

ACTIVITY REPORT

2023

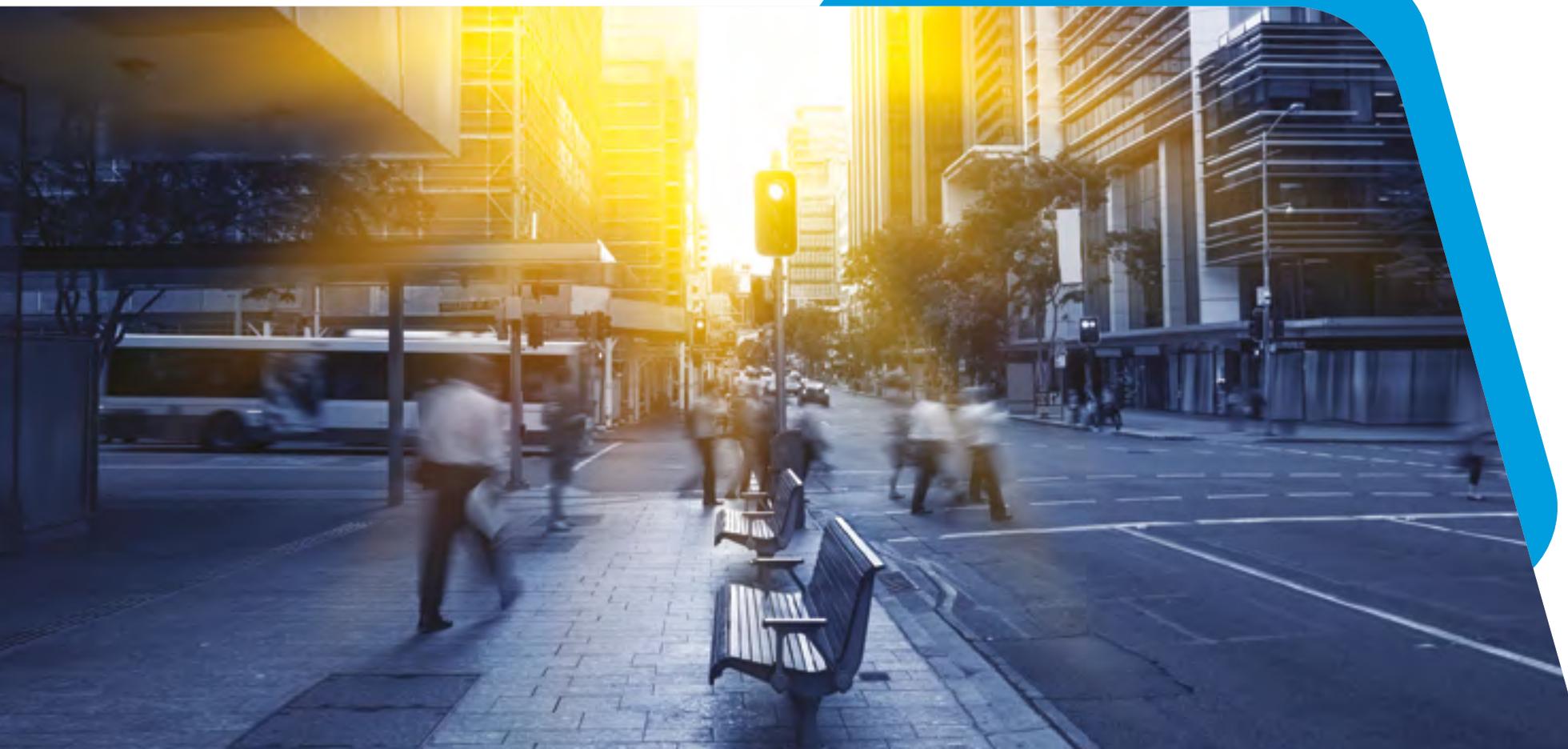


Calypso
20 years



Calypso

20 years



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CHAIRMAN'S EDITORIAL



It gives me particular pleasure to write these introductory words to our 2023 Activity Report, since 2023 was truly an exceptional year for both Calypso and Calypso Networks Association.

After several years characterised by the impact of the COVID 19 pandemic, which brought about a decline in public transport passenger traffic and a consequent significant drop in the number of Calypso cards sold worldwide, 2023 was an unprecedented year for the deployment of our open standard.

With around 50 million cards shipped throughout the year, we are not just returning to our pre-pandemic figures, but exceeding them. 50 million cards is almost double the number of cards shipped in 2019, which was Calypso's best year ever prior to 2023. This growth is being recognized by the wider community, with one analyst house projecting Calypso as the leader in contactless microprocessor transit cards in Europe in 2024!

This result demonstrates the dynamism of our standard, but it is above all the result of many years of collaborative effort to develop Calypso. It is irrefutable proof of the relevance of our associative model, based on listening to the needs

expressed by our members and the cooperative work of our technical committees.

It is precisely because our range of solutions perfectly meets users' expectations that it has been so successful. The beginning of massive deployments of the Calypso Light card in 2023 is the best example of this. It was born out of a need defined by one of our working groups, involving manufacturers and users, who drew up the specifications for this card a few years ago. This working group was created in response to a request from CNA's members to enrich the range of Calypso solutions, and so we're delighted to see the impact that this has already had.

This collaborative approach is the key to success for an open standard that has to compete with proprietary solutions that have far greater resources at their disposal.

Throughout 2023, we saw numerous examples of this methodology in action. Our new security module, OpenSAM (Open Secure Access Module), launched as the final stage in the opening up of Calypso; Eclipse Keyple® continued to establish itself as THE open-source ticketing SDK solution; we launched a new version of the Calypso Applet;

we launched a new a technical committee dedicated to Account Based Ticketing; and so on.

