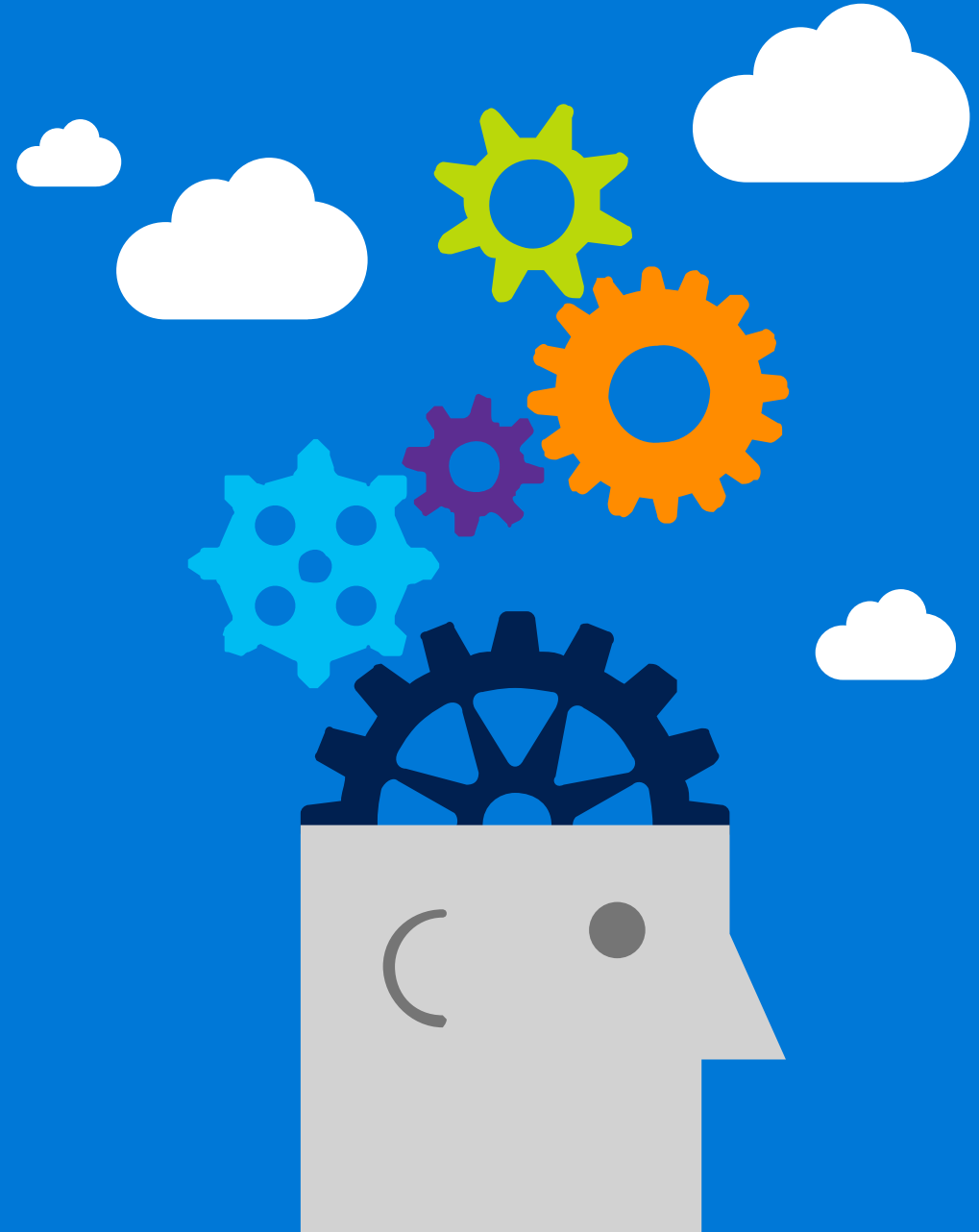




# Event Driving Computing With Azure Event Grid

Ben Coleman  
Cloud Architect & Evangelist

@BenCodeGeek

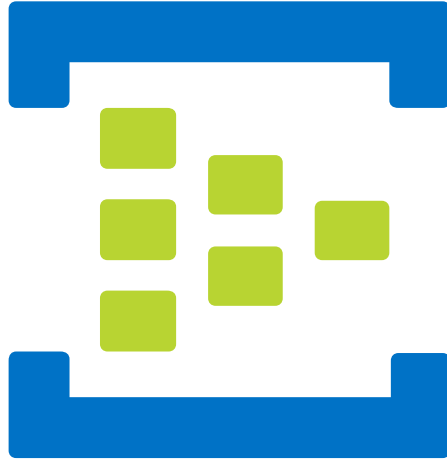


# Azure Messaging Services



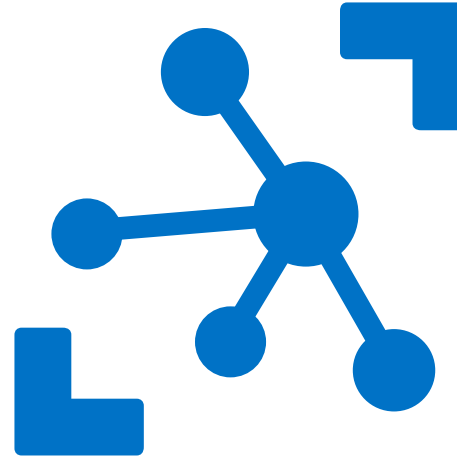
Service Bus

Asynchronous  
enterprise  
messaging and  
queuing



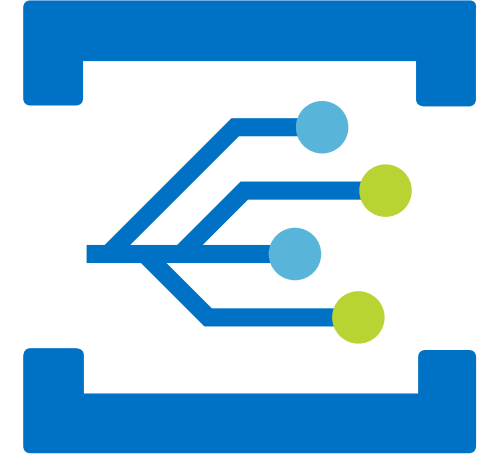
Event Hub

Data streaming  
and telemetry  
ingest



IoT Hub

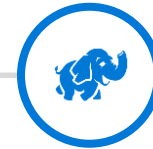
Hyperscale  
message  
ingestion and  
device  
management



