



E-MOBILITY @ CROATIAN TELECOM

Workshop on Sustainable Energy Use in Transport and Public Cectors in South East Europe



LIFE IS FOR SHARING.

November 14th, Vienna

CROATIAN TELECOM AT A GLANCE

- Largest telco and convergent services (ICT, IPTV, Data & Electricity) provider in Croatia
- 2.2 mio mobile & 1.1 mio fix customers
- 51% owned by Deutsche Telekom AG
- 1.6 bil EUR market cap as of 9/2016
- Leader in digitalization of IoT national wide
- Forerunner in e-mobility B2B2C ecosystem development within Adriatic region (since 2012)



LIFE IS FOR SHARING.



THE CHALLENGE

Did you know that growth of e-mobility market, on the level of infrastructure deployment and service provisioning will grow 10 times till 2020, reaching 5 bil EUR market size across EU footprint? How to position within it and create sustainable & viable business model out of it? It remains the challenge, which is now mastered with advanced Smart e-Mobility B2B2C Solutions developed and marketed by Croatian Telecom (CT).

CT'S LESSONS LEARNED SINCE 2012 – WHAT B2C, B2B AND B2G CUSTOMERS EXPECT OUT OF E-MOBILITY INFRASTRUCTURE & SERVICES?



B2C

- To have a sufficient and reliable infrastructure in place, always and everywhere
- Simple instructions for usage
- Simplified key for accessing infrastructure
- A single point of contact with service provider
- **Interested to share their plug against commercial interest**



B2B

- To gain additional saving by using EVs & PHEVs
- To get tax relives against enabled usage of their plugs
- To get advantage of green PR
- **To generate new revenues by sharing their plugs to employees/visiting partners**



B2G

- To help in implementation of EU2020 goals on CO2 reduction and promotion of renewables in transportation
- To take advantage of extremely positive PR associated with EVs
- **To generate new revenues by sharing their plugs**

Common interest of all customers: Get me involved into e-mobility value chain ASAP!

Our answer & driving moto is: "Charging is for Sharing!"



LIFE IS FOR SHARING.

THE ULTIMATE SOLUTION IS: ALWAYS AVAILABLE & SEAMLESSLY ACCESSIBLE INFRASTRUCTURE WITH AFFORDABLE CHARGING SERVICES

Market Demand

Charging Infrastructure available always & everywhere

Seamlessly Accessible Infrastructure

Affordable services

Our answer

Together with partners, CT already created the largest EV charging network in Croatia and it is expanding beyond the borders by coupling with international roaming platforms

CT enabled access with single T-RFID Card, SMS and global mobile APP PlugSurfing

CT applied dispersed capex model and the solution is vertically integrated, resulting with a lot of synergies and bringing cost of operations heavily down

