

Reimagining Business with SAP HANA®Cloud Platform for the Internet of Things



The Best-Run Businesses Run SAP®



Connect, transform, and reimagine

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The physical world is becoming a kind of information system. By 2020, analysts predict that 30 billion devices, appliances, machines, and other physical objects will be connected.¹ Communicating over the Internet through embedded sensors, these objects are expected to help generate 403 trillion gigabytes of data per year by 2018.² Welcome to the Internet of Things (IoT).

By connecting things, people, and business networks, the IoT is changing the way we live and conduct business. Experts predict that the economic impact of this revolution will exceed US\$ 14.4 trillion and deliver advantages to all companies.³ Unprecedented insight into business processes will lead to new products and services, innovative business models, and greater business growth. You'll be able to transform operations and completely reimagine your business.

Already, companies are reaping the benefits. Take adaptive logistics, for example, which optimizes operations of a logistics hub with sensors

that communicate geospatial information on trucks, trains, and vehicles. Companies are also using the IoT for predictive maintenance on capital equipment, real-time fleet management for vehicles on the road, and smart metering to optimize energy consumption.

These are just a few examples. The list goes on. The opportunity is tremendous. And SAP is prepared to help you seize the advantages.

1. "Finding Success in the New IoT Ecosystem: Market to Reach \$3.04 Trillion and 30 Billion Connected 'Things' in 2020, IDC Says," IDC, 2014.
2. "Cisco Global Cloud Index," Cisco, 2014.
3. Joseph Bradley, Joel Barbier, Doug Handler, "Embracing the Internet of Everything to Capture Your Share of \$14.4 Trillion," Cisco, 2013.



A comprehensive portfolio for the IoT

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The features you need for IoT success

Services that extend the platform

Data management and intelligence at the edge

Applications for real-world IoT scenarios

With SAP HANA® Cloud Platform for the IoT, SAP offers a comprehensive solution portfolio that enables intelligence at the edge and automating processes at the core. (See [Figure](#).)

Its foundation is the SAP HANA platform, which can process and stream unprecedented volumes of data in real time. The platform helps you process data of any kind of machine, device, sensor, or actuator – merging it with transactional business data, geospatial services, and unstructured information from social media. And with its predictive and analytics capabilities, you can take into account a variety of aspects to automate decision making, improve business operations, and react in real time.

With SAP HANA Cloud Platform, there is a wide range of additional features designed to empower you to take full advantage of the IoT. By integrating the cloud platform with analytical applications, you can consolidate data from IoT assets and other business systems, access the information on almost every mobile device, and deliver data sets in a secure, protected way.

And all of this – with an open design for third-party developments and extensibility – is available to you in the cloud so that you can get up and running quickly with the lowest possible up-front investment.



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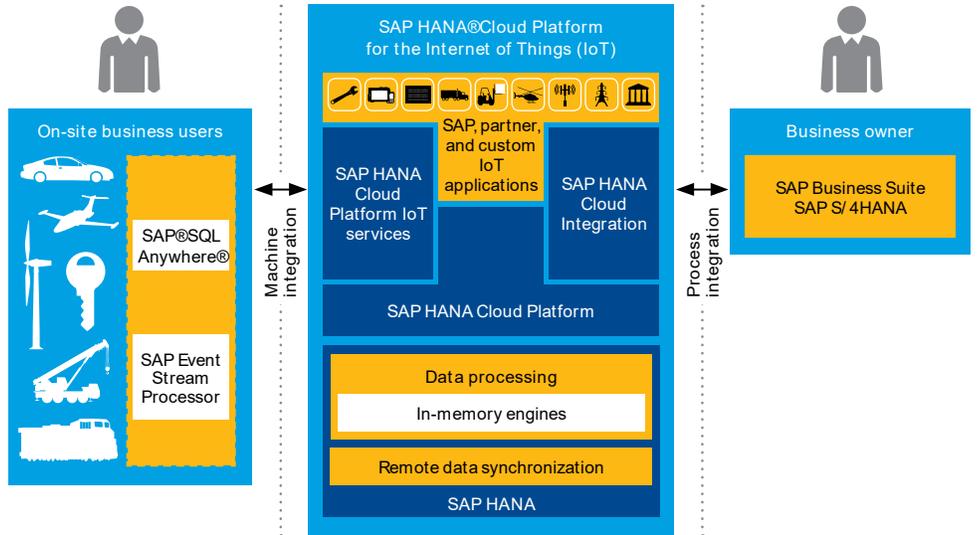


Figure: Overview of SAP HANA Cloud Platform for the IoT



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SAP HANA Cloud Platform for the IoT employs sophisticated algorithms to help you understand and predict business outcomes. You can perform predictive analysis to recognize trends, detect outliers, and forecast outcomes. You can even use self-service visualizations to report findings in ways that people comprehend immediately.

Additional features include:

- Text analysis: Extract and process unstructured text data from various files – with support for up to 31 languages.
- Geospatial processing: Store, process, manipulate, share, and retrieve spatial data by using SAP HANA.

