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Feedback



Trigger, Transform, Deliver

Event Grid–Powered Notebook Automation in Fabric

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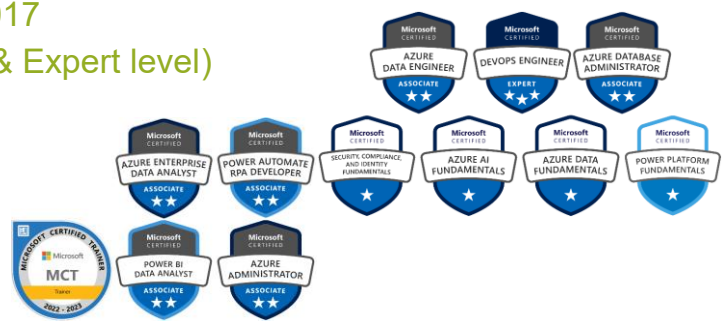
60 minutes

Redslim

Jens Vestergaard



- In BI space 20+ years, programming 30+
  - SQL Server 2000+
  - SQL Server Analysis Services 2000+
  - Power BI, Power Apps, Power Automate,
  - ASP .Net 1.0 -> … -> .Net Core 10
  - SQL, C#, Pascal, Python, Basic, Prolog, MDX, Java Script, PowerShell, Visual Basic + more
  - Microsoft Data Platform MVP since 2017
  - 7 active MS Certifications (Associate & Expert level)



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Jens Vestergaard

- Copenhagen based since 1992
  - Studied physics/astronomy -> … -> Applied Computer Science
  - Married, three kids
  - Absolutely love coffee; roasting, grinding, brewing, drinking…



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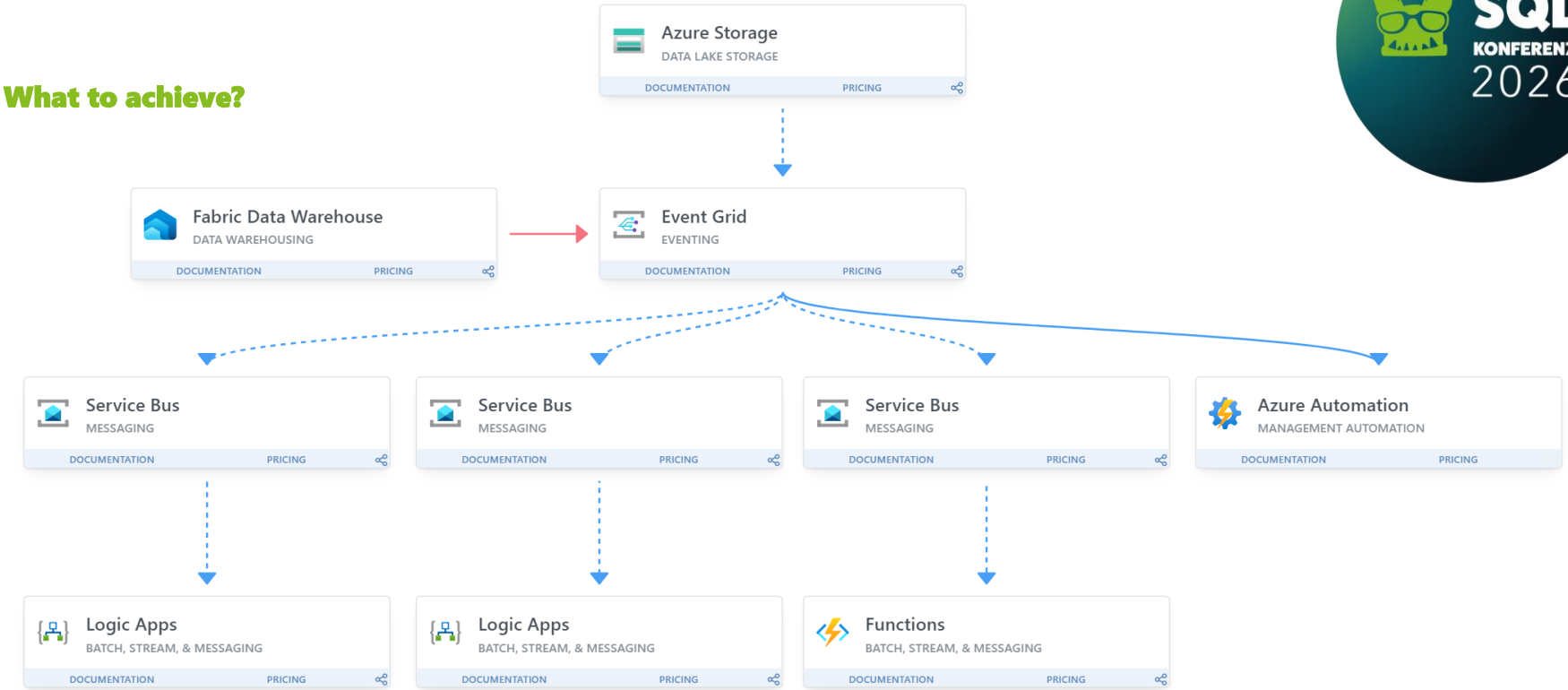
Why are we doing this?



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- Real-Time Processing
- Scalability
- Consistency in Logging and Telemetry
- Enhanced Data Processing Pipeline
- Framework for Reporting and Analysis
- Minimization of Errors
- Efficiency and Time Savings

What to achieve?



What are we doing?