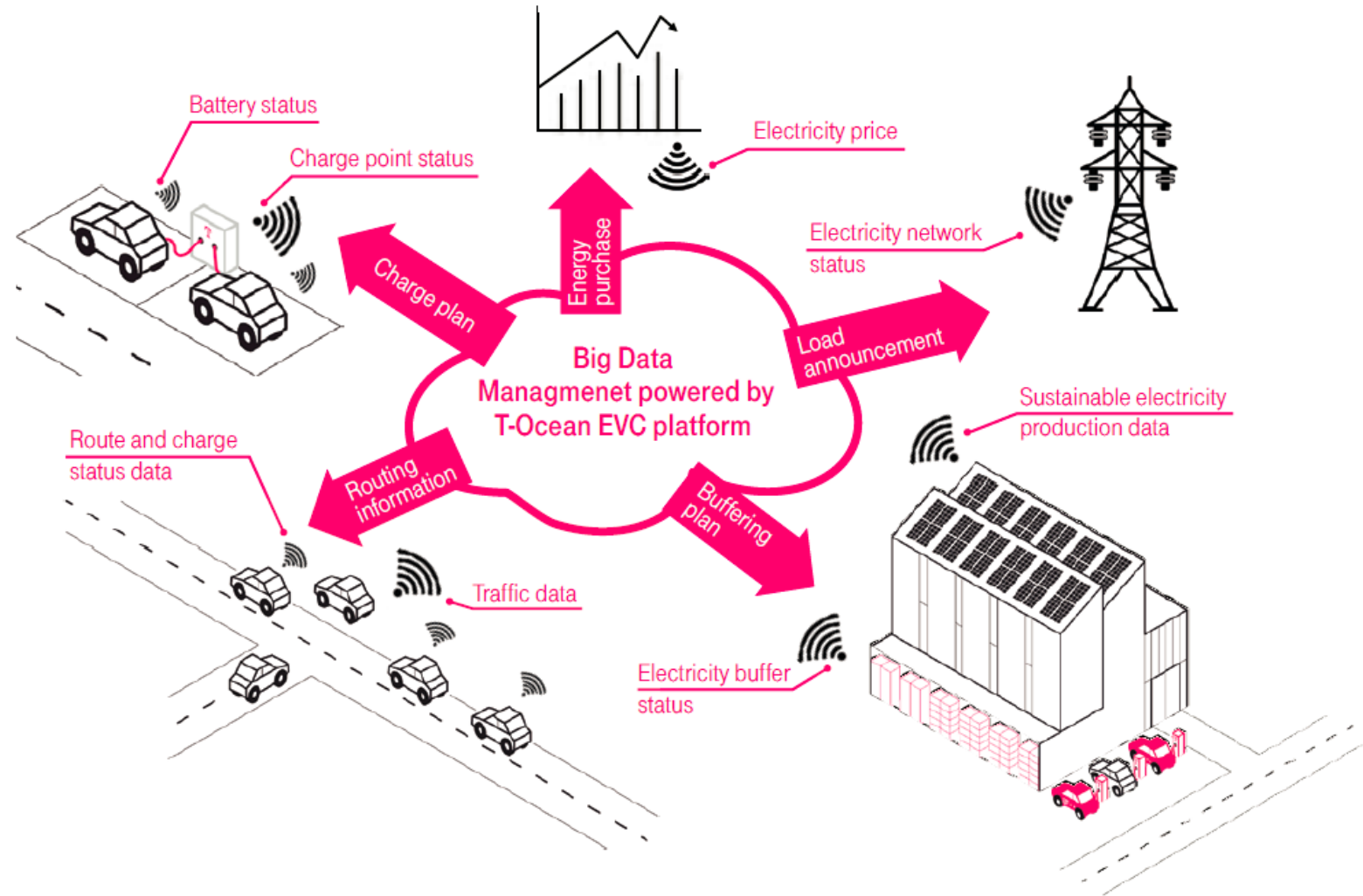


For the parking lot owners, the ultimate solution should be a money making machine



LIFE IS FOR SHARING.

SMART E-MOBILITY SOLUTIONS BY CT ARE DESIGNED FOR SUPERB EV CUSTOMER JOURNEY IN SMART CITIES



IN PURSUING OUR E-MOBILITY VISION "SEAMLESS ACCESSIBILITY, ALWAYS AND EVERYWHERE" WE DEVELOPED AN OPEN ICT ECOSYSTEM THAT CONNECTS INFRASTRUCTURE, VEHICLES AND EV USERS IN REAL-TIME