Event Grid

Real time, cross  
cloud reactive  
eventing

Modern computing  
is all about events



Managing events is important but cumbersome



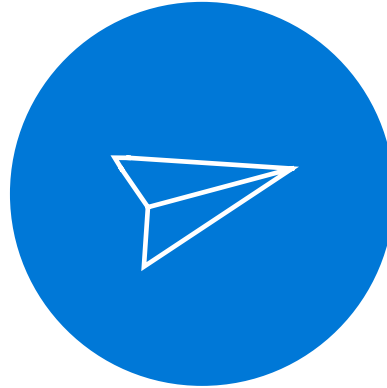
What if all these events  
could be managed and  
directed from one place?



# Azure Event Grid



Fully-managed  
event routing



Near real-time event  
delivery at scale



Broad coverage within  
Azure and beyond

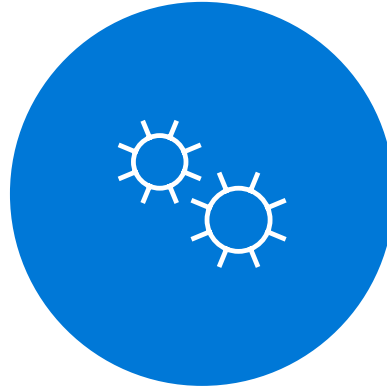
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Backbone of event-driven computing

