



Mobile Network Operators Demanding Open Standards

Purpose of this document

The purpose of this document is to inform MNOs on the benefits of the CIPURSE™ open standard for applications such as Automatic Fare Collection (AFC), event ticketing, loyalty and similar applications. It explains the benefits for MNOs who are considering OSPT Alliance membership.

Background

- Smart card applications tend to migrate as virtual cards onto mobile phones (universal electronic companion approach).
- MNOs want to address these kinds of applications, supporting demand for convenience.
- MNOs have an existing infrastructure based on cell phones and OTA administration.
- MNOs own a secure element in form of the UICC.
- NFC was defined to provide the physical link between a UICC and the established terminal infrastructure.
- MNOs need standardized solutions to efficiently utilize the available resources.

The CIPURSE™ Charter

CIPURSE™ is defined as an open standard to support AFC applications in a vendor neutral and secure manner. AFC is a core contactless application with high growth potential.

CIPURSE™ is based on established smart card standards such as ISO/IEC 7816, Java Card, GlobalPlatform, GSM & 3GPP as this was seen as pivotal for its broad acceptance in state-of-the-art infrastructures.

In addition to AFC, the CIPURSE™ standard gains increased attention for other applications such as event ticketing, loyalty programs (and similar applications), underlining the capability of CIPURSE to support multi-application solutions. CIPURSE™ can, due to its open approach, also be treated as link enabling a smooth and seamless convergence between closed-loop public transport, AFC applications and MNO related infrastructure.

High level description of CIPURSE™

Introducing CIPURSE™

Designed as a layered, modular architecture with application-specific profiles, the open and secure CIPURSE™ V2 standard comprises a single, consistent set of specifications for all security, personalization, administration and life-cycle management functions needed to create a broad range of interoperable transit and similar applications. CIPURSE™ can be implemented on a broad range of media ranging from single application cards to multi-application smart phones.

CIPURSE™ supports a range of ticketing applications such as single journey / daily tickets, account based tickets / season tickets as well as loyalty applications, micro-payment, and other value added services. The mobile phone is able to combine all such traditional card applications into a single device serving multiple applications.

Supporting multi-application schemes

CIPURSE™ V2 offers a comprehensive solution to optimize the memory needs of NFC UICCs as the functionality needs to be loaded only once and can be used by many applications.

Additionally, the CIPURSE™ core offers flexibility as it can be added to other card technology applications without compromising security levels.

With the introduction of the PxSE Applet and API, the OSPT Alliance supports the use of CIPURSE™ for NFC services beyond AFC and it is these kinds of services which are gaining importance for MNOs. A PxSE is a generic 'Proximity System Environment' specified by the OSPT Alliance in the CIPURSE™ V2 specifications. It addresses the need for efficient application selection in multi-application environments spanning several application segments.

Application Management by OTA

CIPURSE™ supports over the air (OTA) application management. Administration (installation & personalization) of a CIPURSE™ application is undertaken via the normal GlobalPlatform functionality of the UICC. Once personalized, all CIPURSE™ application commands can also be executed via GP security domain operations. GP security domain operations can be triggered by an MNO or delegated to a Trusted Service Manager (TSM) using OTA. Utilizing existing OTA infrastructure, CIPURSE™ aligns with MNOs systems and supports all relevant business cases.

Interaction with Wallet Applications

CIPURSE™ provides functionality to enable communication with a wallet application. Integration of card applications into smart phones results in the demand to support an additional user interface from the card applications. By utilizing the event handling mechanism, card applications can notify the wallet application on any changes originating from interaction with a contactless terminal, keeping the user up-to-date on any transaction. This rich user experience creates opportunities for additional card applications.

Integration with Legacy Public Transport Infrastructures

The benefit of CIPURSE™ is that it can be implemented on existing “points of acceptance” infrastructure such as an automated fare collection (AFC) system or retail network in addition to new, medium based solutions with multiple applications.

