

The background of the image shows a modern electric vehicle charging station on the left, with a black charging cable plugged into the front of a white car on the right. The station has a digital display with blue horizontal bars and a charging cable hanging from it. The car is partially visible, showing the front wheel and the charging port area. The overall scene is set against a dark, textured wall.

IBM

Building an electric vehicle charging sharing economy

Eljun uses IBM Cloud Code Engine to connect electric vehicle owners to charging station owners

by Leah Valentine

5-minute read

Sweden is on the verge of an electric car revolution.

The country's capital city, Stockholm, recently announced its intention to become free of fossil-fueled cars by 2030, and the country's best-known automaker, Volvo, has pledged to become fully electric within the same timeframe.

Without a doubt, these initiatives will have a profound impact on the climate. But Tore Stenbock, Chief Technology Officer (CTO) of Eljun, has much more practical considerations on his mind: "The support infrastructure for electric vehicles is not growing as quickly as the electric vehicle industry itself. There should be at least one charging station



per 10 registered electric vehicles for a normal flow to happen without having to reduce convenience and comfort."

He continues: "Right now, Sweden has about 0.05 charging stations per car, and that number is shrinking. The minimum healthy value is no less than 0.1, according to the European Commission. And we haven't even

really started the exponential growth of the electric vehicle market. It's going to break at some point unless we do something to fix it."

With help from the [Startup with IBM® Accelerator](#) team in Sweden and the [IBM Cloud® Code Engine](#) solution, Stenbock and the team at Eljun hope to do just that.

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Tore Stenbock, Chief Technology Officer, Eljun

Sweden currently has

14,000

electric vehicle charging stations

By 2030, Sweden expects to have

300,000

electric vehicle charging stations

An open-source approach

Eljun first learned about Sweden's Startup with IBM Accelerator program in April 2020. Until then, the company's focus had been on developing features and demonstrating its solution to potential partners and investors. Eljun's vision is to build a network that connects electric vehicle owners to electric charging station owners in a mutually beneficial manner. Vehicle owners can use the solution to locate convenient charging stations, while charging station owners can use it to earn money in the hours when their stations are not otherwise in use.

Eljun developed the solution's key features using Kubernetes clusters, so when it came time to move to a cloud environment, Eljun sought a



provider that embraced open-source technology, too. “We chose IBM Cloud because IBM has adopted a number of open-source tools,” says Stenbock. “Not only did that help us avoid locking ourselves into a particular homegrown solution, but it also made it very easy to port all of our Kubernetes clusters over to IBM.”

After moving the solution to the IBM cloud, Eljun began looking at different managed service platforms. Eljun’s service management needs are unique because information flows in a somewhat ad hoc fashion. “The majority of our processing is when someone seeks a charger or when the charging begins or ends,” says Stenbock. “We needed something

that would be flexible in terms of resource utilization.”

That, Stenbock soon learned, meant Eljun’s solution was best suited to a serverless environment. When his contact at the Startup with IBM Accelerator suggested IBM Cloud Code Engine, it didn’t take long for Stenbock to make his decision. “We saw a use case at an IBM Think event, and right away we decided to migrate over to IBM Cloud Code Engine because it’s technically just Kubernetes clusters running at the back end. It was a natural move for us that required just a few changes to the application.”

Today, Eljun is running more than 10 different microservices on the IBM

platform. “Having IBM Cloud Code Engine manage all of the scaling up and down and in and out means I can just design the architecture and let it manage itself,” says Stenbock.

Today, that architecture consists of three distinct portals. The first is a mobile app for the user, which allows users to locate and book charging stations. The second is a developer portal, which provides a password-protected place where partners can look at projects, get API keys, access tokens, add charging stations and more. Finally, the operations portal acts as the hub for Eljun’s internal management activities like creating clubs and connecting users.

A cleaner, more connected future

As Eljun looks toward a more sustainable future in Sweden and beyond, Stenbock counts IBM Code Engine among the things that are propelling his organization toward success. “First of all,” he says, “everything we spend on IBM Cloud Code Engine delivers value to our customers, which makes our financial manager very happy.”

“Beyond that, IBM Cloud Code Engine has helped me in terms of testing things really quickly—I don’t have to spin up an entire new Kubernetes cluster for testing things. We just have

a Code Engine environment, and when we need to test something, we can just draw resources as needed. That’s really streamlined active development,” he says.

Eljun is also a beta user for [IBM Event Streams](#) technology. The Eljun platform handles many different types of events—some things must be handled immediately, while others, like infrastructure updates, can be handled asynchronously. As a result, the way Eljun handles event streaming has evolved quite a bit over the years. Today, the company is standardized on

Kafka. “IBM Event Streams being Kafka and also easily binded into IBM Cloud Code Engine makes this smooth,” says Stenbock.

Eventually, Eljun hopes to add IBM Watson® technology to its offering, too, using predictive analytics to do things like make suggestions based on weather or predict when a fueling station may need maintenance. “We want our customers to have the comfort of knowing that this solution just works. They’re a part of it, they’re contributing to the community, they’re making passive income on their charging

stations, and they don't have to worry about anything. It just works."

He concludes: "We're going to go from about 14,000 publicly available charging stations in Sweden to about 300,000 within a very short number of years. If every single privately owned charging station could connect to some sort of sharing economy, we'd solve the infrastructure problem. It's a lot easier than people realize."

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About Eljun

Founded in 2020 and based in Stockholm, Sweden, [Eljun](#) (external link) believes that the key to progressive and sustainable change is doing it together. To that end, the company is developing a solution that will connect electric vehicle owners with charging station owners. For vehicle owners, the solution will make it easier to find charging stations. For station owners, it will offer opportunities to make passive income.

Solution components

- IBM Cloud®
- IBM Cloud Code Engine
- Startup with IBM® Accelerator

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