Microsoft

Introduction to Azure Integration Services

Harold Campos
Principal Product Manager
Azure Logic Apps, BizTalk and HIS

@hcamposu
hcampos@microsoft.com
https://www.linkedin.com/in/hcamposu
https://www.youtube.com/@hcamposu

PRAIRIE DEV CON

WEB | DEV | CLOUD | AI

NORTHFIELD

Johnston group

Lotlinx

online business systems

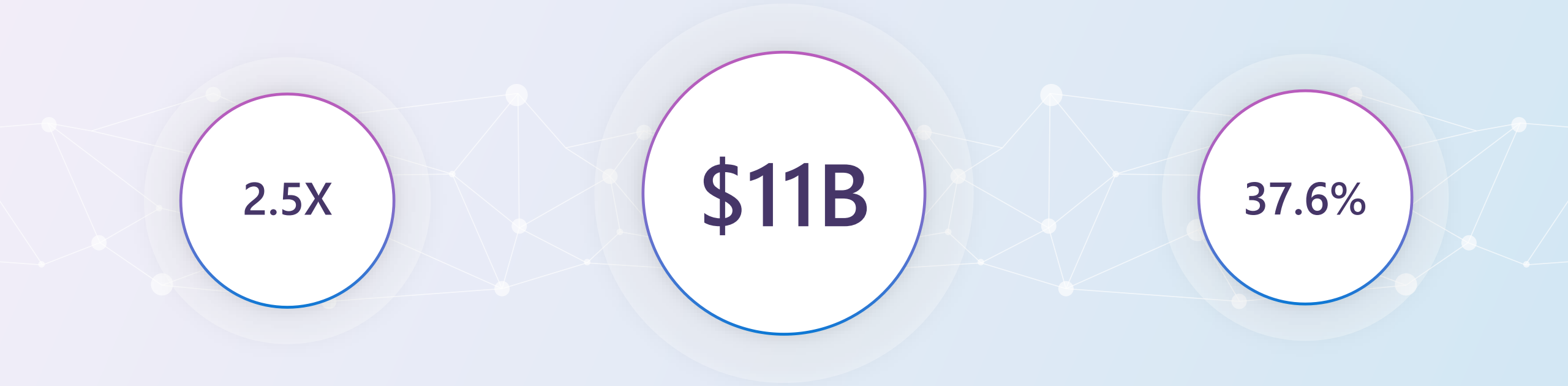
LAMBERT NEMEC GROUP

EXCELLENCE IN RECRUITMENT

CONQUEST

ATLASSIAN

Integration is the fast-growing market



iPaaS growth compared to Enterprise Software

iPaaS market forecast for 2026

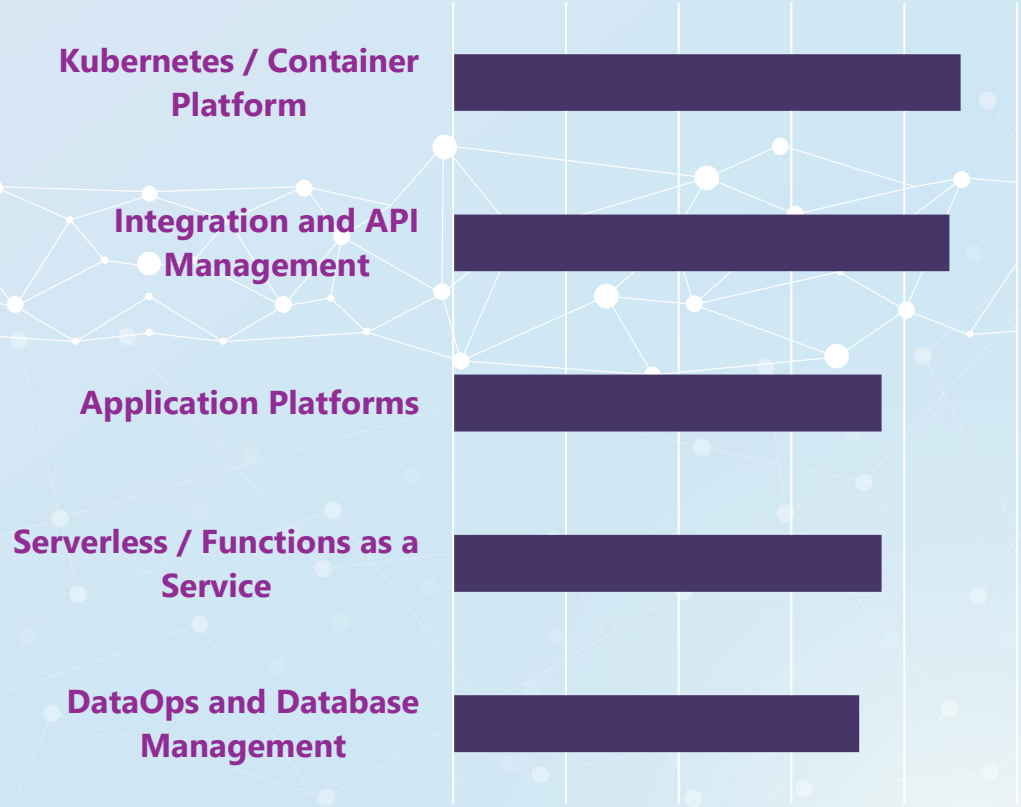
Year-over-year growth

1: Gartner, Market Share: Application Infrastructure and Middleware, Worldwide, 2022 (May 2023)
2: Gartner, Software Market View, 2021-2022 (Sept 2022)
3: Gartner, Critical Capabilities for Enterprise Integration Platform as a Service (Sept 2023)

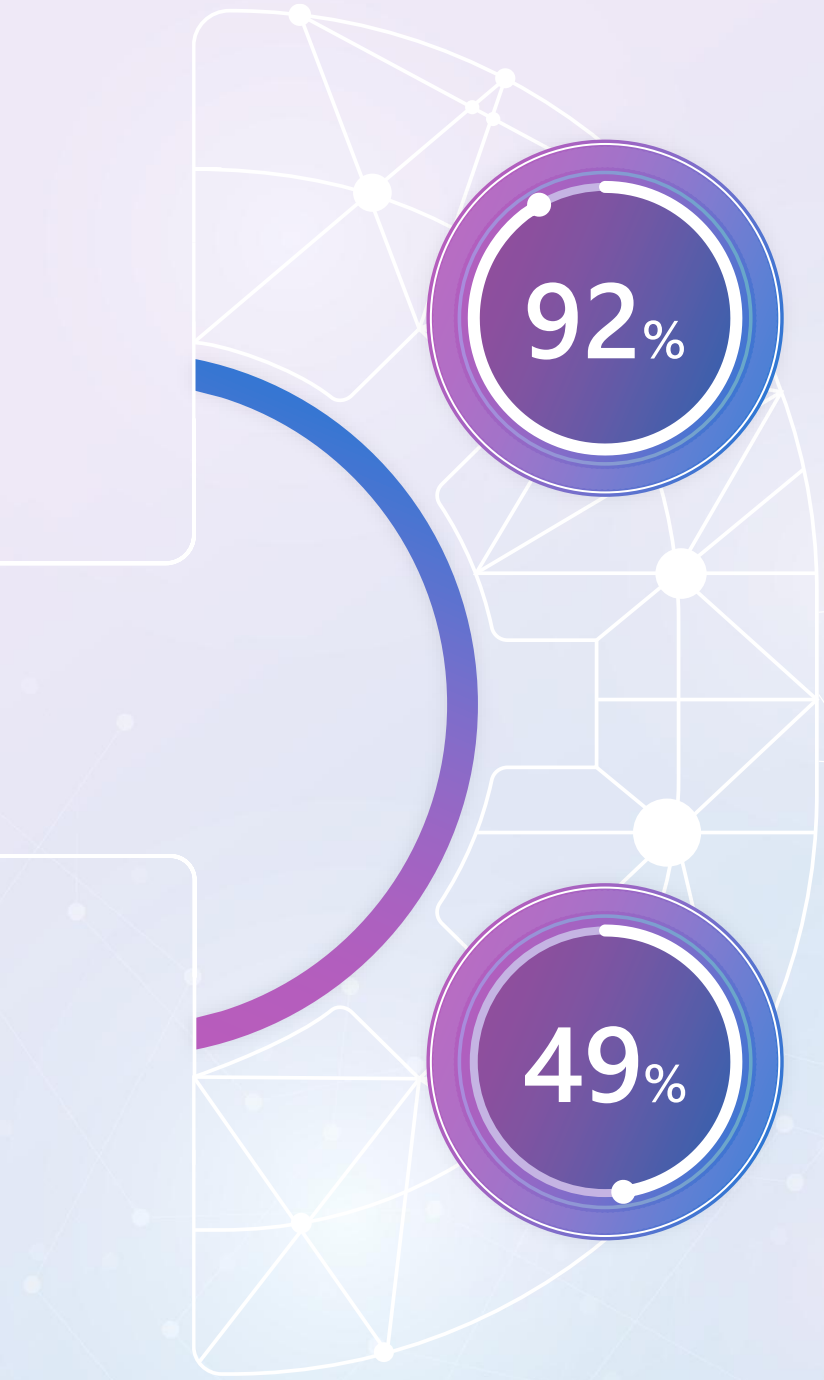
Organizations significantly invest into Integration and API Management

