



# GIREVE

## Interoperability of EV Charging



**GIREVE, the company**

## Timeline

### 2018-2019 - Development of our activity

Roaming: +500k drivers charging on +75k charge points in 20 countries in EU  
ePOI: +135k charge points description including 70k with real-time availability

FULL EUROPEAN COVERAGE  
EXTENDED RANGE OF SERVICES



2018  
2019

2017

### 2017 - Roaming services

Launch of our Roaming services  
Interoperability platform for E-mobility operators

2016

### 2016 - EU Development

Development of our services  
throughout Europe

2014

### 2014 - Database creation

Launch of our ePOI services + Creation of an aggregated  
ePOI Database

2013

### 2013 - Creation

Creation of the company by 5  
stakeholders

# The company – Team & Shareholders

## GIREVE's organisation

### EXECUTIVE COMMITTEE



**Bruno  
Lebrun**  
CEO



**Sophie  
Duval**  
COO



**Jean-Marc  
Rives**  
CTO



**Vianney  
Devienne**  
CSO

- 23 employees based in Paris
- GIREVE's experts are dedicated to our core activities:  
**Innovation, Operations, Marketing**
- Additional flexible outsourced IT team (5 to 15 IT developers based in France)

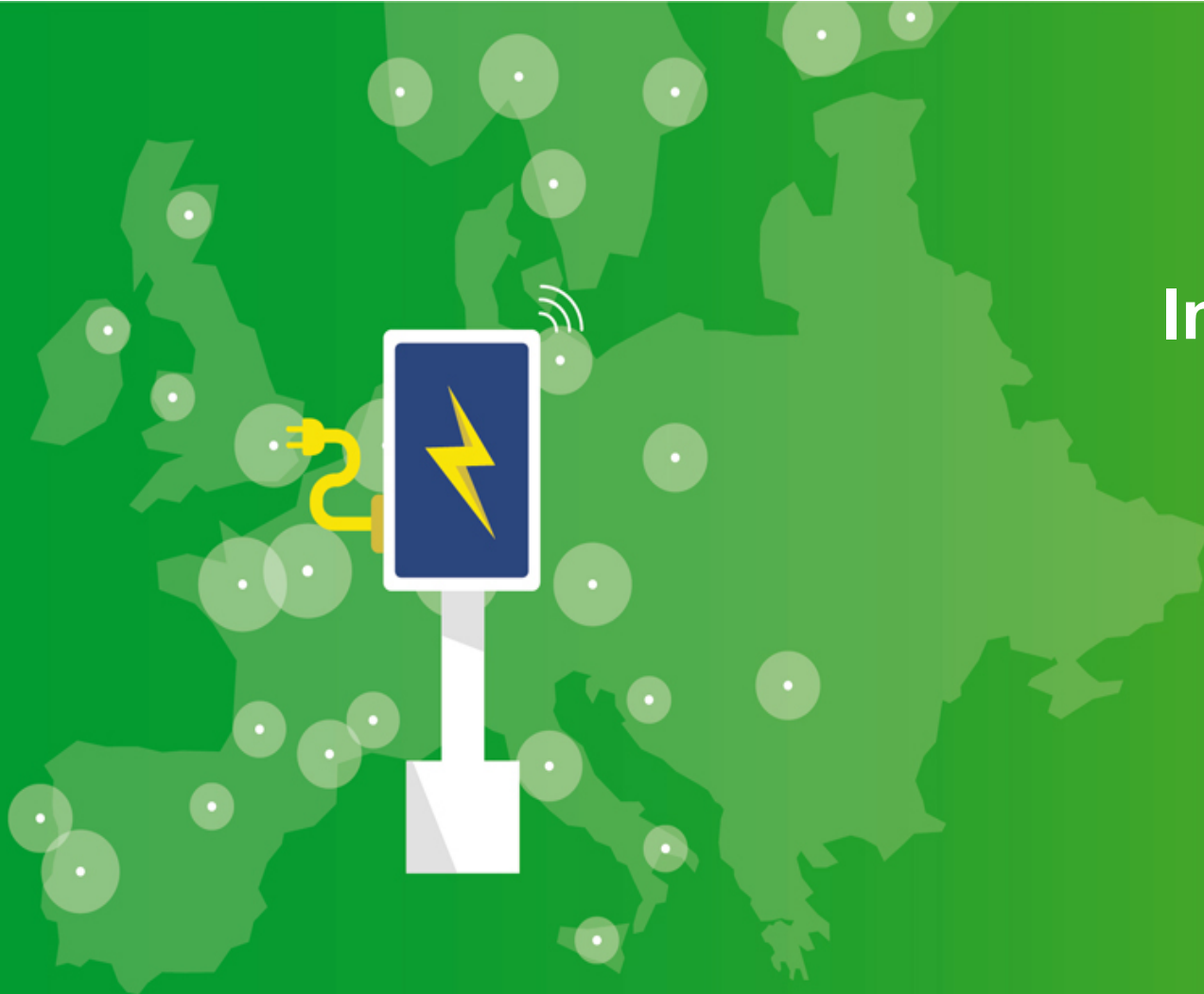
### SECURED START-UP WITH SOLID SHAREHOLDERS



