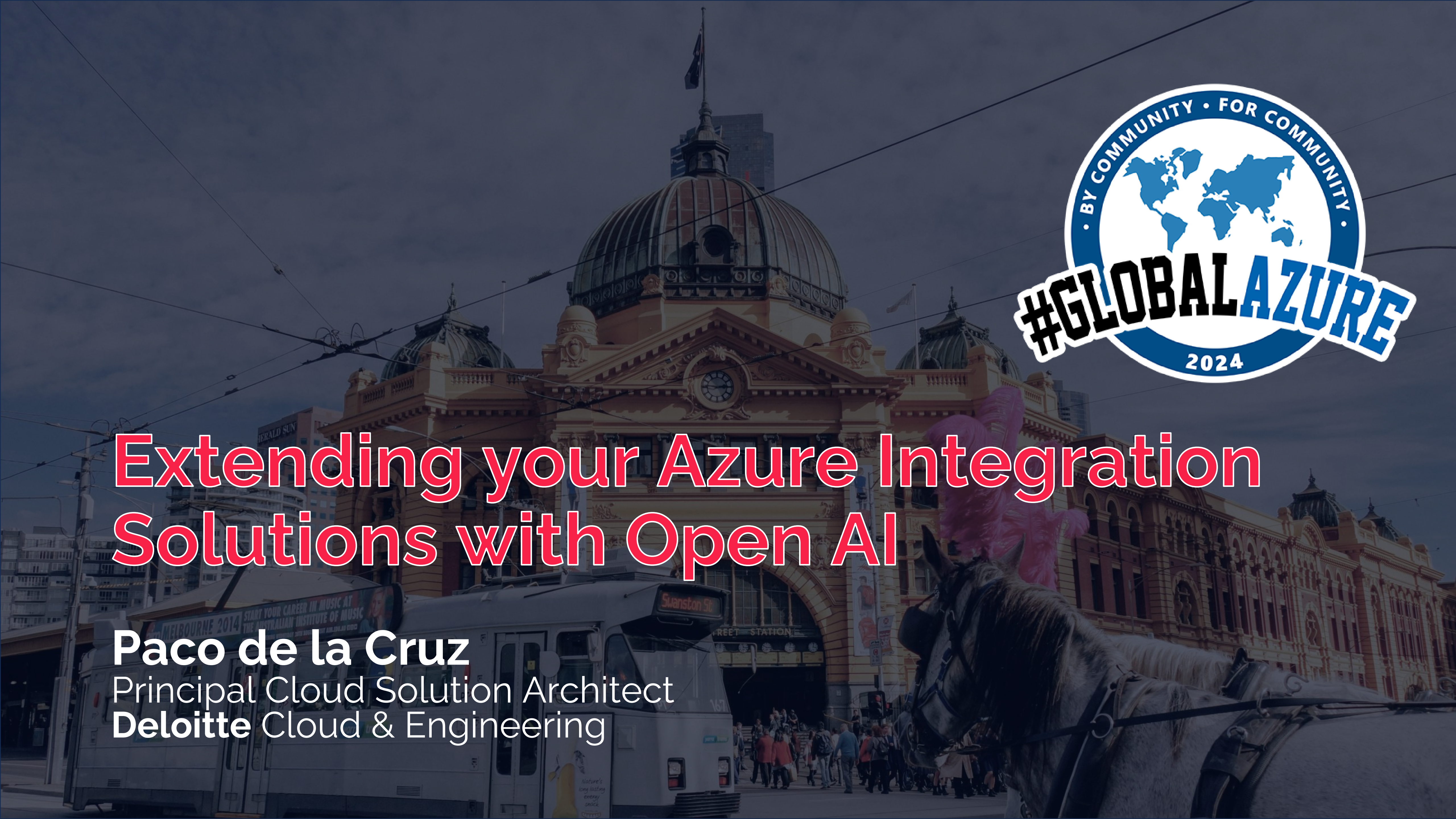

HERALD SUN
MELBOURNE 2014
START YOUR CAREER IN MUSIC AT THE AUSTRALIAN INSTITUTE OF MUSIC
Swanston St
STREET STATION

BY COMMUNITY • FOR COMMUNITY
#GLOBALAZURE
2024

Extending your Azure Integration Solutions with Open AI

Paco de la Cruz
Principal Cloud Solution Architect
Deloitte Cloud & Engineering

Thanks to this event's Sponsors and organisers!

ARINCO

Mantel group

vNEXT

ARGOS
- CLOUD SECURITY -

BY COMMUNITY · FOR COMMUNITY
#GLOBALAZURE
2024

Who Am I?

