



March 28, 2019 — 8:30 AM - 5:00 PM | Detroit, Michigan

Event Grid

Learn, architect, and
develop solutions on Azure

#AzureDevDays
for developers, by developers

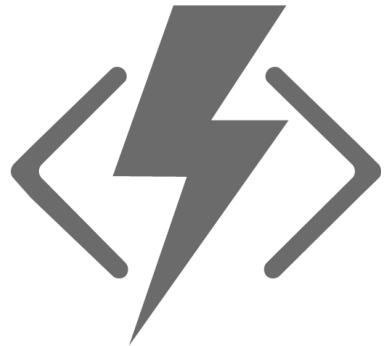


Learn.

Connect.

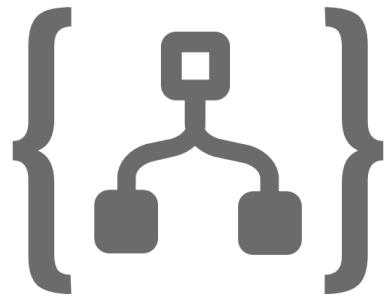
Explore.

Serverless in Azure



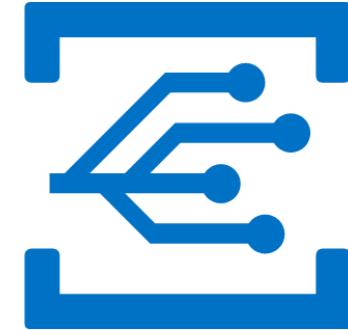
Functions

Serverless compute



Logic Apps

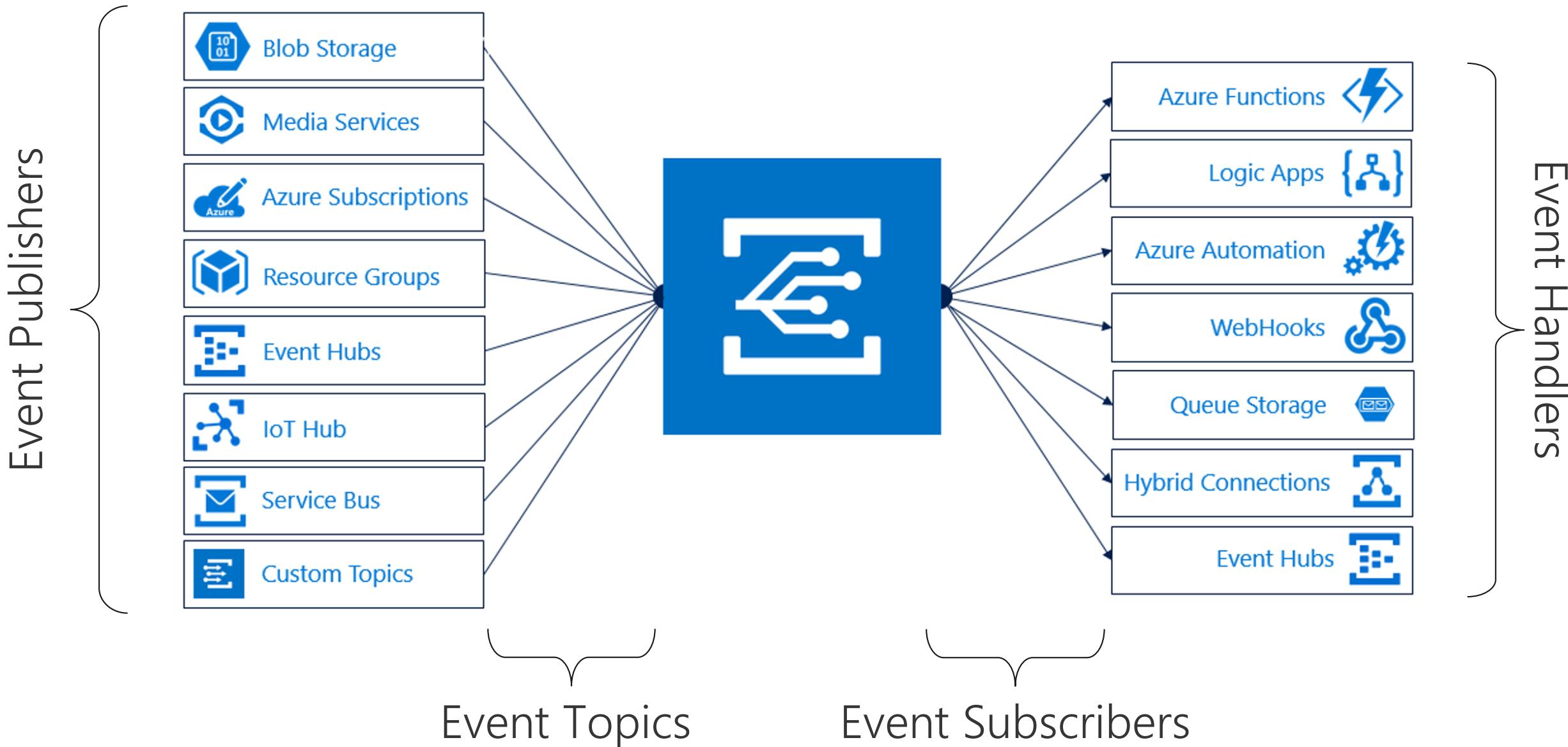
Serverless workflow



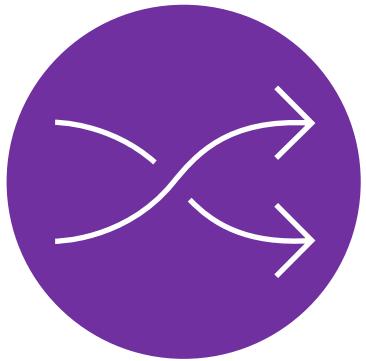
Event Grid

Serverless events

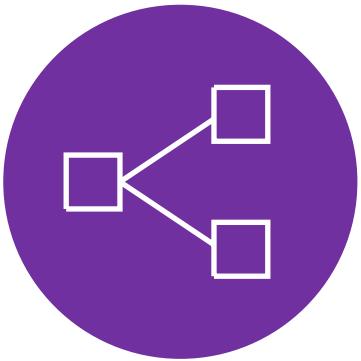
Manage all events in one place



Event Grid capabilities



Send events to
specific event
handlers



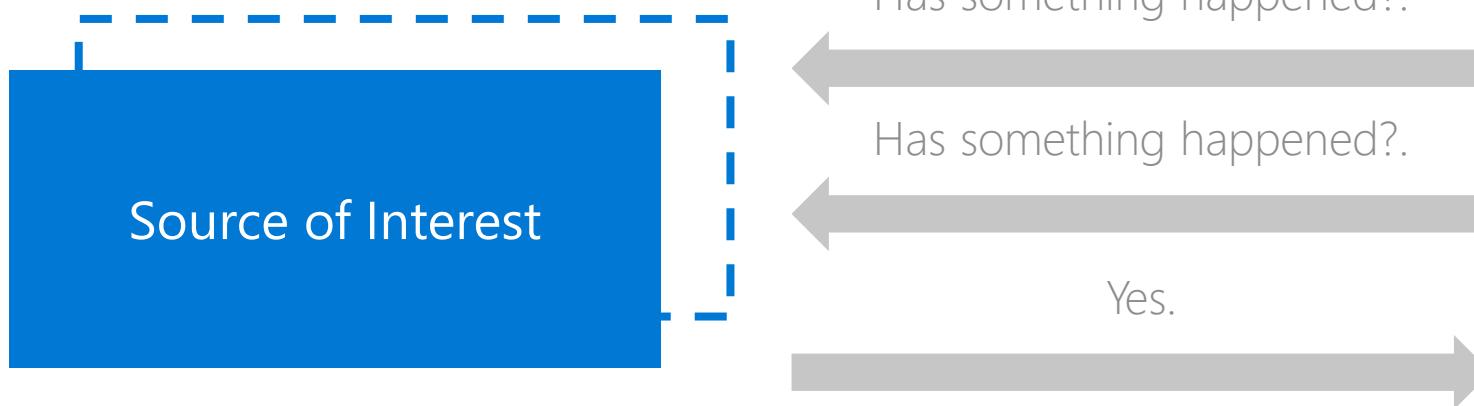
Send one event to
multiple event
handlers



