



Case Study

An Advanced e-Mobility Platform for Managing Charging Infrastructure





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Abstract

Realizing the accelerating shift to electric vehicles, our Customer sets out an inspiration to build their own e-Mobility platform – a dynamic digital space for managing their charging stations and e-Mobility-related services.





Ushering in the Era of e-Mobility

The rise of electric vehicles is deemed one of the most disruptive transformations in the history of the automotive sector. With the global market of electric vehicles projected to grow by US\$ 14.9 billion by 2024 with a CAGR of 31% from 2020 to 2024*, these vehicles will soon take over our streets.

In such a context, our Client, a wholly-owned subsidiary of a European electric utility company, is one of the few companies that realize the tremendous value potential in electro-mobility (or e-Mobility). In particular, the Company offers the technology and products to make charging of electric vehicles simpler. Their IT platform has already covered hundreds of thousands of charging points from multiple partners across dozens of markets.

With a broad network of partners, our Customer aspires to build an advanced e-Mobility platform to manage their wide array of charging stations distributed across Europe. Though there are several providers of e-Mobility on the market, the Client is still determined to develop their own platform with tailored features.

FPT team was naturally chosen from the early beginning to work alongside the Company's development team to commercialize the project. Fundamentally, the e-Mobility platform establishes a link among Charging Point Operators (CPO) and e-Mobility providers (EMPs):

- A CPO provides customers or third parties with access to charging stations. The e-Mobility platform helps CPOs to commercialize their charging infrastructure.
- An EMP provides end-customers with access to charging stations. The e-Mobility platform allows EMPs to sell contracts.

Another primary driver of the project was the need to convert monolithic architecture into microservices. The Customer had adopted the traditional monolithic way of building applications for over a decade. However, monolithic can no longer adapt fast enough to accommodate the changing business world. Its all-inclusive nature makes it difficult for users to deploy new features or make changes to their applications.

On the other hand, as a system of small independent services, microservices enable users to scale, test, update, etc., a single service without disrupting other services of the ecosystem. Operating in a highly promising business area, our Client is set for major expansion. That's why the Company needs to turn to microservices for increased scalability and agility.

The Solution

FPT worked in close coordination with the Customer's development team to devise a plan that addressed the business challenges. Due to the complexity of the project, dozens of teams were put together, each of which was responsible for a particular task (DevOps, Back End, Front End, etc.).

Equipped with domain expertise and hands-on experience, FPT helped developing an advanced e-Mobility platform with a wide range of useful features. Here are some highlights:

Monitoring charging infrastructure:

The cloud-based platform (Microsoft Dynamics) allows real-time monitoring. It will automatically send an alert if the charging session is interrupted. Additionally, the system is compatible with OCPP and includes information about the status of the charging stations (occupied, booked, etc.).

Roaming:

The roaming feature allows the Client to reach a higher number of customers. Specifically, the charging stations are accessible to EV drivers across Europe. Drivers no longer need to register for different services.

Load Management:

Automatically charging loads so that electricity is evenly distributed to all the EVs that are charged simultaneously. This feature helps charging station operator avoid the penalty for exceeding the power limits.



Maintenance Planning:

Using SAP to enable the planning and execution of the maintenance work for the application.

User Interface:

User interface is developed in 5 different languages in order to meet the demands of our Client's diverse portfolio of customers.

Payment:

Supporting multiple payment methods (Credit Card, SMS, RFID Card, Coupon, Household Bills, etc.)



The Results

The switch to microservices and the adoption of CI/CD pipeline allows scalability and faster time to market. In terms of charging infrastructure, the project produces tangible results as follows:

100,000

charging sessions
were managed
within one month

42,000

charging points were
connected within
the platform

Over 70+

releases with
continuous
improvements and
extension





FPT Software is a global technology and IT services provider headquartered in Vietnam, with more than USD 500 million in revenue and 16,000 employees in 25 countries. As a pioneer in digital transformation, the company delivers world-class services in Smart factory, Digital platforms, RPA, AI, IoT, Cloud, AR/VR, BPO, and more. It has served 700+ customers worldwide, a hundred of which are Fortune Global 500 companies in the industries of Automotive, Banking and Finance, Logistics & Transportation, Utilities, and more. For more information, please visit <https://www.fpt-software.com>.

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