PaaS To The Future! Modern AI First Architectures on Azure

Tessan Group – AICO – Tunis - May 2025

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Outline

- AI in Every Business Process
- AI-First Shift
- Azure PaaS for AI
- Practical Example: Intelligent Customer Support App
- Best Practices and Considerations
- Closing Thoughts

AI in Every Business Process

Azure OpenAI Services Timeline

- Nov 2021 – Azure OpenAI (Preview)
- Nov 2022 – ChatGPT release
- Jan 2023 – Azure OpenAI GA

Azure AI Enterprise Ready

- Governance
- Security
- Scalability
- Cost control
- Time-to-market
- Maintainability

The Power of PaaS & AI

AI First

"AI is no longer a bolt-on — it's a design foundation." (ChatGPT Quote)

From Trends to Transformation

- **Mobile-First**
- **Cloud-Native**
- **Security-First**
- **AI-First (NOW)**

In This Session

- Practical Points to understand AI First
- Available Services in Azure to implement AI First

AI First Shift

From Enhancement to Foundation

- *"SaaS is dead, the future is AI agents."* – Satya Nadella
- Shifting from: Traditional → Enhanced → AI-First

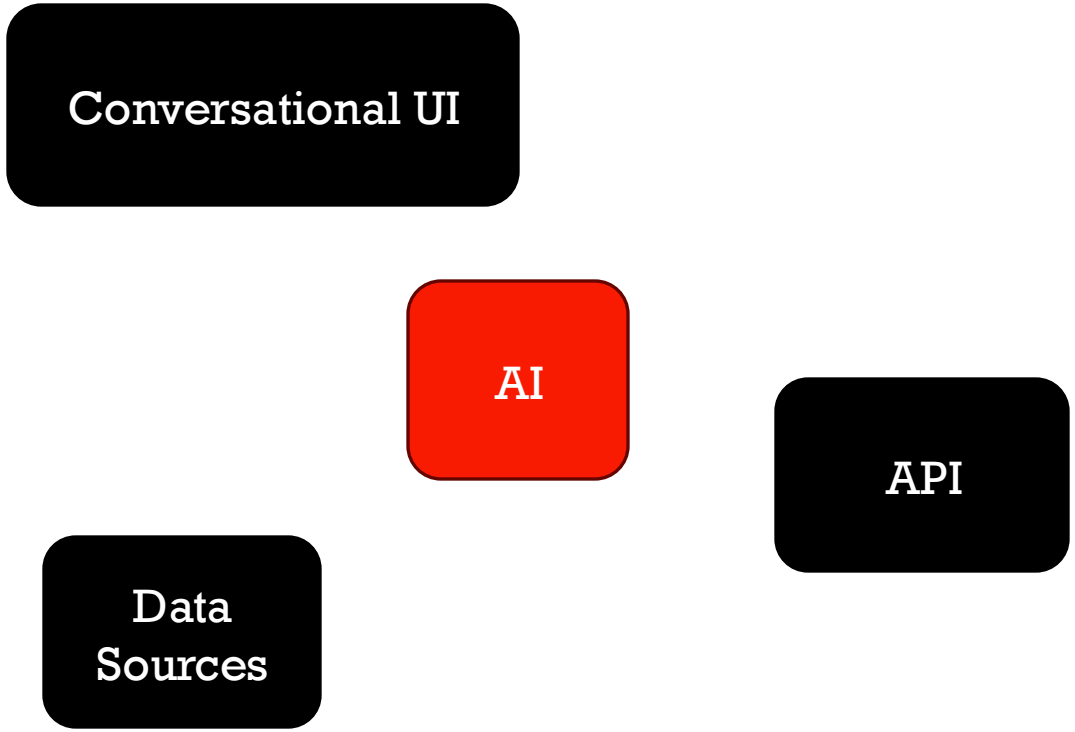
Traditional Business Logic Era

- Deterministic business logic
- Humans handling nuance
- Linear, well-defined workflows

First Wave of AI

What AI-First Really Means

- AI is no longer a tool — it is the **primary actor**



Designing with AI as a Core Actor

- How do we minimize human intervention?
- How do agents operate autonomously?
- How do we ensure safety, compliance, and ethics?

What Makes This Possible?

- LLMs: Reasoning, dialog
- Vision Models: Spatial understanding
- Predictive Models: Forecasting, anomaly detection

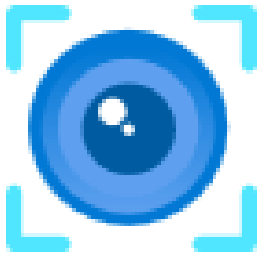
AI Agents as First-Class Citizens

- *"Creating agents should become as common as creating spreadsheets"*
- Azure is positioned to provide the capabilities to achieve this

