PaaS To The Future!

Modern AI First Architectures on Azure

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Applications of the Future (Present ? 🤔)

- System of collaborating Agents
- Natural Language Interaction (Spoken and Written)
- Classical UI will be secondary

Home
Agents
Flows
Tools
...

What would you like to build?

Agent | Workflow

Start building by describing what your agent needs to do

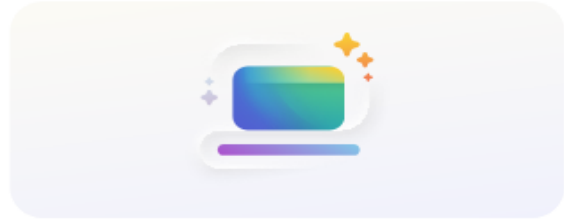
Start building from scratch

Create workflow

Powerful automations speed up your processes with ease and security in mind

Create an agent

Flexible solutions that take action, share knowledge, and handle tasks



Create computer-using agent

Let agents accomplish even more across apps and websites

Recent agents

See more

AI, Just a Trend?

- Mobile First
- Cloud Native
- DevOps
- Security First

- Semantic Web (the old Web3)
- Standard Web Services(SOAP & WSDL)
- Big Data


The Power of PaaS & AI

In this Session

- AI-First Shift
- Azure PaaS & Azure AI Services
- Practical Example: Intelligent Customer Support App
- Best Practices and Considerations

AI First Shift

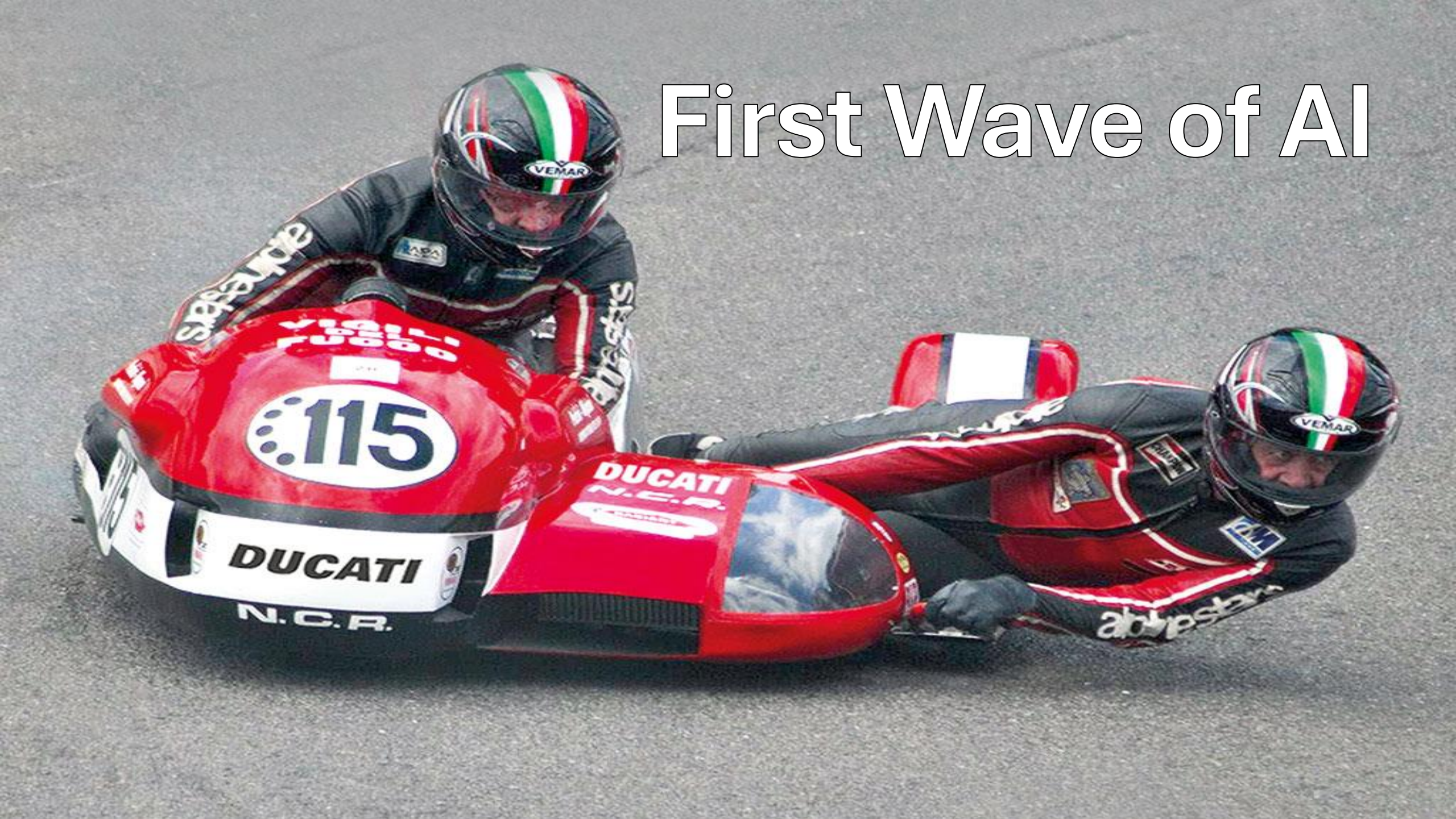
AI First?

