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# Technology Overview



# Solution

## IXON Cloud

With the IXON Cloud you can lift your service and business operations to a higher level. By providing better service faster, you'll strengthen the relationship with your customers and increase their revenue potential. The data you gather from your machines give insights you can use in the development of your latest generation machines. With your own IIoT portal you'll no longer simply deliver a machine, but a cloud platform that will make you stand out from your competition. Devise and implement new business models, such as pay-per-use or service level agreements. Show your customers that you're meeting the agreed upon specifications (e.g. production speed). Teach and advise clients on how to get their machines running even more efficiently. The aim is to have your machines reach higher productivity levels.

The IXON Cloud is a Software-as-a-Service (SaaS) product that's specifically designed for machine manufacturers. It's fully cloud-based, safeguarding the security, maintenance and further development. Every day a dedicated in-house R&D team works on improving and strengthening your IIoT portal, ensuring that you're always up-to-date with the latest innovations.

The revolutionary IXON Cloud is the only IIoT portal in the world that can be set up immediately, without having to write even one line of code. It's not for nothing that over 500 companies worldwide have already chosen IXON Cloud.

The IXON Cloud features all the functionalities that an innovative machine manufacturer requires in this day and age:

### **Branding**

Your own IIoT platform, completely in the machine manufacturer's corporate branding

### **Remote access**

Instant access to your machines via VPN or web

### **Cloud Logging**

Transfer, store, visualise and analyse machine data

### **Cloud Notify**

Reinvented, revolutionary notification and alarming system

### **And much more..**

Device management, user management, audit trails, APIs, WebHooks, M2M connections, etc.

# Remote access

## VPN

Setting up a VPN connection from the IXON Cloud to your machine takes just one click. This secure connection allows you to access the entire machine network. PLCs, HMIs, robots and other industrial devices can immediately be controlled as if you were on-site. Simply take a look inside the device, solve problems and update your software remotely. Act quickly when an issue occurs and save time travelling.

The IXON VPN solution works on Windows, Mac or Linux PC. With IXON's worldwide infrastructure you'll always have a stable, low latency connection. Multiple colleagues simultaneously accessing one site is no longer an issue. Support for multiple subnets in your machine is standardly integrated.

## Cloud Access

Accessing an HMI from your browser or IXON App is now even easier. With Cloud Access it's not necessary to set up a VPN connection or install software. Gain access to your device with a single push of a button. Each device, PC, PLC, HMI or robot with built-in VNC or Web Server is supported. The powerful IXON Cloud authenticates the user, renders the images in the cloud and easily and smoothly streams the images via an https connection.

You can easily offer your customers or less technically inclined users access to your machine.



# Cloud Logging

## Data transfer

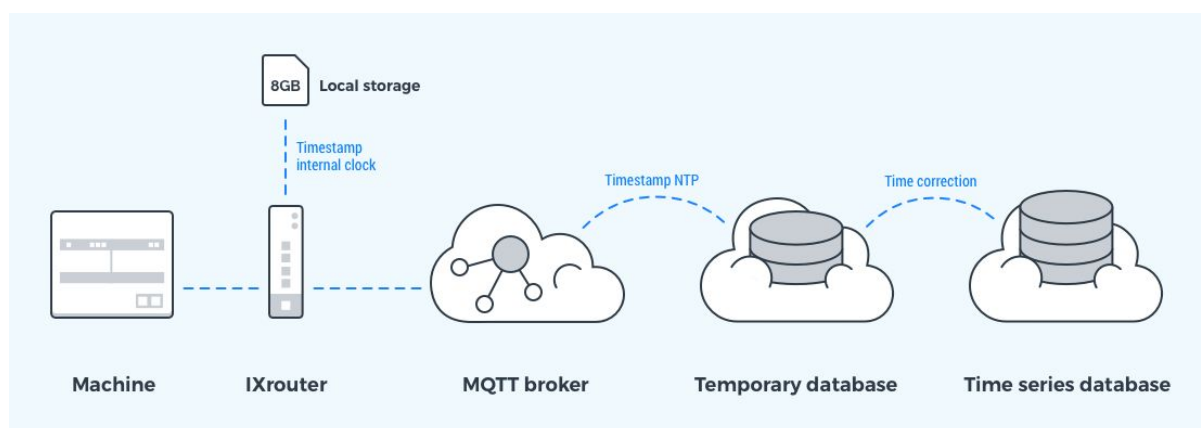
IXON's Cloud Logging is the most robust way to safely and reliably send data to the cloud. Simply configure which variables you wish to log, how often, under which conditions and how long the data should be stored – all easily done on the IXON Cloud.

