

# KenAI MLOps

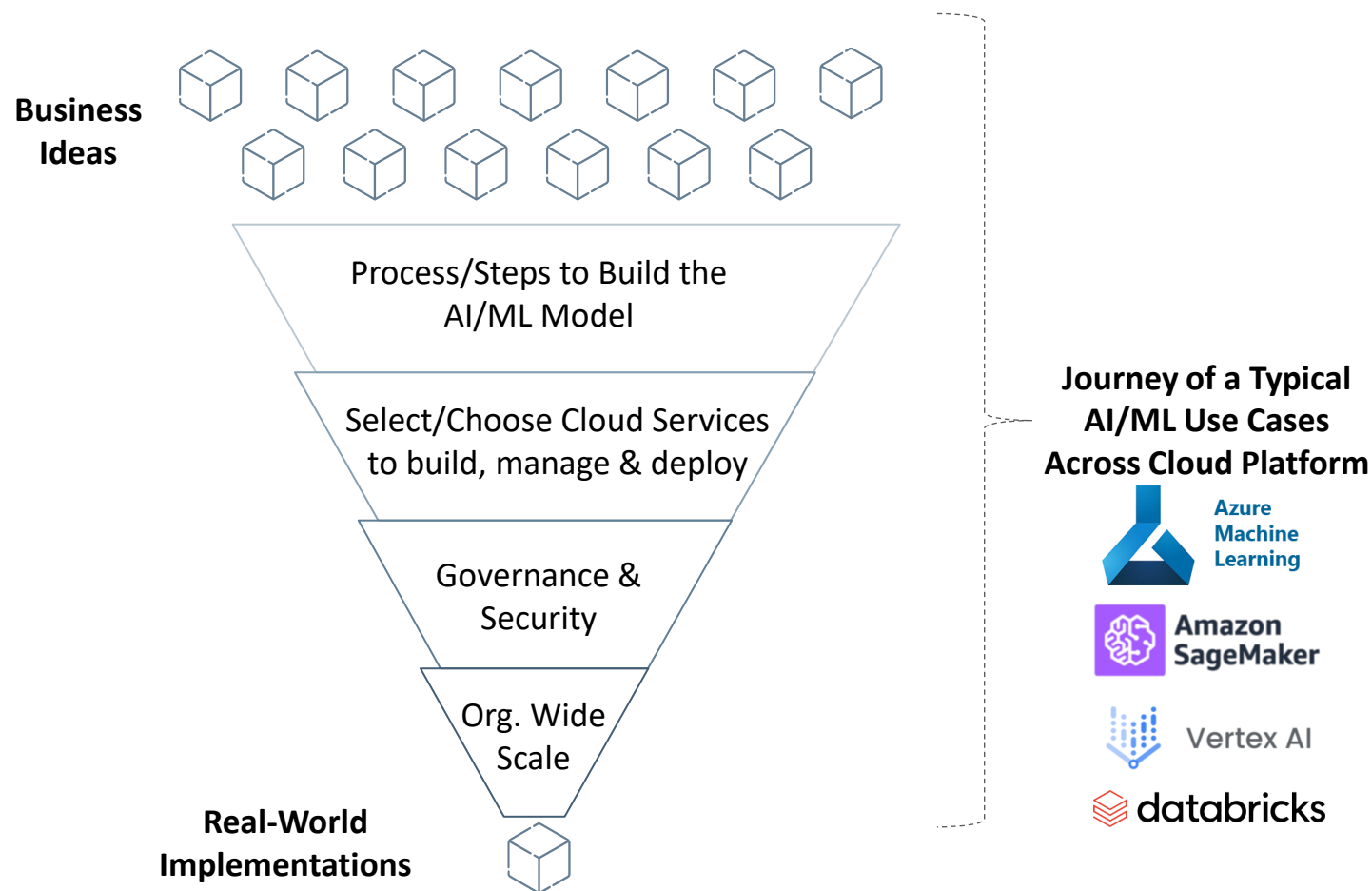
Integrated MLOps @ Scale



A Larsen & Toubro  
Group Company

LTM

# Currents state of AI/ML Across Cloud ML Platforms



## CHALLENGES WITH CLOUD MLOPS PLATFORMS



### Limited Productivity

Lack of automation and reproducibility in managing multiple ML workflows



### Lack of Model Quality Assurance

Inability to perform ML specific model testing and quality assurance on cloud ML platforms



### Lack of Centralized Model Monitoring

Lack of centralized model monitoring for model performance management



### Low Adoption

Lack of MLOps maturity along with limited skills restricts ability to operationalize ML models

The need is to standardize, streamline and accelerate MLOps across cloud ML platforms to drive adoption and scale