ENTERPRISE-LEVEL 5 TIER OPEN B2BC END-TO-END ECOSYSTEM REPRESENTS THE CORE ASSET BASE OF CT'S E-MOBILITY ARCHITECTURE

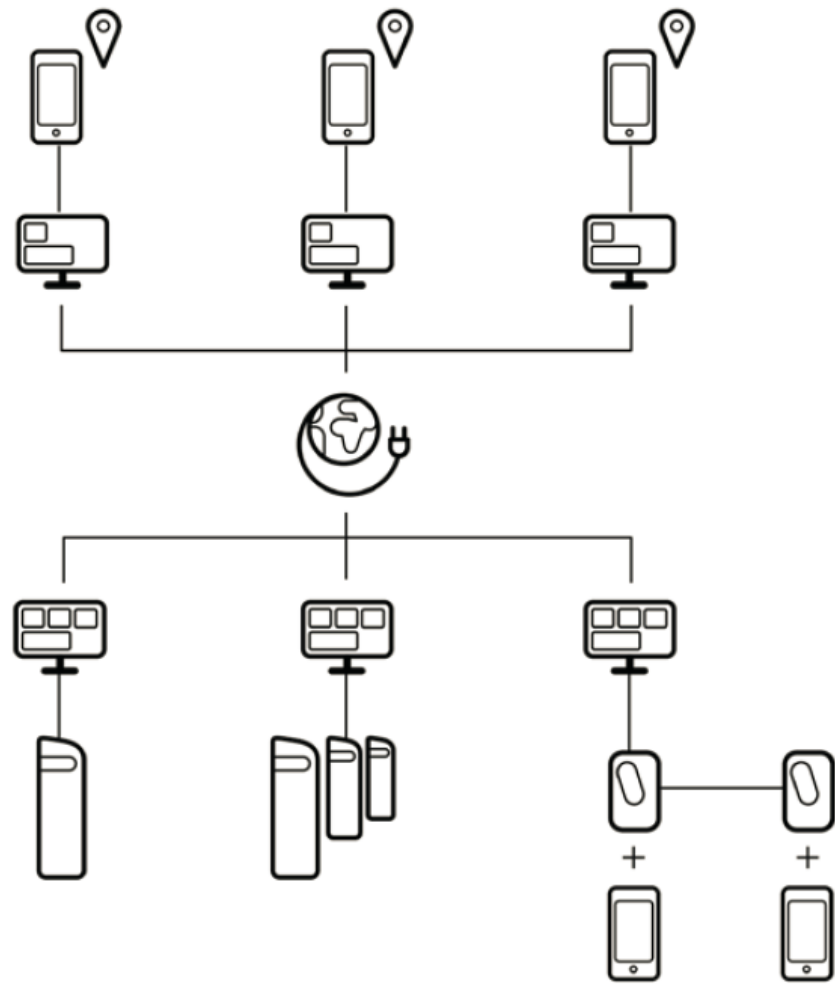
End user services via mobile application

Software for service providers

Roaming platform

T-Ocean platform software for charging station operators

Charging stations



LIFE IS FOR SHARING.

PUNI.HR IS THE LARGEST NETWORK OF FULLY INTEGRATED EV CHARGING STATIONS IN ADRIATIC REGION , OPERATED BY CT

Puni.hr Mapa punionica Uporaba punionica Pružatelji usluga Pitanja i odgovori (FAQ) Kontakt

Općenito pretraživanje: Prikaži samo slobodna mjesta za punjenje: Način punjenja: Sporo punjenje Brzo punjenje Ultra brzo punjenje Pružatelj usluga: Svi pružatelji usluga Prikaži dijeljeno mjesto za punjenje Odaberite tip identifikacije: Način plaćanja: Sve vrste plaćanja Dostupno za: Bez obzira na tip dostupnosti Vrsta utičnice: Sve vrste

Mogućnosti karte:
Vrsta karte: Prikaz ulica Satelitski pregled
Grupiranje punionica: Grupni pogled Pojedinačan pogled

LEGENDA:
Slobodno
Punjenje u tijeku
Rezervirano
Van pogona
Nepoznato
Djeljenje mjesta za punjenje
Utičnica rezervirana za kampere