- *“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



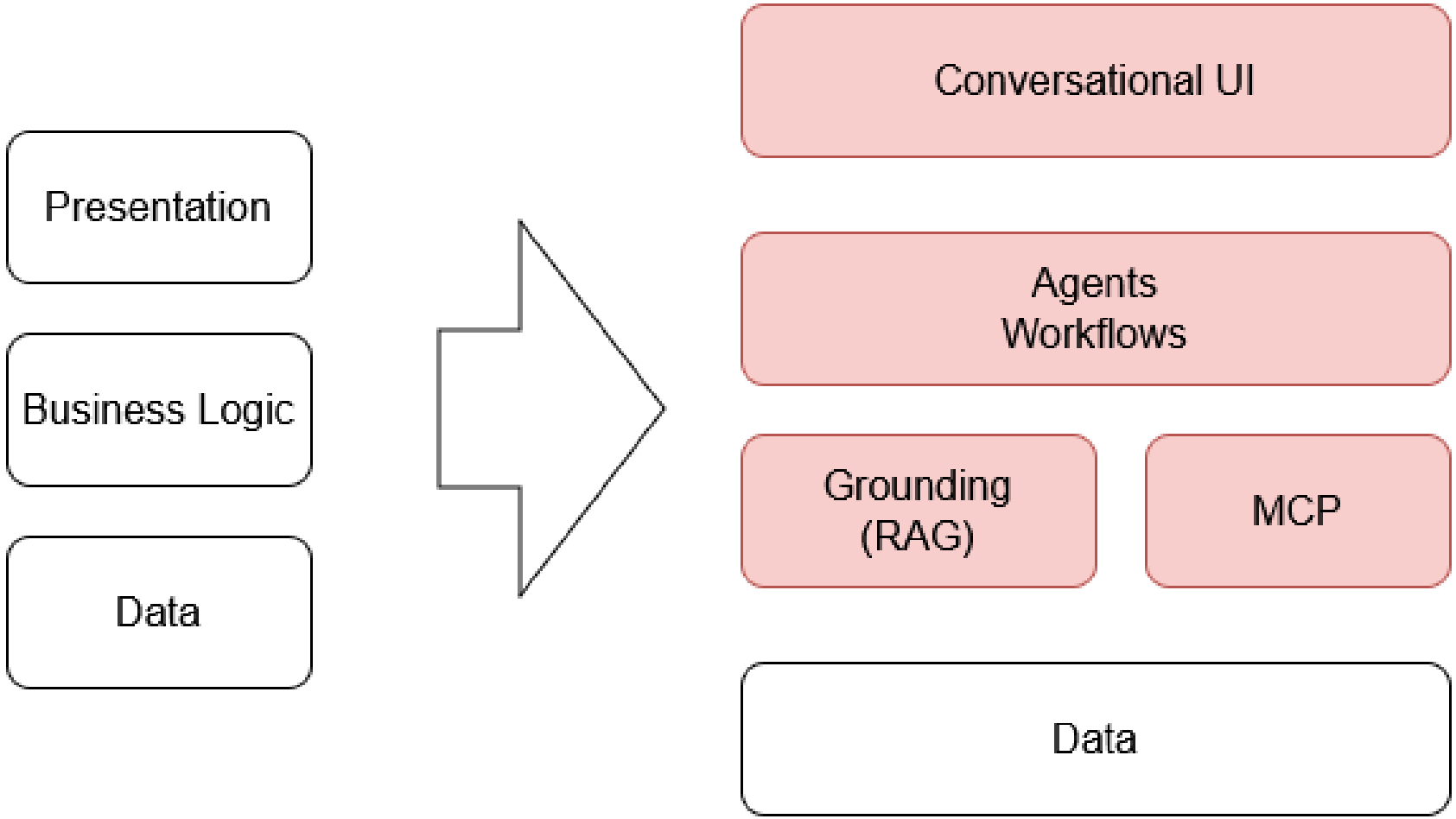
Large Language Models and GenAI

- Multi-Modal Interactions
- Understands what I ask
- Leverages Custom Knowledge Bases