Each of these technical advances naturally required intense promotional activity. 2023 has seen an increase in exchanges and meetings between the transport ticketing community, with many new players interested in all the possibilities offered by Calypso standards.

There could be no better context for celebrating the 20 years of continuous cooperation between all those who have made and continue to make Calypso a success. Thank you to the Calypso team, the Board, each and every member of the association, and also all those who, at an institutional level in particular, support CNA's approach to open and interoperable ticketing.

Once again, but with even greater certainty, long live Calypso.

Gianluca Cuzzolin
Chairman of Calypso Networks Association



CALYPSO AND CNA 2023 IN NUMBERS



+50 MILLION CALYPSO CONTACTLESS CARDS WERE SOLD WORLDWIDE OVER THE COURSE OF THE YEAR

↗ **150%** increase compared with 2022, a year still marked by the effects of the pandemic crisis.

↗ **85%** increase compared with 2019, the last reference year before the pandemic and what was previously our most successful year.



CNA NOW HAS **115 CNA MEMBERS**: THE HIGHEST NUMBER OF MEMBERS IN THE ASSOCIATION'S HISTORY.

New members

AMBB TECHNOLOGIES

ATENCION EFICIENTE

AUROTRANSIT

AVANTRONICS

CIBEST

CORVUS DATA S.A. de C.V.

ENBI

GPSCONTROL SA DE CV

IALTO

IDEATOLIFE

INATEL

INSITRA

ISRA CARDS

POSWARE

PRODATA MOBILITY BRASIL SA

SETEC

SIBS CARTÕES

TPBI

UNICO CAMPANIA

FIGURES THAT CHARACTERISE CALYPSO'S DYNAMISM IN 2023

2.3M

CALYPSO APPLETS ACTIVATED IN SMARTPHONES

7

NEW CERTIFIED OFFERS, FURTHER ENHANCING THE RICH RANGE ON OFFER FOR A TOTAL OF 57 AVAILABLE OVERALL

(Prime regular, extended, PKI, Light, Basic, eSE with applet)

17

CERTIFICATIONS FOR CONTACTLESS INTERFACES, CARDS AND TERMINALS

35

ITEMS APPROVED BY CNA IN 2023, FOR A TOTAL OF 38 APPROVED CARDS

(having received all relevant certifications, contactless interface, Calypso and security, and currently on the market)

20K

TERMINALS IMPLEMENTING A NEW CALYPSO APPLICATION

2023 HIGHLIGHTS





2023 marked the twentieth anniversary of Calypso Networks Association. We celebrated this anniversary throughout the year with an unconventional communication campaign, often in an amusing way, but always carrying messages that underline the values of our standard and our association.

The evening of 20 June was the high point of this celebration as we brought together all those who, from the outset, have contributed to building brick by brick an open standard for the benefit of its users. What a pleasure it was to meet up again after so many years to exchange memories and anecdotes. And there's no shortage of them in Calypso's history!

2023 also saw the start of large-scale deployment of Light cards, particularly in the Île-de-France region. Calypso Light offers an effective complement to the Prime card for occasional usage, or as part of ABT systems. Light is a perfect example of how CNA works in a collaborative environment. Following a request from members, a technical committee made up of users and manufacturers was established to draw up a specification, allowing card embedders to develop the tool and have it certified to allow them to market it in a truly competitive environment.

Thanks in large part to the success of Prime and Light, 2023 was the best year in Calypso's history, with over 50 million cards shipped.

Another highlight of 2023 is, of course, the Board's determination to complete the opening up of Calypso by specifying a new security module, OpenSAM. Throughout the year, a technical committee worked to define and specify all the functional, technical, cryptographic and legal elements required by the industry to produce such an offer. The work will continue in 2024, with a view to completion in the very near future.

In terms of association life, 2023 saw the renewal of the Board through an election in June. This marked a significant point in Calypso's history as we welcomed new directors from Mexico, Angola and Senegal – a testament to the growing global reach of Calypso. The election was also an opportunity for the Board to reinforce its confidence in Gianluca Cuzzolin as President, as well as appointing three new Vice-Presidents: Sonia Alegre from Lisbon, Thierno Birahim Aw from Dakar, and Mario Pedro Nsingi from Luanda. And at the end of 2023, Yann Chermat was appointed as our new Chief Operational Officer, following the retirement of Philippe Vappereau.

2003-2023:CNA'S 20TH ANNIVERSARY

Although Calypso itself originated at the end of the 1990's with the onset of successive European projects that shaped the standard, 2023 was an important year as it marked the 20th anniversary of Calypso Networks Association: the non-for-profit association that develops, regulates and promotes the standard.

CNA was born out of the desire of those involved in these European projects to continue working together to ensure the future of open Calypso standards. Their vision was to make Calypso a global reference for standardised, open and interoperable ticketing. Those involved had so much enjoyed and valued the industrywide cooperation that they wanted to maintain the links established, helping to ensure that the core values of this early collaboration would always remain in the DNA of Calypso.

And so, 20 years on, CNA is a unique example of a technological standard, managed by its users in close cooperation with industry partners, whose growing success owes much to this original governance. This cooperative approach, which brings together the expression of needs and technological possibilities as closely as possible, means that Calypso is always a solution at the cutting edge of innovation.

On 20 June, all those who have been central to the construction of Calypso came together to celebrate this anniversary. It was an opportunity to meet up again, to reminisce, but also to talk about the future of the standard and the association.





TECHNICAL ACTIVITIES



Certification

Certification remains at the heart of CNA's activities and is the pillar on which the principle of openness and industrial independence is based. In 2023, it was again very active, and for the first time, certification now applies to six different families within the Calypso range: Prime Extended, Prime PKI, Light, Basic, Applet for Java Card (Prime Regular), and Applet for eSE (Prime Regular).