# Introducing KenAI for Accelerated MLOps Journey

Mindful Automation to Accelerate MLOps Journey Across Cloud Data Platforms



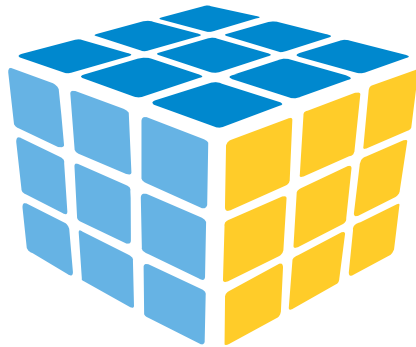
## STREAMLINE

Streamline utilities to deploy and manage the models



## STANDARDIZE

Standardize the overall process to operationalize the models



## ACCELERATE

Accelerate the process using automation across cloud platforms



Azure  
Machine  
Learning



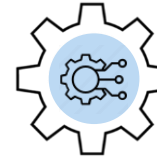
Amazon  
SageMaker



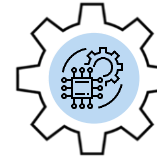
Vertex AI



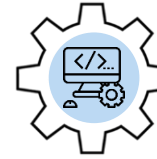
databricks



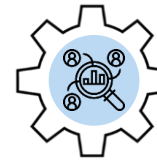
Integrated **Automated Pipelines**



Pre-built **reusable templates** for BYOM



**In-built test cases** for Quality Assurance

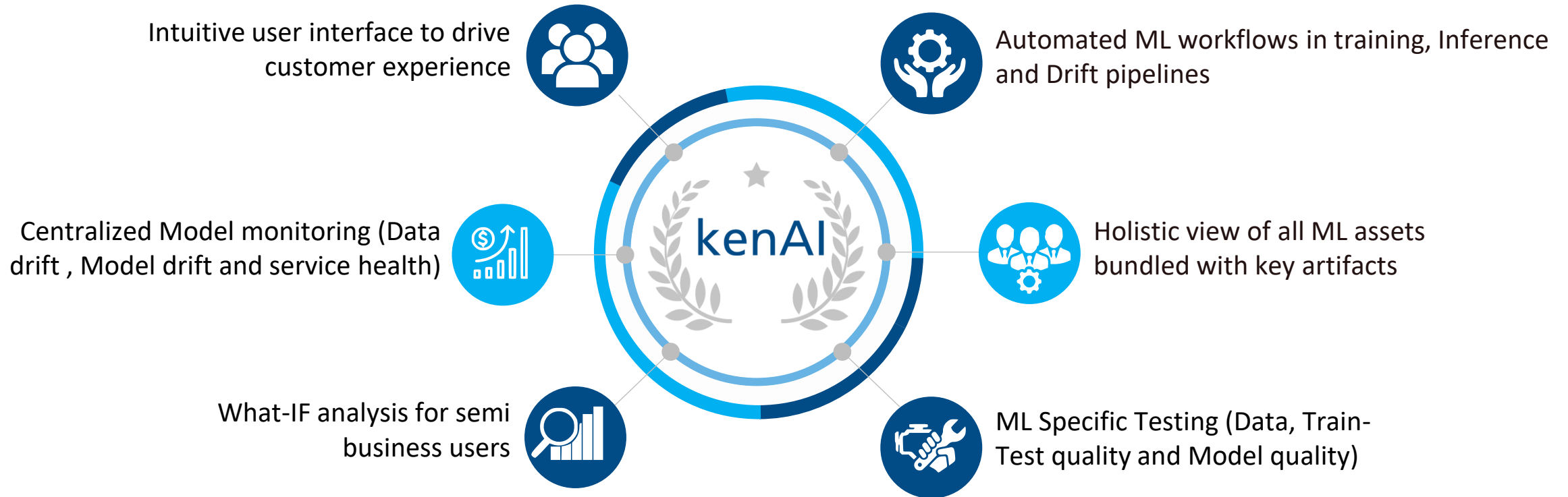


Decipher models with **model explanations**



