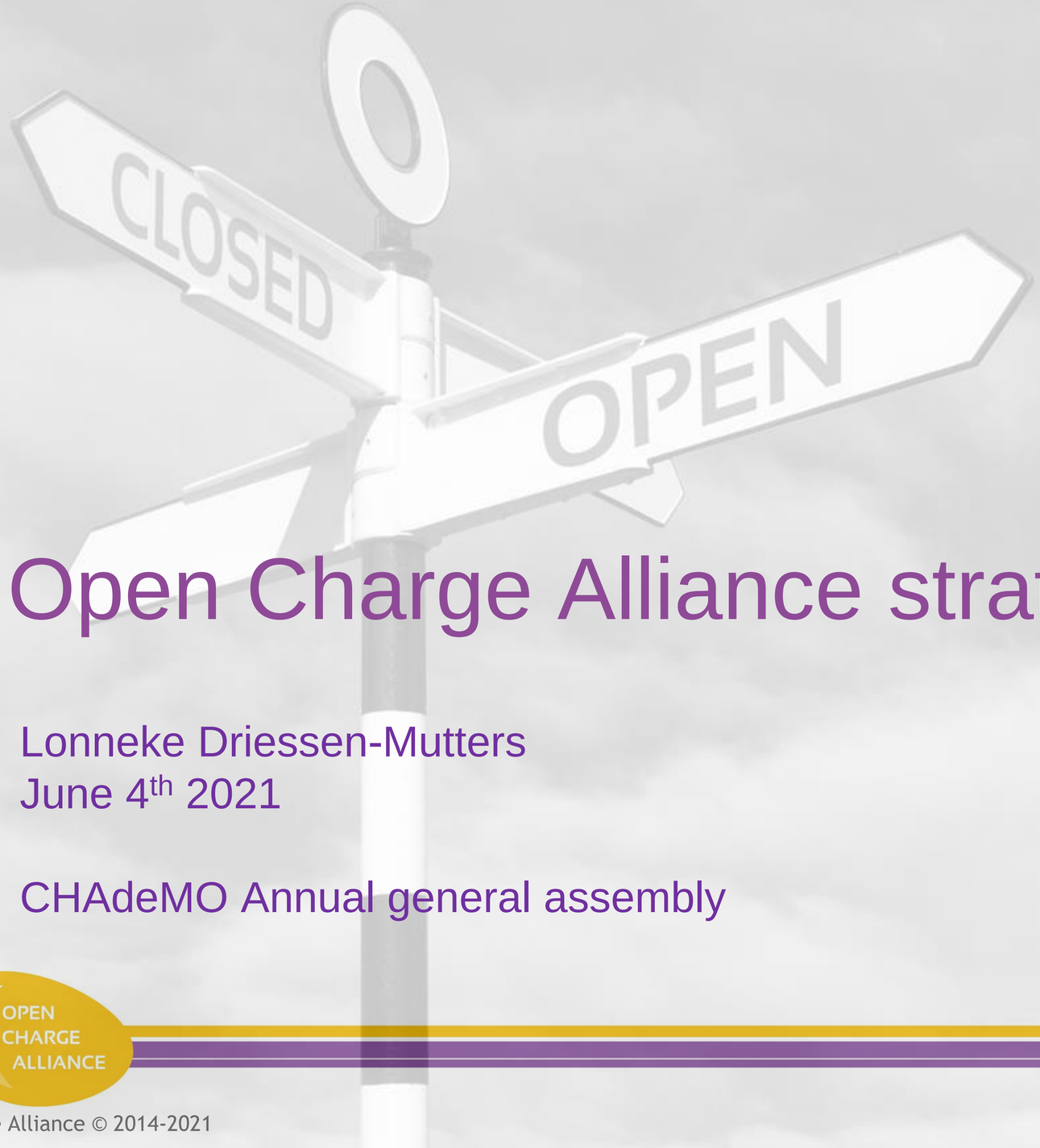
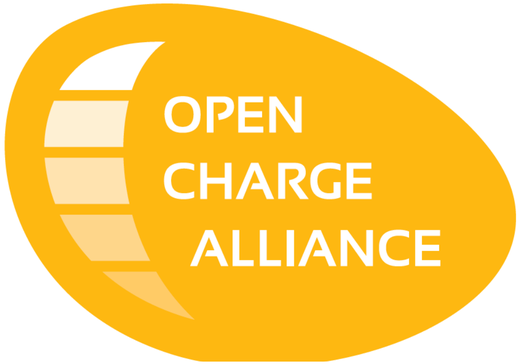