Reliably deliver
events at scale

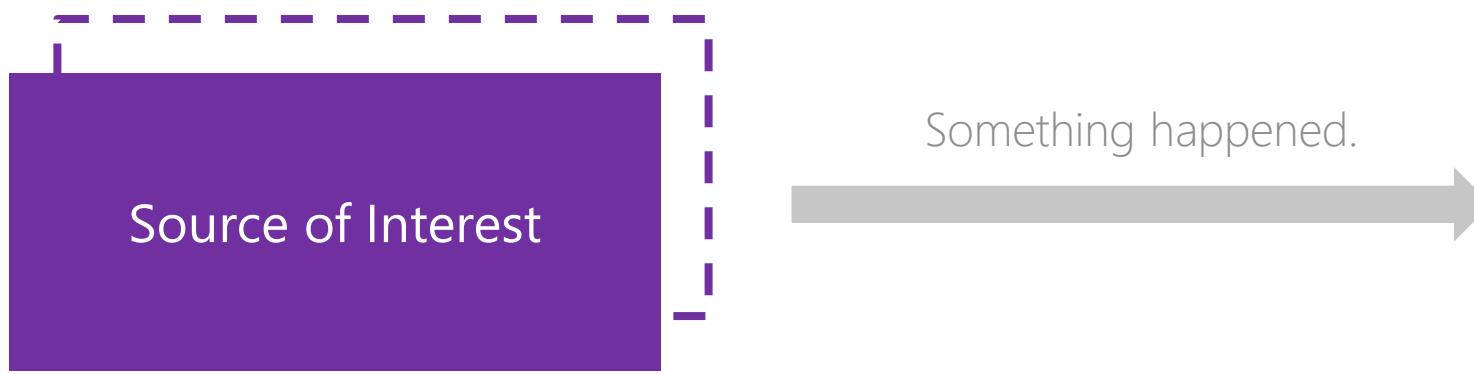
Pull vs. Push

Pull



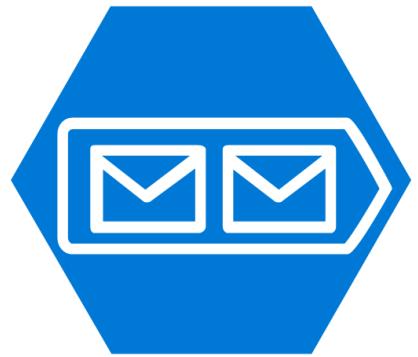
Interested Party

Push



Interested Party

Messaging in Azure



Storage Queues

Simple Queues
Background Processing



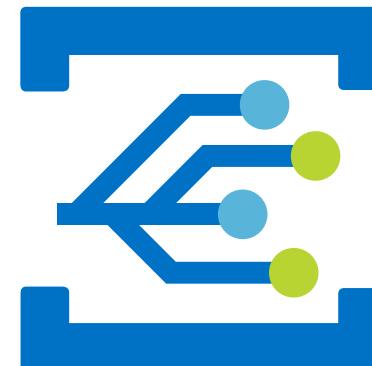
Service Bus

Enterprise Messaging
Ordered Delivery
De-Duplication



Event Hubs

Big Data Streaming (Fan-In)
Messaging at Scale



Event Grid

Reactive Eventing (Fan-Out)
Filtering & Routing
Multiple Subscribers
Push Model

Event Grid in Comparison



	Storage Queues	Service Bus	Event Hubs	Event Grid
Transactions/Atomicity	✗	✓	✗	✗
Ordering guarantee	✗	✓	✓	✗
Delivery Guarantee	At least Once	At least Once, At Most Once	At least Once	At least Once
Read	Pull/Destructive	Pull/Destructive	Pull/Repeatable	Push
Peek	✓	✓	✓ Repeatable reads	✗
Batch Send	✓	✓	✓	✓
Batch Receive	✗	✓	✗	✗
Filtering/Routing	✗	✓ Advanced	✗	✓ - Simple
In flight transformation	✗	✓	✗	✗
Message Size	64 KB	256KB – 1 MB	256 KB	64 KB
De-duplication	✗	✓	✗	✗

Benefit from broad coverage



Event Publishers

Immediately available

- Blob Storage
- Container Registry
- Resource Groups
- IoT Hub
- Azure Subscriptions
- Media Services
- Event Hubs
- Service Bus
- Custom Events
- Media Services
- Storage General-V2

Coming soon

Azure Automation, Azure Active Directory, API Management, Logic Apps, Azure Data Lake Store, Cosmos DB



Event Handlers

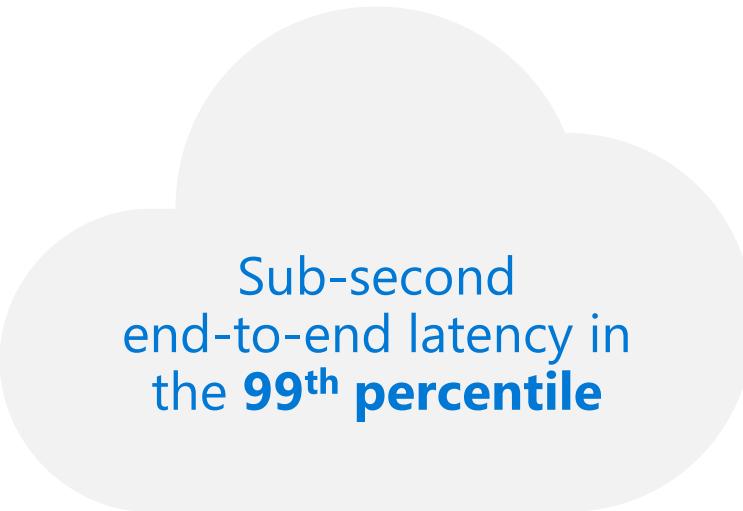
Immediately available

- Azure Functions
- Hybrid Connections
- Logic Apps
- Microsoft Flow
- Azure Automation
- WebHooks
- Event Hubs
- Storage Queues