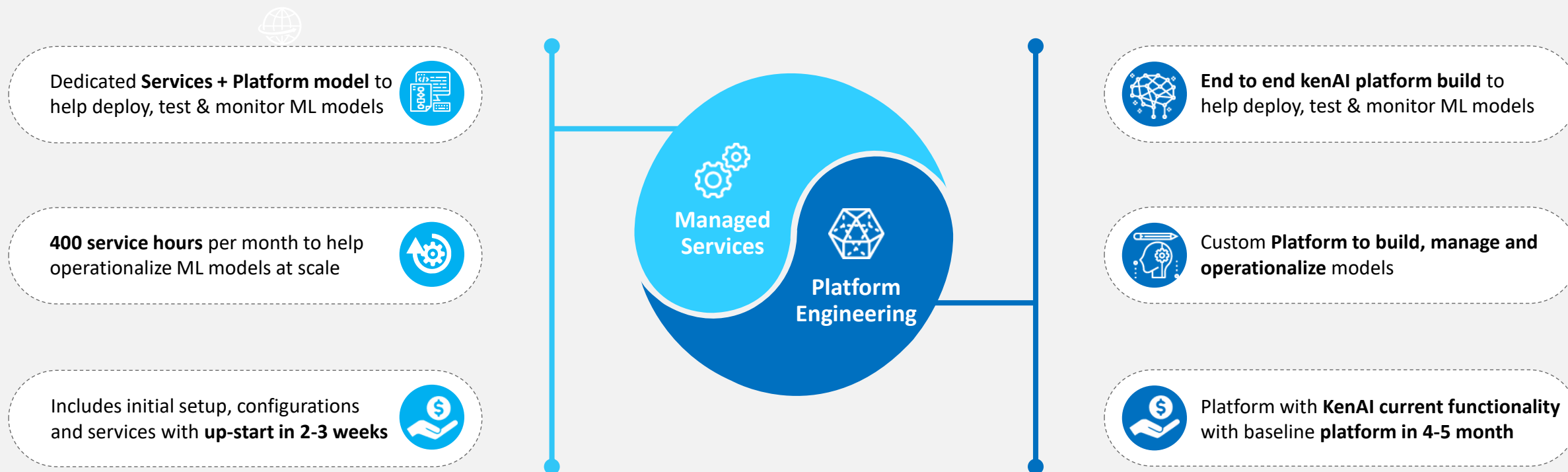
Centralized Model Monitoring with  
Simplified **Drift & Model Management**

# Key Elements which KenAI provides for Accelerated MLOps





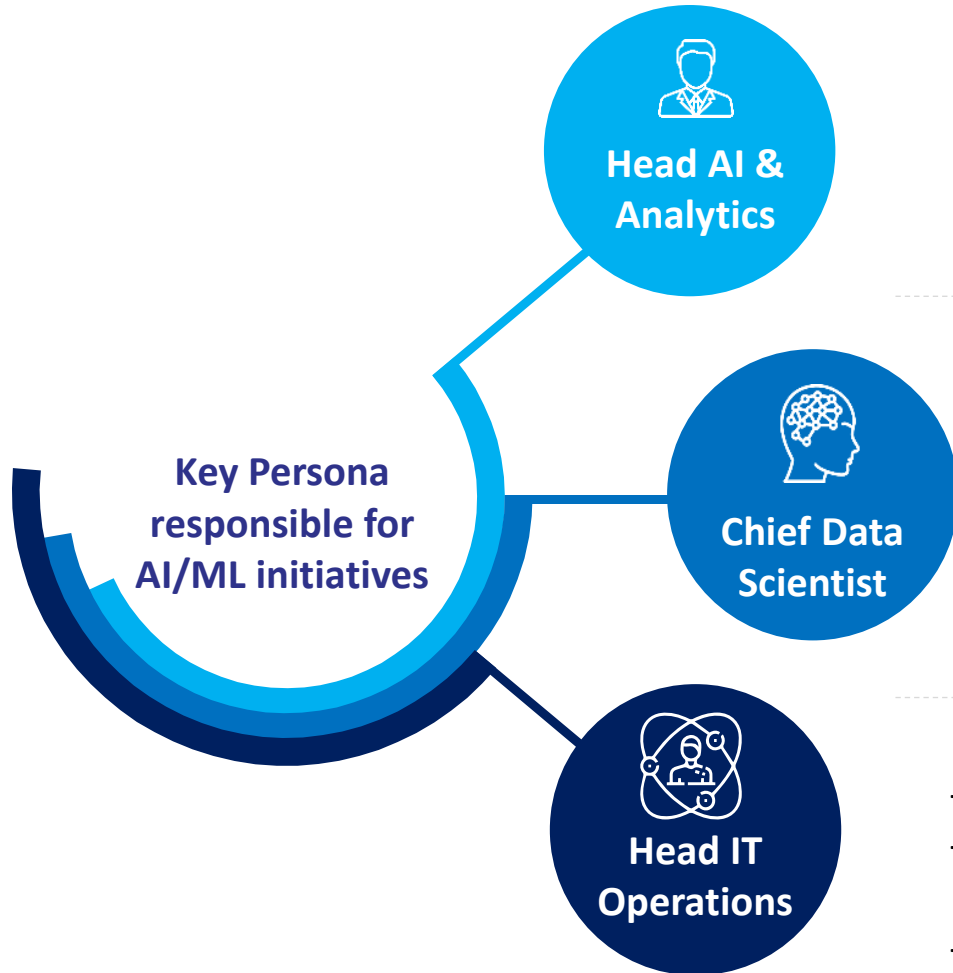
# Customer Engagement Models for KenAI



## Details about the Commercial Structure

- KenAI will be provided AS-IS state. Any additional MLOps engineers or Customization of KenAI will be at an additional cost
- While as part of these services any issues or minor customizations will be worked upon with this limit.
- The KenAI will be provided as part of services in the above a for a minimum of 6 months of engagement
- KenAI is more of an accelerator rather than a product, so the upgrades are more like service-based and based on requirements
- The current version of KenAI supports Python-based models and frameworks on Azure, AWS, GCP and Databricks.

