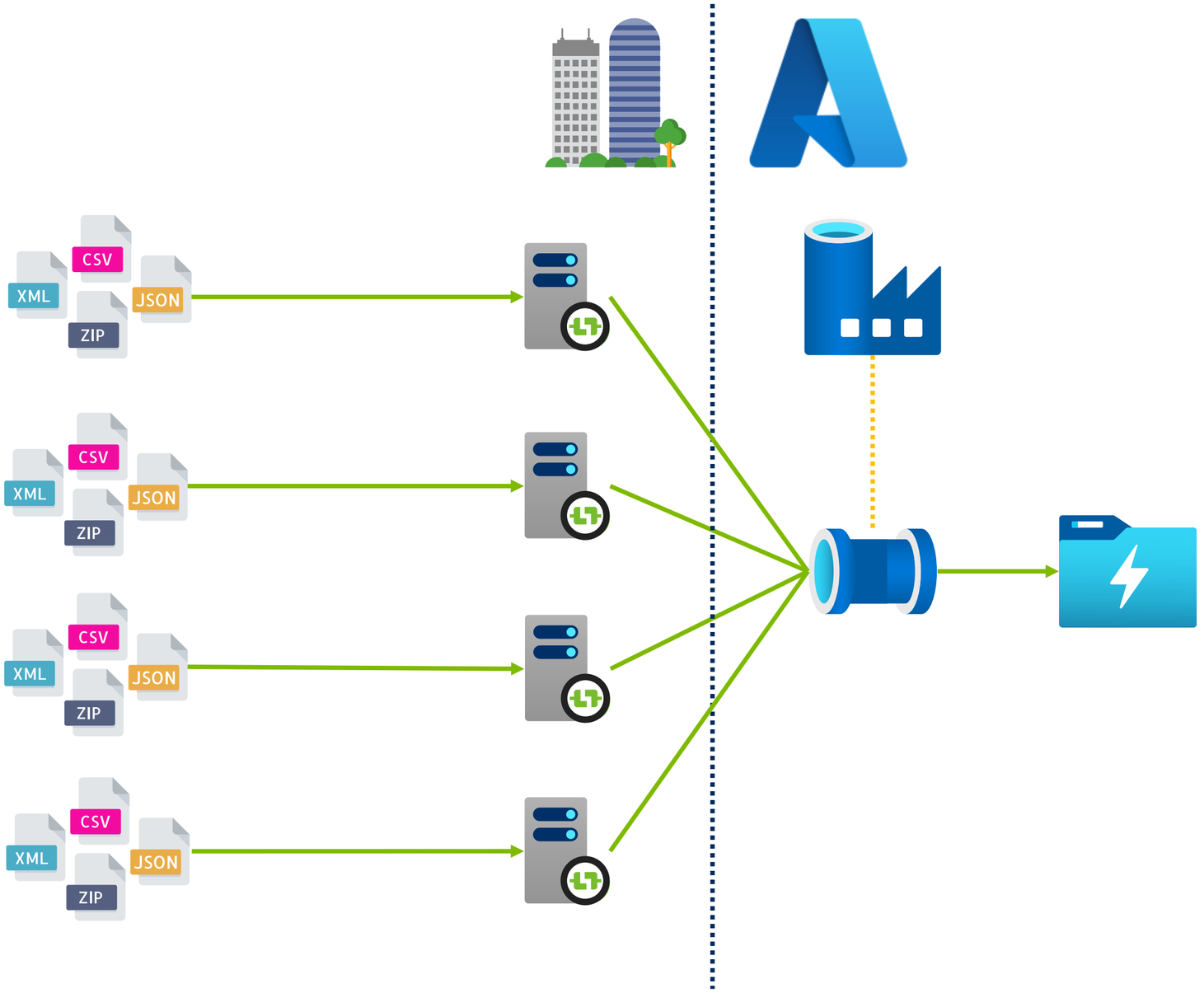
Multiple Hosted IR's as Separate Endpoints



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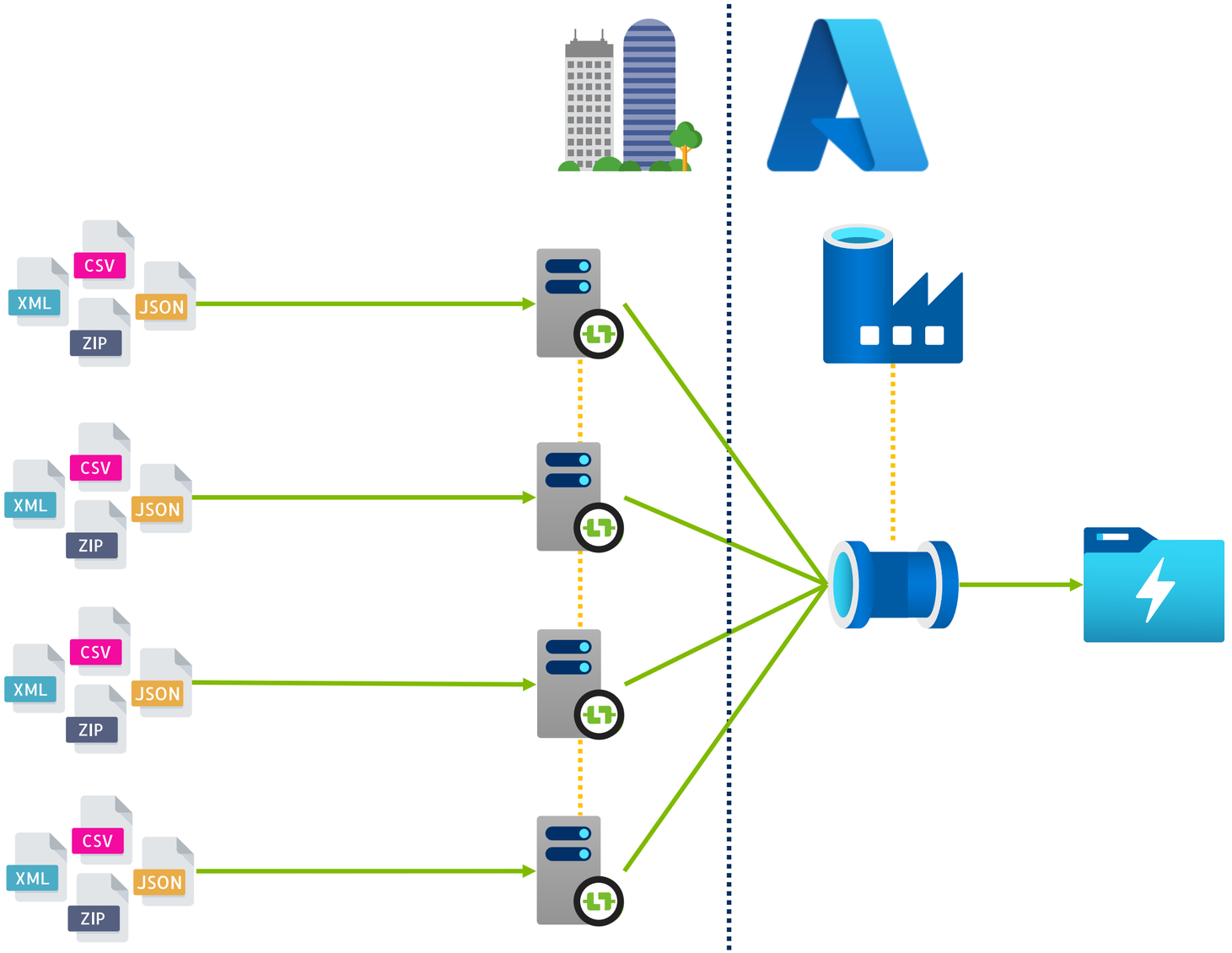
Single Hosted IR with Multiple Nodes



* Max of 4 Nodes per IR Endpoint

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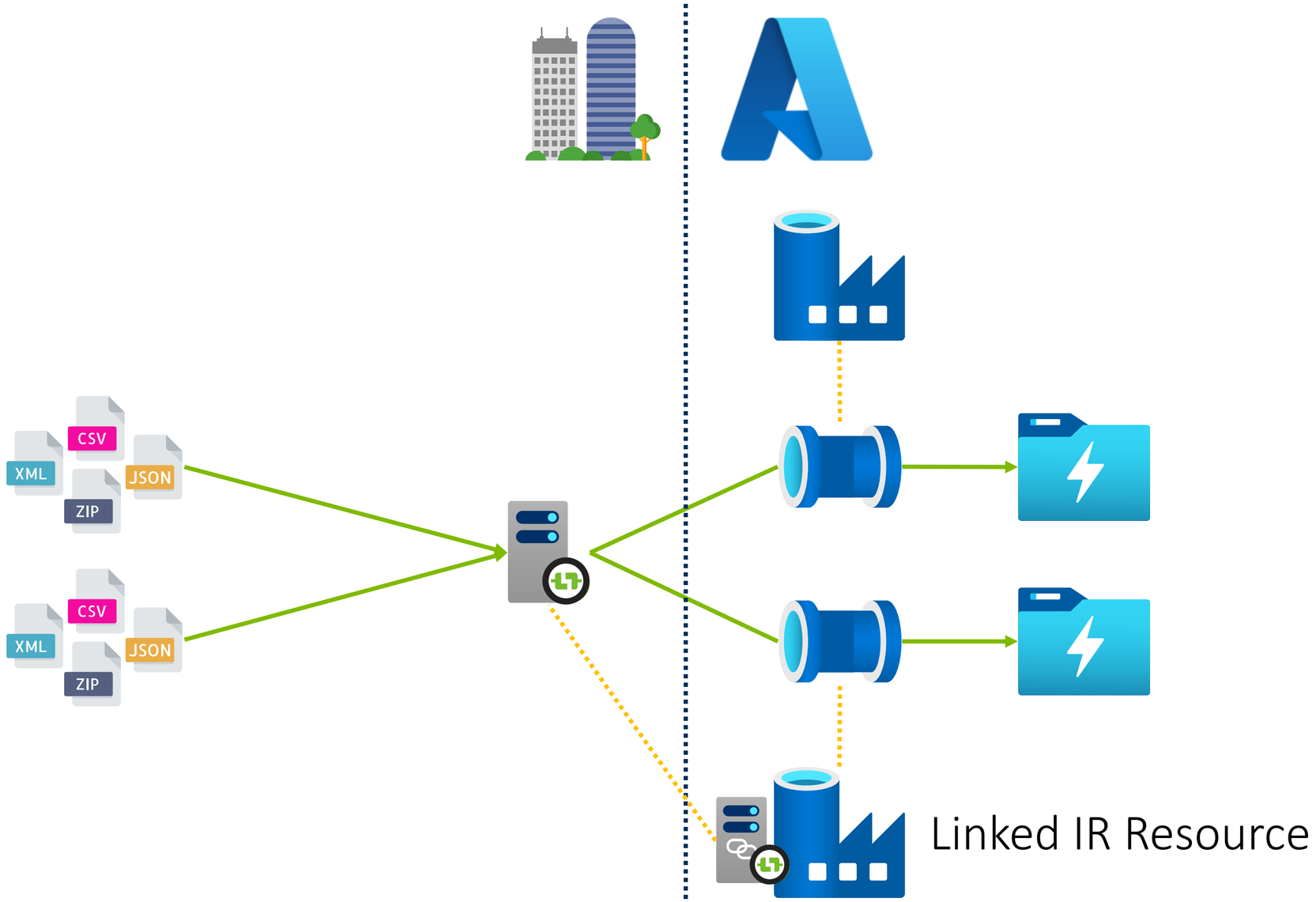
Single Hosted IR Linked to Multiple Data Factories



