

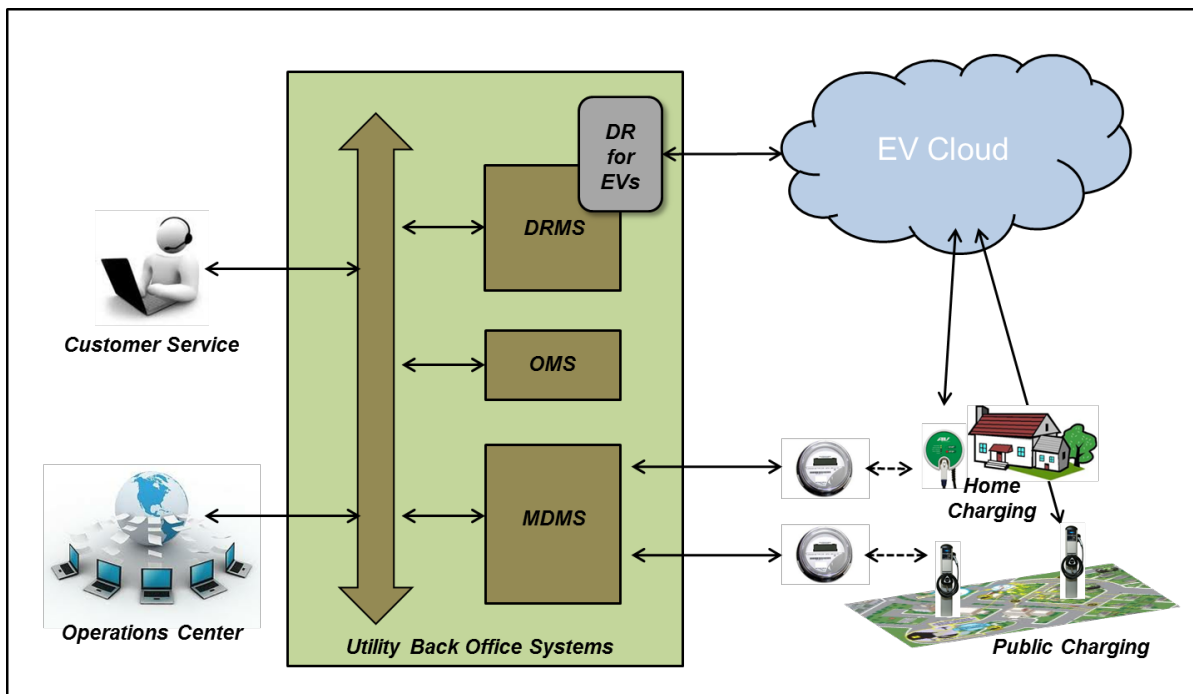
CASE STUDY

Gridscape Solutions integrates EV charging stations into utility Demand Response Management System (DRMS)

Background

Our client serves the utility industry by providing flexible, integrated Demand Response Management Solution (DRMS). With the advent of electric vehicles (EV), they were looking for a system integration partner who not only brought expertise in EV charging infrastructure but also understood load and demand impact on the smart grid due to EV charging.

Gridscape Solutions contributed to the integrated solution architecture as well as developed a low-cost, fully functional pilot system for the utility customer that will be deployed in limited production by middle of 2013.



Challenge

With the introduction of EVs and its associated charging infrastructure, our client and its utility customer were challenged to ensure that the existing DRMS system was capable of handling additional load imposed by EVs. EV charging infrastructure, especially the DC Fast Charging stations demand a huge load while charging an electric vehicle. Typically, this charging session may take place during peak periods as well. It thus became imperative for our client and its utility customer to develop a solution to handle this load seamlessly and launch a pilot system that would monitor such load and issue a load shed command or a critical peak price signal to the EV charging station owner.

After careful evaluation of various options, Gridscape Solutions was selected to participate in the architecture team for the pilot and subsequently contracted to design and develop an integrated solution, add-on to the existing DRMS system for the pilot deployment.

Solution

Gridscape's team of proven smart grid and EV experts consulted with the joint architecture team and contributed significant insights and design considerations to design a solid yet flexible solution for controlling EV charging during demand response events.

A thorough meticulous analysis and considerations were provided to the joint architecture team for providing EV drivers and charging station owners with flexibility to choose between accepting lower power for charging their vehicles during peak periods or accepting high demand charges in real-time in case of not participating in the demand request from the utility. The design included integration of APIs from DRMS system, EV Cloud as well as mobile carrier messaging systems such as email and SMS messages.

After thorough review and acceptance of the design architecture, our client contracted Gridscape Solutions to implement the add-on component "DR for EVs" in their existing DRMS system. The project was completed in record time and within stipulated budget with a combined on-site and offshore team. Gridscape's engineers successfully completed the acceptance testing and pilot deployment at utility's back office operation center.

Results

With "DR for EVs" solution, the utility is now ready to embrace any EV charging events that requires heavy loads during peak periods. The utility is currently engaging all stakeholders such as EV drivers, EV charging stations owners, manufacturers and solution providers in signing them up for participating in the pilot program with intent to roll out an integrated solution in 2013. The integrated solution has been deployed for few months now and is exceeding its originally intended performance.

Gridscape Solutions helped its client achieve its desired goals by delivering a best-in-class solution to its customer. Our client was able to:

- Deliver a winning solution integrating all necessary components
- Meet its objective to supplement its technical strength with much needed superior solution for an emerging technology i.e. EVs
- Continue to demonstrate its technical prowess and maintain relationship with its utility customer