Wipro Manufacturing on AWS

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Wipro Manufacturing Services on AWS

Helping manufacturers achieve digital transformation quickly and seamlessly.

Why AWS?

Manufacturers are embracing digital technologies to transform and are looking to leverage data to make data-driven decisions, further automate processes, and leverage innovations like machine learning, computer vision, and robotics. Manufacturers are challenged to squeeze out additional productivity, maximize their asset availability, and improve quality all while lowering costs. They are also looking to move away from manual inputs into their production processes with digitally executed manufacturing for production and quality optimization, and flexible product changeovers. Additionally, they are looking to reduce consumption of water, compressed air, gas, electricity and steam to lighten their energy footprint to meet corporate sustainability objectives. The cloud plays a key role in all these optimization trends.

For more than 20 years, Amazon has been designing and manufacturing smart products. We also distribute billions of products through our globally connected distribution network using cutting-edge automation, machine learning services, and robotics, with Amazon Web Services, AWS at the core. AWS was literally born from our industrial operations at Amazon, and we understand the needs of factory operations.

AWS helps you transform manufacturing operations with the most comprehensive and advanced set of cloud solutions available today. Instead of focusing on building and maintaining your data center infrastructure, concentrate your resources on creating differentiated new products, improving operational efficiencies across the value chain, and optimizing production.

Improve product and production process design

AWS delivers virtually unlimited compute and storage capacity, along with one of the most comprehensive set of edge-to-cloud solutions available today. Reduce time to results and time to market by running more parallel tasks. Run most on-premises environments would allow. Innovate faster without the worry about scaling your data center infrastructure. When they run HPC workloads in the cloud, designers, scientists, and engineers can use model-based design and large-scale parallel simulations to quickly solve complex computing challenges and collaborate more effectively with secure file sharing, and access to AWS resources worldwide.

- Unlimited compute and storage capacity
- Edge-to-cloud solutions
- Reduce time to results and market
- Innovate faster

Leading Semiconductor companies today use AWS to take advantage of a more rapid, flexible deployment of CAE and EDA infrastructure, from the complete IC design workflow, to register-transfer-level (RTL) design, to the delivery of GDSII files to a foundry for chip fabrication. AWS compute, storage, and higher-level services are available on a dynamic, as-needed basis without the significant upfront capital expenditure that is typically required for performance-critical electronic design automation (EDA) workloads.

Amazon Web Services (AWS) offers a secure, agile, and scalable platform with a comprehensive set of services and solutions for high performance design, verification, and smart manufacturing, supporting EDA and rapid semiconductor innovation in the cloud. Semiconductor design simulation, verification, lithography, metrology, yield analysis, and many other workloads benefit from the scalability and performance of the AWS Cloud. For example, compute performance for these applications is enhanced by latest generation EC2 instance types, including the z1d. Run more jobs per core with z1d, the fastest single thread performance of any cloud instance, delivering 4GHz sustained CPU, 16 GiB RAM per core, and local NVMe storage.

Get smart with your data

Manufacturing is dependent on data – not just gathering it, but using it effectively. Data from design teams, the factory floor, and finished product behavior in the field can help optimize operations, improve the quality and usability of products sent to customer, and provide feedback to design and engineering teams to create better products. To get more out of valuable data in your factory it needs to be extracted from disparate sources and production systems, structured for context and stored, and then analyzed to optimize production, machine availability, and quality. AWS Cloud services address these use cases by helping manufacturers extract, structure and store data from a variety of current and legacy equipment into a data lake for a combined, single source of truth. A data lake is a centralized repository that allows you to store all your structured and unstructured data at any scale.

An Aberdeen survey saw organizations who implemented a data lake outperforming similar companies by 9% in organic revenue growth.[1] This data allows for detailed analysis and consumption to digitally transform to improve business operations. Data extraction and structuring tools, edge computing, storage, and machine learning services are making smart factories even smarter to optimize Overall Equipment Effectiveness, or OEE.

[1] Aberdeen Research: Angling for Insight in Today's Data Lake Quiff

Data gathered from disparate sources, even from different systems, can benefit from advanced data analytics. For example, using machine learning services like Amazon SageMaker which is a fully managed service that gives your teams the ability to build, train, and deploy machine learning (ML) models quickly. SageMaker removes the heavy lifting from each step of the machine learning process to make it easier to develop high quality models. This allows analysis and comparison of a huge number of production variables to glean insights into your process to optimize overall equipment effectiveness.

Enhance security and streamline operations

Protecting your intellectual property and the integrity of your production processes is vital in today's business environment, where operational technology (OT) infrastructure cyberattacks are on the rise. At AWS, cloud security is our highest priority. When you work with us, you'll benefit from a data center and network architecture that's built to meet the requirements of the most security-sensitive industries and organizations.

As a manufacturer, you want to focus on innovation and improving business operations, not on technology infrastructure. AWS, together with our GSI partners can help start your cloud journey today to optimize your business operations. Innovate faster, maximize your factory OEE, and lower costs with the help of AWS and our vast partner network.

Wipro Solutions for Manufacturing on AWS

Wipro offers its own specialized platforms, along with AWS tools and partner solutions, to help manufacturers achieve digital transformation quickly and seamlessly. Wipro's products on AWS provide smart monitoring technologies, data collection and analysis, product development, supply chain modernization, and maintenance recommendations that revolutionize manufacturing efforts. These offerings take factories from reactive to proactive while unifying infrastructure, saving money, increasing productivity and efficiency, and keeping workers and equipment safe.

