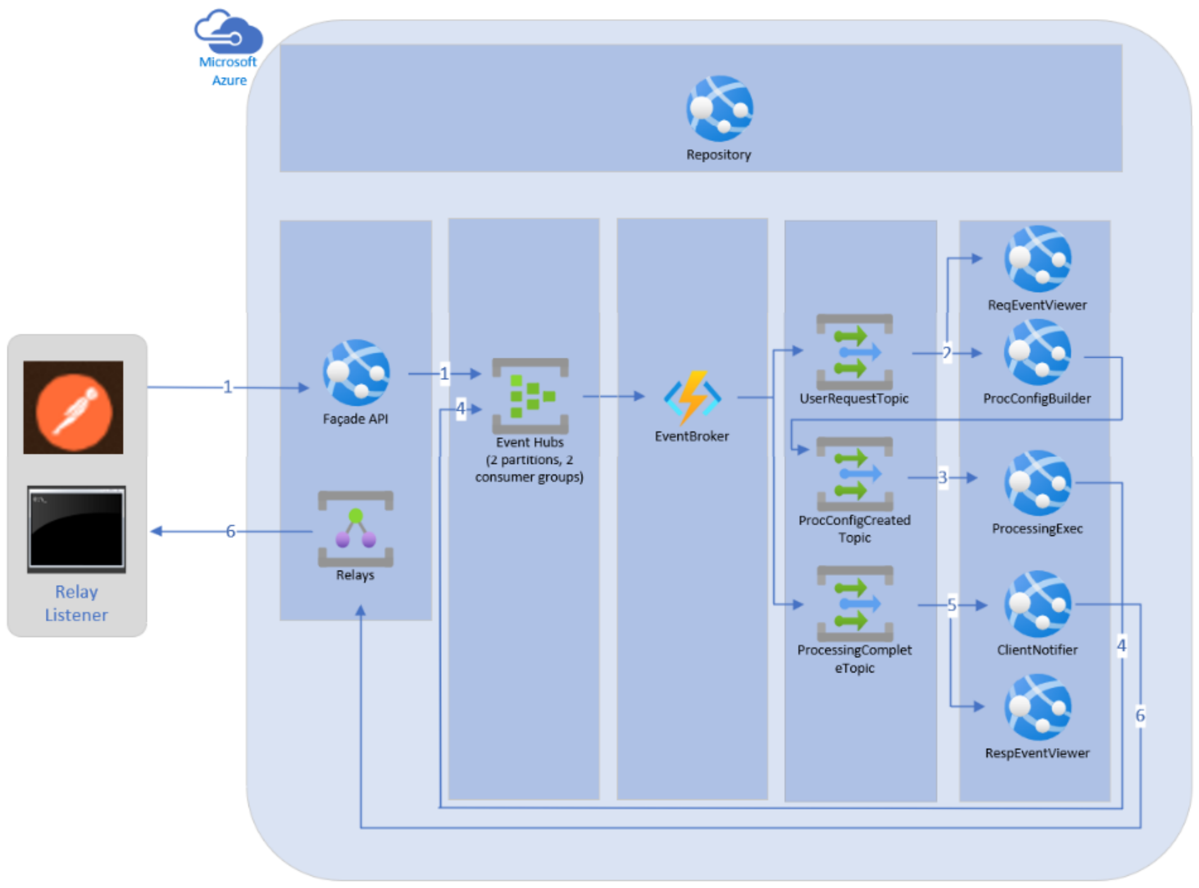
Components of the PoC

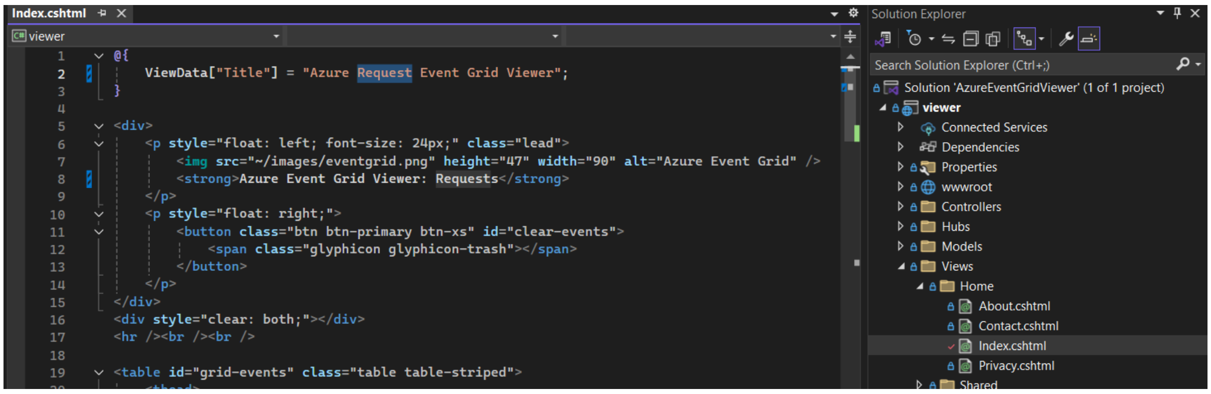


Software used

Software deployed to Azure

FaçadeApi	App Service (Web API)
EventBroker	Function App
ProcConfigBuilder	App Service (Web API)
ProcessingExec	App Service (Web API)
ClientNotifier	App Service (Web API)
*ReqEventViewer	App Service (Web API)
*RespEventViewer	App Service (Web API)
Repository	App Service (Web API)

*The ReqEventViewer and RespEventViewer are clones of the Azure Event Grid Viewer (https://github.com/Azure-Samples/azure-event-grid-viewer), with a modification to the index.cshtml file the word “Requests” or “Responses” appears after “Azure Event Grid Viewer” on the displayed page. For example, the Request case:



```
@{
    ViewData["Title"] = "Azure Request Event Grid Viewer";
}

<div>
    <p style="float: left; font-size: 24px;" class="lead">
        <img src="~/images/eventgrid.png" height="47" width="90" alt="Azure Event Grid" />
        <strong>Azure Event Grid Viewer: Requests</strong>
    </p>
    <p style="float: right;">
        <button class="btn btn-primary btn-xs" id="clear-events">
            <span class="glyphicon glyphicon-trash"></span>
        </button>
    </p>
</div>
<div style="clear: both;"></div>
<hr /><br /><br />

<table id="grid-events" class="table table-striped">
```

Software executed on local machine

PostMan	https://www.postman.com/
AzureRelayListener	.NET Console app, based on https://learn.microsoft.com/en-us/azure/azure-relay/relay-hybrid-connections-dotnet-get-started
TestClientRepo	.NET Web API to inspect the Repository contents

Supporting software, built into deployed software

CommonModels	Class library of models used across solutions
EventGridPublishClient	Class library for a wrapper class around Microsoft's EventGridPublisherClient
EventHubPublisherClient	Class library for a wrapper class around Microsoft's EventHubProducerClient
RelayPublishClient	Class library for a wrapper class around Microsoft's HybridConnectionClient
RepoClient	Class library for remote access to the Repository
WebHookAbstraction	Abstract class for implementation by APIs implementing the Web Hook interface
FakeDatabase	Simple, hard-coded implementation of a fake database

