BUILDING EVENT-DRIVEN MICROSERVICES

PRAIRIE DEV CON

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- ChadGreen.com
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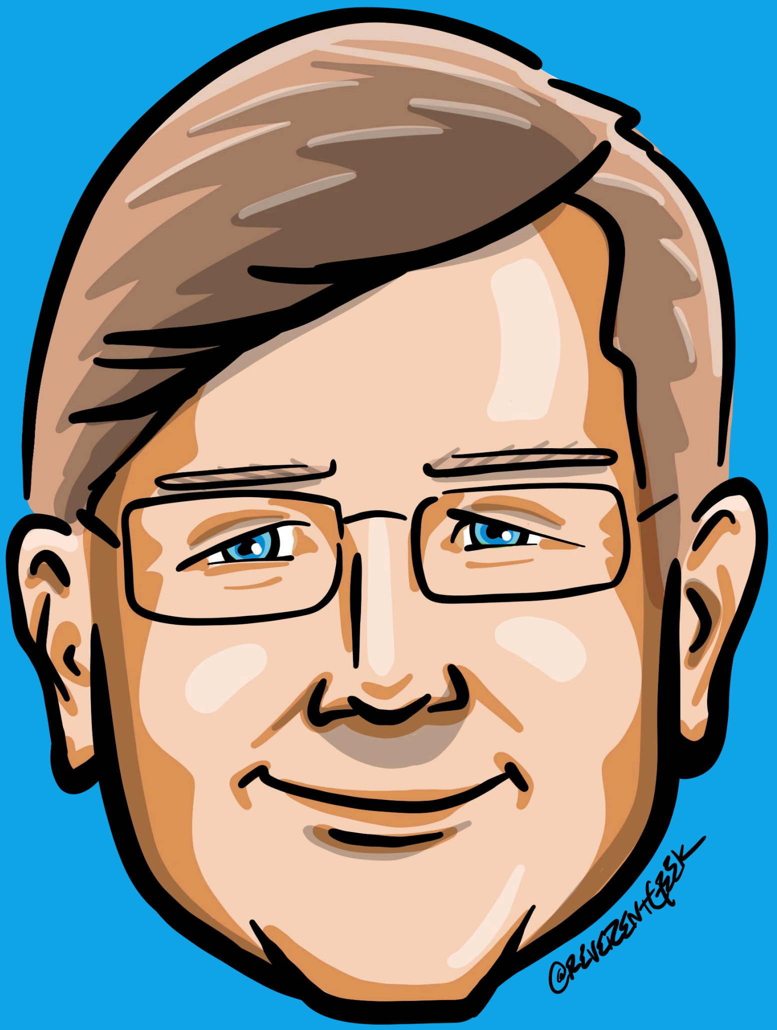
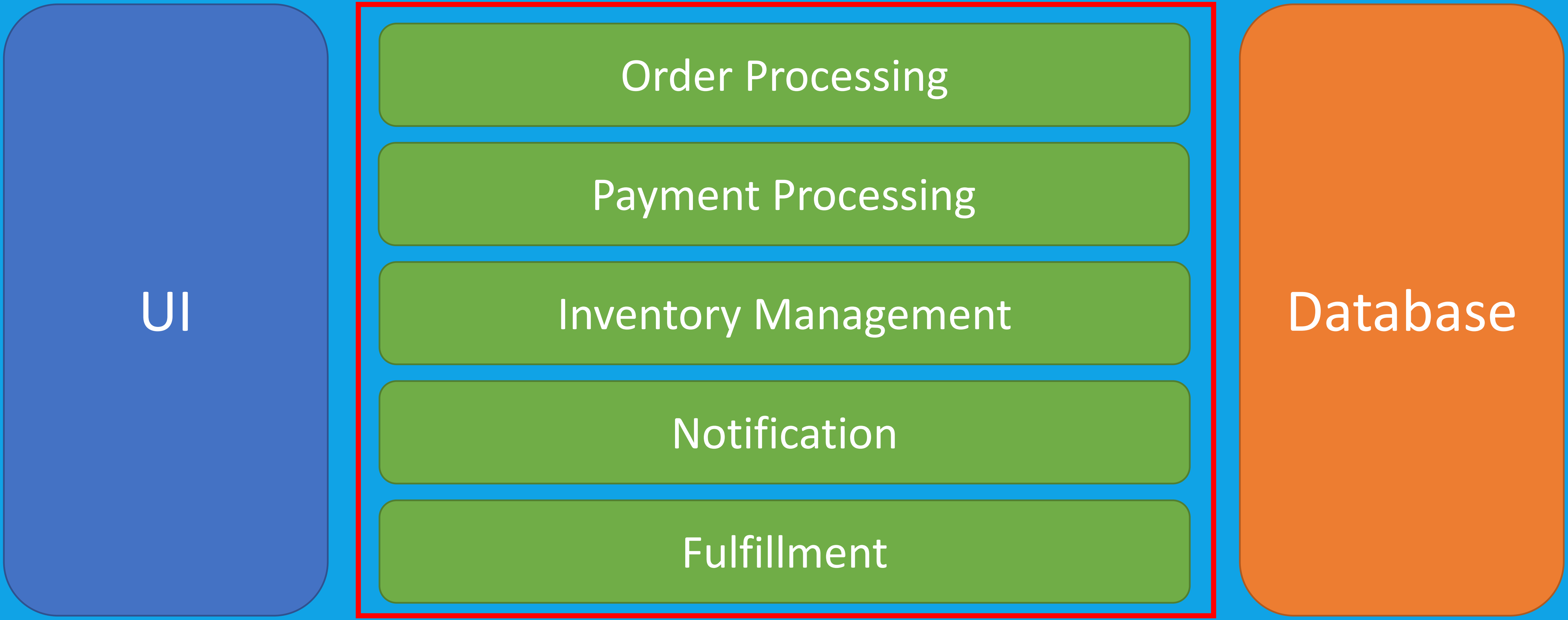