RENAULT







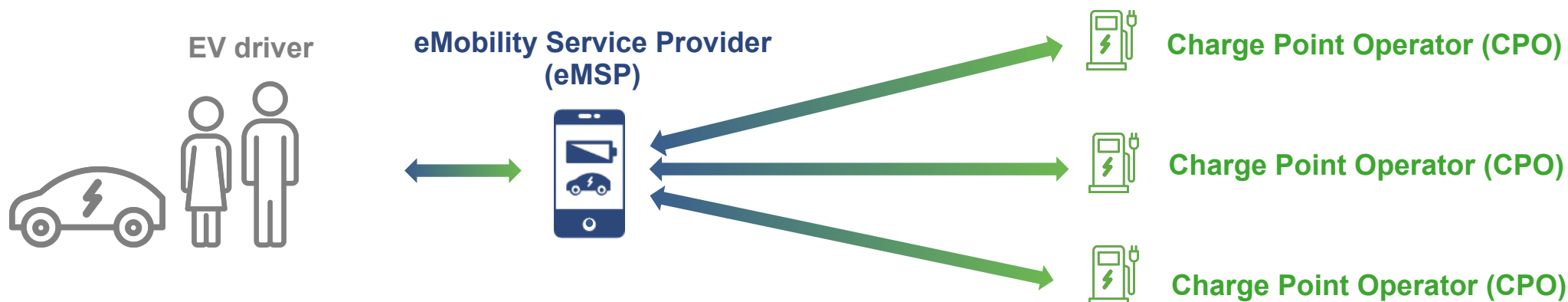
## Introduction to Roaming

# Introduction to Roaming – Explanation of the concept

**Roaming:** ability for a consumer to use the services of network without dedicated subscription



**Roaming in the e-Mobility sector:** ability for an EV-Driver to charge on charging stations, using only one subscription provided by one operator



# Direct payment brings kWh where an eMSP brings mobility service



## >80% of public charges in EU

- 1 unique subscription
- Aggregated EU coverage
- Connected services (App)
- Comes along with the EV

### eMSP Subscription plan



CPO



- 1 payment app per network
- No connected service
- Higher price

### Direct payment (anonymous)

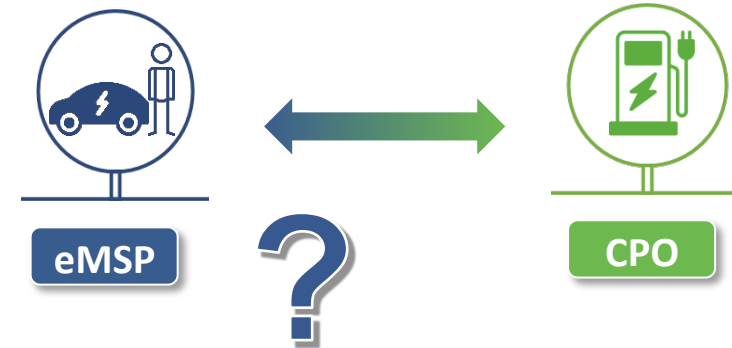
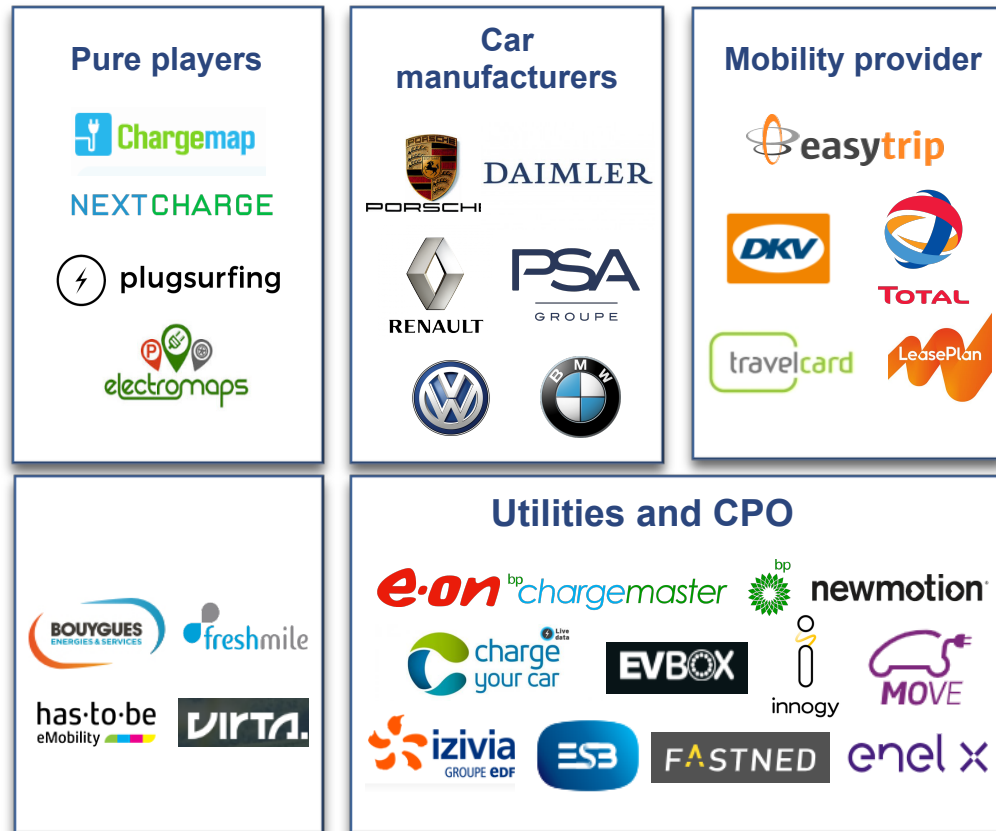