# Benefits



Focus on innovation  
and pay per event



Ensure reliability and  
performance for your apps

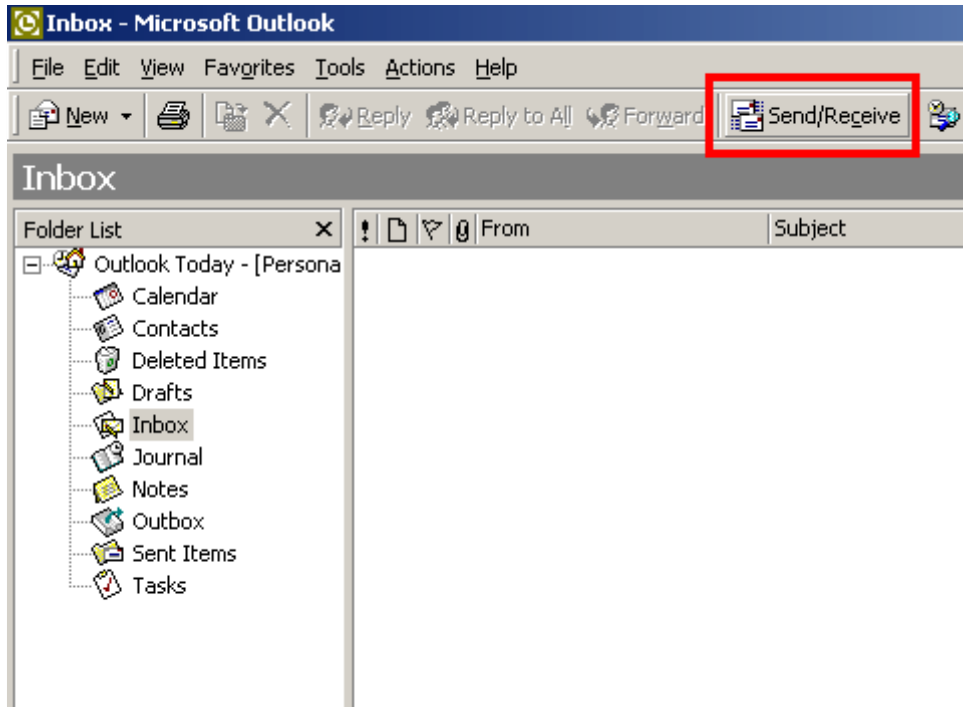
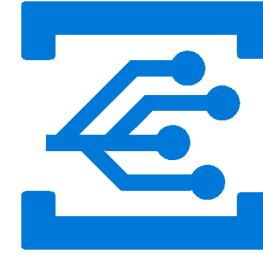