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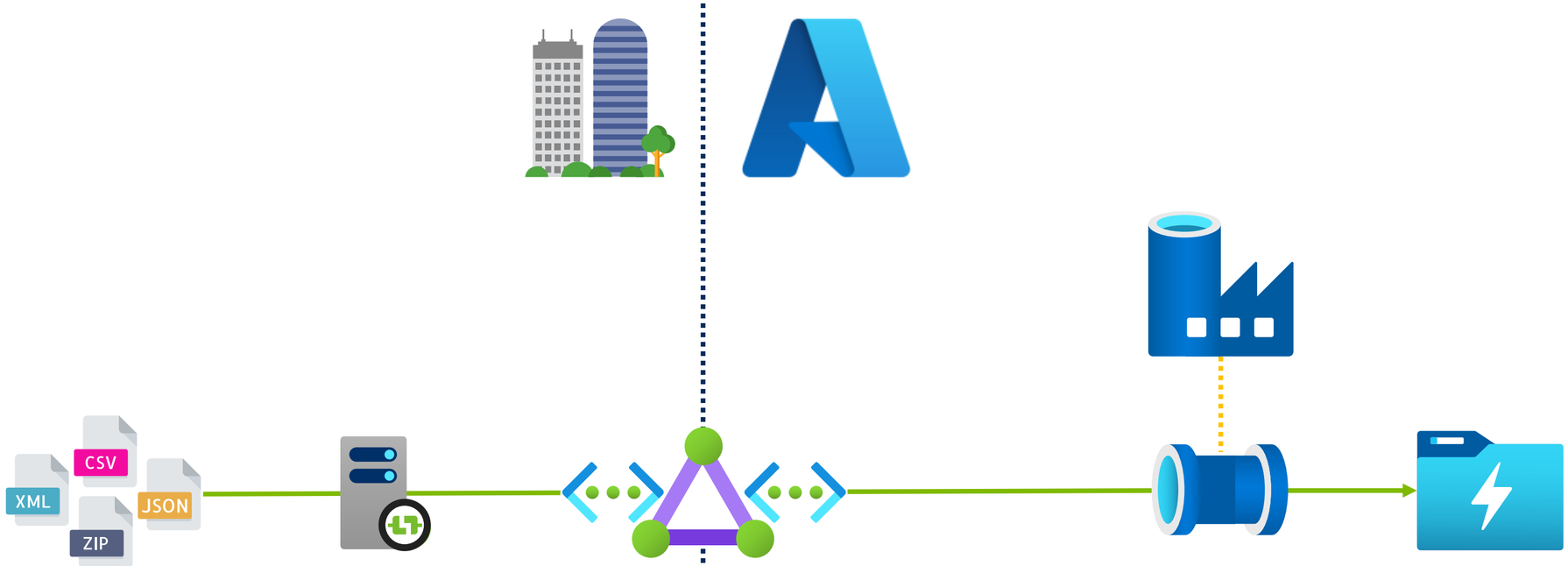
Hosted IR’s with Express Route Connections



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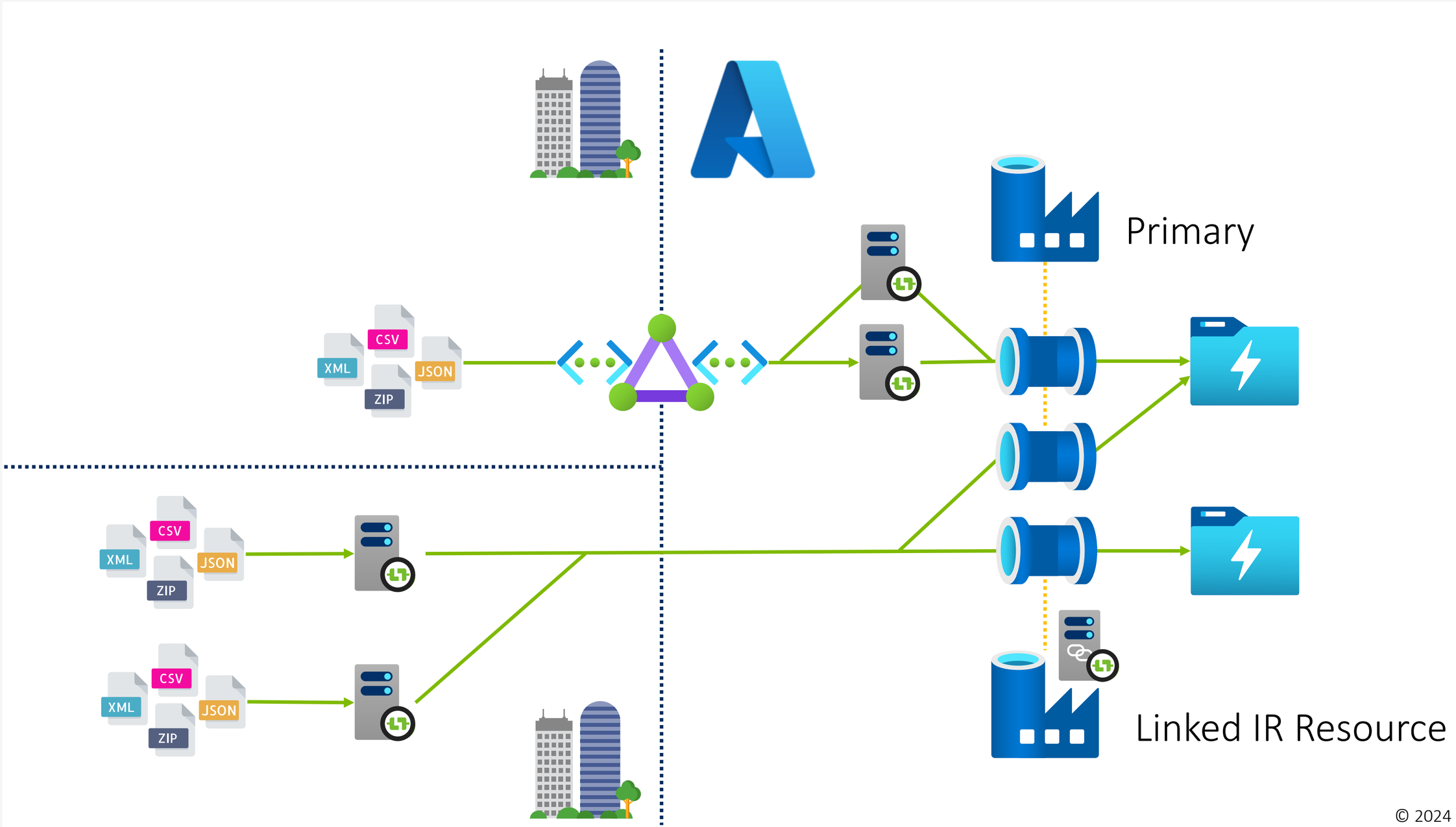
Hosted IR Combinations



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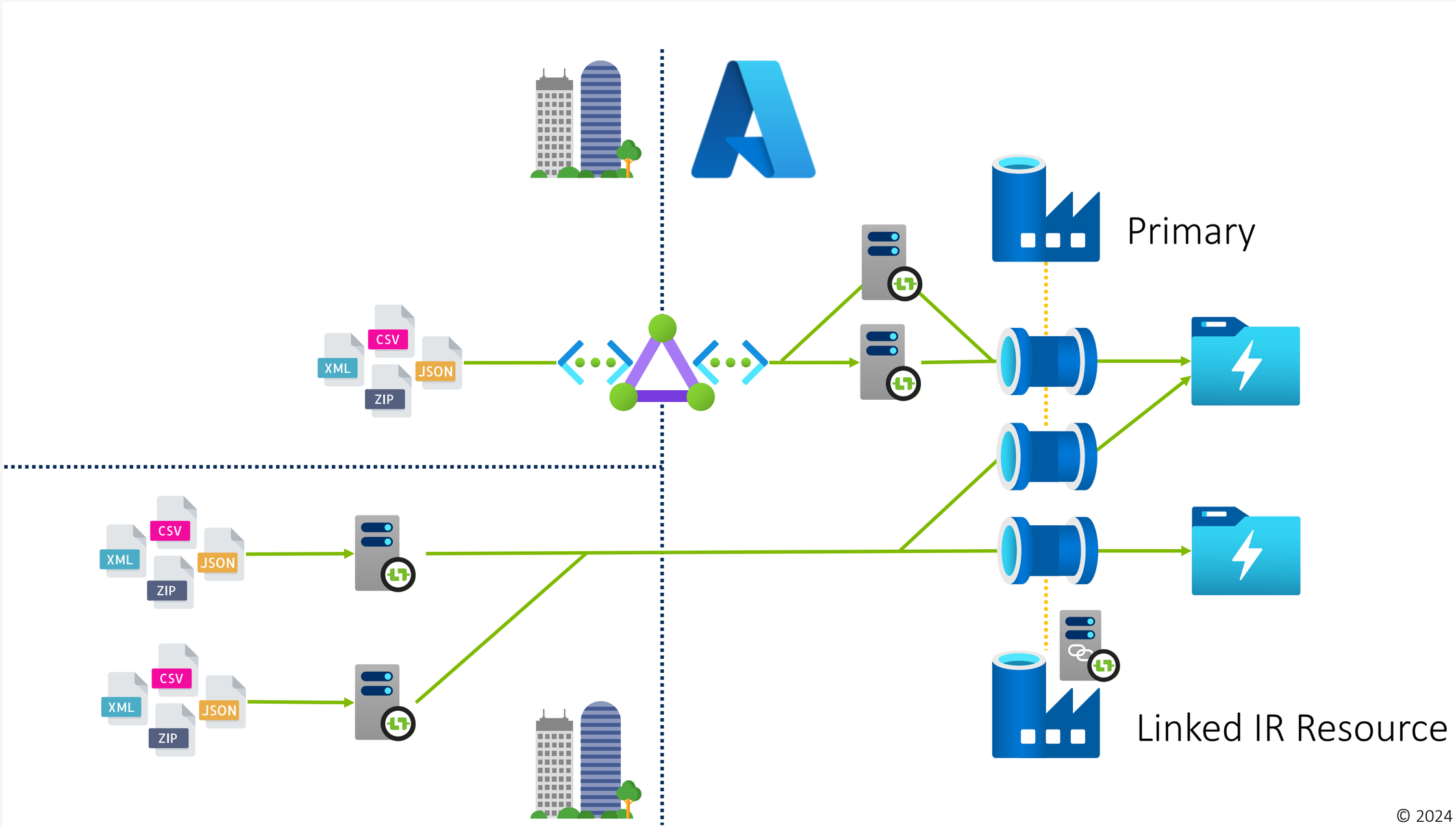
Horizontal vs Vertical Environment Processing