CPO



1. EV charging services require connected services delivered by eMSP
2. eMSP services require eRoaming capabilities

# eRoaming implies costly business relationship between eMSP and CPO



1. eRoaming requires complex and costly business relationship between a large number of eMSP and CPO (> 1000)

## eRoaming from an eMSP or CPO standpoint: “Make” or “Buy”?



## « MAKE » option

Legal + IT + operations + clearing are managed in-house



## « BUY » option

Legal + IT + operations + clearing are outsourced

## Most of eMSP and CPO go for a mix of « make » and « buy » options

# Introduction to Roaming – GIREVE offers a one stop shop for Roaming

**GIREVE reduces the complexity between operators, to lower the total cost of roaming**



## Interest for the CPO

- Simplified contact with multiple eMSP
- Increased traffic without any additional cost
- Quicker ROI on installation fixed costs

## Interest for the EV driver

- Access to a European network with thousands of charging points through only one subscription plan

## Interest for the eMSP

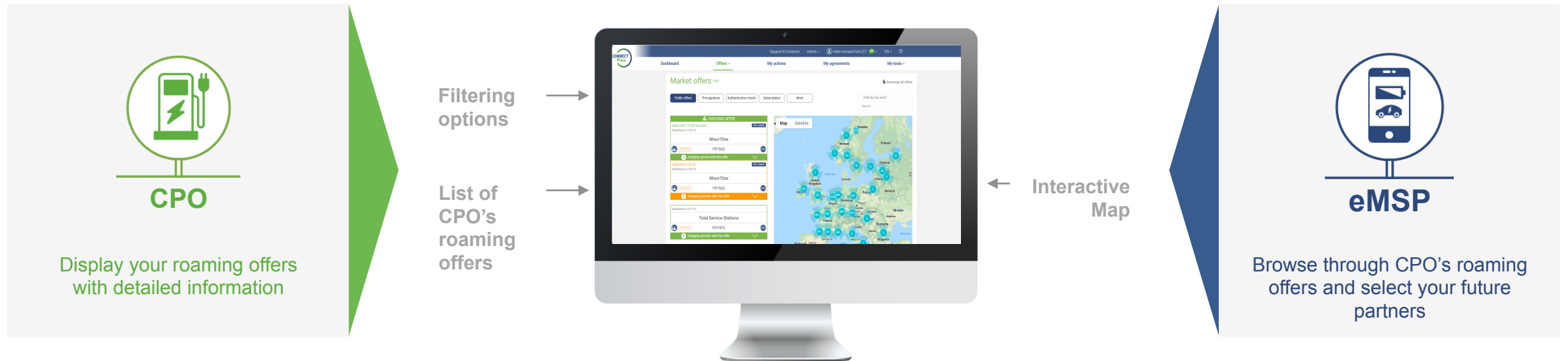
- Simplified contact with multiple CPO
- Access to a great number of charging points, removing the hurdle of mass EV adoption



## Business Services

- Setting up your Connect Place account
- Publishing & Selecting roaming offers
- Signing & Managing roaming agreements
- Messaging