OD VAŠIH 0 OMIJENJENIH PUNIONICA SU TRENUTNO SLOBODNE + DODAJ PUNIONICU ZAHTJEV ZA PUNIONICU

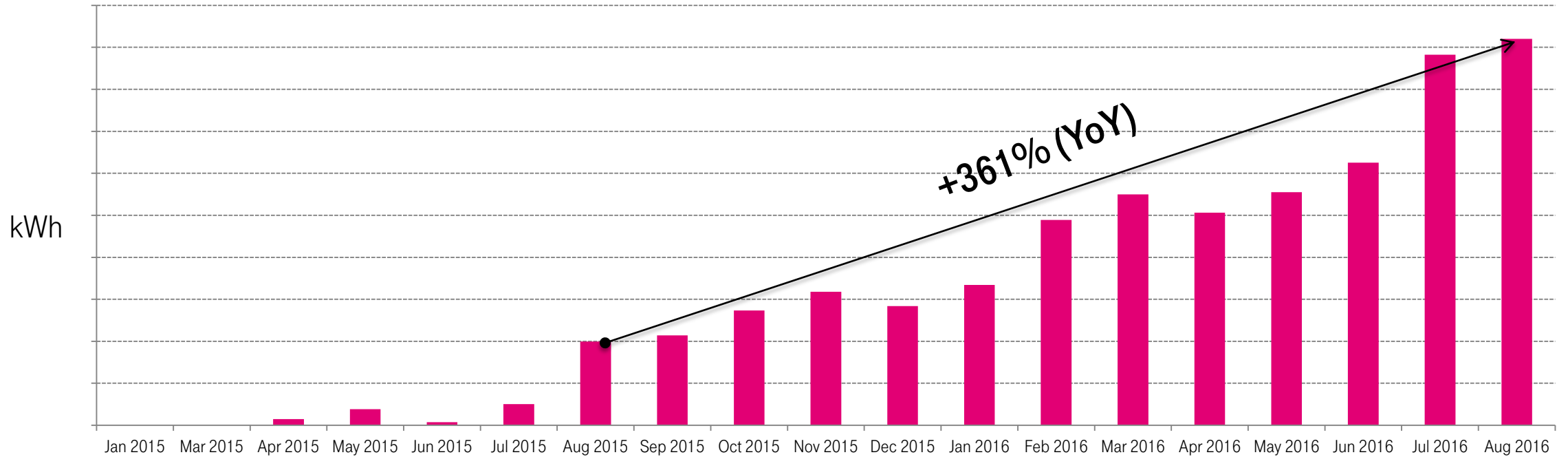
Uvjeti korištenja O nama

- Puni.hr is connected to the regional eRoaming platform that connects 10 different operators and more than 400 EV charging stations at the footprint of Croatia and Slovenia.



LIFE IS FOR SHARING.

CT'S EV CHARGING NETWORK USAGE IS SOARING!



- Period: 1.7.2015 – 31.8.2016
- More than 300.000 green kilometers enabled to EV & PHEV users
- More than **25 tons of CO₂ reduced!**



13.11.2016.



LIFE IS FOR SHARING.

IN SEPT. 2016 PUNI.HR OPENED ACCESS TO PLUGSURFING COMMUNITY ENABLING ACCESS TO MORE THAN 40,000 EV USERS ACROSS EU

PlugSurfing [Order Charging Key >](#) [Map](#) [About](#) [Sign Up](#) [Login](#) [English ▾](#)

Find Chargingpoints [Filter ▲](#)

● available ● occupied ● unknown

Select connector Type
all ▾

Min. charging speed 0 kWh

Show all stations

App Payment

Charging Key Payment

Hrvatski Telekom
Splaiul Independenței 319 G, 060044 Bucharest

€ free charging Green-energy

Type2 3.7kW 2x available

Opening times: Mo-Fr: 7-19 / Sa: 0-0 / Su: 0-0
Payment Methods: App, Charging Key
Operator: Hrvatski Telekom

Map data ©2016 GeoBasis-DE/25KG (©2009), Google, Inst. Geogr. National, Mapa GISrael, ORION-ME | [Terms of Use](#) | [Report a map error](#)



LIFE IS FOR SHARING.

13.11.2016.

11

BY EOY 2016, PUNI.HR WILL BE COUPLED WITH THE LARGEST EROAMING PLATFORM IN EU – HUBJECT, ENABLING OUR COSTUMERS ACCESS TO EXTRA 5,000 EVCS