Coming soon

Fabric Controller, Service Bus, Azure Data Factory

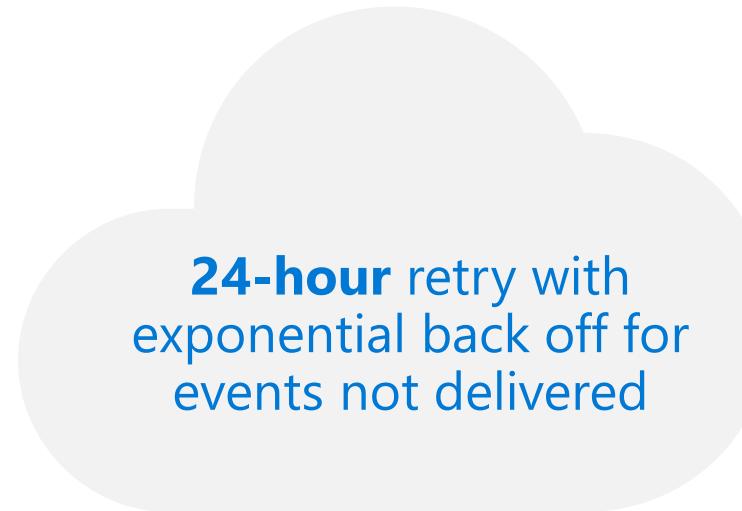
Event Grid Stats



Sub-second
end-to-end latency in
the **99th percentile**



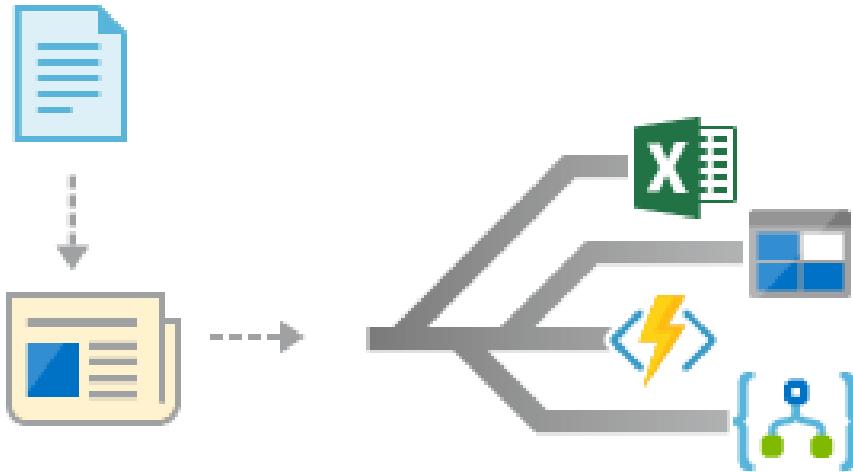
10,000,000 events
per second per region



24-hour retry with
exponential back off for
events not delivered

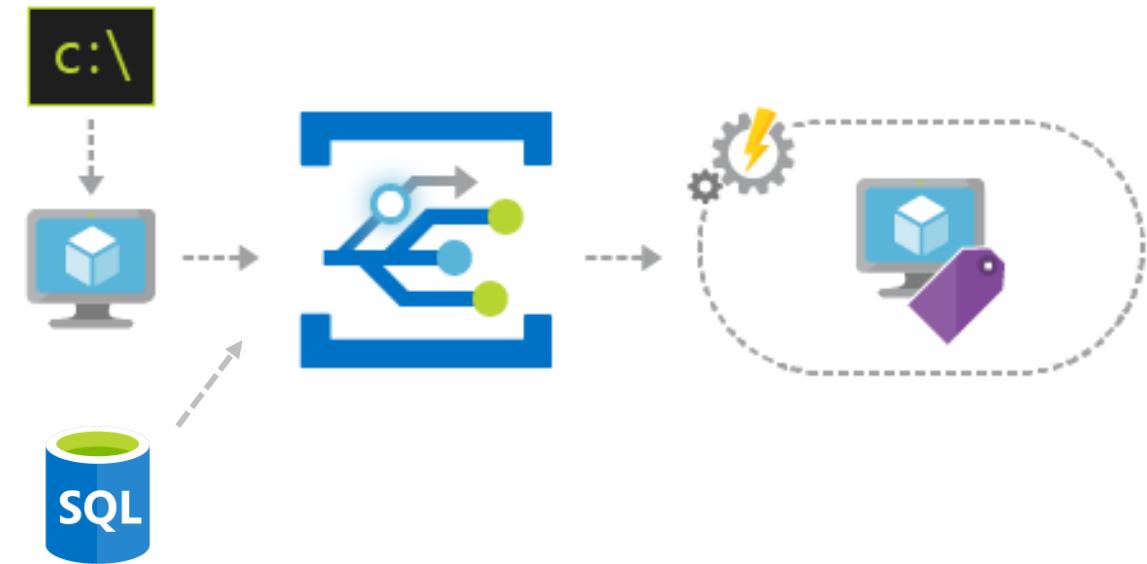
Examples using Event Grid

Serverless app integration



Event Grid connects your app with other services.

Automate operations



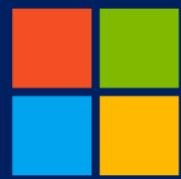
Automate and simplify policy enforcement.

A photograph of a woman with short dark hair and bangs, wearing a light blue button-down shirt, smiling and holding a pair of glasses. She is seated at a table with a man whose back is to the camera, wearing a teal hoodie. The background is a bright room with white walls.

Azure Event Grid Demo

Event Grid Roadmap

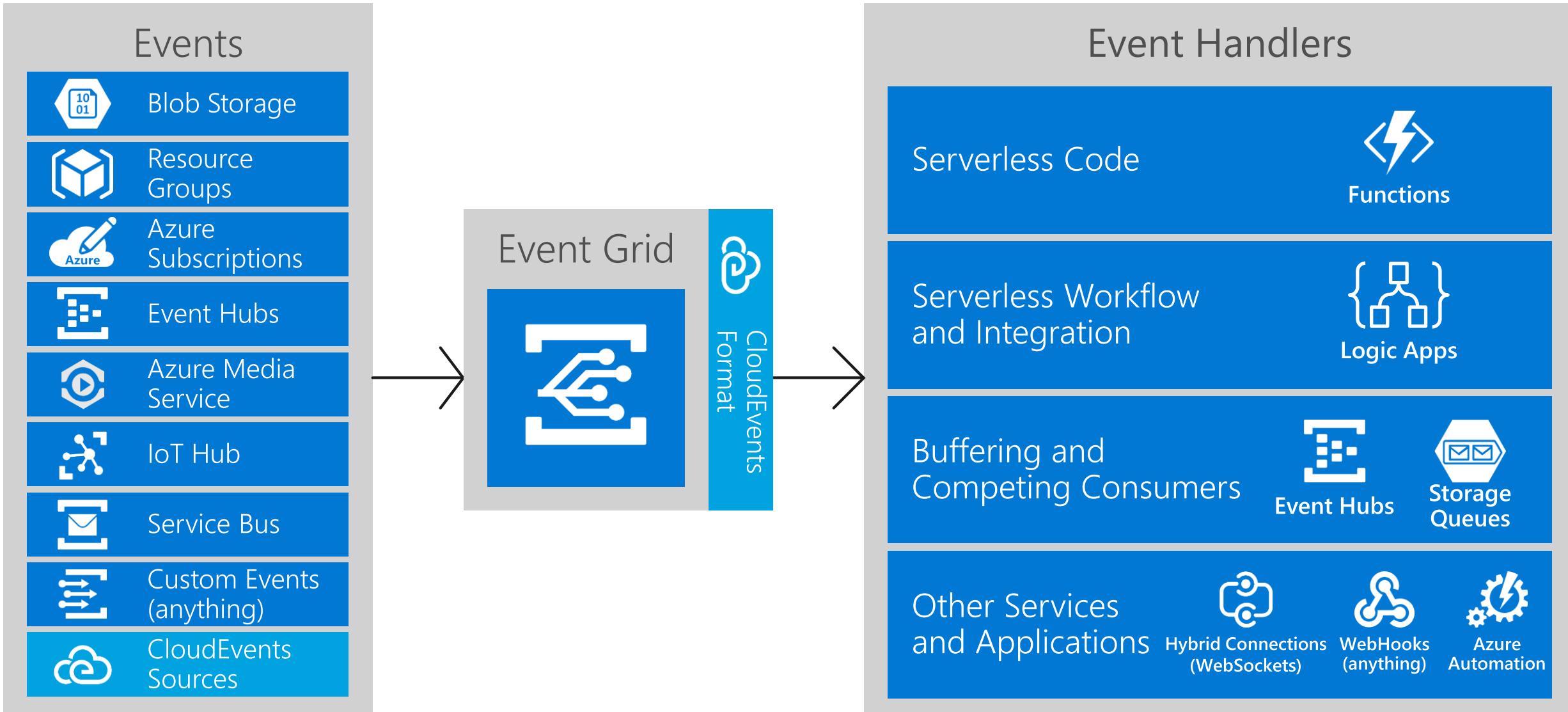
- Event Domains
- Advanced Filters
 - String
 - In/Not in
 - Begins with/Ends with
 - Contains
 - Numerical
 - In/Not In
 - Greater than/Less than
 - Greater than or equal/Less than or equal
 - Boolean
- Publishers
 - Compute
 - KeyVault
 - Azure Container Registry
 - Device Provisioning Service
 - Azure Data Lake Store



Microsoft

Optional
(time permitting)