Agents & Agents Workflows

- Determining Actions
- Taking Actions
- Agents Can Collaborate

Architecture Then vs Now



Designing with AI as a Core Actor

- How do we design human supervision?
- How do agents operate autonomously?
- How do we ensure safety, compliance, and ethics?

AI Agents as First-Class Citizens

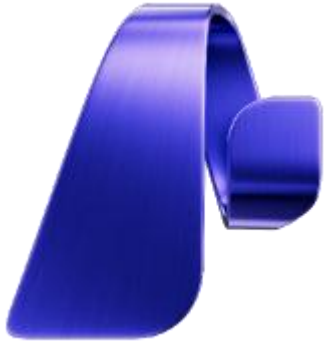
- *"Creating agents should become as common as creating spreadsheets"*
- Azure is positioned to provide the capabilities to achieve this

Azure PaaS & Azure AI Overview

Microsoft AI Services Landscape

Agent Builder
(no-code)

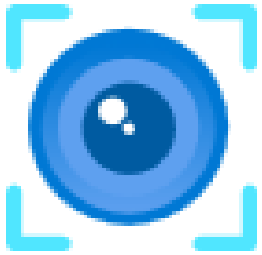
Copilot Studio
(low-code)



Microsoft Foundry
(pro-code)

Azure ML
(pro-code
+ Machine Learning)