Three Tiers of Azure AI Services

Low Code	Pro Code	Low Level ML
		
Co-Pilot Studio	AI Foundry	Azure Machine Learning

AI Foundry Manages Cognitive Services



Vision

Content Safety

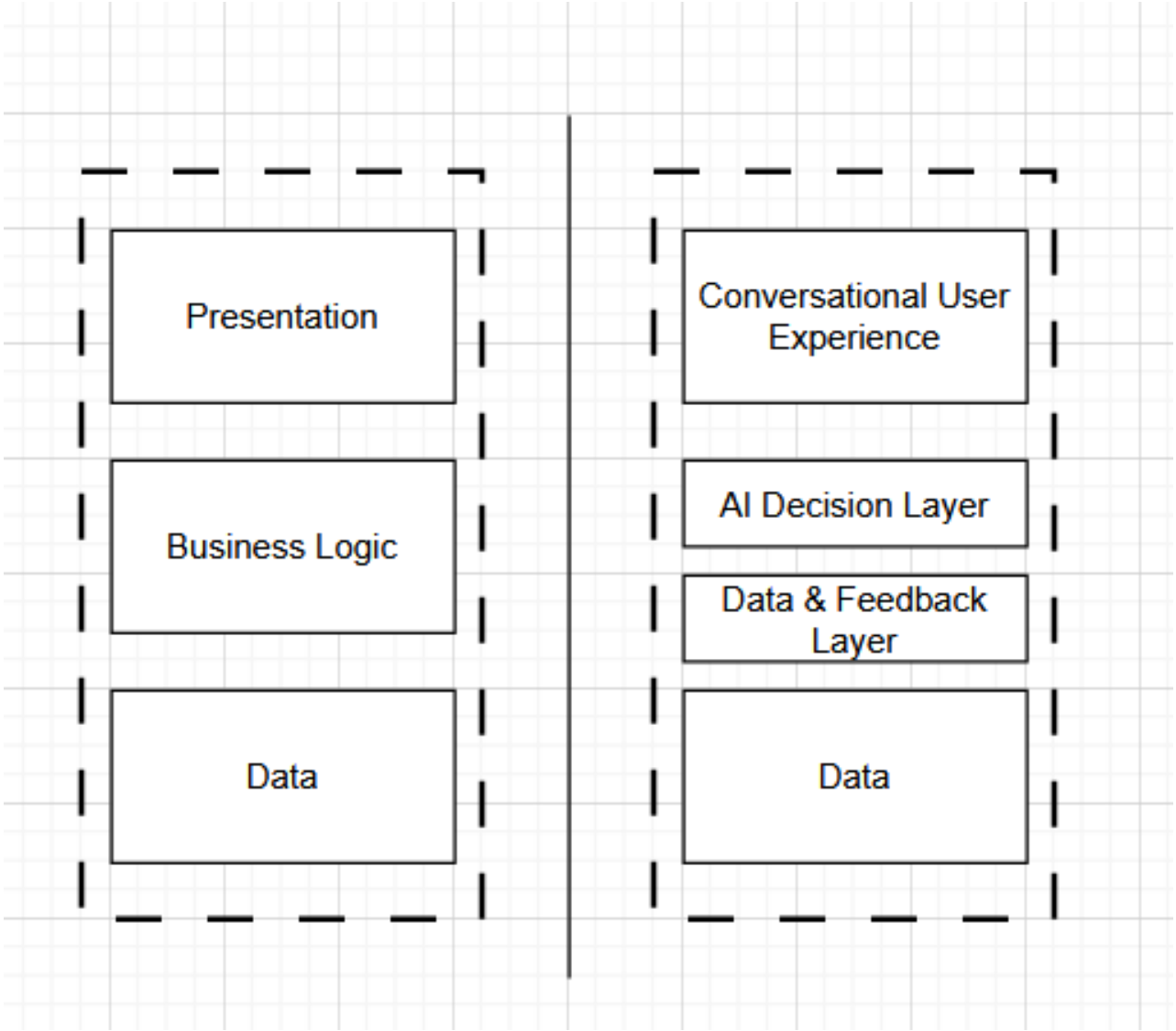
Document Intelligence

Speech

OpenAI

Face Recognition

Architecture Then vs Now



Azure PaaS Essentials for AI-Ready Architecture

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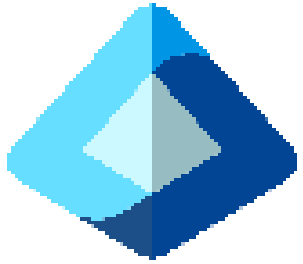
Platform as a Service

- ✅ Decrease Operations Engineering Load
- ⚠️ Operations engineering concerns remains to address

Azure PaaS Services

Azure Function

Web App



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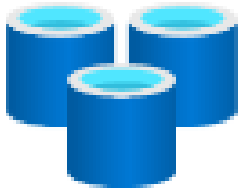
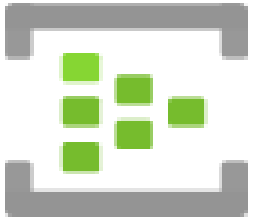
Cosmos DB