# Key buyers and questions to break the ice



- What's your AI Strategy?
- Do you have an operating model for AI initiatives?
- What are the typical challenges you face in managing AI/ML projects?
- How do you drive adaptability of your AI/ML projects?

- What's a typical time duration to move from pilot to full-scale operationalization of AI/ML use cases?
- Do you have a defined ML process or approach?
- How do you typically standardize the overall ML lifecycle?
- Is there any mechanism to ensure Governance and Compliance?

- How do you typically manage AI/ML model operations?
- Do you have a mechanism to check if the model is misbehaving or working fine?
- Is there any collaboration mechanism between multiple teams?

# Potential Customer FAQs



## **Is KenAI a product like Dataiku or Data Robot?**

No, KenAI is an accelerator on top of cloud ML services such as Azure ML, AWS SageMaker, GCP Vertex AI or Databricks.

## **Is there any vendor lock in?**

No, Clients can maintain KenAI themselves and build customizations according to their needs post 18 months. There would be additional costs as described above

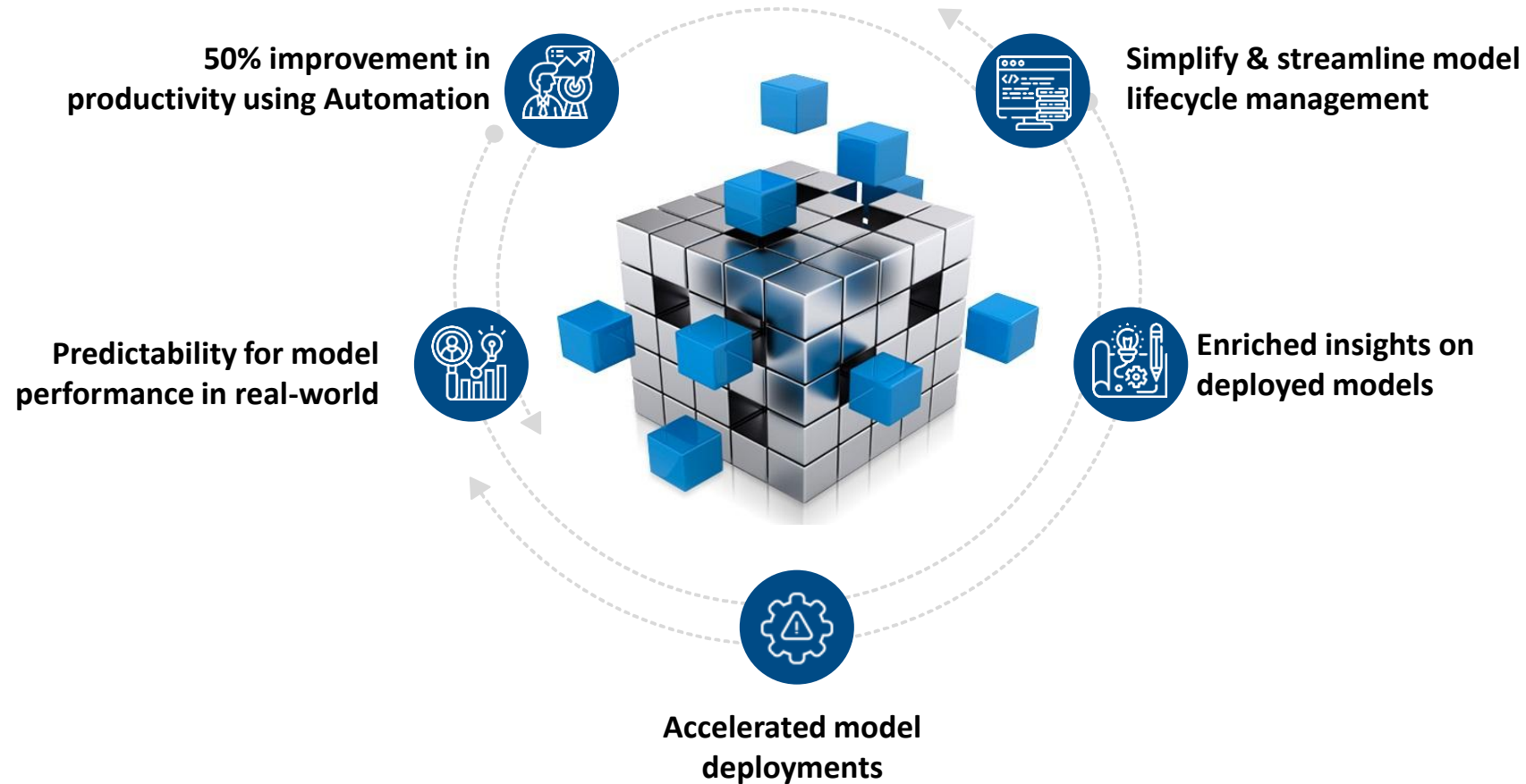
## **How KenAI works?**

KenAI was built using cloud-native APIs and components that are custom built where there are gaps in cloud services