CNA continues to support the certification of ISO 14443-radio interface, which is a prerequisite for interoperability. In 2023, five cards and twelve terminals received this certificate from certification body, Paycert.

The extremely hard work of developing a terminal certification program continued throughout 2023. This is of major importance because now that Calypso cards must be certified, any compatibility and interoperability problem encountered in the field is almost always the result of a terminal failing to comply with the requirements set by CNA.





Eclipse keyple

What is Eclipse Keypop ?

To make it easier to certify terminals on the basis of standard interfaces, whatever the software implementation, the interface software has now been separated from the core Keyple software, and is the subject of a new open-source project called Eclipse Keypop.

As a result, it is now possible to certify terminals at both card reader and Calypso transaction level, either using the Keyple SDK, or using a software implementation other than Keyple.

This guarantees even greater openness as, even though Keyple is an open-source implementation, CNA did not want to impose its use.

Over the past five years, CNA has invested a great deal of effort into developing this open-source ticketing SDK. It serves as reference library to facilitate the implementation of Calypso applications in a terminal by making the software independent of the hardware and providing high-level functions to process Calypso transactions.

In 2023, the main achievements on Eclipse Keyple include:

- ◆ Providing the native implementation of the Eclipse Keypop® APIs, offering a standardised way to interact with smart card readers and Calypso cards.
- ◆ Providing an open solution for distributed architectures.
- ◆ Revamping the software architecture by making security features available in the form of extensions. This will allow the Calypso Prime PKI card to be processed, as well as OpenSAM, whose cryptography differs from that of the SAM C1.
- ◆ Developing extensions for SAM-C1 and Calypso Prime PKI.



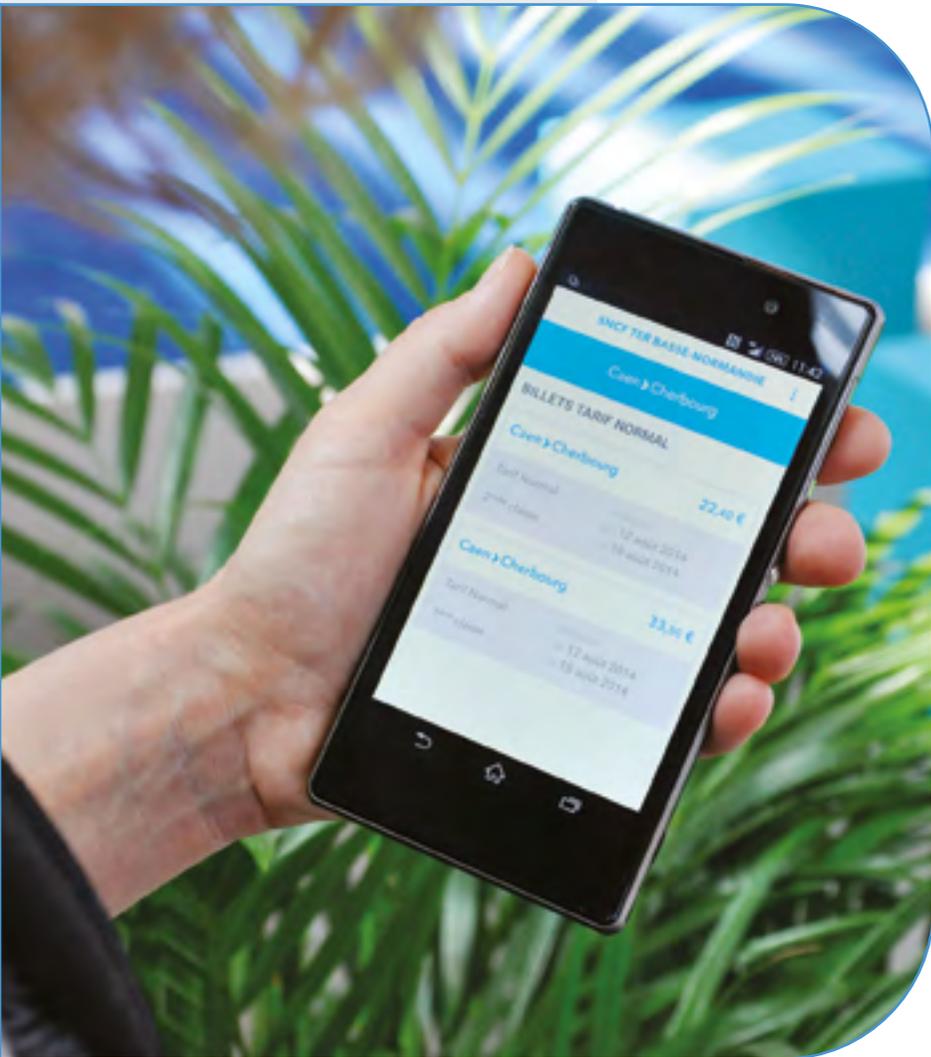
OpenSAM

At the end of 2022, CNA committed to drafting a new OpenSAM specification which will be available to the industrialists who wish to make use of this new security module. To guarantee the openness of this project and to avoid any ownership of the specification by any one organisation, this work has been carried out within a CNA technical committee with participation open to all members. This working group decided to address platform genericity with a high-performance solution for both native cards and Java cards, as well as the issue of supplier interoperability, aiming to provide a strong guarantee of security, but without any vendor-specific secrets.

Given the complexity of the project, it has been divided into several phases, with the ambition that each phase can be implemented to meet a well-defined use case. Phase one corresponds to a SAM with a reduced command set that can be used to process Light and Basic cards; phase two aims to provide a complete command set for Prime Regular cards; and phase three will enable Prime PKI to be managed and will introduce business rules management.