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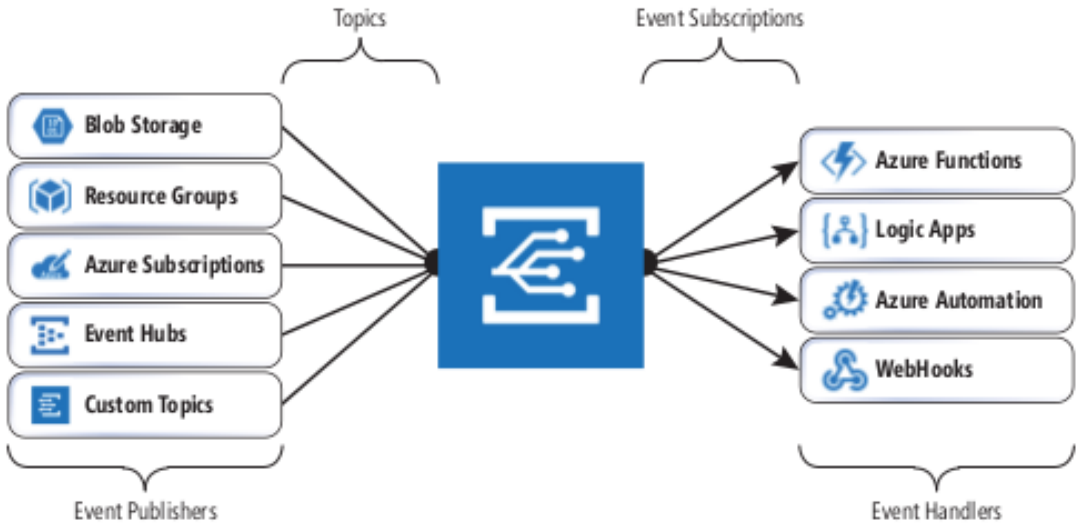
- Understand Azure Event Grid
- Custom Python libraries to interact with Event Grid
- Integration of libraries in our workspaces
- Azure Service Bus as throttler and coordinator
- Az Functions/Logic Apps/<Your invention>
- Filtering based on topic, eventType, and/or subject
- Reap the benefits

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Overview: Azure Event Grid

Key features: Publishers / Subscribers



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Key features: event schema

```
[
  {
    "topic": string,
    "subject": string,
    "id": string,
    "eventType": string,
    "eventTime": string,
    "data":{
      object-unique-to-each-publisher
    },
    "dataVersion": string,
    "metadataVersion": string
  }
]
```



Key features: routing #1

- Topic Filtering
  - System; All systems related events
  - Data; All data related events
  - Shipment; All event related to deployment: code, reports etc.
- Event Type Filtering
  - prodution/status/notebook/init
  - test/telemetry/file/success
- Subject Filtering
  - /blobServices/default/containers/<container>/blobs/<blob>
  - /silver/pos/sales/<customer>

Key features: routing #2

- Data Specific Filtering

```
"data": {
  "fileDetails": {
    "fileName": "file.txt",
    "fileExtension": "txt",
    "changeType": "Modified"
  },
  "additionalProperties": "value"
},
```

data.fileDetails.fileExtension == “txt”

Key features: Dead lettering & Retry



- Error Handling
  - Dead lettering; Events that cannot be delivered to any subscribers are sent to a dead-letter endpoint, helping to address and identify issues.

- Resilience
  - Retry policies; Azure Event Grid employs automatic retry mechanisms to handle transient failures, ensuring that events are reliably delivered.

Summary: Event Grid



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- Publisher/Subscriber
- eventSchema
- Routing
- Dead letter
- Retry

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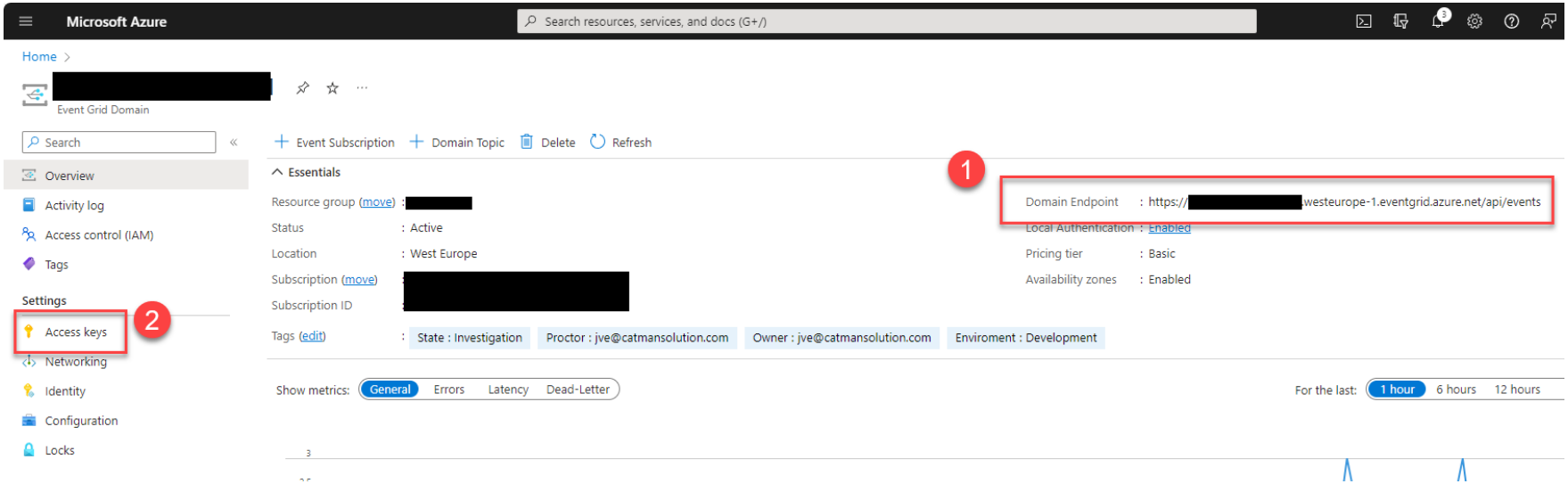
Overview: Custom Python