Open Charge Alliance strategy & vision

Lonneke Driessen-Mutters
June 4th 2021

CHAdeMO Annual general assembly

The Open Charge Alliance (OCA) is the industry alliance governing OCPP

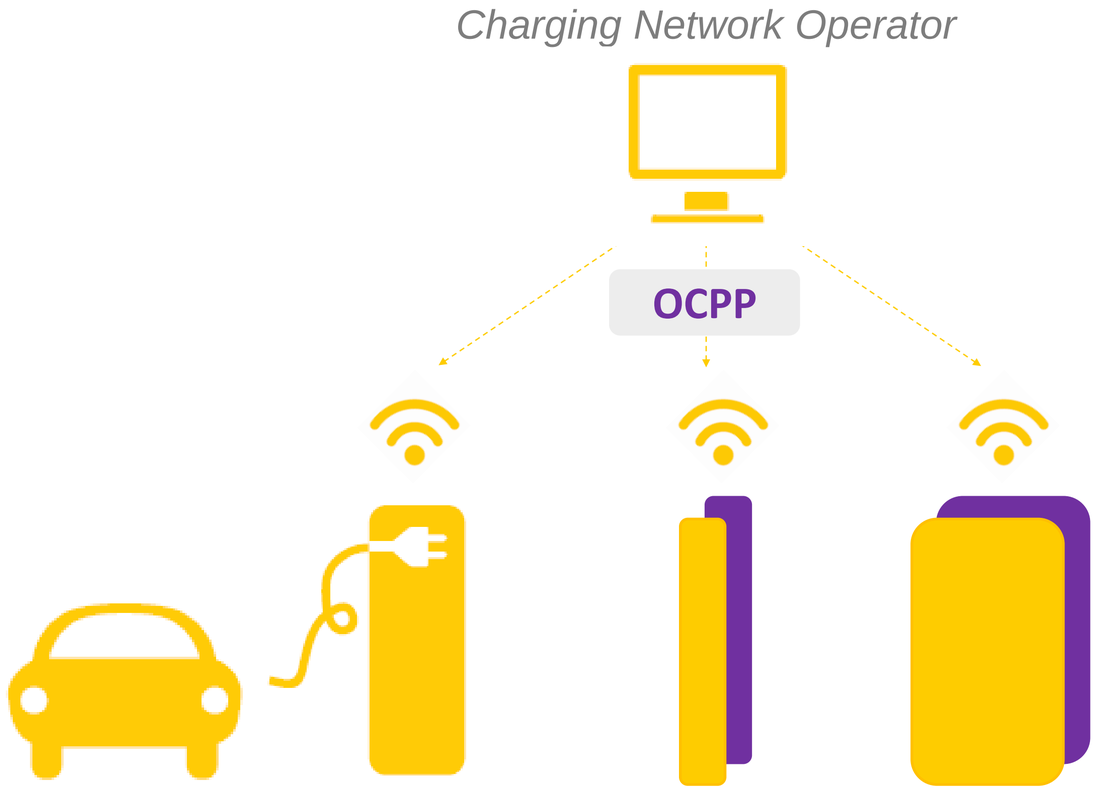


- Our goal is to help the EV charging industry accelerate
- A nonprofit foundation under Dutch law
- OCPP is continoulsy developed following the need of the growing industry and incorporating field experience
- Open, patent and royalty free with no cost or licensing barriers
- OCPP is a trademark and is protected by copyright license