Preamble

Building Event-Driven Microservices

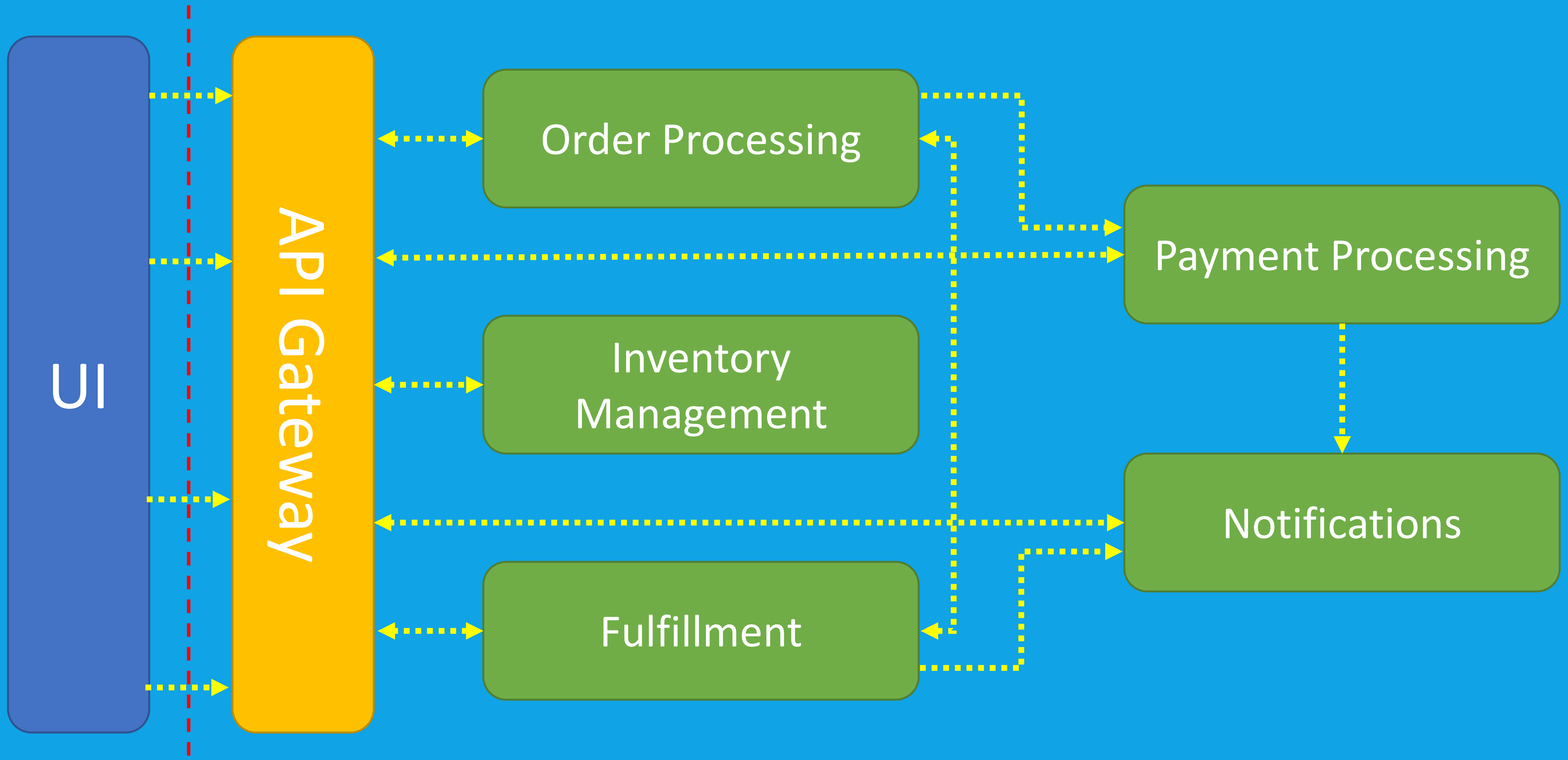
Monolith

Enterprise Architecture



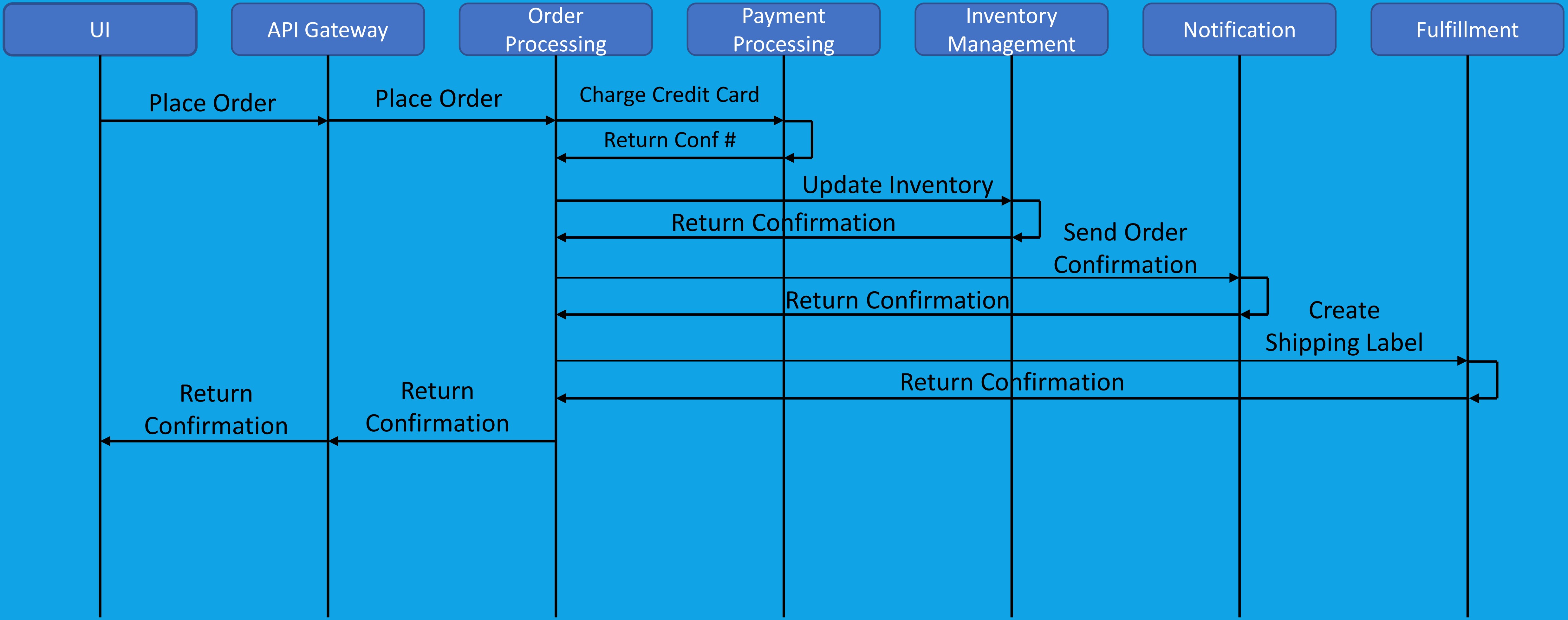
Microservices

Enterprise Architecture



Process Flow

Microservices



Event-Driven Architecture

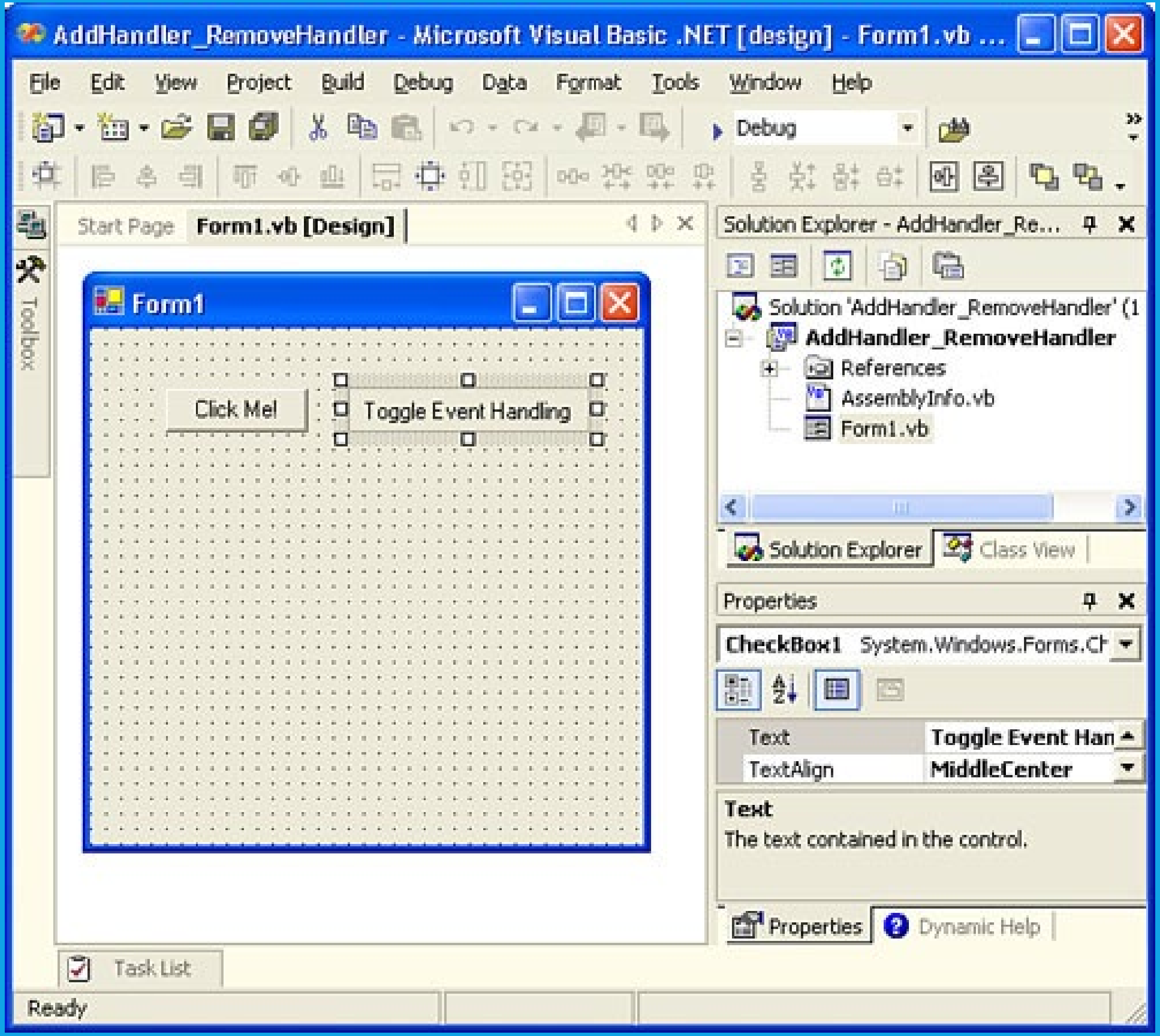
Building Event-Driven Microservices

Event-Driven Architecture

> A software architecture pattern promoting the production, detection, consumption of, and reaction to **events**.

- Wikipedia -

Event-Driven Architecture



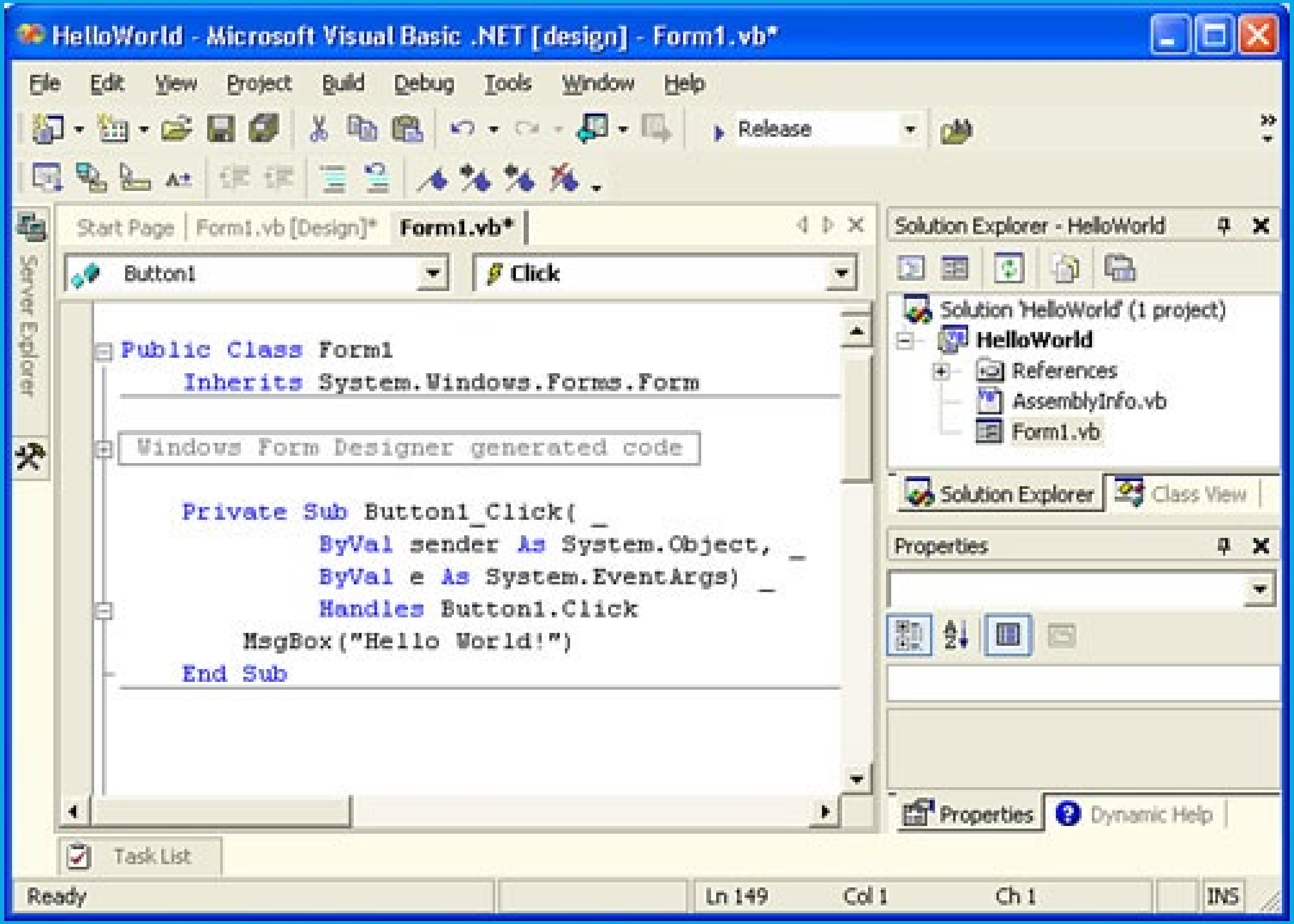
Properties

CheckBox1 System.Windows.Forms.Ch

Text	Toggle Event Han
TextAlign	MiddleCenter

Text
The text contained in the control.

Event-Driven Architecture



```
Public Class Form1
    Inherits System.Windows.Forms.Form

 Windows Form Designer generated code 

    Private Sub Button1_Click( _
              ByVal sender As System.Object, _
              ByVal e As System.EventArgs) _
              Handles Button1.Click
        MsgBox("Hello World!")
    End Sub
```

Event-Driven Architecture

“

Event-driven architecture (EDA) is a design paradigm in which a software component executes in response to receiving one or more event notifications.

EDA is more loosely coupled than client/server paradigm because the component that sends the notification doesn’t know the identity of the receiving components at the time of compiling

