

How to benefit from your asset usage data



Bosch. **IO** We bring the IoT to life The central graphic features a grid of light blue circles and vertical bars on a dark blue background. The text 'Bosch. IO' is rendered in white, with 'IO' in a bold, sans-serif font. The phrase 'We bring the IoT to life' is centered within the grid in a white, sans-serif font. The entire composition is surrounded by a pattern of light blue circles and vertical bars, creating a binary or data-like aesthetic.

Today's speakers



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What we will discuss today

1. Today's challenges for industrial asset OEMs
2. IoT solutions for connectivity and field data usage
3. Business impact
4. Exemplary IoT project with an industrial asset manufacturer
5. Q&A



Today's challenges...

For industrial asset OEMs



Applications and industries of large engines vary

- ▶ Different user requirements & data management



Worldwide use and global distribution of engines

- ▶ Device connectivity

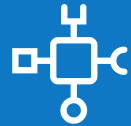


Inefficient on-site use of service technicians

- ▶ Ease of maintenance

Today's challenges...

For industrial asset OEMs



Diversity of devices and protocols

- ▶ Legacy devices & retrofit



On-site security and software updates

- ▶ SOTA & security standards



Status of devices on the field is not transparent

- ▶ Live-data and remote control

connected tracking
learning industry40 predictive industry40
real-time tracking smart fleet industry40
robots iot fleet machine machine
blockchain maintenance
analytics monitoring real-time
management analytics
maintenance analytics ai iot maintenance m2m remote tracking
asset fleet iot robots blockchain machine
m2m robots iot robots predictive asset
machine tracking learning analytics management real-time asset remote monitoring
predictive robots ai/fleet ai m2m real-time fleet
connected smart real-time asset remote monitoring
m2m management learning smart monitoring
learning blockchain maintenance remote management learning
industry 40 management learning analytics
maintenance management monitoring

Bosch.IO solutions for industrial IoT

How to meet the challenges?



Device connectivity

How to efficiently connect millions of (legacy) devices using different protocols?



Software/firmware updates

How to efficiently update millions of devices and roll out security updates?



Device management

How to remotely configure devices and gateways in order to reduce manual efforts?