Enterprises will leverage at least two different integration tools[1]

Of time and cost of building a digital platform will be towards integration[2]



1. Choose the Best Integration Tool for Your Needs Based on the Three Basic Patterns of Integration, Gartner
2. Use a Hybrid Integration Approach to empower digital transformation, Gartner
3. PaaS Spending Trend Survey, IDC



92% Of global respondents say investments in APIs will stay the same or increase over the next 12 months, up from 89% last year[1]

49% Of respondents say most of their organization's development effort was spent working with APIs[1]

1. 2023 State of the API Report, *Postman,* 2023

Explosive app growth

Diverse set of applications **packaged, SaaS, custom-built** to meet the customer needs

Number of apps expected to be created by 2025 is more than the total in the last 40 years

IDC: Updates Its Future of Digital Innovation Framework. Oct 2022

App proliferation creates challenges

The difficulty at SPAR was that we didn't have an overview of where the data was heading to or where the errors were popping up. So, we didn't have insights into our system. It was a **black box of different data streams**.

– Joran van den Brink
IT Integration Manager
SPAR NL

We saw the potential for collaboration with traditional fund managers like us, and so it became **essential to have APIs that would allow us to tap into new distribution channels** and form those partnerships easily. This made API adoption almost a no-brainer.

– Allen Woo Kai Yeen
Chief Technology Officer
AHAM Capital

We had a fairly **large number of integration technologies grown organically**. With the increased demand for integrations, especially the **growing number of SaaS** solutions, we wanted to **standardize and remove complexity** in order to reduce costs and improve ease of use for future development.

– Carel Nederveen
Enterprise Technology Architect
KPMG Netherlands

The company's success may have started with lab equipment, but in compliance with all data protection guidelines and transparency towards our customers, it is important to BÜCHI that we can create **new business models that use all our data and aggregate best cases for our customers**.

– Reto Hossmann
Global Head of ICT
BÜCHI Labortechnik AG

The lumber and building materials industry tends to be **heavily invested in on-premises legacy.** We wanted improvements in line with our go-forward strategy on architecture, which is cloud first and allows for subscription-based licensing to scale with US LBM's quickly growing business. It was important that the new middleware solution aligned with these requirements.

– Greg Bossert
Vice President of Enterprise Applications
US LBM

The essentials of getting everything to play together

1 Integration

Integration with Legacy and New Applications, Vendors, Partners

2 Composition

Composite services or APIs, which allow to build new functionalities by composing existing services, internal and external

3 Automation

Enables multi-step processes, where independent apps collaborate to execute a business process smoothly

Deriving Intelligence

With these foundational elements in place, businesses can leverage their data to derive intelligence, driving informed decision-making and innovation.

Integration and API Management are Essential for AI Success

Importance of Integration

Facilitate the seamless flow of data between systems, applications, and AI models.

Role of API Management

Acts as the bridge between AI models and external applications, allowing for easy access to AI capabilities.

Azure Integration Services

Comprehensive flexible platform enables the creation of tailored solutions for unique requirements

Logic Apps
Cloud-based workflow tool

API Management
Full API lifecycle management

API Center
Centralized API discovery hub

Event Grid
Event routing service

Service Bus
Reliable cloud message delivery

Functions
Event-driven serverless code

Data Factory
Data movement & ETL tool

Azure Integration Environment
Unified experience for managing and monitoring Azure Integration Services resources

The Azure Integration Services Advantage

Unlock Seamless Data Connectivity

800+ out-of-the-box connectors

Industry protocols and connectors X12, EDIFACT, HL7, SWIFT MX, MQTT

mongoDB. ORACLE slack salesforce snowflake SAP SQL

Build Composable Enterprise

API lifecycle management

Unified API management across hybrid and multi-cloud

Composition through pro-code and low-code

Enable all Developers

Low-code visual workflow designer

Pro Developer Experience

Custom connectors capabilities

Custom code extensibility

Fortify Security and Compliance

Built-in Security

- Logic Apps
- API Management
- Service Bus
- More...

+

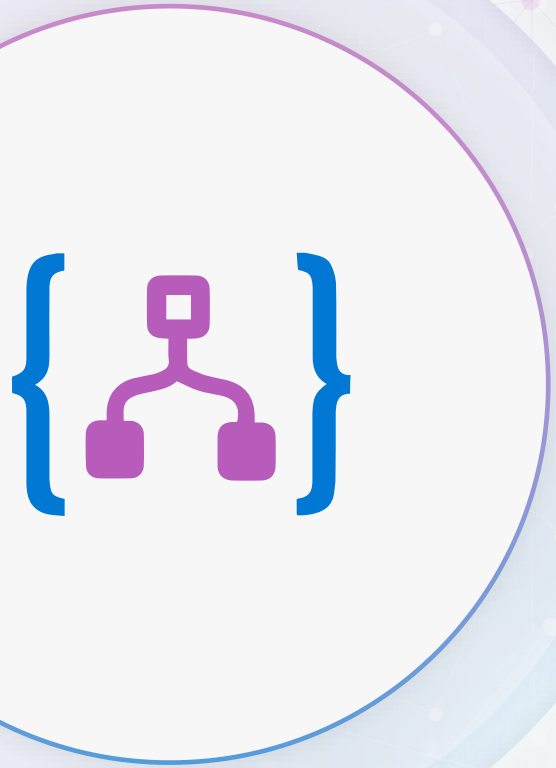
Integration w/ Microsoft, Azure Security Products

- Defender
- Entra
- Sentinnel
- More...

+

Compliance

- PCI DSS
- SOC 1, 2, 3
- HIPAA BAA
- More...



Azure Logic Apps

Cloud-based service for automating workflows, integrating business processes, applications and data across hybrid environments in a visual manner.

1. Develop/test

2. Source control integration with broad set of popular platforms

3. Set breakpoints for each action & use debugger to review local variables

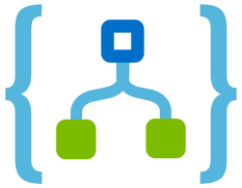
4. Push to cloud directly or CI/CD for end-to-end validation

Azure Logic Apps Programming Model

Events

React to timers, HTTP,
or events from your favorite
Azure services, with more
on the way

Action



If, switch, for, do-until.
Join, filter, select, create table
Execute JavaScript code
XML/JSON transform, validate
Connect to 800+ services

Outputs

Send results
to an ever-growing
collection of services

Runtime Options Flexibility

	Consumption	Standard
Runs on	Azure	Azure, local, Arc, Docker, and Kubernetes
Tenancy	Multi-tenant	Single-tenant
Connectivity	On-premises data gateway	VNet, private endpoints
Billing	Per action, pay-as-you-go	Per hosting plan + storage
Extensibility	Codeless connectors	Codeless and codeful connectors + custom code + visual data mapper
DevOps	ARM	Infrastructure as code
Scale & Performance	300,000 executions per 5-minute. Single instance can run as long as 365 days. Almost 20-billion executions per day.	Stateless workflow for low latency, high throughput workloads. Built-in connectors run alongside runtime with low latency. Scale between 210 (1x of WS1) to 84,000 (100x of WS3) ACUs.