- Garner -

Event-Driven Architecture

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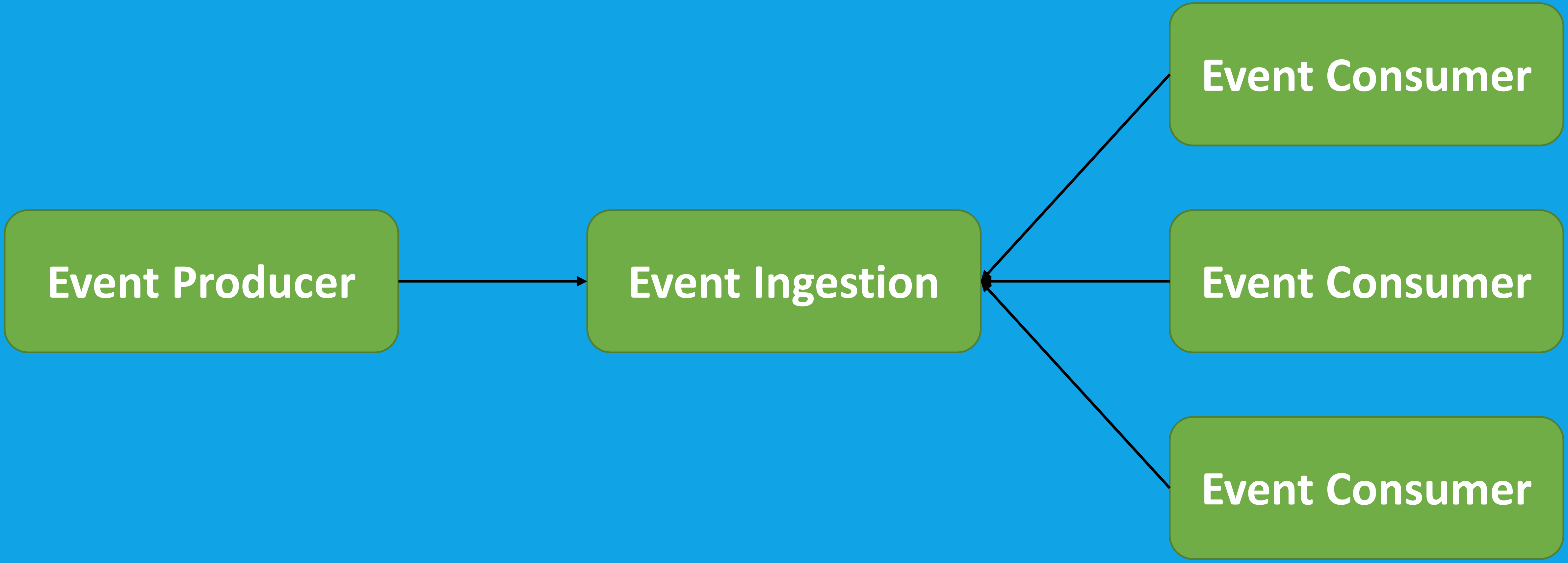
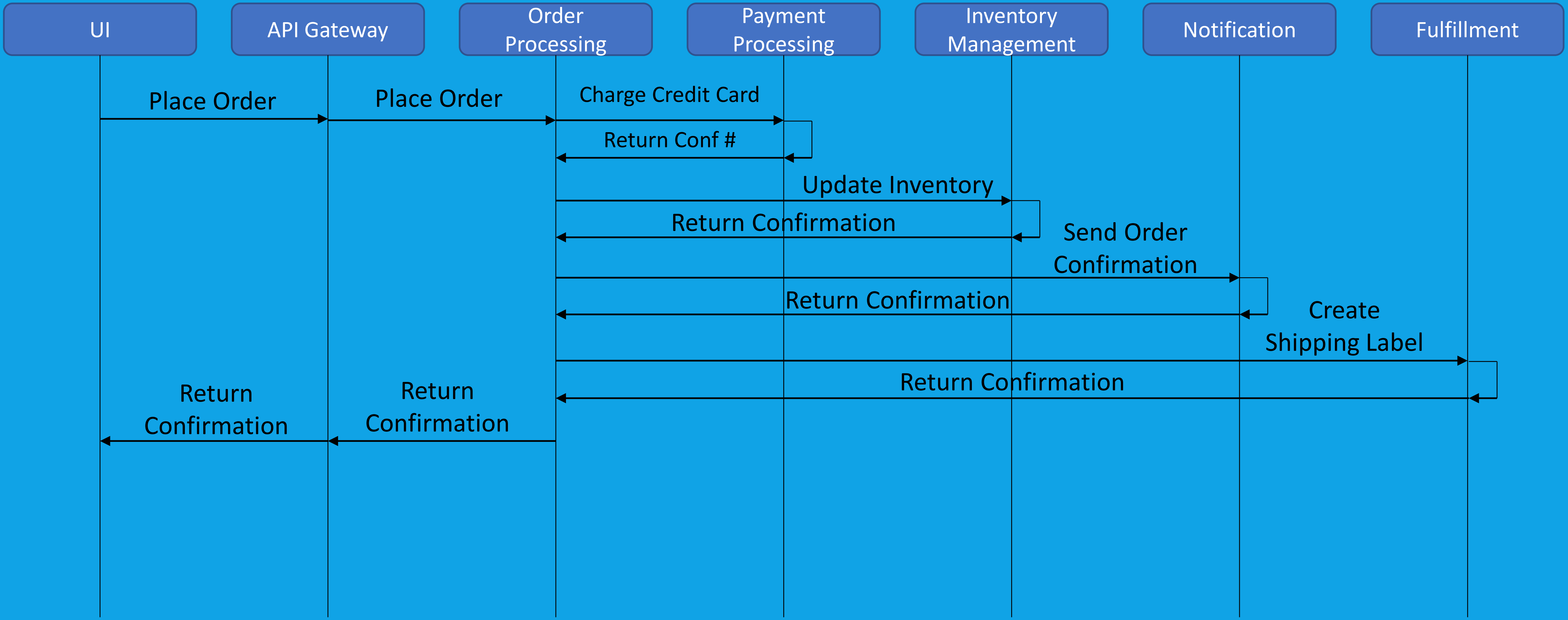
Event-Driven Architecture