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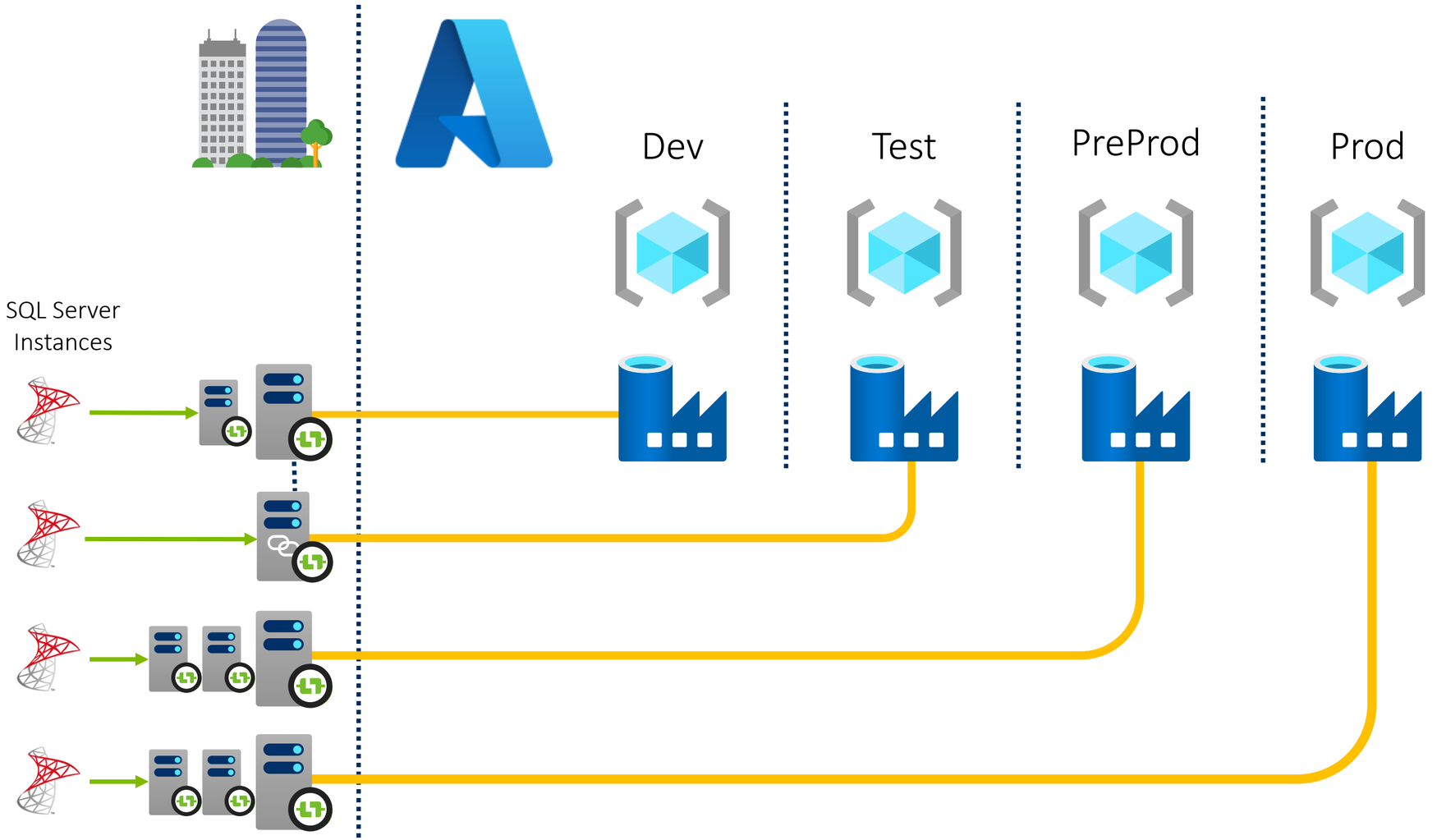
Hosted IR's vs Environments



25x Sites
4x Environments

2x IR's for Dev
1x Linked IR for Test (from Dev)

3x IR's for PreProd
3x IR's for Prod

8x Virtual Machines per Site
200x Virtual Machines Total

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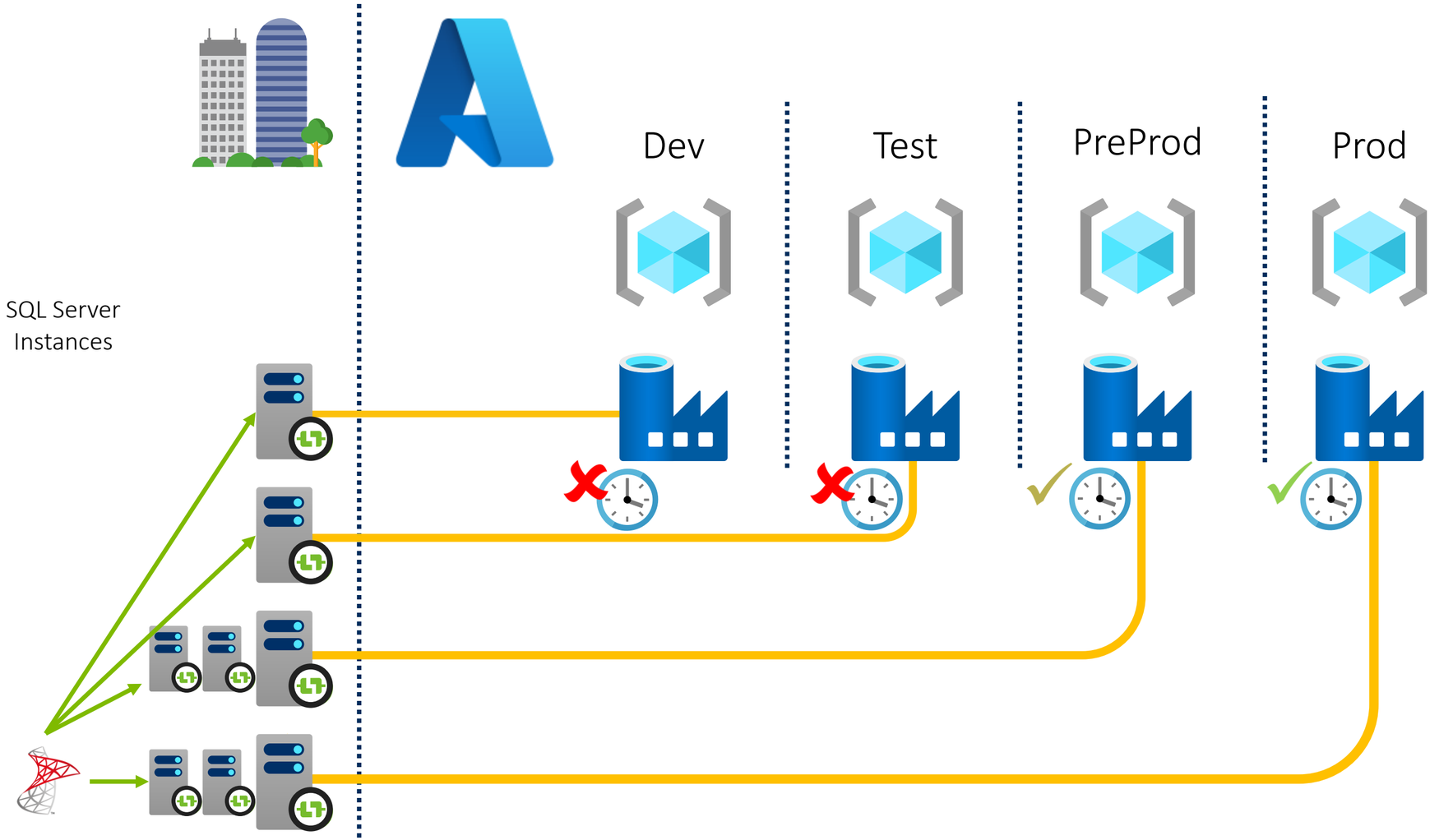
Hosted IR's vs Environments