Unlock new scenarios  
for your apps

---

Manage all events in one place

# Why Event Grid is Different



Pull

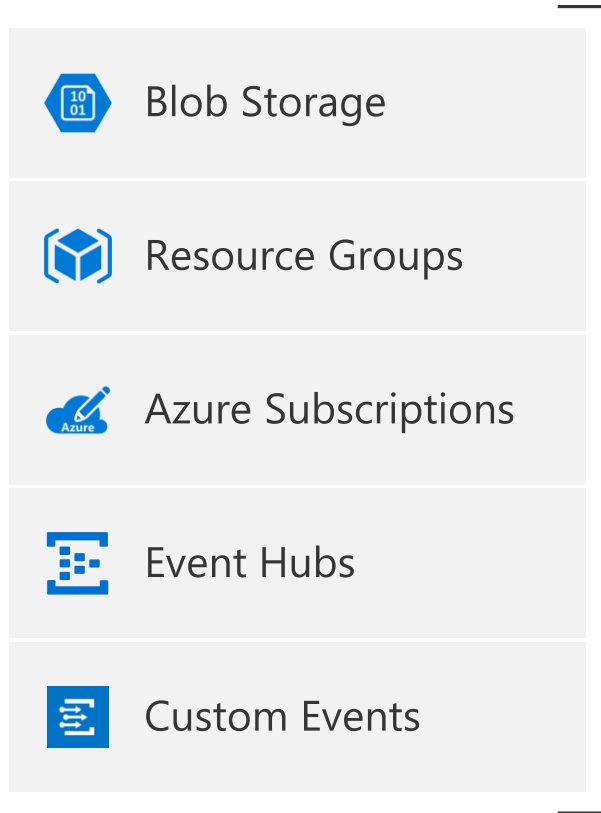


Push

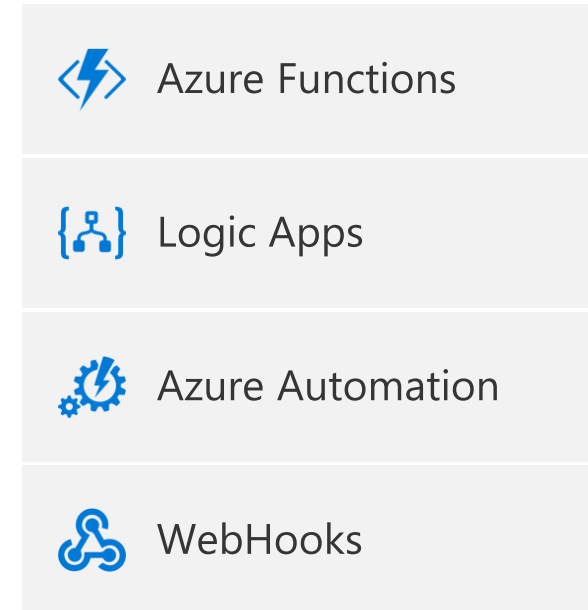


# Manage all events in one place

## Event publishers

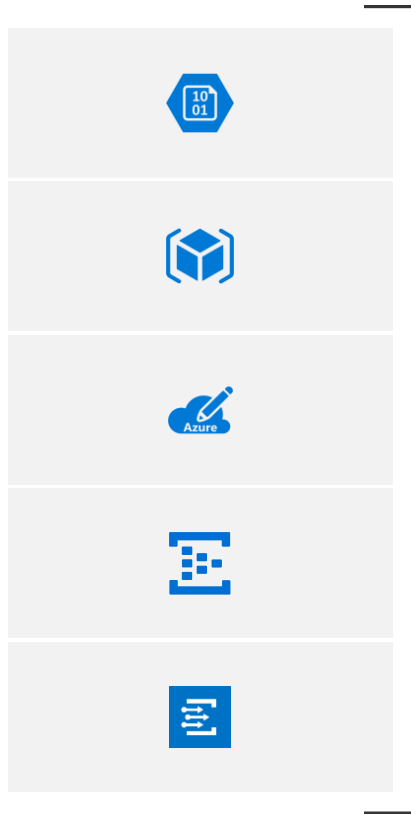


## Event handlers



# Manage all events in one place

## Event publishers



Subscribe to pre-defined system events in Azure or create your own custom topics

Route events to any end-points, Azure or even beyond

Enable filtering and efficient routing of events

Create Event Subscription  
Event Grid - PREVIEW

Name

Subscription  
Azure Event Grid - Test

Resource group  
☐ Use existing

Topic Type  
Storage Accounts

Event Types  
Raised when a blob is created.

Subscriber Type  
Web Hook

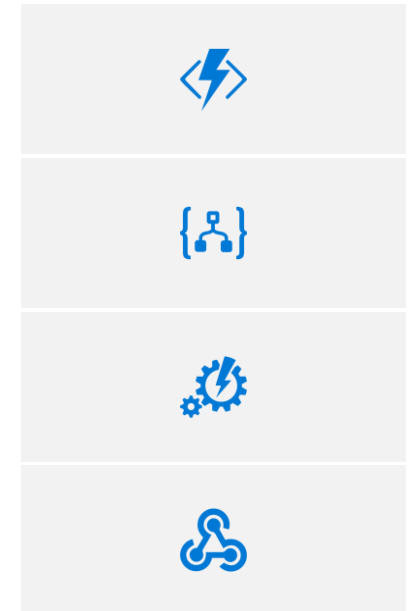
Prefix Filter  
Sample-workitems/{name} Optional