## **What are the key technology used?**

React.js, Python, flask, cloud native services

# KenAI Helps to Deliver





# Components of KenAI



## kenAI Automate

- ▲ Automated pipelines
- Reusable Components
- ▲ Infra as a Code
- ▲ Model Deployment



## kenAI Assure

- Data Quality
- Train – Test Quality
- Model QA
- Sustainability Test



## kenAI Govern

- What-If Analysis
- Model Explanations
- ▲ Responsible AI
- Auditability



## kenAI Monitor

- ▲ Data Drift
- Model Drift
- Service Health
- ▲ Continuous Monitoring

**Legend** ■ Cloud Native ▲ Custom Upgrade ● Innovation

# KenAI - Overview



# KenAI – Model Lifecycle Management

Mindful Automation Accelerate MLOps Journey For Operationalizing AI/ML Models at Scale

kenAI

Train

Test

Deploy

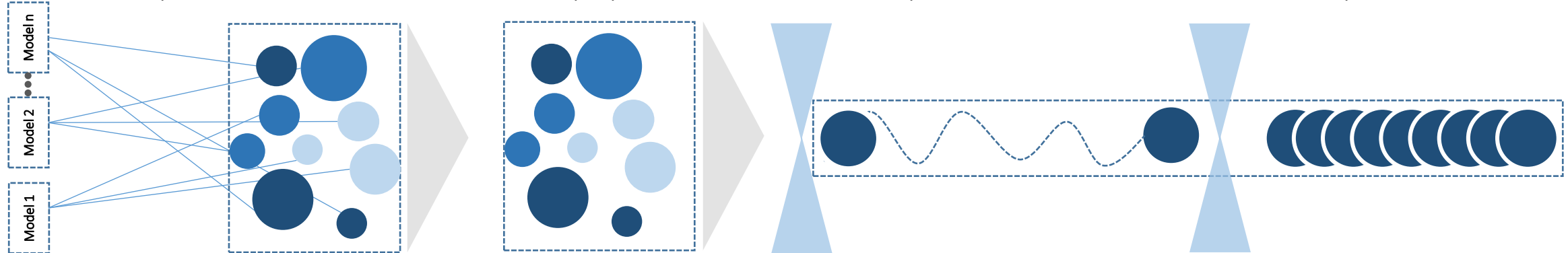
Monitor

Pre-built templates to help ease model experimentation

In-Built test cases to perform QA across multiple parameters

Automated pipelines to operationalize @scale

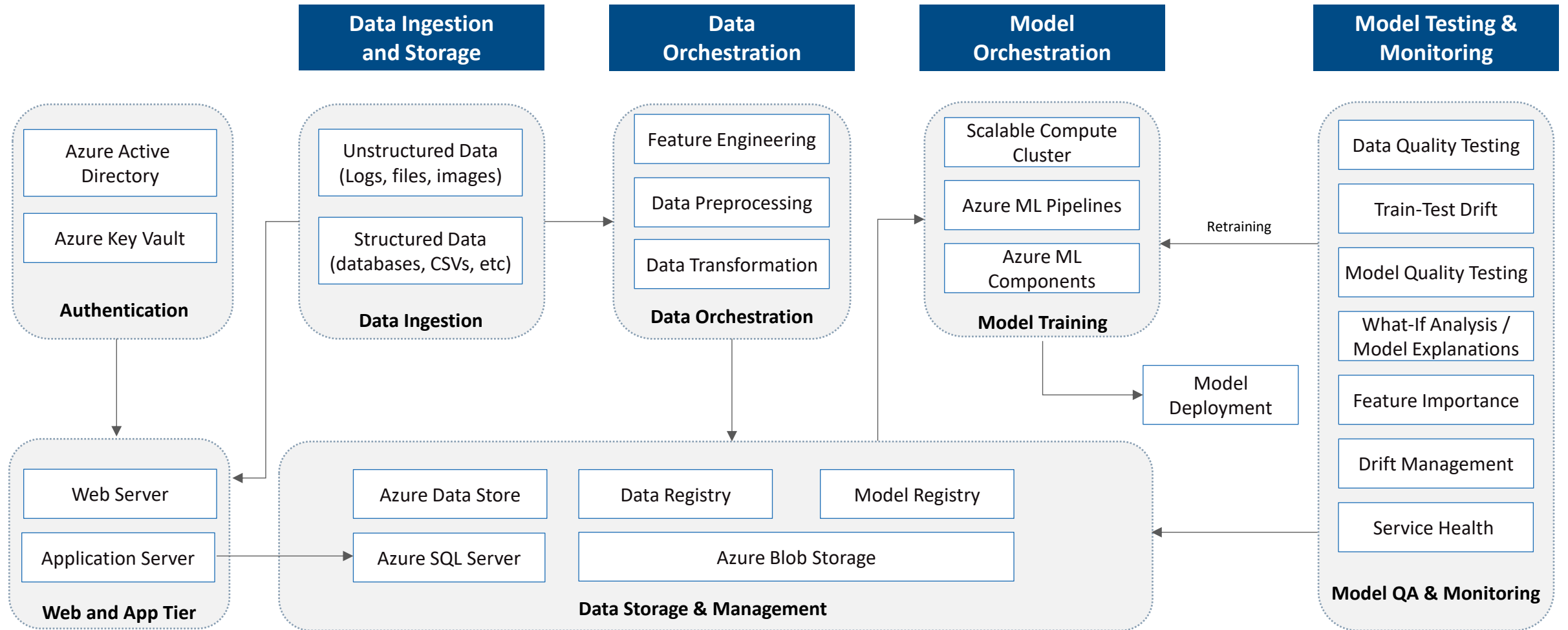
Centralized application to monitor performance