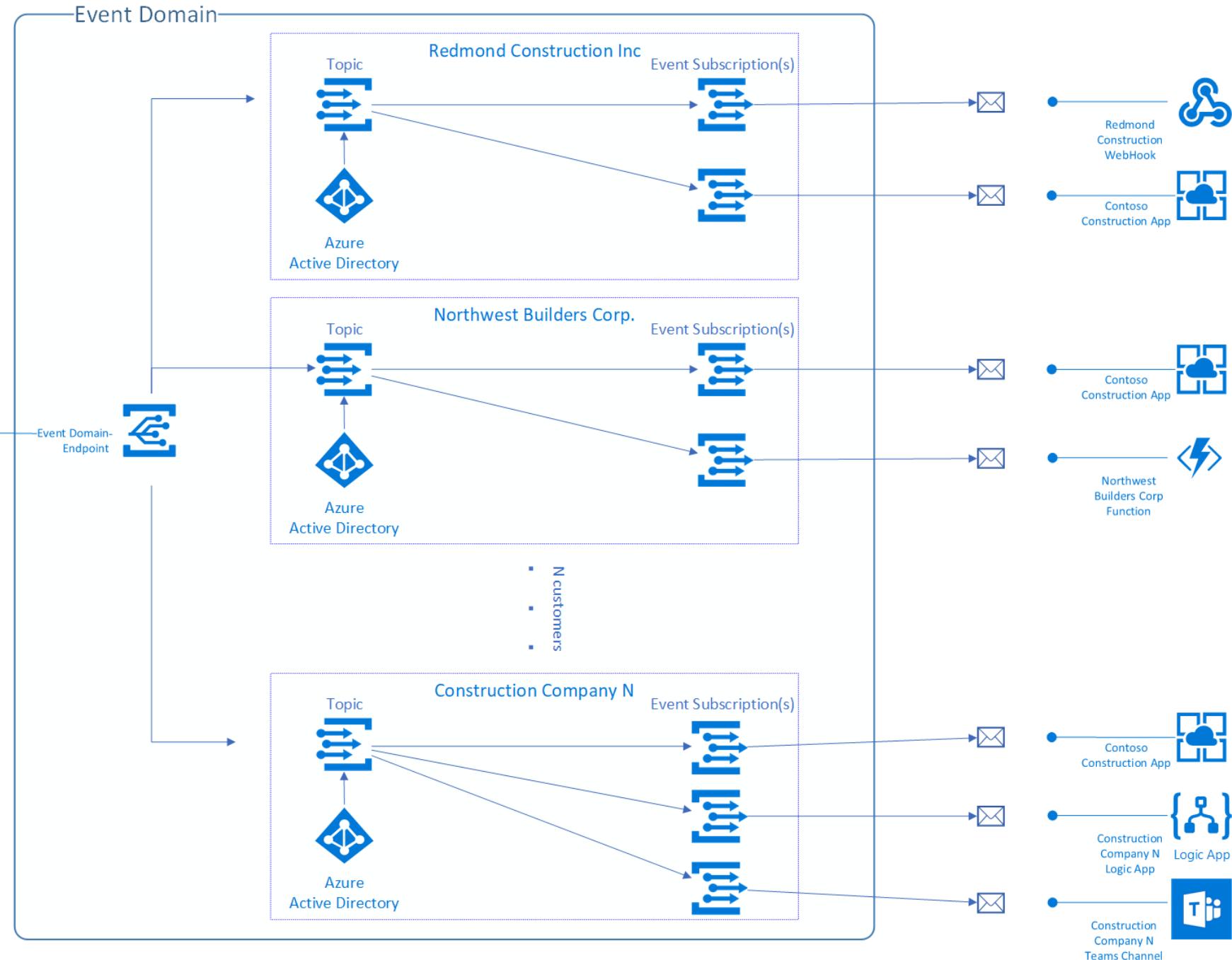
Eventing in the cloud



Event Domains



Contoso
Construction
Machinery



Consumption SDKs

```
EventGridSubscriber eventGridSubscriber = new  
EventGridSubscriber();
```

```
EventGridEvent[] eventGridEvents =  
eventGridSubscriber.DeserializeEventGridEvents(requestCo  
ntent);
```

- ✓ Azure subscriptions (management operations)
- ✓ Container Registry
- ✓ Blob storage
- ✓ Event Hubs
- ✓ IoT Hub
- ✓ Media Services
- ✓ Resource groups (management operations)
- ✓ Service Bus

Advanced Filters

Numbers

- NumberLessThan
- NumberLessThanOrEquals
- NumberGreaterThan
- NumberGreaterThanOrEquals
- NumberIn – the value for data.key equals a value in the set [0, 2.08, 3.14]
- NumberNotIn – the value for data.key is not in the set [1, 11, 112, 1124]

Strings

- StringContains – the value for data.key contains “the”
- StringIn – the value for data.key equals a value in the set [“small”, “brown”, “fox”]
- StringNotIn – the value for data.key equals a value in the set [“jumped”, “over”, “the”]
- StringBeginsWith – the value for data.key begins with “lazy”
- StringEndsWith – the value for data.key ends with “dog”

Boolean

- BoolEquals

A photograph showing a woman with short dark hair and bangs, wearing a blue button-down shirt, sitting at a table and talking to a man whose back is to the camera. She is holding a pair of glasses in her right hand. The background is a bright, modern interior.

Example Walkthrough

Architect your solution with
queues, grids, and hubs

When to use which and for what?



Service Bus



WCF Relay



Service Bus Queue



Grid Subscription



Grid Topic



Storage Queue



Event Grid



Service Bus Topic



Event Hubs



Hybrid Connections



Why do we offer so many messaging products?

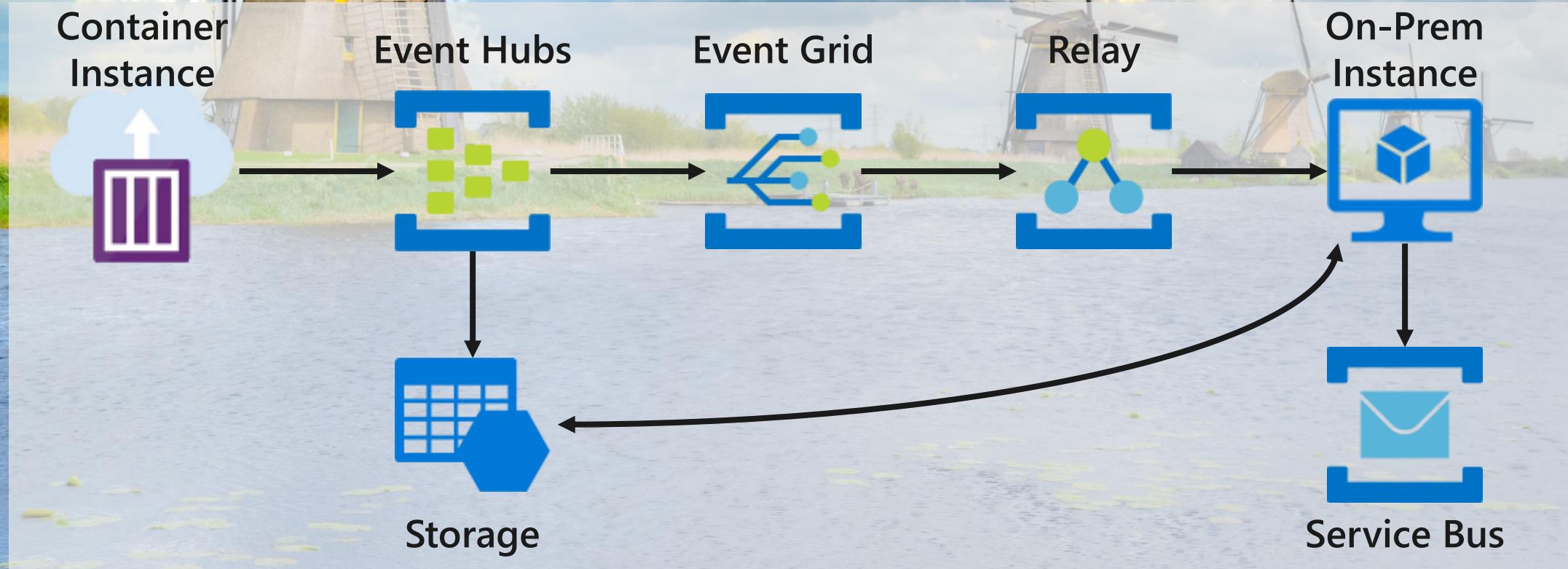
One size does not fit all



A scenic view of several traditional Dutch windmills standing on a grassy bank next to a calm body of water under a dramatic, cloudy sky.