The configuration will automatically be sent to the edge device (IXrouter or IXagent) that is connected to your machine locally, after which the data logging will instantly get started and data will be streamed to the IXON Cloud.

The IXrouter can read data from multiple devices simultaneously and support OPC-UA, Modbus TCP, Siemens ISO, Ethernet/IP and BacNet protocols. This ensures that IXON Cloud Logging can be used on any modern PLC or HMI. When data needs to be logged at extremely high speeds (e.g. at millisecond level), the local IXrouter API can be used.

There are several ways to log data: at a set interval (200ms to 1 hour), if the output changes (on change) or when an event occurs (on trigger).

Edge aggregation allows for seriously limiting the amount of data that needs to be sent to the IXON Cloud, without missing important machine events. For example, if you wish to detect a peak you can choose to send the MAX value to the cloud. The IXrouter will locally log data at high speeds (every 20-50ms) and sends the highest detected value to the cloud every minute or every hour, for example.

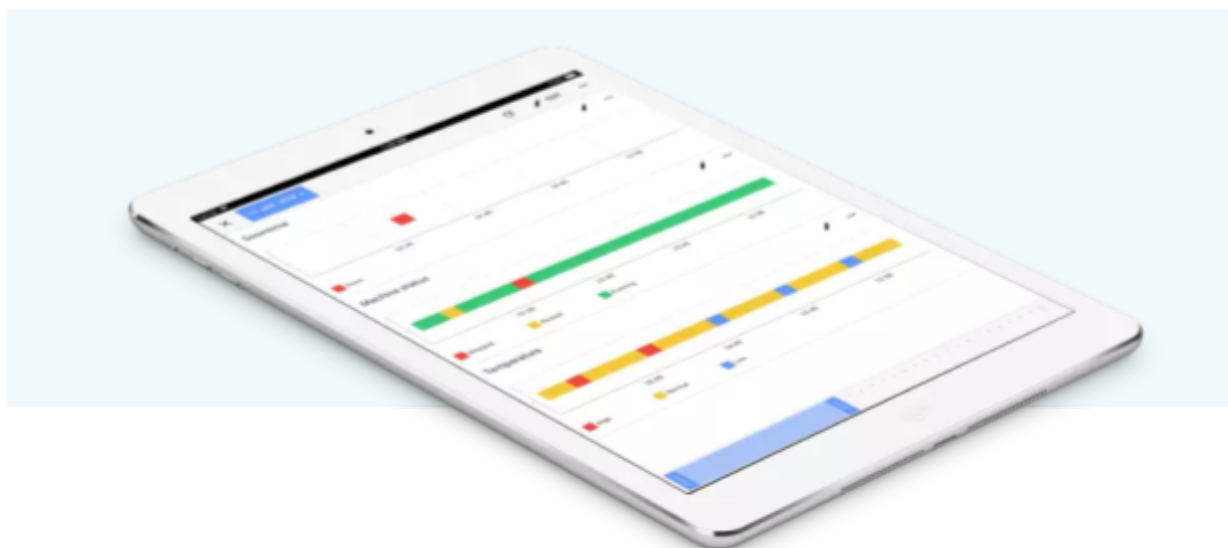


## Data storage

The amount of storage needed is not an issue. You can even store your data for as long as you require.

## Dashboards

Easily create insightful data reports of your machine using Drag & Drop widgets. Your users and customers can view the dashboards directly from any device. The dashboards are automatically optimised for smartphones. The continuously growing number of widgets ensures that you can visualise and analyse your data in a bunch of different ways.