In 2023, CNA published a first draft of the OpenSAM functional specification, submitted to the Technical Committee for validation. We also initiated the development of a functional and secure certification scheme, which is essential to guarantee the interoperability of the implementations.





Calypso for mobile

Calypso solutions for smartphones are based either on the applet that CNA makes available to manufacturers for integration on all Java Card platforms, or on the specification for porting Calypso in Host Card Emulation (HCE) mode.

2023 saw the development of a major upgrade for Calypso Applet. Version 2.0 supports Prime Extended (with encryption of exchanged data) and Prime PKI (with asymmetric cryptography). This version also extends compatibility with the latest generation of Java Card platforms. Following an extensive test campaign and the development of the corresponding certification tool, version 2.0 will be available in the first half of 2024.

It should be noted that CNA's applet is also used for cards using the Java Card OS, a solution increasingly proposed by manufacturers.

The Calypso HCE specification has not changed significantly, but 2023 has seen an increase in its use in large-scale field deployments, particularly in the Île-de-France region, where a Calypso HCE solution with security certification issued by CNA has been deployed for all Android smartphones.

AN ACTIVE PROMOTION OF THE CALYPSO STANDARD

Throughout 2023, our promotional activities continued to elevate the status of the Calypso Standard around the world.

In Senegal, our work with CETUD leverages Calypso to bring interoperability between each of Dakar's bus operators and artisanal transit providers, helping create a seamless network for users throughout the city.

In Angola, we have been working with ENBI, the national entity aiming to create a seamless integrated ticketing network, to build a new ticketing framework underpinned first and foremost by open standards.

In Mexico, thanks to Calypso, the Tarjeta de Movilidad Integrada card now provides interoperability between the Tren Interurbano México-Toluca and CDMX, providing passengers across the state of Mexico with seamless access to transit through a single travel card. Our Mexico office also worked to support private transport service providers who looked to adopt the Tarjeta de Movilidad Integrada card, using Keyple as the baseline for integration, with the support of Órgano Regulador de Transporte (ORT).

As regards our activities in Brazil, we have focused

on three main areas: increasing our Brazilian membership and attracting major local integrators who promote Calypso and are involved in the development of our standard.

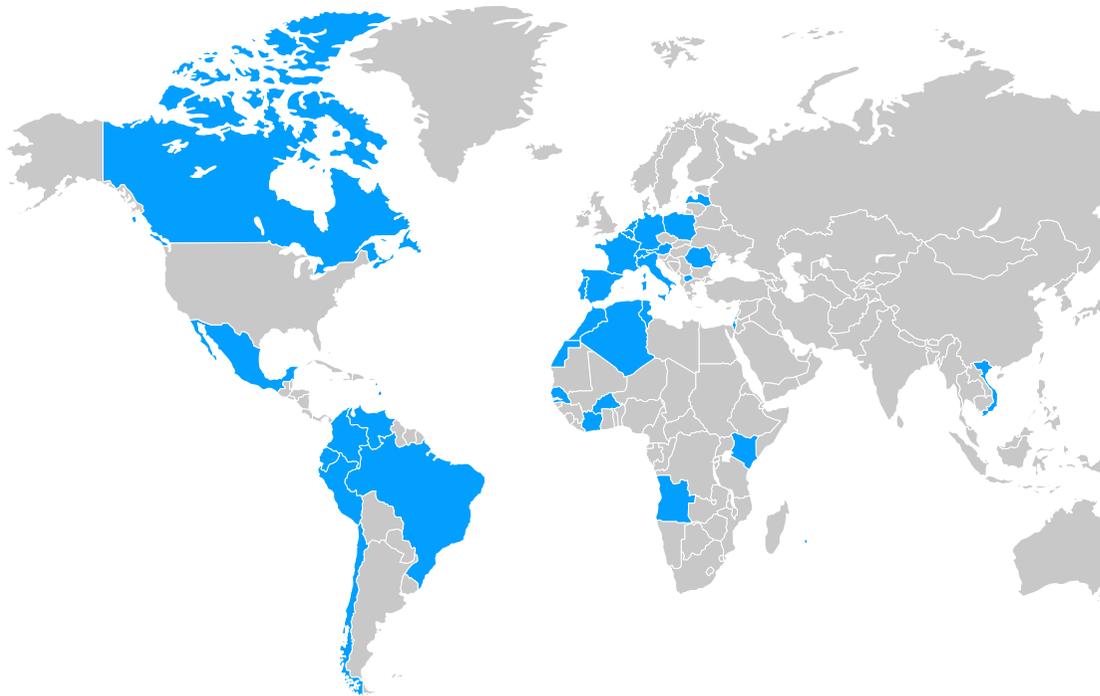
We are also working closely with UITP Latam, notably on the development of the MaaS report for Latam.

Our third objective is to develop exchanges between Brazilian PTOs and PTAs and CNA member networks to share knowledge.

Looking to the European market, Ile-de-France Mobilités became the first to deploy the Calypso HCE mobile solution across its entire network in 2023. Meanwhile, in the Paris region we witnessed a major development as magnetic tickets increasingly disappeared from circulation in favour of rechargeable, reusable tickets based on Calypso Light.

As Bucharest looked to restructure its ticketing system, it too looked to CNA for support. Mindful of the investment required to implement any new ticketing model, Bucharest wanted to be aware of the future the ticketing landscape to ensure that the solution it chooses provides its citizens with the ticketing solution they need for many years to come.





Countries and regions with Calypso deployment*

*based on member-declared implementations of the Calypso standard.



Dakar, Senegal



Lisbon, Portugal

CLOSER LOOK: UNICO CAMPANIA

The Unico Campania Consortium is responsible for the centralized Automated Fare Collection (AFC) system throughout the Campania region. Its chosen system is fully based on Calypso standards, and developed for the issuance of Calypso 3.1, Calypso Light Application and a Chip on Paper solution which it is looking to migrate across to Calypso Basic in 2024.