Data management

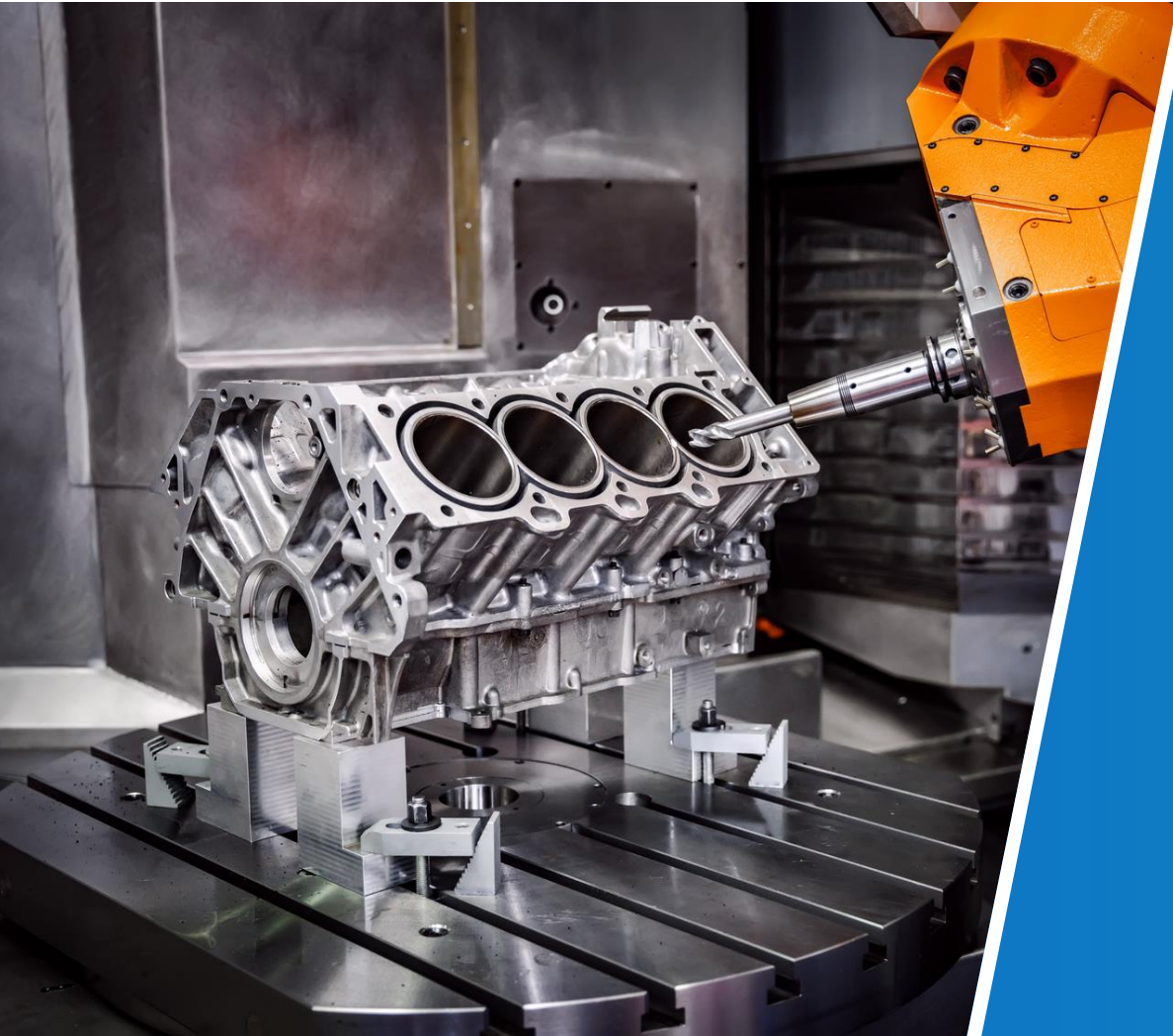
How can I utilize field data to optimize products and solutions?

IoT solutions for connectivity and field data usage



IoT solutions for connectivity and field data usage

Asset connectivity



Challenges

- ▶ IP enablement of hardware
- ▶ Data transmission and processing
- ▶ Device abstraction (digital twin)
- ▶ Developing smart devices/machines

Benefits

- ▶ Receive event notifications and telemetry data from your devices
- ▶ Keep an eye on the latest state of your assets
- ▶ Reduce personal efforts by avoiding last minute maintenance

IoT solutions for connectivity and field data usage

Asset Insights Dashboard



Challenges

- ▶ Complex products are shipped to end customers, but no field data is available to support preventive or reactive measures in case of errors or other maintenance requests
- ▶ New business models need field data

Benefits

- ▶ Product transparency on health status for end customers
- ▶ Increased end customer satisfaction due to preventive measures or quicker response time in case of maintenance

IoT solutions for connectivity and field data usage

Bosch IoT Suite

Proven platform for all IoT challenges

- ✓ **Data management**
- ✓ **Device management**
- ✓ **Software updates**
- ✓ **Device connectivity**