CIPURSE™ has a strong focus on software based solutions; its support for established standards such as ISO/IEC 14443 type A and B, ISO 7816 & AES 128 further simplifies the adoption of CIPURSE™. Furthermore, non-transport related smart card infrastructure such as payment terminals and point-of-sale (POS) devices, can be configured to work with CIPURSE™. This supports a reduction in cost of ownership for transport scheme owners as they are not restricted to using and maintaining proprietary sole purpose retail networks. Additionally, the convenience for consumers will increase because they are able to take advantage of value added services – where or when they want them.

The open and flexible nature of CIPURSE™ allows for other schemes to be easily enhanced by adding or including support for CIPURSE™. This means that CIPURSE™ can bridge the gap between established closed-loop transport networks and established UICC/Secure Element applications which makes CIPURSE™ attractive for service providers, MNOs and scheme owners.

Certification Process

OSPT Alliance grants certification for a product once it is ready for market launch.

The production process is outside the certification remit; however, once a product is evaluated the Alliance will deliver a certificate to the product owner as well as publish the certificate on the OSPT Alliance website for external reference.

Certification ensures stakeholder investment is protected as it ensures interoperability between terminals, smart cards and

handsets across multiple suppliers, avoiding vendor lock-in situations and protecting investment in the technology. For MNOs this offers an assurance that investment can be made in one or multiple territories without compromising global business strategy and investment.

Scope of certification is to test correct implementation and completeness of the feature set defined in the respective CIPURSE™ V2 profile that the product claims compliance with. Certification can usually be achieved within two weeks, subject to availability of a test slot at the certification laboratory.

Why should MNOs join OSPT Alliance?

By joining the OSPT Alliance, MNOs have the opportunity to participate in and contribute to the OSPT Alliance Working Groups. Participating MNOs therefore have the opportunity to influence the evolution of the standard, ensuring it continues to properly consider and support the unique and evolving needs of MNOs.

CIPURSE™ is ideally suited to meet the current and future requirements and business models of the MNOs.

- CIPURSE™ is suitable to address the target applications.
- CIPURSE™ supports use of existing infrastructure.
- Being form factor independent, CIPURSE™ ideally supports the transition from physical to virtual card, i.e. the same application can be used both on a single or multi-application card and on a UICC.
- CIPURSE™ is using resource efficiently as the functionality needs to be loaded only once and can be used by many applications.
- CIPURSE™ provides the necessary features for OTA remote management and interaction with wallet applications.
- CIPURSE™ will be considered and implemented in many AFC systems and public transport applications in the future. Due to the ‘enabler effect’ of AFC (because of its existing broad contactless infrastructure) for other contactless applications, CIPURSE™ is the key for a sustainable adoption by the mass market.
- CIPURSE™ based applications are able to close gaps in service provision by linking public transport masses to existing non-transport applications (e.g. for unbanked market segments or products).

Additional Information

- **CIPURSE™ V2 Mobile Guidelines** - a comprehensive set of requirements and use cases for developing and deploying CIPURSE™ secured transit fare mobile apps for NFC-enabled smart phones, tablets and other smart devices.
- **CIPURSE™ V2** - single, consistent set of specifications for all the security personalization, administration and life-cycle management functions needed to create a broad range of interoperable transit applications.
- **CIPURSE™ V2 SAM Specifications** – A set of specifications for the interface of a secure application module (SAM) providing a terminal with all of the cryptographic services required to securely communicate with CIPURSE™ products, the key management, and the description of the most common CIPURSE™ SAM use cases.
- **CIPURSE™ V2** - Integrating CIPURSE™ V2 into an existing Automated Fare Collection system– detailed guidelines and a roadmap for the easy and economical integration of the CIPURSE™ V2 open security standard into existing systems.

Links for download of additional information

Whitepaper: “Shifting the Ticketing Paradigm CIPURSE™ brings mobility and security to transit ticketing”:
<http://www.osptalliance.org/resources>