Product brochure

EV Charging Infrastructure
ABB Connected Services

Power and productivity
for a better world™

ABB

ABB Connected Services Platform
Enabling smooth EV Charging

Internet connectivity of a charger enables services that are fundamental to operate a network of EV chargers in a flexible, reliable and cost effective way. Choosing ABB as a supplier for charging infrastructure means having access to best in class connected services to successfully operate in a dynamic EV charging environment. Now and in the future.

Operating successfully in a dynamic environment

With a rapidly increasing number of EV drivers and new vehicle models being released to the market, a charging network operator is exposed to an ever changing environment with new charging protocols, industry standards and customer behavior. To successfully run a commercial network in such a dynamic environment, it is crucial to connect EV fast chargers to the Internet. Connectivity of the charger will help the customer to:

– Remotely configure and monitor charge points
– To adapt business and pricing models
– Support drivers in case they have issues
– Service the equipment efficiently and with minimal operational effort

ABB's cloud based platform is incorporating many years of experience in connecting chargers to the internet. All ABB Connected Services described in this brochure are built on this advanced state-of-the art platform which offers four main advantages:

– Availability and Security
– Flexibility
– Cost Efficiency
– Innovation

Availability and Security

The ABB Connected Services Platform is monitored 24/7 by the Network Operation Center (NOC). Our experts are monitoring the overall status of the network and react when something goes wrong. This ensures professional and prompt action in case of network or platform issues and increases availability of the chargers.

The platform itself is based on leading cloud technology with 4 redundantly operating server environments on 2 different geographical locations in Europe. The ABB Connected Services Platform complies with the highest security standards. Privacy of data is guaranteed as ABB only processes technical charger data and anonymous user data such as RFID card or PIN codes. Advanced encryption technology ensures that the data on the charger and on the platform is safe.

Flexibility

ABB connected services are provided via the Internet and use open standards. By complying with and actively contributing to the development of standards, ABB can offer services which are compatible with any charging network, payment and billing platform, or any other service provider's back-office system.

With new vehicles entering the market, equipment that doesn't meet the latest standards may have compatibility issues. When new protocols and standards arise, ABB will be aware of these and will integrate them in software updates which are distributed via the ABB Connected Services Platform. This approach minimizes unpredictable operational costs and enables customers to adapt or develop new operating models and to rapidly engage in new business opportunities.

Cost efficiency

During the active life cycle of a charger, ABB upgrades the charger's sofware to the latest versions of standards and protocols. This minimizes the costs to keep the charger functional and extends the economic lifetime of the network. It mitigates the risk of investments needed to upgrade and maintain infrastructure. The customer value of ABB Connected Services is therefore superior to any proprietary solutions. This is illustrated in diagram 1.

ABB solutions are used by many charging network operators around the world. ABB's operation and infrastructure is connecting thousands of chargers and provides services to customers on global scale which allows to offer competitive pricing.
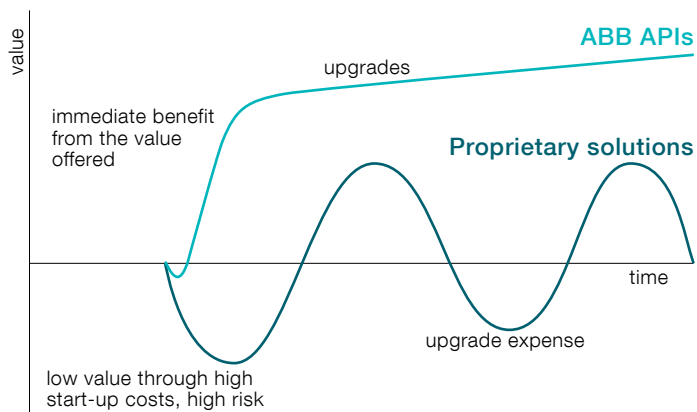