Redis Cache

Azure DevOps



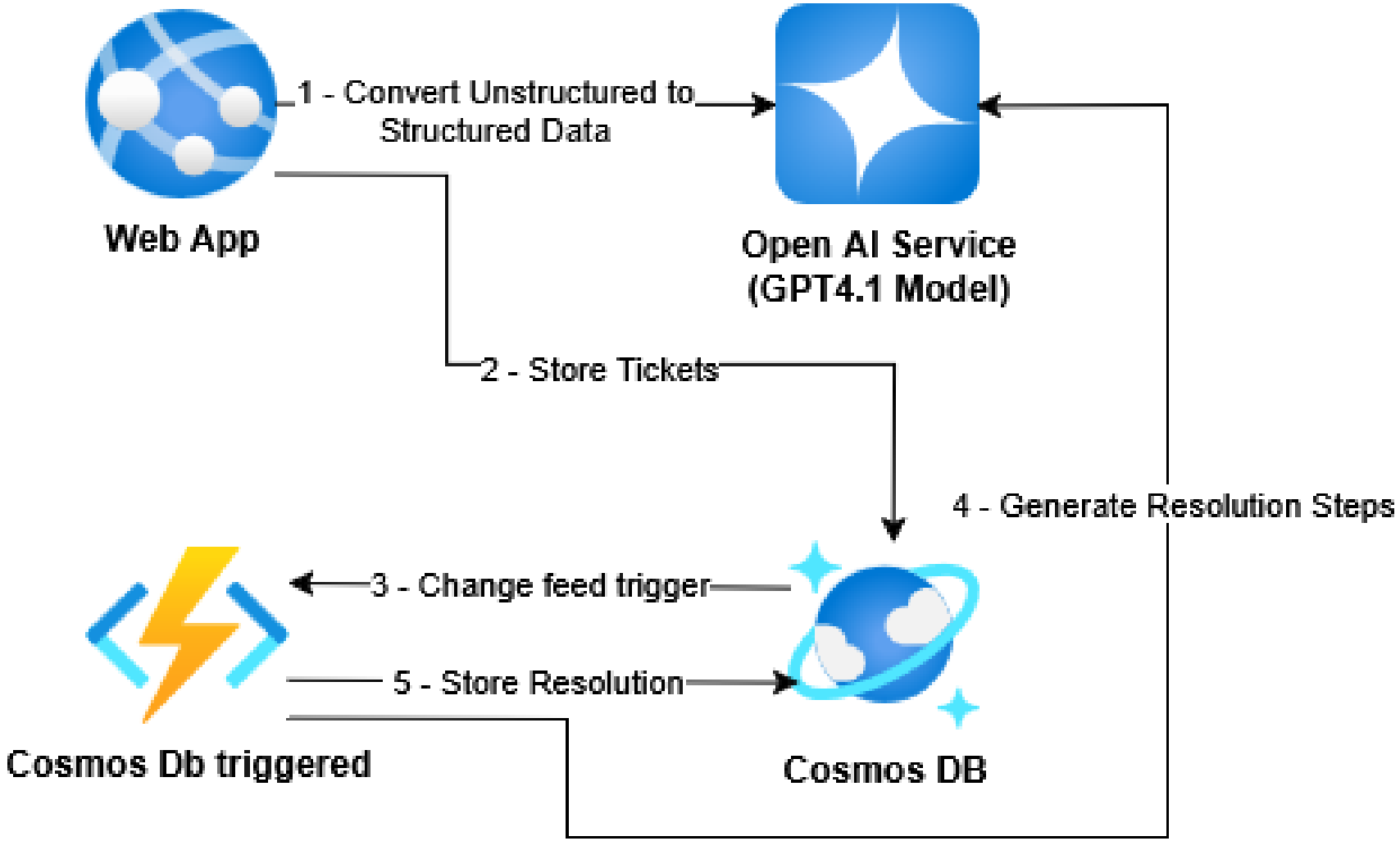
Event Hub

Service Bus

Why PaaS Services Integrate So Well?

- Managed Identitiy
- VNET Integration
- Unified Monitoring & Observability
- SDK Consistency

Practical Example: Intelligent Customer Support App


1 - Convert Unstructured to Structured Data
Web App
Open AI Service (GPT4.1 Model)
2 - Store Tickets
4 - Generate Resolution Steps
3 - Change feed trigger
5 - Store Resolution
Cosmos Db triggered
Cosmos DB

Best Practices and Considerations

Right AI Model vs Fine-Tuning

- Better prompting over fine-tuning
- Fine tuning introduces overhead
  - Preparing training data
  - Training/Testing
- Fine tuning is useful for:
  - Getting a specific tone/terminology
  - Higher consistency
  - Restricting Model Behavior Tightly

PaaS Scalability Patterns for LLM Workloads

- Stateless Frontends and Backends
- Event Driven Architecture
- Async Processing

Content Filtering and Safety

- **Prompt Filtering**
- **Output Filtering**
- **Abuse Monitoring**

Key Takeaways

- AI First
- Azure is Ready
- Azure helps you focus on business Value

Questions ?