Unico Campania has made use of all the added value provided by Calypso standards, adopting a multi-profile card and multi-protocol (B' and B) Calypso card. This has allowed the Campania Region to migrate toward a new fare collection system while managing a period of coexistence between two parallel AFC systems.

Since 2022, Unico Campania has integrated the local transit Trenitalia profile into its Calypso-based offer. This allows passengers to use one single card for all transportation networks available in Campania region (buses, metro, trains). It is a clear example of multimodality realised with the support of Calypso technology and to date, Unico Campania has issued approximately 400,000 Calypso cards to users with a seasonal ticket.

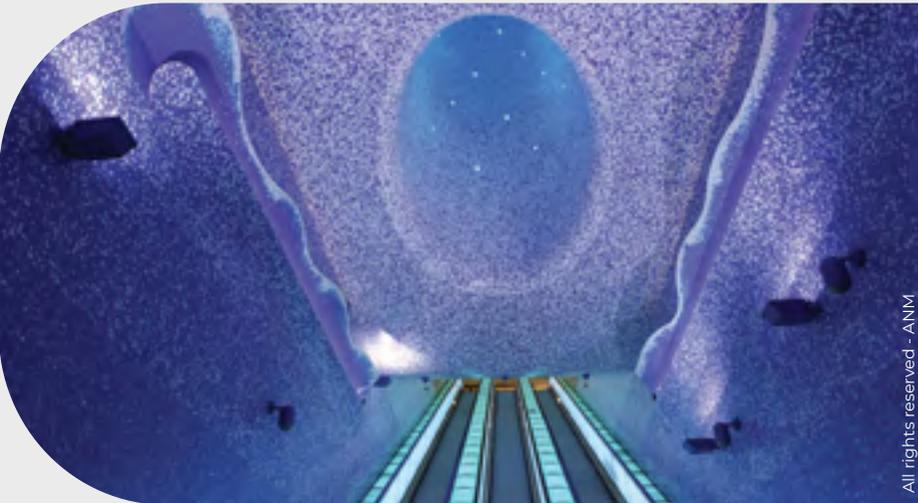
The consortium has also equipped itself with a remote SAM system. This allows it to expand the number of third-party vendors for its tickets to include local convenience

stores and other such retailers, while also increasing levels of safety and control, exercised centrally.

The adoption of the Calypso standard alongside an open architecture based on open middleware and APIs has made it possible to create a complete regional AFC system based on Calypso cards. As of November 2023, the network had 100 ticket offices, 250 ticket vending machines from three different providers, and an additional 3,215 third party vendors.

Calypso and the opportunities the standard offers from a technological standpoint serve as a major boost for Unico Campania. The consortium will soon be activating its CLAP (Calypso Light application) on citizens' Regional Vaccination cards issued during the COVID pandemic. This will ensure that each of Campania's 3.5 million citizens instantly have a travel card that will give them access to modern and intermodal transport system.

In the coming months Unico Campania will launch new initiatives to enhance the digitalisation of the regional AFC system. It will offer HCE Calypso as alternative to physical Calypso cards, while still providing the same security levels and user experience for end users throughout the regional transport network.



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CALYPSO HANDBOOK

One of the main objectives of the CNA marcoms team in 2023 was to develop and publish the Calypso handbook. This resource provides an extensive guide to the role and governance of the Calypso standard, for those familiar with the standard and newcomers alike.

The aim of the handbook is to answer all the questions you may have about the Calypso standard, and explain how CNA can support you in developing your ticketing system. Regardless of your prior familiarity with Calypso, your closeness with the association or your position within the ticketing ecosystem, the handbook is a valuable resource for all.

The handbook not only describes all the Calypso solutions available, it also sets out the values and principles governing this standard that ensure it remains open, interoperable, multi-vendor, innovative and secure.

Don't hesitate to visit the CNA website to [download the handbook](#).

Calypso
Networks Association
Handbook
V1.0

Connecting the digital
ticketing community

Calypso
Networks Association

PROMOTION SUPPORTED BY SUCCESSFUL EVENTS

2023 gave us many opportunities to gather CNA members throughout the transport ticketing industry:

- ◆ **The 8th Smart Ticketing and Digital Services Forum - held as usual in Budapest.**
- ◆ **User Days - open to all, and Partners Day, reserved for Calypso solution providers, were held jointly in Venice, with over 100 participants.**
- ◆ **The Open Tech Day - an opportunity to present the latest developments in Calypso and the results of the Technical Committees.**
- ◆ **The annual Open Session – our flagship event, headlined by the presentation of the Calypso Awards.**

Alongside our own hosted events, CNA has been present and active at leading industry events in the ticketing and public transport ecosystem. In 2023 we met with members and transit stakeholders at numerous events including the UITP Global Summit in Barcelona, Transport Ticketing Global and MOVE in the UK, Kontiki events in Germany and Austria, Club Italia events, RNTP (Rencontres Nationales du Transport Public) in France, and the Economic Forum in Poland.



The Calypso awards in 2023 were won by Unico Campania, and SNCF with Matawan.

- ◆ Unico Campania won the “Best Customer Service” award for its work centralising its ticketing network to make it easily accessible and usable across multiple modes of public transport throughout the Campania region.
- ◆ SNCF and Matawan won the “Best Innovation” award for its unique offer that uses existing Calypso storage capabilities to register an entry that allows Card-Based Ticketing (CBT) to control the Account-Based Ticketing (ABT) ticket.
- ◆ A special award was also presented by the CNA Board to Île-de-France Mobilités, in recognition of its pioneering work with Calypso Light.
- ◆ Finally, our former Chair and General Manager, Philippe Vappereau, received a special award for his countless achievements and contributions to the Calypso standard over its lifetime.



