Mactores & Hewlett Packard Case Study

The Challenge

HP's Ink Supplies Organization manufactures ink supplies for HP's print and graphics division. The manufacturing is spread across various locations around the globe with the manufacturing data generated at each location and linked to various HP systems. In order to create a connected factory, HP needed to solve the challenge created by a lack of centralized end to end inventory visibility, quality metrics and process cycle time for the Ernesta manufacturing process. Accurate Inventory tracking is essential for demand planning, procurement, reducing bottlenecks in production and preventing fraud. Multiple data sets included purchase orders, demand plans, parametric data and inventory systems. All stakeholders, which included; Process Engineers, planners and management were disconnected but needed access to visualize the manufacturing data, in a near real-time output in order to make timely decisions. Tracking the yield percentage at each stage in the process will help identify material issues earlier and can be fed back up the manufacturing chain to the supplier. Additionally, they wanted to enable continuous improvement in the manufacturing process in order to lower costs and improve customer satisfaction.

Why AWS

HP had experimented with many POC's on both a competing cloud and on-premises deployment options. The company felt that in order to continue to grow and increase business agility, they would need to take advantage of the flexibility and scalability of the cloud, and they identified the Amazon Web Services (AWS) Cloud as the most mature environment that could meet their requirements. High availability enabled across the AWS global infrastructure was a key differentiator, as HP plans to continue expanding their solution to all manufacturing regions panning across North America, APAC, and EMEA.

About HP

HP Inc. is an American technology company which develops personal computers (PCs), printers and related supplies, as well as 3D Printing solutions. The Ink Supplies Organization manufactures Ink supplies for HP's Print and Graphics division. Manufacturing is spread across various geographical locations (among Contract Manufactures and Suppliers). Manufacturing Data is generated at each location and linked to HP systems.

Why Mactores

After deciding on AWS, HP evaluated various AWS Partner Network Consulting partners with expertise in Big Data and Analytics. They conducted interviews with existing AWS customers and the decision came down to Mactores quickly helping them understand how our Business Automation approach and expertise delivered on similar digital transformation projects leveraging AWS services. To help move the project forward Mactores and AWS conducted an onsite workshop with the HP Inc Engineers at their Singapore and California, US offices. Because the HP team could experience the proposed AWS services, this brought clarity to defining the problem statement, which was key to receiving approval to move forward with the project.

The Process

At the beginning of their engagement, Mactores sat down with the HP teams to gain a comprehensive understanding of their environment and collaborated on formulating a detailed plan on how to develop a new environment around their needs. The solution was delivered based on AWS lambda architecture which involved Batch and Real time data processing with Plotly used for the dashboards. The clear business deliverables included;

- Defined visual design of the business outcomes
- Identified the required data structure needed to generate the outcomes
- Generated the design for the Ad Hoc Query interface
- Conducted workshops with both engineering and business teams ensuring alignment
- Delivered a fully harmonized data model
- Deployed the visualization dashboard with the real-time view of the operations predicting the inventory at each step of the process.

Benefits

By implementing a fully automated Command and Control center all the stakeholders now had the capability to analyze the critical data points in real-time while achieving the objective of gaining control over the manufacturing operations. These capabilities then made it possible for the modeling system set up by Mactores to predict the possibility of pilferages (fraud) at each level in the manufacturing process thereby performing yield prediction. Additionally, material manufacturing Quality detection helped HP improve on Quality, which reduced the post manufacturing defects substantially. HP has also benefited from Mactores' accessibility and willingness to help on an ongoing basis.

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Next Steps

Since the beginning of their engagement, HP has been able to reach out to Mactores to brainstorm solutions to solve other critical business challenges by working with Mactores to help identify the concise problem statements and the path forward to solving. HP is currently in the process of evaluating IoT implementations to push data from their machines to AWS servers and then identify a prioritized use case to leverage Amazon Sagemaker.