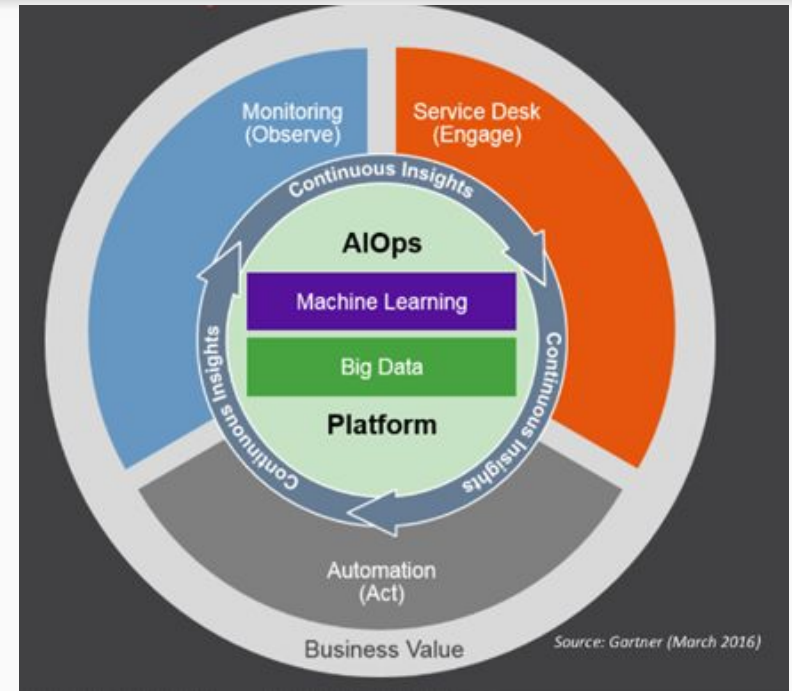


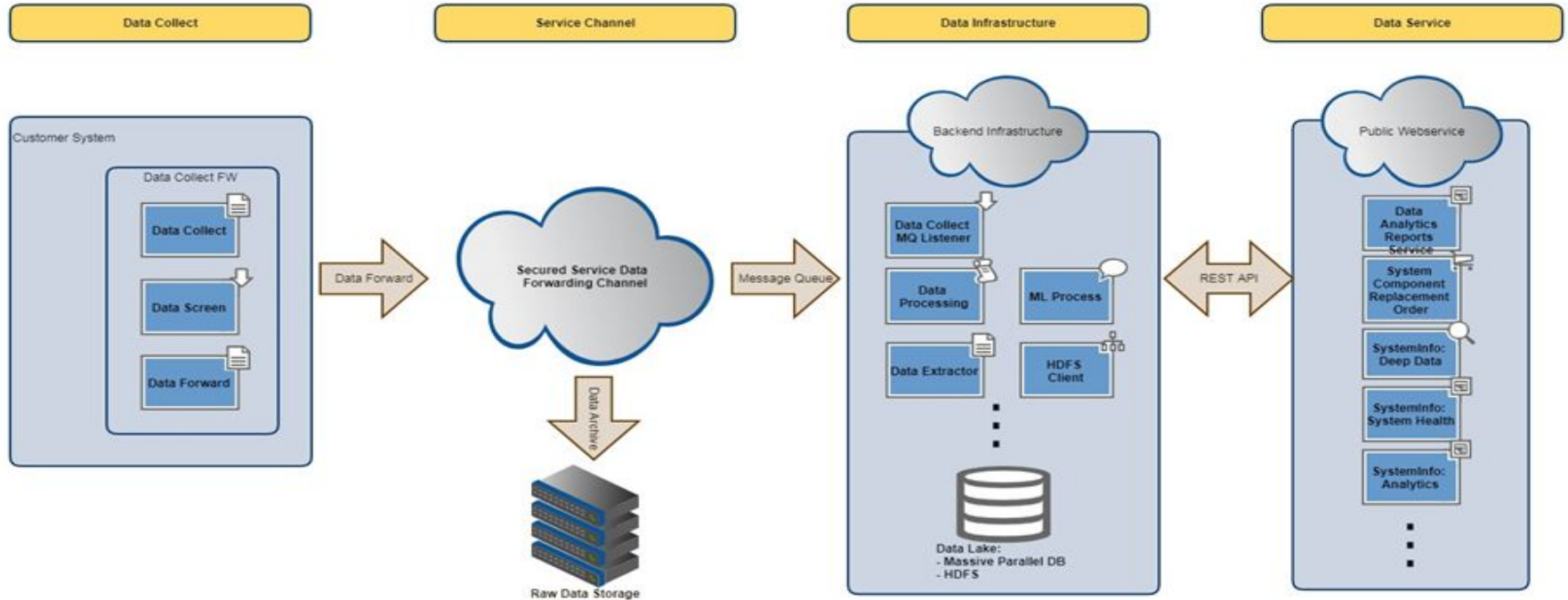
AI Ops POC

What is AIOps

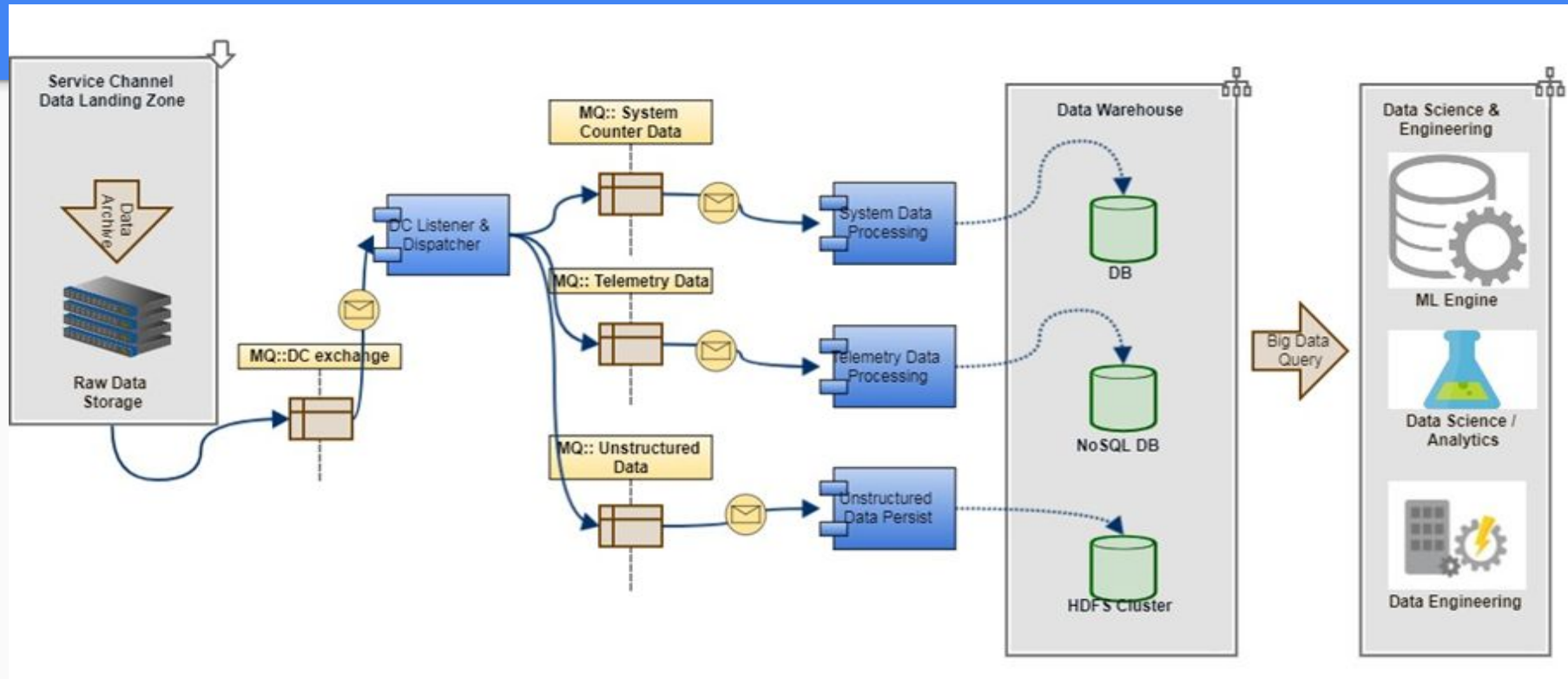
- AIOps stands for **Artificial Intelligence for IT Operations**. It refers to multi-layered technology platforms that automate and enhance IT operations by using analytics and machine learning to analyze big data collected from various IT operations tools and devices, in order to automatically spot and react to issues in real time.
- AIOps for System Management:
 - Health monitoring
 - Proactive upgrade / component replacements
 - Preventive service dashboard
 - Real time system analytics
 - etc.



Data Service Backend Architecture



Event Driven Workflow



POC Project - Data Collect

- **Data Collect is the process resides in the customer system that collects system counter, telemetry, component stats, and log data.**
- **For POC, using a dedicated VM to produce simulated system data collection**
 - Disk Stats – SMART data
 - Telemetry – System config + timely monitoring data
 - Log files
 - Etc.