Proven customer benefits

Deployment flexibility

– ensured by multi-cloud strategy

Lowest vendor lock-in

– due to open source approach

Quick project success

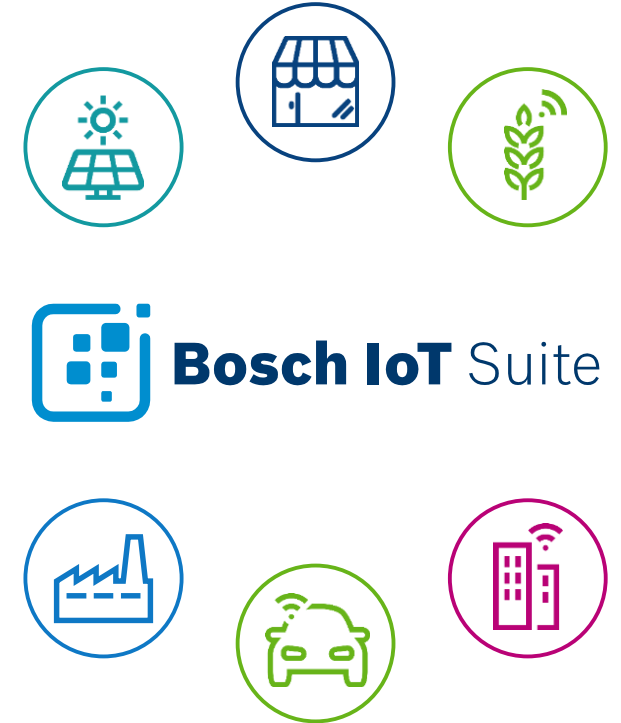
– by high no. of supported protocols

Simplified system integration

– due to complete IoT solution stack

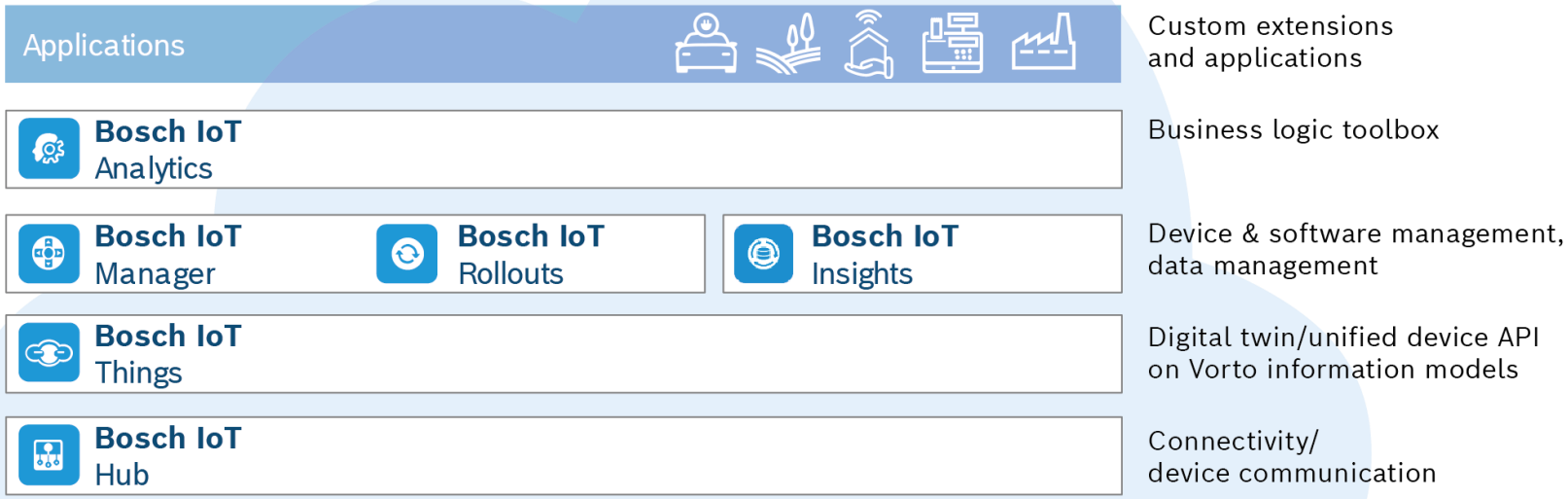
Investment security

– strategic IoT backbone for Bosch Group, developed to support all IoT use cases



IoT solutions for connectivity and field data usage

Bosch IoT Suite



Platform as a Service (PaaS) **Bosch IoT Cloud** **aws** Microsoft Azure

Bosch IoT Gateway Software



Bosch IoT Suite for device connectivity

How to connect millions of devices using different protocols & legacy devices?



- ✓ Pre-configured package reduces configuration costs
- ✓ Device connectivity at the large scale
- ✓ Connectivity and intelligence at the edge

“Our application is managing various devices – be it Modbus, KNX or EEBus devices. Thanks to the device abstraction layer, all of them can be managed in the same way.”