Microsoft Foundry & Cognitive Services



Vision

Content Safety

Document Intelligence

Speech

OpenAI

Face Recognition

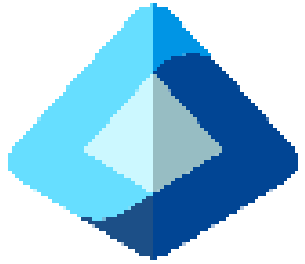
Platform as a Service

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

Azure PaaS Services

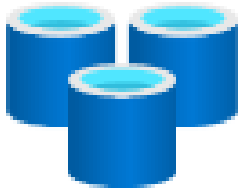
Azure Function

Web App



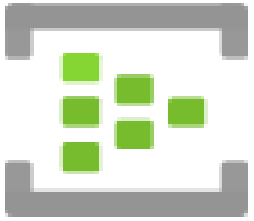
Entra ID

Cosmos DB



Redis Cache

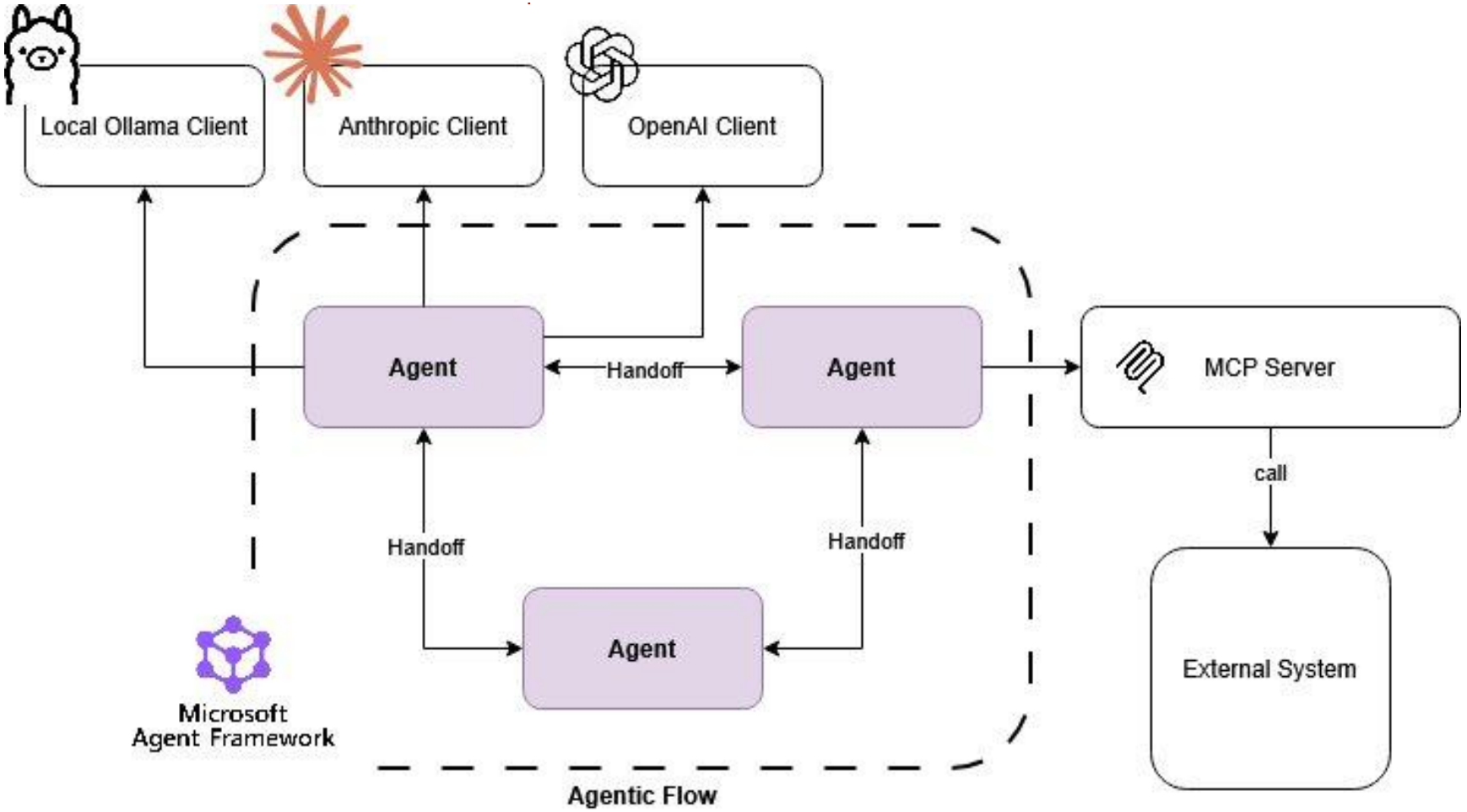
Azure DevOps



Event Hub

Service Bus

Microsoft Agent Framework



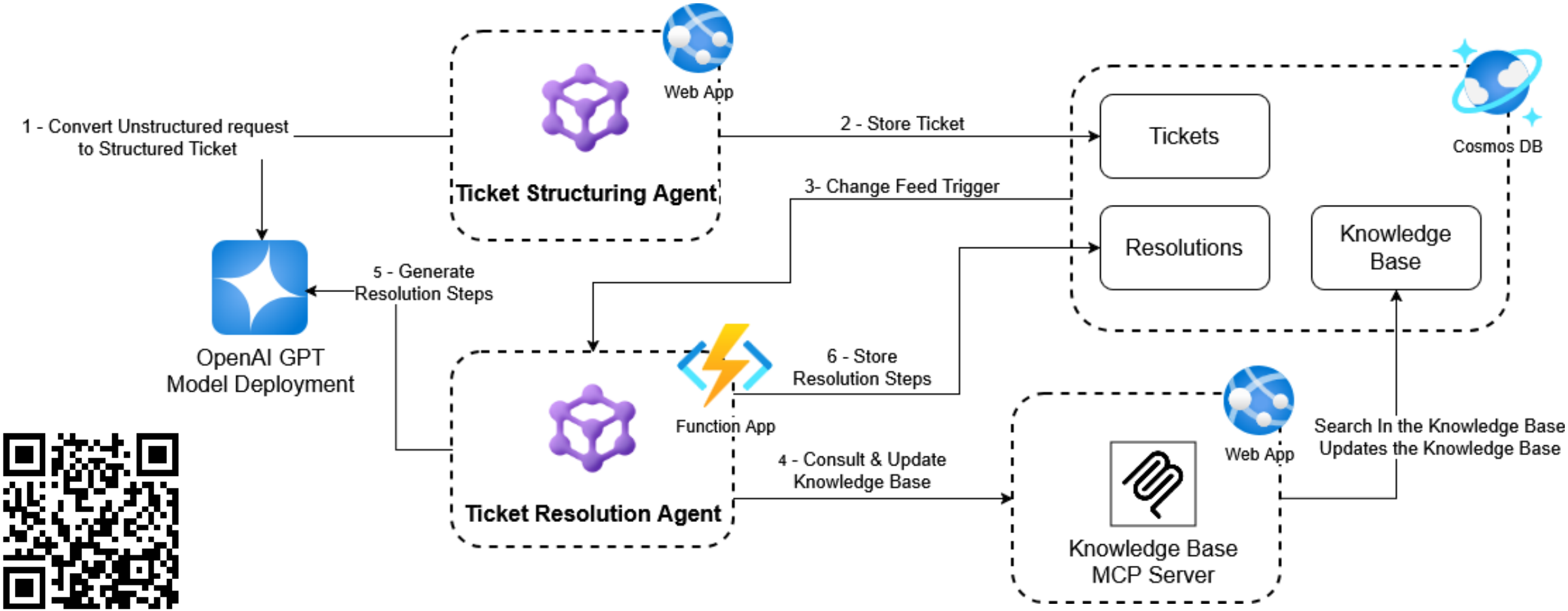
One cloud, many services, zero friction

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

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

Practical Example: Intelligent Customer Support App

Demo Flow


Web App
1 - Convert Unstructured request to Structured Ticket
2 - Store Ticket
Tickets
Cosmos DB
Ticket Structuring Agent
3- Change Feed Trigger
Resolutions
Knowledge Base
5 - Generate Resolution Steps
OpenAI GPT Model Deployment
Function App
6 - Store Resolution Steps
Web App
Search In the Knowledge Base Updates the Knowledge Base
4 - Consult & Update Knowledge Base
Ticket Resolution Agent
Knowledge Base MCP Server

Best Practices and Considerations

Do The Right Thing

- Keep It Simple
- Focus on what requires AI

Context Engineering

- Very Powerful
- Requires Structure, Clarity and Specificity
- Supercharge with RAG, MCP and SKILLS
- Keep Fine Tuning for Exceptional Cases

```
---
description: ' Azure Verified Modules (AVM) and Terraform'
applyTo: '**/*.terraform, **/*.tf, **/*.tfvars, **/*.tfstate, **/*.tflint.hcl, **/*.tf.json, **/*.tfvars.json'
---

# Azure Verified Modules (AVM) Terraform

## Overview

Azure Verified Modules (AVM) are pre-built, tested, and validated Terraform and Bicep modules that follow Azure best practices. Use these modules to create, update, or review Azure Infrastructure as Code (IaC) with confidence.

## Custom Instructions for GitHub Copilot Agents

**IMPORTANT**: When GitHub Copilot Agent or GitHub Copilot Coding Agent is working on this repository, the following local unit tests MUST be executed to comply with PR checks. Failure to run these tests will cause PR validation failures:

```bash