1 Condition-Based Monitoring

No factory is quite like yours, which is why Wipro created its Condition Based Monitoring solution to be highly scalable and customizable. AWS Internet of Things (IoT) tools and analytics again give factories total and continuous visibility into asset performance to optimize equipment usage and increase factory efficiency.

Key features

Condition Based Monitoring takes individual machines in your factory and transforms them into an interconnected, responsive IoT ecosystem – providing you with a fresh and comprehensive view into your operations.

- **Unified dashboard.** A single view combines OEE and maintenance insights using AWS monitoring, analytics, and third-party tools.
- **Highly customizable infrastructure.** Asset condition monitoring is asset-agnostic and can be tailored to fit your environment.
- **Real-time data.** The solution leverages IoT and cloud technologies to provide continuous insights for different asset types.
- **Numerous equipment parameters.** Track location, temperature, vibration, voltage, current, RPM, liquid level, and more.
- **Failure prevention.** Set conditions to detect early signs of failure and avoid time-consuming failure events.

Benefits

Manufacturers improve safety, efficiency, and productivity thanks to Condition Based Monitoring, which helps asset-intensive businesses prevent failure, establish equipment trends, and plan for asset replacement.

- **Increase asset utilization.** Real-time location and status visibility across different sites increases asset use and availability.
- **Minimize machine downtime.** Alerts and notifications result in timely maintenance, improving productivity.
- **Gain insights.** Advanced analytics tools provide actionable data for operational improvements.
- **Boost operational efficiency.** Optimize use of all your assets and gain visibility over worker and maintenance efforts.
- **Improve worker safety.** Replace manual monitoring with digital tools to reduce workplace injury.

2 Smart Track and Trace

As today's industrial environments and supply chains increase in size and complexity, manufacturers can leverage intelligent technologies to gain visibility into their operations. Wipro's Smart Track and Trace solution uses AWS AI/ML, analytics, and blockchain to monitor asset locations, track time-series data, and perform real-time analysis.

Key features

Smart Track and Trace relies on versatile IoT sensors that can be placed nearly anywhere to track multiple types of assets in many environments, providing deep insights for manufacturing companies.

- **Real-time tracking of asset locations.** Increase visibility with IoT to reduce worker effort in locating assets.
- **Connects to different asset types.** Create a digital inventory of man, machine, material, and powered and unpowered assets.
- **Tracks in all environments.** Locate inventory, workers, and vehicles whether they are indoors, outdoors, or in transit.
- **Blockchain-enabled.** Tracing IoT metrics with blockchain and cloud technology provides access and visibility for all stakeholders.
- **Instantaneous data analysis.** AWS tools process and analyze data as it is collected, enabling fast response times.

Benefits

Protect your bottom line, strengthen your reputation, increase productivity, and improve efficiency when you digitize asset monitoring with Smart Track and Trace on AWS.

- **Save worker hours.** Reduce human effort spent on locating assets when you deploy IoT technologies.
- **Increase operational efficiency.** Near real-time monitoring enables managers to make timely, informed decisions.
- **Reduce misuse and theft.** Monitoring and geofencing increase accountability and minimize time and asset loss.
- **Increase productivity.** Automating inventory and monitoring processes frees workers to spend time on other value-adding tasks.
- **Offer transparency.** Respond to customer appeals for supply chain transparency, such as inventory authenticity and ethical practices.

3 Production Monitoring and Process Automation

Wipro's Production Monitoring and Process Automation offering provides installed base management and real-time production monitoring for discrete manufacturing companies. This solution combines Wipro's Looking Glass Industrial Internet Platform and a multi-protocol gateway software stack (MPOSS), along with AWS IoT services.

Key features

This scalable solution supports multiple industrial protocols for simplified connection to machines and IoT sensors, providing increased insight into production and intelligent oversight for managers.

- **Paperless factory setup.** Production data automatically syncs between your MES and ERP, providing real-time oversight.
- **Unified dashboard.** Gain a consolidated view of the production process, work order status, and key performance indicators (KPIs).
- **Legacy equipment integrations.** Turn legacy assets into smart assets by retrofitting intelligent IoT sensors.
- **Real-time production monitoring.** Monitor machine, technician, and operator productivity.
- **Notifications and alerts.** Keep and eye on KPIs and receive real-time alerts as production progresses.

Benefits

Gain full production oversight and fulfill work orders quickly and confidently using real-time monitoring tools from Wipro on AWS.

- **Reduce machine setup time.** With continuous monitoring, plants can reduce machine setup time by up to 42%.
- **Improve OEE.** Production monitoring can increase OOE by up to 16%.
- **Increase accuracy.** Smart monitoring solutions minimize erroneous data in the production process.
- **Increase sales with availability insights.** Improve quote-to-sale rates by providing accurate available-to-promise (ATP) data.
- **Optimize worker effort.** Automation saves worker hours, and monitoring encourages worker productivity.

Customer references

- Precision Group enhances operational efficiency on factory
- A construction equipment OEM decreases cost of service operations

Learn more

- IoT solutions: Stitch the complete IoT
- Looking Glass: Industrial Internet Platform
- Wipro Looking Glass - A hierarchical asset management platform

Connect with Wipro

To get started transforming your business, innovating faster, and growing ahead of the curve.

Connect

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