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Smart Factory Fabric on AWS

Challenge
Using IoT to revolutionize manufacturing

Digital has transformed manufacturing over the past decade. The cloud and Internet of Things (IoT) have helped companies make gains in efficiency and productivity that are nothing short of revolutionary. But the revolution isn't over. For companies with complex manufacturing operations, implementing a smart factory solution at industrial scale can be daunting, but imperative for those who wish to remain competitive today.

Smart Factory Fabric on AWS
Accelerating smart factory transformations for companies with manufacturing operations

Smart Factory Fabric is a pre-configured suite of cloud-based IoT applications designed to accelerate smart factory transformations for companies with manufacturing operations. Powered by AWS IoT, Deloitte designed and built a suite of cloud applications and integrated services to deliver smart factory capabilities to industrial enterprises. The Smart Factory Fabric suite of services helps companies improve their operational performance and reduce costs by increasing visibility, improving production, improving quality, and reducing unplanned downtime associated with running a smart factory.

Potential Benefits

Smart factory transformations, when done at the plant or enterprise level, can help create significant cost savings, improved product quality, and increased employee satisfaction.

Improved Asset Efficiency
- Optimized capacity
- Asset utilization
- Changeover time
- Downtime

Reduced Costs
- Labor cost
- Sourcing cost
- Inventory levels
- Maintenance cost
- Warranty cost

Improved Process Efficiency
- Scrap rates
- Fill rate
- Yield
- Lead times

Improved Safety and Sustainability
- Safety incidents
- Employee satisfaction
- Sustainable practices
- Environmental impact

Deloitte and AWS

The Smart Factory Fabric pairs Deloitte's experience in business strategy, operations, industrial products, and technology engineering with AWS Cloud and AWS IoT services, including its global reach, to deliver a scalable, configurable smart factory that's tailored to a manufacturer's unique needs. The solution brings together the leading providers in the industry, each with highly complementary services:

AWS

- Native, integrated AWS stack: Lower cost with anchor provider, greater scalability, and availability via the cloud
- Secure by design platform: Solution with built-in cyber security; GovCloud (FedRamp Certified), VPC available
- Flexible and adaptable platform: Open and extensible with the flexibility to use third-party offerings
- Unmatched reliability: IoT structure allows connected devices to operate with intermittent connectivity
- AWS architects, investment, and support: Dedicated team for ongoing support

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- ROI-driven approach: Issue-driven design, targeting tangible improvement to operational metrics
- Human centered design: Built with user experience in mind to foster greater adoption
- Preconfigured accelerators: Built with baseline use case solutions to accelerate delivery
- Integrated offerings: Connected to and integrated with cyber and other Smart Factory use cases
- Delivery methodology: Tested deployment models focused on driving the necessary process and culture change required

Features

Asset Track and Trace

Dynamically track work orders and parts through defined routes and optimize against work order schedules based on constraints (part, machine, or resource).

Machine Monitoring

Capture, analyze and display critical machine performance data that allows operators to know machine status, receive proactive alerts and notifications, and improve OEE performance.

Command Center

Drive the optimization of overall factory network capacity by providing a command center to visualize asset performance and cross-factory utilization.

Predictive Maintenance

Cloud-based and Edge-deployed AI/ML algorithms that are able to proactively sense and detect operating conditions that result in catastrophic failure upon deployment, without the maintenance team having to build a knowledge base.

Quality Sensing

AI/ML algorithms that are able to proactively sense and detect quality degradation issues with the goal of catching quality escapes earlier in the process.

Advanced Worker Solutions

Align available workforce resources to production needs dynamically, allowing supervisors to manage and optimize for constraints, and view performance in real time.

Dynamic Scheduling

Interactive, real-time solutions that allows operations management to proactively identify issues where the current production schedule is inconsistent with the output capabilities of the asset(s) in the production.

Case Study: Large Aerospace Manufacturer

Challenges

One of the world's largest aircraft aerostructures manufacturers was experiencing poor worker and asset efficiency, excessive inventory, and inadequate constraint resolution,. The existing production management systems were outdated, and a new solution was required to control production.

Solution

Cloud-based production control application to synchronize the shop floor for an aerospace manufacturer – optimizing WIP, throughput, and asset efficiency. The solution features a dynamic scheduling capability for manpower/machines, RFID tracking for material, and RPA for systems linkages – all on a secure and scalable platform. Deloitte designed, developed, and deployed a c

Results

- 15%-20% WIP Reduction
- 5-10% Throughput increase
- Improved worker efficiency (visualization tools to communicate work orders, automated KPIs for supervisors, provided search functionality to locate material)

Get started with the Smart Factory Fabric solution on AWS

Visit the Deloitte APN partner page to purchase or start a Free Trial today.

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