

Elaad.nl



Driving the electric future Kørsel den elektriske fremtid



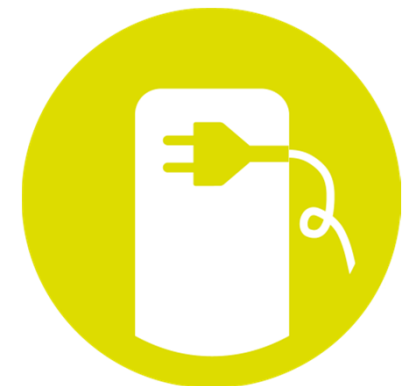
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2 October 2014

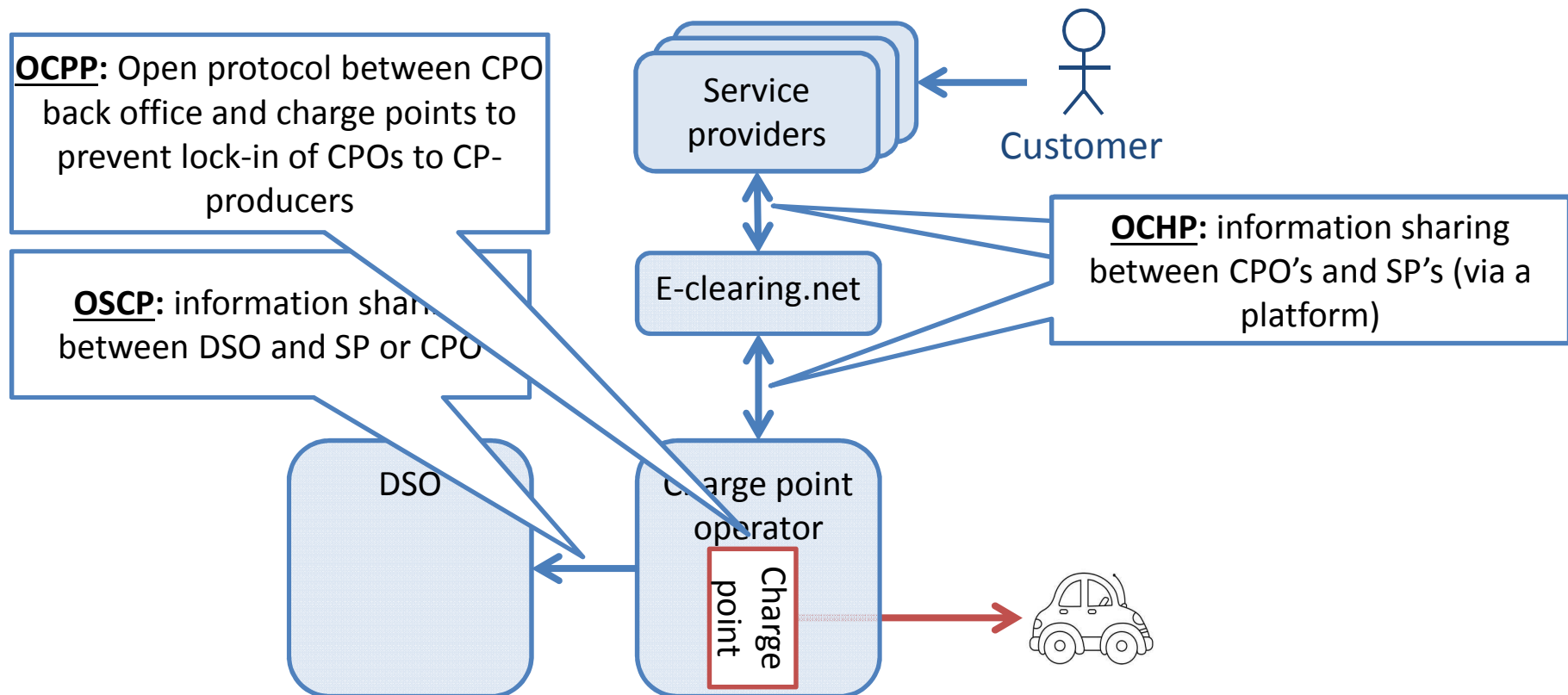


History

- Founded in 2009 by the cooperating grid operators
- Objective to get acquainted with the effects of EV on the electricity network
- Objective to contribute to the chicken-and-egg problem
- infrastructure now contains over 3000 sockets throughout the Netherlands
- 6 station brands/vendors, over 15 types
- Development in Netherlands: NKL
(national knowledgecenter chargeinfrastructure)