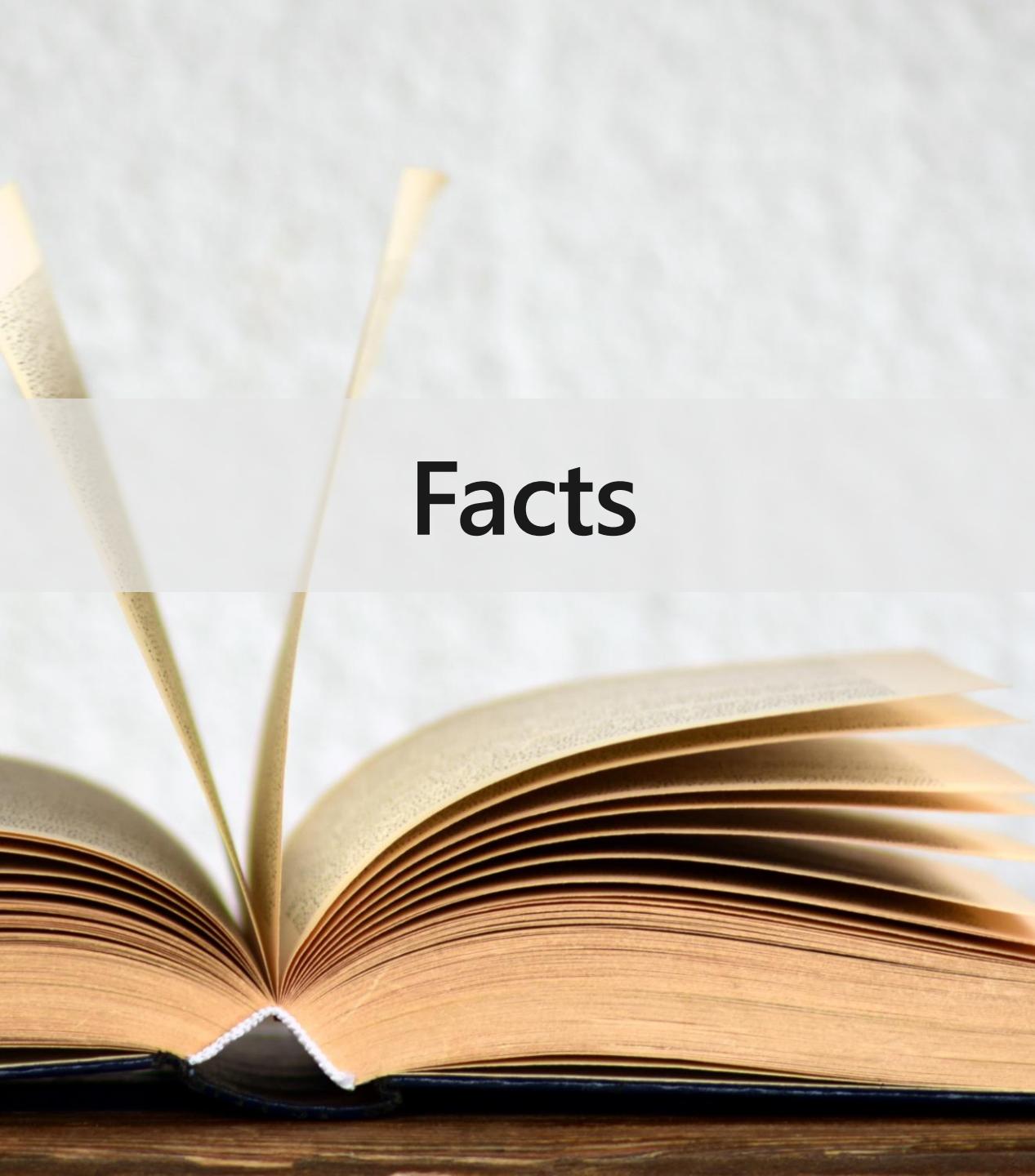
Lets build something

Wind Energy Billing

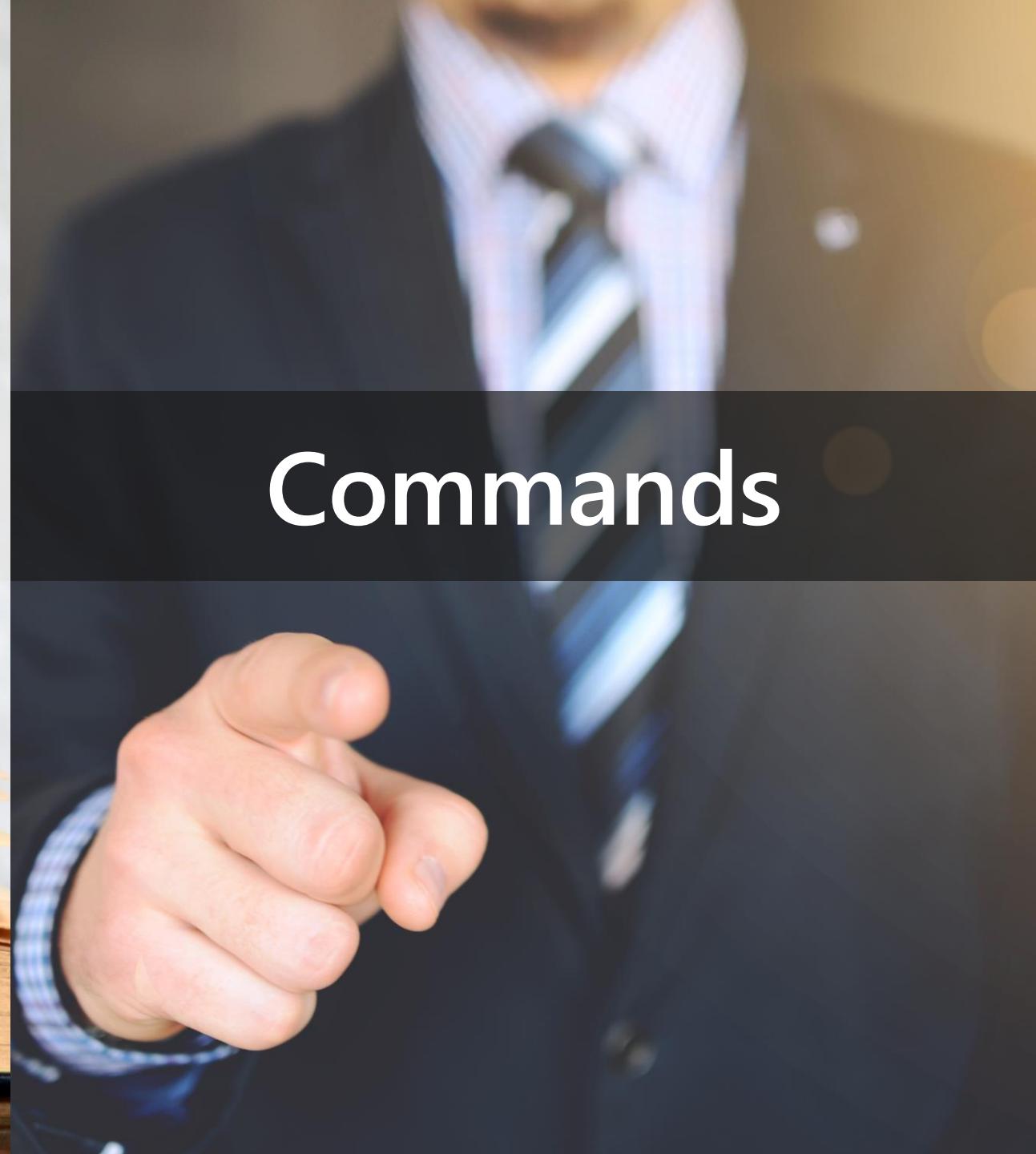


What is a message?