**Connect Place:** publish, select, sign your roaming agreement in one place



## Key Features

Set Up Your Account

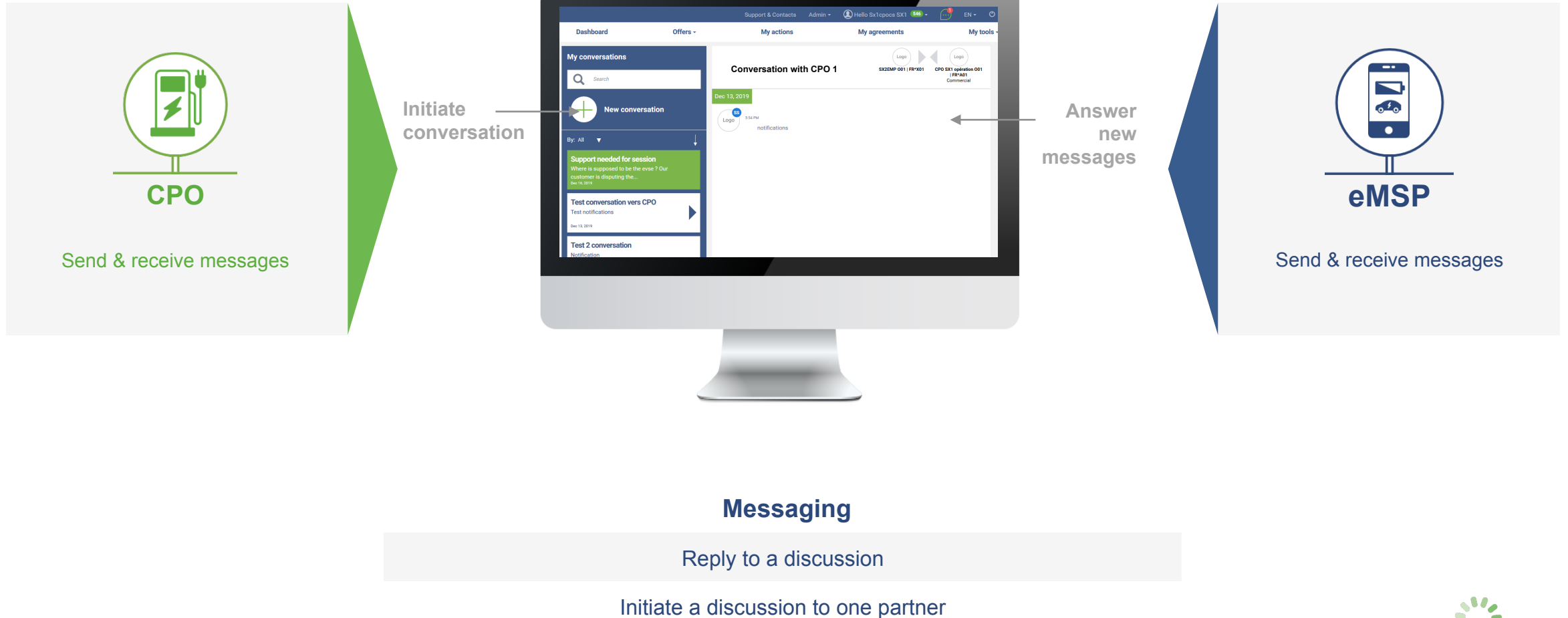
Roaming Offers

Standardized Roaming Agreement Template

Messaging Services



## Messaging: negotiate & exchange with future partners on the Connect Place





## Roaming Services

- Location
- Booking
- Charging
- Monitoring
- Messaging

# Roaming Services

**Charging:** Enable EV drivers to charge everywhere, no matter the network



## Charging services

Local & Remote authentication

Send/Receive Charge Detail Records

Action request (eMSP to CPO during a session)

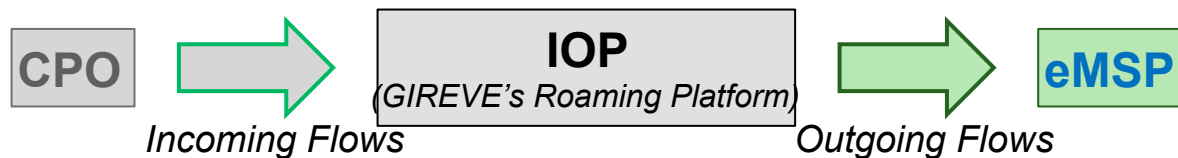
Event report (CPO to eMSP during a session)

Intermediate CDR (CPO to eMSP during a session)