Suffix Filter  
.jpg Optional

☐ Filter Case Sensitive

Create

## Event handlers



# Ensure reliability and performance in your apps




Sub-second  
end-to-end latency in  
the **99<sup>th</sup> percentile**

Near real-time



**10,000,000** events  
per second per region

Massive scale-out



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

High reliability

# Benefit from broad coverage

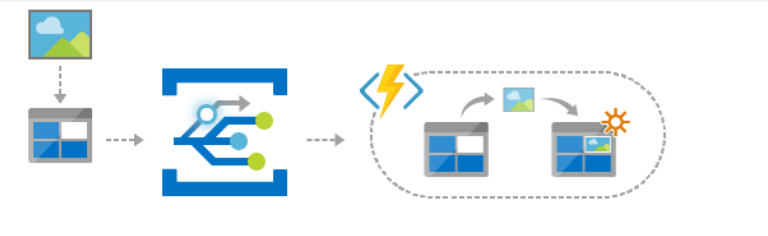
PREVIEW

Publishers	Subscribers
<p><b>Immediately available</b></p> <ul style="list-style-type: none"><li>✓ Blob Storage</li><li>✓ Resource Groups</li><li>✓ Azure Subscriptions</li><li>✓ Event Hubs</li><li>✓ Custom Events</li></ul> <p><b>Coming soon</b></p> <p>Azure Automation, Azure Active Directory, API Management, Logic Apps, IoT Hub, Service Bus, Azure Data Lake Store, Cosmos DB</p>	<p><b>Immediately available</b></p> <ul style="list-style-type: none"><li>✓ Azure Functions</li><li>✓ Logic Apps</li><li>✓ Azure Automation</li><li>✓ WebHooks</li></ul> <p><b>Coming soon</b></p> <p>Fabric Controller, Service Bus, Event Hubs, Azure Data Factory, Storage Queues</p>

# Scenarios

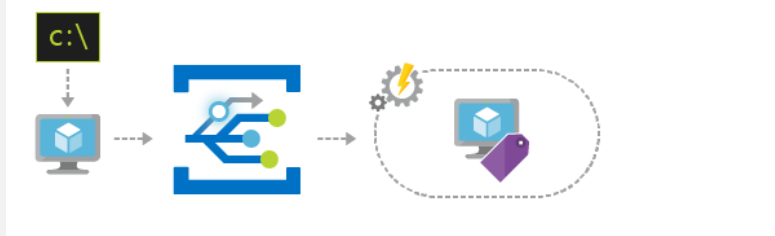
## Serverless apps

Instantly trigger a serverless function to run analysis when a new file is added to a blob storage container.



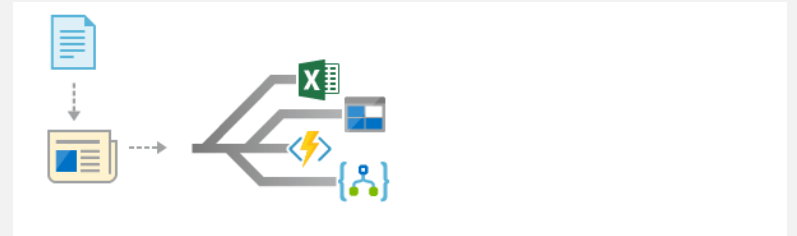
## Ops automation

Speed up automation and simplify policy enforcement by notifying Azure Automation when underlying infrastructure is provisioned