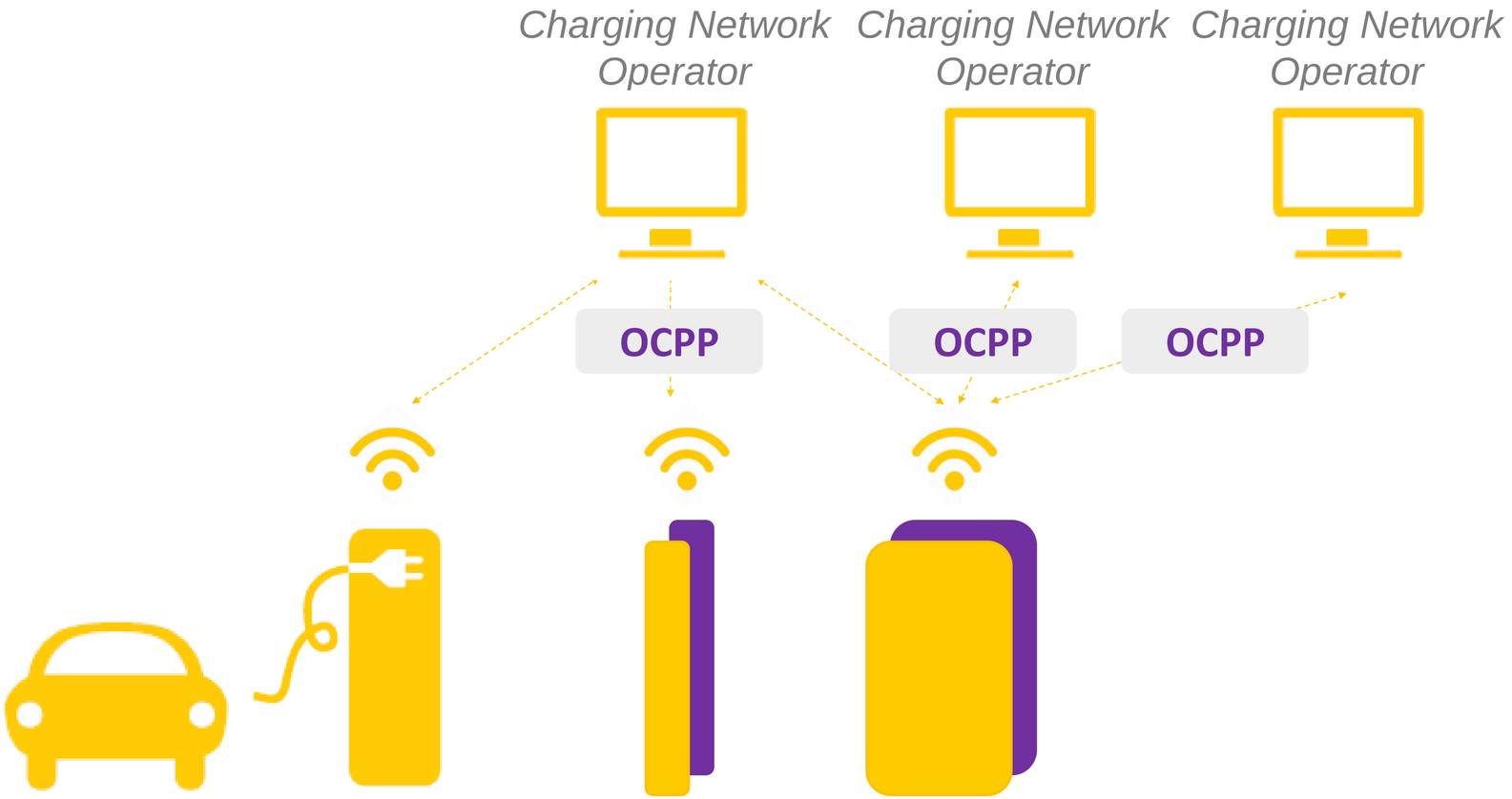
OPEN CHARGE ALLIANCE

www.OpenChargeAlliance.org

Open standards enable vendor independence for charging network operators

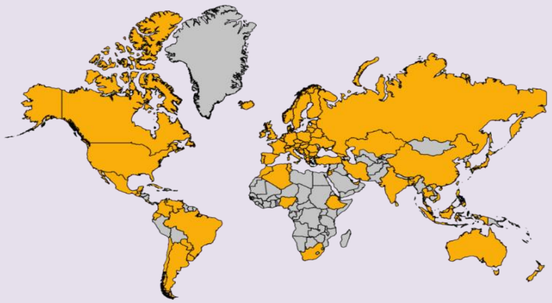


Open standards enable vendors to offer their products easily to many different Operators



The OCPP community is global

OCPP Users



OCPP downloads to 155 countries
To more than 72.000 individual IP addresses

OCA Members
199

OCA participants - All over the world	
199 OCA members	
Asia	47
Europe	114
North America	33
Oceania	3
South America	2
Africa	0