Custom Python function/method

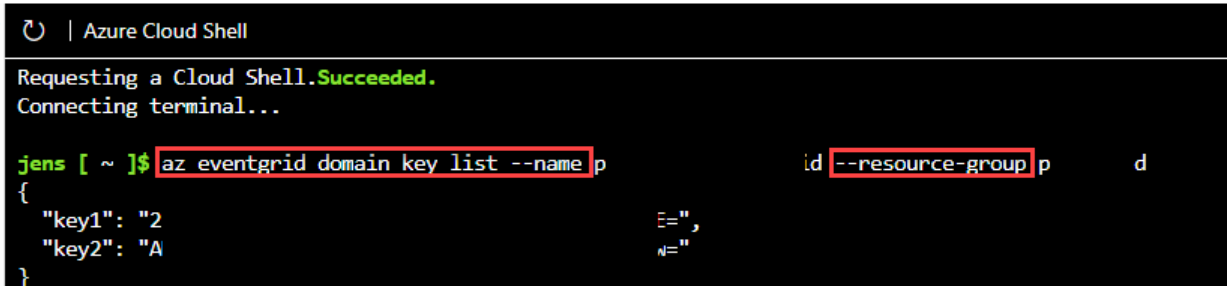
```python
import os
from azure.core.credentials import AzureKeyCredential
from azure.eventgrid import EventGridPublisherClient, EventGridEvent

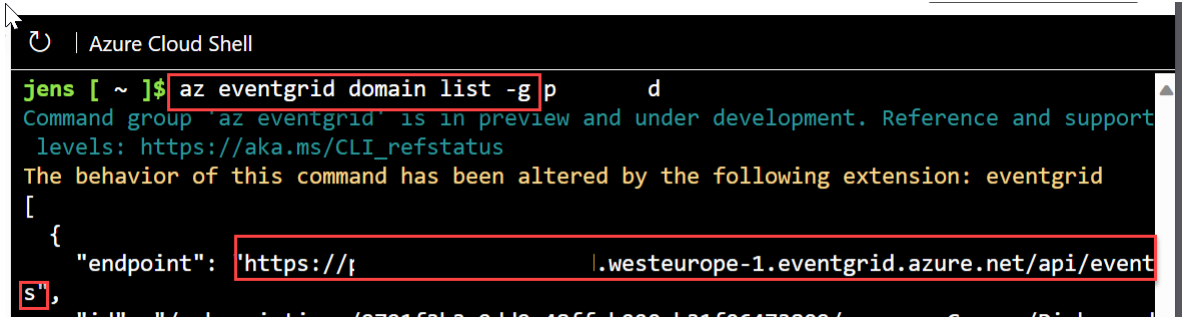
def sendMessage(subject, eventType, topic, data):
    event = EventGridEvent(
        data=data,
        subject=subject,
        topic=topic,
        event_type=eventType,
        data_version="1.0"
    )
    key = "2z[redacted]:="
    endpoint = "https://[redacted].westeurope-1.eventgrid.azure.net/api/events"
    credential = AzureKeyCredential(key)
    client = EventGridPublisherClient(endpoint, credential)
    client.send(event)
```

Getting Keys and Endpoint via Portal



Getting Keys and Endpoint via CLI





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Summary: Custom Python

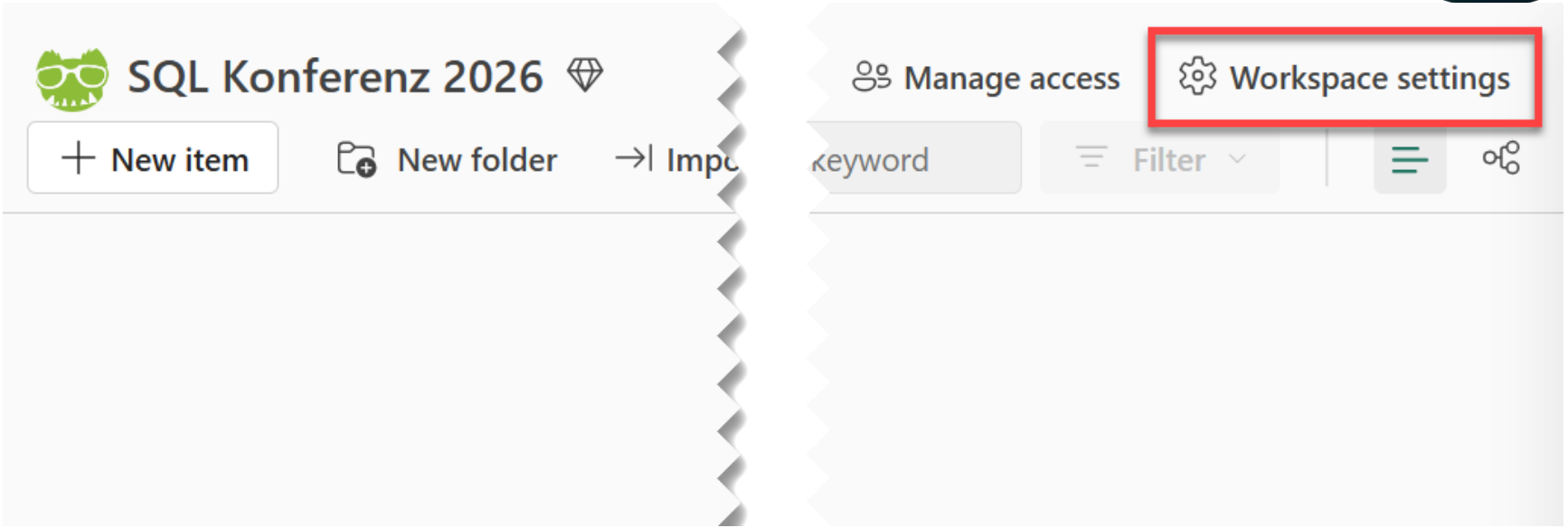
- Create function (VS Code)
- Get Endpoint via Portal/CLI
- Get Key via Portal/CLI

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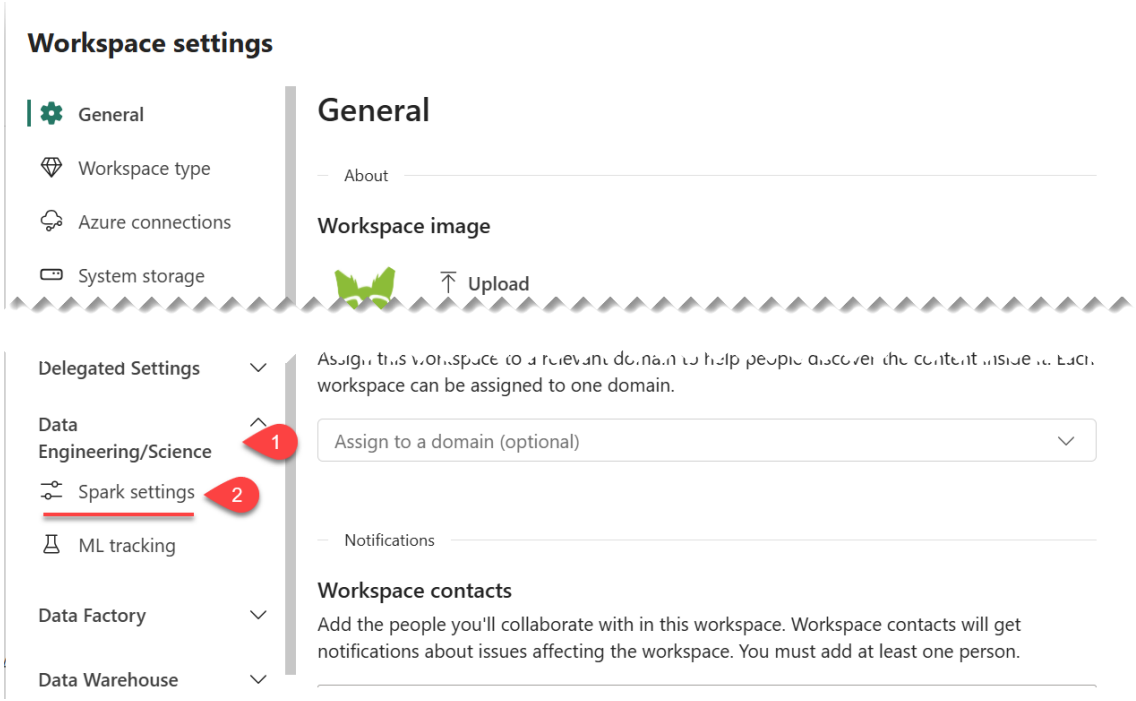


