

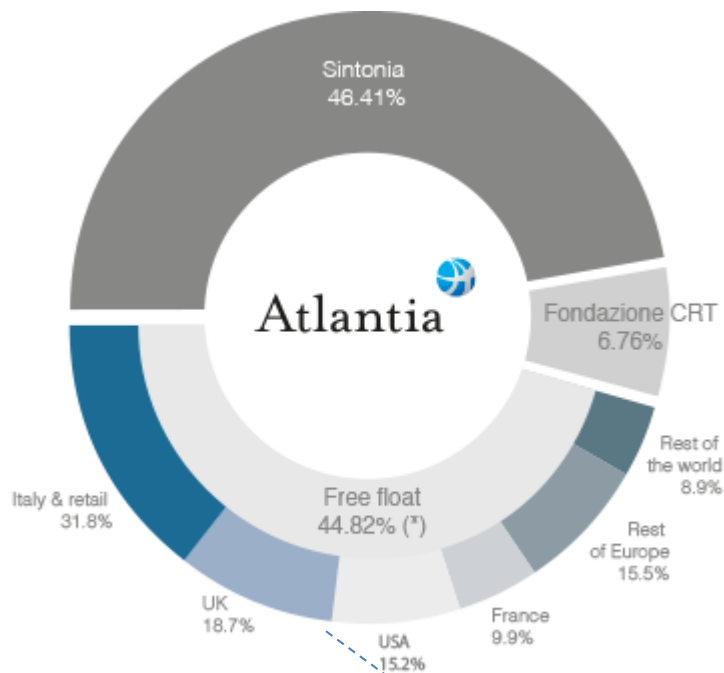


An OBU for Europe



*Diego Galletta – Autostrade Tech
Turin, September 25th, 2013*

Autostrade Group: Shareholding structure



(*) Excludes the treasury shares held by Atlantia SpA



Italian motorway operations

- Autostrade per l'Italia
- Autostrade Meridionali
- Autostrade Torino-Savona
- Società Italiana per il Traforo del Monte Bianco
- Raccordo Autostradale Valle d'Aosta
- Tangenziale di Napoli

International motorway operations

- Brazil - 4 concessionaires
- Chile - 6 concessionaires
- India - 1 concessionaire
- Poland - 1 concessionaire

Other activities

- Telepass
- Ecomouv
- Electronic Transaction Consultants
- Tolling
- Autostrade Tech Technology
- Spea Ingegneria Europea Design
- Pavimental Construction

Écotaxe Poids Lourds



- A free flow system for collecting an environmental tax on heavy goods vehicles;
- Agreement signed October 20, 2011;
- National trunk road network (ca. 15.000 Km), not including the tolled motorways;
- Heavy goods vehicles above 3,5 ton (600.000 national, 200.000 international);
- Tax amount related to travelled distance and vehicle category;
- Conformance with the European Electronic Toll Service (EETS) Directive;
- Tax collected through certified Service Provision Companies (Société Habilitée Télépéage-SHT), to be established and certified throughout the project implementation process.
- System management and maintenance for a 11,5-year timespan

