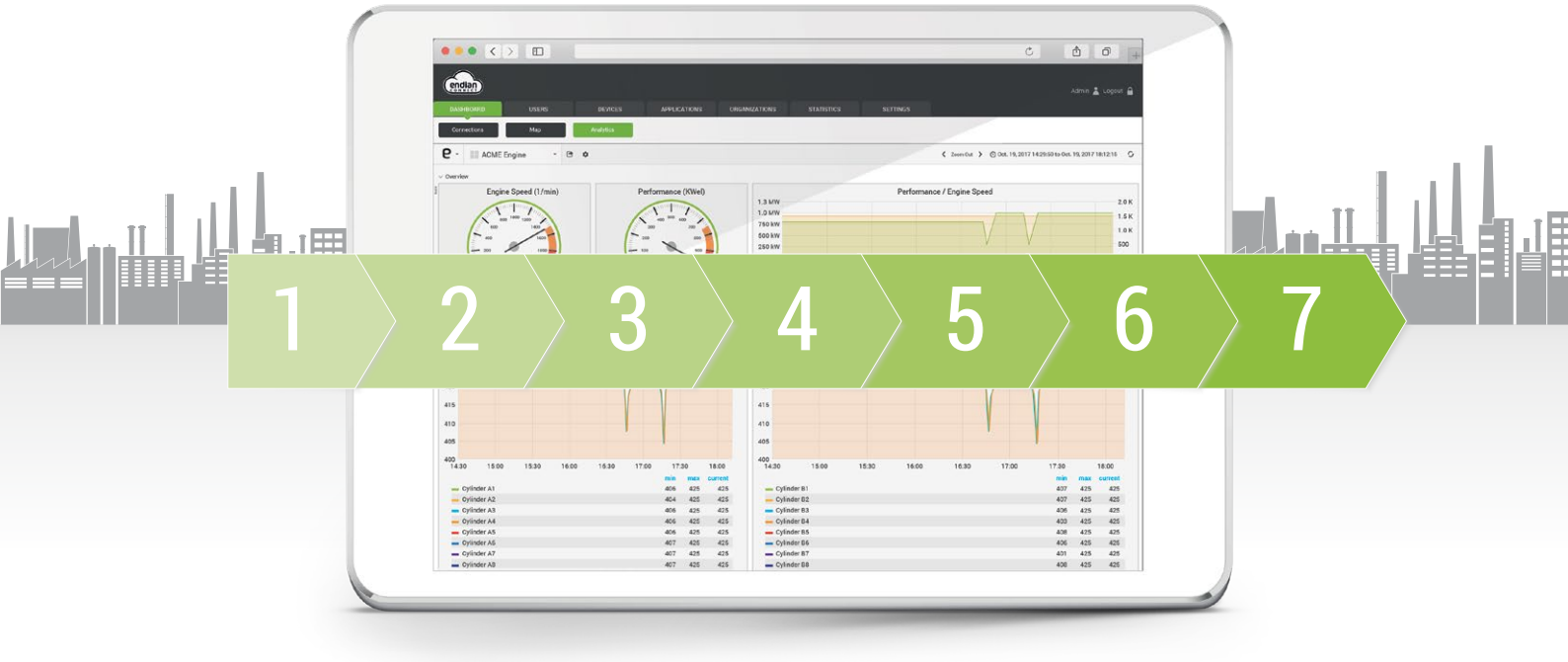
7 Steps to Industry 4.0

Secure Connectivity for Industrial Companies



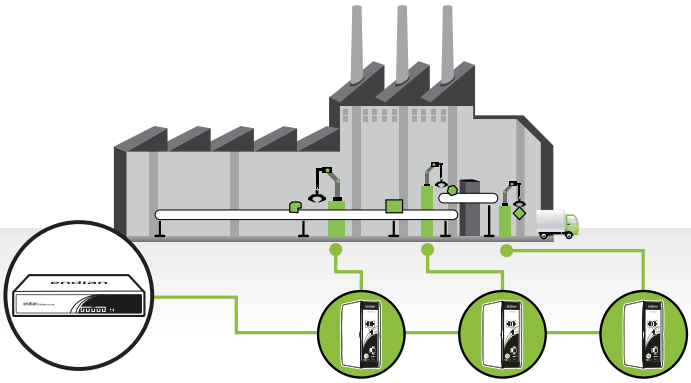
How can industrial companies implement the concept of Industry 4.0 without putting IT security at risk? This guide explains the 7 basic steps.

