evs 27

The 27th INTERNATIONAL ELECTRIC VEHICLE SYMPOSIUM & EXHIBITION

BARCELONA
17th-20th November 2013

mobi europe

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ESB eCars

Organized by Fira Barcelona avele
Hosted by AVERE mea Ajuntament de Barcelona
In collaboration with EVAAP EDTA
Supported by European Commission

Interoperability – Operator View

- Don't want to be locked into proprietary systems
- Need to be free to buy from different suppliers without restrictions
- All Charge Points to back-office systems should conform to standard
- Open Charge Point Protocol (OCPP) is one such fully open and freely available
- Nothing fixed in stone - More development underway

Interoperability – Customer View

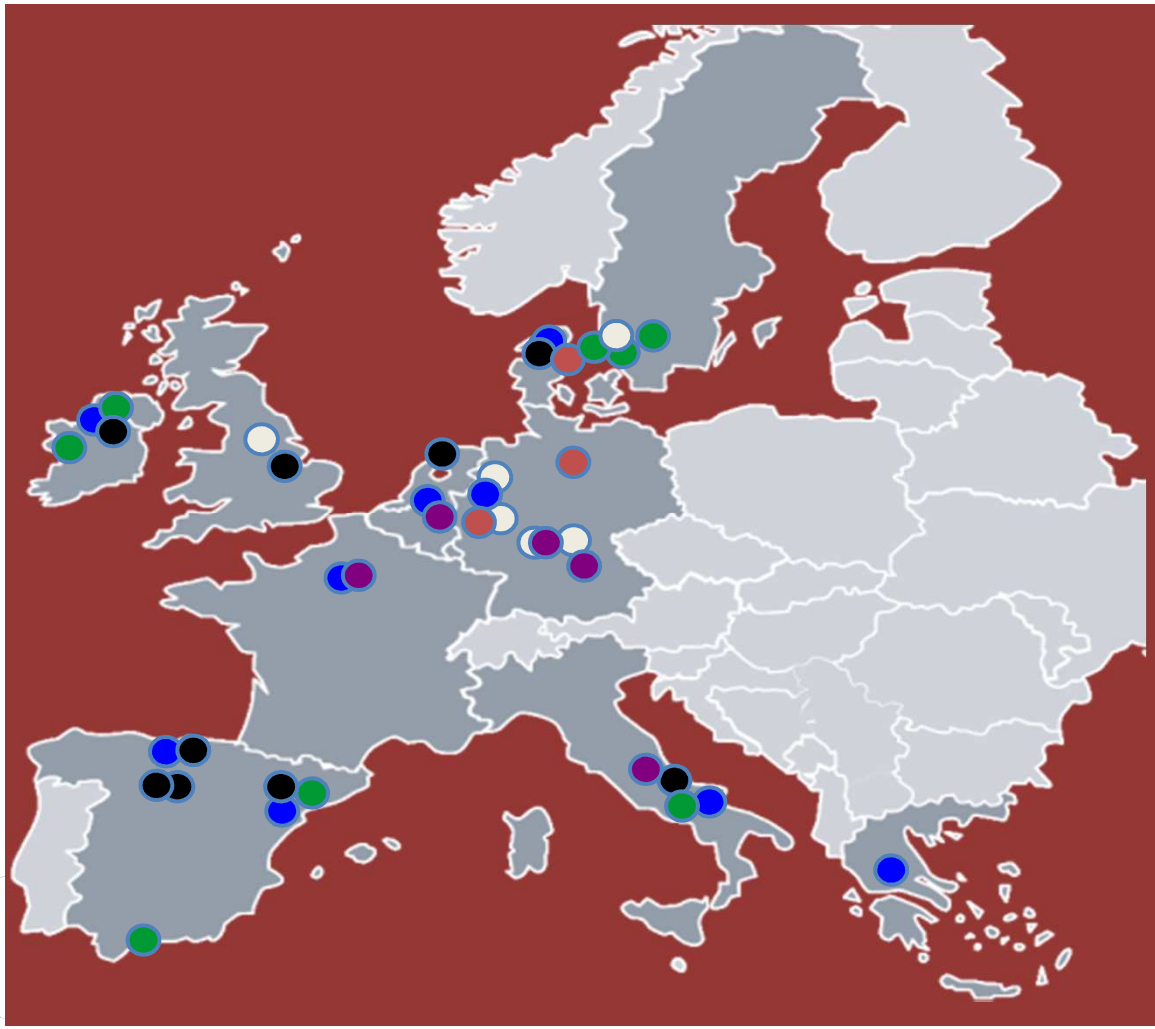
- Want to be able to use any charge point irrespective of who owns it
- Common hardware – connectors, cables, RFID readers etc.
- If more than one operating system the different operators need Common Data structures for data exchange
  - ID & authorisation,
  - charge point info such as type, location and status
  - Charging event data such as energy used, time of charging
- Support multiple payment systems

