



# End-to-End MLOps with Kubernetes, Azure ML, and Cosmos DB

Annie Talvasto



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# Agenda

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- MLOps
  - Azure ML
  - Cosmos DB
  - AKS
    - KEDA
  - ML Pipeline

# Annie Talvasto

@AnnieTalvasto

CEO at Waovo Inc.

- CNCF Ambassador
- Azure & AI Platform MVP
- Kubernetes & CNCF meetup co-organizer
- Startup-coach



# The Business Opportunity of AI

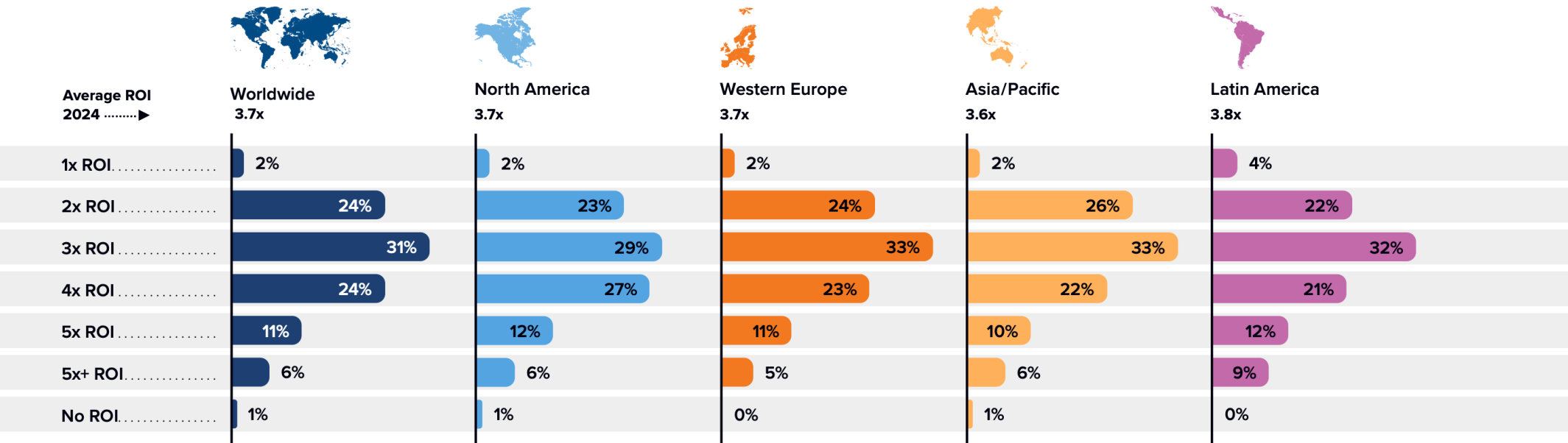
HOW ARE ORGANIZATIONS USING GENAI TODAY?

## GenAI Impacts Both Top and Bottom Lines

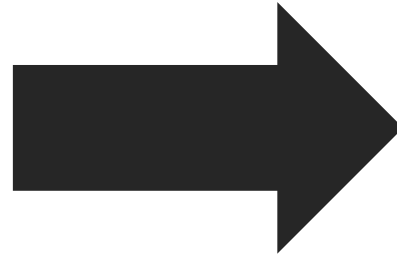
For every \$1 an organization invests in GenAI, they are realizing an average of 3.7x return.

What would you estimate your organization's ROI is for every \$1 spent on generative AI projects or initiatives?