A close-up photograph of an open book. The pages are aged and yellowed, with visible texture and slight waviness. The book is bound in dark blue leather, which is visible at the bottom edge.

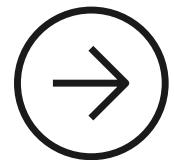
Facts

A close-up photograph of a person's hand and torso. The person is wearing a dark suit jacket, a light-colored shirt, and a patterned tie. Their right hand is clenched into a fist and is pointing directly towards the camera.

Commands

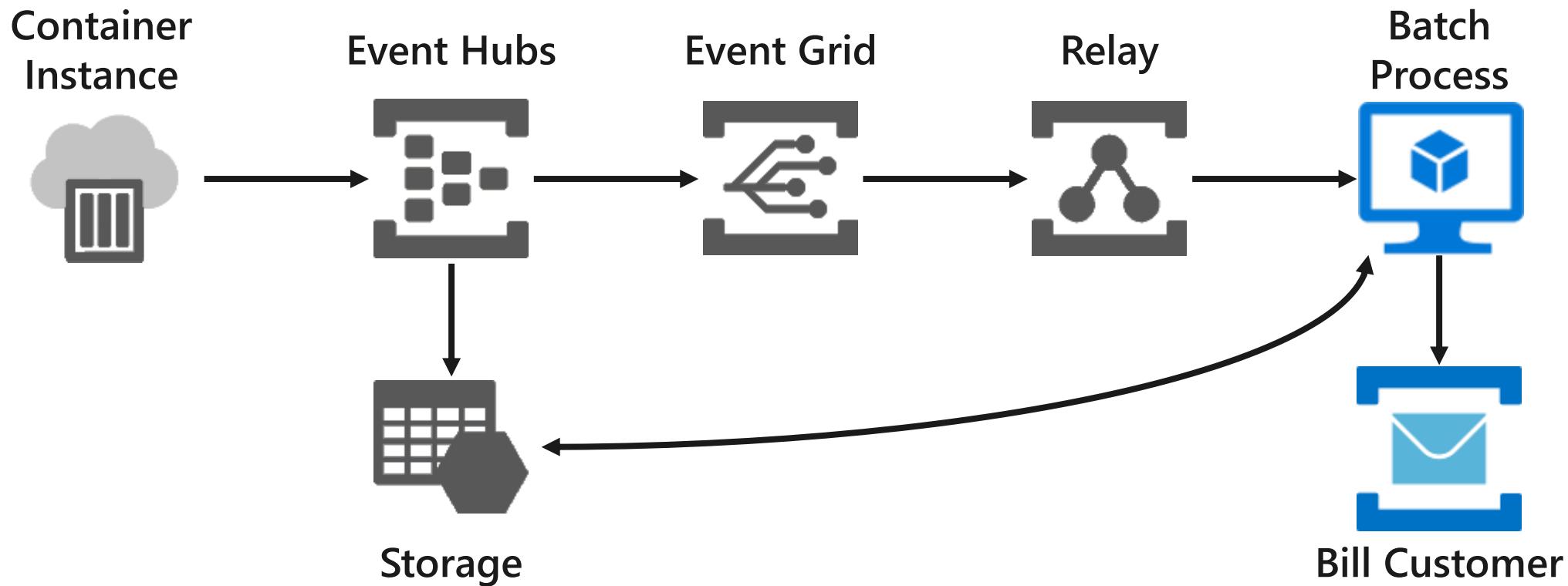
A professional man in a dark suit, light blue shirt, and striped tie is pointing his right index finger directly at the viewer. The background is blurred, showing warm orange and yellow lights.

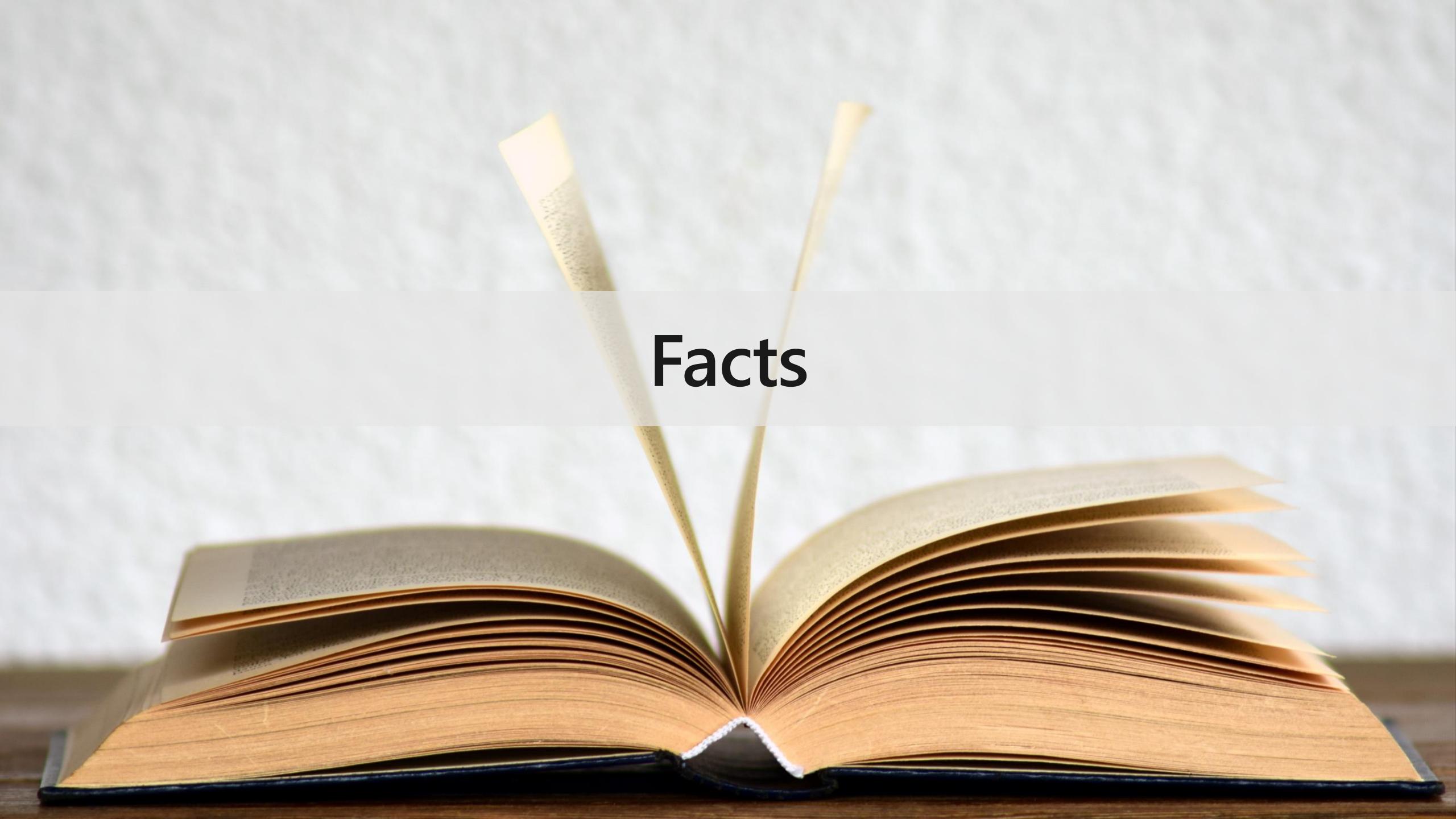
Commands



Service Bus

Enterprise messaging



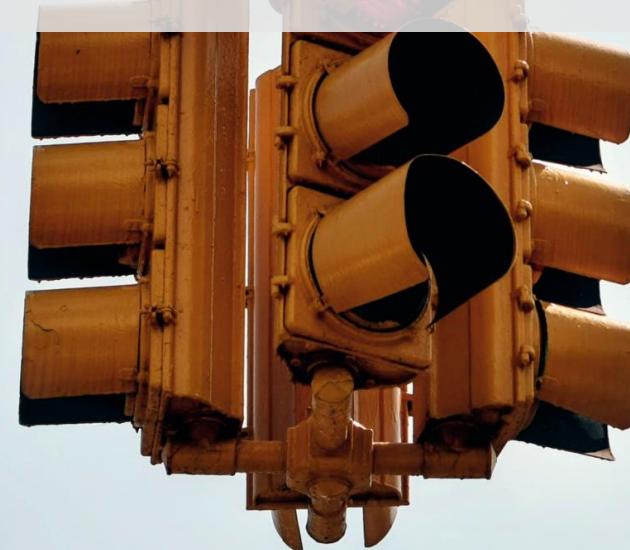
A close-up photograph of an open book lying flat. The pages are numerous, aged, and yellowed, showing significant texture and depth. The book is bound in dark blue leather at the bottom. The background is a soft, out-of-focus light color.