Overview: Workspace integration

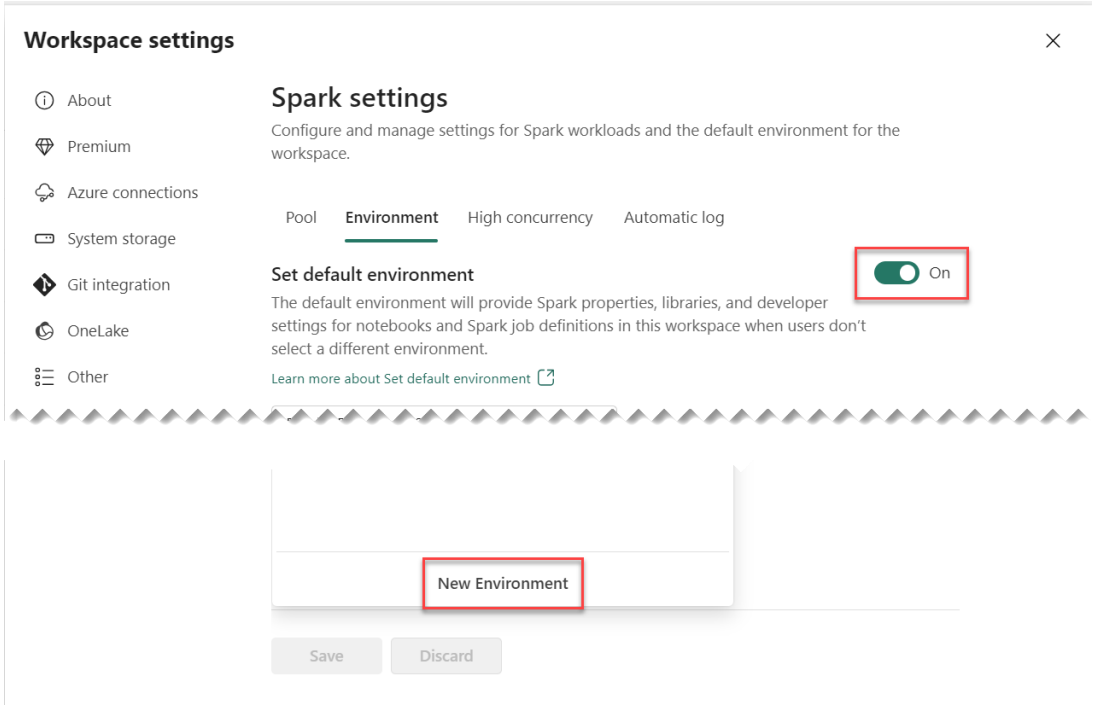
Setting up an Environment



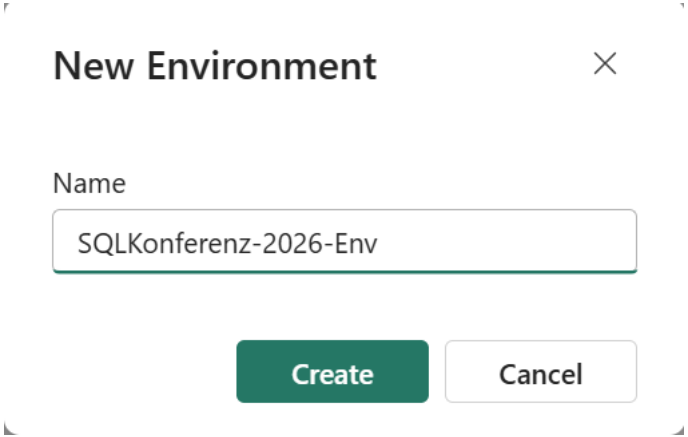
Setting up an Environment



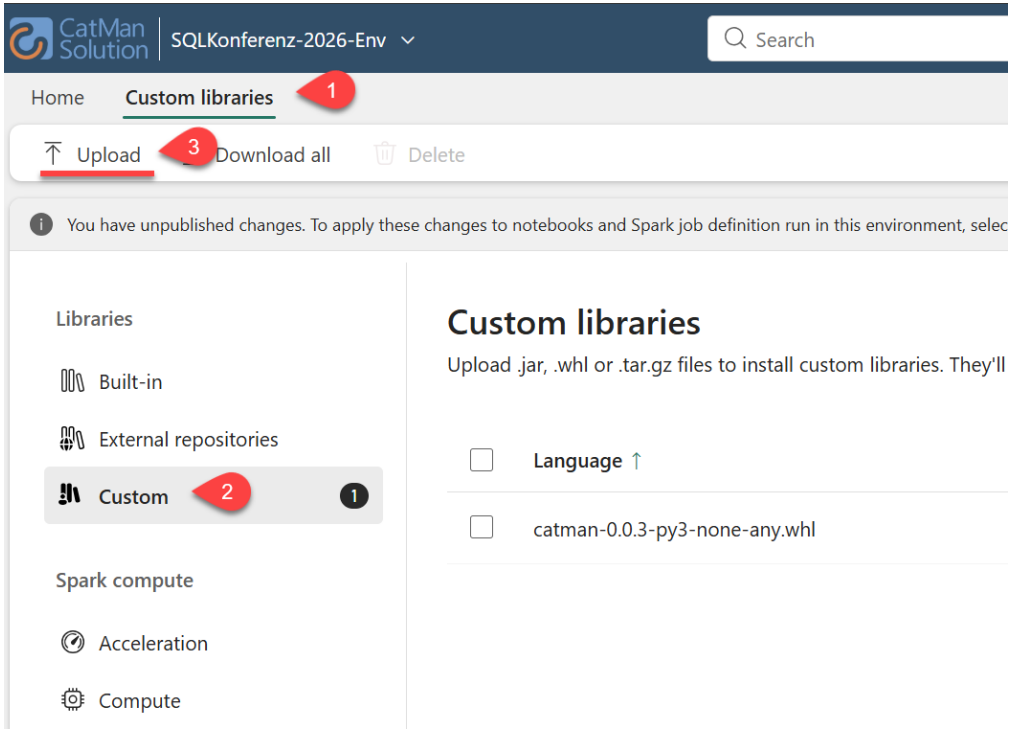
Setting up an Environment



Name the environment



Setting up an Environment



Send a message




```
pip install azure-eventgrid
import catman
catman.function_init()

import uuid
message = "{ 'packageg id': '" + str(uuid.uuid4()) + "'}"

from catman import eventGridHandler as egh