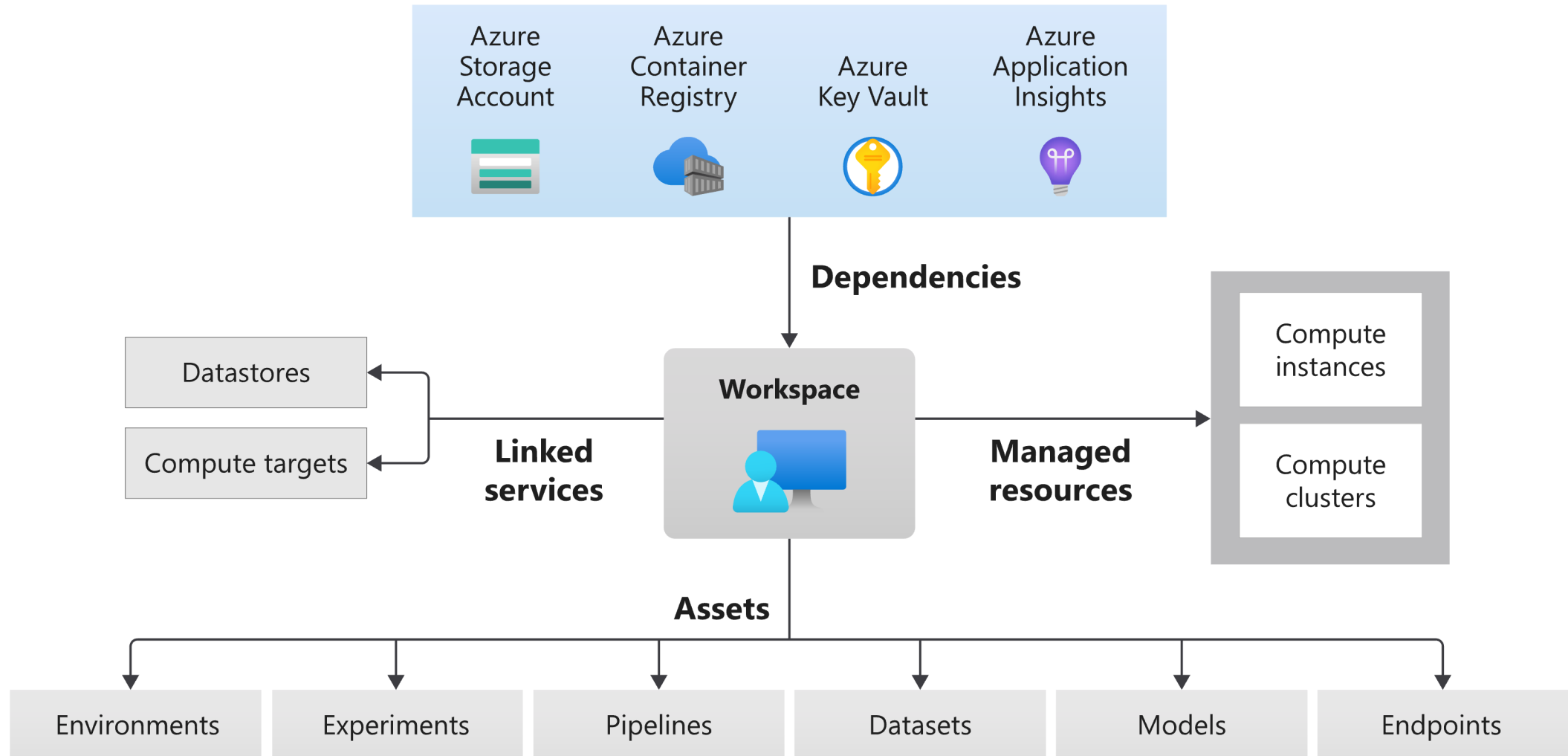
(Percentage of respondents)