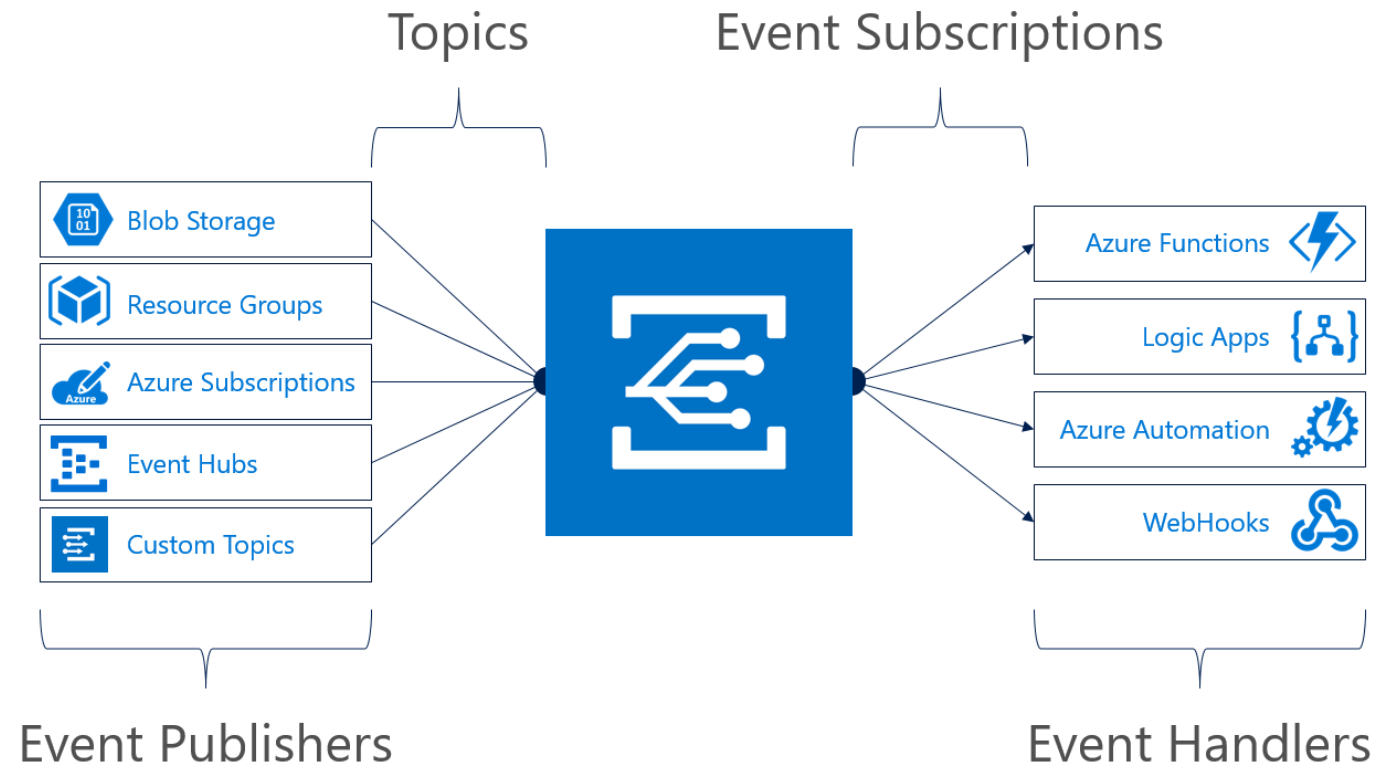


## Application integration

Connects your app with other services. Create an application topic to route your app's event data to any desired destination