OCPP Developers

~60 companies actively involved in writing the spec

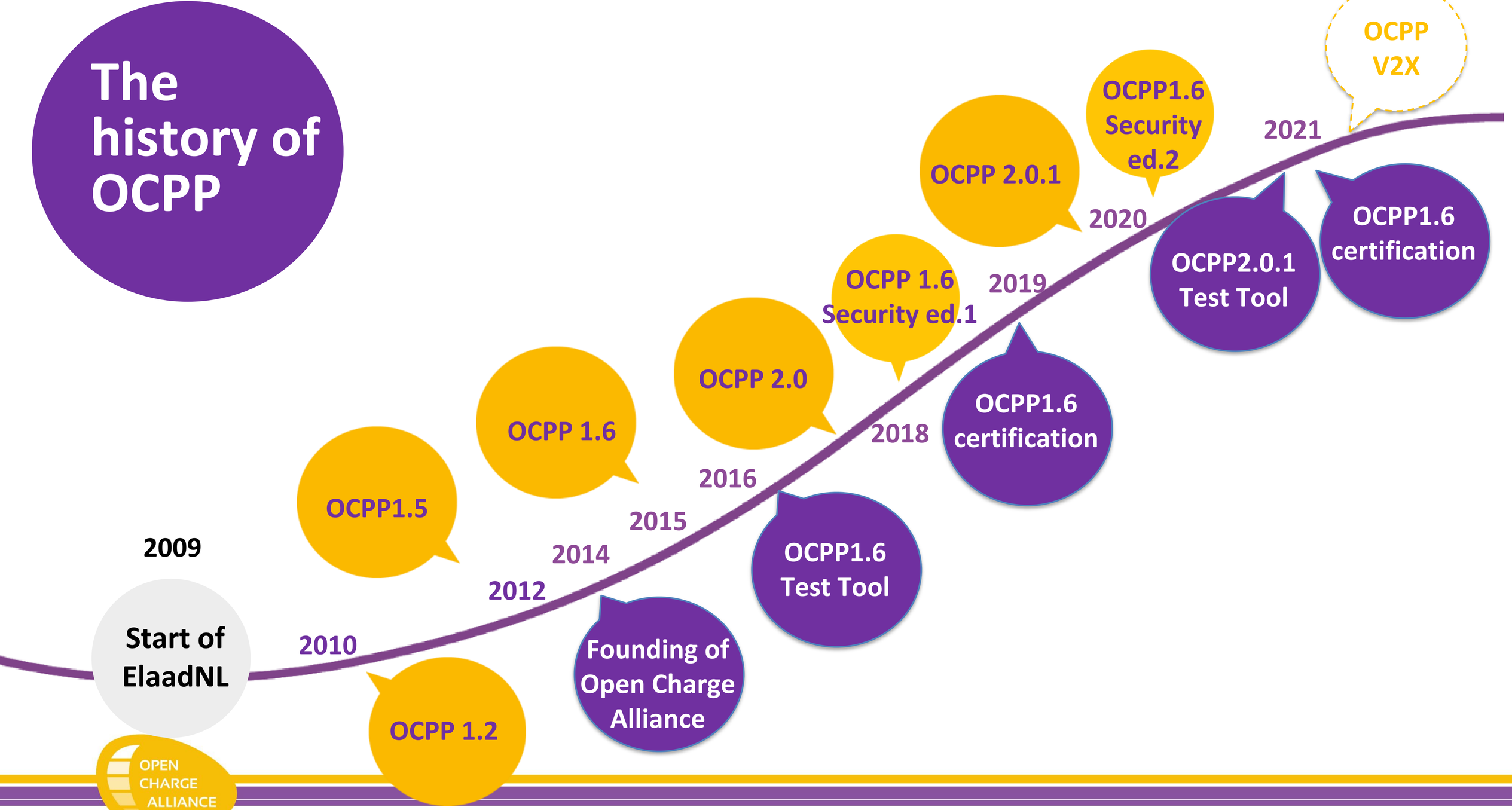
The origin of OCPP

ElaadNL initiated OCPP in 2009 when starting a multi - vendor charging network in the Netherlands

ElaadNL is a non-profit Knowledge & Innovation Centre in the field of (smart) charging infrastructure, founded in 2009 by the Dutch Electricity Grid Operators

In 2014 OCPP was handed over to the Open Charge Alliance (OCA)

The history of OCPP



There are different OCPP versions to choose from

- **Published in 2015**
- Functionalities are based on the industries needs in 2015
- No more new developments on this version
- Errata maintenance
- Generic ‘ Data Transfer’ mechanism to add custom features in OCPP1.6 → see white paper “OCA - Customizing OCPP Implementations”
- When Industry demands, occasionally OCA publishes White Papers describing standardized ‘Data Transfer’
  - Using ISO 15118 Plug & Charge with OCPP 1.6
  - OCPP & California Pricing Requirements
- OCPP 1.6 Interop Test Events (Plugfests) twice a year
- OCPP 1.6 Conformance Testing Tool is available
- OCPP 1.6 Certification Program is open

