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Ingenuity for life

MindSphere

The cloud-based, open IoT operating system

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Every machine and system in your business provides a wealth of data with benefits yet to be fully realized. MindSphere enables you to transform this data into productive business results. By connecting your machines and physical infrastructure to the digital world, MindSphere provides powerful industrial applications with advanced analytics and digital services to unleash increased productivity and efficiency across your entire business.

MindSphere offers you:

- Faster development of robust Industrial Internet of Things (IoT) solutions
- Open PaaS with access to native cloud development (identity and access management)
- Extensive device, enterprise and database connectivity
- Powerful industry solutions with advanced analytics
- Combined global scalability of Siemens as the #1 automation provider and Amazon Web Services as the #1 cloud provider

Connecting Real Things to the Digital World

Industries undertaking IoT transformation are faced with difficulties connecting to a wide range of assets quickly, affordably and securely from disparate locations. With MindConnect, Siemens offers flexible, open options for connecting both Siemens and non-Siemens assets to MindSphere. Both MindConnect Nano and the MindConnect IoT2040 offer different levels of service and price points for any size of production environment. Both units create a direct and secure connection with MindSphere to transmit data by attaching through brownfield installation.

With MindConnect FB 1500, your existing S7-1500 Programmable Logic Controllers (PLCs) can connect directly to MindSphere and the digital world using a TIA Portal STEP 7 library with no additional investment in new infrastructure or development. By leveraging MindConnect LIB, developers can create custom connectivity functions to support numerous protocols required to connect diverse assets in a cost-effective way.

Security is a top priority for Siemens as the world's number one automation provider with 30M automated systems, 75M contracted smart meters and 800k connected products in the field. MindSphere provides state-of-the-art security during data acquisition in the field, transmission and storage in the cloud. The security framework of MindSphere is aligned to the principles of industry standards (IEC 62443, ISO/IEC 2700) and governmental recommendations for data handling in cloud environments.

In addition, MindSphere facilitates data integration with existing enterprise systems and databases. By joining data streams from multiple sources into one centralized location, customers will have more insights across their entire operation.

Open Platform as a Service (PaaS)

Transformation of IoT data into meaningful and actionable information for companies is not one size fits all. With open standards and robust IoT APIs, MindSphere enables developers to build applications, exchange data and connect a wide range of products with little effort.

With Siemens' deep domain expertise across industries and the global scale of Amazon public cloud, IoT solution development is accelerated. By accessing MindSphere's open IoT APIs, partners can develop high-value applications and deliver digital services in collaboration with Siemens and AWS. With Open APIs, partners can develop, deploy and distribute their own MindSphere solutions and share them among the entire MindSphere community.

MindAccess DevOps Plan, available in different package sizes and upgrades, provides access to a complete environment for application development and lifecycle management. Developers can utilize reusable modules including data management, parsing, analytics and visualization to accelerate the development process and provide their applications to customers. Besides tutorials and documentation, comprehensive training courses are optionally available based on the specific needs of your development team.

Powerful Industrial Applications and Digital Services

With MindSphere, Siemens is paving the way for businesses to offer their organization and end customers' new digital services. Through the use of powerful industrial applications with advanced analytics, businesses realize higher availability as well as improved productivity and efficiency for individual machines, entire plants, systems or globally distributed machine fleets within the field of industry, energy or mobility infrastructure.

As a standard and best practice IoT starting point, MindSphere users receive the core application Fleet Manager for immediate asset monitoring that can be configured in virtually no time. MindSphere users can locate their connected assets at a glance on a geographical map.

Product Intelligence is a MindApp that automatically discovers insights from contextualized product performance data. By providing greater visibility into product and supply chain performance, you will prevent costly recalls, solve quality problems faster and close the loop between design and actual product performance.

Manage MyMachines, a MindApp, provides transparency across your machines anywhere in the world. Through the configuration and display of critical monitoring variables, insightful information on current operations and productivity history are used to reduce machine inspection and maintenance costs.

In addition, MindSphere Industry Solutions offer targeted packages to jump-start your IoT transformation. For example, MindSphere Industry Solution for General Manufacturers provides a predefined architecture of matching components to immediately visualize, monitor and optimize your assets.

To address the broad scope and high complexity of digital transformation across all industries, MindSphere has established an extensive network of world-class partnerships with broad domain expertise and IT capabilities. These partnerships enable MindSphere with a robust offering of IoT solutions and services with the flexibility to match the specific requirements of our customers. MindSphere provides partners with an unparalleled opportunity to participate in the digital transformation of companies regardless of industry or size.

Closed Loop Innovation with end-to-end Digital Twin

Digitization and the transformation of IoT data to productive business results are core drivers of MindSphere. High-value industry-based applications built on MindSphere deliver measurable results through digital services. In addition, companies can leverage MindSphere to close the digital twin loop through product ideation, realization and utilization to seamlessly integrate operational data throughout the value chain. This helps to not only drive operational efficiency, but also compare simulation and test results with real-world observations.

Customers can now optimize the entire value chain, from design, production planning and engineering, to services.