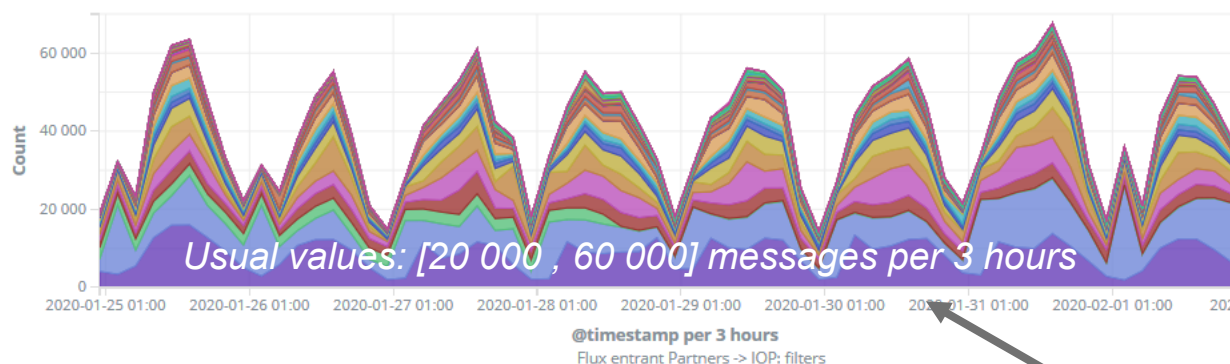
API for dynamic tariff data upload & reception of tariff change

# Roaming Services – smart data flow monitoring

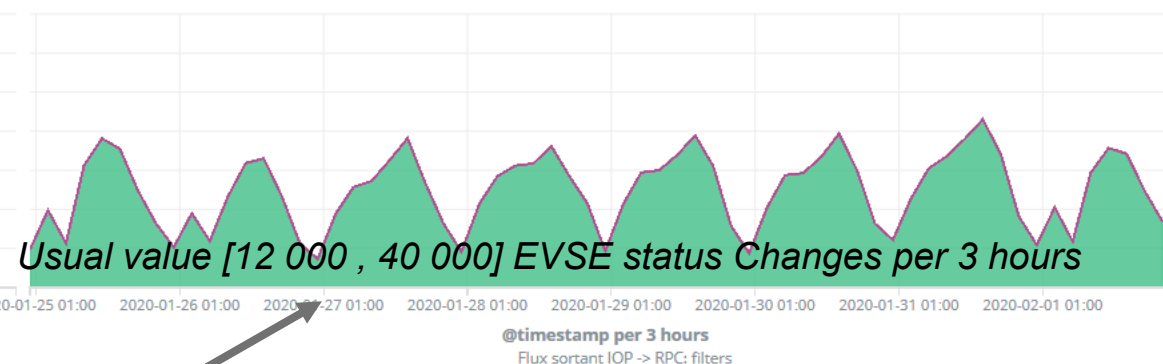
## Usual situation



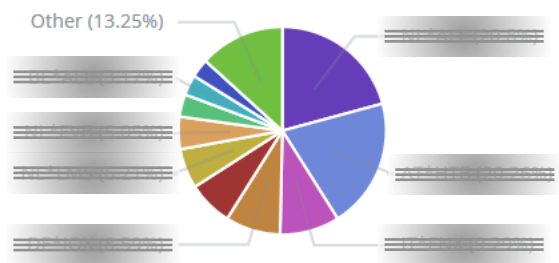
Incoming Flows: Nb of messages (per CPO comm-Partner)