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200x Virtual Machines Total

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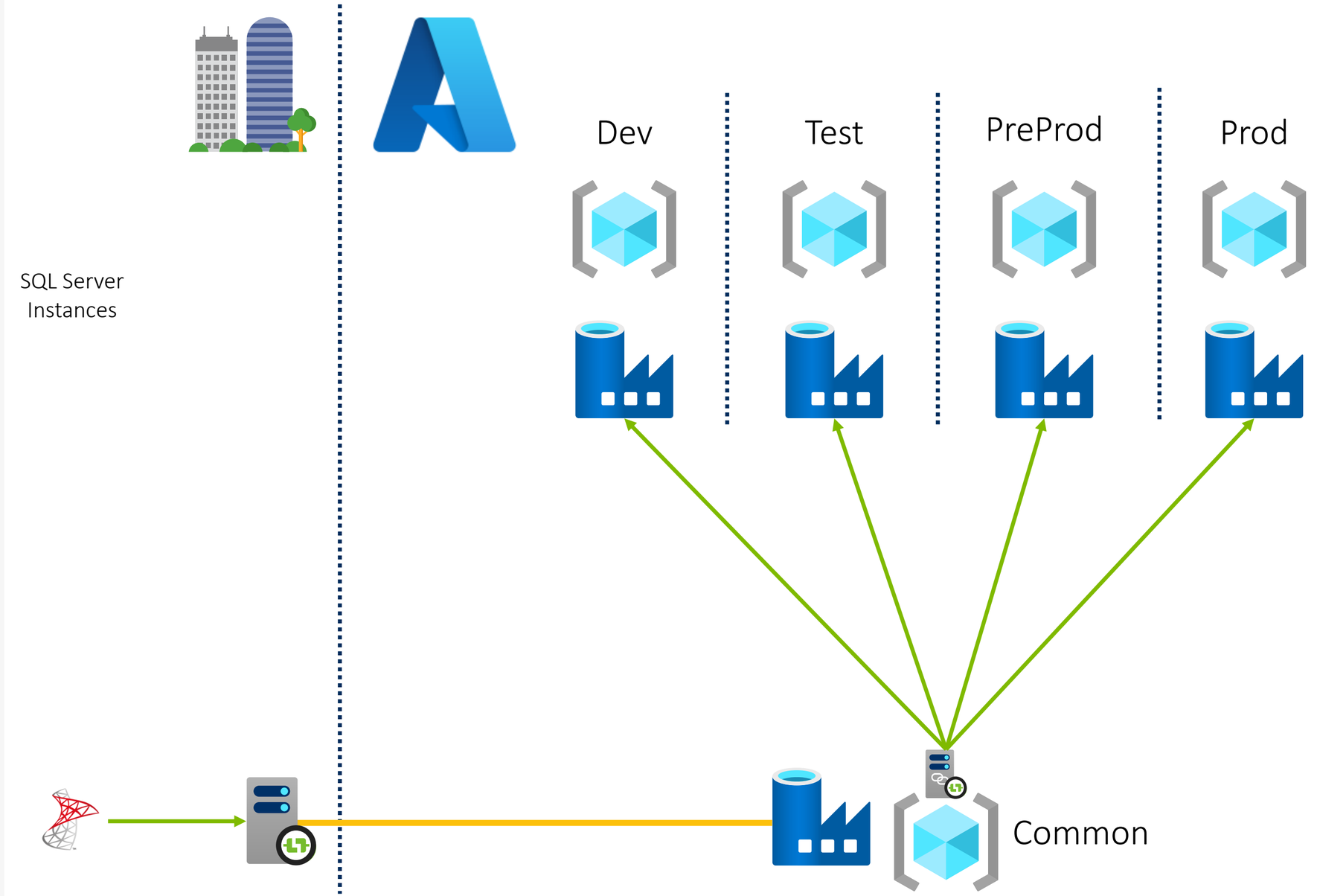
Hosted IR's vs Environments



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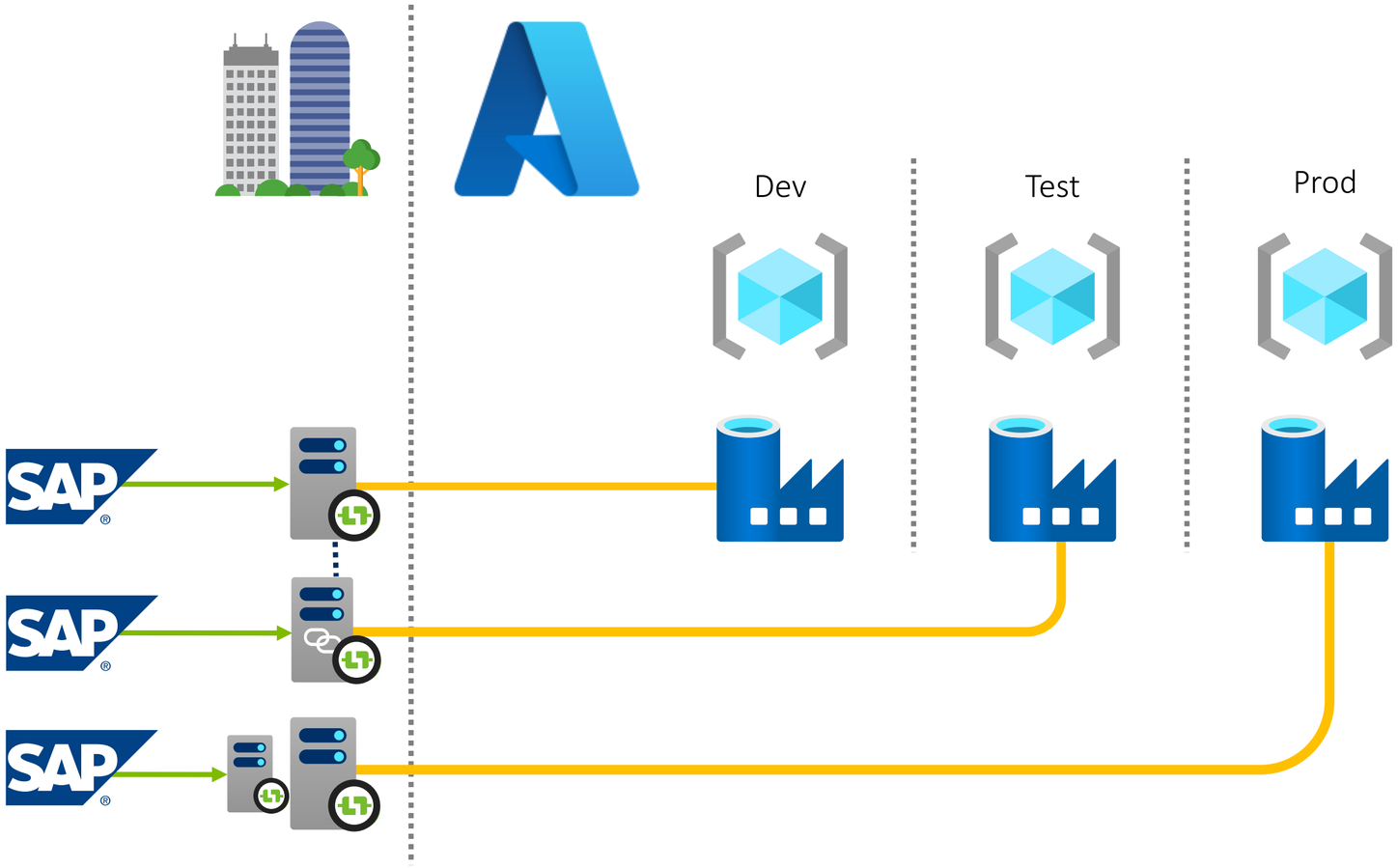
What does a typical setup involve?



1x Location
3x Environments

1x IR's for Dev
1x Linked IR for Test (from Dev)

2x IR's for Prod

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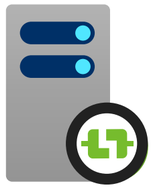
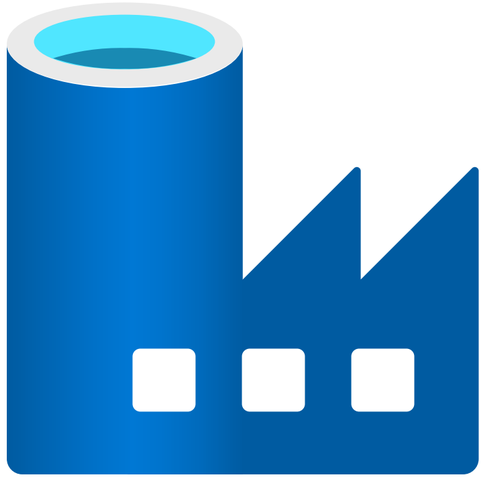
Synapse vs Data Factory

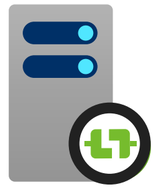
Integration Runtimes Differences



Hosted IR

SSIS IR (Preview)





Hosted IR

SSIS IR

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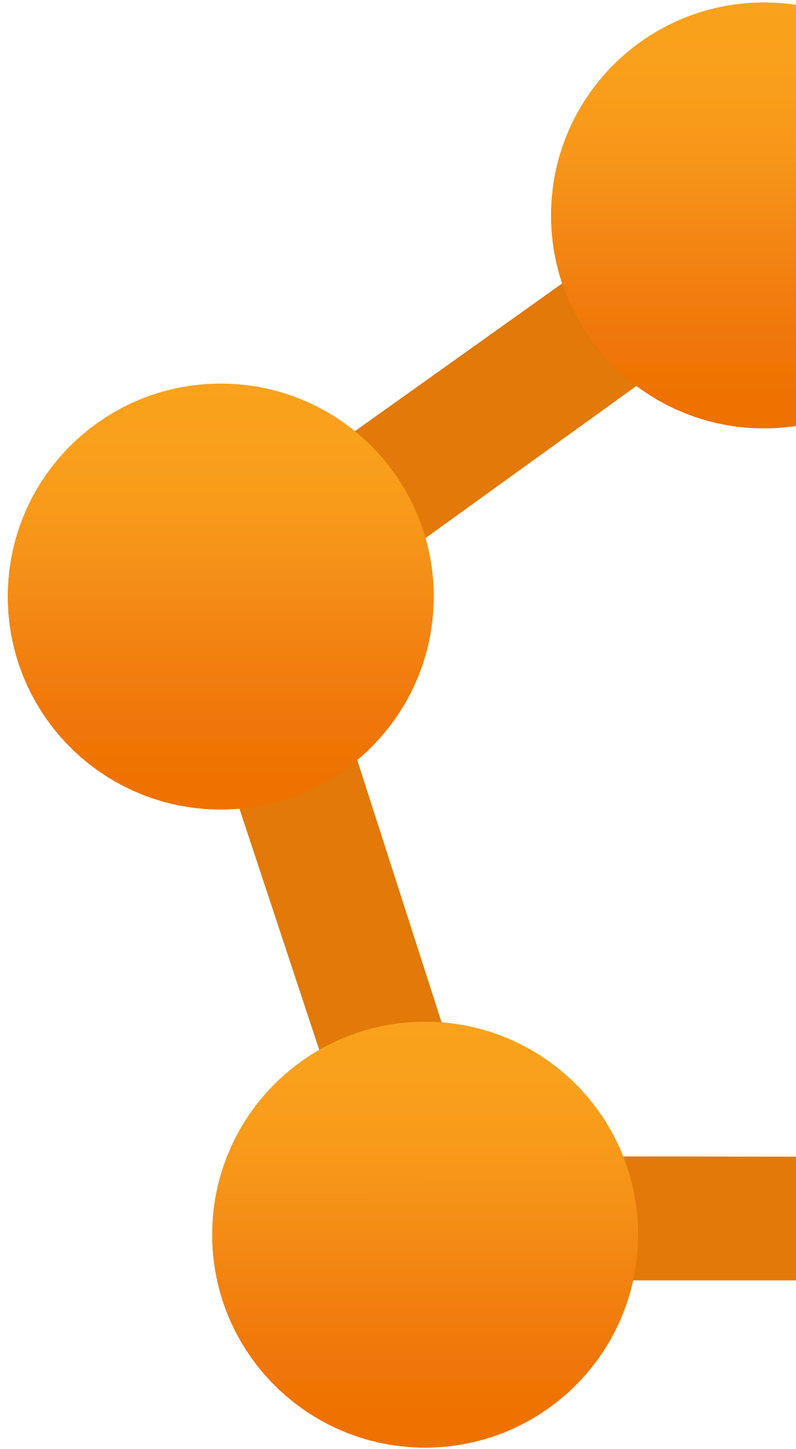
Integration Runtimes & Gateways
SSIS + Design Patterns