egh.sendMessage( 'bronze/product/master/conaxess.trade.dk', 'cms/data/file/init', 'data', message )
```

subject eventType topic data

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Summary: Workspace integration

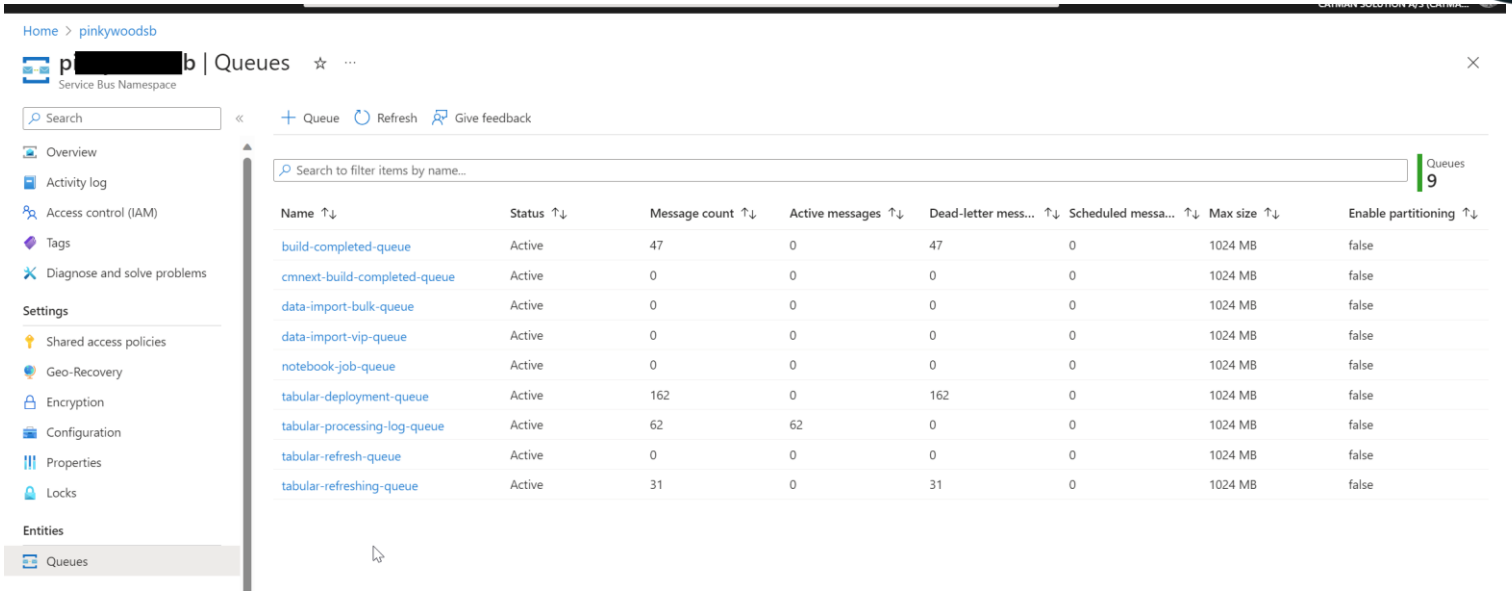
- Create New Environment
- Upload code (.whl)
- Import code into notebook
- Send message

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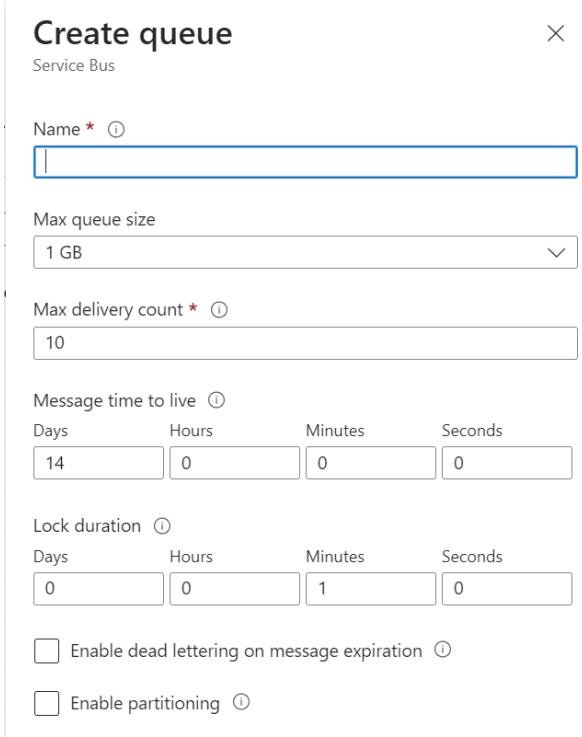
Overview: Azure Service Bus