Interoperability within Countries

- One operator/ system
  - Ireland,(one operator 2 jurisdictions)
  - Portugal (3 Operators 1 system)
- Predominantly one operator
  - Italy (Enel)
- Multiple Operators/ Systems
  - Germany (Hubject)
  - France (Gireve)
  - UK (PIP +)
  - Spain (municipalities)
  - Norway (Transnova)
  - Netherlands (e-Laad +)

Project Consortium

43 Partners €24M EU Funding



- **Industries:** Alstom, Better Place, Bosch, IBM, SAP, Siemens
- **Utilities:** Dansk Energy, EDF, Endesa, Enel, ESB, Eurelectric, Iberdrola, RWE, PPC
- **Electric Vehicle Manufacturers:** BMW, Daimler, Micro-Vett, Nissan, Renault
- **Municipalities:** Barcelona, Berlin Bornholm, Copenhagen, Cork, Dublin, Malaga, Malmö, Rome
- **Research Institutions and Universities:** Cartif, Cidaut, DTU, ECN, Imperial, IREC, RSE, TCD, Tecnalia, TNO
- **EV Technology Institutions:** DTI, FKA, TÜV Nord

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Integrated & Interoperable Services

- International cross-country Roaming using Peer to peer agreements and mobile telephony communication
- Smart charging;
- Tracking CO2/NOX/PM10 emissions
- Web portal, mobile applications and on-board equipment;
- Mobility services (e.g. car-sharing, parking).

Interoperability Activity

- Green eMotion (DG-Move)
  - IRL, DE, FR, DK, SW, IT, ES, EL
  - Market place & clearing House
- Mobi.Europe (DG-Connect)
  - IRL, NL, PT, ES
  - Bilateral deals & mobile phone
- GB and NI and IRL
  - 8 UK PIPS Whitelists & PAYG
  - UK TEN-T links Ireland TEN-T
- Vaals Treaty
  - IRL, NL, BE, EI, LU, AT, PT, DE
  - "Political" Agreement
- EMI^3 e-Mobility Group
  - All above + Auto OEMs + Hubject + anyone interested

eCar Ireland Projects

Public chargers Ireland

- All towns with population of 1500+
- National Plan 1000 (654 to date)

Public Chargers Northern Ireland

- 320 in Northern Ireland (installed)

Fast Chargers every 60km on Key interurban routes

- Original Plan 40
  - 30 (Ire); 9 (NI)
- **Revised Plan**
  - **100 (Ire); 14 (NI)**

Worldwide Purchase - 15 companies in 11 countries

EV Charging Infrastructure in Ireland

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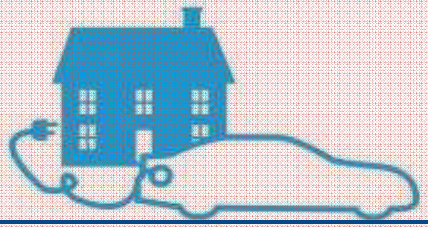
HOME / WORK



