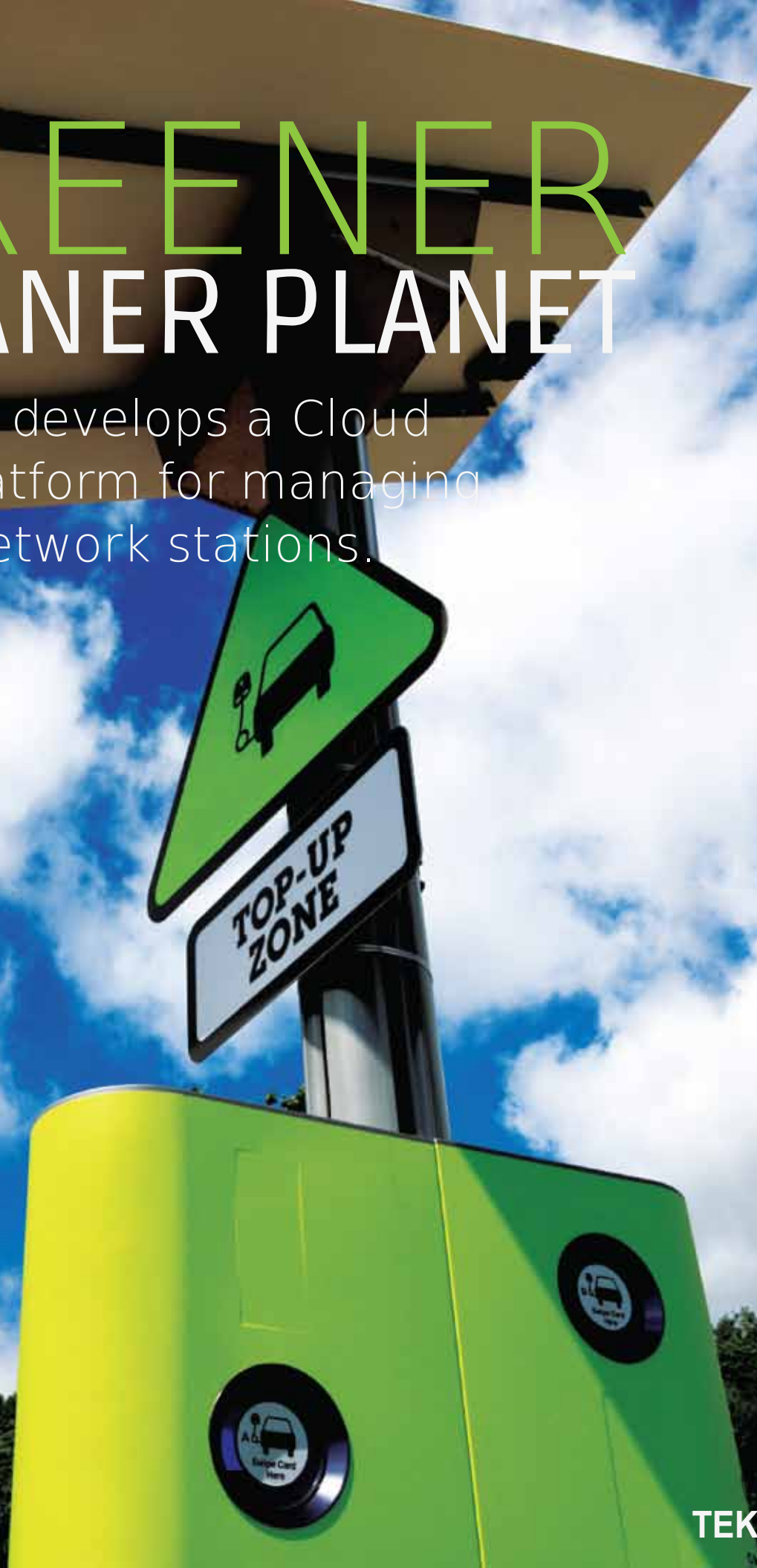


FOR A

# GREENER CLEANER PLANET

TekMindz develops a Cloud based platform for managing charge network stations.



