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Mercedes-Benz streamlines charging station planning

Industry
Automotive
Energy

Location
Germany, with international scope

Solution
Intertrust CleanGrid™

Customer profile

DigiKoo is the developer of the DigiPAD digital energy infrastructure planning platform and a subsidiary of Westnetz AG, one of the world's largest distribution system operators (DSOs). DigiPAD uses Intertrust's CleanGrid software toolkit. Mercedes-Benz is one of the world's largest automakers.

The challenge

One of the biggest hurdles to mass EV adoption is the perceived lack of easily available EV charger stations. Governments, utilities, and automotive OEMs in Germany and around the world are now collaborating to rapidly expand EV charging infrastructure. To help in this effort, DSOs and their ecosystem partners need a better way to predict future EV ownership and charging station location hotspots to help them optimize their planning for EV charger network deployments.

DigiKoo, Westnetz, and Mercedes-Benz saw the need to work closely together to accelerate EV charging network deployments, with a goal to strengthen the data available to power grid operators, city administrators and charging service operators (CSOs) to improve planning. In addition to the grid, city infrastructure, ethnographic and other data available through DigiPAD, the inclusion of anonymized plug-in vehicle data from Mercedes-Benz would provide a more accurate estimation of vehicle owner needs that could be used for a number of planning purposes.

Supported by the CleanGrid software toolkit, here are some of the objectives accomplished by the joint solution:

- Collect and blend Mercedes-Benz fleet EV/Plug-in hybrid data that includes approximate location, number of vehicles, their peak and average charging power, total charged energy and available battery capacity when parked.

- Maintain the anonymity and security of the data and follow the GDPR and relevant German regulations while sharing data subsets with city planners, CSOs, and other ecosystem partners.

- Honor data rights of the providers of the data used by DigiPAD and provide a full audit trail as needed.

- Improve forecasts of potential power demand and power load on local DSO grids with avoiding blackouts or other service disruptions as one goal.

- Identify highest and lowest charging needs to help plan EV charging station location as well as optimize investments in EV charging infrastructure.

- Overlay and blend plug-in EV data with existing grid and city infrastructure data sources to help with planning.

- Provide a visualized map-based graphic interface for this data to ecosystem partners.

The solution

In order to enable more accurate grid planning, DigiKoo GmbH and Mercedes-Benz Connectivity Services GmbH signed a cooperation agreement to include the Mercedes-Benz Energy Data product in the DigiPAD application. Using Intertrust CleanGrid, DigiPAD provides a unique method to share information about EVs and the grid infrastructure. This includes charger locations, asset level grid information, demographic data, and more.

Mercedes-Benz data for the solution includes:

1. Charging energy for a cluster of EVs (e.g., between 6 to 10 cars) in kWh, referencing a specified location polygon (e.g., within a 200m radius)

2. Time series charging energy (each hour in a 24hr period, 7 days a week for the last 12 months)

3. Aggregated maximum energy capacity of the EVs in a location polygon

4. Aggregated currently used energy capacity of the cars in the location polygon

5. Clusters of cars (e.g., between 6 to 10 cars, no individual car information), referencing to a specific polygon (e.g., 200m catching radius) that are passive (not charging), time series per polygon
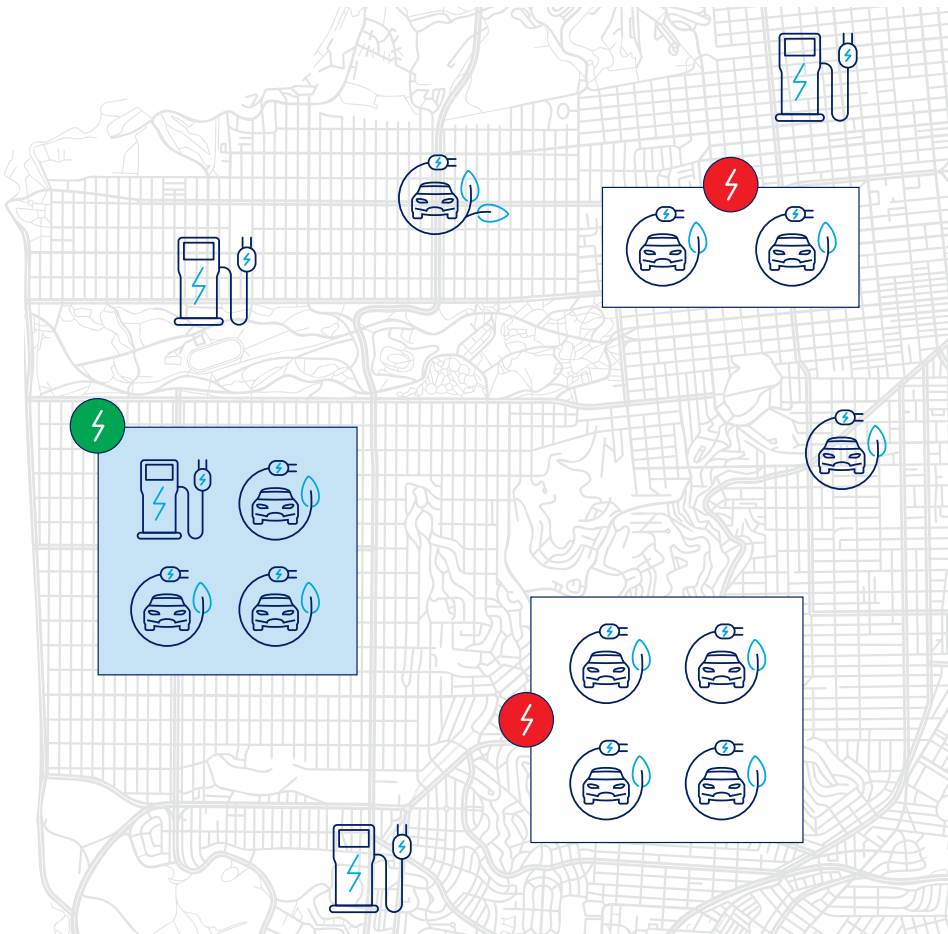
CleanGrid helps DigiPAD share clustered parking and charging/non-charging EV locations for better charger network planning

CleanGrid is based on Intertrust Platform, which facilitates secure data exchanges and collaboration between businesses and partners, allowing them to secure, govern, and monetize their data, across any cloud service or infrastructure.

Intertrust Platform™

The Platform leverages container orchestration technologies such as Kubernetes and Docker to make deployments cloud-agnostic.

Identity and Access Management
Device and user identity, authentication, and authorization; maintains platform objects and their relationships.

Data Virtualization
Data object definitions, permissions, restrictions. Provides data interfaces, manages DBs and virtualized datasets.

Secure Execution Environment
Secure network-isolatable environments for workload execution and controlled, interactive data exploration.

Time Series Database
Scalable, efficient, high performance database designed for time series data.

The results

Based on CleanGrid's trusted data collaboration technology, DigiKoo's DigiPAD provided Mercedes-Benz with the secure application it needed to properly share its data with charging infrastructure ecosystem partners. CleanGrid's technology provides the secure data virtualization, data aggregation, and data collaboration layer needed to handle the many different data sources and formats used.

With this solution, Westnetz and Mercedes-Benz are able to:

- Implement secure and efficient data orchestration across multiple entities and stakeholders

- Work across hundreds of data silos and clouds securely

- Implement secure collaboration between utilities, cities, and EV companies

- Ensure complete data governance and maintain GDPR protections

intertrust®

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