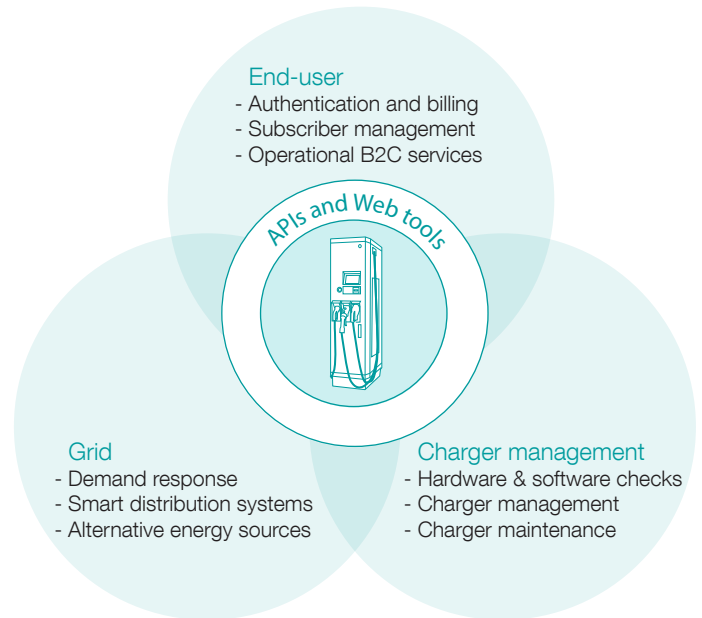Diagram 1: ABB APIs have higher value and lower risk compared to proprietary solutions

Diagram 2: Operating successfully in a changing environment

Innovation

ABB - the leading supplier of charging infrastructure - has established a close partnership with Microsoft - a best in class cloud service developer and operator. The combined expertise in this partnership allows ABB to continuously develop new interesting services and to make them available to the customer in a short time. Customers can benefit from a continuous stream of new features which are needed to operate and expand a charging network. Innovation is supported in all areas of the EV charging industry including more advanced interfaces to back-offices, web tools and payment solutions.

Preventive maintenance, advanced diagnostic tools and alerting systems which go beyond industry standards are already available and will be continuously extended with more value adding features such as predictive failure alerting models.

Expanding a network of charge points requires deep understanding about the impact of a charging site on the grid and how smart power management helps to use existing power infrastructure at minimal cost with highest uptime. ABB is actively looking into API solutions for advanced power management and smart grid integration. With over 100 years of experience in building the world's power grids, ABB has the knowledge and expertise to realize professional solutions in this field.

ABB is capable of providing the features customers need to make their charging network ready for the future.

ABB Connected Services Offering
A modular offering to fit your needs

ABB's Connected Services offering is based on a 24/7 monitored platform which ensures the highest availability with minimal effort. A network operator can select from a modular offering supporting a smooth and seamless integration to back office processes via APIs and giving access to value adding web tools for configuration, advanced monitoring and notification.

A modular portfolio
The Connected Services supported by ABB are represented in Diagram 3 and can be divided into three main sections.

– The ABB Connected Services Platform
– APIs for back-office integration
– Web tools that are accessed via an Internet browser

ABB Connected Services Platform
ABB chargers are connected via a mobile network to the ABB Connected Services Platform which is the basis for all APIs and Web tools. The connection to the chargers and the platform is monitored 24/7 by the Network Operation Center (NOC).

Thanks to this platform approach, ABB EV chargers are accessible in real time allowing for remote software updates i.e. when new communication standards are introduced, making your network fit for the future.

The connection to the platform is not a standalone service but an integrated part of the offering. Building on that, two models are available to interact with the charger: either via APIs or via Web tools. Both approaches can be combined in a modular way depending on customer needs.

APIs for back office integration
ABB offers standards based APIs supporting smooth integration with back-office systems, energy management solutions, and payment services. Available APIs are:

– Open Charge Point Protocol (OCPP) API to integrate with back office systems.
– Service API with technical status data from the charger for simpler remote diagnostics, helping to improve availability of a charger and to better support to EV-drivers.
– Basic Demand/Response API to dynamically manage the input power of a charger.

ABB APIs are based on OCPP – the industry-wide accepted communication protocol – and therefore ensure seamless integration to customers back office systems. All ABB APIs have openly available specifications.