Hubject-Partner

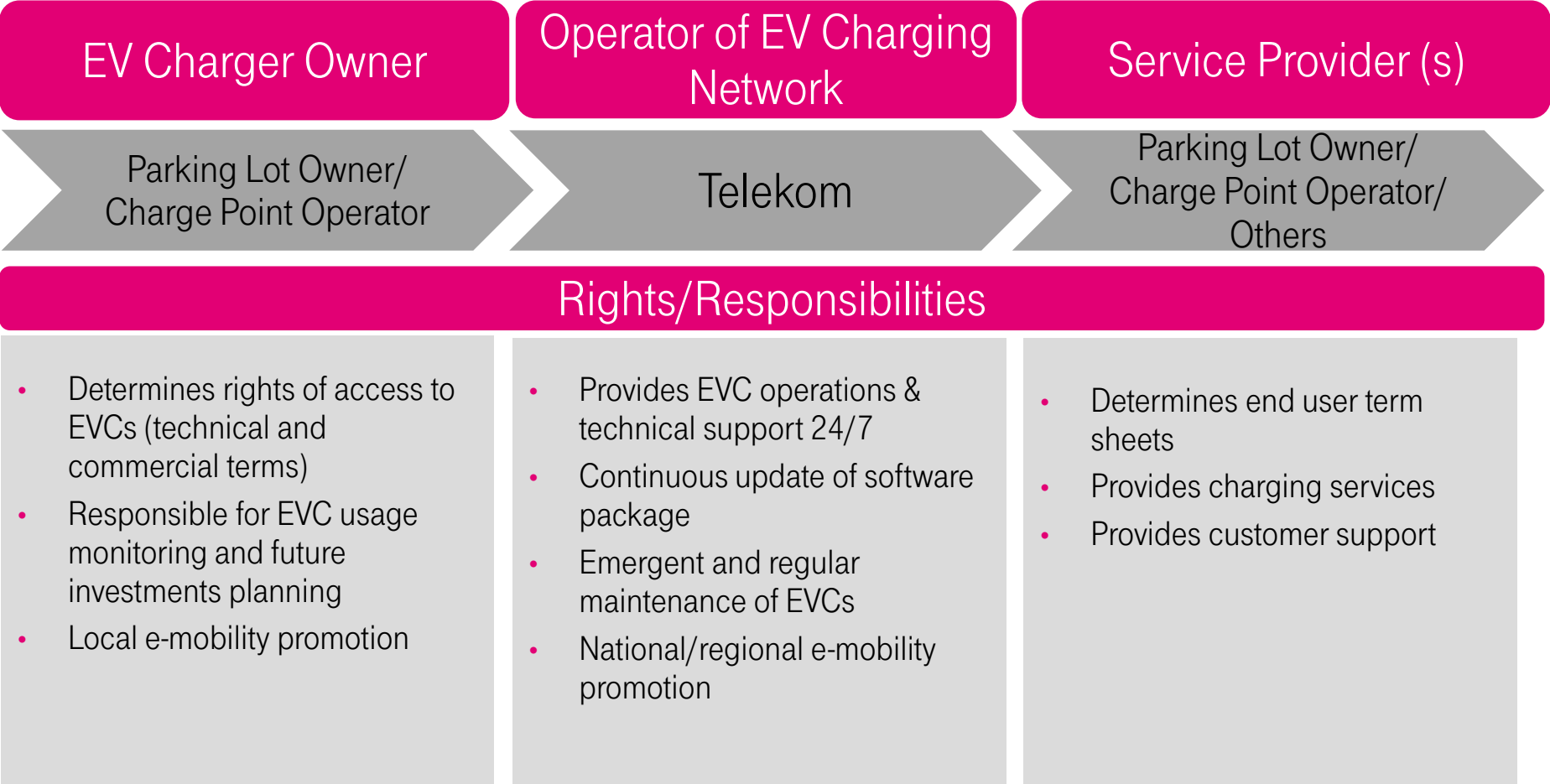


LIFE IS FOR SHARING.