# About The Client

The Client is one of the leading providers of electrical charging networks and have installations all across the globe. The Client offers PAAS solutions for setting up charging infrastructure for EVs (Electric Vehicles) at home, at work or in public places which helps make the grid more efficient and save consumers' time and expense. They provide low cost networked solutions that give car park owners, employers, municipalities, utilities, automotive and other businesses the ability to own and operate their own EV charging network for slow, medium and fast charging.

The Client offers both charging stations as well as charging station networks.

# The Requirement

The Client requirement was to have a platform that offers an end-to-end solution for the EVSE (Electric Vehicle Supply Equipment) industry. They required a solution based on industry open standards that can scale and adjust as the EV industry evolves over the next coming years. They required the solution to be able to provide tools for EVSE service providers to enable them to effectively manage their services, improve customer engagement and measure their performance through relevant metrics collection.

The technologies and designs to be adopted needed to be based on software-as-a-service (SaaS) principles. It also needed to support:

- **Multi-tenancy:** Platform to support multiple EV network operators.
- **Configuration and Customization:** Applications developed on this platform should allow configuration and customization to enable/disable functionalities and alter look-and-feel based on customers' requirements.
- **Rapid feature development:** New features should be rapidly developed and enabled for customers without impacting existing feature set.
- **Open integration protocols:** Other applications should be easily able to integrate with Sky platform through APIs.

# The Solution

TekMindz not only implemented the solution but were also involved in the requirement discovery phase. The solution was developed on pluggable architecture, allowing easy adoption of new specification without changing the core product. The design also caters to the need of implementing devices interfaces with different communication mechanisms such as SOAP, REST, Web sockets, Reverse HTTP etc.

TekMindz is now involved in developing of the next version of SKY platform called SKY 3.0. The new platform is an integrated solution based on open EVSE standards that can scale and adjust as the industry evolves over next number of years.

*It was critical to understand the energy domain and its different protocols specifications. To meet OCPP specifications, the solutioning needed end to end Testing, thus requiring a specific hardware. To suffice this requirement a device simulator was developed to comply with the OCPP specification.*

*The Platform provides northbound interface in terms of REST based APIs for other platform and mobile app to communicate with the product. In developing these APIs, there was a requirement of integrating data of other Charge point networks. In addition, we needed to understand the different interfaces and convert them into common data structure. To achieve this, adapter design was adopted which allowed seamless integration of networks and would also allow easy integration of future networks data.*



“FOR A GREENER,

# CLEANER PLANET”

## What is a Charging Network?

A charging network consists of individual charging stations that are linked-up via internet to form a network of connected stations.

The Client has its products tailored to the needs of the electric vehicle driver as well as the charging station owner. It includes a cloud-based management platform that can be integrated into ERP system or run as a SaaS subscription, as well as a mobile application.

The platform is an advanced web-based charging station manager that gives the location of charging stations, their status (if it is available, in-use, or if there is a fault), detailed usage and charging data. More advanced features allow the manager to restrict charging to only certain groups and at certain times (e.g., employees only during business hours) with different pricing strategy.

The solution contains a mobile and web application for EV owner. Using this app an EV driver can find the nearest charging station, get access to charge, pay for charging and track his charging status. It also notifies about the charging status like charging ended.

## Domain

- Smart Grid
- Green Energy
- Electrical Vehicle Charging
- Telematics

## Technology

- Java (Spring Framework)
- Apache CXF
- MySQL
- Primefaces - JSF2
- Amazon Web Services
- SOAP and Restful web services

## Protocols

OCPP (Open charge point protocol) v1.2 and 1.5 - Open Charge Point Protocol (OCPP) is standard for communication between charging stations (EVSE) and a managing server. Its build over SOAP web service architecture.

SEP (Smart Energy Profile) v2.0 - Smart energy profile (SEP) is standard for communication between smart energy device and smart grid. This protocol is build over REST web service architecture.

OpenADR (Open Automated Demand Response) v2.0.



## About TekMindz

TekMindz is an IT consulting & technology services company with headquarters in India, serving clients across Asia/Pacific, Middle East, North America and Africa. Bringing together technology, people and processes across diverse sectors for organizations around the world, TekMindz enables business enterprises and governments to most effectively serve their customers and citizens.

Know more about us by visiting our website at [www.tekmindz.com](http://www.tekmindz.com)

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