Protocol / interface developments





Open Charge Alliance

- ElaadNL is one of the developers of the OCPP protocol
- At present we are actively co developing and supporting OCPP, OSCP (and also OCHP, OCPI)
- ElaadNL actively integrates new protocol versions into its back office

OCPD testing

- Based on past experience started to perform firmware testing on;
 - OCPD implementation on syntax, semantics and message flow (message order)
 - user interaction (functional)
- Deliver as consistent user experience as possible
- OCA compliancy testing to solve interpretation dialects
 - Start with use cases / sequence diagrams, than profiling, than test set
- *Invitation to be keep you informed of this development*

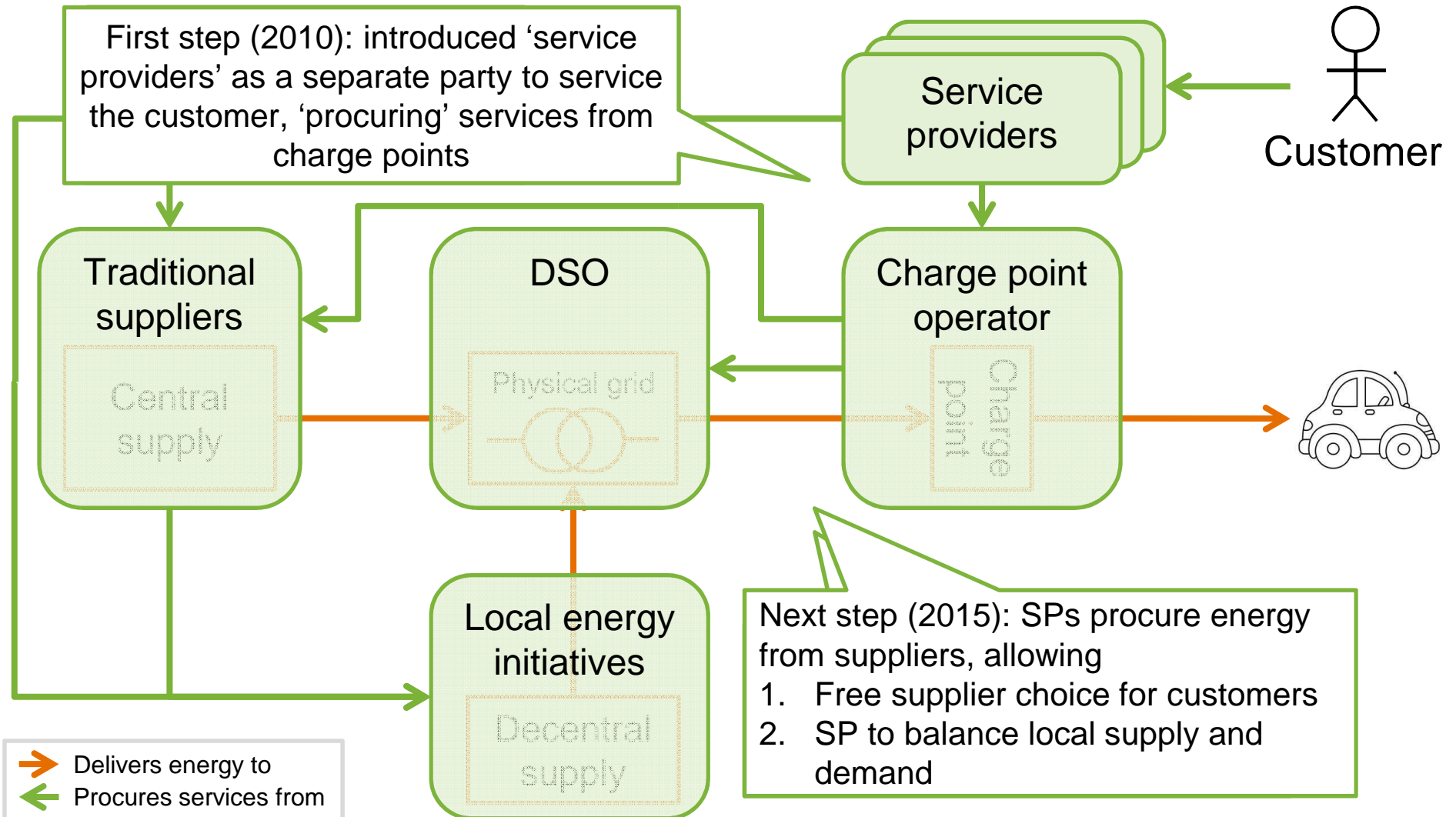
Business Layer

- Participate in initiatives as;
 - Smart charging
 - Flexible capacity
 - Free Choice Supplier
 - Logical allocation
 - Alternative payment methods,
 - Parking space management
- Within the boundaries;
 - Regular energy market (no flex tariffs allowed, no DR market)
 - EV market model