Facts



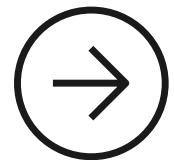
Time series

Discrete



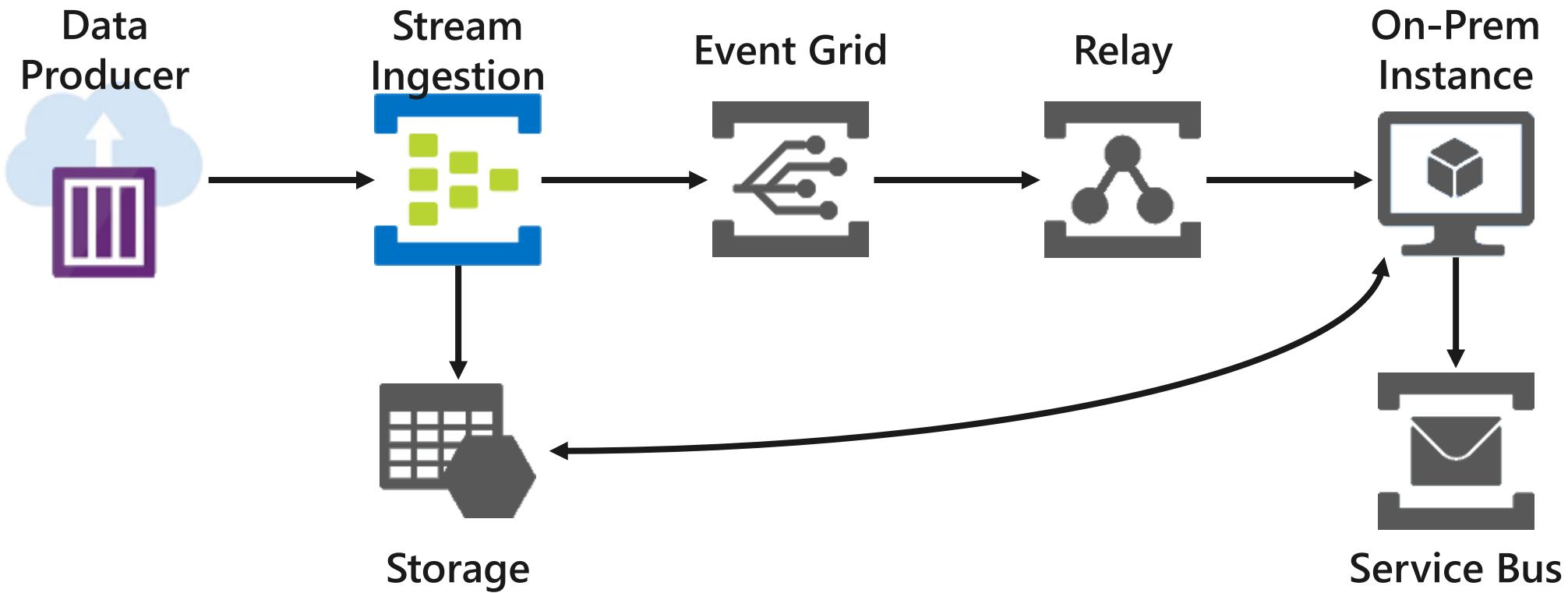
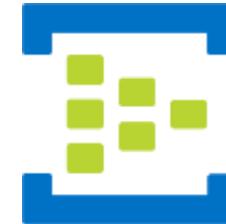
Time series





