Calypso: the only solution which respects all existing relevant standards.

From the beginning, the Calypso objective is to contribute to the emergence of a ticketing standard allowing interoperability. This objective is easy to understand since the Calypso community is composed of transport operators and authorities, which naturally are looking for standardization which means:

- Possibility to build interoperability at all levels (regional, national, international),
- Real competiveness between providers, synonym of decrease in costs,
- Sustainability of the important investments realized when implementing a ticketing system, and easy management of its evolution.

On the contrary, a non-standardized solution generally means a proprietary solution and leads to a strong dependence in the manufacturer-provider, and consequently to costly evolutions of the system.

In this philosophy, Calypso strictly respects all existing “de jure” standards:

- Contactless standard ISO 14443 A and B, 1 to 4.
- ISO 7816-3 and 4 for card commands and file structures.
- Recommends the use of the EN 1545 standard for structure of the data.

Calypso is also compliant with ITSO, for integration in this system scheme.

Scheme of the 7 layers of a ticketing transaction

Calypso provides the heart of a fully secure contactless ticketing transaction, at the third level of the ISO transaction scheme (model): the implementation of the exchanges of data between the card and the reader, encapsulated in the Session and Ratification mechanisms, respects all existing standards at the lower levels (1 & 2), and allows for the use of the existing ones at the upper levels (such as EN 1545 for data structure).
Calypso, a Java card and GlobalPlatform compliance.

Calypso is totally compliant with Java Card Operating System and Global Platform mechanisms for the downloading of applications.

Calypso as a software application can be downloaded in a customer media (card or more generally portable object such as SIM card for mobile phones, EMV credit cards, USB keys, etc.) with absolutely no modification in the Java card operating system or Global Platform mechanisms. It is an absolute condition to ensure full interoperability: in an open system, the customer media issuance and the downloading of the Applet are realized by different entities: the only way to succeed is that both strictly respect the standards.

In the scope of the proposed solutions on the market, it is a real trick for the operators or transport authorities, because many, in fact, require some modifications in the operating system or of the Global Platform: consequently interoperability is impossible.

The following figure demonstrates this absolute respect of all standards by Calypso.

Calypso: an on-the-field demonstrated interoperability scheme

Calypso is largely and globally deployed in very different contexts and countries. A common point is that most implementations require a full interoperability between different authorities in a shared area of public transport offer, at whatever level: local, regional, national.

Calypso has successfully implemented these full interoperable schemes, where cards, tariffs, sometimes customer relationship management, are shared by transport operators, which means seamless payment and access to transport for the users. Below are some examples:
- Belgium, where the four transport operators (STIB, SNCB, Delijn, TEC) have built together a common ticketing system based on Calypso,
- Paris region, where RATP, SNCF and all other bus operators, under the authority of the STIF (Paris mass transit authority), offer a common ticketing system to their customers,
- Lisbon region, where OTLIS company regroups all (11) transport operators of the Lisbon area on a same Calypso system,
- Grand Montreal area, with 20 operators sharing the same Calypso ticketing system.
- French Rhone Alpes region, with 32 operators and authorities,
- ...

More, Calypso is able to provide an international interoperability solution through the TRIANGLE scheme, designed in the European project of this name.

Basically, TRIANGLE is a scheme of interoperability whose main characteristic is its simplicity, answering to two main needs:

- Interoperability between two different tariff areas (2 regions for example) for regular users,
- Interoperability for occasional users who spend a few days in a city or a region.

The principle is to share, in a same Calypso portable object, the local ticketing application with a Triangle application, which is shared between all the operators who join Triangle: it means interoperability of media and not of tariff or commercial. Consequently it requires absolutely no clearing system, and is easy to implement.