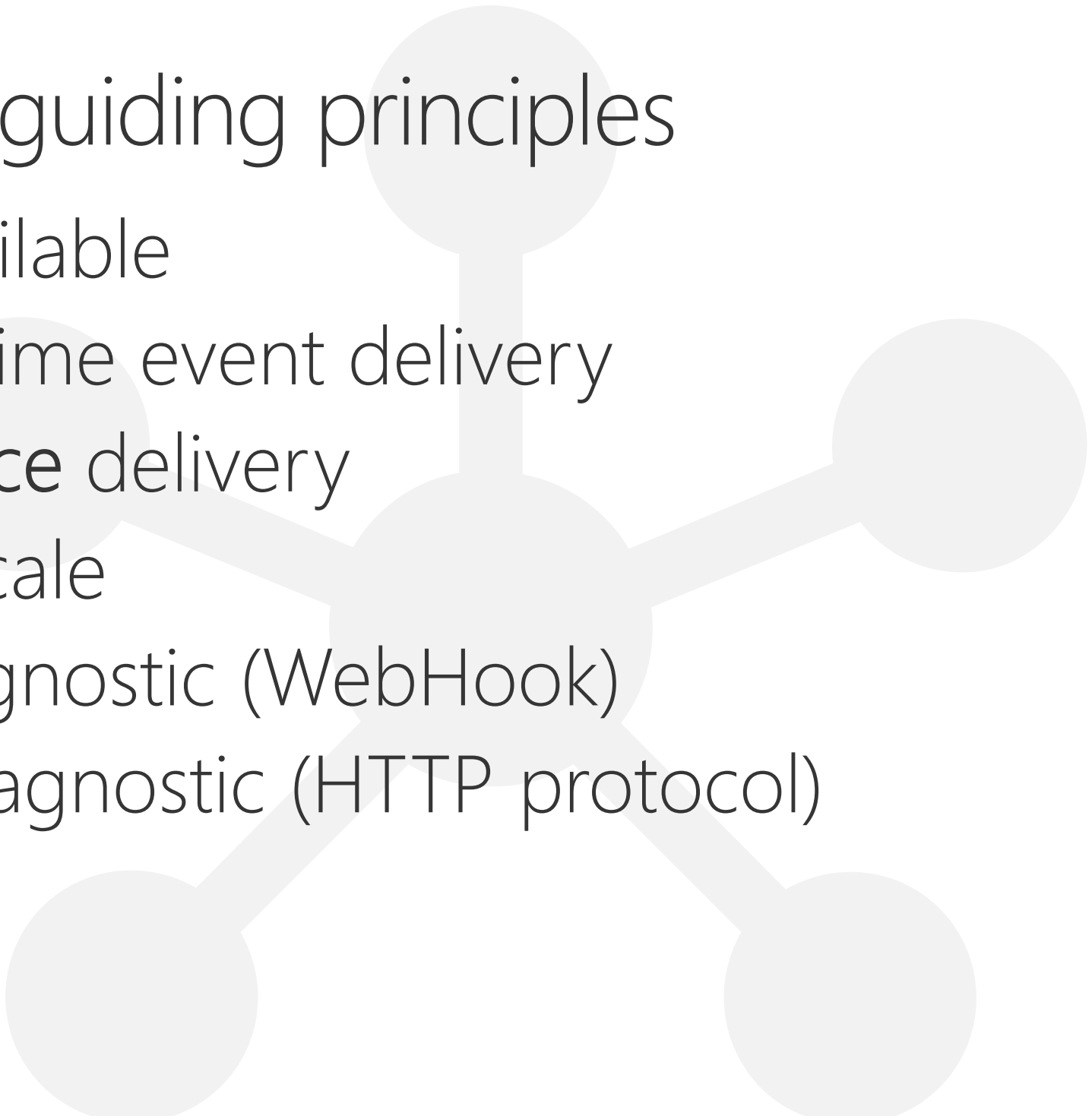


# Core Concepts



1. Events: what happened
2. Event Publishers: where it took place
3. Topics: where publishers send events
4. Event Subscriptions: how you receive events
5. Event Handlers: the app or service reacting to the event

# Event Grid guiding principles

- Always available
  - Near real-time event delivery
  - At least once delivery
  - Dynamic scale
  - Platform agnostic (WebHook)
  - Language agnostic (HTTP protocol)
- 

# Target performance

- Sub-second end-to-end latency in the 99<sup>th</sup> percentile
- 99.99% availability
- 10,000,000 events per second per region
- 100,000,000 subscriptions per region
- 50 ms publisher latency
- 24 hour retry with **exponential back off** for events not delivered
- Transparent regional failover