*Mathieu Creteau, Lead Software Architect
Hager Group*



Bosch IoT Suite for data management

How can I utilize large amounts of data?



- ✓ Process optimization through analysis of historical measurement data
- ✓ Condition monitoring
- ✓ Data can be sent to third parties

“Machines are becoming more and more complex in order to meet the ever-growing requirements of the market. But, at the same time, customers need to know that the machines are still easy to operate.”

*Dr. Michael Gallmeier, Head of R&D,
Holmer Maschinenbau GmbH*



Business impact



Business impact

Potential cost savings and new revenue

During implementation

Reduced time to market

Benefit from code of existing projects and Open Source community

Reduced development efforts for connecting machines

from > 100 PD to few days and hours

Focus on your core competencies & products

Adding your USPs to the solution

Programm

ROI

Benefits

Costs

Mid- & long-term

Improve products & generate new revenue streams

Field data usage to improve products & additional features

Gather & analyze data for predictive maintenance

Reduced downtime and service costs

Benefit from a fully managed service

Less DevOps resources needed

Exemplary IoT project with an industrial asset manufacturer



Bosch.IO solutions for industrial IoT

Digital transformation of a major US engine manufacturer



Challenges

- ▶ Remotely manage fleets of more than 1 million engines
- ▶ Manual software update process is time and cost intensive
- ▶ Remotely introduce new features over time

Bosch approach

- ▶ End-to-end offering: gateway hardware & software, backend & security components
- ▶ Asset management: provisioning, health monitoring, troubleshooting
- ▶ Campaign management for software updates over-the-air

Benefits

- ▶ Potential for many more use cases
- ▶ Remote device & fleet management
- ▶ Time & costs savings via process automation & reduction of manual labor

Bosch.IO solutions for industrial IoT

Digital transformation of a major US engine manufacturer



Project overview

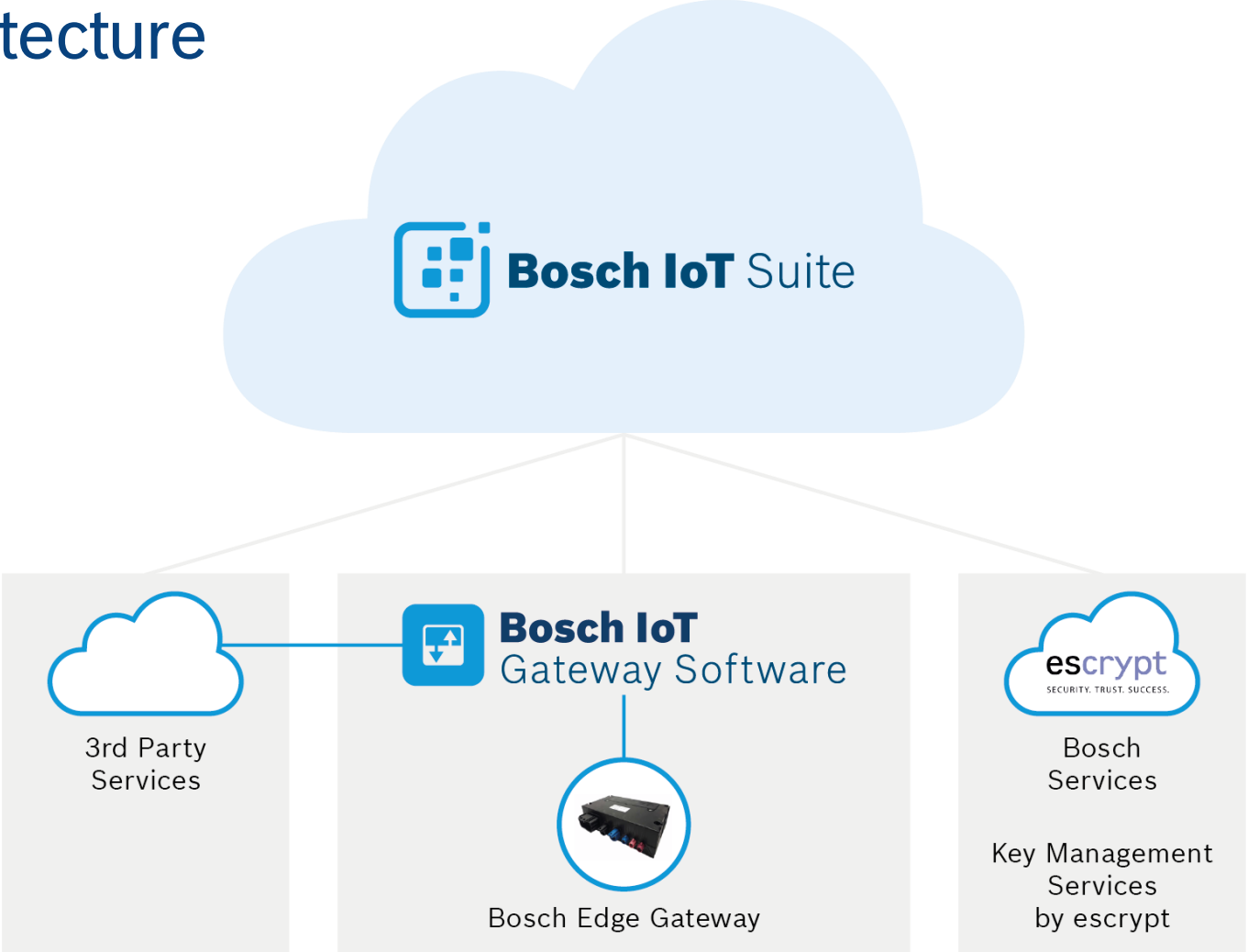
- ▶ Bosch Hardware
 - ▶ Bosch Edge Gateway
 - ▶ 1 Mio. devices will be connected over 7 years
- ▶ Bosch IoT Suite services
- ▶ Bosch Key Management System by escrypt
- ▶ Bosch providing software development & implementation