Construction

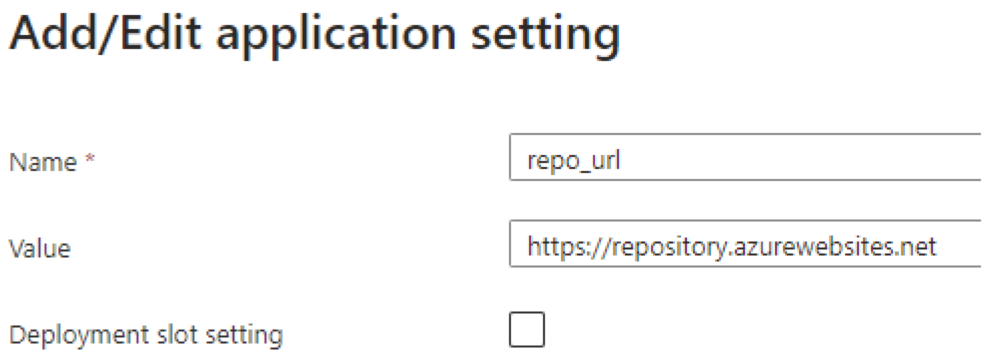
- Deploy the ReqEventViewer, RespEventViewer and Repository to Azure.
- Deploy An Azure Relay.
    - Create a Hybrid Connection with “Requires Client Authorization” selected
    - For the connection, in Share access policies, create two SAS policies:
        - sendpolicy, with Send Claims
        - managepolicy, with Manage, Send, Listen claims
- Update the Relay settings in appsettings.json for AzureRelayListener.

```
{
 "RelaySettings": {
  "RelayNamespace": "<your relay namespace>.servicebus.windows.net",
  "ConnectionName": "<your hybrid connection name>",
  "KeyName": "managepolicy",
  "Key": "your key value"
 }
}
```

Where:

- Your-namespace is the Azure Relay instance
- Your-connection is the hybrid connection name
- KeyName is the connection’s Shared Access Policy to use (managepolicy)
- Key is the Primary Key for the KeyName

- Deploy the 4 APIs: Façade, ProcConfigBuilder, ProcessingExec, ClientNotifier.
- Add an Environment Variable named “repo_url” for each of Façade, ProcConfigBuilder, ProcessingExec, set to the “Default domain” of the Repository, prefixed with https://. For example:



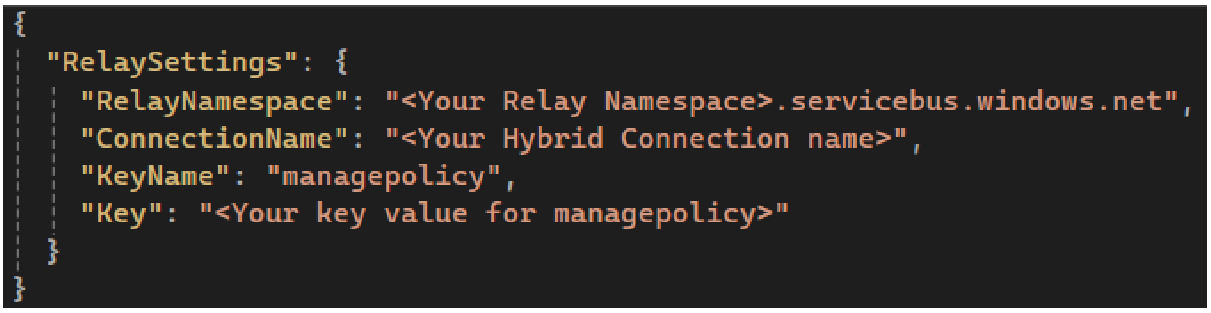
Add/Edit application setting

Name *	repo_url
Value	https://repository.azurewebsites.net
Deployment slot setting	☐

- Instantiate the three Event Grid Topics: UserRequestTopic, ProcConfigCreatedTopic, ProcessingCompleteTopic (enter the Resource group, Name and Region, but leave all other settings unchanged).
- ***Note that Event Grid subscriptions described below can't be created until the subscribing services are <u>configured</u> and running.*** **Perform the following configuration steps before creating Event Grid Subscriptions.**
- For ProcConfigBuilder, set "EventGridTopicEndpoint" as the Topic Endpoint for the ProcConfigCreatedTopic, and "EventGridTopicKey" as the value of one of the Keys for the Topic.
- Configure the Relay settings for ClientNotifier
  - connectionName is the hybrid connection name
  - keyName is the connection's Shared Access Policy to use (sendPolicy)
  - key is the Primary Key for the keyName
  - relayNamespace is the name of the relay followed by ".servicebus.windows.net"
- There are five Event Grid Subscriptions to be created: the first four are created here; the fifth is created at a later step.
- For each Event Grid Subscription, ensure the subscribing service is running. Select a Web Hook type and specify https:// + the "Default domain" from the subscribing API's Overview page + /api/ + the controller name (without including the word "controller"). For the RequestEventGridViewer and ResponseEventGridViewer the controller is "UpdatesController".
- For UserRequestTopic, create 2 Subscriptions: the first for ProcConfigBuilder, the second for RequestEventGridViewer.
- For ProcessingCompleteTopic, create 2 Subscriptions: the first for ClientNotifier, the second for ResponseEventGridViewer.
- Create the Event Hubs Namespace: Basic tier, 1 throughput unit.
- Create a new Shared access policies for the Event Hub Namespace:
  - "listener", with Listen Claims
- Create an Event Hub with 2 partitions. Use only the provided Consumer Group ($Default). Disable the Hub.
- Create a new Shared access policies for the Event Hub:
  - "sender", with Send Claims