The basis of our offering
Included with every API and Web tool

ABB Connected Services Platform

Reliable connectivity

24/7 network monitoring by NOC

software →

Software updates

OCPP
open charge point protocol

Compliance with OCPP standard

Elective APIs and Web tools
Tailored to the needs of your charging network

APIs
for back office integration

Add-on to OCPP API

?

Service API

Configuration
Authentication
Monitoring

OCPP API

Add-on to OCPP API

Power

time

Demand - response API

Web tools
access via Internet browser

Access management | Configuration | Case management

Online statistics | Notifications | 24/7 status and location

Driver Care
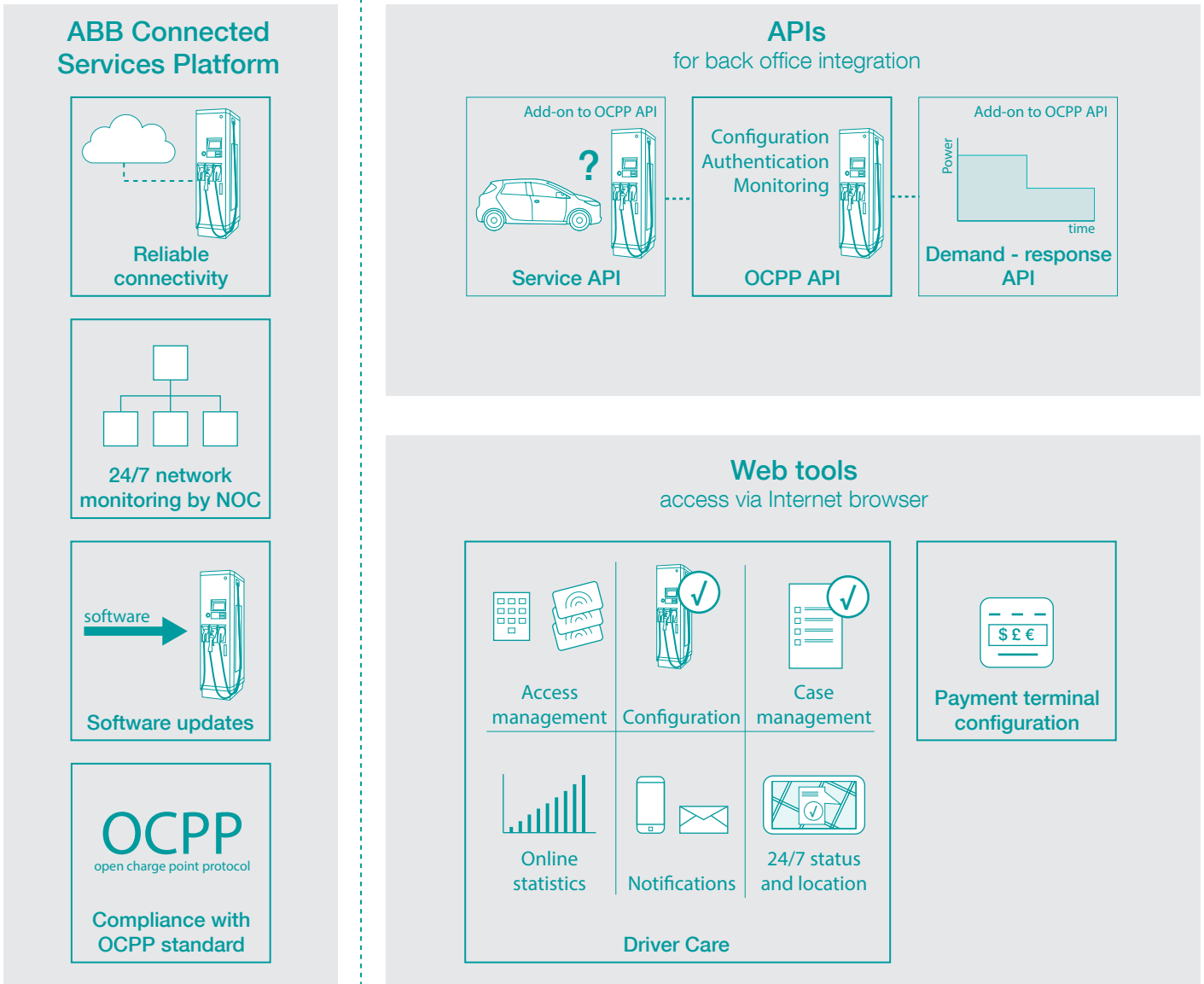
Payment terminal configuration