Companies must take advantage of the potential of Industry 4.0 as soon as possible in order to achieve or maintain a leading position in the global competition. Most companies have already recognized this need. However, in practice the digitization process still presents many challenges to industrial enterprises. Most companies have privacy concerns. And there is a good reason for this: According to a survey of the German IT industry association Bitkom in 2017, 7 out of 10 industrial companies have been victims of sabotage, data theft or industrial espionage in the past two years. The degree of network integration within the industrial companies is usually very high. As a consequence, if a connected machine was infected with malware, it could quickly spread to all other systems and cause tremendous damage.

Another reason for the slow implementation of industry 4.0 are the long life cycles of machines. While an IT system is replaced after about four years, industrial machines have a lifetime of twenty years or more. Industrial companies are therefore today faced with very diverse array of machinery. Many machines still in use today have no IP, because they were developed at a time when nobody was thinking about Industry 4.0. Others are equipped with the necessary interfaces for networking within the company. How should companies act to intelligently connect their machines, employees, and applications without compromising IT security?

The following seven steps provide guidance:

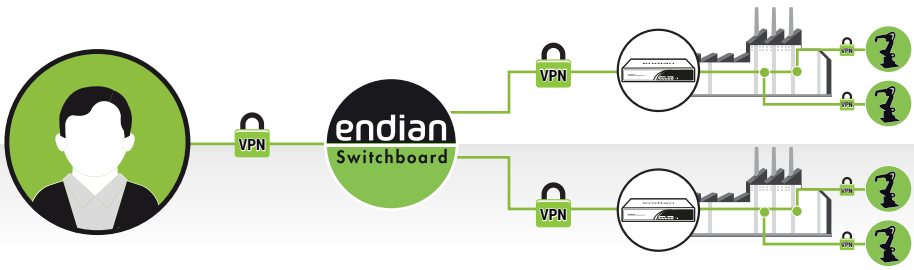
Step 1 Securely connect your infrastructure



Machines and systems need to be connected to the internet via an IoT gateway. Only gateways with extensive IT security features are suitable for this purpose. To protect the data from manipulation or theft during transmission, VPN encryption is required. Features such as firewall, anti-virus software or intrusion prevention systems (IPS) protect the machines and systems against cyberattacks. Innovative gateway vendors combine multiple security features into one device, to provide comprehensive cyberattack protection.

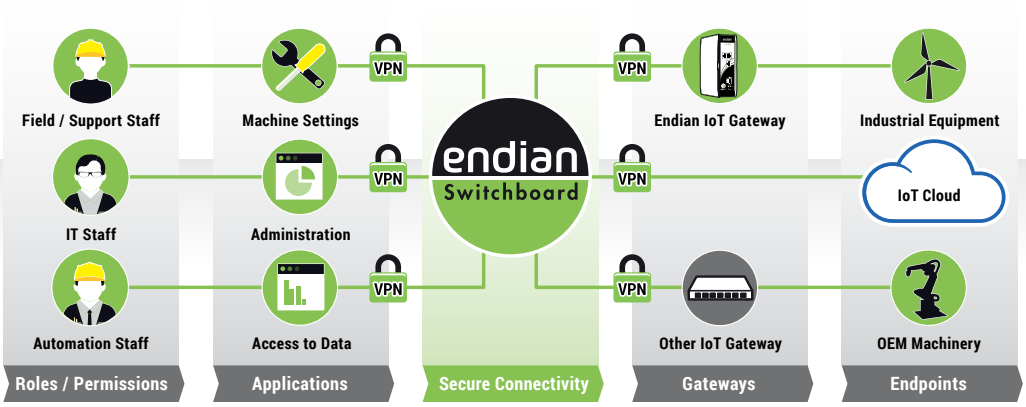
Gateways can also be used to implement network segmentation, which helps to contain and isolate malware events and the machines they impact. The basis for efficient network segmentation is the holistic view of a network and its connection requirements inside and outside the company. Next, the network areas with similar protection requirements are defined and separated using the gateways. In addition, a gateway should never limit the choices on IoT platforms, as only then will a company remain open to future developments.

Step 2 Remote access to all devices



In the next step, the machines are connected via the gateways to the central IoT platform. Users now have the opportunity to remotely manage and monitor the entire infrastructure. For example, if an error occurs on a machine, a technician can remotely assess the machine, evaluate the error and correct it if possible. The remote maintenance of machines and equipment significantly increases the efficiency of the service staff and can significantly reduce support costs.

Step 3 Management of users, processes and applications



Once machines, equipment and users are connected to the IoT platform, permissions can be set using the management tool. For this purpose, the IoT platform has to be multi-client capable. Establishing user rights will further increase the level of security: Users or user groups only have access to the applications and data that are relevant to their area of responsibility. For example, it is possible to give internal and external technicians access to the same machine, while each user group gets the right to perform different actions and to view other data. If a user's permissions change, for example because of moving to another department or leaving the company, the permissions can be quickly and easily adjusted or deleted.