Outgoing Flows: Nb of EVSE Status Charge

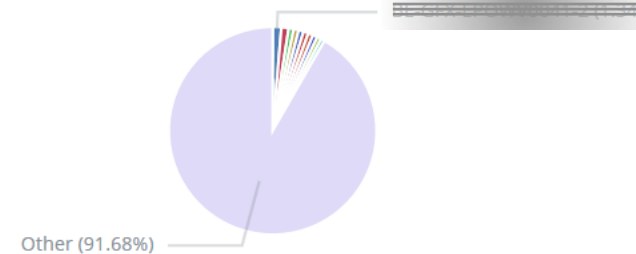


Main CPO comm-Partner



> 100 000 msg  
filtered each day

Main EVSE

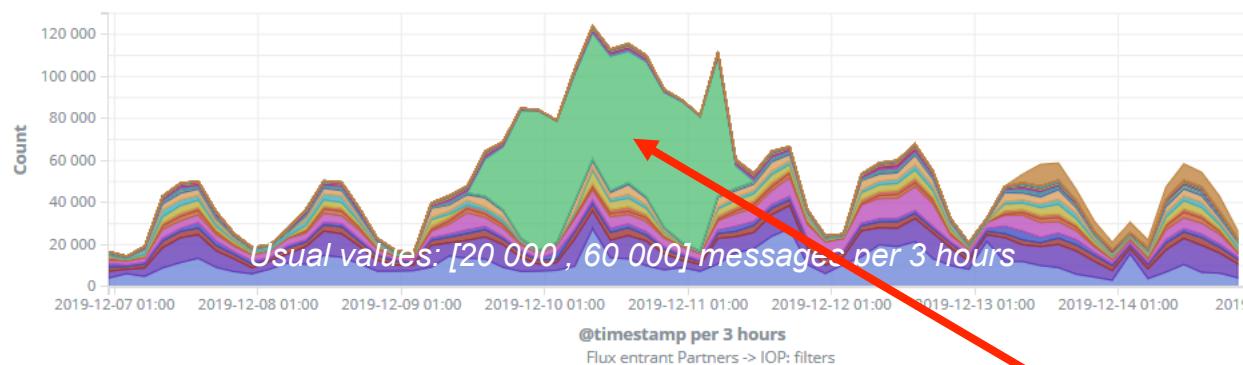


# Roaming Services - smart data flow monitoring

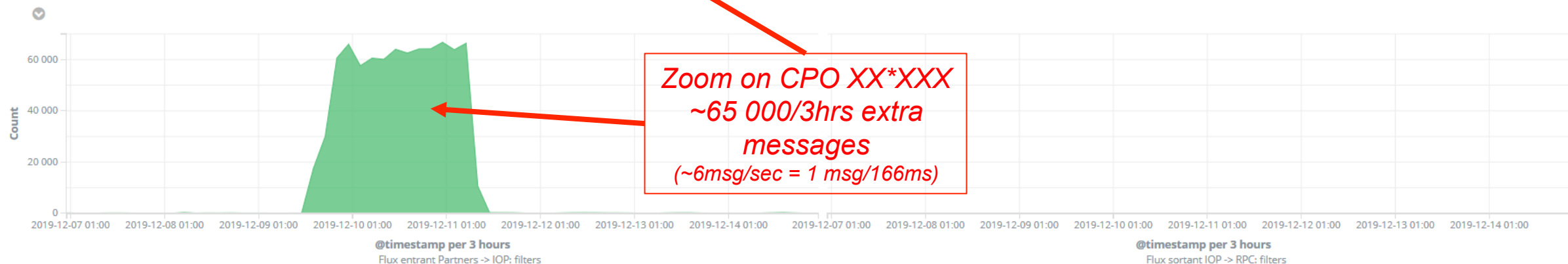
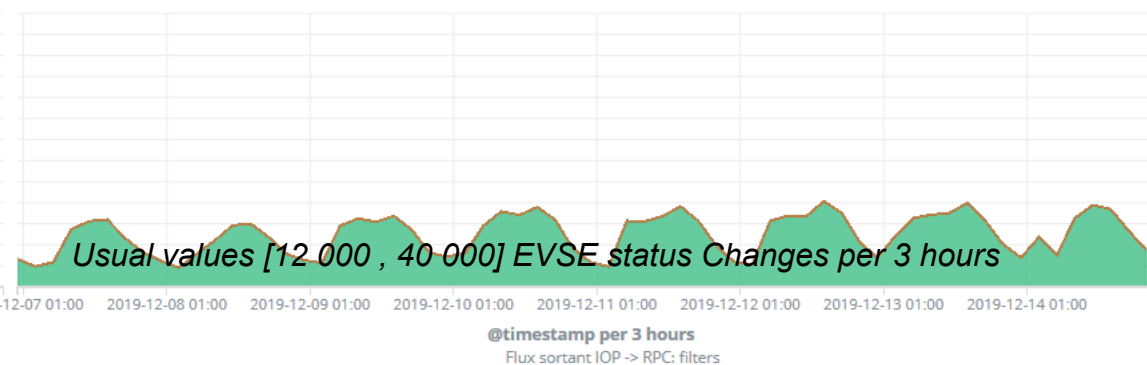
**Abnormal situation**  
(dec 9th 2019)



Incoming Flows: Nb of messages (per CPO comm-Partner)



Outgoing Flows: Nb of EVSE Status Charge





## Clearing Services

- Follow-up & Quality Control
- Billing & Invoicing
- Dispute
- Messaging

## Quality Control : Detect errors before invoicing your customers



### Consumption follow-up

Follow-up of charging sessions on your Connect Place account

### Quality control

Access GIREVE's quality control of CDR

# Clearing Services

**Invoicing:** bill your CDR automatically and manage your invoicing process



## Billing & Invoicing

Calculate a charging session's final price  
*based on the tariff conditions of your roaming agreement*