CALYPSO AND CNA IN THE NEWS

In 2023, CNA further increased visibility for both itself and the standard by attracting attention from multiple influential trade publications. This included seven articles for [Transport Ticketing Trends](#), three press releases, and over 80 [LinkedIn updates](#) to the CNA community over the course of the year.

Media interest in Calypso is growing, with eleven editorial articles published in major titles including [Intelligent Transport](#), [Rail Professional](#), [Mobility Payments](#), [Metro Report International](#), [Urban Transport News](#), and [Sustainable Bus](#).

Through these articles, blogs and interviews, CNA intends to share its vision of the future of ticketing, going beyond its role as regulator and promoter of the Calypso standard to champion an open and sovereign ticketing ecosystem that is not dependent on particular interests, but rather is at the service of transport users and transport organizing authorities.

INTELLIGENT TRANSPORT COVERAGE HIGHLIGHTS



FINANCIAL STATEMENTS

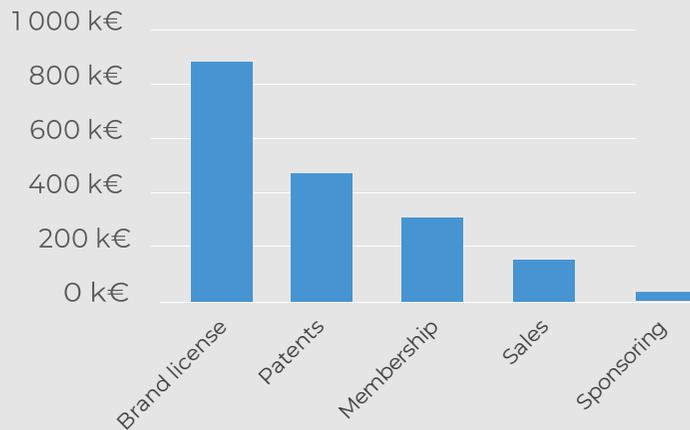
Calypso's financial health

Each year, CNA checks its financial health with CreditSafe, the multinational provider of on-line company credit scores and credit report information.

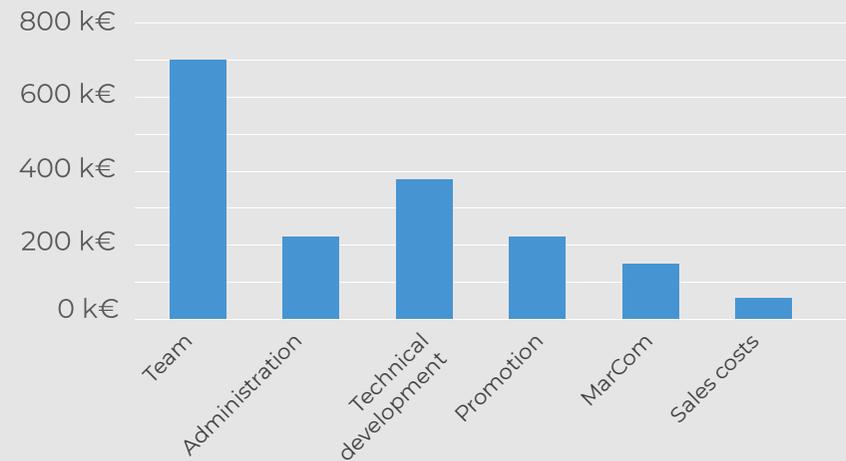
In 2023, CNA's score improved again, reaching 90/100.



2023 Turnover



2023 Expenses



2023 saw a very strong recovery in sales of Calypso contactless cards worldwide. The global pandemic and the travel restrictions that came with it caused a decline in card shipments over the two previous years, with 10 million cards shipped in 2021 and a slight recovery to 20 million in 2022. 2023 was therefore a welcome success, with just over 50 million cards shipped.

As a result, the Calypso brand license generated exceptional income of €878,000, well in excess of the budget forecast for 2023. In addition, the session patent, which expired in October 2022, nonetheless generated income of €499,000 in 2023. This was also above our projected forecast, due to the delay in the payment of royalties by manufacturers. Lastly, income from membership also exceeded forecasts, with a record 115 members and the arrival of a new gold member driving revenue.

2023 Main figures	CNA Brussels	CNA Paris	Total
Turnover	390 450 €	1 541 500 €	1 931 950 €
Expenses	342 940 €	1 359 556 €	1 702 496 €
Taxes & credit innovation		47 945 €	47 945 €
Results	47 510 €	229 889 €	277 399 €

Expenditure was in line with the forecast. However, it was not possible to adjust expenditure in line with income, as the increase in the number of cards sold occurred mainly at the end of 2023, and so the corresponding income was not confirmed until January 2024.

The 2023 result is therefore positive at a value of €278,000 after tax and innovation credit.

Comparing 2023 to 2022, turnover is slightly down (€2.1 million in 2022) due to the end of income linked to the ISO B patent. Revenue from patents has fallen from €1.15 million in 2022 for the ISO B and session patents to €0.5 million for the session patent alone, with a residual amount of ISO B revenue in 2023. The very strong increase in brand licensing revenues has largely offset this loss of revenues.



CNA'S PERSPECTIVES FOR 2024

2024 will be defined not by how well networks can regain previously lost passengers, but rather how they attract new ones away from private vehicles.

NEW AND INCLUSIVE TICKETING OPTIONS

Creating a balanced network that appeals to all demographics and provides a service that is more efficient, dependable, comfortable and trusted than private vehicle usage is easier said than done, but it is not impossible.