Azure Service Bus

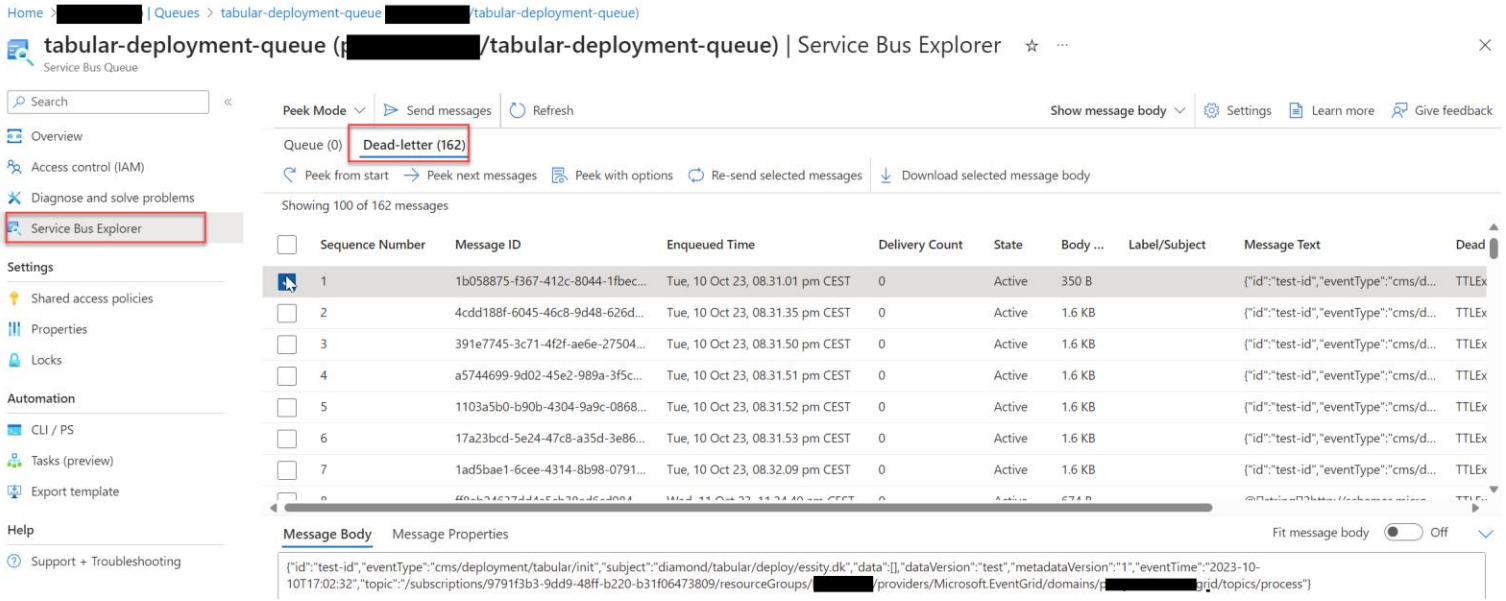


Name	Status	Message count	Active messages	Dead-letter mess...	Scheduled messa...	Max size	Enable partitioning
build-completed-queue	Active	47	0	47	0	1024 MB	false
cmnext-build-completed-queue	Active	0	0	0	0	1024 MB	false
data-import-bulk-queue	Active	0	0	0	0	1024 MB	false
data-import-vip-queue	Active	0	0	0	0	1024 MB	false
notebook-job-queue	Active	0	0	0	0	1024 MB	false
tabular-deployment-queue	Active	162	0	162	0	1024 MB	false
tabular-processing-log-queue	Active	62	62	0	0	1024 MB	false
tabular-refresh-queue	Active	0	0	0	0	1024 MB	false
tabular-refreshing-queue	Active	31	0	31	0	1024 MB	false

Configuring a new queue



What's in the queue?



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Summary: Azure Service Bus

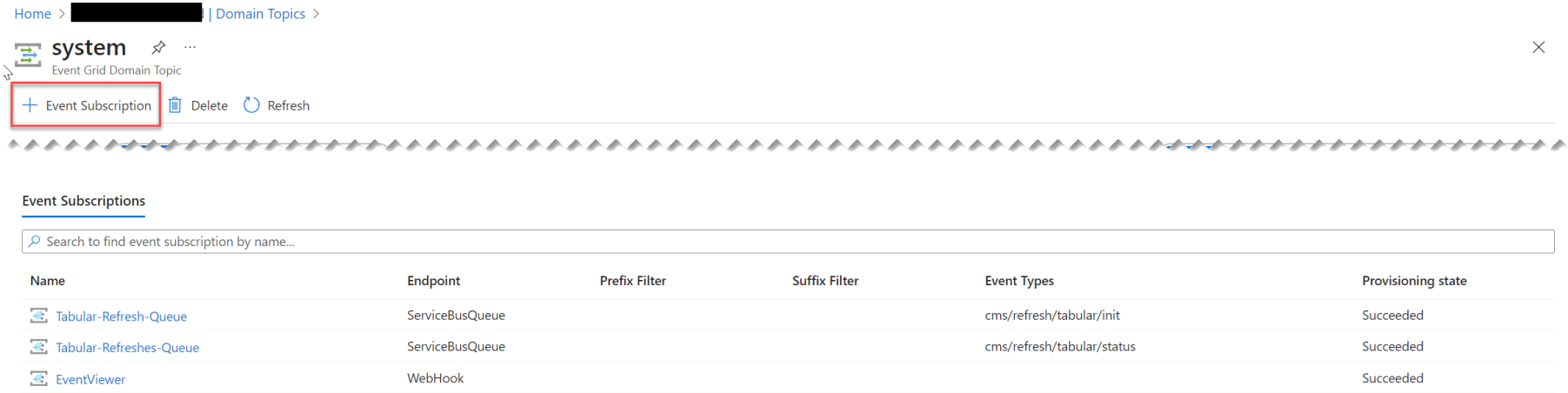
- Create Queue(s)
- Browse Queue(s)
- Delete/Resend message(s)