Send invoices to your eMSP / Receive invoices on your Connect Place account



# Clearing Services

**Dispute:** your workflow tool to reduce cost before invoicing



## Dispute

Inform your eMSP partners of your invoicing intention for each charging session

Send invoicing intentions to your eMSP / Receive invoicing intentions of CPO

Receive & Reply to disputes / dispute a CDR to your CPO partner

## UK, IE - 3,000 charging points



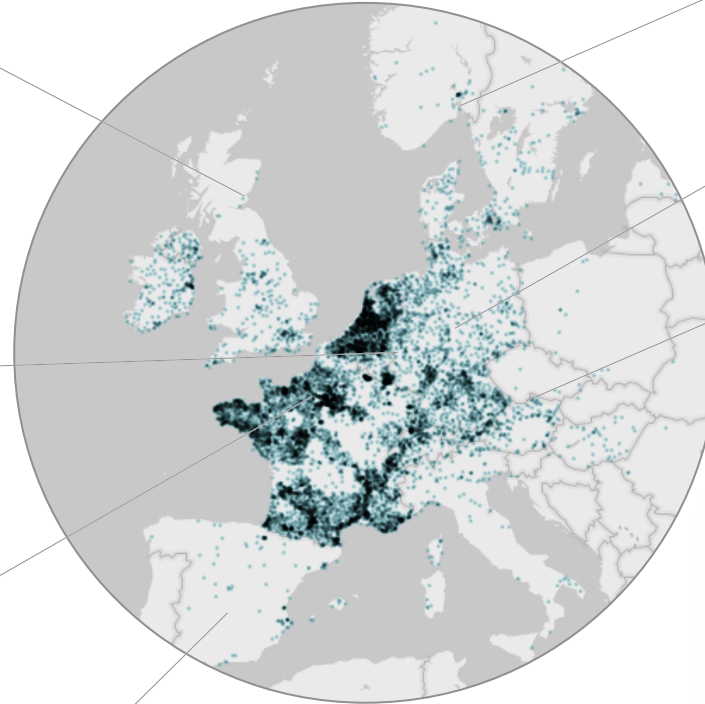
## BE, NE, LU - 42,000 charging points



## FR - 20,000 charging points



## ES - 250 charging points



## FI, SE, DK, LV,LT, NO – 1,400 charging points



## AT, DE CH, IT – 11,700 charging points



## PL, RO, CZ, RU, SK, SV, HU, HR – 172 charging points



**75,000**

charging points  
open through  
GIREVE in Europe

**>80%**

coverage in 5  
countries\*














**2,000**

roaming  
agreements signed  
on GIREVE












List of all our partners available at : <https://www.gireve.com/en/nos-partenaires>

\*EAFO statistics from 11,2019, Note that they include non roaming compatible EVSE.

# Our eMSP Partners

	Bosch
	Blue Corner
	Bouygues Energies et Services
	Chargemap
	ChargePoint Network
	CLEM', SAS MOPEASY
	Digital Charging Solutions GmbH (DCS)
	Duferco Energia S.p.A.
	E TOTEM
	Electromaps S.L.
	Eneco eMobility B.V.
	EVBox B.V.
	Freshmile Services
	Go Electric Stations SRLS

	GreenFlux Assets B.V.
	Has.to.be GmbH
	Izivia (ex-Sodetrel)
	Justplugin
	Kiwhi Pass Solutions SAS
	Kuwait Petroleum N.V.
	Liikennevirta Oy (VIRTA)
	Mairie de Paris
	Mobilygreen
	MOVE Mobility SA
	Plugsurfing GmbH
	Porsche AG
	Route220 S.R.L.
	ServiceHouse B.V.
	Spark Horizon SAS


	The New Motion B.V.
	Threeforce B.V.
	Total Marketing & Services
	Travelcard B.V.
	Vandebrom Energie B.V.
	Wirelane GmbH
	ZEborne
	ZE-WATT
	Tank & Rast*
	Get Charge*
	ChargeHub*

\* : available soon

## Car Manufacturers



# Our Backend Provider Partners

	Allego		Connect Groupe E		Go Electric Stations		Porsche AG
	Atomelec		Digital Charging Solutions		GreenFlux Assets		Powerdale
	Blue Corner		DKV Euro Service		Grønn Kontakt		Route220
	Robert Bosch		Drivz Ltd.		Has.to.be		SAP Labs France*
	Bouygues Energies et Services		DRIVECO		Ineo Tinea		SGA Automation*
	Chargecloud*		Duferco Energia		Izivia (ex-Sodetrel)		ServiceHouse
	ChargeHub*		Easytrip		Lafon		SPIE CityNetworks
	ChargeIT mobility GmbH		Electric 55 Charging		Liikennevirta Oy (VIRTA)		Tank & Rast*
	Chargemap		Electromaps		Mobilygreen		Total EV Charge
	ChargePoint Network		ETREL*		PARKNPLUG*		Threeforce
	Chargepoint Services Limited		Enio*		NewMotion		Vandebron
	CLEM', SAS MOPEASY		EV-Box		Optimile*		Wirelane
	Cogelum IDF		Fortum Charge & Drive B.V.		Plugsurfing		ZE-WATT
			Freshmile Services				

“Operational excellence at the lowest costs”

Eric Feunteun, EV & New Business Director, Groupe Renault



“Connecting to GIREVE’s platform was essential for Chargemap to achieve its mission”

Yoann Nussbaumer, Chairman of the Board, Chargemap



“Partnerships like the one we are implementing with GIREVE will serve to [...] expand Allego’s market position.”