Main use cases

- ▶ Device connectivity
- ▶ Device management
 - ▶ Remote asset control
 - ▶ Health status
 - ▶ Condition monitoring
- ▶ FOTA updates
- ▶ Fleet management

Exemplary IoT project with an industrial asset manufacturer

Project architecture



Bosch.IO for industrial IoT

Why team up with Bosch.IO?

- ▶ Hardware and software know how from experts across the globe
- ▶ Reliable IoT platform components for creating customer specific applications
- ▶ End-to-end solutions from sensor to cloud service
- ▶ Long-lasting relationships: from question zero, business model consulting to productive operation of the solution



Open ecosystem



Scalability



Cloud-based services tailored for you



Integrated end-to-end solutions



Expandability

This might also be interesting for you



White paper

How to increase transparency and operational efficiency

19 pages, 30 min

Benefits of remote device management for industrial assets.

[Download white paper](#)



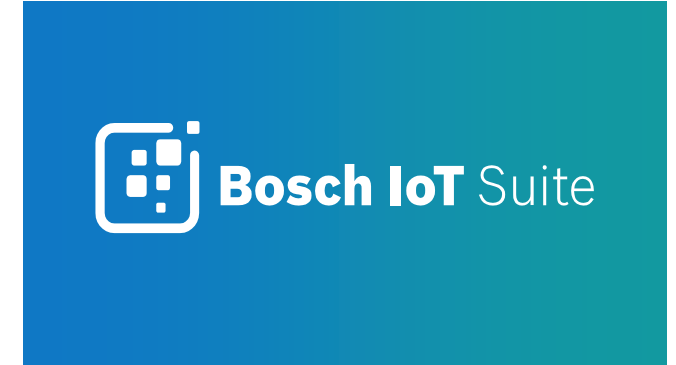
Virtual event

How to manage and update your devices in the field

June 30 - July 1, 2020

Bodo provides practical insights into our SOTA projects.

[Join the IIoT World Days](#)



Live demo

Data management with the Bosch IoT Suite

Pick a date, approx. 1h

Our IIoT experts will show you how to manage data with the Bosch IoT Suite.

[Request live demo](#)

Let's stay in touch



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