Stateful workflow

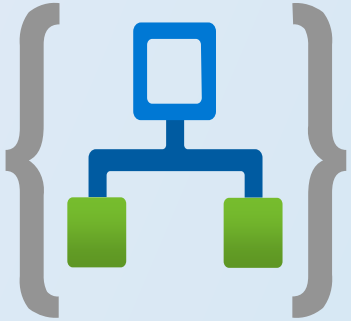
- As the workflow executes, input & output (aka. state, therefore '**stateful**') from each steps are preserved to storage
- High resiliency
- In the event of infrastructure failure during workflow execution, the run can be reconstructed once restored, and continue execution to completion
- Slower than stateless workflow due to storage operations
- Run history is available
- When to use: Optimized for high reliability, ideal for process business transitional data
- Stateful workflow is the default behavior for consumption Logic Apps

Stateless workflow

- As the workflow executes, input & output (aka. state, therefore '**stateful**') from each steps are stored in memory
- High throughput
- Workflows are treated as atomic transaction, so it will execute or fail as a unit
- Faster than stateful workflow as state is kept in memory
- No run history by default, but can enable debug option when needed
- When to use: Optimized for low latency, ideal for request-response and processing IoT events
- Selected operations not available: Webhook

Demo

Creating and configuring an Azure Logic App and a simple workflow.



Logic App Workflow

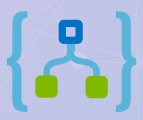
What's New

In Public Preview!

Azure Integration Environment

Unified experience for managing and monitoring Azure Integration Services resources

Bring business context to integration




Streamline operations using Integration Environment

Flexibility in grouping resources based on organizational standards and principles

Group by landscapes

- Development
- Test
- Production

Group by business units

- Finance
- Marketing
- Operations

Further simplify management by breaking down environments into logical groupings

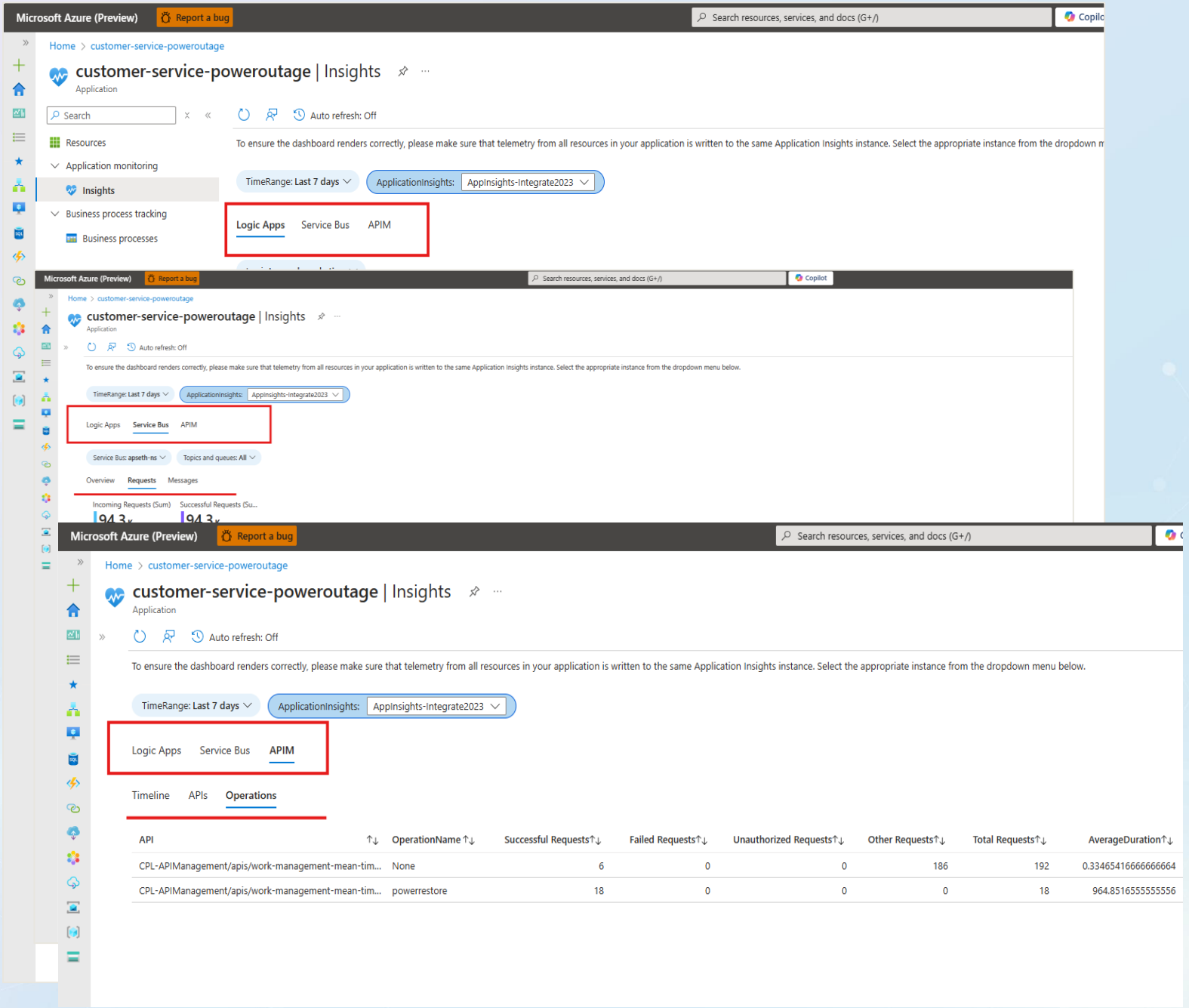
- Payroll
- Order processing
- Employee onboarding
- ...and more!

End-to-end AIS Monitoring

Public Preview

Analyze application workloads, troubleshoot failures, identify anomalies without context switching