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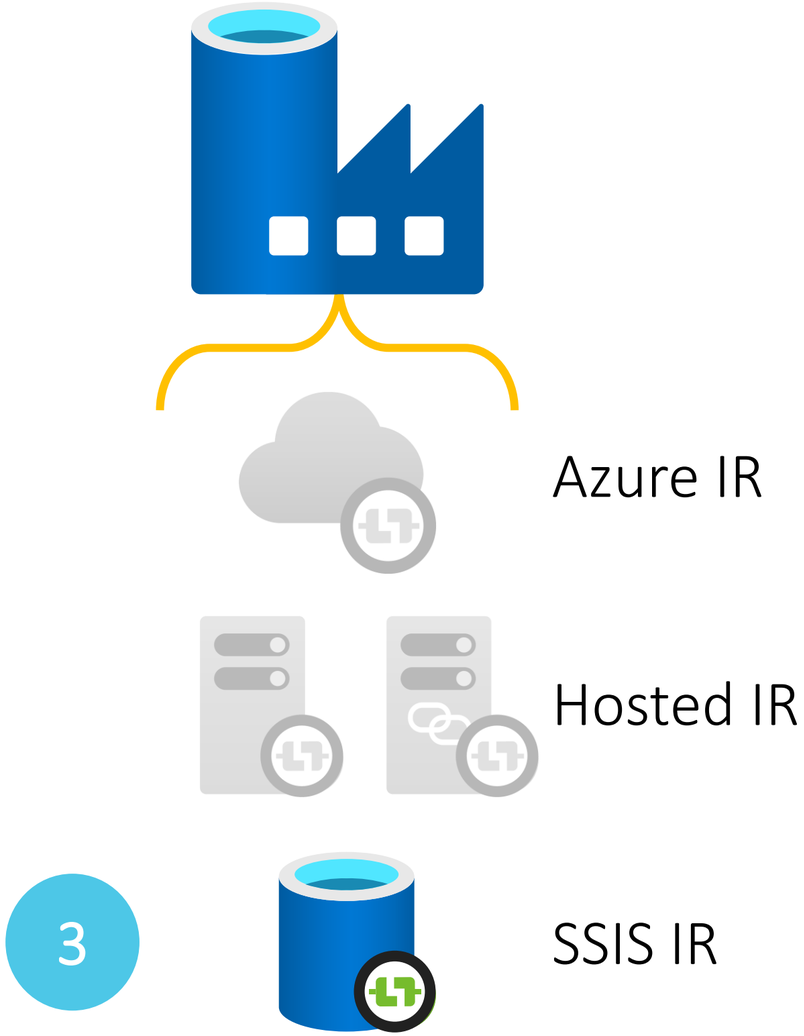
What can an Integration Runtime do?



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Running an SSIS Package in Azure

SSIS IR

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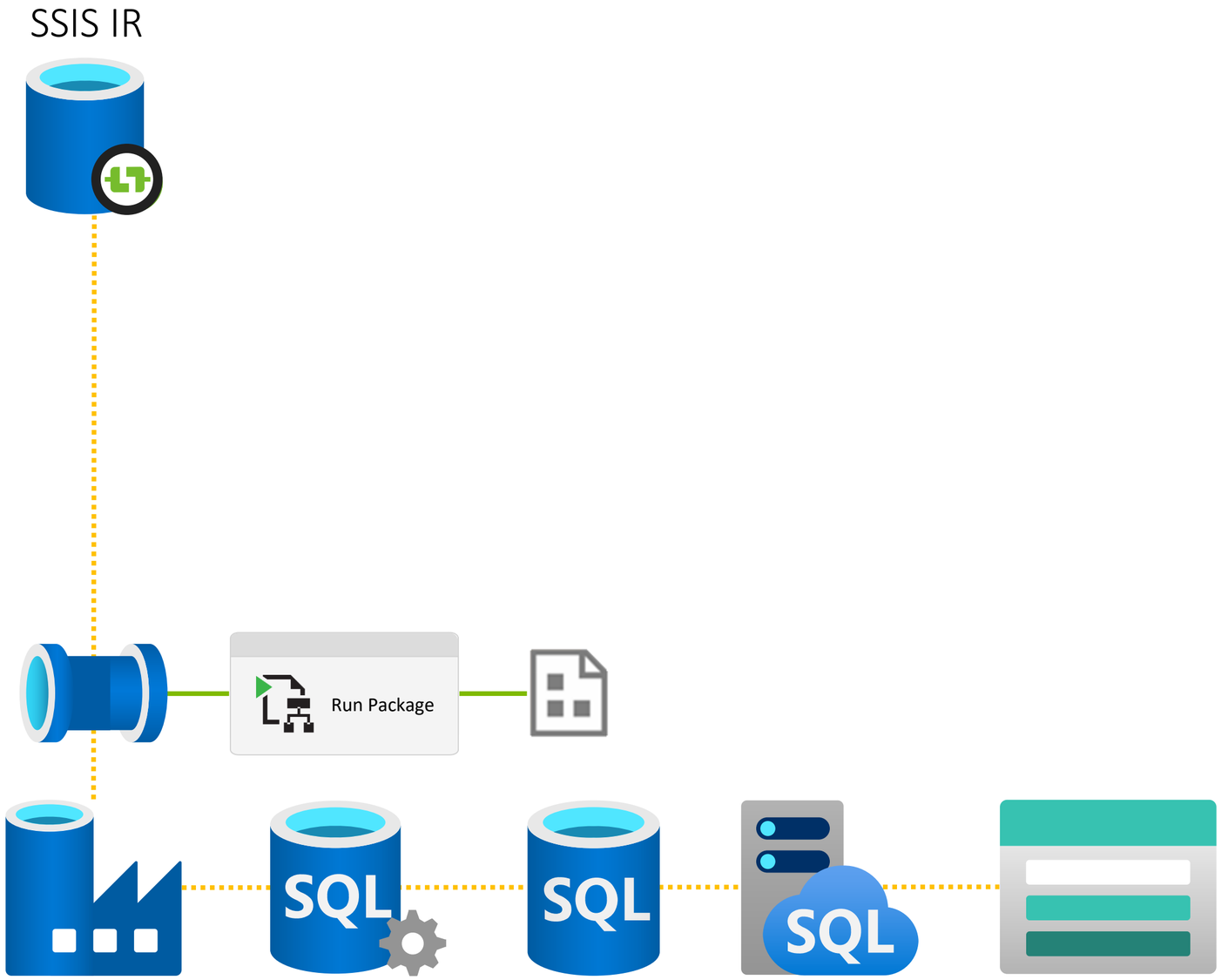
Running an SSIS Package in Azure



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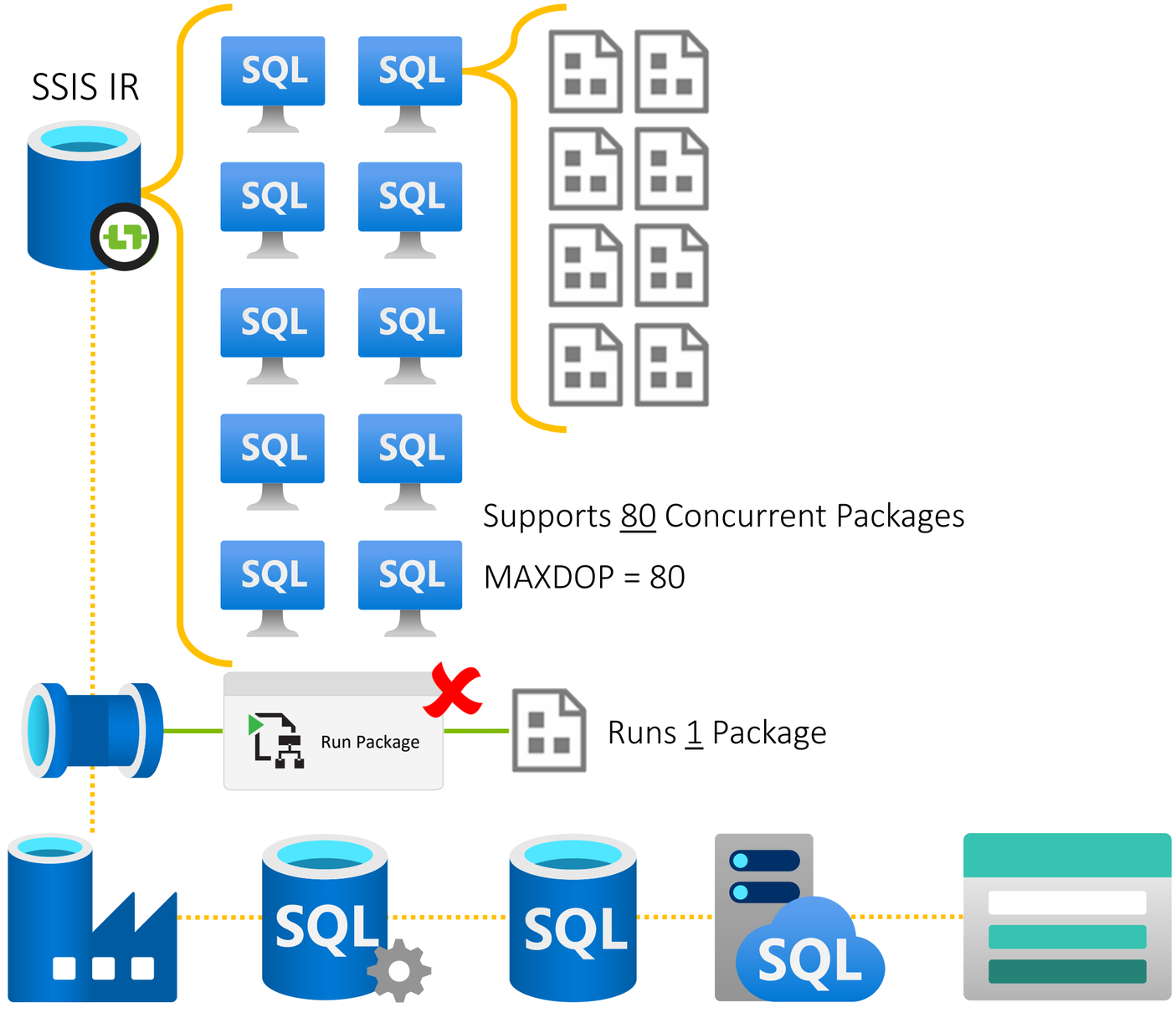
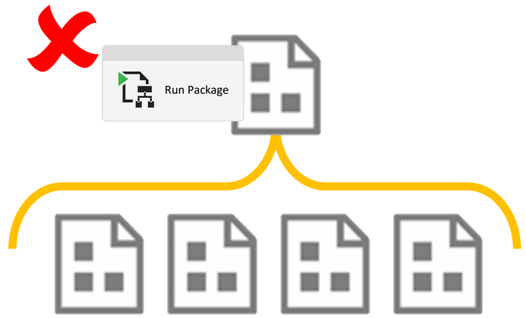
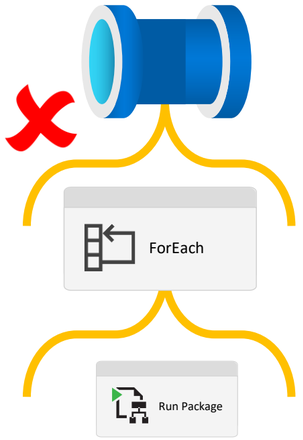
Problem: Using All Of The SSIS IR Compute