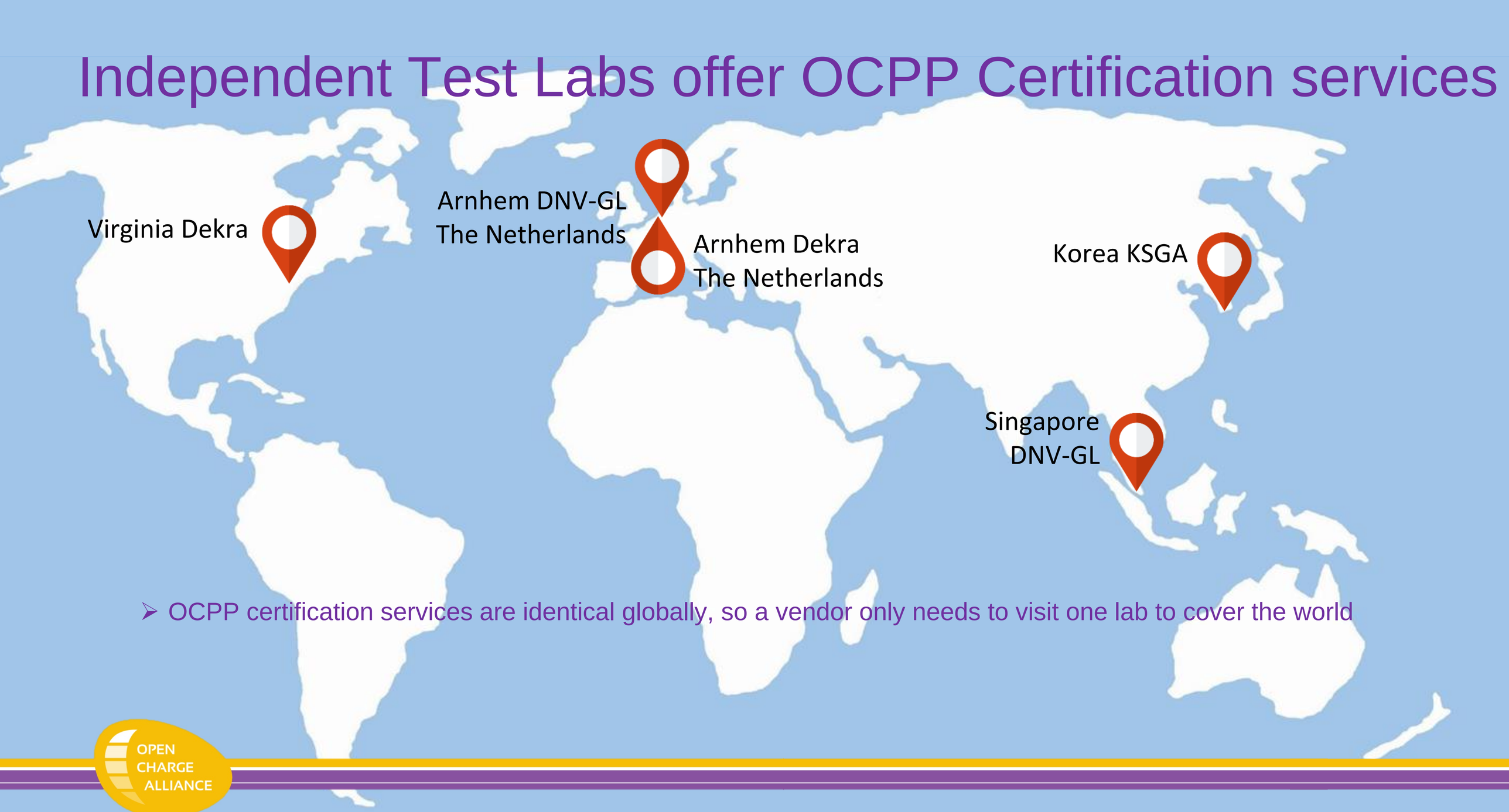
There are different OCPP versions to choose from

- **OCPP2.0 published in 2018, errata release OCPP2.0.1 published in 2020**
- Basis for future development
- Errata maintenance
- Current development topics:
  - Vehicle to Grid
  - Advanced Networking
  - Integration with existing Fuelling Stations
  - Integration of battery storage into Charging Systems
  - Support for the draft ISO 15118-20
  - Megawatt Charging Systems (MCS)
- These new developments will be published as application notes and incorporated into future OCPP2.x versions
- See white paper “OCA - Customizing OCPP Implementations” that explains how one can add custom features in 2.0.1.

