

CASE STUDY

ChargeX



ChargeX brings smart EV charging to Volkswagen and Renault premises with EMnify

Founded in 2018, ChargeX, a Munich-based e-mobility startup, set out to make private and semi-public EV charging more accessible, user-friendly, and manageable. Tailored to the needs of business operators, its product, Aqueduct functions like a power strip that allows for sequential charging of multiple vehicles with a single power line. Via Open Charge Point Protocol (OCPP), a central backend system collects all user and operational data to enable remote monitoring, billing management, and other digital services.

Just one year since its market entry, ChargeX has successfully deployed Aqueduct at various customer locations across Germany and Austria – including Volkswagen, Renault, and Opel premises.



"Our backend system is the essential addition to our Aqueduct modules to enable multiple IoT services. We rely on EMnify for dependable data connection to ensure our system runs seamlessly as needed."



About:

- Headquarters in Munich
- Industry: EV Charging



Challenge:

Providing connected EV charging infrastructure for private and semi-public parking areas where many vehicles can be charged over a long period (e.g. business premises, residential areas)



Solution:

A modular, sequential-chain charging system that sends data over the EMnify communication cloud to ChargeX's backend.



EMnify's products in use:

Connect

- **IoT SIM:** Best cellular coverage for EV chargers - even indoors and underground.

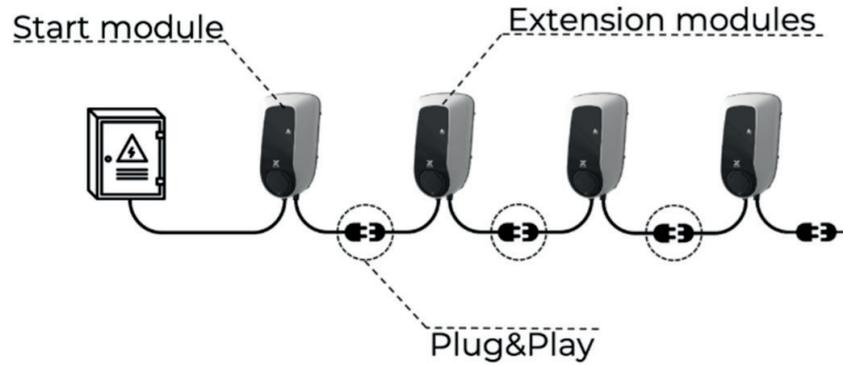
Operate

- **Web Portal:** Full visibility into SIM connectivity health, data, costs.
- **OpenVPN:** Remote access to chargers for troubleshooting.



Lukas Bobinger

Business Development
Manager at ChargeX



Modular infrastructure for private EV charging

Electric vehicles are foreseen to be the future of urban mobility, especially as the new EU emission target comes into force in 2021, which limits the emission for average passenger cars to 95g CO₂/km. However, the lack of charging infrastructure has been a major hurdle in the mass-market adoption of electric vehicles.

Governmental plans to roll out fast public charging stations aim to alleviate the current shortage. But with 80% of all charging happening over a longer period – at home or work, equivalent private charging infrastructure is critical in the transition to electromobility. Businesses often do not see the appeal of implementing on-premises EV charging stations, due to the significant costs and complexity involved.

With this challenge in mind, ChargeX developed Aqueduct - a modular, affordable solution for private and semi-public charge point operators, typically enterprises, property owners, and parking houses. Built with a master-slave design and intelligent load management capability, the Aqueduct system is easy to install and maintain, allowing customers to quickly turn available parking lots into EV charging spaces. The number of charging modules can further be flexibly scaled to meet growing needs.



– Charging station at Renault Autohaus

The need for reliable device communication

Wireless communication is an integral part of ChargeX's solution to enable remote system monitoring and allow its customers to offer EV charging as a service. Compatible with the latest OCPP 1.6 standard, Aqueduct modules collect user ID via an RFID-enabled charging pass for authentication, then communicate all important data points to the ChargeX backend system for management and operations via a wireless network.

Having granular information on user ID, duration, and kWh used of each charging event, charge point operators can oversee operational costs of their internal fleets while easily managing the billing of external fleets. In parallel, diagnostic and device data helps to streamline monitoring, maintenance, and potential energy capacity of the charging system.

Ensuring the entire system stays connected is a top priority for ChargeX. Without reliable connectivity, customers might fail to receive essential information on energy use for payment processing, resulting in revenue losses.

Why EMnify

After due diligence, ChargeX identified that cellular GSM technology fits the data requirements best, and EMnify was chosen as the trusted communication provider.

With many parking facilities located indoors and underground where not all carriers have coverage, EMnify multi-network IoT SIMs allow the Aqueduct modules to always get the **best available connection**. Via the web portal, ChargeX can easily manage SIM operations and get real-time insights into device connection status, data usage, and connectivity events. As an added benefit, **free OpenVPN** on the EMnify platform provides a fast and secure option to access remote Aqueduct modules for maintenance and troubleshooting.



“Numerous our installation takes place in parking garages where we often experience connectivity issues. EMnify’s ability to auto-select the best network is, therefore, a decisive factor for stable operations of Aqueduct modules.”

– Lukas Bobinger, Business Development Manager at ChargeX

Starting out with a one-off hardware pricing model and a small number of connected devices, ChargeX could keep the operational cost of connectivity effectively low, thanks to EMnify’s **pooled billing** and **flexible pricing**.

Future plan: Expanding subscription-based digital services

Outside Germany and Austria, ChargeX aspires to extend its reach across the EU with Switzerland being the next target market. The company is also working on rolling out a new host of value-added digital services, including a virtual charging assistant, to enhance user experience while bringing a sustainable flow of recurring revenues.

With EMnify’s global coverage and flexible pricing, ChargeX can nimbly scale device data plans to keep up with the new service model and growing connectivity use in new markets.