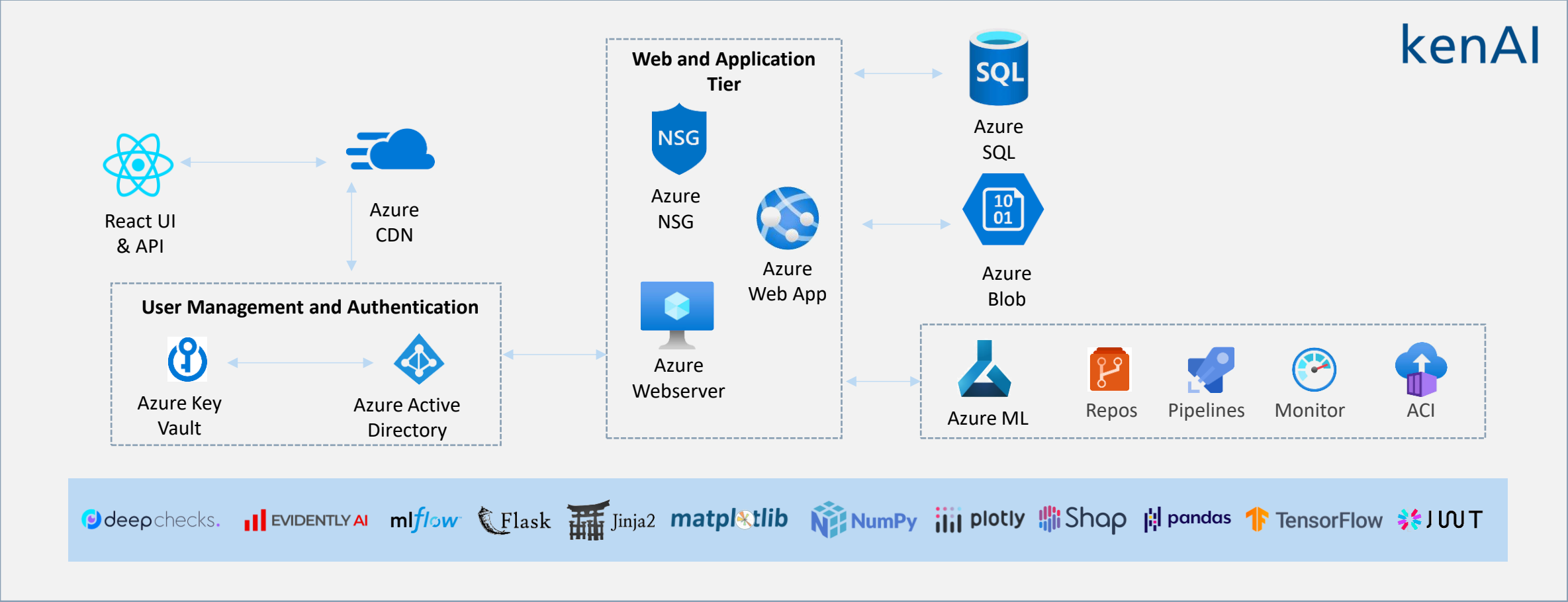
Operationalize AI/ML Models leveraging in-built utilities & services across cloud data platforms