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Overview: Subscribing

Subscribing to events

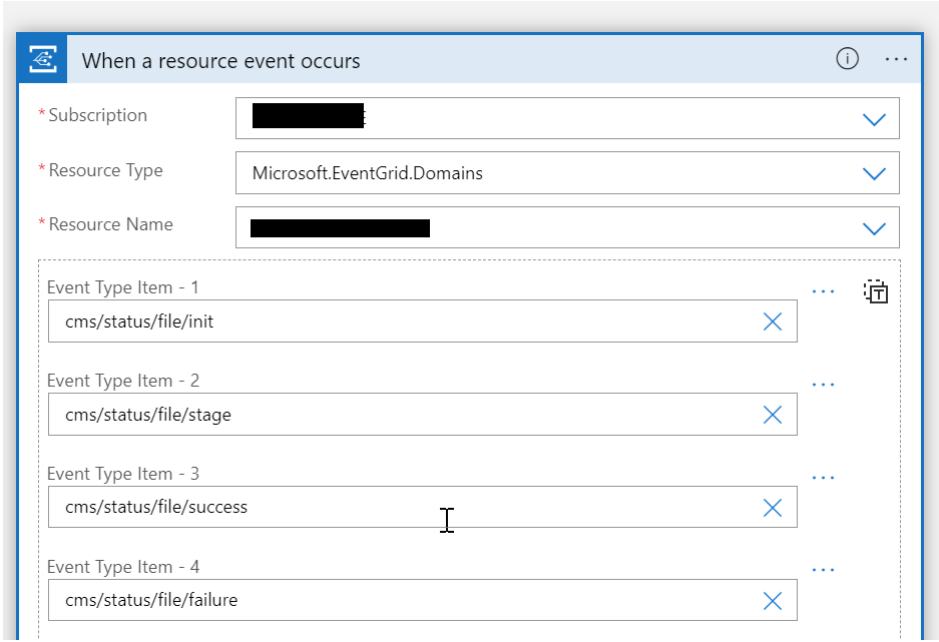


Binding Az Function

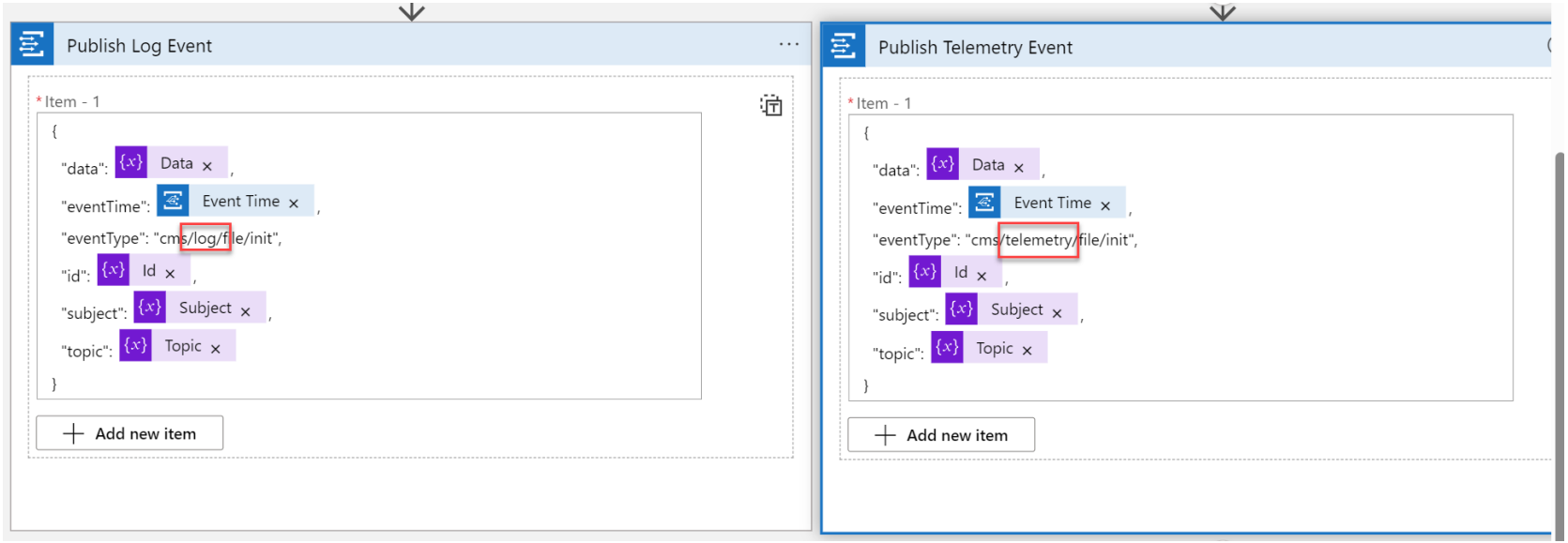



```
[FunctionName("ServiceBusQueueTriggerCSharp")]
public static void Run(
    [ServiceBusTrigger("myqueue", Connection = "ServiceBusConnection")]
    string myQueueItem,
    Int32 deliveryCount,
    DateTime enqueuedTimeUtc,
    string messageId,
    ILogger log)
{
    log.LogInformation($"C# ServiceBus queue trigger function processed message: {myQueueI
    log.LogInformation($"EnqueuedTimeUtc={enqueuedTimeUtc}");
    log.LogInformation($"DeliveryCount={deliveryCount}");
    log.LogInformation($"MessageId={messageId}");
}
```

Logic Apps to the rescue



Logic App – Splitting Events



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Summary: Subscribing

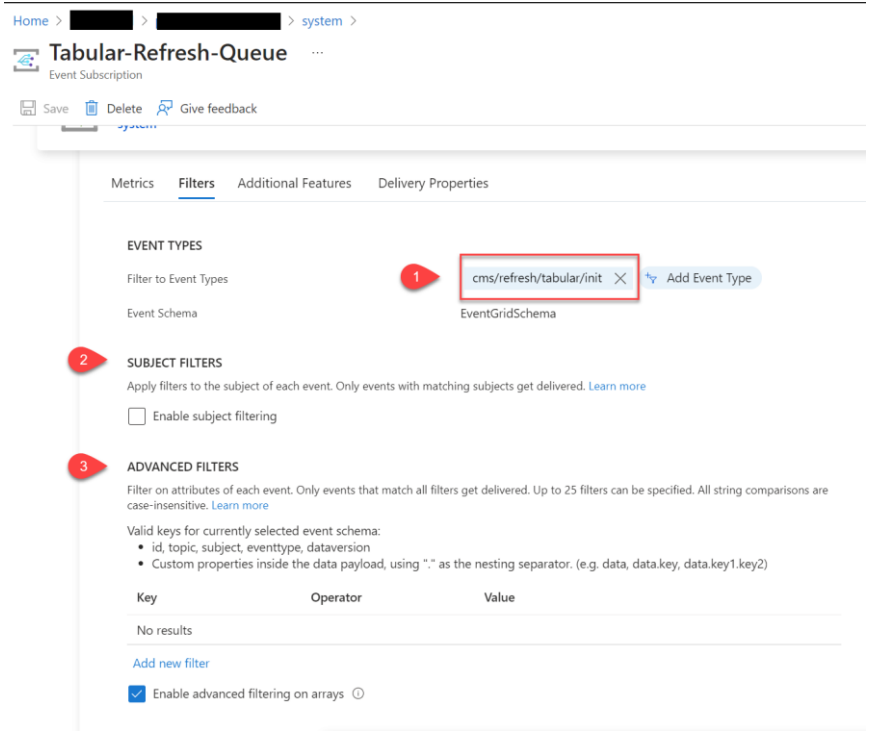
- Each topic can publish to + down stream services
- Binding Azure Function Apps
- Native support in Azure Logic Apps