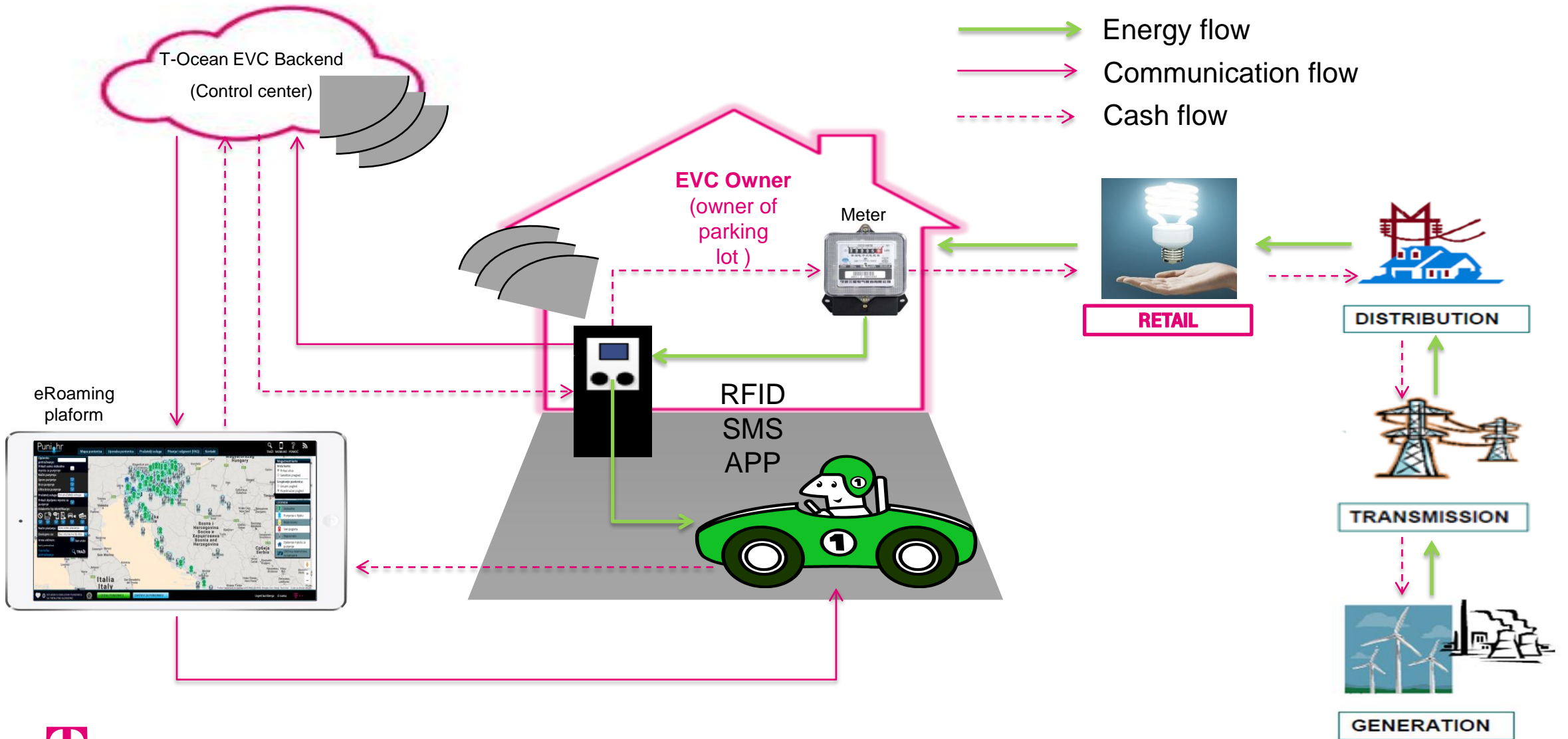
13.11.2016.

12

APPLIED IS INCLUSIVE BUSINESS MODEL!



CREATING BUSINESS MODEL IN PRACTICE



LIFE IS FOR SHARING.

OUR TURNKEY SMART E-MOBILITY SOLUTIONS ENABLE YOU TO PLUG AND PLAY YOUR EVC INTO A LUCRATIVE BUSINESS IN 10 STEPS

ITEM/ STEP	1. Advisory & Engineering Services	2. Electricity & Construction Works	3. Grid Connection & Electricity Supply	4. EV charging station commissioning	5. Connectivity provisioning	6. T-Ocean Operation & Main.	7. Roaming Scheme Inclusion	8. Enabling access by text messages	9. Enabling access by T-Charge RFID	10. Enabling access by T-Charge APP
Description	Includes: preliminary and main project design, as well as EU/national and funding application.	Includes: ensuring sufficient electric power, depositing power and communication cables, foundation design and arranging parking lot designation.	Where possible, take advantage of the existing connection and power supply plan.	Pursued after preliminary mandatory work is done by investor at the site.	Prerequisite for e-mobility service provisioning is connected EV charging station to T-Ocean platform.	It is the core engine of EV charging stations.	Enables EV charging station utilization boost, that is prerequisite for commercial exploitation.	Provides a superb customer experience and convenience.	Enables access to EV charging stations operated under CT. Enables	Provides a superb customer experience across EU footprint and enables charging service monetization.
CT's role	Provides advisory services related to project documentation development.	Provides advisory services on specifications, procedures and coordinates contractor selection.	Provides advisory services on electricity plan selection.	Delivers EVC according to selected specifications.	Ensures connectivity and data package where appropriate.	Operates with T-Ocean backend.	Enablement of various roaming schemes.	Enables access and payment at EVC by means of VAS text messaging service.	Enables unified RFID card.	APP operator/enabler.



Croatian Telecom, Inc
Our E-mobility Team is at Your Service
e-mobility@t.ht.hr

THANK YOU FOR YOUR ATTENTION!



LIFE IS FOR SHARING.