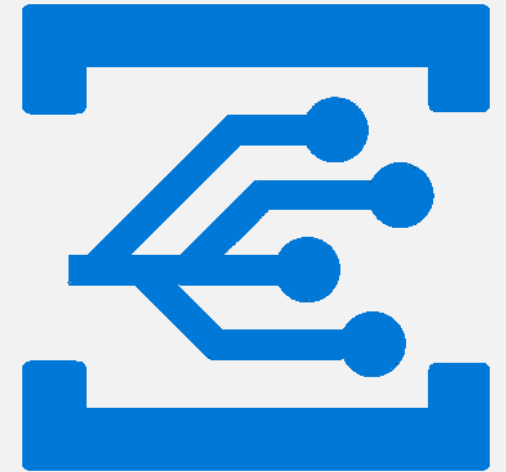




**LIVE  
DEMO**



Learn more at  
[azure.com/EventGrid](https://azure.com/EventGrid)





# Extension resource example

## Request:

PUT

`/subscriptions/mysubscription/resourceGroups/myresourcegroup/providers/Microsoft.Storage/containers/myblobcontainer/providers/Microsoft.EventGrid/eventSubscriptions/mystoragesubscription?api-version={2017-04-14}`

## Request Body:

```
{
  "properties": {
    "destination": {
      "endpointType": "WebHook",
      "properties": {
        "endpointURL": "https://eghttpendpoint1.azurewebsites.net/api/SubscriptionTest?code=abc123"
      }
    },
    "filter": {
      "beginsWith": "blobContainer1 ",
      "endsWith": "*.jpg",
      "eventTypes": [ "eventType1", "eventType2", "eventType3" ]
    }
  }
}
```

# What an Event Subscription looks like

```
{
  "properties": {
    "destination": {
      "endpointType": "webhook",
      "properties": {
        "endpointUrl": "https://dogfoodtesting.azurewebsites.net/api/HttpTriggerCSharp?
                        code=VXbGWce53l48Mt8wuotr0GPmyJ/nDT4hgdFj9DpBiRt38qqnm50Fg=="
      }
    },
    "filter": {
      "includedEventTypes": [ "blobCreated", "blobDeleted" ],
      "subjectBeginsWith": "/blobServices/default/containers/mycontainer/log",
      "subjectEndsWith": ".jpg",
      "subjectIsCaseSensitive": "true"
    }
  }
}
```

# What is an event?

```
[{
  "topic": "/subscriptions/xxxxxxx-xxxx-xxxx-xxxx-
xxxxxxxxxxxx/resourceGroups/myrg/providers/Microsoft.Storage/storageAccounts/myblobstorageaccount",
  "subject": "/blobServices/default/containers/testcontainer/blobs/testfile.txt",
  "eventType": "Microsoft.Storage.BlobCreated",
  "eventTime": "2017-08-16T20:33:51.0595757Z",
  "id": "4d96b1d4-0001-00b3-58ce-16568c064fab",
  "data": {
    "api": "PutBlockList",
    "clientRequestId": "d65ca2e2-a168-4155-b7a4-2c925c18902f",
    "requestId": "4d96b1d4-0001-00b3-58ce-16568c000000",
    "eTag": "0x8D4E4E61AE038AD",
    "contentType": "text/plain",
    "contentLength": 0,
    "blobType": "BlockBlob",
    "url": "https://myblobstorageaccount.blob.core.windows.net/testcontainer/testblob1.txt",
    "sequencer": "0000000000000000EB0000000000046199",
    "storageDiagnostics": {
      "batchId": "dffea416-b46e-4613-ac19-0371c0c5e352"
    }
  }
}]
```

# How you make the Event Subscription

```
/subscriptions/{subscriptionId}/resourcegroups/{resourceGroupName}/p  
roviders/{Provider.Name}/{resourceType}/{resourceName}/providers/Mic  
rosoft.EventGrid/eventSubscriptions/{eventSubscriptionName}?api-  
version={api-version}" @"{subscriptionDefinition.txt}
```

```
/subscriptions/{subscriptionId}/resourcegroups/myrg/providers/Micros  
oft.Storage/storageAccounts/myaccount/providers/Microsoft.EventGrid/  
eventSubscriptions/sub1?api-version=2017-06-15-preview
```