$ £ €

Diagram 3: ABB's Connected Services Platform and offering of APIs and Web tools

Web tools

ABB offers advanced web tools to operate and monitor chargers. Web tools allow to see the real-time status of a charger, to configure settings related to authentication, notification and case management and to obtain valuable insights into usage statistics. All data is available directly via an Internet browser and can be exported for further processing.

For chargers equipped with a credit card payment terminal, a web module is available to configure the payment device including pricing per session, currency and language.

ABB Charger Care

By combining above mentioned Connected Services with a Service Level Agreement (SLA), ABB helps achieving maximum availability and smooth operation of your charging network.

A separate product brochure is available with more details about the ABB Charge Care offering.

APIs
Connect chargers to your back office

ABB offers standards based APIs supporting various integrations with service provider's back-office systems, energy management solutions, payment services, or any other system.

ABB implements APIs based on customer's needs and preferably uses industry standards. All ABB APIs have openly available specifications. The following APIs are available:

Open Charge Point Protocol (OCPP) API
The OCPP API consists of a broad set of messages, offering a wide range of functionality and possible back-office integrations. The transaction based set-up of the messages makes it easy to connect to a back-end system in order to process charging sessions, to define pricing models and to handle invoicing. Other possibilities include integration with an external payment solution like a credit card payment app or a parking management system. ABB ensures the API is compatible with the latest version of the OCPP standard.

Service API
When running a network of chargers it is required to professionally assist the drivers. Customer care centers need to have insight in the technical status and failure data from the chargers. The Service API is an add-on to the OCPP API and provides useful technical details for driver care centers, to improve support to EV-drivers. Status messages cover details about the real-time status of the charger, the charging process, and failures; for example a message related to the connection of the cable with the vehicle.
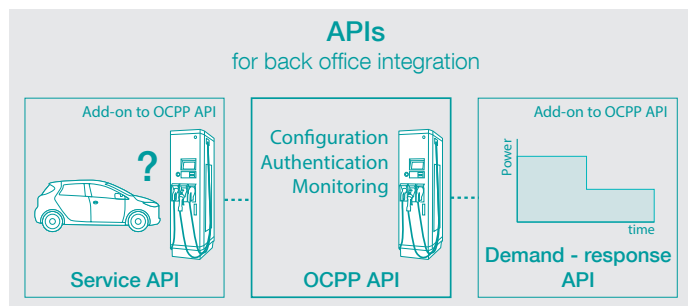
Basic Demand/Response API
The need to control the input power of a charger has increased over the last years. To meet this need ABB has introduced the Demand/Response API as an add-on to the OCPP API. With this API, a network operator can limit the total power a charger or charger site can deliver to EVs. This helps to prevent issues with the capacity of the power supply infrastructure and the grid in general.

Implementation
ABB has commissioned a significant number of API links between customers' installed bases and their back-office systems, or to back-offices of their partners. Please see our "API implementation guide" for more information about ABB's implementation process, API specifications and technical requirements that help with a successful implementation.