We have a tendency to 'forget' the functional layer

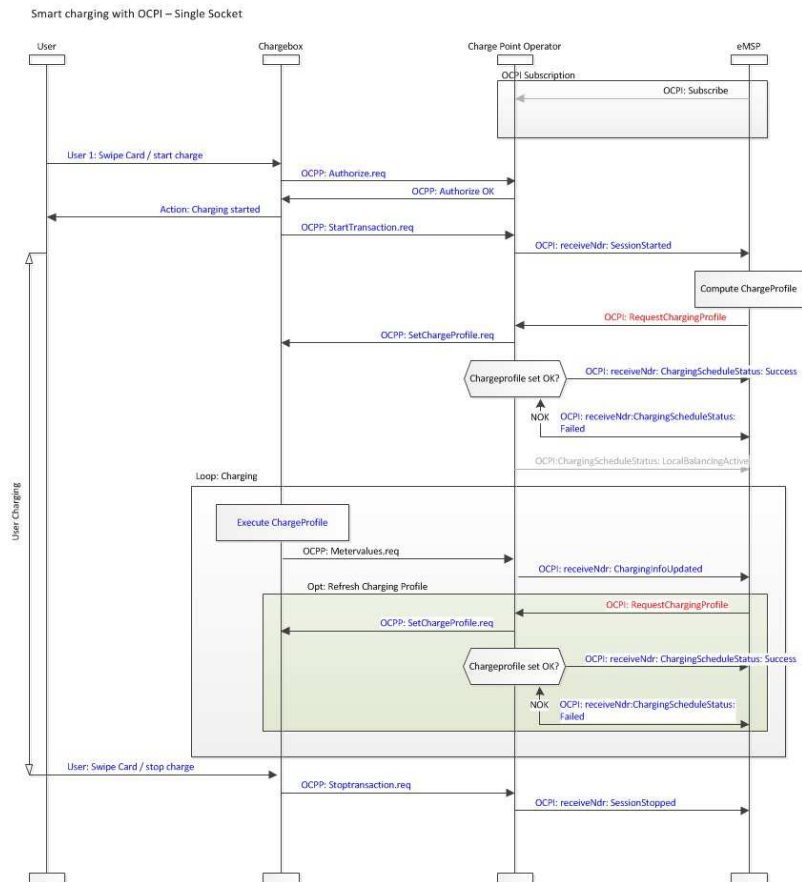


Business Layer: market model development



Function Layer OCPI Use Case flow

We are learning...



Information Layer

- Define and support innovation on (new) protocol initiatives
- Pilot new standards on a (sub) set of charging stations

- Until now, Use Case and BAPbased development was limited
- This resulted (not limited) in:
 - Different expectations concerning message sequence (within different message sets, use cases)
 - Time sync problems
 - Mode-3 misunderstandings
 - EMC problems
 - Strange behaviour on mode3 timing
 - No response to PWM dutycycle change
 - Monitoring and acting on negative part of mode3 CP signal
 - Influencing negative part of Mode3 CP signal



Communication Layer

Syntactic and network

- Work together with station suppliers to achieve firmware enhancements on;
 - GPRS connection availability
 - Station availability
 - User experience
 - Charge Data integrity (measuring (components) and CDR-format cached info from off-line stations)
- A few other issues on this layer:
 - Also syntax (W3 addressing, SOAP)
 - Address of the firmware download location was too long

Component Layer

Station hardware enhancements based on past experience and pilot goals

Specifications

- Communication bus enabled energy meter
 - Facilitate advanced measurement (current per phase, reactive power, etc)
 - Monitor total consumed current per phase in multi socket situation
- Set conditions to the memory size, processing power of the controller (make future proof for smart charging Use Case)
- Set conditions to MTBF and overall availability of charging service
- Set conditions on the Mode3 protocol handling
- Special grid connection for charging station... one meter for measuring data for two different roles/entities

Grid connection Acceptance tests



Invitation

- To experience directly the past and current developments within ElaadNL. Set up an in-depth information exchange workshop.
 - To give you input from our pragmatic practise
 - Move to more structured way of working based on your framework for ElaadNL
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