Traditional weekly or monthly tickets may have previously met the needs of the daily commuter, but passenger movement patterns are changing. In short, any successful ticketing system now must offer more: it must be more agile, more pragmatic and more flexible. Passengers always look for value and reliability from public transit, so tariff structures must meet this demand.

While many commuters will still want fixed term travel cards, additional options including enhanced Pay-as-you-Go solutions and accessible concessionary fares will allow networks to diversify their offer in 2024, providing tickets that are more appropriate to the usage requirements of more people.

Combining these offers with innovative solutions designed for Mobility-as-a-Service (MaaS) can create unified multi-modal offers that give the same door-to-door convenience of private vehicles, at an affordable cost and without the issues of traffic jams and parking.

DIGITALLY INCLUSIVE; NOT EXCLUSIVELY DIGITAL

Mobile ticketing (mTicketing) is one way for networks to take a more digital approach. This helps mitigate the challenge of issuing physical tickets at station kiosks and helps advance sustainability goals by reducing the volume of paper or plastic that is used for the tickets themselves.

These digital solutions can be seamlessly incorporated into unified mobility offerings, allowing users to switch between modes of transport throughout a network using just their smartphone.

However, users that are less technologically willing, literate or able, must not be restricted from accessing mobility services; you must make sure that a range of different fare media are always readily available.

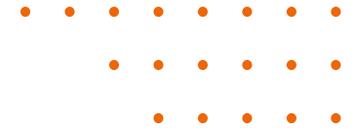
BUILDING RESILIENCE INTO CHIP SUPPLY CHAINS

The pandemic caused a global shortage of chips, and while supply has returned to sufficient levels, we must learn from it. Proximity cards like a Calypso smartcard or an EMV® Chip card are based on the ISO/IEC 14443 standard. Within this standard, cards can be either Type A, initially designed to be lower cost





View of the seafront in Luanda, Angola



and memory only cards, or Type B cards which first came to market with higher end microprocessors and security.

While the differences between the two types of card have now vanished, with both able to support microprocessors and memory, the banking industry primarily favours Type A. This means the overwhelming number of cards and supporting components produced are Type A. Therefore, to leverage economies of scale in the manufacturing process, ticketing operators can look to transition to Type A with Calypso.

In most cases, adapting to accept both card types can be achieved through a software update to existing terminal infrastructure: in other words, the built-in reader. This is where terminal certification is so important, confirming acceptance of both card types so PTOs and PTAs can operate with confidence. By making this migration, networks can build resistance into their supply chains, helping them avoid vendor lock in and remain agile to market pressures.

PHYSICAL MOBILITY INDUCES ECONOMIC MOBILITY

In 2024, networks around the world have the opportunity to facilitate previously unprecedented levels of access for all, and it begins with an open ticketing framework.

Creating an inclusive and interoperable offer will help elevate an entire network. It forms the foundation of a modern mass transit system that offers a reliable, dependable and affordable alternative to private vehicle use. And in the words of former mayor of Bogota, Enrique Peñalosa: “An advanced city is not one where the poor own a car, but one where the rich use public transport.”

CNA'S MISSION

Connecting the contactless ticketing community

CNA is a not-for-profit organisation that brings together members of the transport, mobility and services communities to exchange ideas, experiences and requirements to advance open systems that support consumer ticketing needs.



The CNA community combines transport and mobility authorities, operators, and service providers, as well as technology manufacturers and transport consultants. It is a diverse and welcoming community which spans public and private sector organisations.



CNA'S VISION FOR OPEN TICKETING

Since its creation, Calypso Networks Association has always worked to open up ticketing systems.

- ◆ Naturally, this approach first focused on the card-reader transaction and is the primary focus of early Calypso specification development. Our established certification policy enshrines a guarantee of interoperability with a free choice of manufacturers. CNA has now reached the final stage of this full opening of the Calypso transaction with the OpenSAM project, giving ticketing stakeholders a multi-source security module based on open standards.
- ◆ CNA has since turned its attention to opening up terminal software to avoid proprietary solutions at this level. This is the approach taken by the Eclipse Keyple open-source SDK, first launched in 2016 and now available and in use. This SDK completely decorrelates terminal hardware and software, offering a standardised interface for all terminal software alongside Eclipse Keypop, with a free software implementation.
- ◆ With the arrival of ABT systems, solutions proposed by many manufacturers do not comply with any standards, mainly because there is no existing standard at this level. Therefore, the exchanges between terminals and ABT servers are, each time, specific and distinct, which may lead once again to proprietary schemes. The ABT Technical Committee was established at the end of 2023 and will lead CNA in resolving this issue.

CNA's ambition, role and missions are therefore growing as it seeks to bring its values of openness and interoperability to all levels of a ticketing system.

CNA MEMBERS*



5T	CIBEST
ACTV	COMUTITRES
ADCET	CONDUENT BUSINESS SOLUTIONS
ADVANIDE	CONFIDEX
AEP	CONSEIL REGIONAL DE BRETAGNE
AGILTECH	CORVUS DATA S.A. DE C.CV.
AMBB TECHNOLOGIES	CTS (CIE DES TRANSPORTS STRASBOURGEOIS)
ASIS ELEKTRONIC	CUBIC
ASSTRA	DATARAXYS
ATENCION EFICIENTE	DIGIMOBEE
AUROTRANSIT	EDY NOGA TECHNOLOGY
AVANTRONICS	ELATEC
AZIENDA TRASPORTI MILANESI	ELITT
BANCO AZTECA	ENBI
BILLETIQUE SERVICES	EXCEET CARD GROUP
BILLING PAY	FAMOCO
BLUEBIRD TECH IT	FIME
BMC	FLOWBIRD
CALMELL GROUP	GAPLET
CARD4B	GCN ITS
CARRIS	GIESECKE & DEVRIENT
CB	GPSCONTROL SA DE CV
CETUD	HB TECHNOLOGIES