There are different OCPP versions to choose from

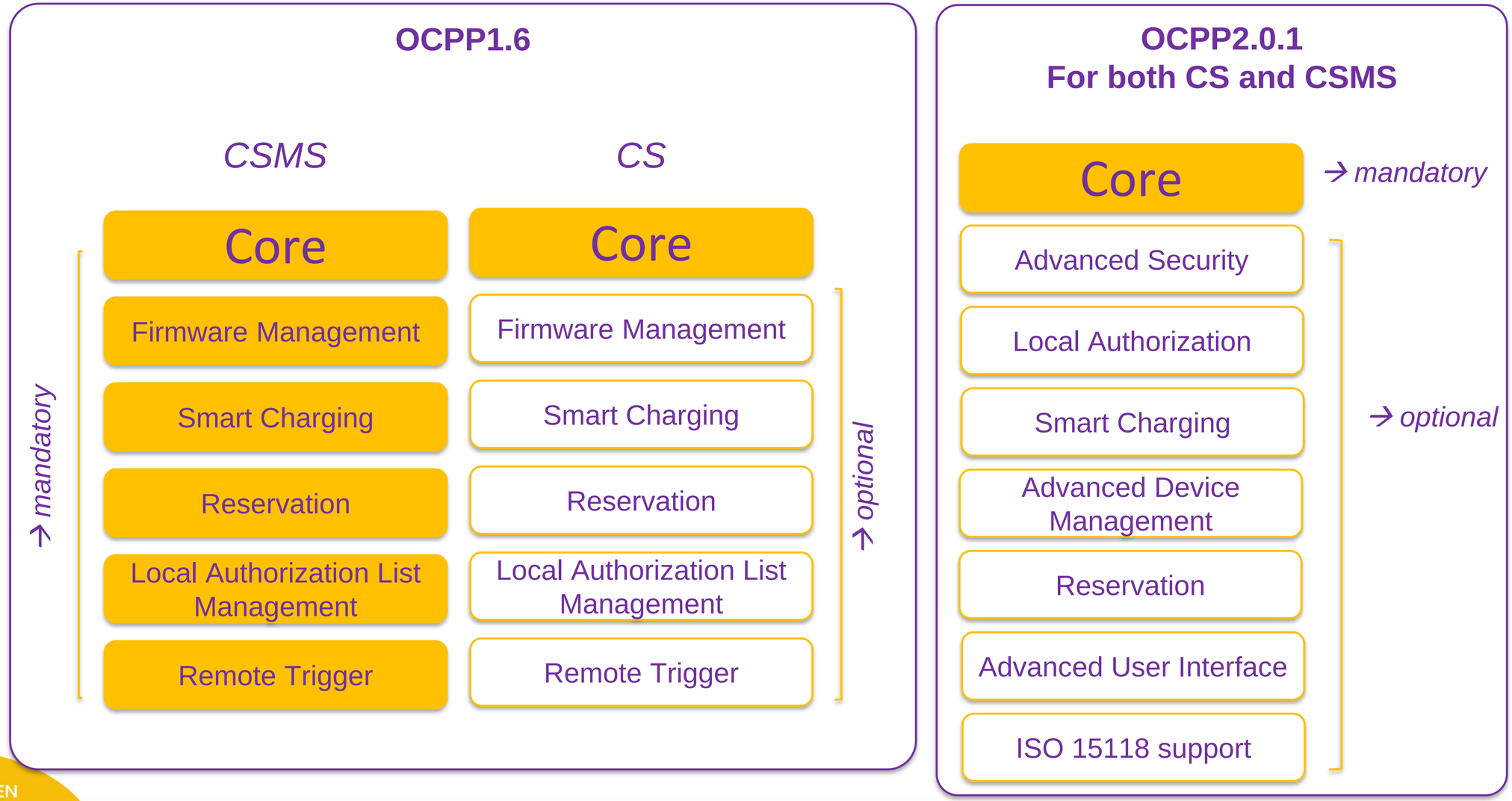
- OCPP 2.0.1 Interop Test Events (Plug fests) twice a year
- OCPP 2.0.1 Conformance Testing Tool is available in summer 2021
- OCPP 2.0.1 Certification Program opens summer 2021

Independent Test Labs offer OCPP Certification services



- OCPP certification services are identical globally, so a vendor only needs to visit one lab to cover the world