- Operational intelligence: Manage operational risk with end-to-end process visibility and better analytics.
- Series data processing: Measure data and forecast trends with native series data storage and processing.
- Graph engine modeling: Discover, manage, and analyze complex relationships for proximity- and location-based analytics.
- Multitenant architecture: Logically isolate databases while sharing underlying system resources to optimize efficiency.

With broad support for such leading-edge capabilities, you can get the most out of the IoT – a lot sooner than you may think.



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SAP HANA Cloud Platform for the Internet of Things is extended with a rich set of services that facilitate the management, administration, and processing of IoT data.

These services support critical activities such as:

- **Remote device management services:** Manage the device lifecycle from onboarding to decommissioning and device and data modeling. Receive device information, configure devices remotely, and send commands to devices.
- **Message management services:** Support various transport protocols and messaging formats to send, receive, and store IoT data in the persistence layer of SAP HANA Cloud Platform.
- **Application enablement:** Apply functionalities for remote device management and message management in your applications through application programming interfaces (APIs).

Together, these services give you control over core aspects of your daily IoT activities – enabling you to capitalize on everything this new digital economy has to offer.

Speed your entry into the IoT economy with embedded services that help you efficiently manage the details of connected devices and applications.



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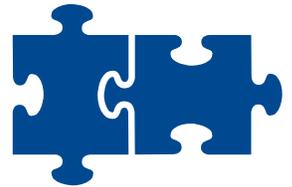
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Quickly take advantage of the IoT with innovative data management capabilities. With a processing speed that is up to 1,000 times faster than traditional databases, the in-memory technology of SAP HANA facilitates immediate response to high-stress situations such as rerouting a supply truck for real-time stock replenishment or predicting wind turbine failure and automatically scheduling a service technician.

You can even work with almost any kind of data and improve its quality. For example, our smart data integration tool facilitates cleansing, matching, deduplication, and data profiling. SAP SQL Anywhere solutions provide lightweight databases for edge devices, enabling you to capture and store data locally on your equipment and synchronize that data to upstream systems. And with SAP Data Services software, you can harness Big Data to support critical decisions and business operations.

SAP HANA Cloud Platform for the IoT is designed to connect you to almost anything at the edge of your network.



Applications for real-world IoT scenarios

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To further maximize your advantage, SAP HANA Cloud Platform for the IoT supports open application orchestration. This approach assists you and your application partners in the development, deployment, and management of IoT applications in a way that suits your needs.

To help you get started, we also offer various prepackaged solutions focused on core IoT scenarios. Take, for example, SAP Connected Logistics software. It integrates real-time data with distribution analytics for end-to-end visibility into freight, containers, and shipped

goods. Another offering, the SAP Connected Assets software, analyzes sensor and business data to increase visibility into current asset health, predict failures, and apply preventive measures. By integrating this software deeply with solutions and data in your SAP solution environment, you can maximize your return on existing investments.

For more information about specific SAP solutions for the Internet of Things, please visit go.sap.com/solution/internet-of-things.html.

Build and run IoT applications that help you improve business operations, automate decision making, and serve more customers better than ever before.



Maximize your business potential with SAP and the IoT

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With more than 30,000 customers around the world across various industries using SAP solutions for the IoT, SAP understands the kind of technology and processes that are critical for managing any IoT initiative.

SAP HANA Cloud Platform for the IoT applies the full potential of SAP HANA, which is capable of crunching data of unparalleled volumes at unprecedented speeds in the cloud. With the combined services, applications, and functionalities available in this platform, you can dramatically improve visibility, insight,

and control. And it's all available in the cloud, minimizing your capital expense.

Deployment is faster. Your risks are considerably reduced. And your potential for success with the Internet of Things is tremendous.

What, exactly, is that potential? You don't have to go far to find out. Learn from companies that are taking advantage of SAP solutions for the IoT today by visiting www.sap.com/pc/tech/internet-of-things/case-studies.html.





Objectives

Solution

Benefits

Quick Facts

Summary

With SAP HANA® Cloud Platform for the Internet of Things (IoT), SAP offers a comprehensive IoT solution portfolio that includes packaged applications, integrated services, and strong innovation software to empower your company to quickly take advantage of the hyperconnected global economy. Get up and running quickly with SAP solutions for the Internet of Things.

Objectives

- Innovate to grow your business and outpace the competition
- Rapidly onboard devices and capitalize on the potential of the Internet of Things
- Move forward in a cost-effective manner that minimizes risk and maximizes value

Solution

- A comprehensive portfolio to get you started with the Internet of Things
- Real-time, in-memory data processing with SAP HANA Cloud Platform
- Cloud deployment for fast, low-risk ramp-up
- Technical services, platform functionality, and applications to help ensure success

Benefits

- Increase business growth potential dramatically
- Reimagine the business with new products, services, and business models
- Build mobile apps quickly to deliver business value
- Integrate with existing processes
- Differentiate your company with first-to-market advantages

Learn more

To find out more, call your SAP representative today, or visit us online at www.sap.com/loT.



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