Built on Azure App Insights for telemetry data and Workbooks for visualizations



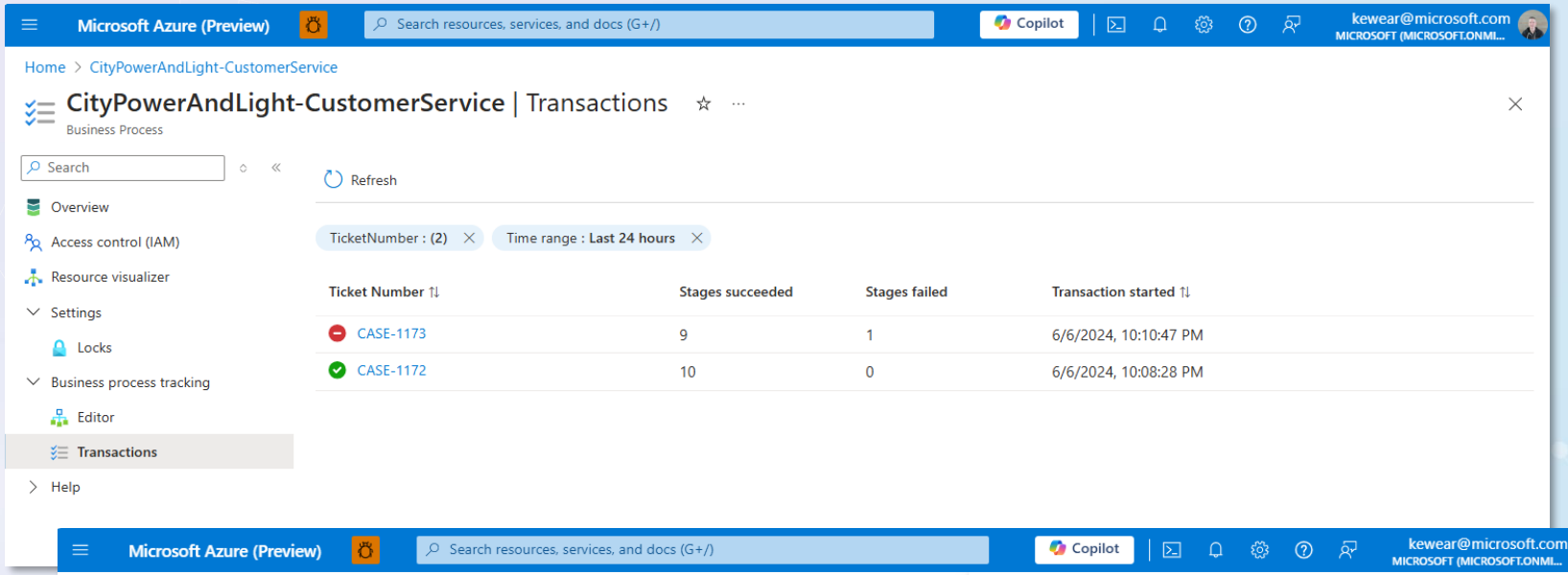
Public Preview

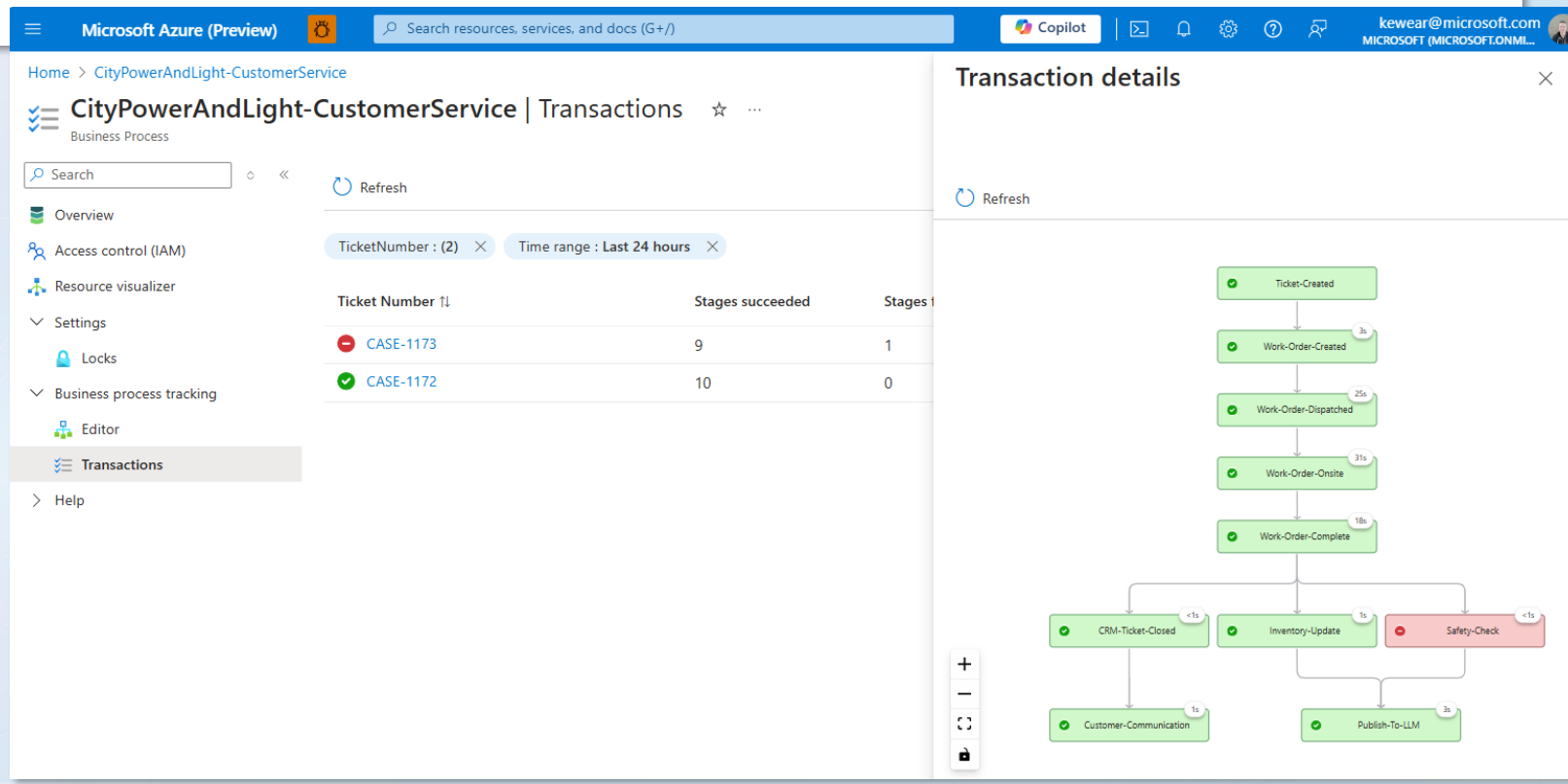
Business Process Tracking

New Capabilities

Business process stage status

Enhanced Token Picker support





Early Access Preview

Logic Apps Standard Hybrid Deployment Model

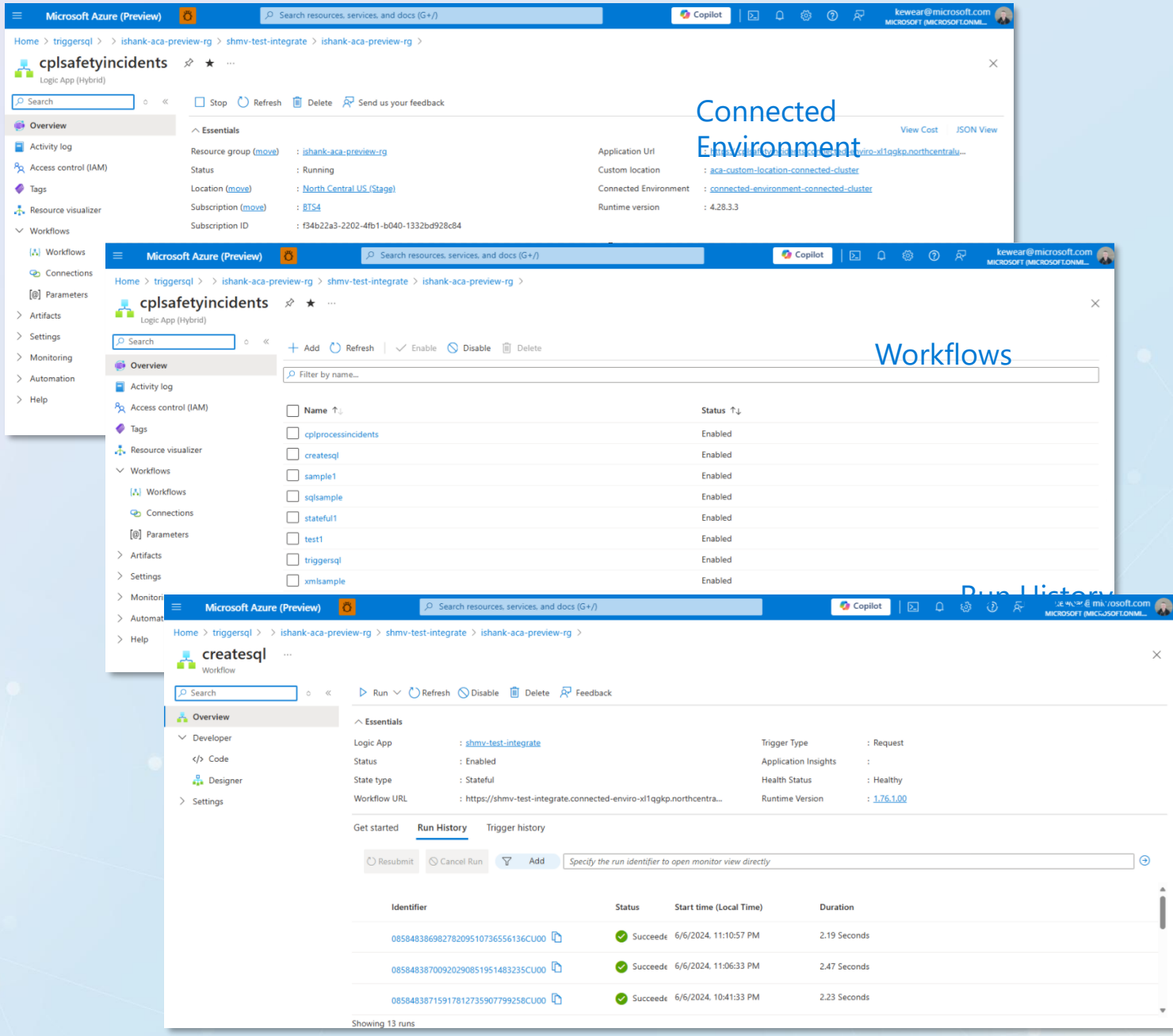
Deploy standard Logic Apps to customer managed infrastructure