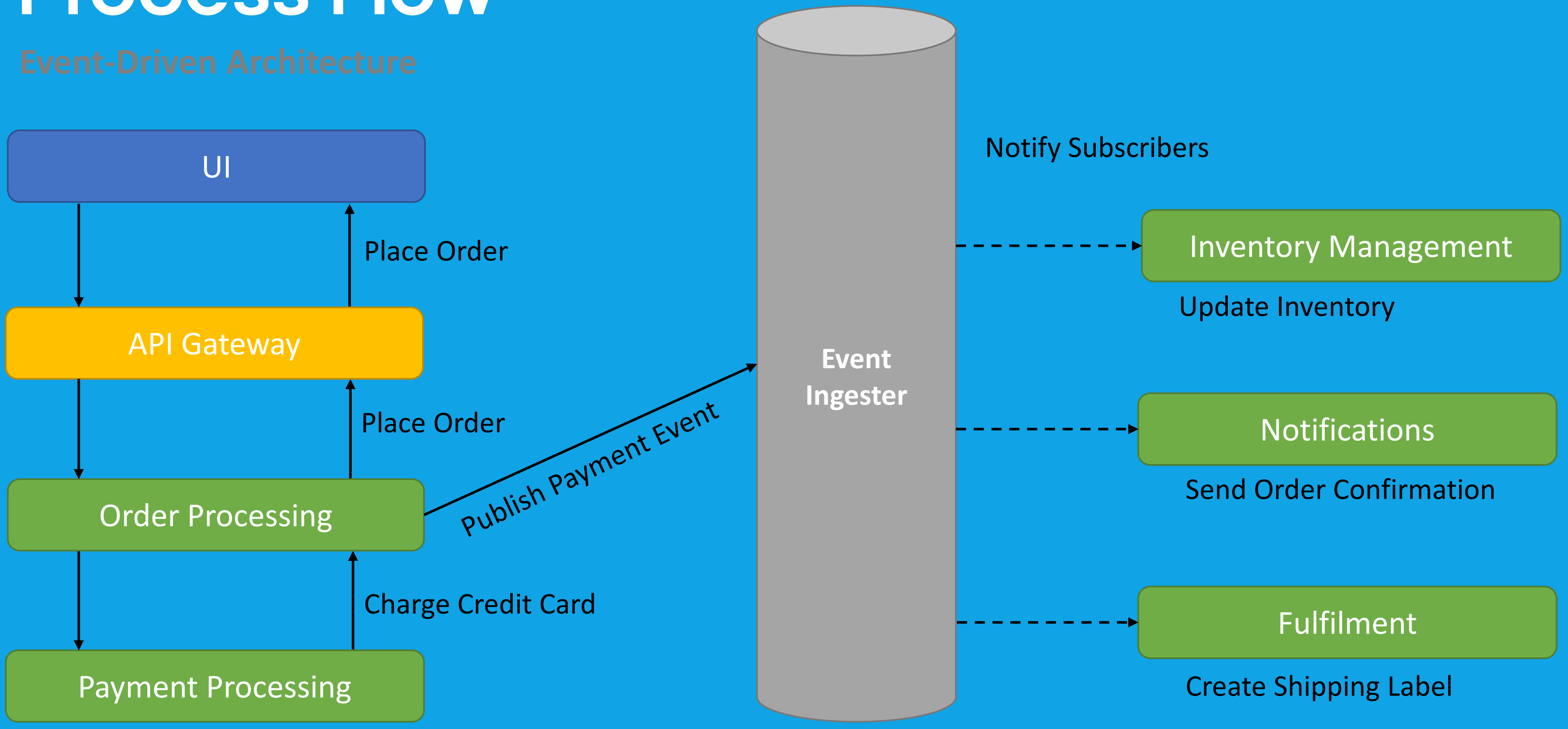
Process Flow

Microservices



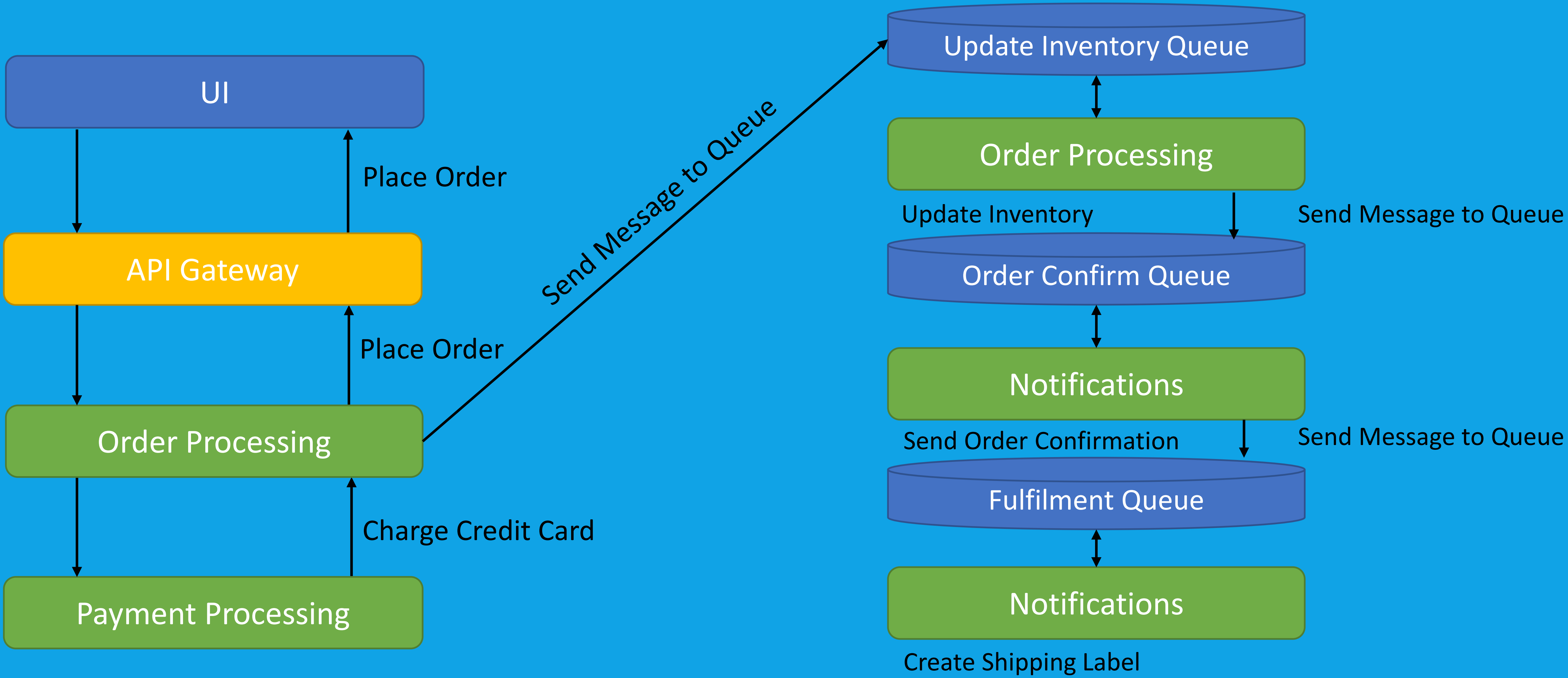
Process Flow

Event-Driven Architecture



Not Queue Based Processing

Event-Driven Architecture

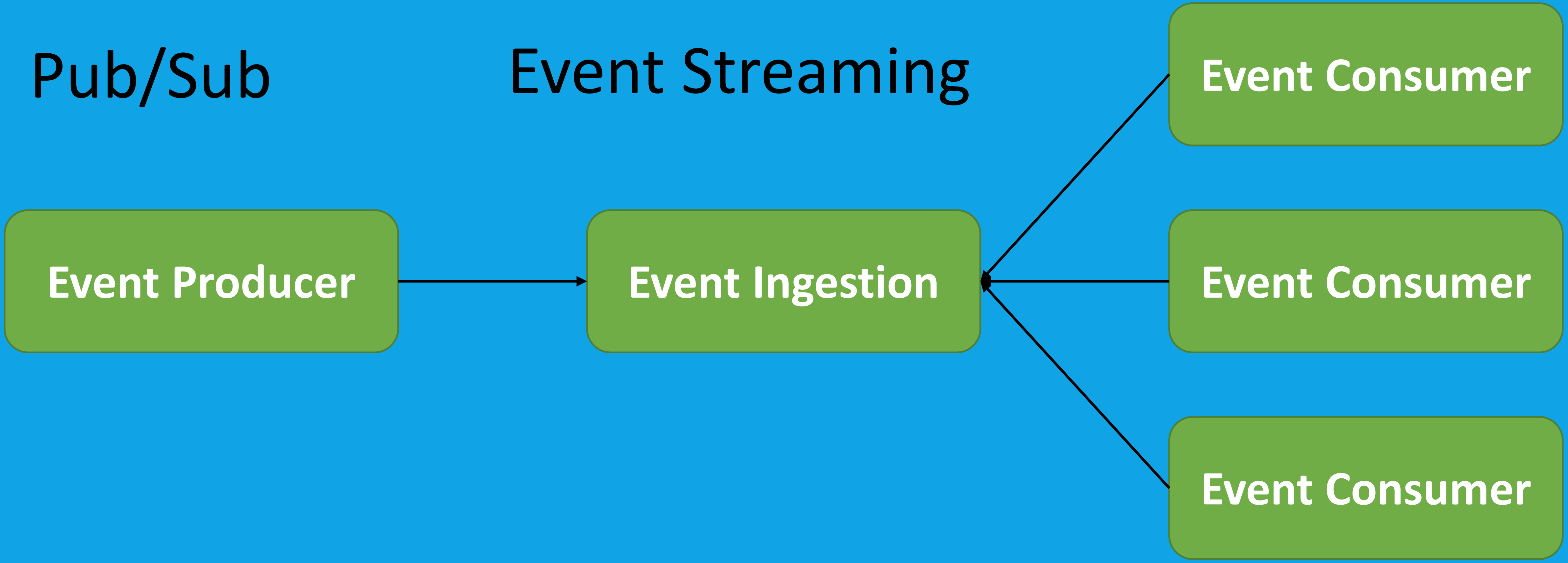


Event Consumption Models

Event-Driven Architecture

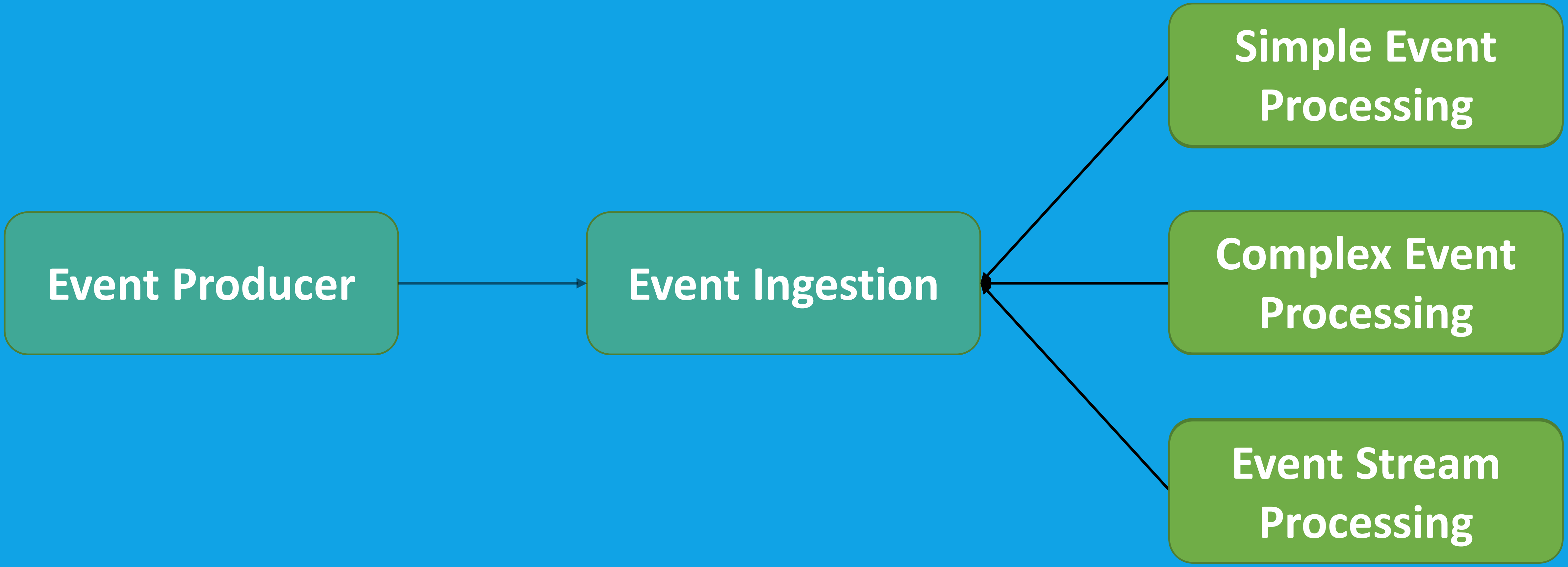
Pub/Sub

Event Streaming



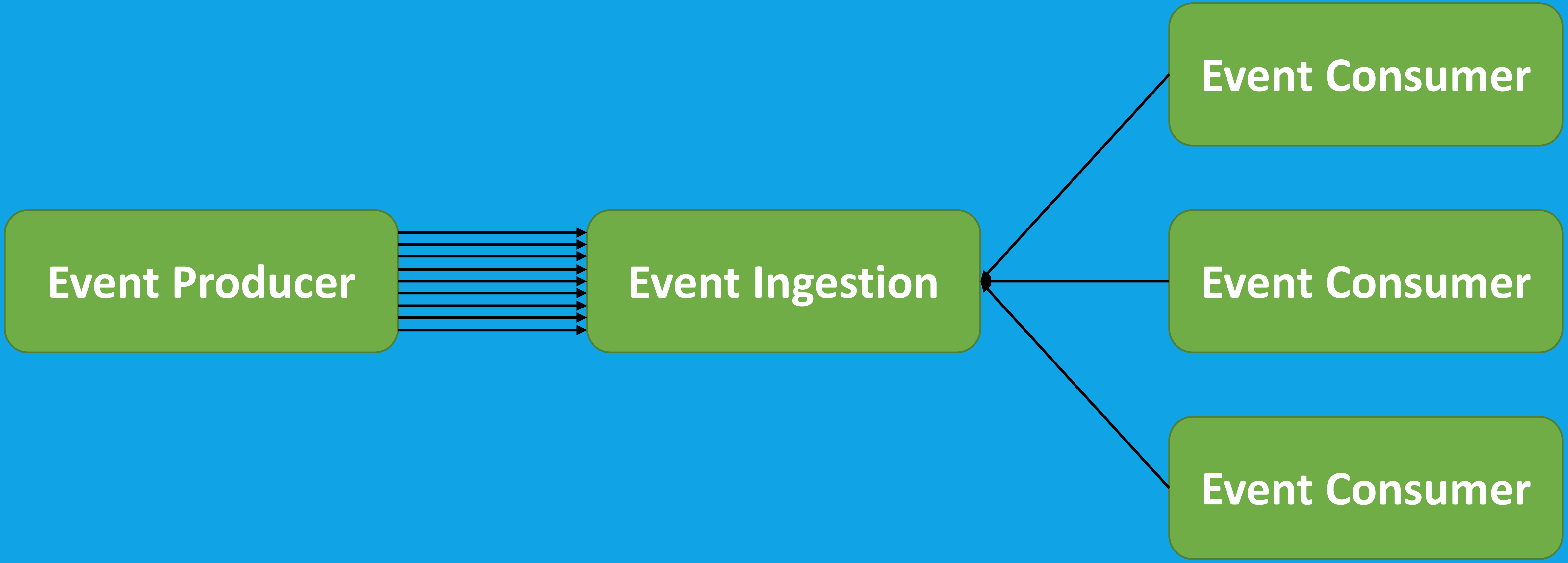
Consumer Processing Variations

Event-Driven Architecture



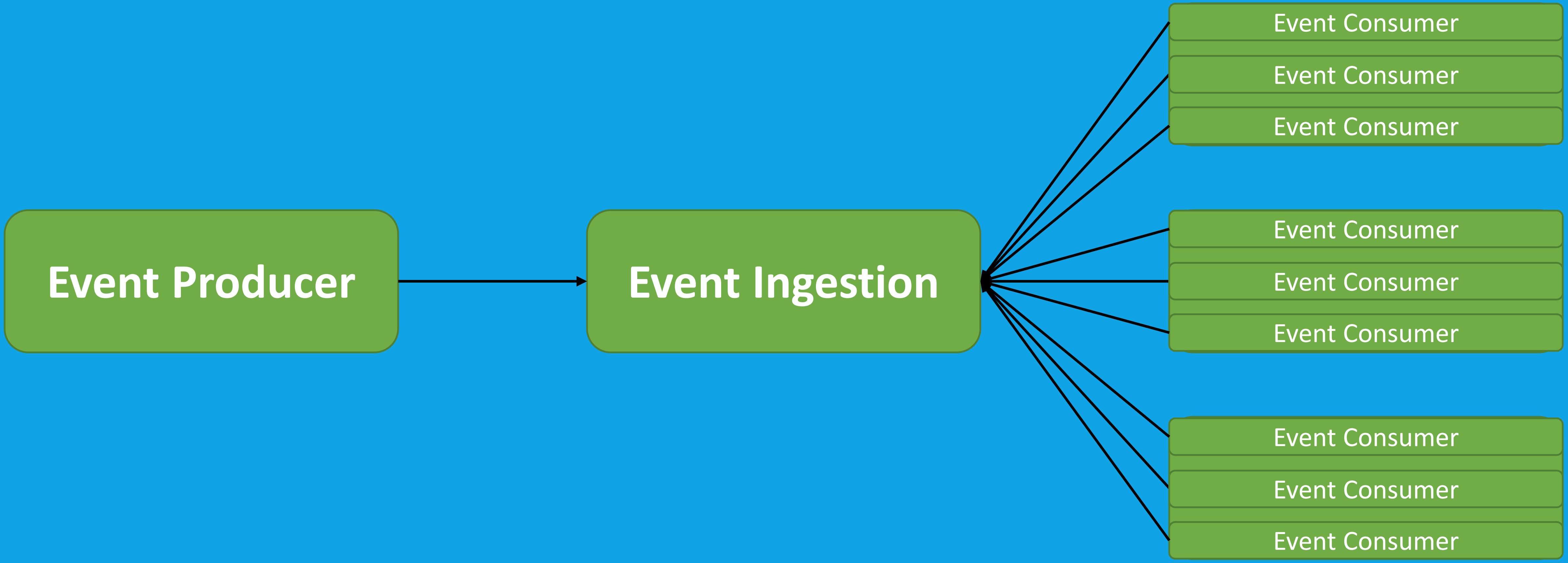
External Event Sources

Event-Driven Architecture



Multiple Consumer Instances

Event-Driven Architecture



When to use this architecture

Event-Driven Architecture

Multiple Subsystems

Real-Time Processing

Complex Event Processing