One can choose what to certify: ‘Certification Profiles’




OPEN
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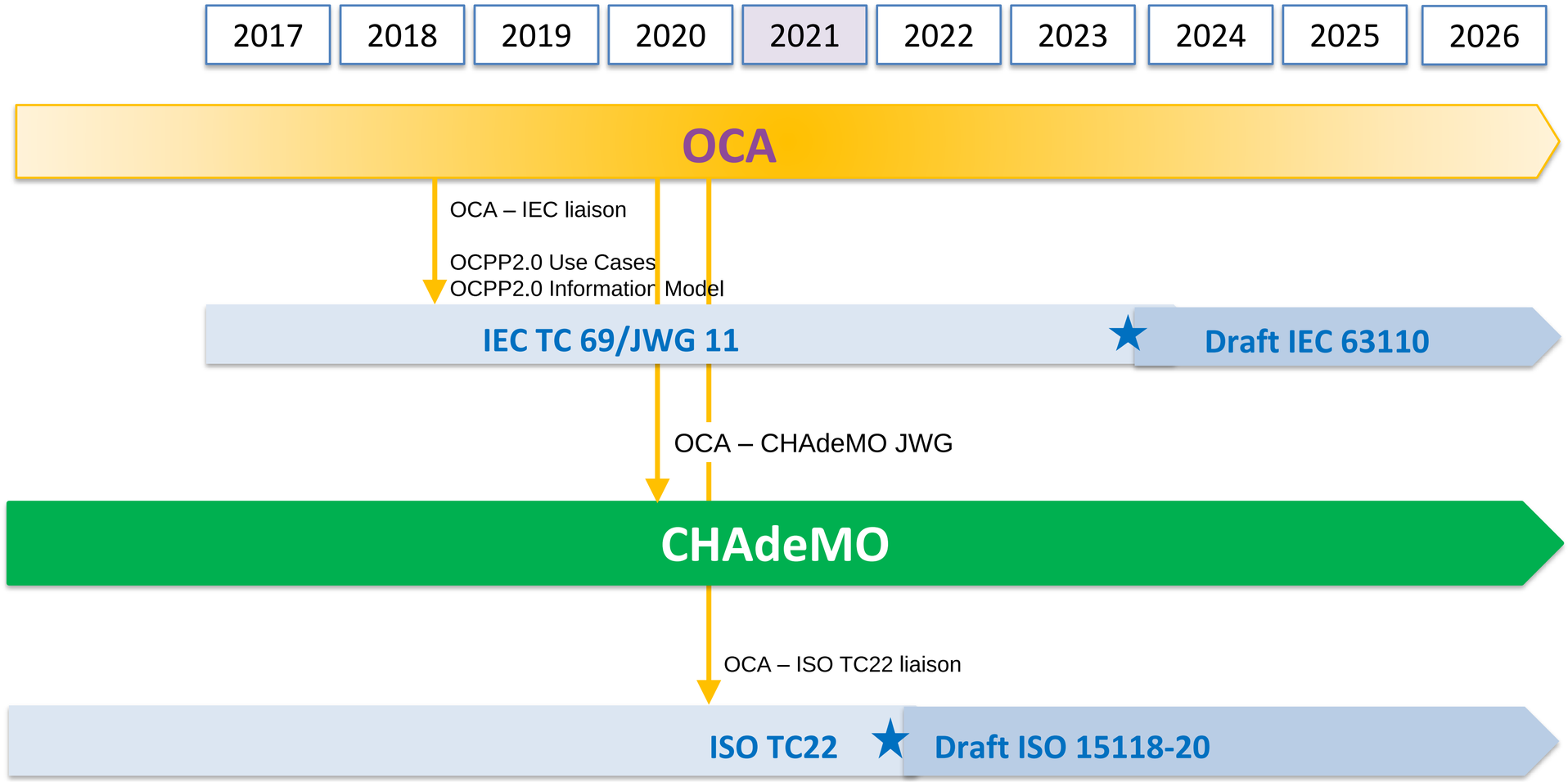
Are you talking to me ?
Talk OCPP!
Are you talking to me ?
Talk OCPP!

OCA liaisons



OCA CHAdeMO Joint Working Group

Aim is to help both charging station manufacturers and charging station operators to accelerate their development.

CHAdeMO and OCPP do not overlap but compliment each other. It is the charging station, that translates information between these two protocols.