Semi-connected scenarios

Control plane is hosted in Azure and accesses data plane through Azure ARC

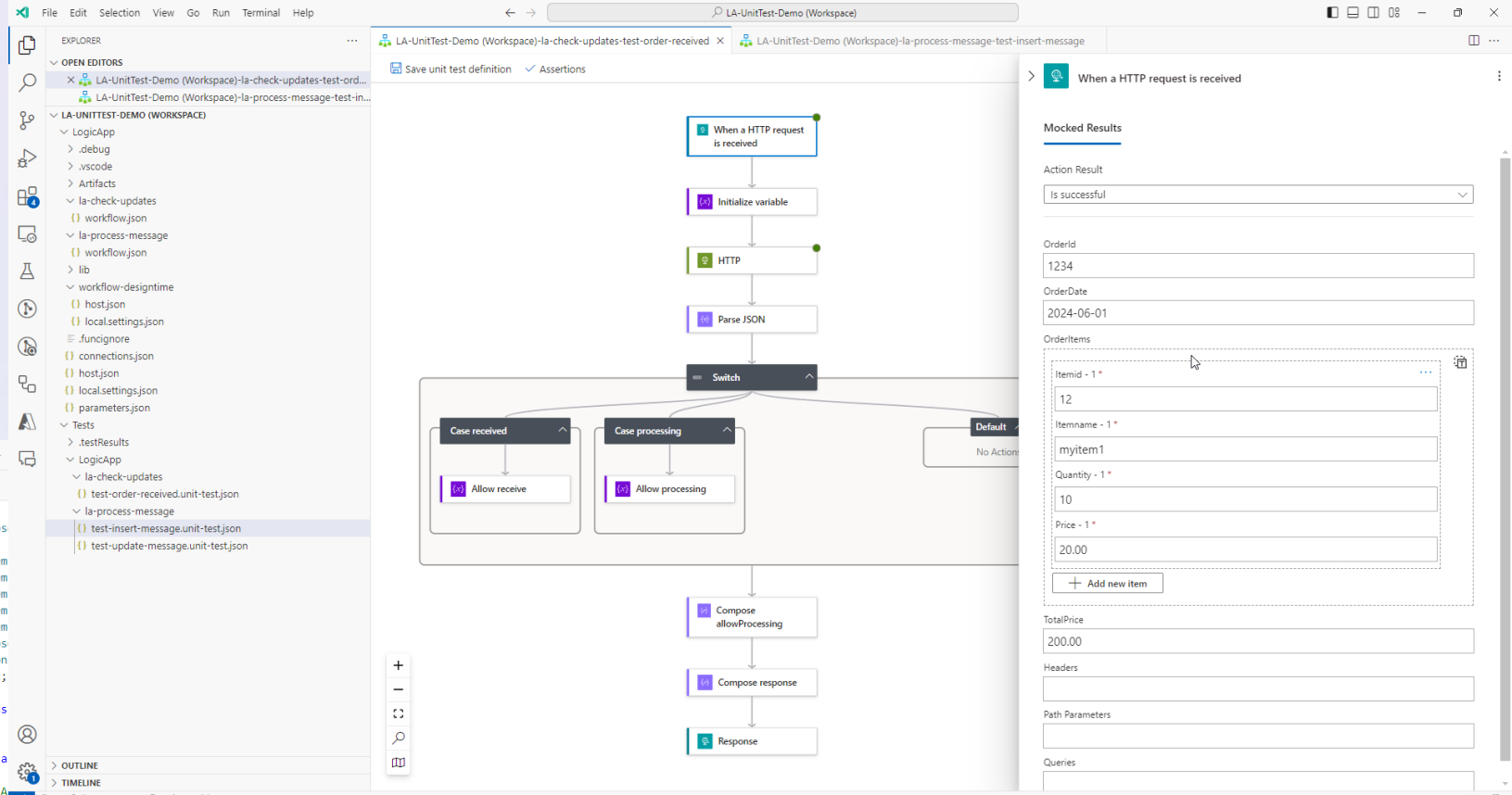
Early Access Preview – June 2024

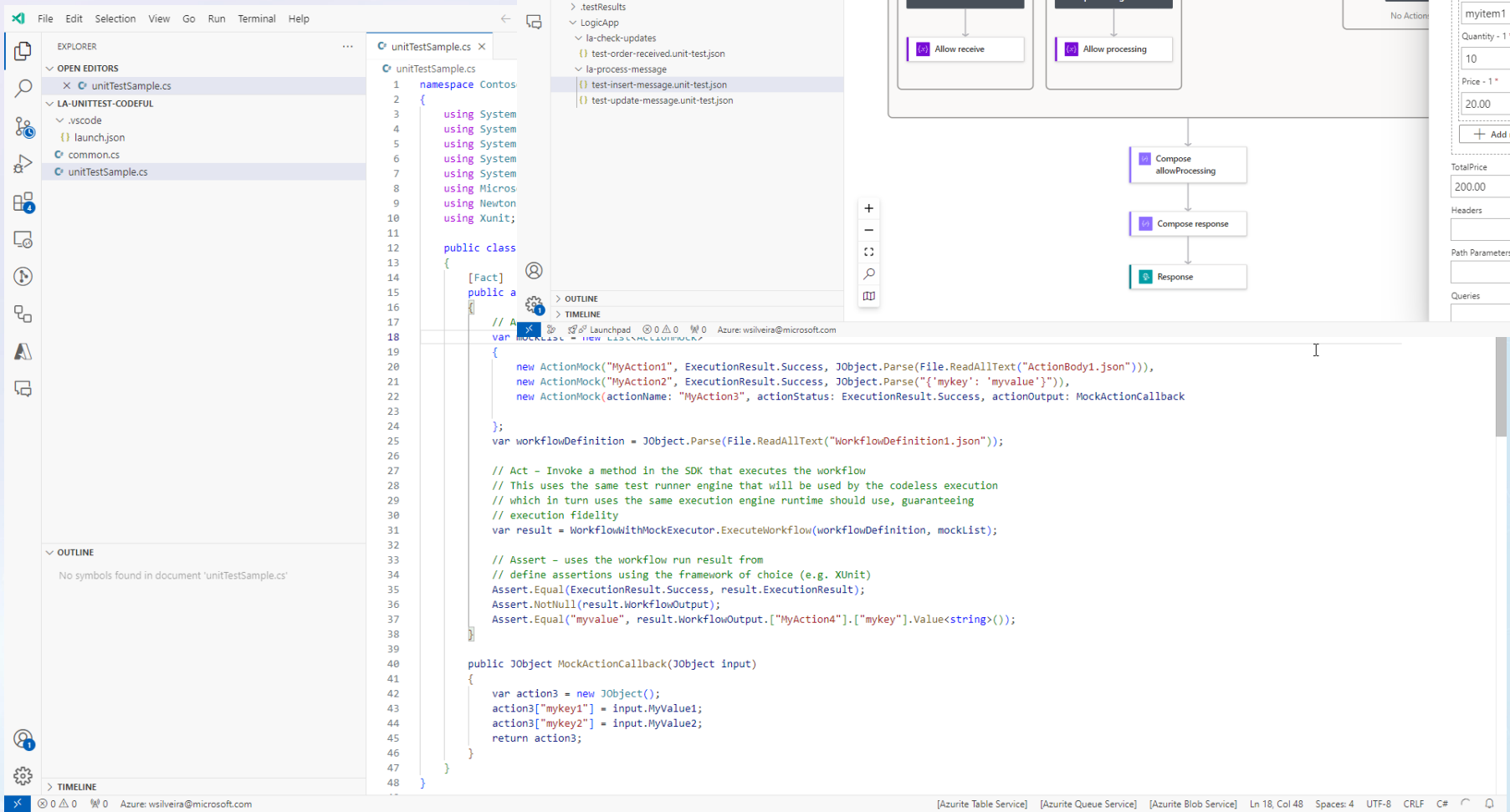
Public Preview – Autumn 2024



In Development

Logic Apps Testing Framework





BizTalk Migration is gaining
a momentum

- Business Rules Engine – Public Preview
- Native XML Support – Private Preview
- Architectural guide – GA
- BizTalk Maps Support – GA
- .Net Framework Custom Code – GA
- SWIFT – Public Preview
- Patterns Library (Templates) – In Development
- WCF/SOAP Support – Analysis
- JMS Support – Analysis
- MLLP/HL7 – In Development

BizTalk to Azure Logic Apps

API Management | Service Bus | Azure Logic Apps | Azure Functions | Other Azure SKUs

Orchestrations
- BizTalk Orchestration
- Logic Apps (Workflow)

EAI
- BizTalk Adapters
- BizTalk Ports
- Flat Files
- Logic Apps (Connectors)