6 – 8 hours

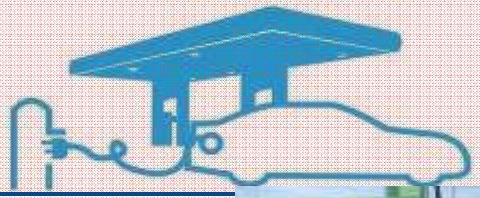
AC 1Φ 16A Mode 3
Type 2/ fixed cable

PUBLIC/ Destination

1 - 6 hours*

AC 3Φ 32A
Mode 3 Type 2

FAST/ On Route



CHAdeMO

80% in 20 minutes

DC 50kW
AC 3Φ 63A Mode 3
Fixed cable

*Depending on car

TEN-T Ireland

- Study role of Fast Charging in the deployment of EVs
- Technology requirements
- IT support systems
- 46 Fast Chargers on Core TEN-T Network
- Normal Chargers at Key Intermodal Transport Hubs
  - train stations, ports, airports (secondary objective)

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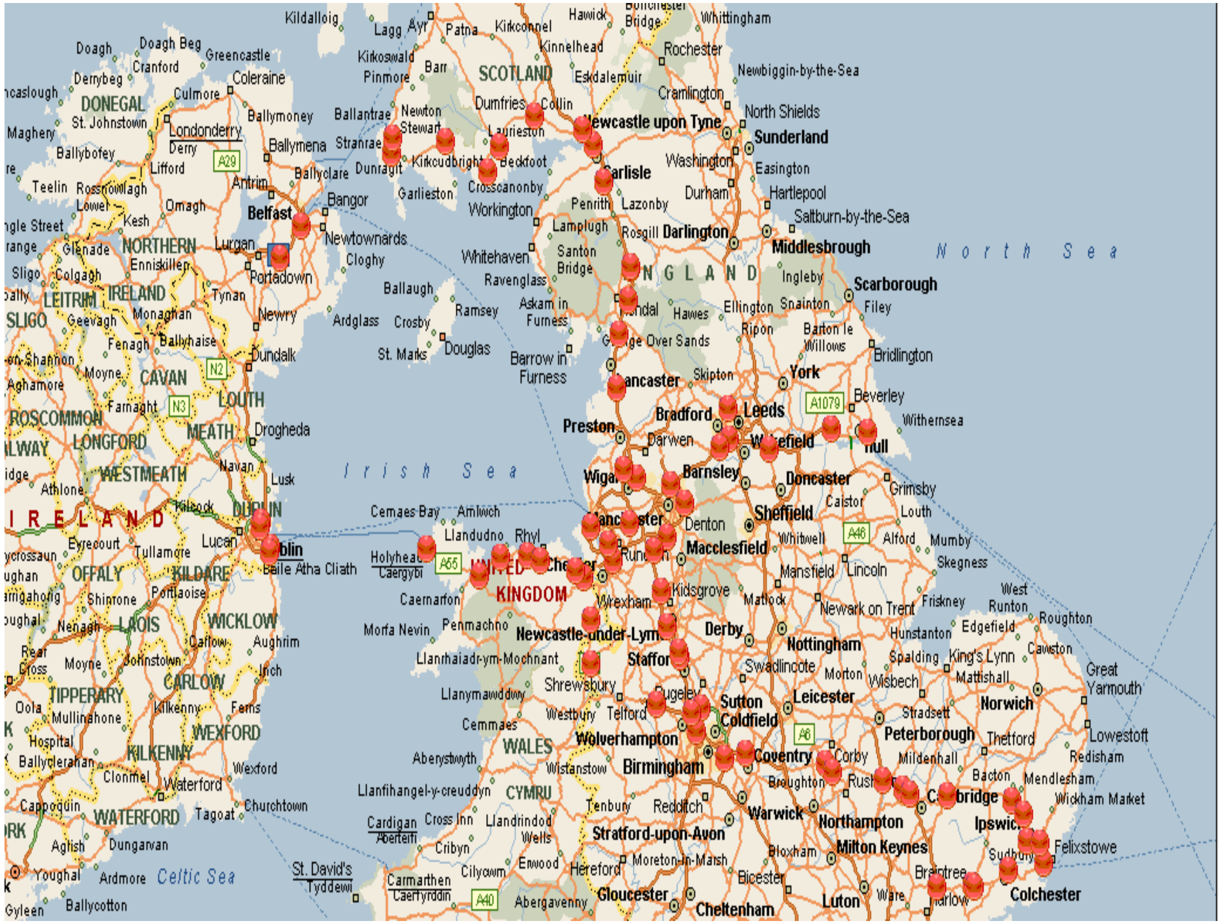
Rapid Charge Network (TEN-T UK & Ireland)