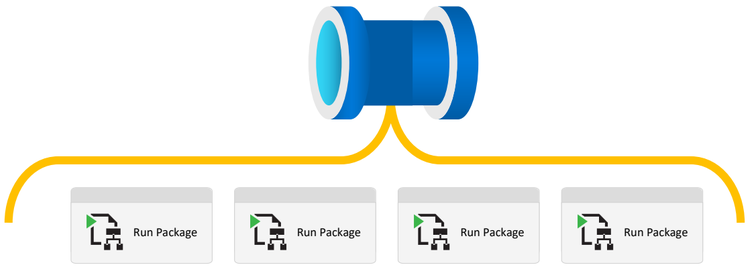
Parent Package

Child Packages x80



Pipeline x1

ForEach
Max Batch
(50)



Pipeline x1

Activities x80

*April 2024

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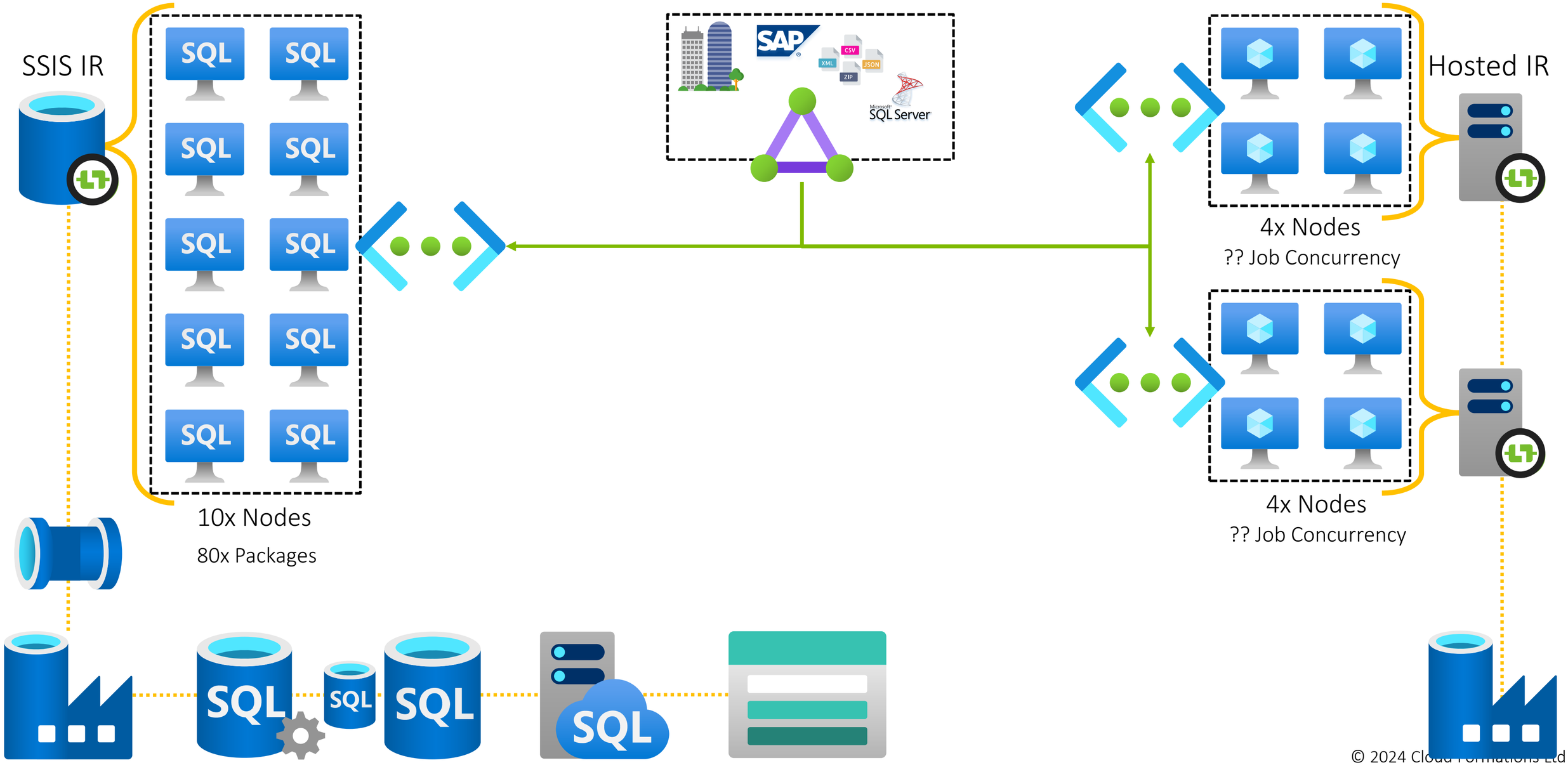
What are the advantages of using this pattern?



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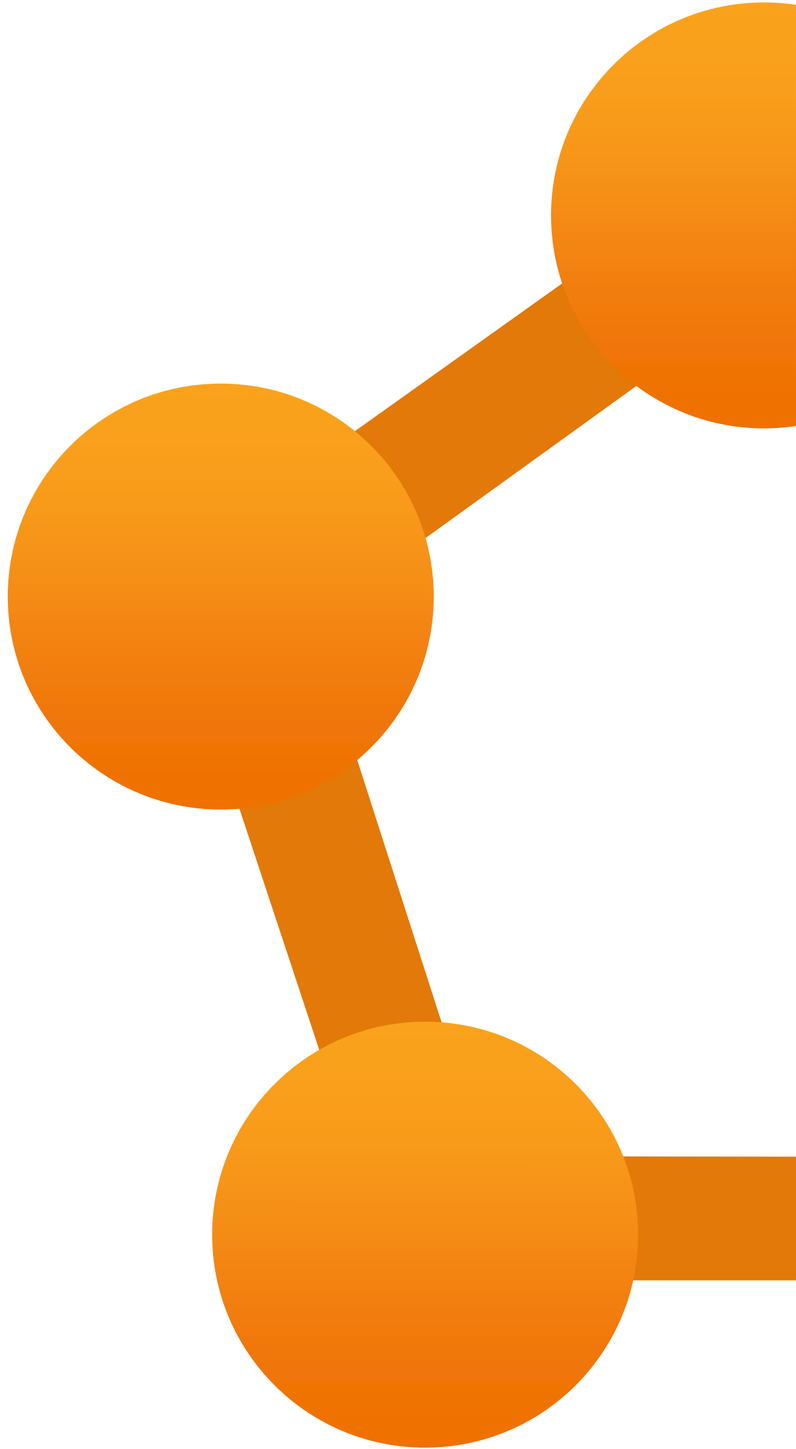
Module 2 –
Integration Runtimes & Gateways
Airflow



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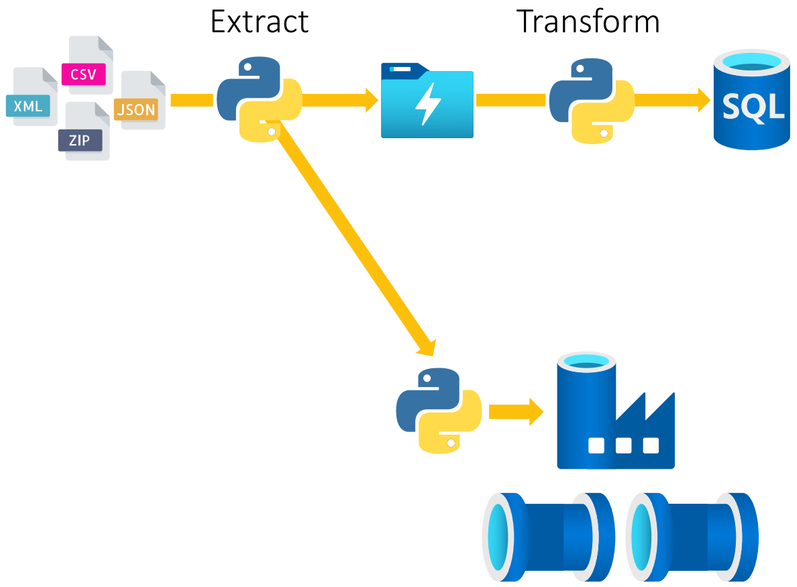
What is Apache Airflow?