API/XML/SOAP
- Logic Apps (XML Native)
- API Management

Durable Messaging
- Message Box
- Logic Apps (Stateful)

Helper Functions
- Custom Code
- Logic Apps (Custom Code & Extensibility)
- Azure Functions

Configurations
- BTSNTSVC.exe.config
- Business Rules Engine
- SQL Server
- Cosmos DB
- Table Storage
- Logic Apps Parameters
- Logic Apps Rules Engine

Business Rules
- Business Rule Policy
- Business Rules Engine
- Logic Apps (Rules Engine)

B2B Integration
- BizTalk Accelerators
- EDI + Trading Partners
- Logic Apps (IA)

Data Transformation
- Maps
- Data Mapper
- Logic Apps (IA)

Asynch Messaging
- Message Box
- Service Bus

Mainframes and Midranges
- Host Integration
- Logic Apps (Connectors)

Management & Monitoring
- BizTalk Admin Console
- BizTalk Health Monitor
- BizTalk Tracking
- Logic Apps (Azure Integration Environments)

Security & Governance
- BizTalk SSO
- Key Vault

Disaster Recovery
- BizTalk Azure Backup
- SQL Server
- Azure Load Balancer

Hybrid
- Service Bus Adapter
- Logic Apps Adapter
- Logic Apps (Hybrid)

Business Users
- BizTalk BAM
- Logic Apps (Business Process Tracking)

Azure Messaging Platform Integration Brokers

Message Queuing

Service Bus - Reliable Cloud Messaging and Hybrid Integration

Discrete Event Routing & PubSub

Event Grid - Event Handling and Delivery at Cloud Scale

Device Messaging

Event Grid – Cloud MQTT broker for D2C, C2D, D2D messaging

Event Streaming

Event Hubs - Receive millions of events from distributed clients

Stream Processing

Stream Analytics – Process and Route Events in real-time

Message Catalog

Event Hubs Schema Registry – governance for message processing

Azure Messaging
Continuous Innovation

- Kafka
- Geo Replication
- Emulators
- MQTT
- PubSub eventing
- SaaS streaming integration

Centralized API inventory with Azure API Center!

Azure API Center: Centralized API Inventory for Seamless Discovery, Consumption, and Governance

Centralized API Inventory Management

Build and maintain an up-to-date inventory of all organizational APIs

Provides visibility into the entire API landscape

Streamlined API Governance

Govern org-wide APIs effectively, ensuring compliance with standards and policies

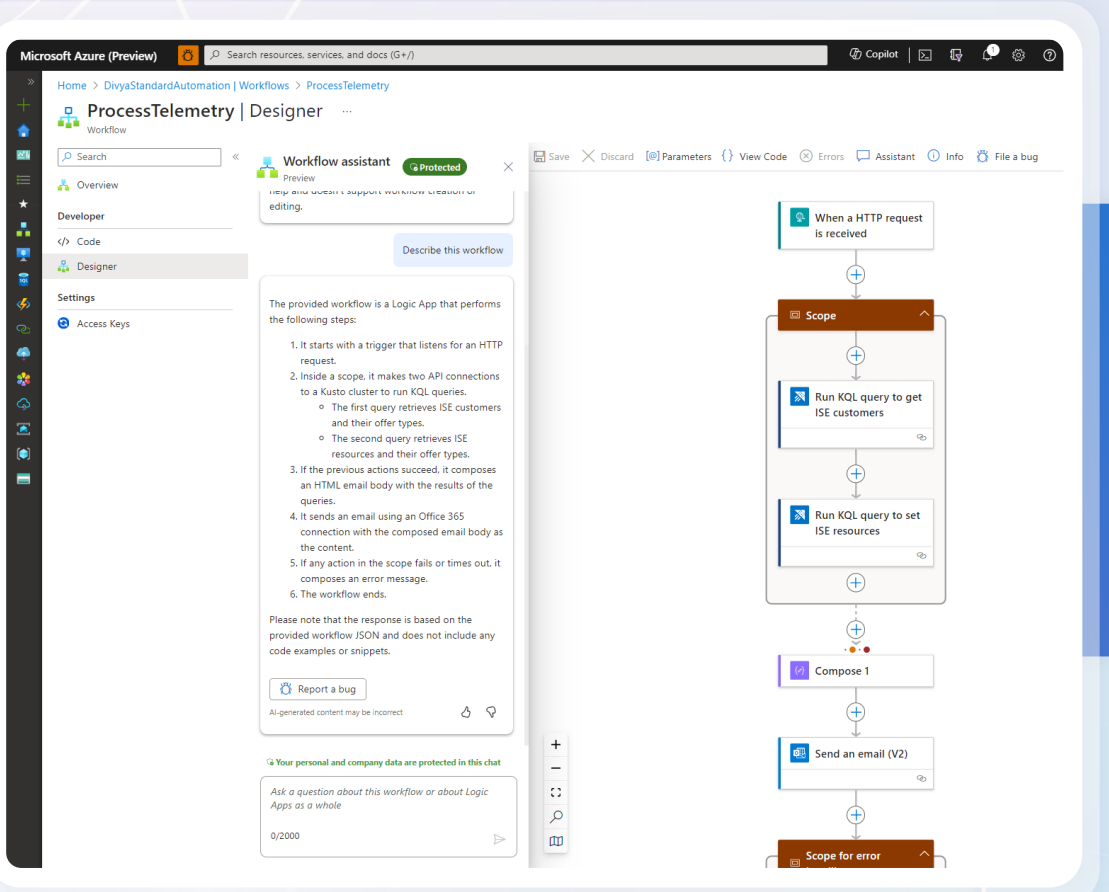
Centralized control over API lifecycle management, security, and compliance.