Future API developments
ABB intends to keep up with interfaces to back-offices, roaming platforms and payment solutions used in the EV charging industry. ABB is actively looking into to API solutions for power management, smart grid and advanced demand-response. With over 100 years of experience in building the world's power grids, ABB has the knowledge and expertise to realize professional solutions in this field.
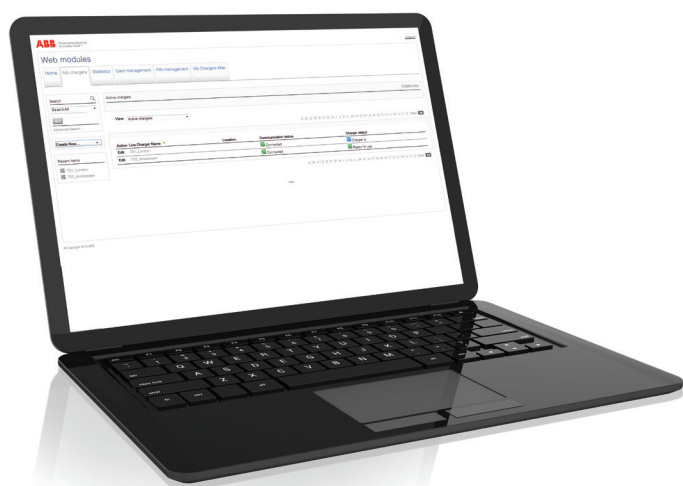

APIs
for back office integration

Add-on to OCPP API

Configuration
Authentication
Monitoring

Add-on to OCPP API

Power

time
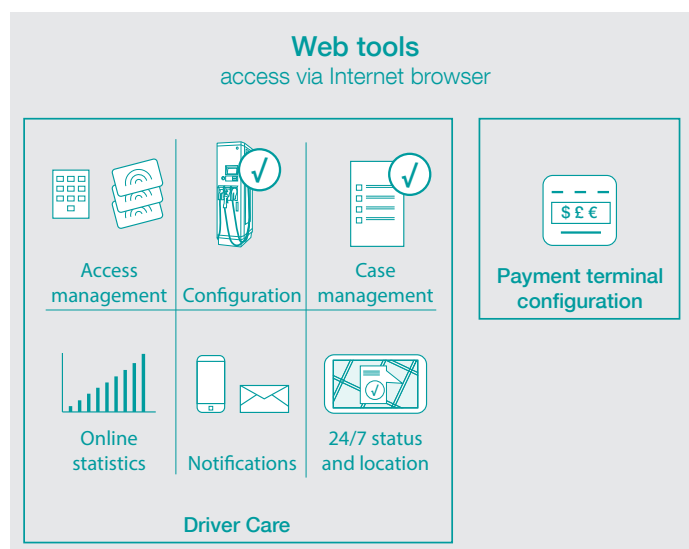
Service API

OCPP API

Demand - response API

Web Tools
Monitor and manage chargers real-time

ABB browser based web tools are on-line management tools providing charging infrastructure operators with real-time status information and usage statistics needed to monitor and operate their equipment.
ABB offers two sets of web tools: Driver care and Payment management.

Web tools for browser based monitoring of chargers in real-time

Web tools
access via Internet browser

Access management Configuration Case management

Payment terminal configuration

Online statistics Notifications 24/7 status and location

Driver Care

Driver care
Driver care offers the following features:

Status
The status functionality provides the real-time charger network status via a comprehensive map view. Looking up the actual status per charger or per outlet is also possible. It is even possible to see which outlets are currently charging.

Statistics
The statistics feature is key to gain insight in the usage of the equipment. It provides information on the number of sessions and energy delivered. Statistics can be viewed per charger over the last 7 days and give an excellent quick glance on how the network is being used. Discovering more details about charging sessions over flexible time frames is provided by the export function (for example to an MS Excel file) for further processing.

Configuration
The configuration module allows for remotely configuring settings of a charger, remote restarting if needed and disabling or enabling chargers when desired. The latest feature "off-line behavior" allows customers to define how the charger will work in case connection with the back-end system is lost.

Access management
Access control is made easy by allowing infrastructure operators to use and manage RFID cards and PIN codes themselves. All transactions related to an RFID card or PIN code can be exported for further processing

Cases
Cases support issue solving. This functionality helps finding quick answers, raising a case to trigger the service organization, and tracking a case to gain insight into the resolution of a problem.

Notifications
The notifications module offers your driver care center the possibility to receive an alert by e-mail in case a charger reports a certain event, for example when the emergency button is pressed.

Payment management
The Payment management module is intended for chargers that are equipped with a payment terminal. The module lets the operator configure diverse payment options. Pricing per outlet can be set, and behavior of the payment terminal can be configured. The operator is provided with full insight in all payment transactions per charger, per day.

Contact us

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