Anja Van Niersen, CEO, Allego



“We are very satisfied with the technical platform’s stability and reliability, the Connect Place’s simplicity and the client service’s reactivity.”

Sabrine Labiadh, Market Manager, Digital Charging Solutions



“Excellent roaming service”

Robert Byrne, Founder & Managing Director, Franklin Energy



“I found GIREVE to be very professional, supportive and innovative. They offer open technology such as OCPI and many opportunities for network expansion”

Francesco Barrile, CEO, Go Electric Stations



# Thank you for your attention

# Introduction to Roaming – Contractual phase between the stakeholders

**Roaming** Agreements set the B2B tariffs between CPO and eMSP of the market



## 1 CPO sets its tariff to eMSP (B2B)

CPO and eMSP sign a contract called “Roaming Agreement”, including a B2B tariff.

**Today:** most B2B tariffs are based on usual unit  
*Example of unit: session, time and/or energy. Day and time of the day*

**Tomorrow:** B2B tariff per volume & dynamic tariff  
Tariff per volume: volume of session, time and/or energy  
Dynamic tariff: CPO can change the tariff in real-time

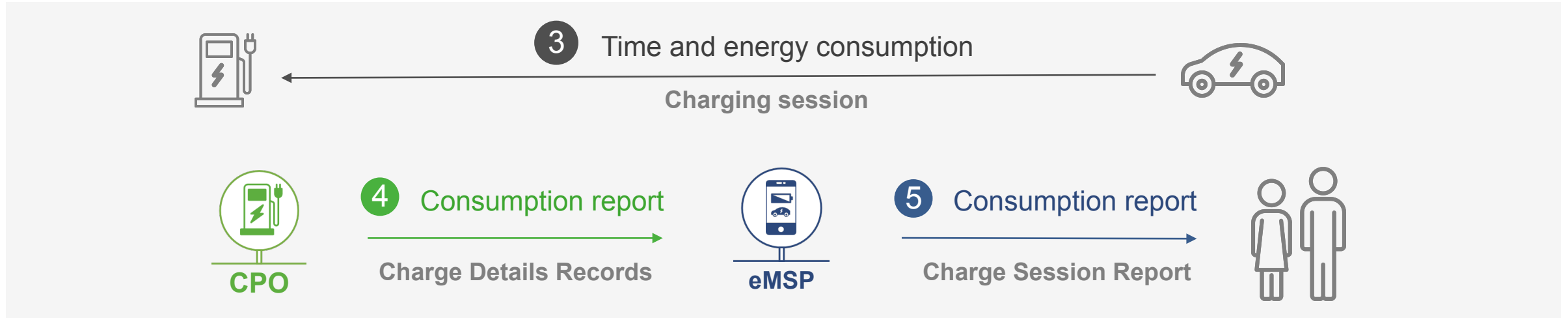
## 2 eMSP sets its tariff to the EV Driver (B2C)

eMSP defines the end-user tariff

Tariff for the end driver is created by the eMSP  
eMSP is free to commercialize the CPO network at its own tariff

# Introduction to Roaming – Usage phase

**Consumptions are reported** from the CPO to the eMSP and then, from the eMSP to its client



## 3 EV Driver charges his vehicle

When charging, the driver will consume time and energy. Once finished, the driver unplugs his car and leaves

## 4 CPO reports consumption to the eMSP

The Charge Detail Record (CDR) is sent by the CPO to the eMSP and details the consumption made by the EV-Driver. It contains all necessary data to calculate the B2B price of the charging session.

## 5 eMSP sends consumption to the EV Driver

# Introduction to Roaming – Invoicing phase

**Billing/Invoicing** is made periodically by the CPO to each of its eMSP Partners



## 6 CPO invoices the eMSP

Based on the total energy consumption of eMSP's Drivers, the CPO invoices the eMSP. This invoice is generally sent on a monthly or quarterly basis.

The total amount is calculated by matching all units consumed (energy, time, session) and the tariff previously agreed upon in the roaming contract

## 7 eMSP invoices the Driver

Depending on the eMSP commercial offer the Driver will be charged:

- for each session (i.e. CPO price + eMSP margin)
- or the charging session price will be integrated in a global subscription package (i.e. x EUR/month including x hours of charge)