Simplified API Discovery and Consumption

Easy discovery of APIs within the organization's inventory

Accelerates API consumption

Streamline integration development with AI



Chat Interface

Seamlessly integrated within the Logic Apps designer

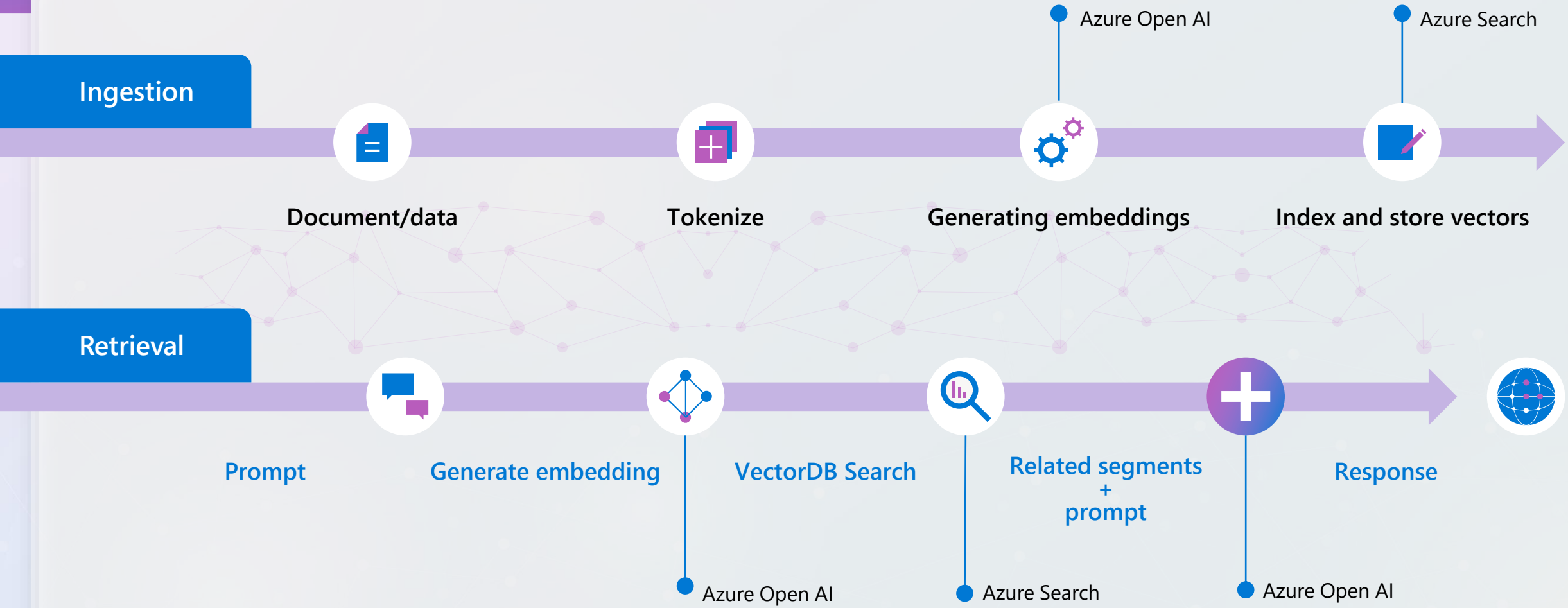
Powered by AI

Leveraging Azure OpenAI and ChatGPT technologies

Answer anything about

- Describing Workflows
- Logic Apps Capabilities
- Integration best practices

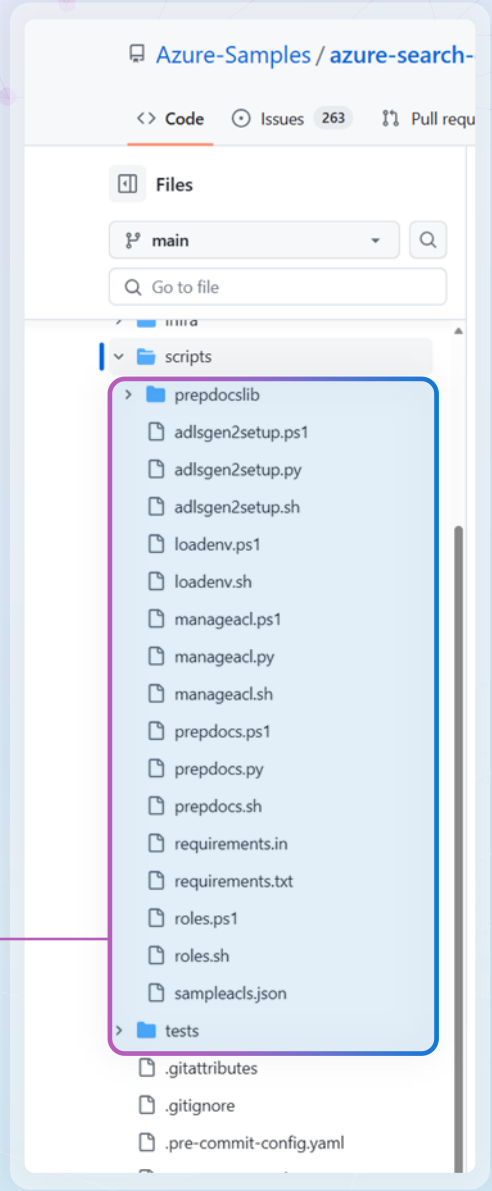
Ingestion and Retrieval using RAG pattern



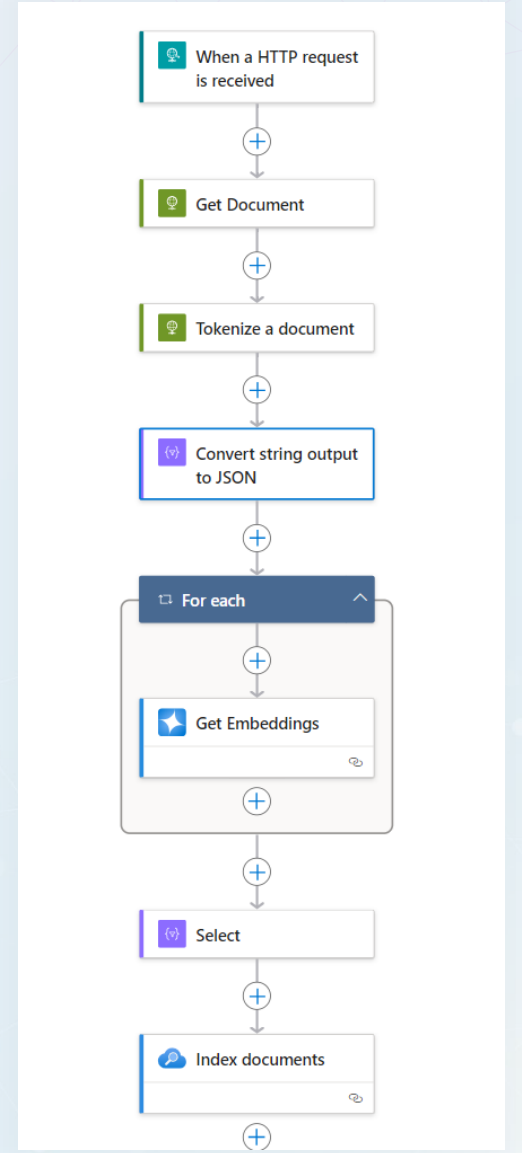
RAG applications using Logic Apps

Manual steps that will be saved by using Logic Apps connector

Ingestion flow with code



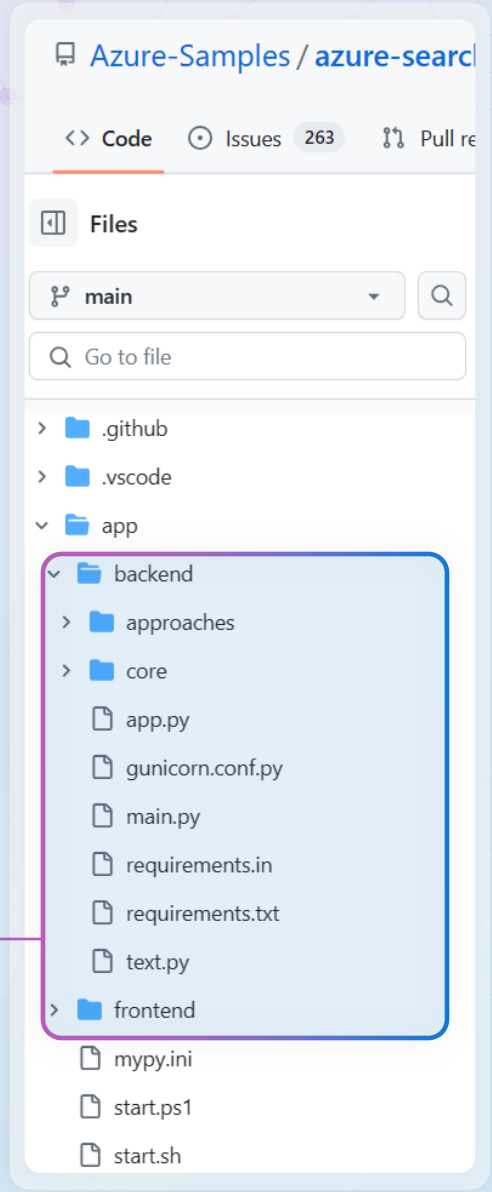
Ingestion flow with Logic Apps connector