POC Project - Backend Infrastructure

- **Data Infrastructure resides in Cloud PaaS (or internal hypervisor / container orchestration) environment**
- **One microService in the layer subscribes and listens to the DC incoming notification MQ – DCListener**
- **Upon on new DC arrival, DCListener downloads the DC package from the service channel LZ and unpacks and caches in the cloud backend (by using cache service such as Redis) and notifies registered data processing handler server per different type of data (structured vs unstructured or text vs blob, etc...)**
- **Each data processing handler persists data into Data Lake depends on the type of data (into DB or HDFS)**

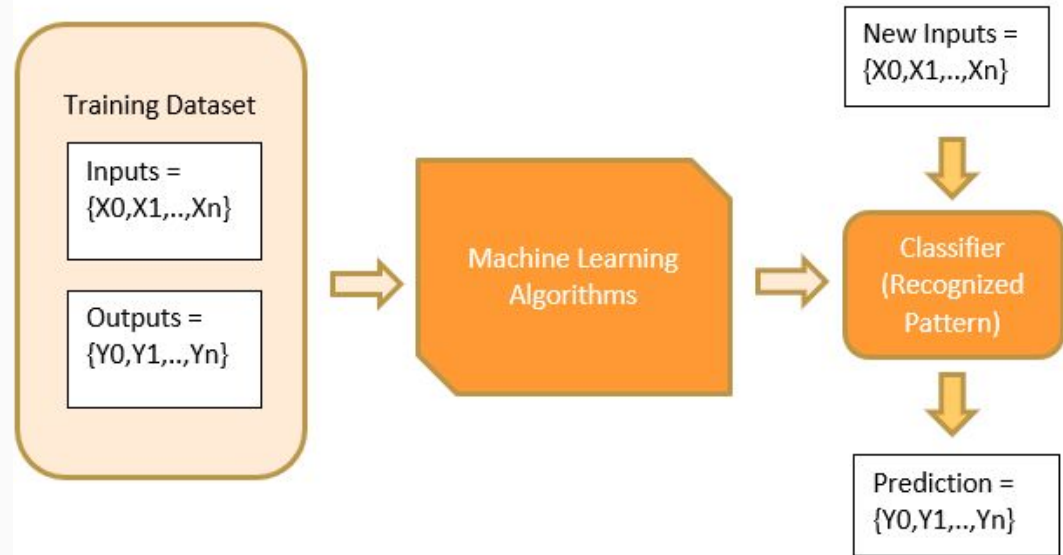
POC Project - Data Service

- **Data Service layer can reside either in Cloud or in-house servers, which is for End User interface**
- **This layer presents graphical rendering of data service results, such as Analytics reports, Big data query results, or Forecast by ML.**
- **Centralized Management Cloud (CMC) components should be also located in this layer, which also consume the same data infrastructure.**
- **For better security isolation, per system type or customer zone, it may locate the data service in a separate cloud site.**
- **For optional addition, AR can be added on top of CMC, which uses the same Data Service results, such as Health Score, Alert, Component Part Ordering and / or etc...**

POC Project - Machine Learning

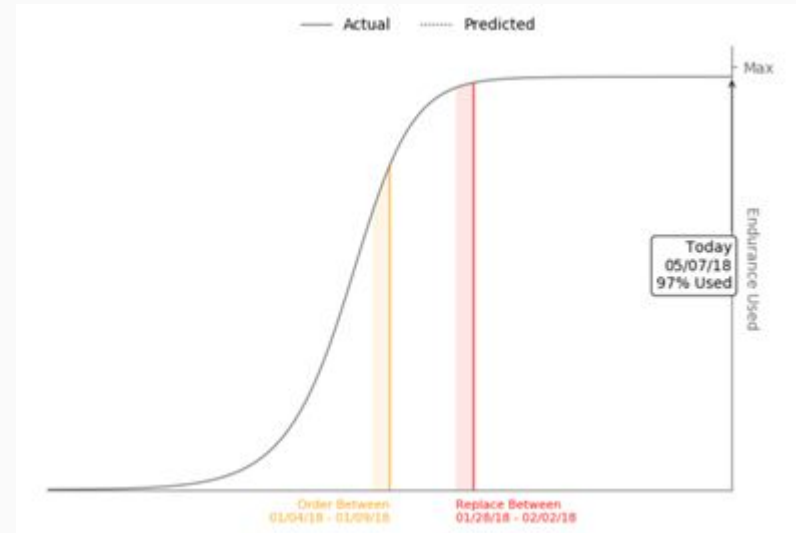
- **Definition:**

- Field of computer science that gives computer systems the ability to "learn"
- Focuses on prediction-making
- The primary goal is to allow the computers learn automatically without explicitly programmed logic