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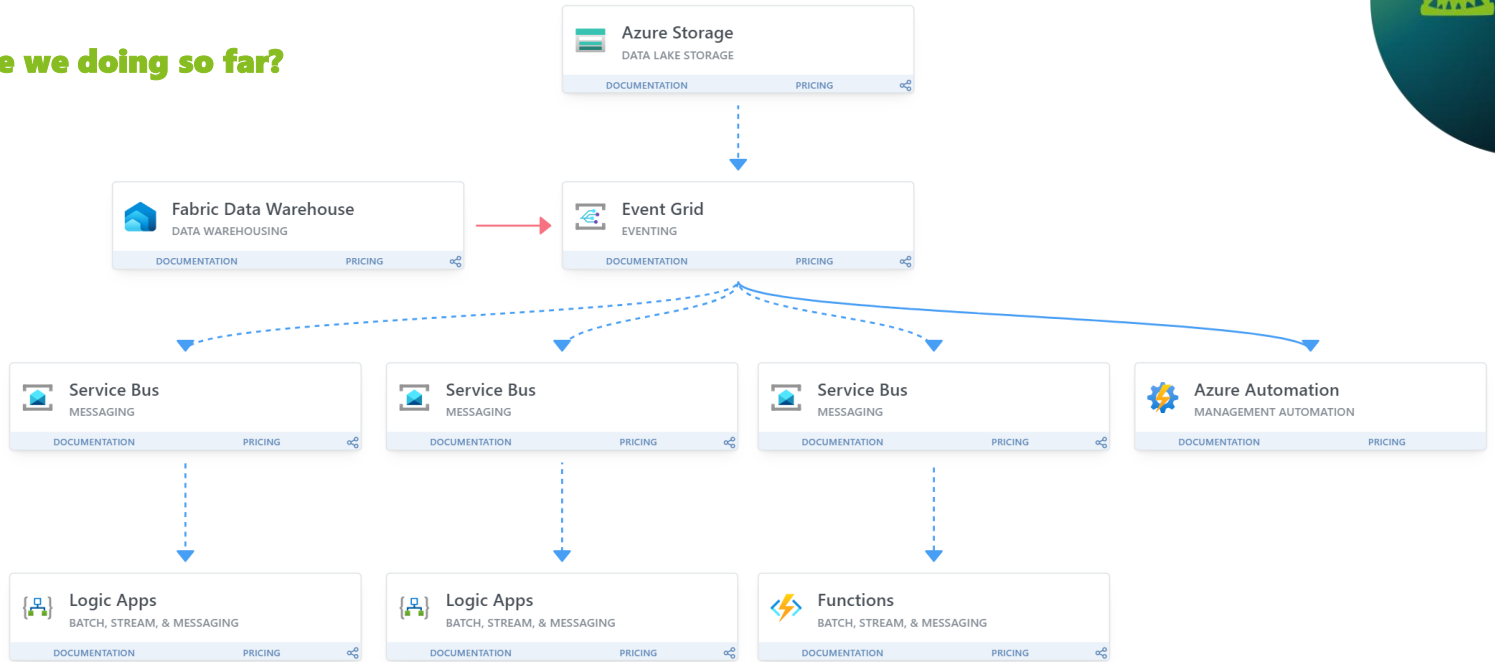


Overview: Filtering

Filtering events



How are we doing so far?



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Manual Triggering

Postman

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Cost 😱

The real monster?



February – in DKK (100 DKK ~ €13)

Name		Type		Total ↓
ingenkvalerjen...	···	App Service plan	cc	1,378 kr.
cmscorestorage	···	Storage account	prc	626.30 kr.
core-eh	···	Event Hubs namespace	n.cc	62.92 kr.
core-servicebus	···	Service Bus namespaces	p	29.12 kr.
core-eventgrid	···	Event Grid Domain	: j	17.90 kr.
cmsblobreader	···	Logic app	ow	9.50 kr.
cmsbuildandd...	···	Storage account		8.00 kr.
operationeven...	···	App Service web app		3.73 kr.
operationeven...	···	App Service web app		0.57 kr.
operationeven...	···	App Service web app		0.36 kr.
cmseventgridlog	···	App Service web app		0.06 kr.
cmsprocesslog	···	App Service web app		0.04 kr.
bndfileuploads...	···	App Service web app		0.04 kr.
cmsfileuploads...	···	App Service web app		0.03 kr.



- **Resources to study more**

- Overview - Azure Event Grid | Microsoft Learn
  - https://learn.microsoft.com/en-us/azure/event-grid/overview
- Azure Service Bus Messaging documentation | Microsoft Learn
  - https://learn.microsoft.com/en-us/azure/service-bus-messaging/
- How to use notebooks - Microsoft Fabric | Microsoft Learn
  - https://learn.microsoft.com/en-us/fabric/data-engineering/how-to-use-notebook
- Overview - Azure Logic Apps | Microsoft Learn
  - https://learn.microsoft.com/en-us/azure/logic-apps/logic-apps-overview
- Azure Functions Overview | Microsoft Learn
  - https://learn.microsoft.com/en-us/azure/azure-functions/functions-overview?pivots=programming-language-csharp

04.03.2026 | Room 1

Trigger, Transform, Deliver...

Feedback

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