# KenAI: Under the Hood



# KenAI – Technical Architecture on Azure





# KenAI - Automate

Automated pipelines for operationalizing the models along with reusable components to help fastrack the model deployment process in other languages and frameworks



## Automated Pipelines

Automated ML workflows across training, inference, and drift management



## Reusable Components

Plethora of reusable components to help with BYOM concept



## Infra as a Code

Code-based automated provision of infrastructure



## Model Deployment

Standardize and simplify model deployment process

# KenAI - Assure

AI/ML model quality assurance with in-built test cases to help quantify the performance of the models before deploying them on the cloud data platform



## Data Quality Test Cases

Pre-defined tests to check data quality and biasness in data



## Model Quality Assurance

Simplified model performance comparison across train-test & deployed models



## Model Sustainability Check

Ensure models are sustainable and energy efficient



## MRO Dashboard

Overview of model health performance across key KPIs

# KenAI – Govern

Comprehensive model explanations & governance for serialized machine learning models providing key insights into the predictions to drive transparency and adoption



## What-If Analysis

Analyse the impact of features on the model insights



## Model Explainability

Decipher the model with ease to understand how the model produces the output



## Model Auditability

Ability to perform lineage to help decipher the models at ease



## Responsible AI

Ensure adherence of AI principles to ensure regulatory compliance

# KenAI – Monitor

Unified AI/ML model monitoring to provide a centralized view of all the models deployed across the organization along with monitoring KPIs to ensure continuous monitoring of models



## Data Drift Management

Data comparison across multiple versions and features of models



## Ground Truth Evaluation

Evaluate the model performance over pre-defined period of time



## Model Service Health

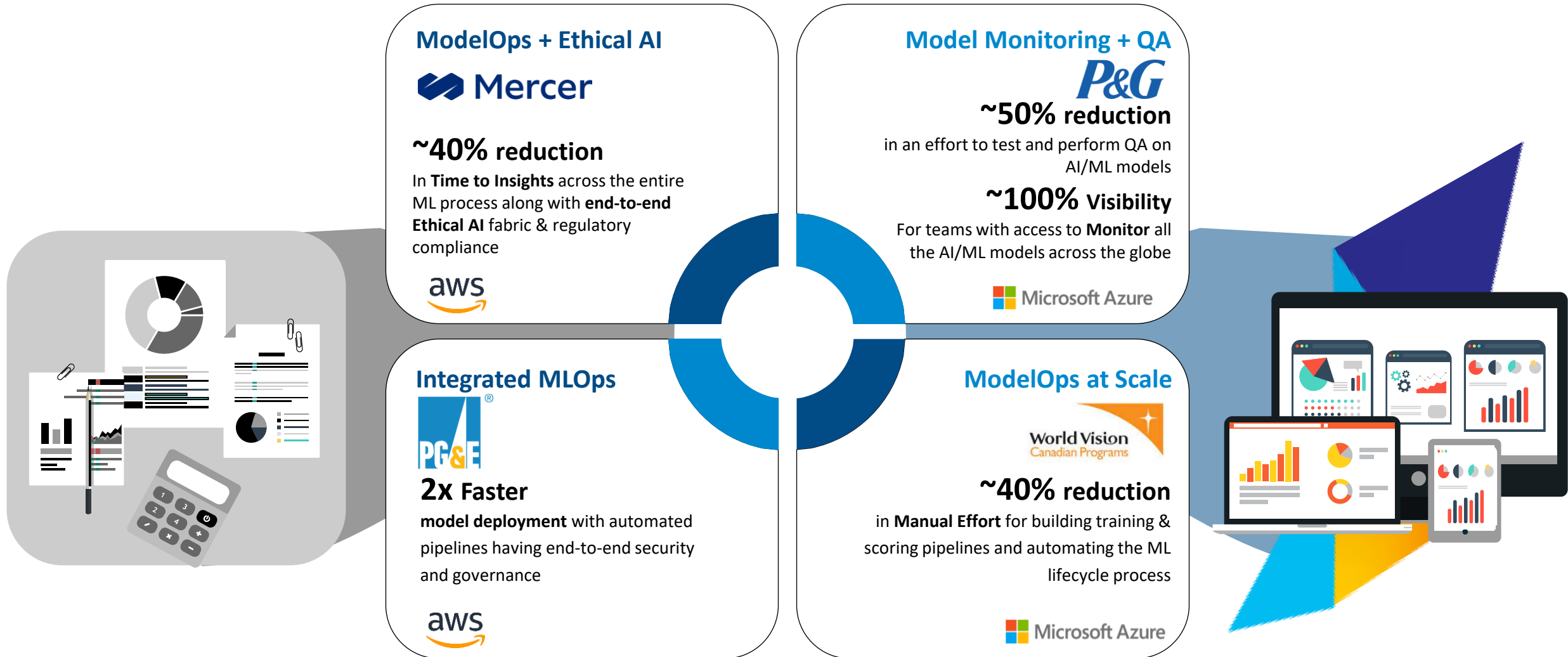
Service health parameters to showcase key infrastructure usage