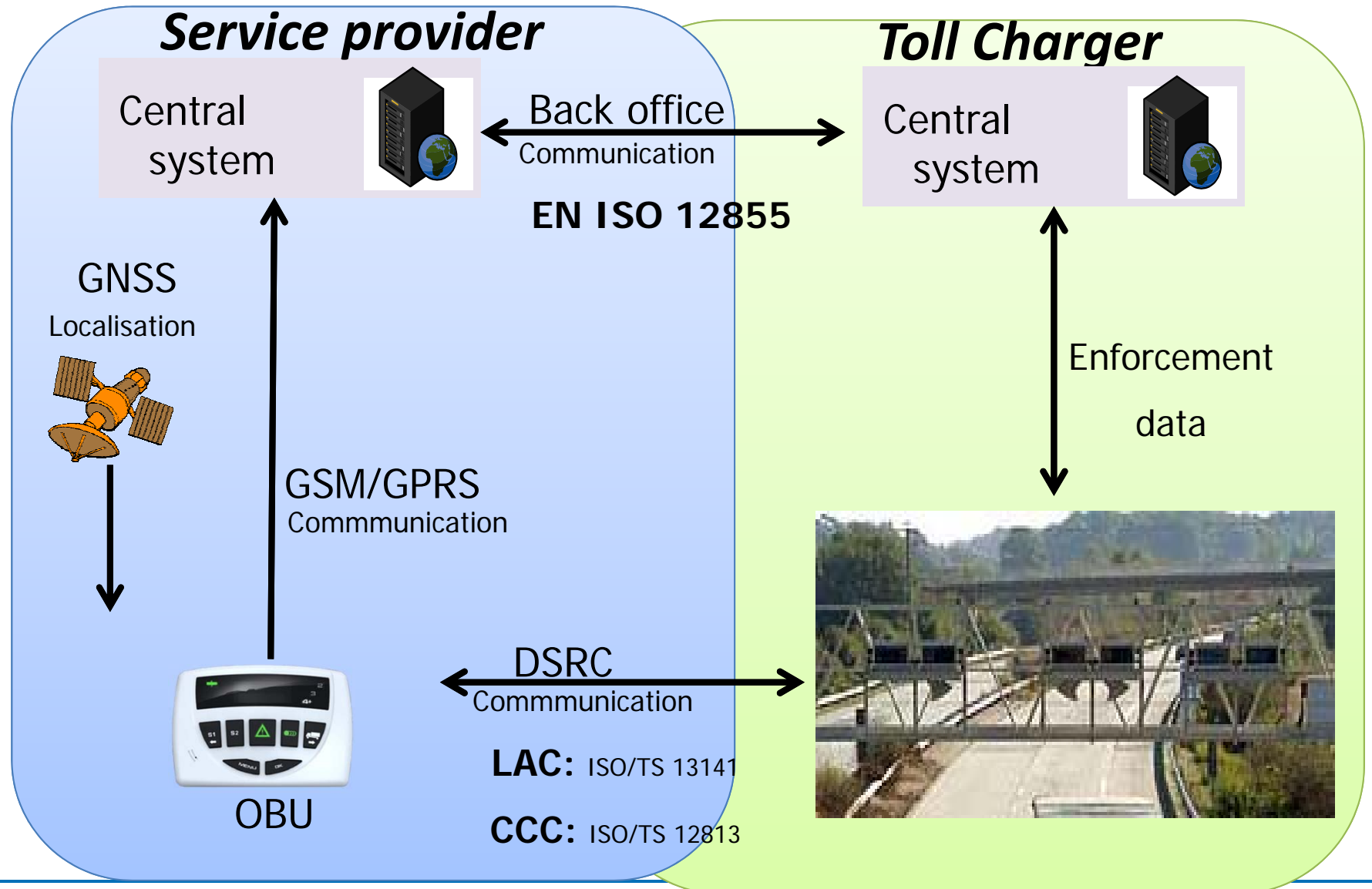


EETS-ETC solution



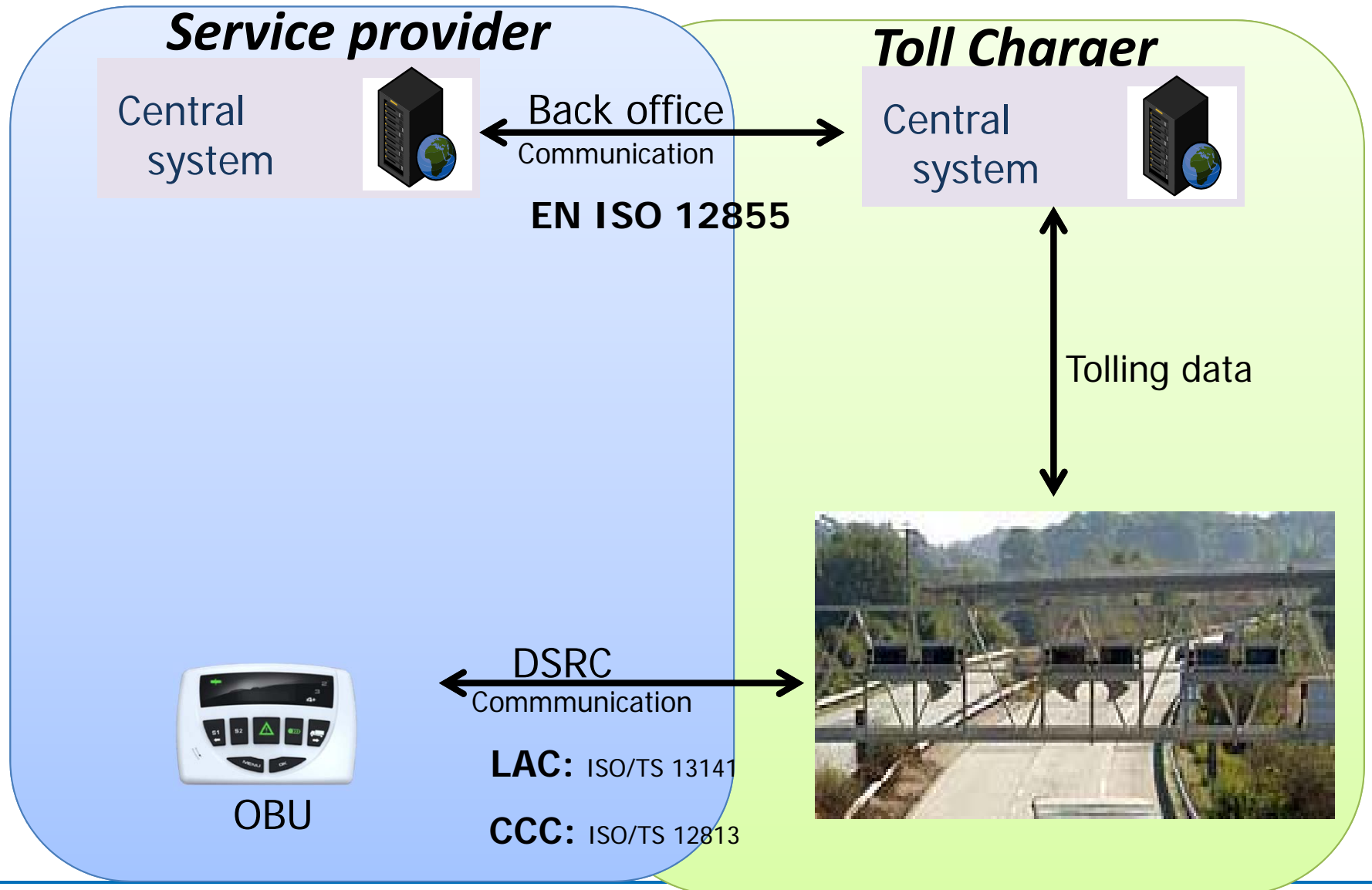
Free-flow GNSS tolling

Architecture & Interoperability interfaces



DSRC tolling

Architecture & Interoperability interfaces



The OBU solution



Key facts of the solution: the OBU

The On-Board Unit (OBU) provides a very high localisation precision & other key features:

- **multi-constellation GNSS**
 - GPS
 - GLONASS
 - EGNOS support
 - GALILEO ready
- **gyroscope & accelerometer for enhancement**
- **configuration adapted to any user type:**
 - thin client / intelligent client
- **configuration adapted to any scheme type:**
 - segment based
 - area tolling
 - Kilometer charge
- **anti-jamming & anti-spoofing mechanisms**
- **full EETS standards compliant**
 - compliant to 5.8 GHz DSRC standards (CEN TC278 and ETSI 200-674-1)
 - compliant to autonomous systems (GNSS/CN) standards (CCC, LAC)
 - compliant to EETS standards (EN 15509, ETSI 200-674-1)



Current interoperability certifications procedures

Autostrade Tech is certifying the On Board Unit solution in the following toll domains:

- France EcoTaxe

- France TIS-PL

tis-pl

- Spain VIA-T



- Italy TELEPASS



- Austria GO (deployed 400K DSRC OBU in 2005-2007)



MAUTSYSTEM FÜR LKW UND BUS

Current interoperability certifications procedures

22 certification articles:

- EETS
- Electrical conformance, RTT&E, EMC
- Environmental
- Hygrometry, temperature, IP
- Resistance to shocks and vibrations
- Resistance to electrical discharges
- Specific: tampering, power, HMI, autodiagnosics, ...
- Security: under ANSSI (French National Security Agency) specifications
- DSRC: LAC, CCC

Lessons learned

Non-standardised requirements and «strong personalisation» of Standards:

- Are hard to manage by manufacturers and laboratories,
- May cause normative anomalies,
- Need extra effort to carry out tests.

Heavy Ad hoc accreditation programmes:

- Narrow down the number of available test labs and certif. bodies
- Actually reduce the admittance of foreign Bodies

So what?

Certification
is often underestimated
is often undersized
Is often underrated

THANK YOU



autostrade // Tech