## API

Request data in a smart and efficient manner with the comprehensive REST API. You can retrieve raw data or ask smart questions for which the IXON Cloud will instantly calculate the answers in real time. For example, what was the average or most frequent value over the last 5 years? For an overview of examples check GitLab (<https://github.com/ixoncloud>) and request the API toolkit.

## Download

A CSV file of your data is easily downloadable on the IXON Cloud.

# Cloud Notify

Receive notifications about important machine events. Become instantly informed when a machine has a failure or if maintenance is required. Fully managed on the IXON Cloud – easy, reliable and without any programming.

IXON Cloud Notify is seamlessly integrated with the IXrouter. Just configure your triggers on the IXON Cloud and the IXrouter will instantly start monitoring your machine.

Users can set their own notification preferences such as how they wish to receive the messages: via email, push messaging or through a WebHook connection with another SaaS service like PagerDuty.

Cloud Notify is revolutionary because it's fully managed on the cloud. Messages and emails are delivered by reliable servers. The IXON Cloud continuously monitors the connection with the IXrouter, so when a power or internet connection fails you will immediately be informed.

In short: no more hassle with SMTP servers, no programming of your PLC required and the highest available reliability.



# Branding

IXON understands how important it is to have your own IIoT portal, which is recognisable to your customers right away.

The IXON Cloud features various possibilities that allow you to create your own portal, matching the look & feel of your company. This way you can have your own IoT portal without the high development and maintenance costs.

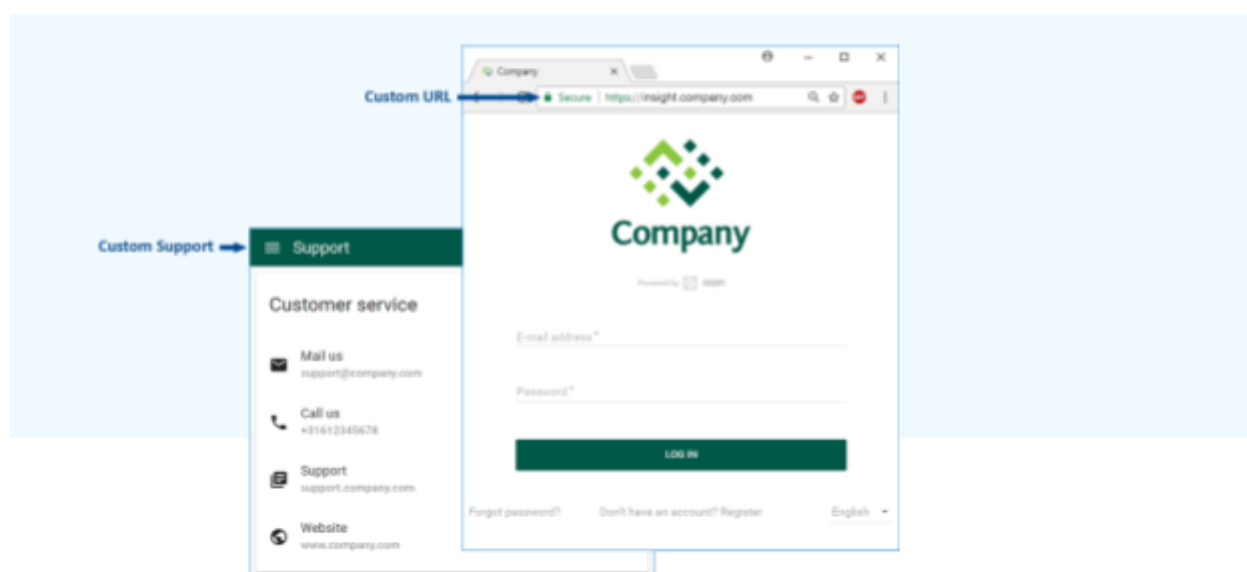
## Setting up your company logo and colours

Easily set up your own logo and corporate colours under “My Company”. In no time you’ll have a completely branded portal that matches your corporate identity. Each email sent from the IXON Cloud will automatically be provided with your colours and logo. This option is free of charge, included in every IXON Cloud company account.