Paco de la Cruz

Principal Cloud Solution Architect
@ **Deloitte** Cloud & Engineering

Specialised in:
Cloud Application Platforms
Enterprise Integration
Distributed Applications

Microsoft® MVP Most Valuable Professional

pacodelacruz.io

github.com/pacodelacruz

#GLOBALAZURE 2024

Agenda

- Disclaimer & Setting Expectations
- Azure Open AI Overview
- How to Access Azure Open AI APIs
- What are Prompts and Prompt Engineering?
- Demo
- Approach's Highlights
- Approach's Constraints & Considerations
- Q&A

Disclaimer & Setting Expectations

- I don’t have commercial experience building business applications leveraging GenAI models.
- I’ve been using GenAI on my day-to-day to boost my learning and productivity.
- It’s still early days for GenAI models
- The demo I’ll share was an experiment
- My goals are:
  - Show you in a small scale what’s possible
  - Inspire you to explore new ways to solve problems using GenAI.

Azure Open AI Overview

- **Open AI** is one of the many organisations currently developing Generative AI models.
- Some of the **models available from Open AI** are:
  - **GPT4** – Understanding and generation of natural language and code
  - **DALL-E** – Image generation and editing based on natural language
  - **Whisper** – Audio to text conversion
  - **Sora** (under development) – Video generation from natural language.
- **ChatGPT** is a specialised version of GPT fine-tuned for conversations or conversational AI apps.
- **Azure Open AI**: Azure service offering Open AI models with enterprise security, governance, & data privacy (inputs & outputs).

How to Access Azure Open AI APIs

- Azure subscription
- Get **access granted** for Open AI in your Azure subscription
- Create an **Azure Open AI resource** on Azure
- **Deploy a model**, e.g., GPT-4
- Get model API **endpoint and key**
- **Interact** with the model or API via
    - **Studio**: via a playground
    - **SDKs**, e.g., Python, Java, JavaScript, Spring, Go, C#, etc.
    - Rest API

What are Prompts and Prompt Engineering?

- **Prompts** are natural language instructions crafted to give an AI model a task and relative context
- **Prompt engineering** is an iterative process that shapes the inputs from users to the AI model to get desired outputs effectively.
- **Strategies**
  - Write **clear instructions**, give enough details and context to the task.
  - Provide **reference text** or examples
  - **Split complex tasks** into simpler subtasks
  - **Give the model time to think**, e.g. instruct to provide a thought process
  - **Test prompt changes systematically**
- A **temperature parameter** is used to determine the randomness of the model's output with a given prompt.