High Volume/Velocity Data

Benefits

Event-Driven Architecture

Decoupling

Encapsulation

Responsive

Scalable/Distributed

Independence

Drawbacks

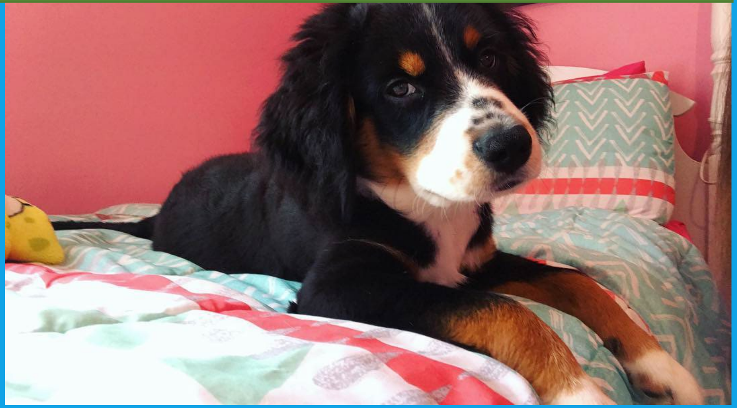
Event-Driven Architecture

Steep Learning Curve

Complexity

Loss of Transactionality

Lineage



Limitations

Event-Driven Architecture

Guaranteed Delivery

Sequencing

Implementation Options

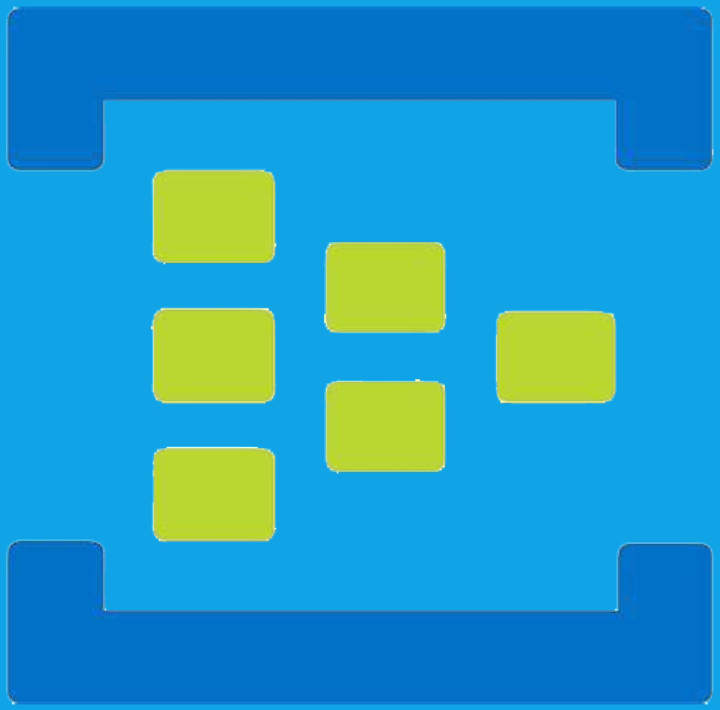
Building Event-Driven Microservices

Implementation Options

Implementation Options

Azure Event Hubs

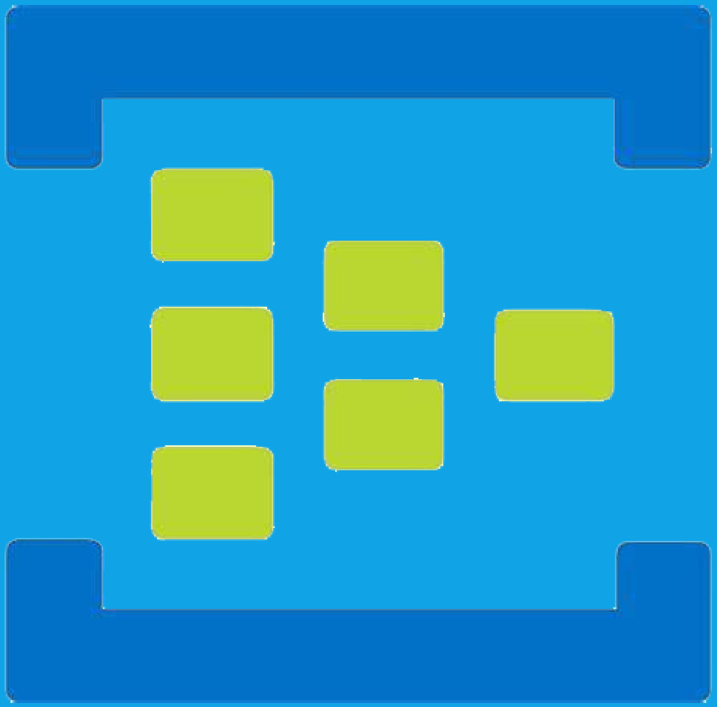
Simple, secure, and scalable real-time data ingestion



Fully managed, real-time data ingestion service that is simple, trusted, and scalable

Why choose Event Hubs?