# Research to Production



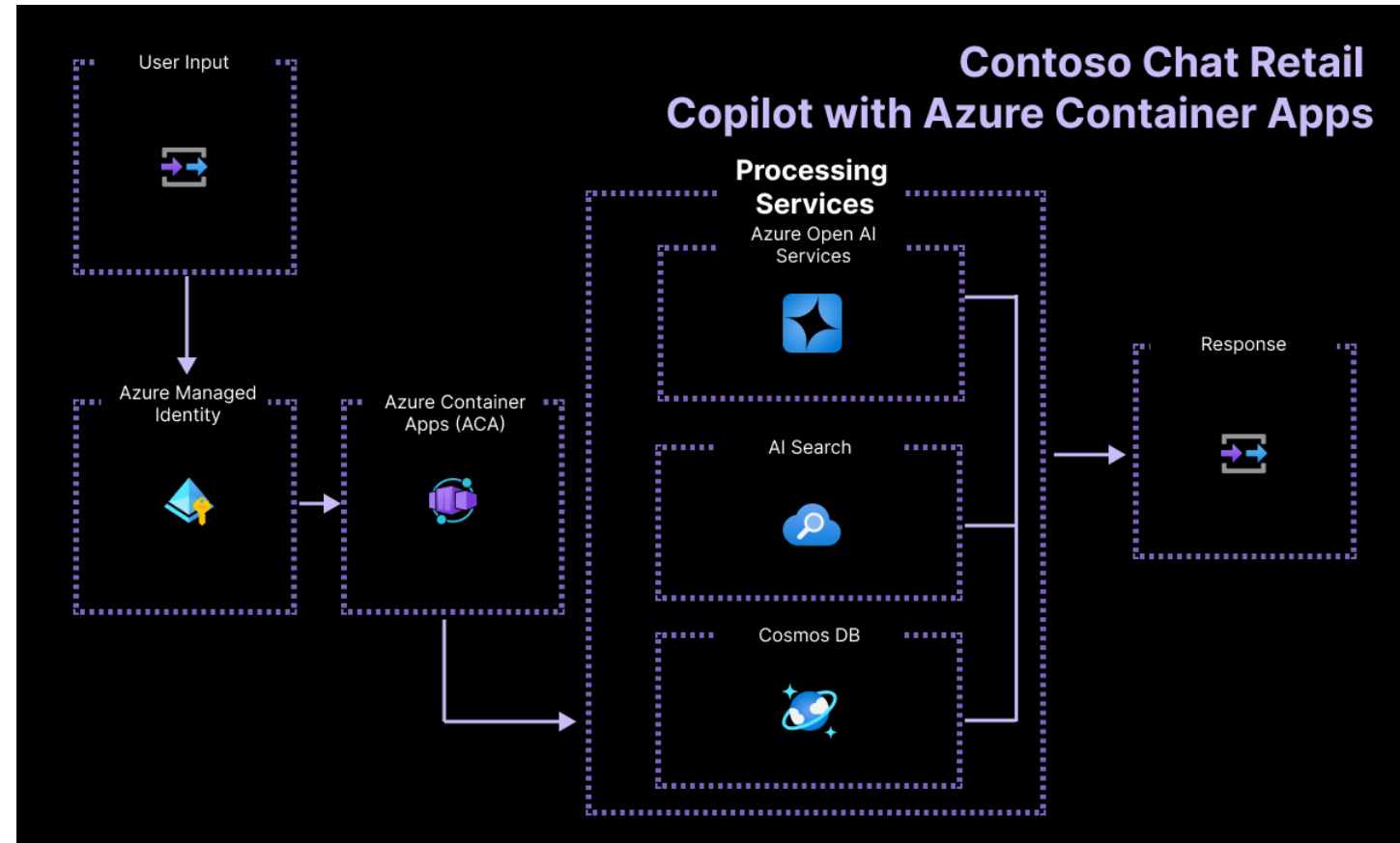
# Azure ML



# Cosmos DB

"OpenAI relies on Cosmos DB to dynamically scale their ChatGPT service – one of the fastest-growing consumer apps ever – enabling high reliability and low maintenance."