## Premium Branding

Set up your own custom domain (e.g. cloud.yourcompany.com or iot.yourcompany.com) and allow your customers to log in via your custom branded login screen. Emails sent from the IXON Cloud (such as invitations and machine notifications) will also be provided with your logo and web address. Additionally, you can edit the support menu of your portal such as adding your service phone number and website address.

Premium Branding can be activated for a one-time fee.



## Whitelabel IXrouter

You can also whitelabel the IXrouter with your own custom front foils. After a consultation, IXON will provide a design proposal. the front foils will be sent to you in one shipment and will need to be attached to the IXrouter during the installation by yourself. The IXrouter standardly comes with IXON front foils.



## Whitelabel Smartphone apps

Using the IXON app or the standard web browser on your smartphone, users have access to your IIoT portal from anywhere at any time. On the support website (<https://support.ixon.cloud>) you can find out how to add a bookmark shortcut icon to your smartphone's homescreen.

Optionally, IXON offers the ability to publish a custom branded app in the Google Play or Apple App Stores. The app will be published and maintained by IXON.





# M2M Cloud Cluster

With the M2M Cloud Cluster you can easily create your **own VPN infrastructure**. Multiple machines or locations can communicate safely and reliably with each other via a transparent VPN connection. You can connect up to **4.000 locations** to one cluster.

Systems are connected to the M2M Cloud Clusters on the IXON Cloud using the IXrouter. The IXrouter sets up an **outgoing connection** to the IXON Cloud, so that you **do not have to open any ports** in the local firewall. **Nor is a fixed IP address required**. As soon as the M2M Cloud Cluster service is active on your IXON Cloud account, all IXrouters will automatically be connected to your cluster.

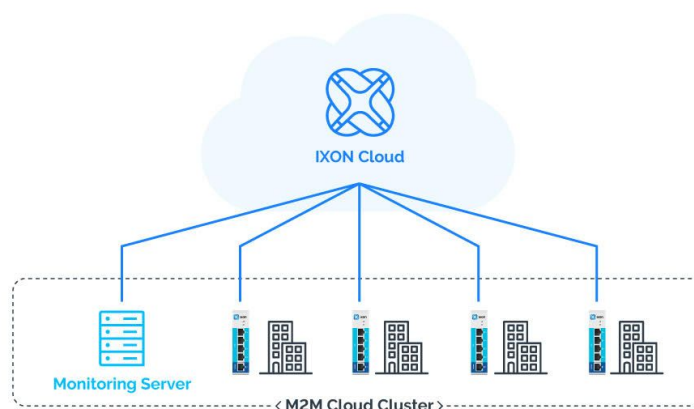
Using a standard OpenVPN Client, which can easily be installed on your server, external servers can set up a permanent VPN connection. This enables your systems to **communicate directly with each other** via the M2M Cloud Cluster.

The M2M Cloud Cluster consists of the following:

- Cluster of max. 4.000 locations
- Own choice of server location within one of the IXON data centres (current server locations can be found on [www.ixon.cloud/status](http://www.ixon.cloud/status))
- Up to 2TB data transfer per month
- Free choice of VPN address range
- Possibility to set up fixed VPN addresses
- Service Level Agreement (SLA) included
- 24/7 monitoring by IXON Cloud experts

The M2M Cloud Cluster will **automatically receive security updates**. You will have regular access to all functionalities on the IXON Cloud, such as VPN, Cloud Access, user management, Cloud Logging and Cloud Notify.

## Permanent VPN connection to remote locations with IXON M2M Cloud Cluster



# Cloud connectivity

Connecting a machine to the cloud consists of two parts. In addition to a proven cloud platform, you will need a solid industrial gateway that works seamlessly together with the platform.