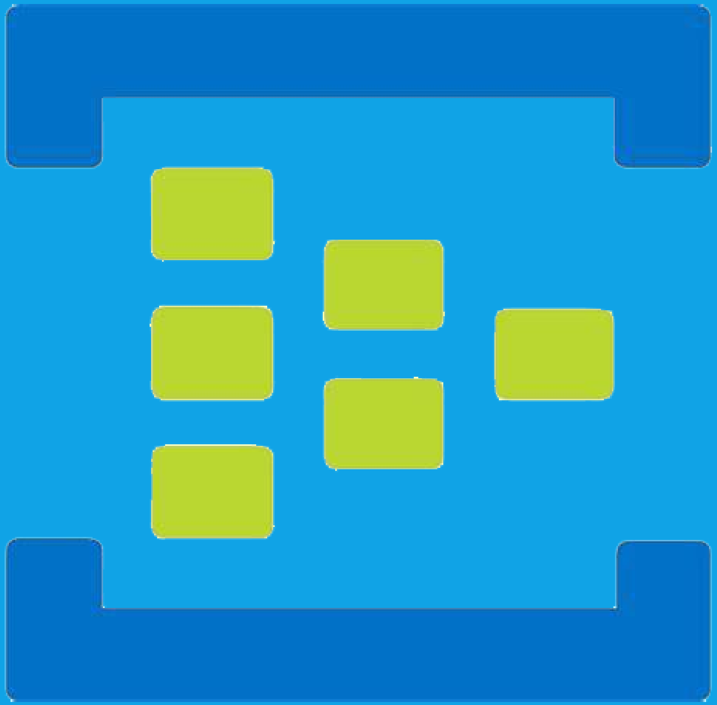
Azure Event Hubs

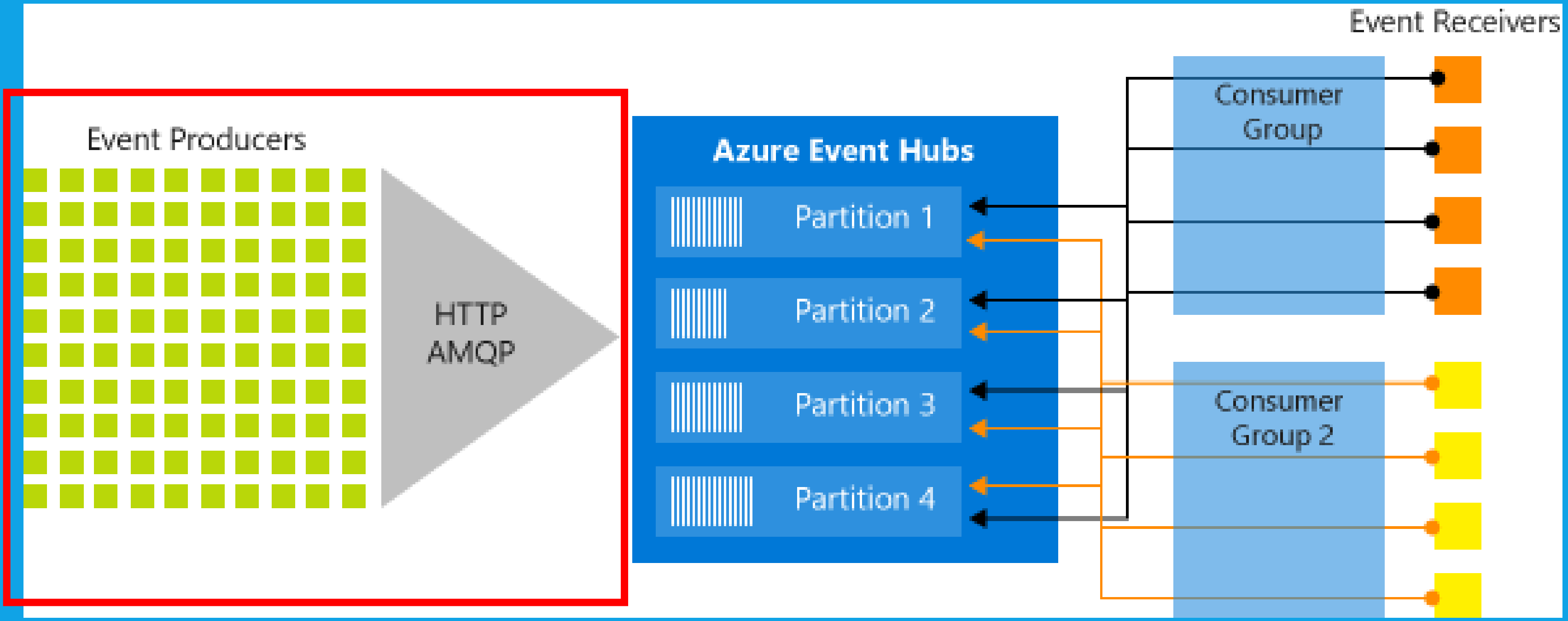


- Simple
- Secure
- Scalable
- Open

Key Architecture Components

Azure Event Hubs

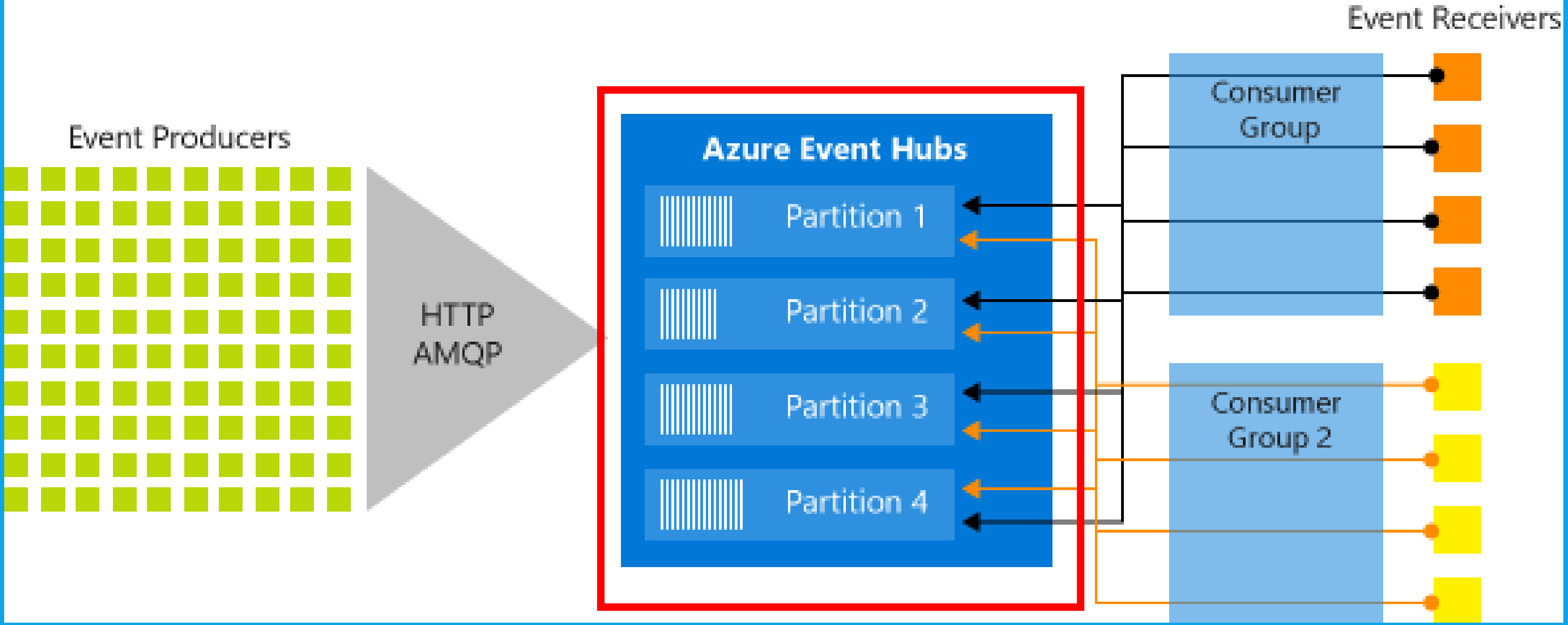




Event Producers

Key Architecture Components

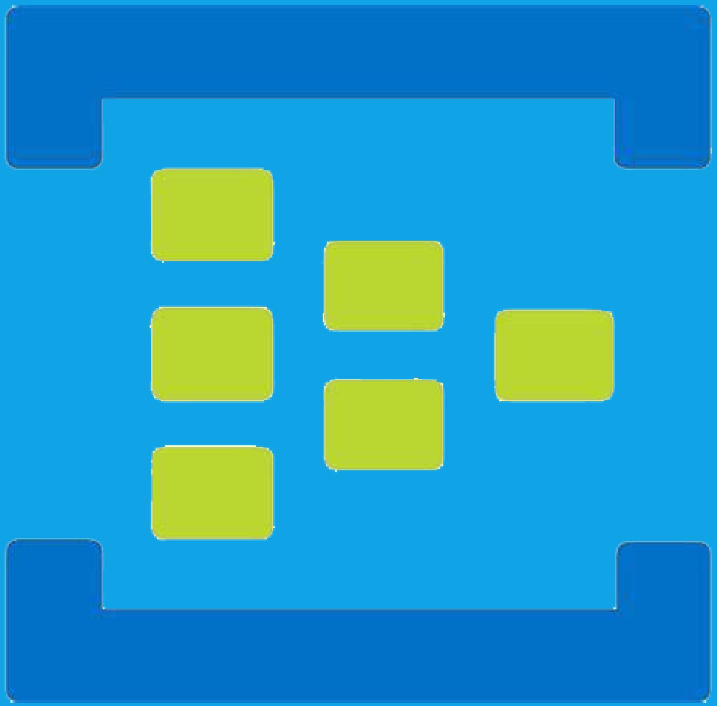
Azure Event Hubs

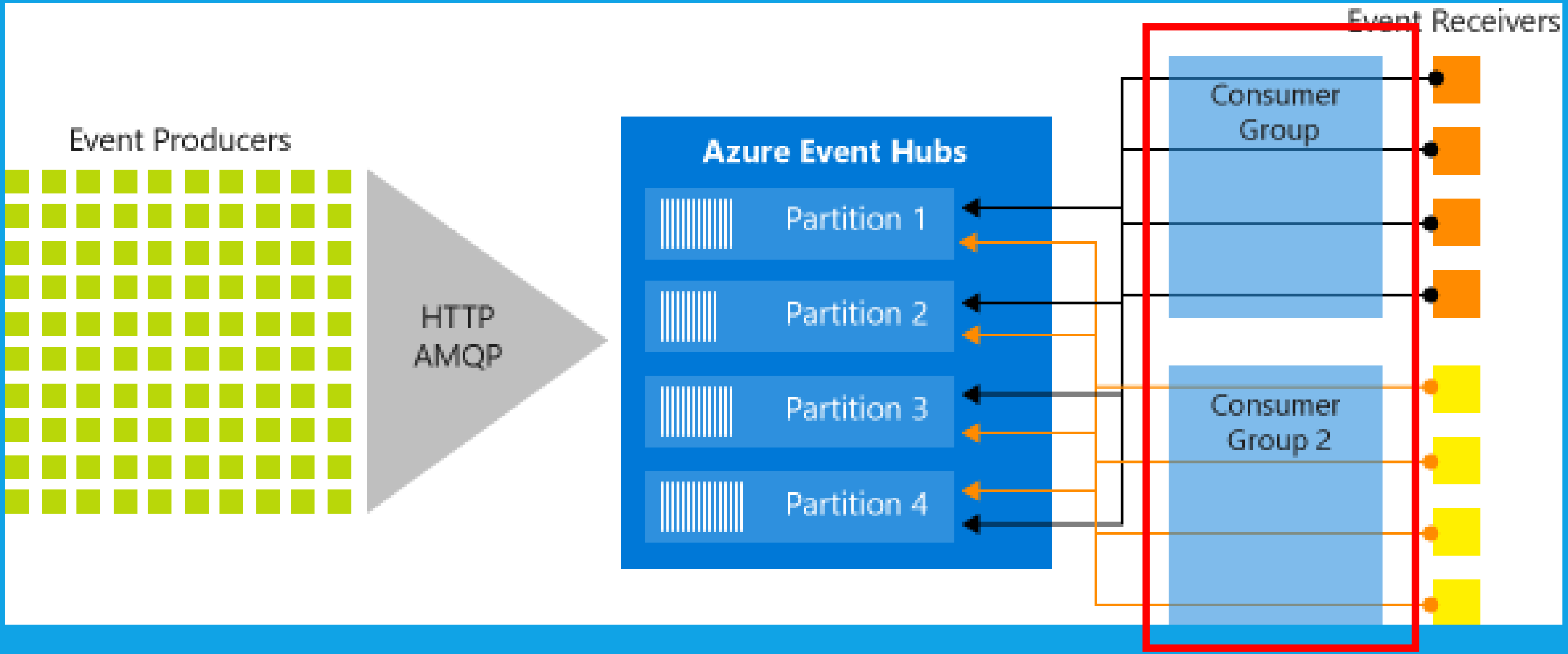


Partitions

Key Architecture Components

Azure Event Hubs

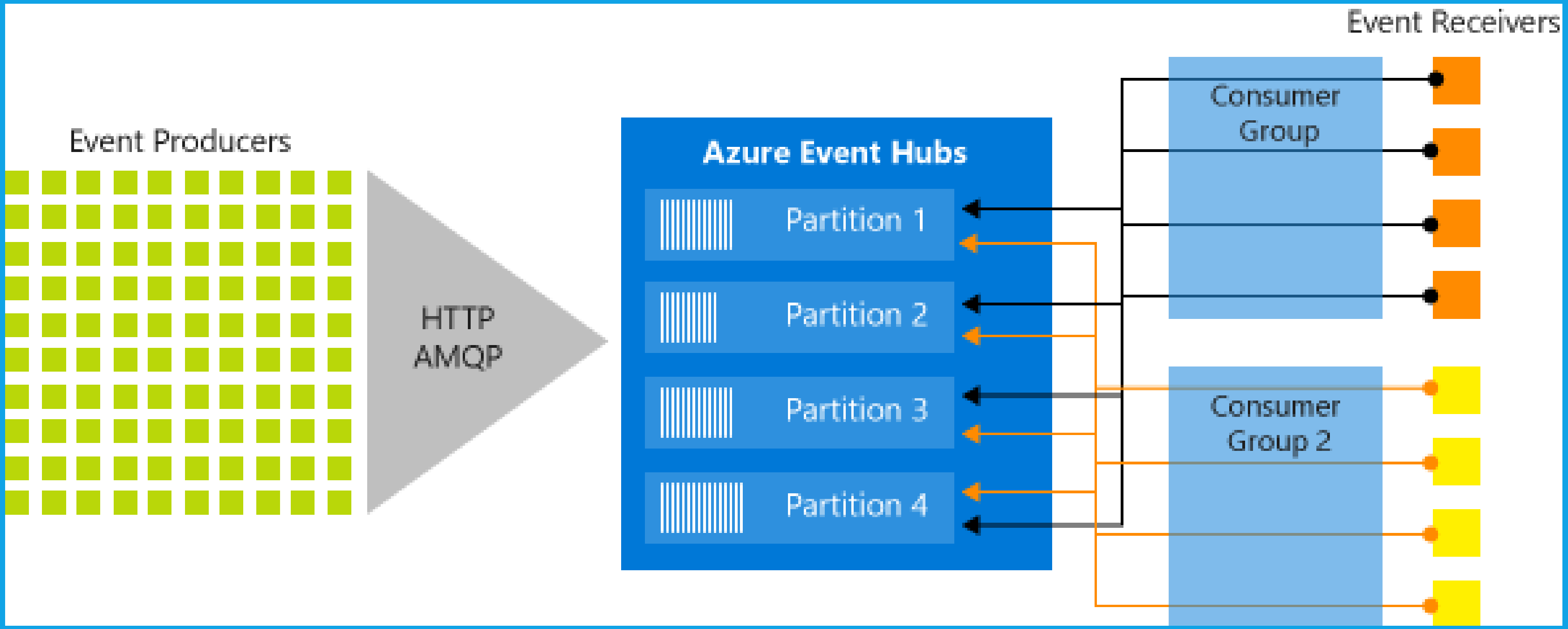




Consumer Groups

Key Architecture Components

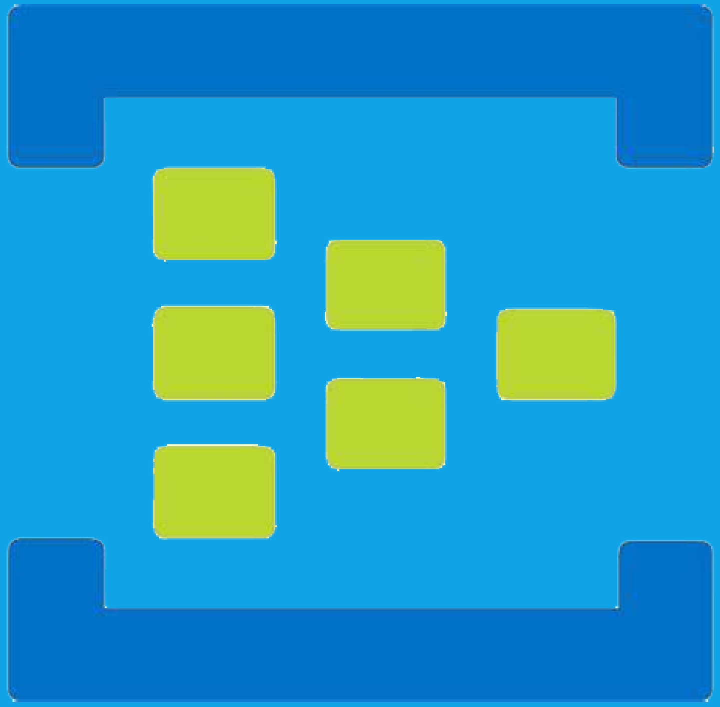
Azure Event Hubs

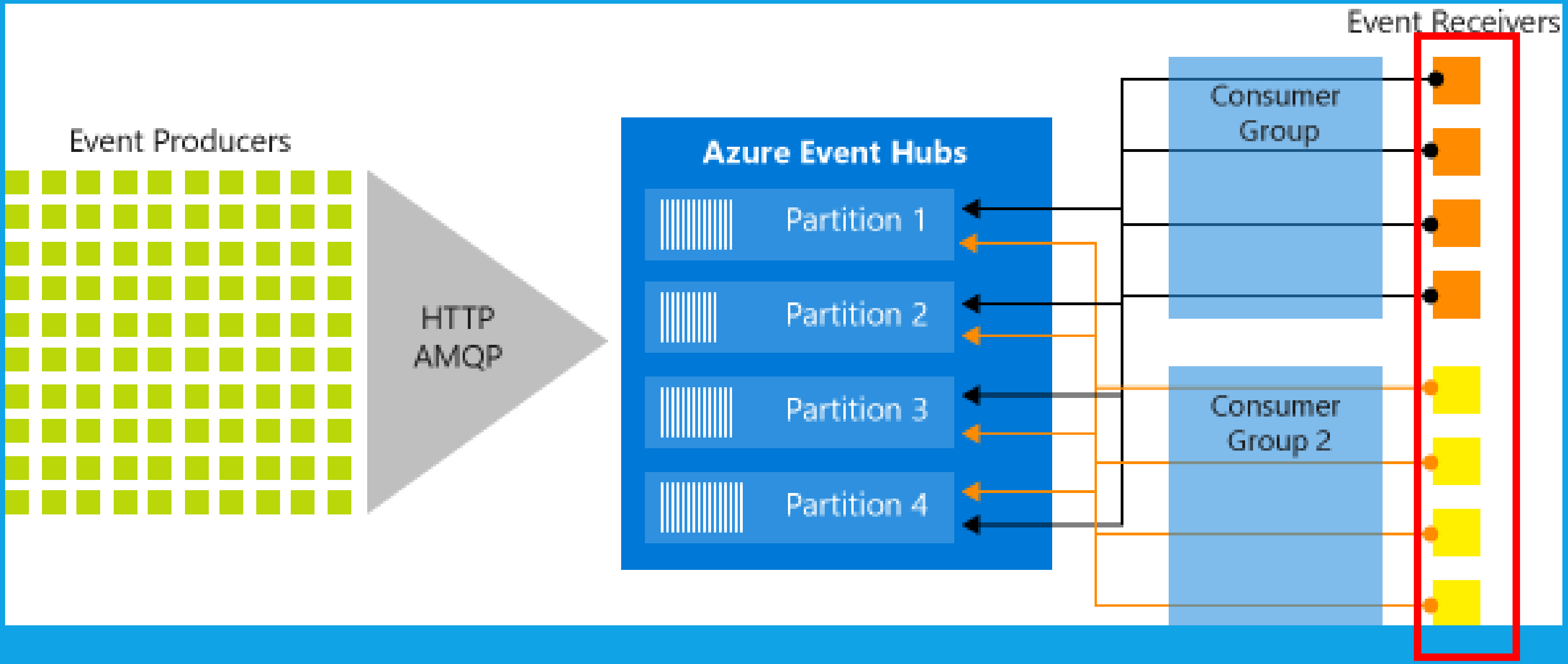