CHAdeMO Association and OCA started a Joint Working group:

- To create a translation table, for the terminology used in both standards
- To create detailed sequence diagrams that show the interaction between OCPP and CHAdeMO
- To document how the wealth of information that CHAdeMO provides about the DC charging in progress, can be made available to the CSMS via the OCPP device model.

Kick off meeting in July 2020

Protocol versions in scope

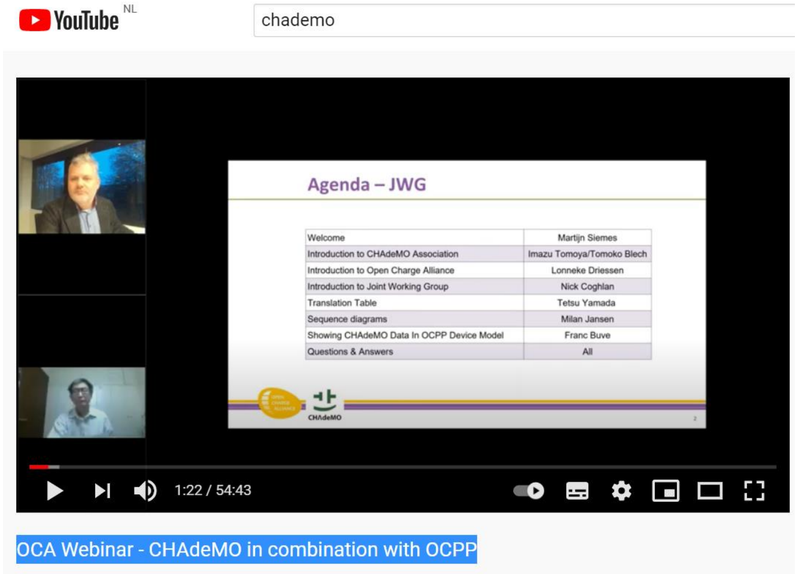
- OCPP 1.6 & OCPP 2.0.1
- CHAdeMO 1.1 & CHAdeMO 2.0.1

Release Whitepaper: 'Using OCPP with CHAdeMO'!

In November 2020 CHAdeMO and OCA released a Whitepaper.
The Whitepaper can be found at:

- OCA website
  https://www.openchargealliance.org
- CHAdeMO website
  https://www.chademo.com

The webinar is available on the OCA youtube channel



The OCA CHAdeMO JWG will continue

- One topic that we have not discussed so far in the CHAdeMO OCA JWG is V2X
- OCPP V2X is still under development
- Only OCA participants can contribute to OCPP itself due to our strict No IP policy
- CHAdeMO has a RAND IP policy
- These IP policies are incompatible
- CHAdeMO and OCA are looking for a way to cooperate on V2X whilst respecting the OCPP No IP policy

OCPP V2X Task Group

What information needs to be exchanged between Back end system and Charging Station?

Important OCPP design aspects

- Agnostic to the information exchange protocol between vehicle and charging station
  - CHAdeMO (versions 1.1 and 2.0.1)
  - ISO 15118 – 20 (draft)
- Compatible with existing implementations

Based on field trial experiences of the industry participants

- The V2X Task Group designs the initial draft
- Trial implementations in the field result in feedback
- Incrementally the draft is improved

Publication

- Once we are confident of the quality and we have tested it in the field
- Current estimate is early 2022
- First as an application note to OCPP2.0.1, later on incorporated in a new OCPP version release

Draft V2X use cases that are currently being tested in the field

The use cases below are trialed by OCA participants to finalize the draft OCPP specifications

- **Central V2X control with setpoint** → the CSMS determines the setpoint or profile
- **External V2X control with setpoint** → an EMS determines the setpoint or profile
- **Central V2X control for frequency support** → the CSMS determines the setpoint or profile for charging and/or discharging based on the frequency
- **Local V2X control for frequency support** → The power setpoint for frequency support is determined from a power/frequency table, and based on the locally measured frequency
- **Local V2X control for load-balancing** → the charging station determines when to charge or discharge

The following use cases are next on the list:

- Grid forming (instead of grid following)
  - **V2H vehicle-to-home** → provide power from the EV to the home
  - **V2L vehicle-to-load** → provide power from the EV to a specific load
- Other control functions (besides frequency - power)
  - **Voltage – power** → when the voltage drops, provide power to the grid
  - **Voltage – reactive power** → when the voltage drops, provide reactive power to the grid
  - **Power - reactive power** → at a certain power level, provide reactive power

Thank you!
Join OCA!