Apache Airflow is an open-source platform designed for orchestrating complex workflows and data pipelines. Here are some key points about it:

Workflow Management: Airflow allows you to programmatically author, schedule, and monitor workflows. These workflows are defined as Directed Acyclic Graphs (DAGs) of tasks, where each task represents a unit of work.

Extensible and Dynamic: Written in Python, Airflow is highly extensible. You can create custom operators, sensors, and hooks to interact with various technologies and services.

Scalable: Airflow's architecture supports scaling from a single machine to a large distributed system, making it suitable for both small and large-scale workflows.

User Interface: It provides a robust web interface to manage and monitor workflows, view logs, and track the status of tasks.

Community and Open Source: As an open-source project, Airflow has a vibrant community that contributes to its development and provides support through various channels.

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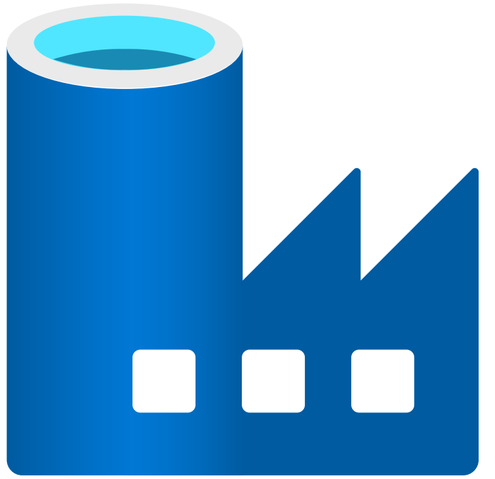
What is the Difference Between Airflow and ADF?

Full Code Interface

Open Source

Python Based



Graphical Low Code Interface

Closed Source

JSON Based

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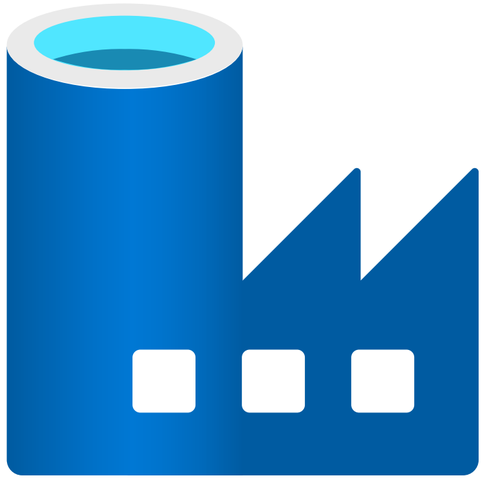
What is the Difference Between Airflow and ADF?



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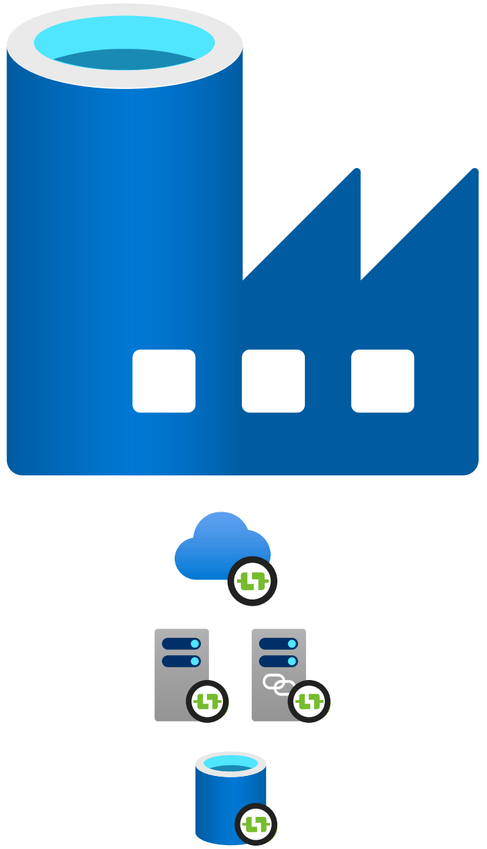
What is the Difference Between Airflow and ADF?



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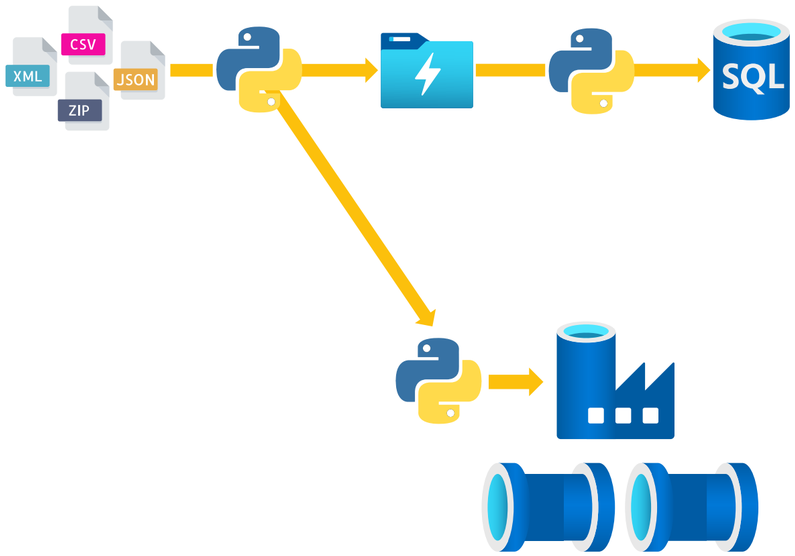
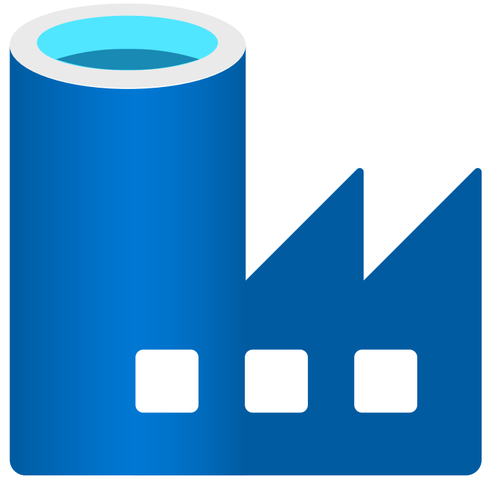
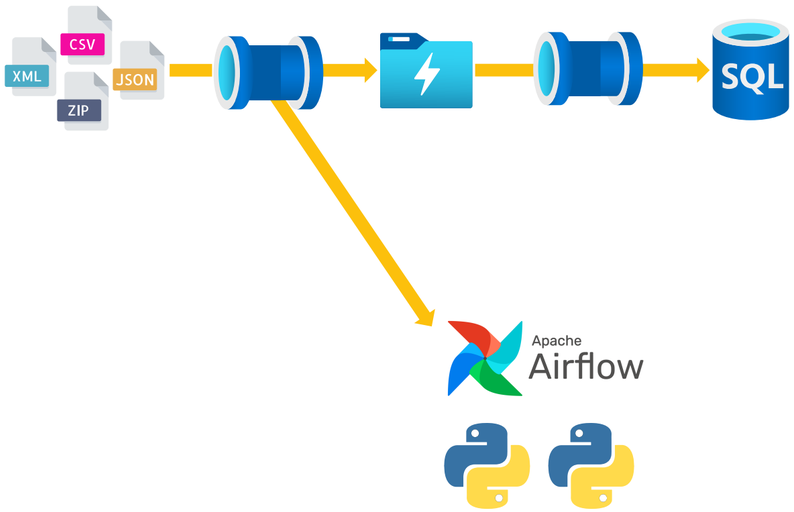
What is the Difference Between Airflow and ADF?







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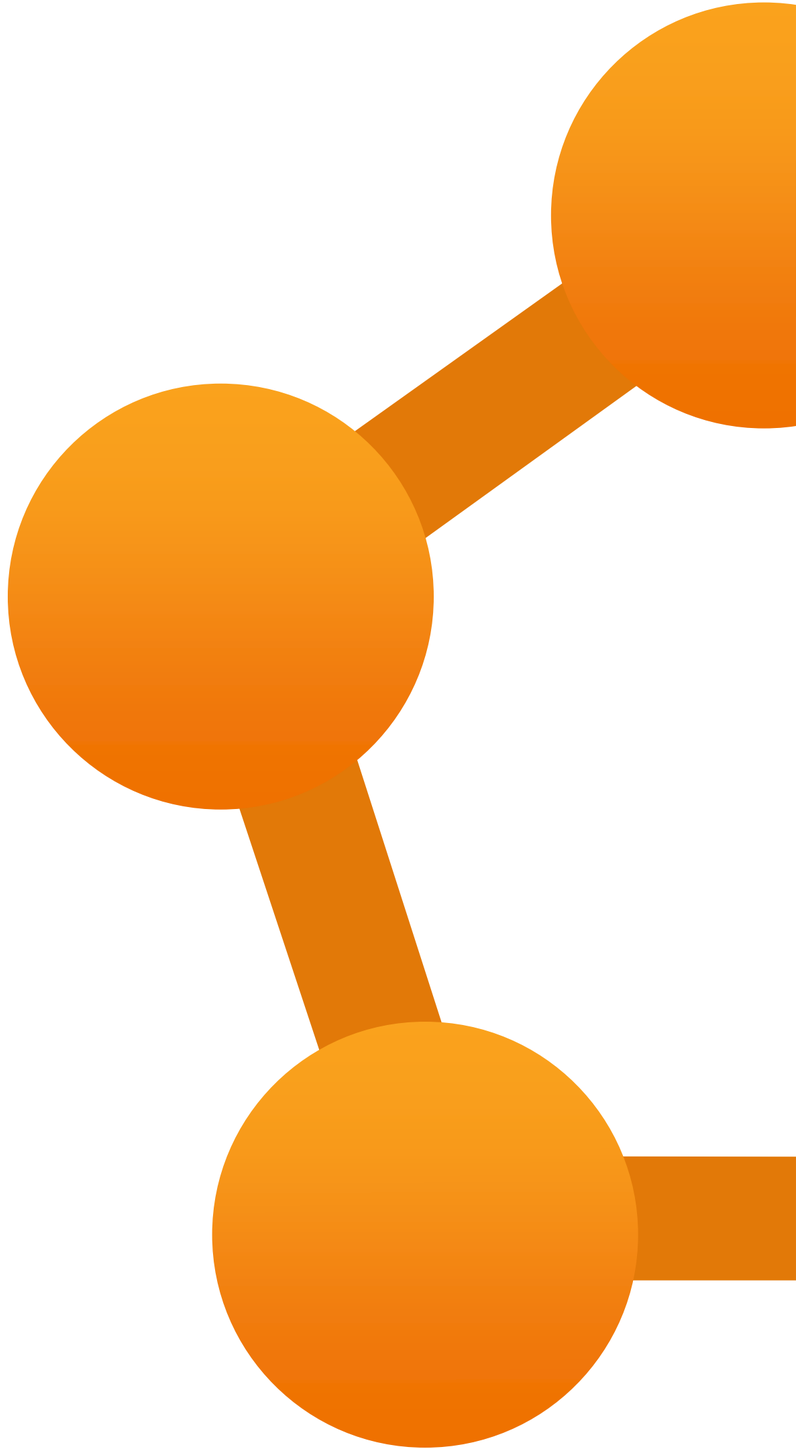
Module 2 –
Integration Runtimes & Gateways
Using Gateways vs IRs