./avm pre-commit
./avm tflint
./avm pr-check
```

These commands must be run before any pull request is created or updated to ensure compliance with the Azure Verified Modules standards and prevent CI/CD pipeline failures.
More details on the AVM process can be found in the [Azure Verified Modules Contribution documentation](https://azure.github.io/Azure-Verified-Modules/contributing/terraform/testing/).

Failure to run these tests will cause PR validation failures and prevent successful merges.

Azure Verified Modules (AVM) Terraform

Module Discovery

Terraform Registry

- Search for "avm" + resource name
- Filter by "Partner" tag to find official AVM modules
- Example: Search "avm storage account" → filter by Partner

Official AVM Index

> **Note:** The following links always point to the latest version of the CSV files on the main branch. As intended, this means the files may change over time. If you require a point-in-time version, consider using a specific release tag in the URL.

- **Terraform Resource Modules**: `https://raw.githubusercontent.com/Azure/Azure-Verified-Modules/refs/heads/main/docs/static/module-indexes/TerraformResourceModules.csv`
- **Terraform Pattern Modules**: `https://raw.githubusercontent.com/Azure/Azure-Verified-Modules/refs/heads/main/docs/static/module-indexes/TerraformPatternModules.csv`
- **Terraform Utility Modules**: `https://raw.githubusercontent.com/Azure/Azure-Verified-Modules/refs/heads/main/docs/static/module-indexes/TerraformUtilityModules.csv`

Terraform Module Usage

From Examples

1. Copy the example code from the module documentation
2. Replace `source = "../../"` with `source = "Azure/avm-res-{service}-{resource}/azurerm"`
3. Add `version = "~> 1.0"` (use latest available)
4. Set `enable_telemetry = true`
```

Responsible AI

- Accountability
- Transparency
- Reliability & Safety
- Privacy & Security
- Inclusiveness
- Fairness

- Agent Identity
- Model Evaluation
- Content Safety
- Guardrails
- AI Gateway
- Microsoft Purview

PaaS Scalability Patterns for LLM Workloads

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

Key Takeaways

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

Thank You !
Questions ?