– Satya Nadella, Microsoft chairman and chief executive officer

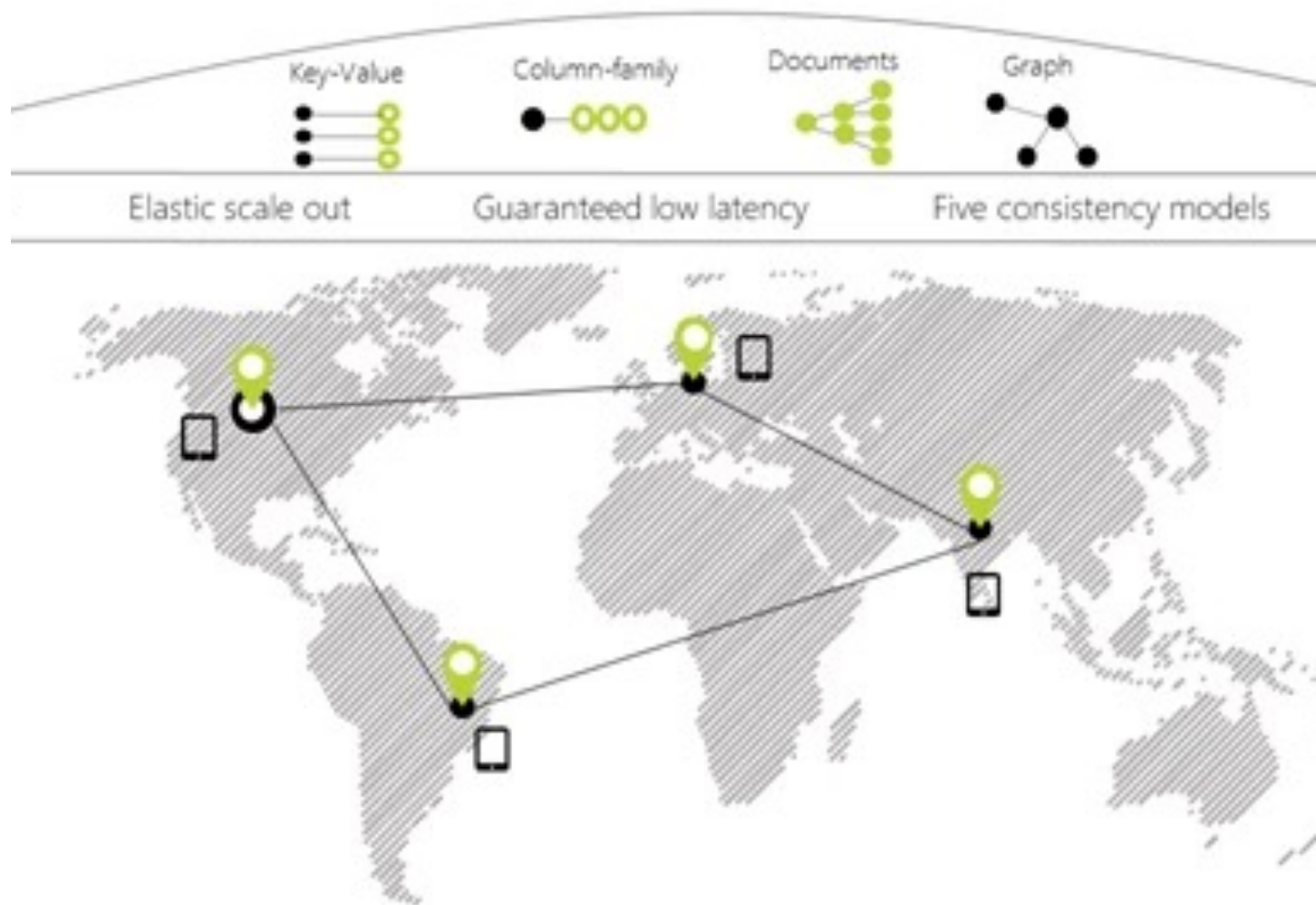




# Azure Cosmos DB

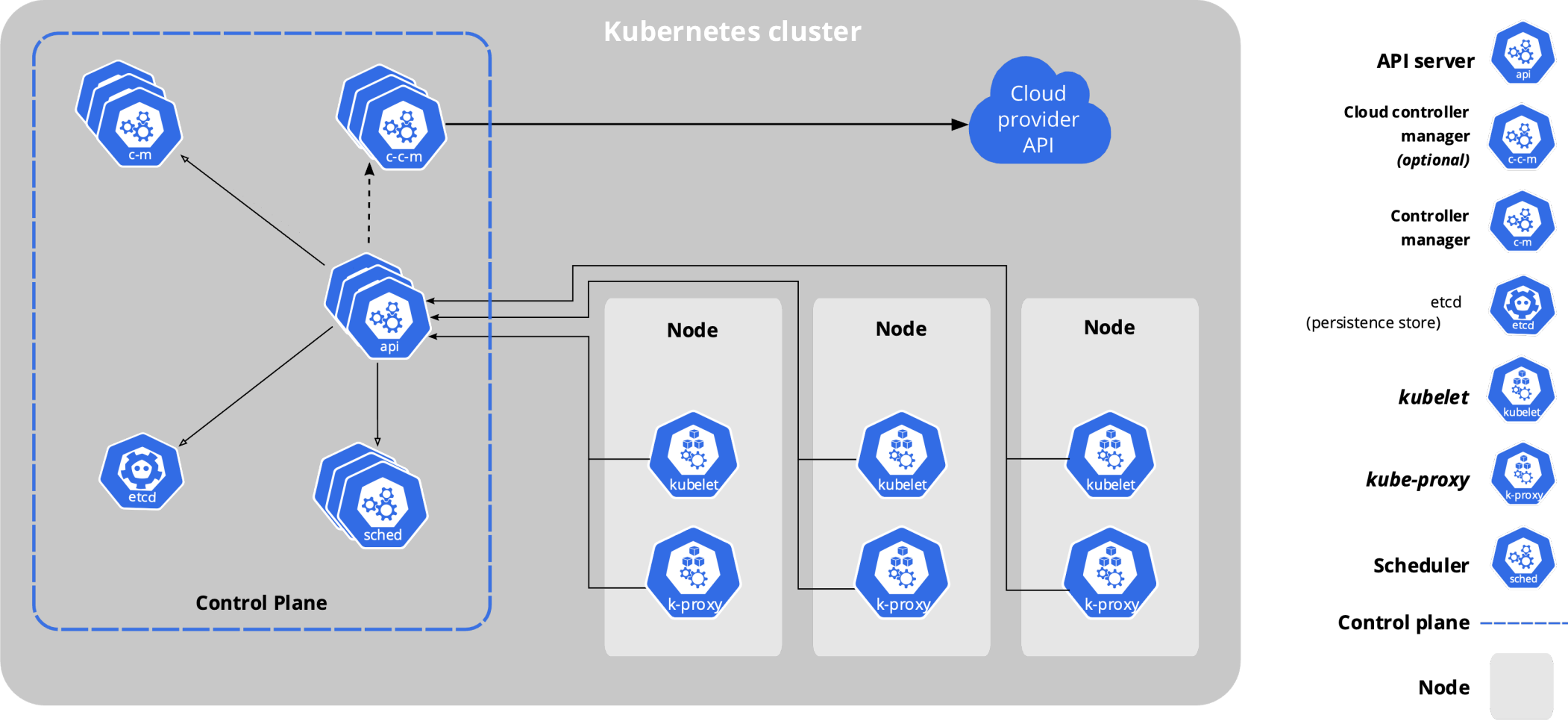
## Demo

## Simple Queries in Cosmos DB: Bodega Finder



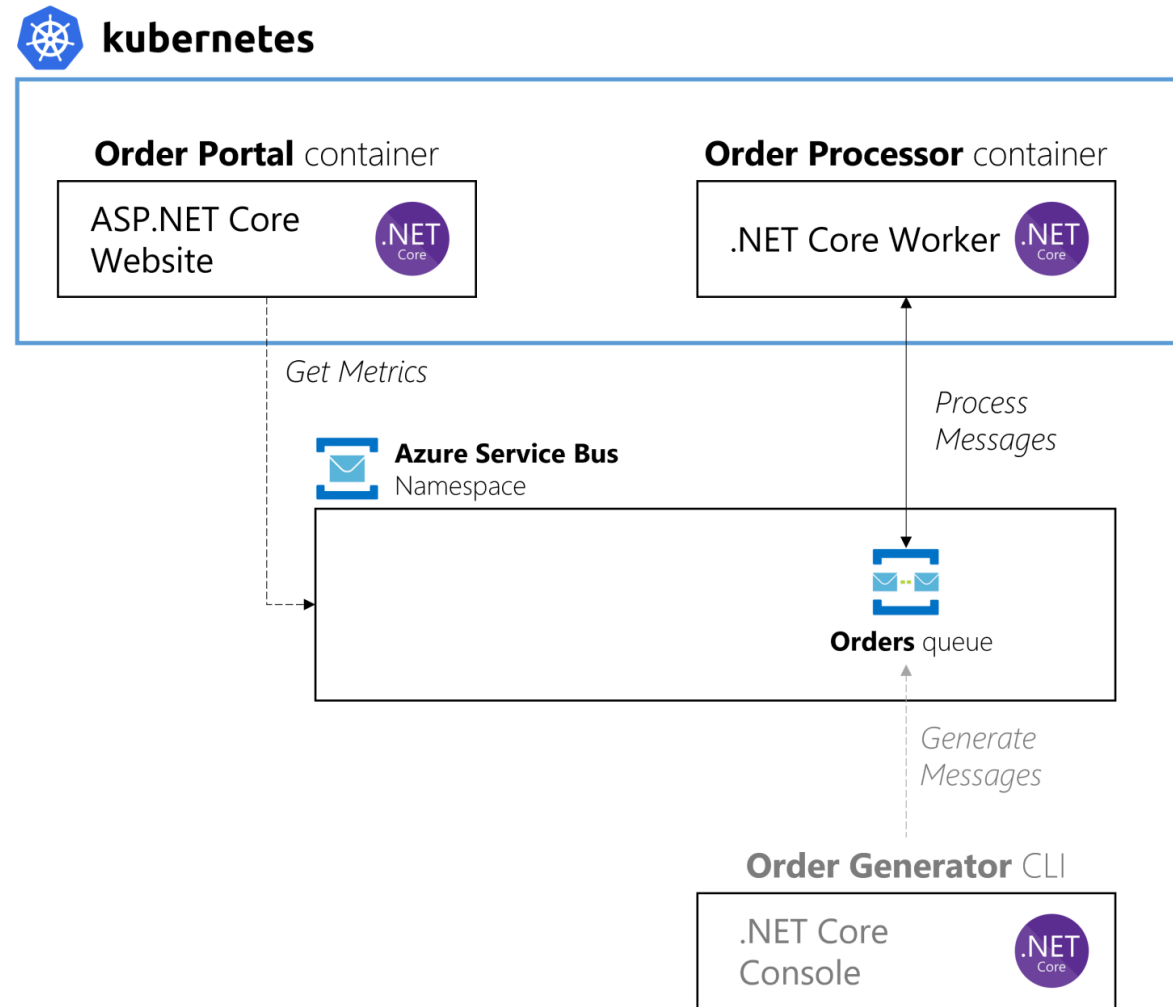


# Kubernetes is an orchestration tool

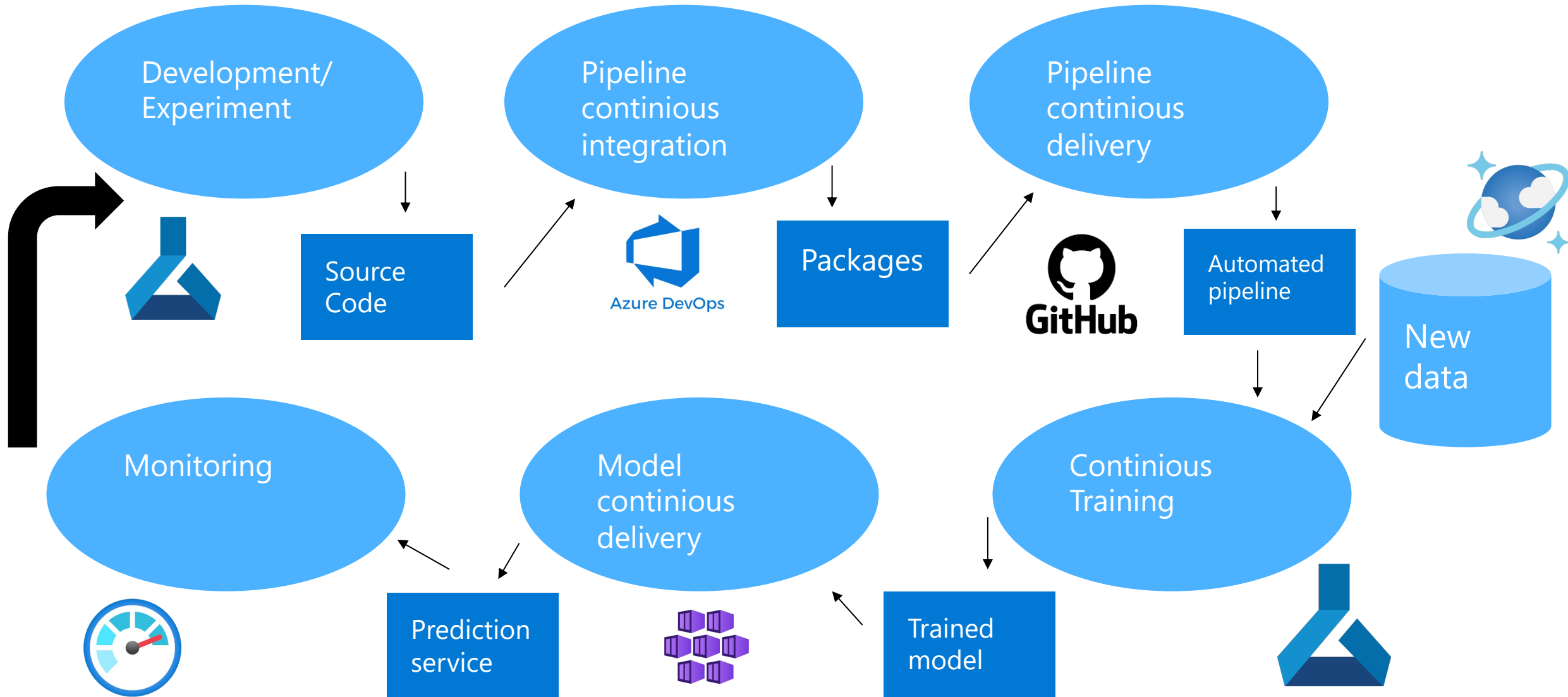


# Demo

## KEDA: Scaling .NET Core worker with Azure Service Bus



# Stages of the Automated ML Pipeline



# Learn more

- Workshop that teaches you to build, evaluate, and deploy a retail copilot code-first on Azure AI:
- <https://nitya.github.io/contoso-chat/>
- Machine Learning on Kubernetes Made Easy With Kubeflow - Masoud Mirmomeni & Jimmy Guerrero
- <https://www.youtube.com/watch?v=ick5hI5YI0k>
- Tools & Products:
- Azure ML:
- <https://azure.microsoft.com/en-us/products/machine-learning>
- Cosmos DB:
- <https://azure.microsoft.com/en-us/products/cosmos-db>
- AKS:
- <https://azure.microsoft.com/en-us/products/kubernetes-service>
- Links and slides: [github.com/annietalvasto](https://github.com/annietalvasto)

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## Wrap up

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- MLOps
  - Azure ML
  - Cosmos DB
  - AKS
  - KEDA

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**Thank you!**