Throughput Units

Key Architecture Components

Azure Event Hubs



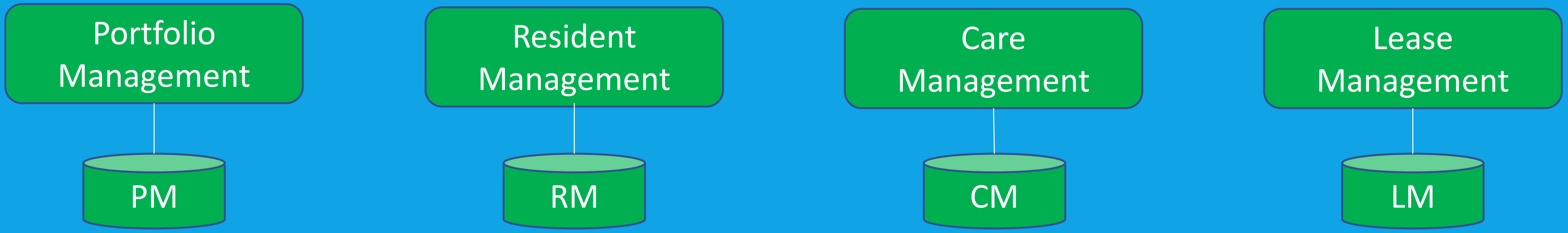


Event Receivers

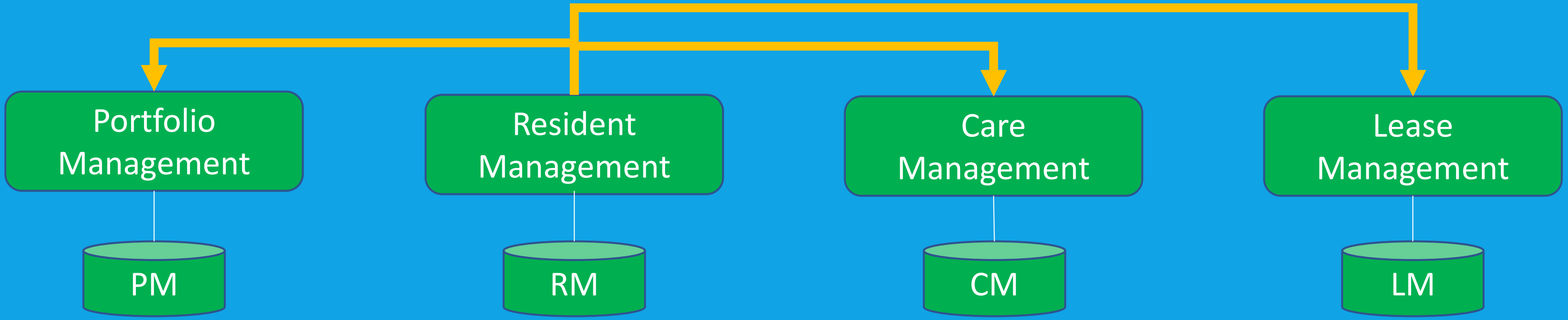
Demonstration

Building Event-Driven Microservices

EST.
2022
SENIOR LIVING
SYSTEMS


Portfolio Management
Resident Management
Care Management
Lease Management
PM
RM
CM
LM

Resident Move-In



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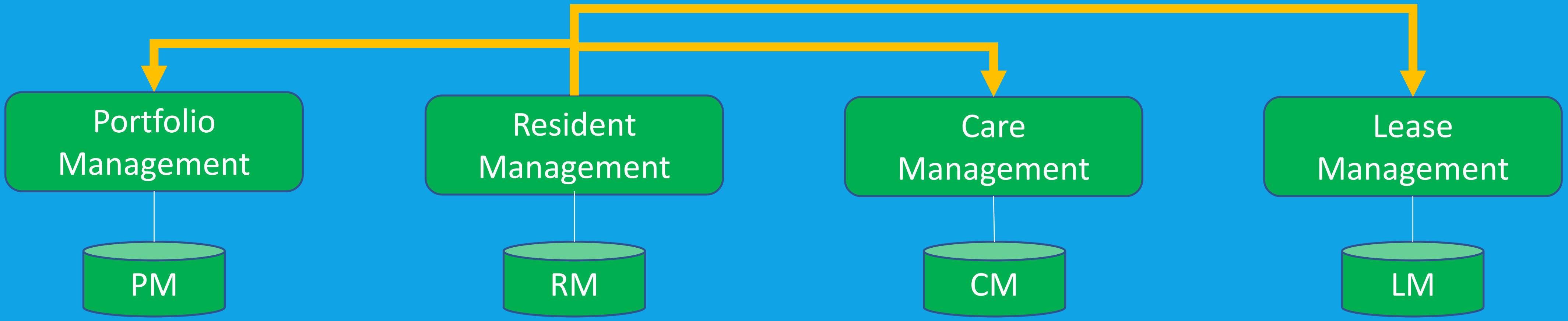

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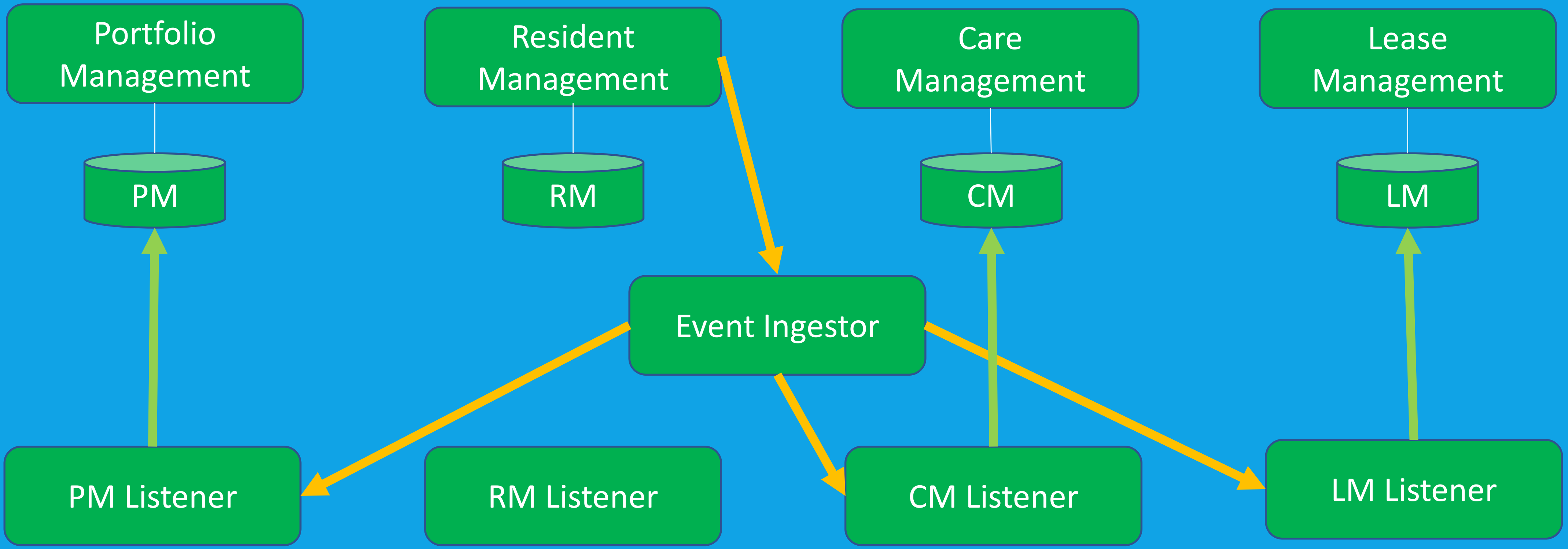
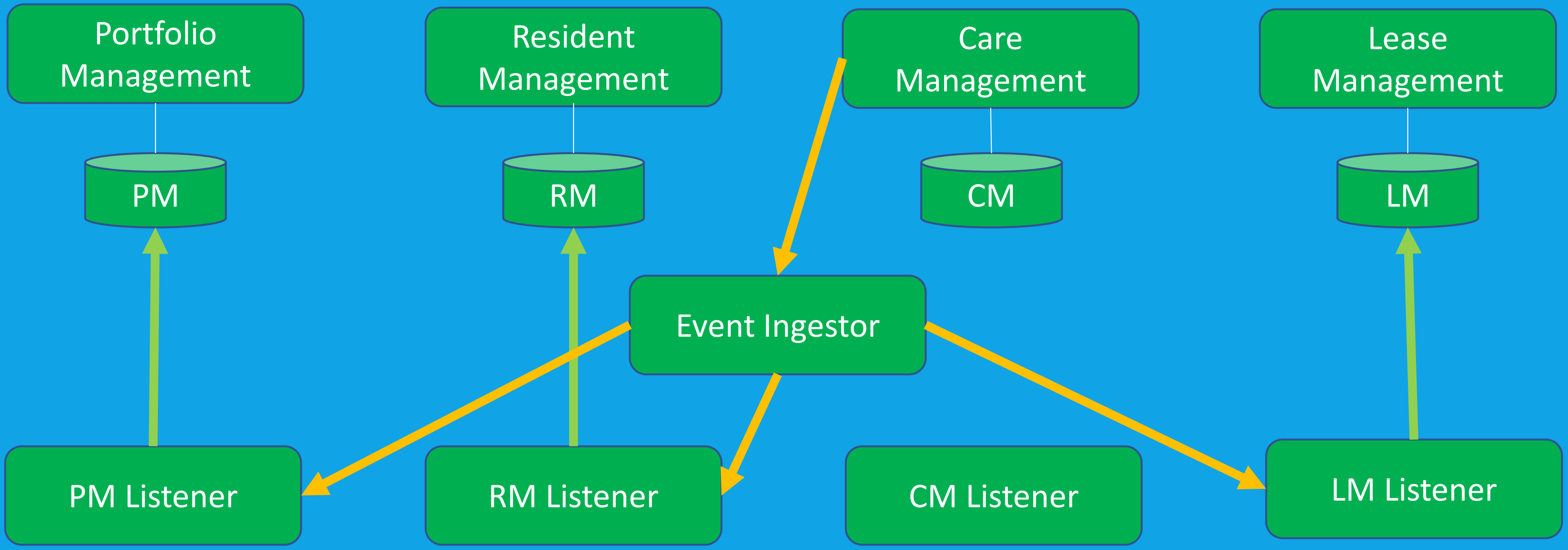


