Manufacturing captures the competitive value of cloud

In recent years, the complexity of the digital footprint within the industrial and manufacturing sectors has increased exponentially. Organizations, their people, and their processes are increasingly dependent on a myriad of software solutions such as ERP, PLM, MOM, and MES systems. The sectors are now relying on the promise of new, data-driven Industry 4.0 solutions to unlock insights and improve productivity.

Cloud is in a prime position to help organizations with this data-driven approach, enabling them to be more agile, scalable, and innovative. For example, the high compute and AI/ML capabilities that are natively provided by cloud services providers like Amazon Web Services (AWS) can be leveraged to build predictive data models. These models can then combine weather data with historical production data to configure optimal factory settings and yield high efficiencies. With sensors and location-based services, organizations can adjust production according to changing energy prices, while ensuring that the required (minimum) amount of products are being produced.

AWS allows for reduced:

- Capital expenditure with little or no IT infrastructure expenditure
- Operational expenditure, as fewer engineers are focused on the upkeep of IT infrastructure
- Risk of over- or under-provisioning resources, as cloud provides an on-demand, scalable infrastructure

Though organizations are ready to leap forward with cloud, one of the most difficult challenges they encounter is understanding how to get started. As an AWS Premier Consulting Partner, Deloitte is helping organizations discover and accelerate toward what's possible with AWS.
Improving part visibility for Spirit AeroSystems

Spirit AeroSystems, a large aerostructures manufacturer, desired improved visibility into the parts moving through their factory floor to add context to the part lifecycle. The company engaged Deloitte to develop a real-time tool tracking solution and visual view of the factory floor with mapped assets. The solution was developed and deployed using AWS, coupled with PTC ThingWorx.

The solution utilizes Amazon Elastic Compute Cloud (Amazon EC2) for elastic compute and storage globally, as well as various storage (Amazon Relational Database Service [Amazon RDS] and Amazon Glacier), integration (Amazon API Gateway) and business logic (AWS Lambda) features. The deployment enabled the creation and implementation of dynamic scheduling algorithms, allowing for reduced work-in-progress. With this solution, enriched with application data from SAP, WMS, and crane data, Spirit AeroSystems can track and visualize part location in real time, thus enabling better insights on scheduling outputs and increased awareness by notifying users through a visual display.

Through Industry 4.0, new technologies such as IoT, blockchain, and advanced analytics are blurring the lines between physical and digital worlds. We are no longer experiencing the traditional, manual, and sequential value chain of the past, but rather a fully connected digital ecosystem. With so many entry points in the value chain, manufacturers should consider adopting a cloud strategy that will help them with not only incremental, but also transformative gains.

By applying a targeted and controlled approach, Deloitte and AWS are helping organizations improve performance, reduce cost, and capitalize on the competitive advantages of Industry 4.0 to see their possible, and make it their actual.

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