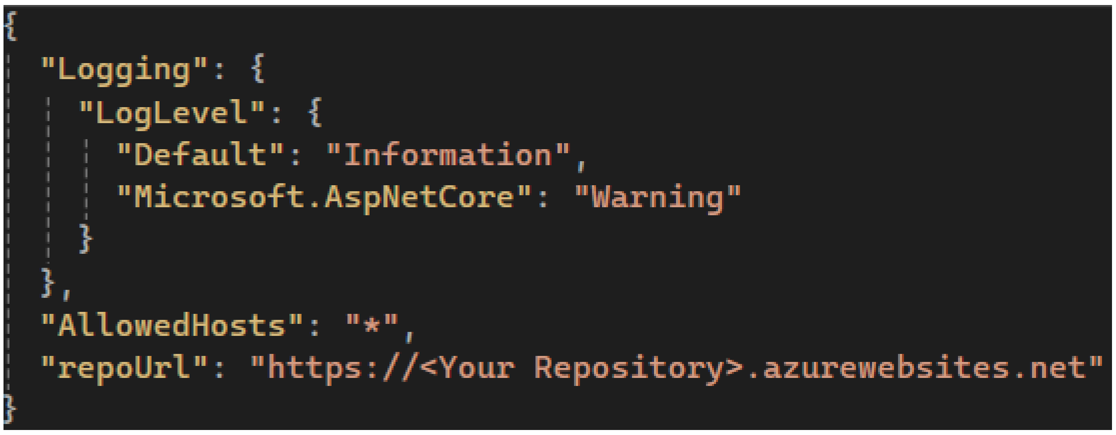
- Deploy the Event Broker Function. Configure Environment Variables for the TopicEndpoint (from the Topic Overview page) and TopicKey (from the Access keys page) settings for the two Event Grid Topics – UserRequestTopic, ProcessingCompleteTopic. Name the settings as:
    - RequestEventGridTopicEndpoint
    - RequestEventGridTopicKey
    - ResponseEventGridTopicEndpoint
    - ResponseEventGridTopicKey
- For the Event Broker Function, configure “EventHubConnection” setting to match the Event Hub **Namespace** connection string for the “listener” policy, with the following appended:

    ;EntityPath=<your Event Hub name>
- Configure the Event Hub settings for the Façade API and Processing Exec:
    - eh_name – the name of the Event Hub instance
    - eh_partition_id – the default partition to use (“0” for Façade, “1” for ProcessingExec)
    - ehns_connstring – the Event Hub connection string for the “sender” policy
- For ProcConfigCreatedTopic, create a Subscription for ProcessingExec.
- Open the AzureRelayListener solution. Update the appsettings.json file



```
{
  "RelaySettings": {
    "RelayNamespace": "<Your Relay Namespace>.servicebus.windows.net",
    "ConnectionName": "<Your Hybrid Connection name>",
    "KeyName": "managepolicy",
    "Key": "<Your key value for managepolicy>"
  }
}
```

- Open the TestClientRepo solution. Update the appsettings.json file



```json
{
  "Logging": {
    "LogLevel": {
      "Default": "Information",
      "Microsoft.AspNetCore": "Warning"
    }
  },
  "AllowedHosts": "*",
  "repoUrl": "https://<Your Repository>.azurewebsites.net"
}
```