Step 4 Central management of all applications

Endian Management Center

The central management tool of an IoT platform enables centralized management of all applications. A interactive live map provides the global view required for thousands of connected devices. With this interactive map you can see at a glance which machines are connected and if another user is currently working on it. This prevents, for example, remote maintenance while a local employee is working on the machine.

Configuration templates created through the management tool of the IoT platform enable easy connection of additional machines. This considerably reduces the workload for the IT administrators so that valuable human resources are spared.

Step 5 Monitor infrastructure, analyse data

Endian Connect Platform

After connection of the machines and rights assignment have been completed, the data from the machines can be collected and analysed. Data from globally distributed machine locations are collected on the central IoT platform where they can be visualized and analysed by using role-based dashboards for different types of users. Depending on the application scenario, it is possible, for example, to record operating hours, error conditions or quality data. Innovative analysis tools can be used to calculate overall equipment effectiveness (OEE), find optimization potential, improve productivity, and further simplify administration.

Step 6 From Remote Maintenance to Predictive Maintenance

Endian Connect Platform

Thanks to data analysis, it is now possible to use predictive maintenance, which offers decisive advantages: Downtime can be minimized while overall productivity and efficiency will be increased. For example, a machine manufacturer can tell from a rising temperature in a sensor that the machine would fail if the temperature continues to rise. This means action can be taken proactively before it comes to an expensive failure of the production. For example, the speed of the engine can be reduced through remote access, so that the temperature approaches the optimum value again.

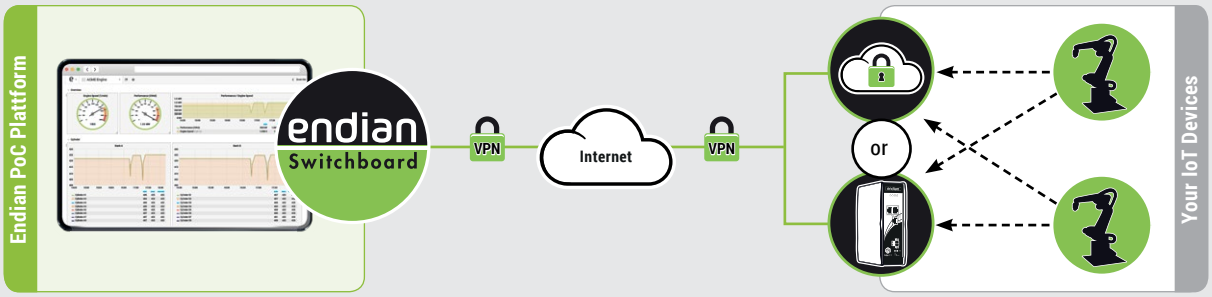
Step 7 Develop new business models for Industry 4.0

The networked infrastructure and the data analysis are the basis for taking advantage of the concept of Industry 4.0. Once these first steps are completed, companies will have the opportunity to develop innovative, data-driven business models and engage additional partners through the IoT platform.

Are you ready for the Digital Transformation?

Endian Proof of Concept Kit

The Endian PoC platform makes it easy to (a) collect and (b) analyze your IoT data from your field devices. The majority of the platform is securely hosted by Endian in our safe, secure, reliable cloud infrastructure. On your side, all you need to do is plug in and connect one of our client machines and devices to securely "translate" your IoT data from the field to our analyze platform where you can monitor and build visualizations (dashboards) for that data in real-time. We support a wide variety of IoT protocols including OPC UA, Modbus, Siemens S7 and more. We can also custom implement almost any protocol as well.



How It Works

It's extremely simple and for most customers can be done in a just a few weeks.

1 - Define PoC

We'll work with you to define the parameters of your project based on your goals and requirements. Together we'll define which machine or device should be connected, how the network will be configured, which data should be collected and how to design your dashboard.

2 - Setup & Test

Next we will setup your private test account and send your pre-configured test device(s) to connect to your IoT. In addition we will help do any post-installation configuration to get your IoT data securely collected and build your first dashboard. From here you can easily build custom dashboards and test our platform.

3 - Next Steps

Once you're done evaluating the PoC, we will work with you on a taking the next steps to move forward with the Connect & Analyze platform to figure out the perfect solution for your customers and your business. Together we'll plan how to build a scalable solution and implement a roll out strategy.

Want to learn more? Get in touch sales@endian.com,
or call us: +39 0471 631 763

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★★ SPECIAL ★★