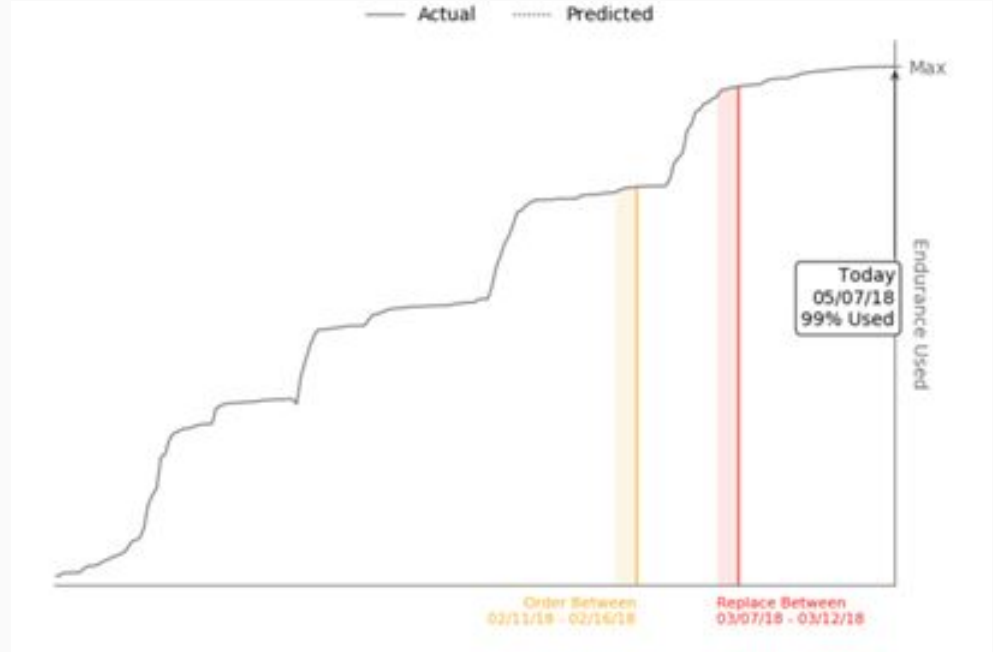
POC Project - Demo Sample Data

Data Simulation for S shape Logistic Regression



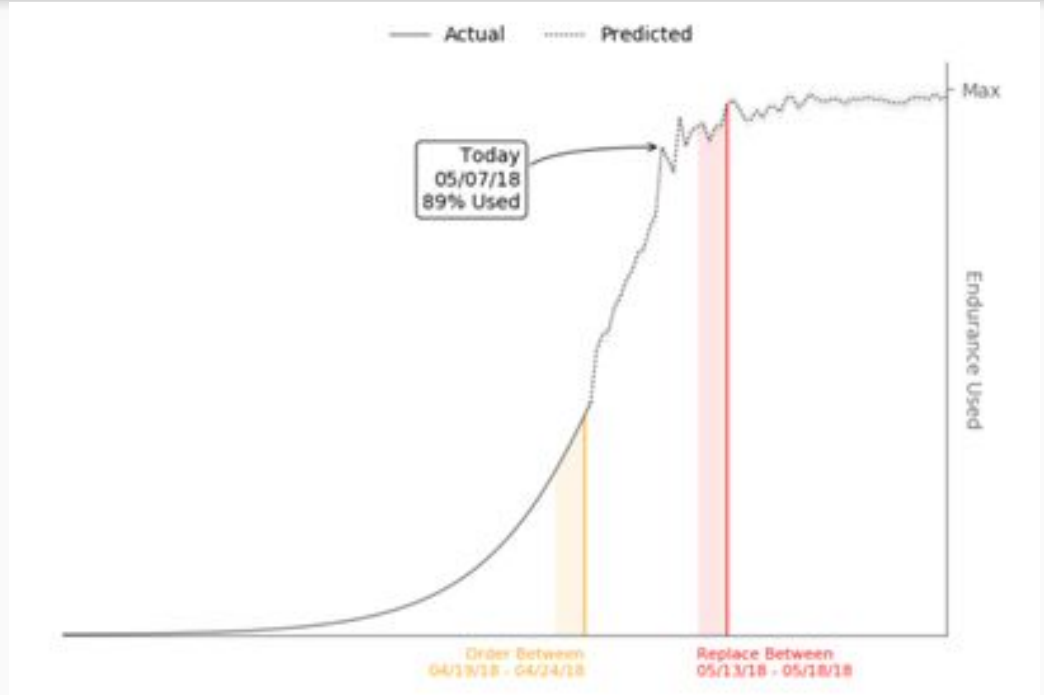
POC Project - Demo Sample Data 2

Test pattern generation with %10 random dynamics



POC Project - Demo ML Prediction 1

ML Algorithm: Linear Regression



POC Project - Demo ML Prediction 2

ML Algorithm: Random Forest