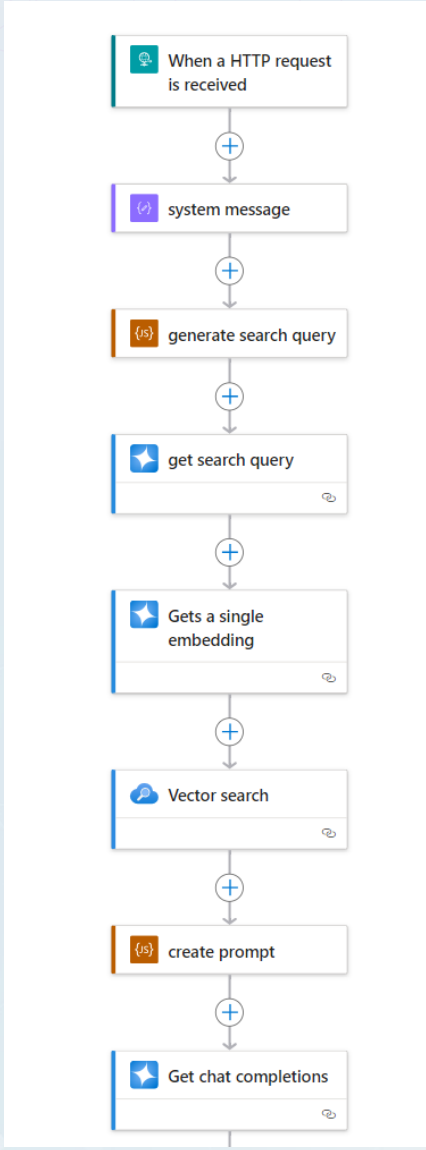
RAG applications using Logic Apps

Manual steps that will be saved by using Logic Apps connector

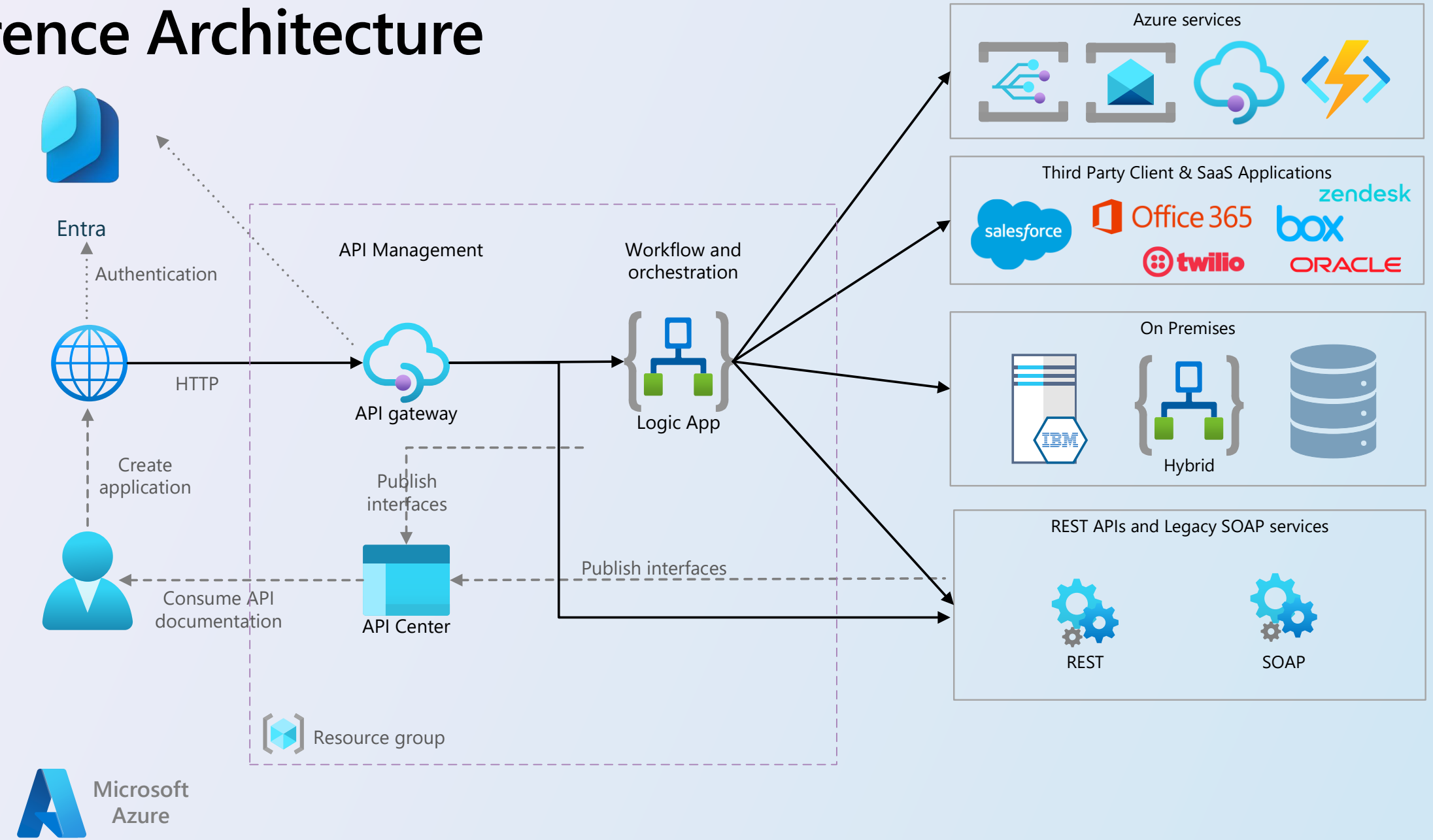
Retrieval flow with code



Retrieval flow with Logic Apps



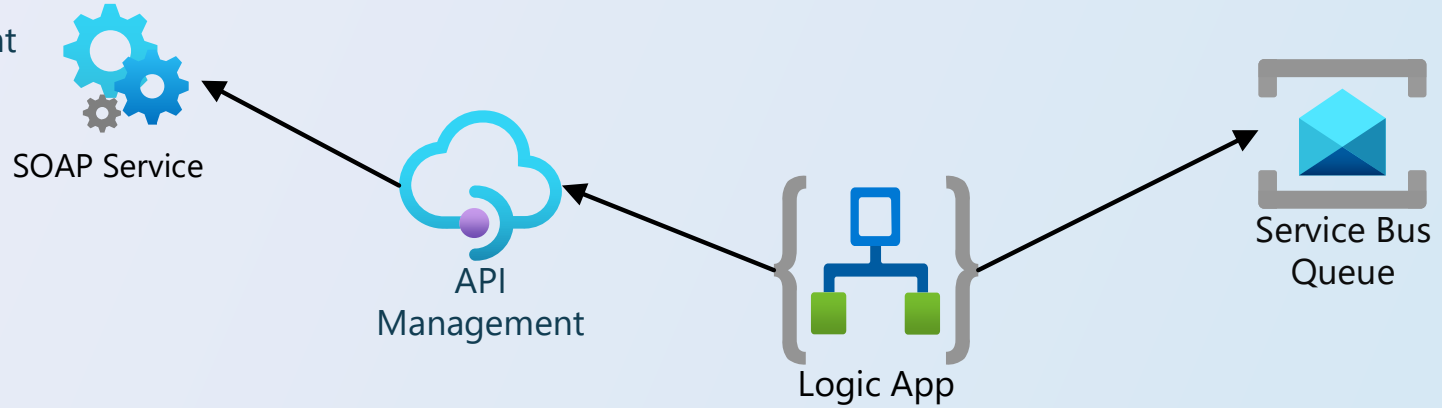
Reference Architecture



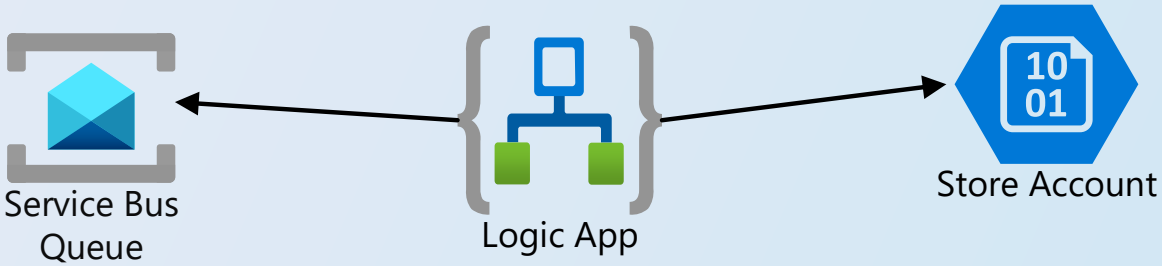
To Innovate, you must Integrate

Demo

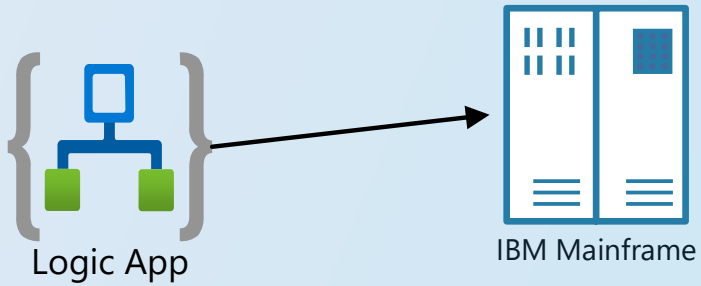
Workflow calls SOAP Service to get Orders. Logic Apps uses API Management connector to get the orders. Then the orders are sent to a Service Bus Queue Q1.



Workflow waits for Service Bus event to get Orders from Queue Q1. Logic Apps Then the orders are sent to an storage account.



BONUS: Workflow is triggered via HTTP to call different systems running on an IBM mainframe (via secure Expressroute circuit)



Microsoft

Thank you!

 @hcamposu

 hcampos@microsoft.com

 https://www.linkedin.com/in/hcamposu

 https://www.youtube.com/@hcamposu