## Continuous Monitoring

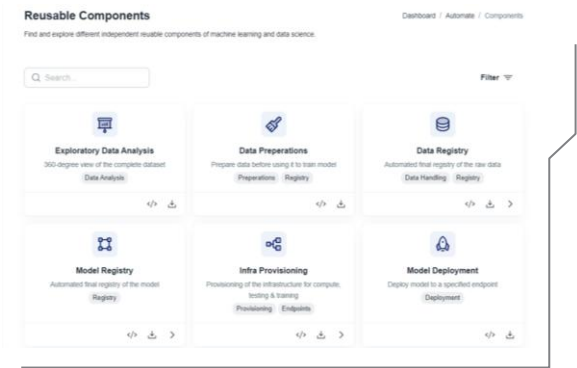
Automated alerts along and with integrated re-training mechanism

# kenAI – Success Stories

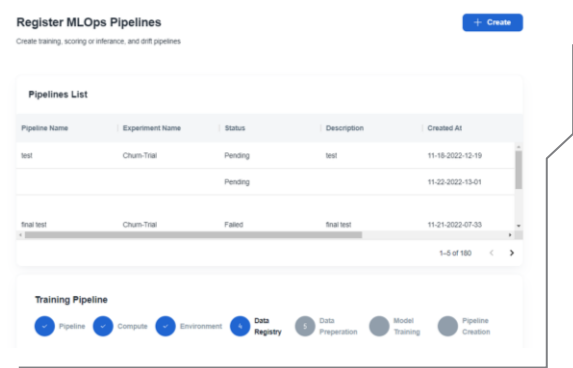




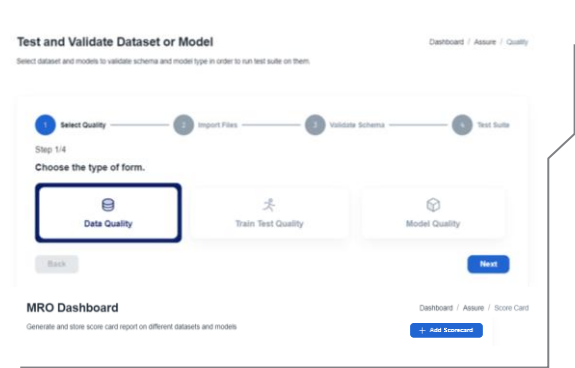
# KenAI in Action



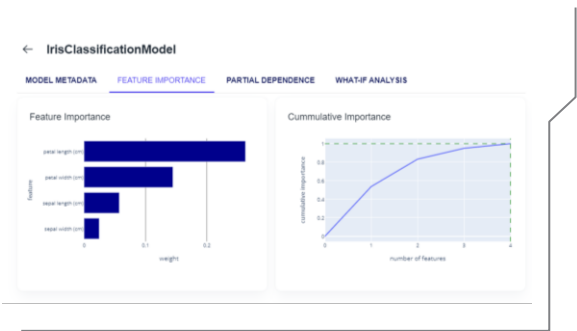
Pre-built templates to help operationalize models



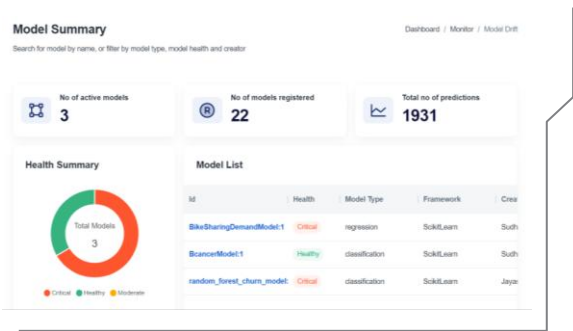
Automated MLOps pipeline to operationalize models



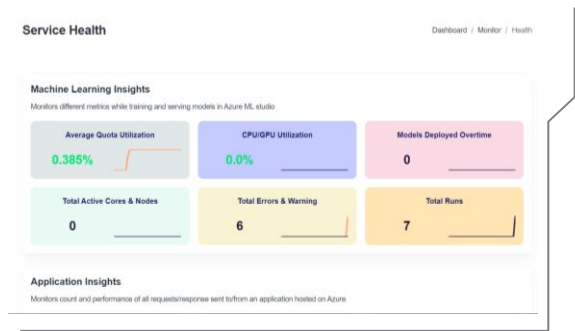
In-Built test cases to bring predictability & QA in models



Model explainability to decipher the black box models



Model monitoring to check drift and perform ground truth



Service health parameters of the models which are deployed



# Thank you



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