Upgrade Care



Portfolio Management

PM

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CM

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Event Ingestor

PM Listener

RM Listener

CM Listener

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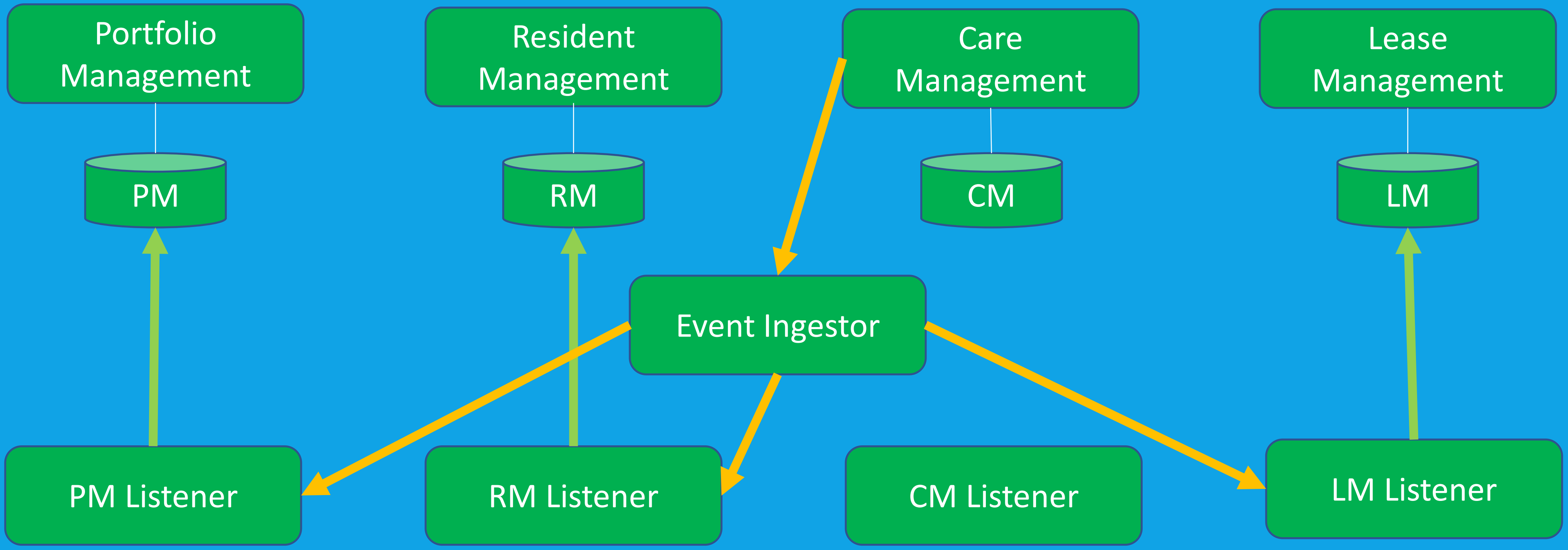

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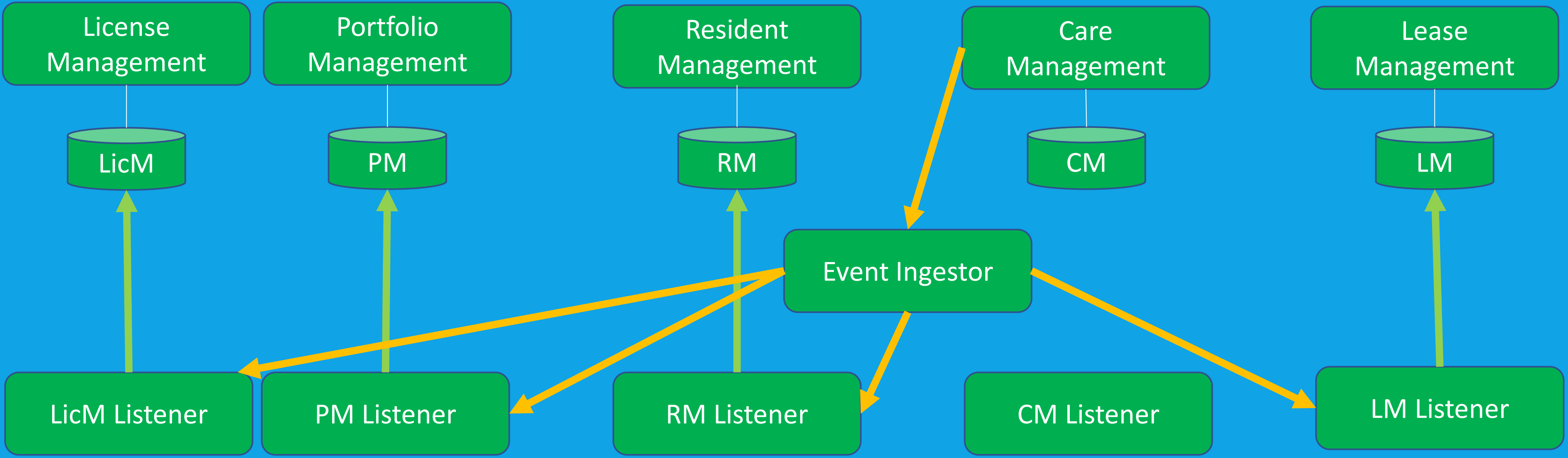

Summary

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SWOT

Summary

Strengths

- Decoupling
- Encapsulation
- Responsive
- Scalable / Distributed
- Independence

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Event-Driven Architecture

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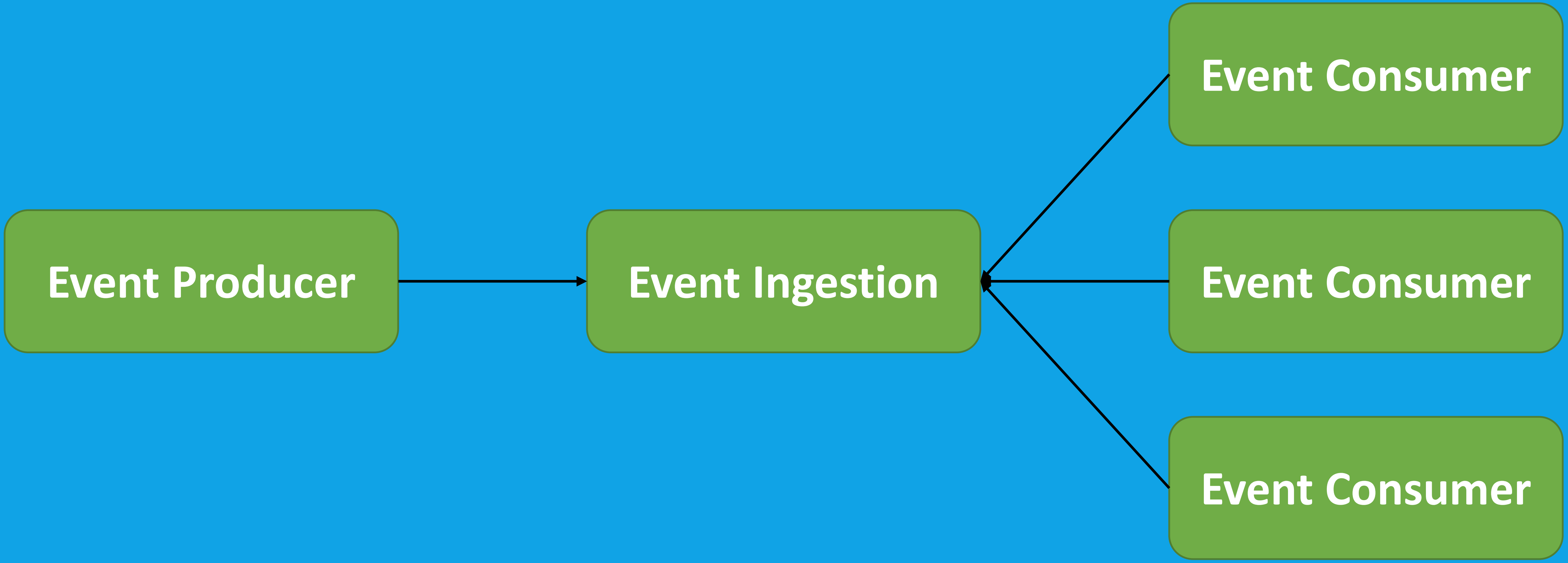

Azure Event Hubs

Summary

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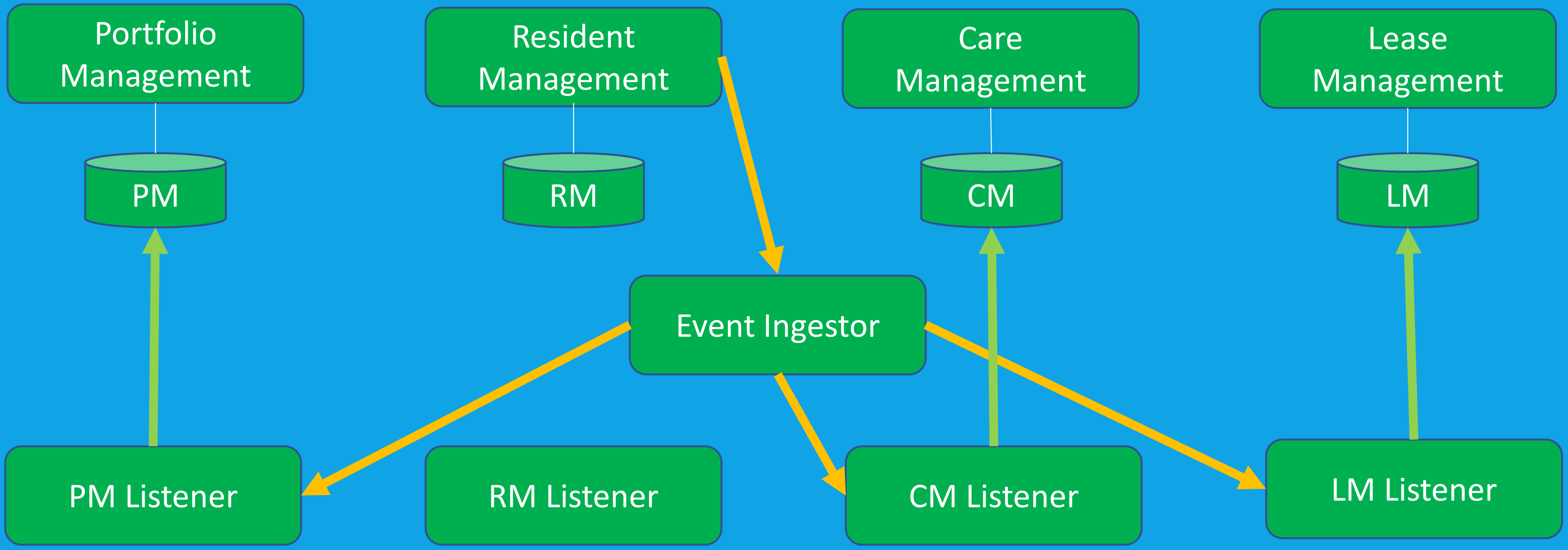
Simple	Secure	Scalable	Open

Real-World Demonstrations



Thank You

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