Demo

Demo - Requirements & Hypotheses

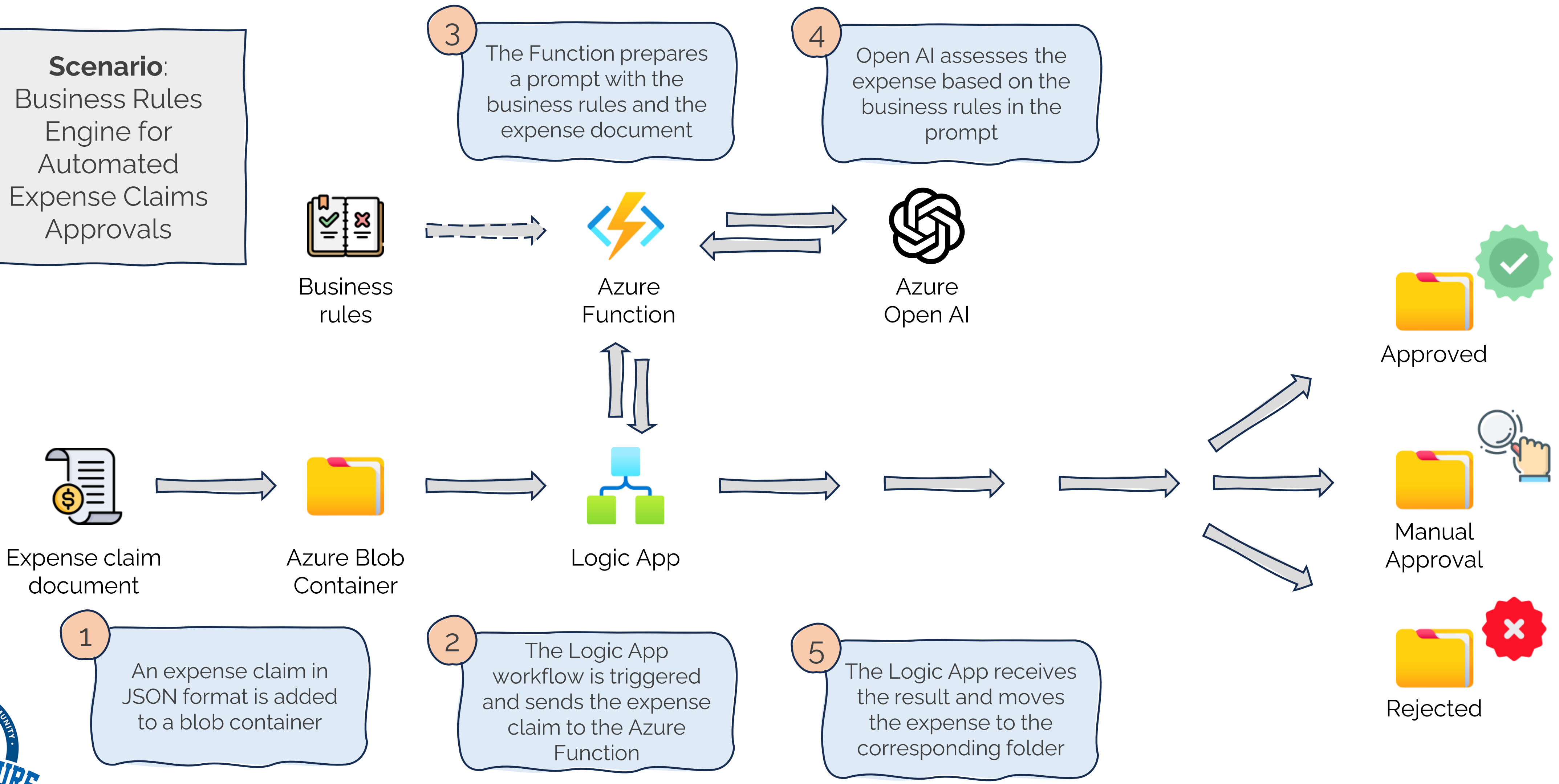
- **Requirements**
  - As a **business user**, I must be able to **define and maintain business rules** for an integration solution**.**
  - As a business user, I must be able to **update the business rules without** having to request **code changes** to the solution**.**

- **Demo Hypotheses**
  - We can **use GenAI to better solve an old integration problem**.
  - We can use **AI model prompts** to implement a business rules engine (BRE) for an integration solution.
  - Business rules can be **defined in natural language**.
  - Business rules can be **updated without requiring code changes**.
  - We can use automated testing to **test the GenAI-based BRE outputs**.

Demo - Solution Architecture

https://github.com/pacodelacruz/openai-business-rules-engine-demo

Scenario: Business Rules Engine for Automated Expense Claims Approvals



1 An expense claim in JSON format is added to a blob container

2 The Logic App workflow is triggered and sends the expense claim to the Azure Function

3 The Function prepares a prompt with the business rules and the expense document

4 Open AI assesses the expense based on the business rules in the prompt

5 The Logic App receives the result and moves the expense to the corresponding folder

Approach's Highlights and Potential

- My hypotheses have been proven to be true (so far and ***on my machine***)
- We were able to create a business rules engine based on natural language
- The AI model could make some useful deductions
- Potential for similar specialised use cases:
  - Implementing business logic with ease
  - Collaboration between business users and developers
  - Democratisation of developing business applications
  - Compilation into a structured programming language?

Approach’s Constraints and Considerations

- The demo was an **experiment**, **not an endorsement** of a solution
- AI LLM are **non-deterministic** *(controllable to some extent via temperature)*
- Natural language can introduce
  - **Ambiguity** & lack of control
  - **Inefficiencies** (run time, API dependencies, API constraints)
  - **Complexity** for debugging, troubleshooting, maintenance, performance tuning, etc.
  - **Unexpected outcomes** (hallucinations, non-determinism)
- **Testing** natural language outputs **can be challenging**
- SDKs are in preview
- Still **early days** of GenAI and LLMs.

MELBOURNE 2014
START YOUR CAREER IN MUSIC AT THE AUSTRALIAN INSTITUTE OF MUSIC
Swanston St
yarra trams
HERALD SUN
STREET STATION

BY COMMUNITY • FOR COMMUNITY

#GLOBALAZURE

2024

Q & A

BY COMMUNITY • FOR COMMUNITY
#GLOBALAZURE
2024

Thank you!

Paco de la Cruz
Principal Cloud Solution Architect
Deloitte Cloud & Engineering