Event Hubs

Streaming data



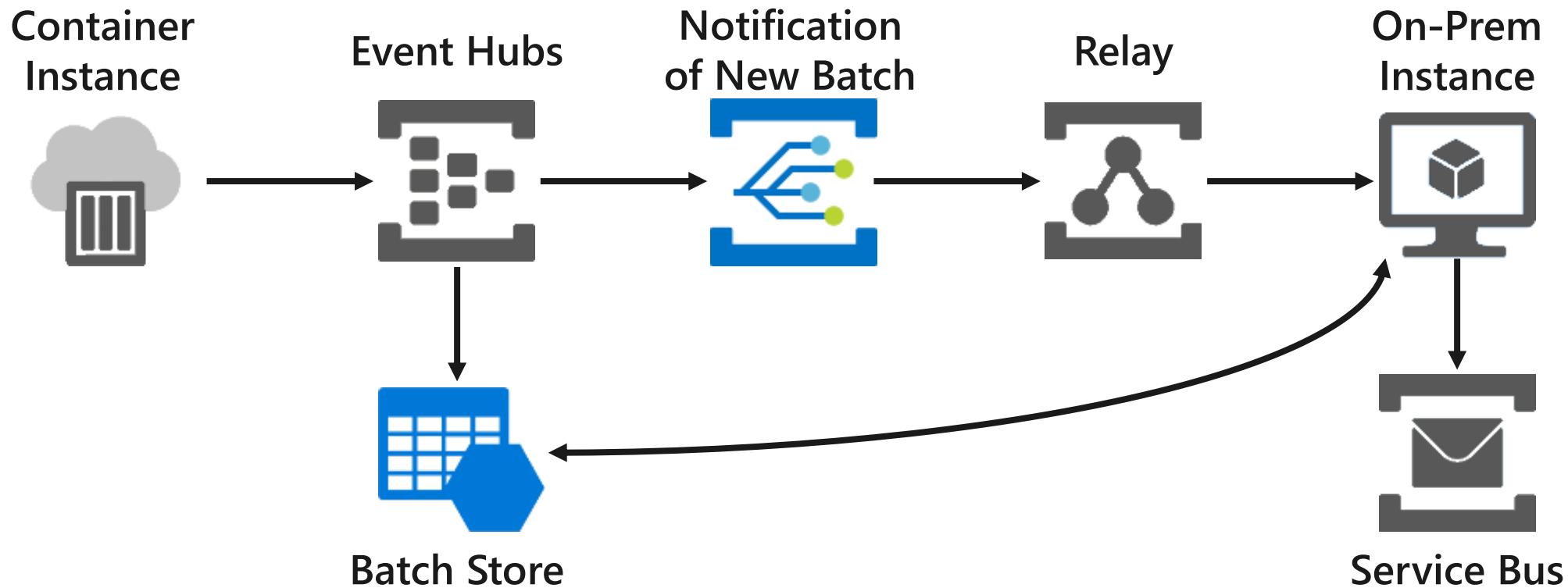


Discrete



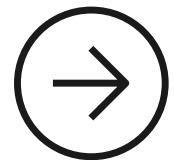
Event Grid

Event based programming



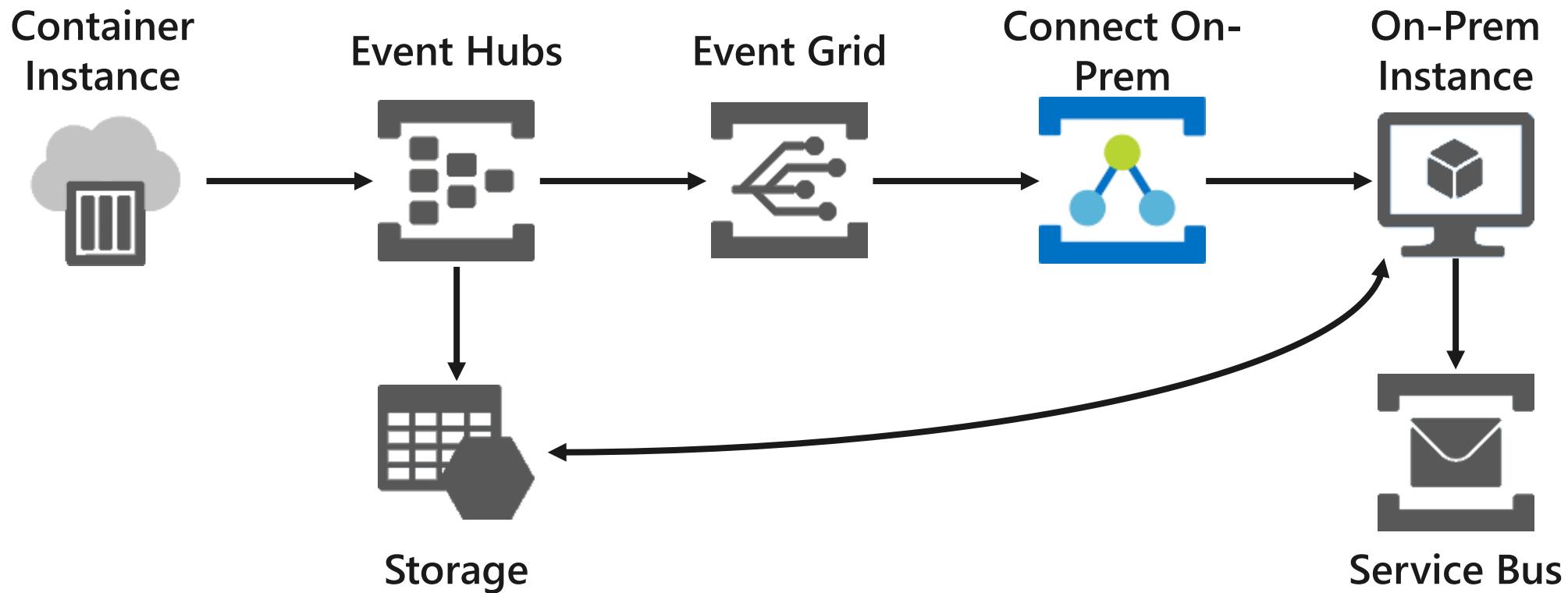
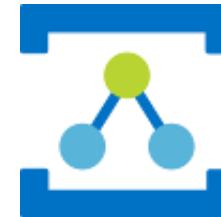


Thanks but I have this thing called security

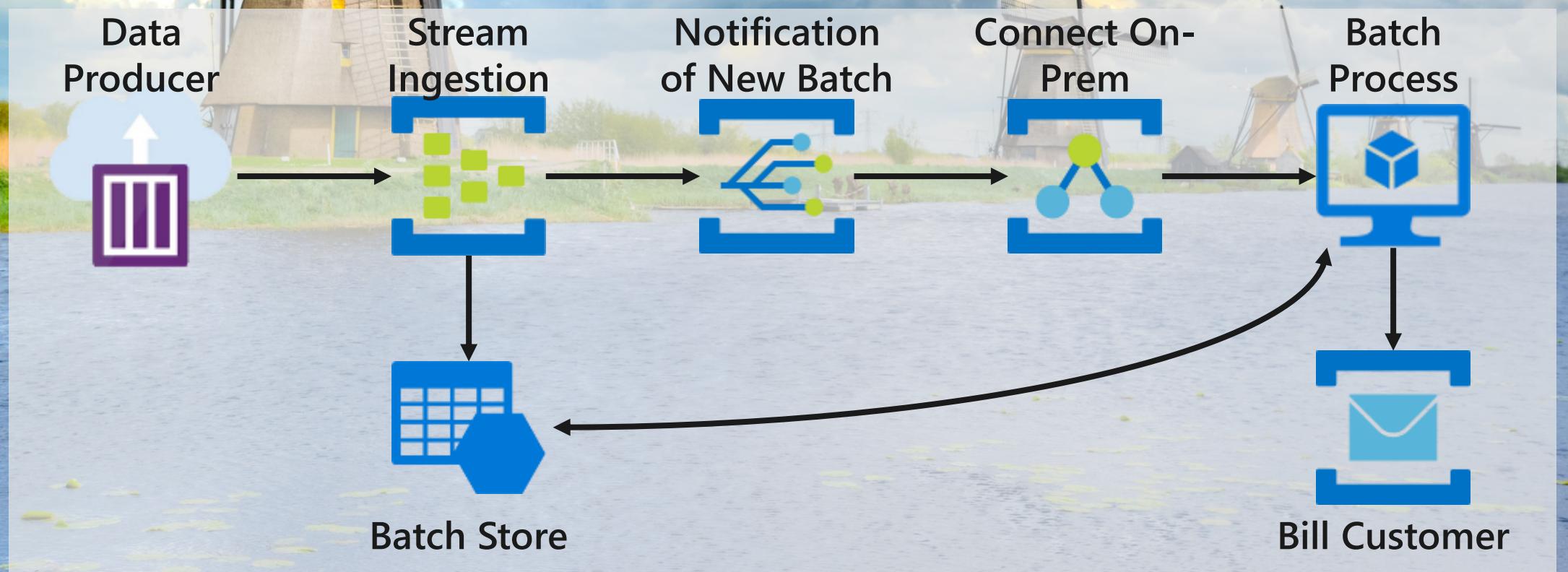


Relay

Connect systems

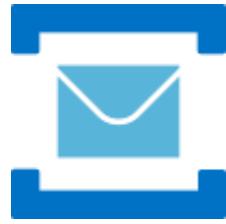


Wind Energy Billing



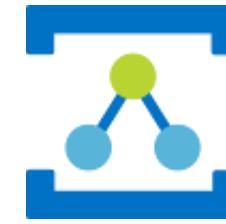
Cloud messaging domains

Requirement	Simple Queuing	Eventing & PubSub	Big Data Streaming	Enterprise Messaging
Product	Storage Queues	Event Grid	Event Hubs	Service Bus
What do you care about	<ul style="list-style-type: none">• Communication within an app• Individual message• Queue semantics / polling buffer• Simple and easy to use• Pay as you go	<ul style="list-style-type: none">• Communication between apps / orgs• Individual message• Push semantics• Filtering and routing• Pay as you go• Fan out	<ul style="list-style-type: none">• Many messages in a Stream (think in MBs)• Ease of use and operation• Low cost• Fan in• Strict ordering• Works with other tools (maybe Kafka?)	<ul style="list-style-type: none">• Instantaneous consistency• Strict ordering• JMS• Non-repudiation & Security• Geo-Replication & Availability• Rich features (de-dupe, scheduling, etc.)
What are you willing to sacrifice to get it	<ul style="list-style-type: none">• Ordering of messaging• Instantaneous consistency	<ul style="list-style-type: none">• Ordering of messaging• Instantaneous consistency	<ul style="list-style-type: none">• Server-side cursor• Only Once	<ul style="list-style-type: none">• Cost• Simplicity
Serverless		Big Data		Enterprise



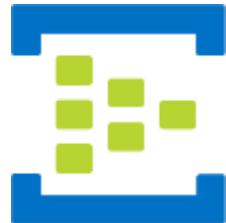
Service Bus

Enterprise messaging



Relay

Connect systems



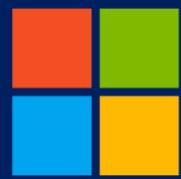
Event Hubs

Data streaming



Event Grid

Event based programming



Microsoft