- Consortium
  - Nissan, VW, BMW, Renault
  - ESB, Newcastle, DfT
- 74 Fast Chargers
  - 2 routes North-South (M6) and East-West (M62)
- Linking Belfast & Dublin thru UK to North Sea Ports

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Foreign EVs Holidaying in Ireland

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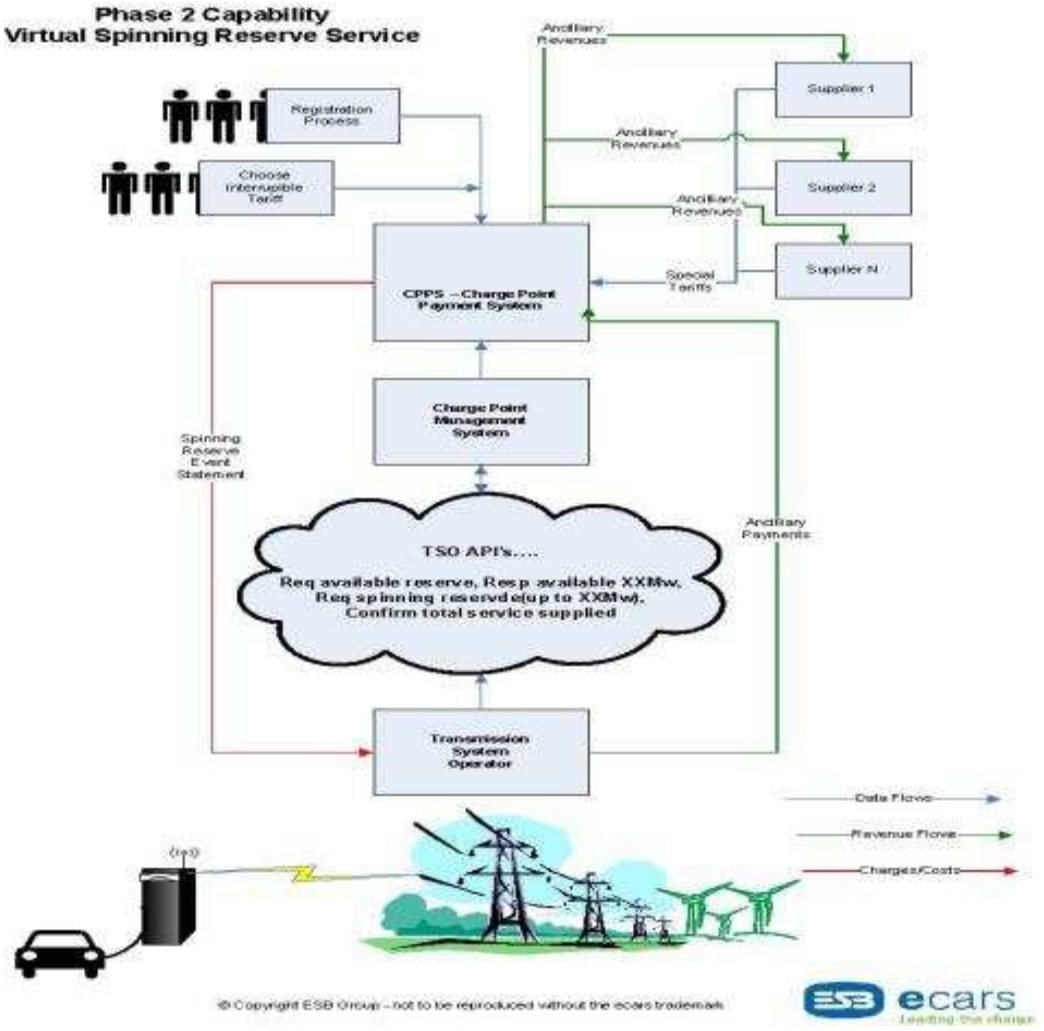
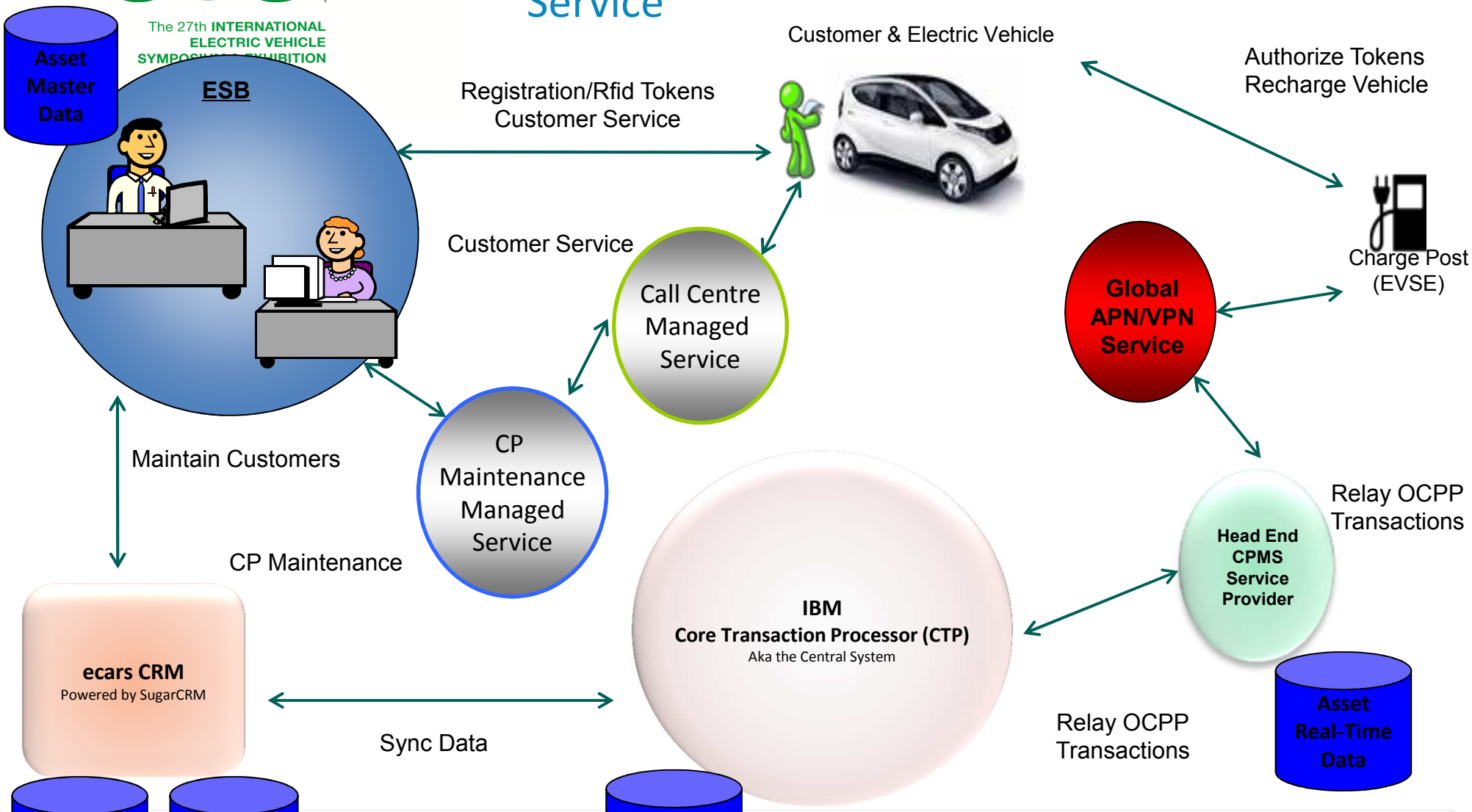
Planned Smart Grid Features

- Frequency Response
  - Via TSO Command
  - Automatic
- Virtual Spinning Reserve
  - Request
  - Tracking
  - Settlement
- DSO/Scada integration
  - CP Grouping by Transformer
  - Integration with OMS System



Components of a Comprehensive EV Mobility Service



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Thank You

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