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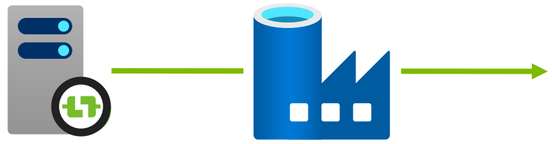
Considering Other Products and Patterns

Integration Runtime

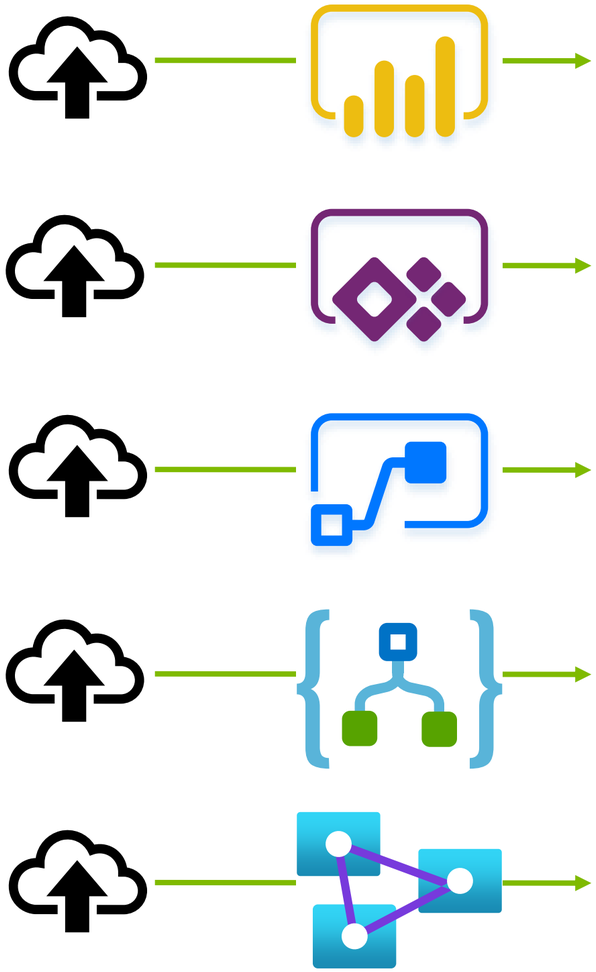


Can only be used in isolation:

1 Windows Virtual Machine
1 Integration Runtime Client
1 Cloud Resource Registration

Personal Gateway

Standard Gateway



Can be used simultaneously.

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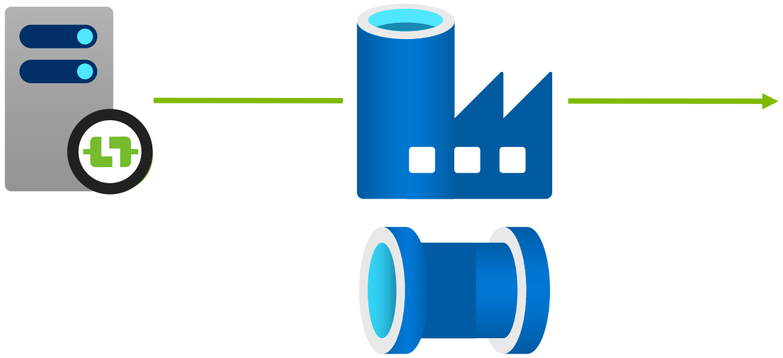
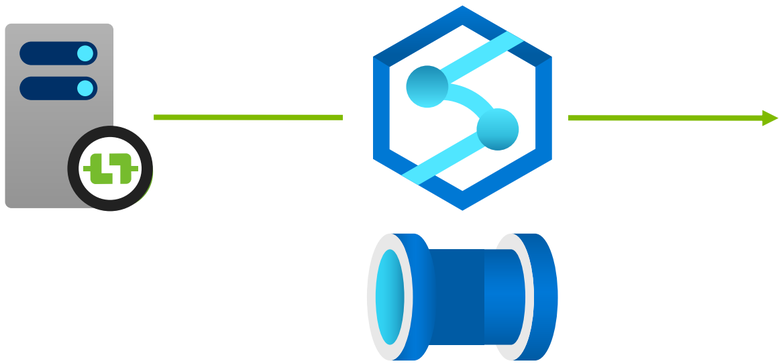
In Summary

Integration Runtimes vs Gateways For Pipelines

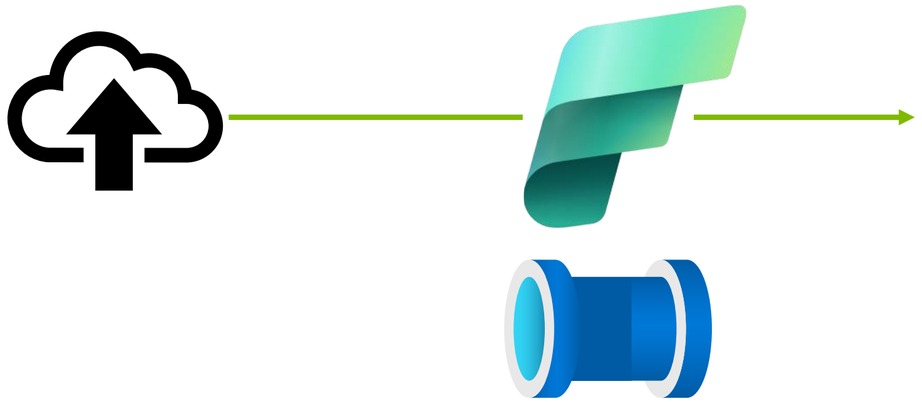
Integration Runtime



Integration Runtime



Standard Gateway



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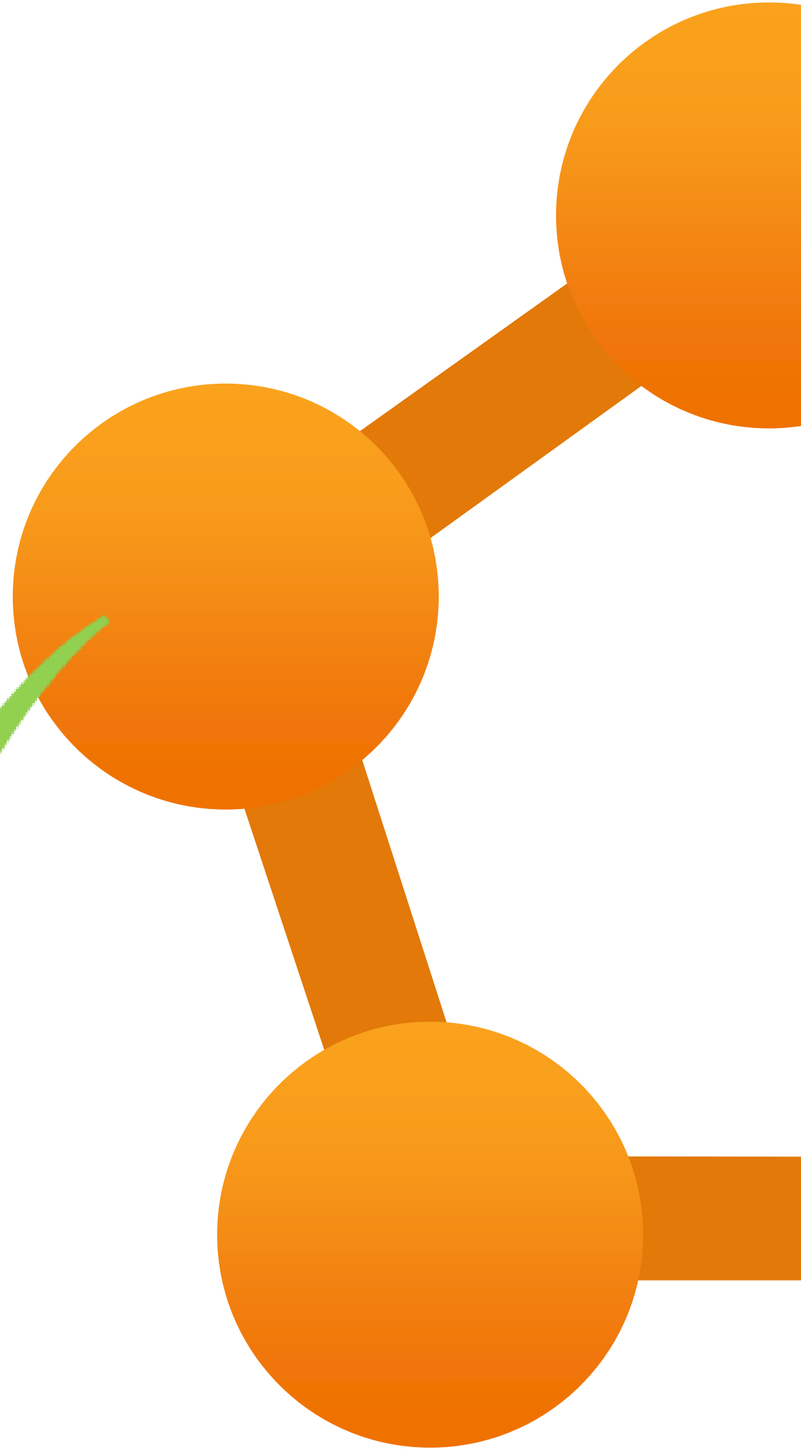
Module 2

Integration Runtimes & Gateways ✓

Any questions?



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