The IXrouter3 is an industrial gateway (edge device) that's integrated with the IXON Cloud. This collaboration between IXON Cloud and IXrouter3 has been designed to the last detail. This provides the user with incredible ease of use and high reliability. The combination of IXrouter and IXON Cloud, both from the same supplier, creates a unique and solid solution.

Because the IXrouter is developed for the IXON Cloud, the user doesn't have to think about complex technical matters such as different protocols, data mapping, security certificates, servers or configurations. Without running the risk of configuration errors, things not working, lost data or security incidents.



## IXrouter3

### **Always the right connection to the cloud — Ethernet, 4G and Wi-Fi**

The IXrouter3 is available in various models and can connect to the IXON Cloud via a fixed internet connection, 4G or Wi-Fi. You'll always have a way to connect your machine to the IXON Cloud. The failover functionality automatically switches to a back-up internet connection when your connection drops.

### **Industrial design**

The IXrouter3 is developed for the electrical cabinet, featuring a DIN rail mount and metal casing. The wide temperature range and the industrial hardware ensure its reliability.

### **Intelligence on board**

The IXrouter3 consists of a powerful ARM processor, speedy SDRAM and 8GB flash memory. The IXagent runs on the IXrouter3, powerful software that ensures a secure connection to the IXON Cloud, advanced encryption methods and a nifty Certificate Authority control system. The IXagent takes care of the edge functionalities of Cloud Logging and Cloud Notify. Additionally, the IXagent ensures that data is flawlessly buffered in case of internet issues.

### **Ease of use**

Because the IXrouter3 is fully managed and configured on the IXON Cloud, the configuration is child's play. The IXrouter3 only sets up an outgoing connection to the IXON Cloud, so you don't have to worry about opening any ports in the firewall anymore.

### **Firewall**

The IXrouter3 consists over an advanced firewall between the LAN and WAN sides. Your machine is always securely connected using the IXrouter3. The firewall is easily configured on the IXON Cloud.

### **Future-proof**

We're continuously working on the development of new functionalities for both the IXON Cloud and IXrouter. New firmware is available within your company account, the release notes give a clear overview of the changes and with one push of the button your IXrouter3 can be upgraded remotely.

### **Start right away**

A Quick Start Guide is included with the IXrouter, explaining how you can connect your (first) machine to the cloud. Within minutes your machine will be connected to your own IIoT portal on the IXON Cloud.

## **Connecting third-party hardware with the IXagent**

With the IXagent you can easily connect any third-party device to the IXON Cloud.

The IXON IXagent is available for Windows, Linux and various embedded systems. Installation packages are available upon request.

# Security

As a cloud solution provider, IXON fully understands the security implications of operating in the cloud. All products and services are designed to provide better security than many traditional on-premise solutions.

Data protection is IXON's number one priority and the cornerstone of everyday operations. Security shapes the day-to-day business, how IXON develops products, designs the IXON Cloud infrastructure, and more.

IXON's security strategy is based on the CIA triad: a security management model for protecting the confidentiality, integrity and availability of information.

A better world starts with yourself. IXON believes that you can only provide a secure cloud solution if all internal processes and procedures are secured as well. That is why IXON has developed and implemented a comprehensive information security management system (ISMS).

IXON's ISMS is certified according to the ISO 27001 standard: the leading global standard for information security in organisations. It requires adherence to a number of disciplines, including access control, (cyber)security, compliance, risk management and business continuity.

*"Machine builders entrust us with critical data and it is our number one priority to protect this data at all costs, and make sure that it's always available. We created an ISO 27001 based ISMS in order to identify, prevent and defend any vulnerabilities that may arise. This systematic approach allows us to achieve our main goals: no security incidents, 99.9% uptime and no data loss."*

**- Willem Hofmans, CEO at IXON**



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# Support

If you have any questions during the configuration, feel free to get in touch with your account manager or one of our support engineers. Have a look on our support website via <https://support.ixon.cloud>, a database with extensive information about all IXON products, services and functionalities.

We're happy to help!

# References

Over 1,000 companies worldwide have already chosen IXON Cloud.