HID GLOBAL	MATAWAN	SELP
IALTO	MEDIAMOBILE ITALIA	SEMOVI
ICUBE	MERCADO LIBRE	SET
IDEAR ELECTRONICA	METROPOLITANO DE LISBOA	SETEC
IDEATOLIFE	MICROSAFE	SIBS CARTOES
IDEMIA	MK SMART	SIGMA SPA
IDENTIV	MPESO	SNCF
ILE DE FRANCE MOBILITES	MYCARD	SNOWBALL TECHNOLOGY
INATEL	NAGELS	SOCIETE DE TRANSPORT DE MONTREAL
INFINEON	NOUVELLE AQUITAINE MOBILITÉS	SONDA
INSITRA	NR TEC DESAROLLOS TECNOLOGICOS	SPIRTECH
INTERPARKING	OAKLEN CONSULTING	ST MICROELECTRONICS
IQUANTICS	OTW-TEC	STIB
ISRA CARDS	PARAGON ID	SYTRAL MOBILITES
ITSO	PAYCERT	TGS CARD SOLUTIONS
JM ASESORES Y SERVICIOS	PLANETA	THALES DIS
KENTKART	PLUSERVICE	TISSEO
KEOLIS	POSWARE	TML
KUBA	PRODATA MOBILITY BRASIL SA	TPBI
LANDKREIS KONSTANZ	RATP	TRANSDATA
LINK CONSULTING	RATP SMART SYSTEMS	UNICOCAMPANIA
LINXENS	RTP	WATCHDATA TECHNOLOGIES
LOGIPLUS	SCHEIDT & BACHMANN	WIZWAY

*Member list correct as of 31 December 2023

JOIN THE CNA COMMUNITY

CNA provides a unique opportunity to exchange ideas, experiences, and requirements within a supportive and collaborative environment.

By working together, it creates an opportunity to secure control over the smart ticketing ecosystem and create a sustainable framework for the future.



MEMBER BENEFITS



Networking and collaboration

CNA brings together the brightest minds within the transport and mobility community to share experiences and facilitate industry collaboration



Access to CNA's working groups

Join and participate in CNA's working groups to promote open standards and influence the future direction of Calypso technology



Invitations to CNA's global events programme

Partake in CNA's global programme of events, networking opportunities and annual awards ceremony



Strategic support and expertise

Receive preferential rates on strategic support aligned to local, national or global ticketing requirements

CNA SERVING ITS MEMBERS

CNA continually seeks to meet the needs and expectations of its members by leveraging the resources at its disposal to provide next generation transit ticketing solutions.

CNA's role is not only to develop, promote and regulate the Calypso standard. It also helps its members implement a ticketing system that respects its values of openness and industrial independence, and can also help facilitate its practical implementation in the field.

To achieve this goal, CNA offers a major training programme, which in 2023 was attended by SEMITAN, Paycert, Setec, and Watchdata.

In addition, CNA's technical experts have provided numerous assistance services to members on subjects including use of the Calypso Applet, the implementation of Eclipse Keyple, the *ad hoc* use of Calypso cards, compliance with terminal requirements to guarantee interoperability, and security analysis, particularly within the framework of the Club for Security and Quality of Service of Calypso-based ticketing systems.

In 2023, for example, CNA provided assistance to SEMOVI (Mexico City's transport authority), CETUD (Dakar), ENBI (Angola), Île-de-France Mobilités (Paris and its region), TML (Lisbon) and SNCF (France) about Keyple implementation, as well as to a number of manufacturers.

All CNA members benefit from greater ownership over the smart ticketing ecosystem via:



Training opportunities

Gain new skills via preferential rates on CNA's year-round training programme, tailored to member requirements



Exclusive access to Calypso technology documents

Access the Calypso library, including documentation, specifications and guidelines



Technical support

Receive comprehensive technical support and preferential rates on Calypso technology

If you would like to take advantage of any of these CNA services, please contact us.

support@calypsonet.org

BOARD OF DIRECTORS

CNA is managed by a Board of Directors appointed by the General Assembly every three years. There are currently 19 board members, represented by 20 officers.

The new Board members were elected during the General Assembly in Paris on June 20th.



ACTV - Venice Transport Operator

Chairman Represented by Gianluca Cuzzolin



CETUD

Vice-Chairperson represented by Thierno Birahim Aw



ENBI

Vice-Chairperson represented by Mario Pedro Nsingi



TML - Transportes Metropolitanos de Lisboa

Vice-Chairperson represented by Sonia Alegre





5T - TORINO

Represented by
Massimo Cocozza



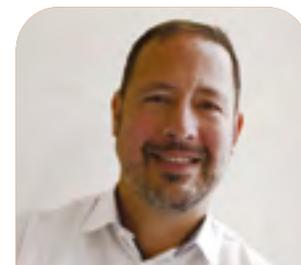
ASSTRA
Associazione Trasporti

Represented by
Serena Lancione



ATM
Azienda Trasporti Milanesi

Represented by
Paolo Fiorino



BMC

Represented by
Jim Van den Rijse



CTS - Compagnie des
Transports Strasbourgeois

President represented
by Alain Caffart



GIE
CARTES BANCAIRES

Represented by
Pierre Chassigneux



ÎLE-DE-FRANCE
MOBILITES

Represented by
Laurent Probst



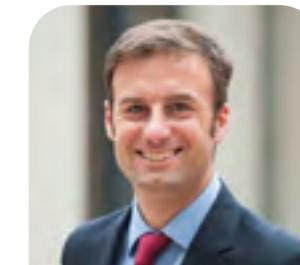
INFINEON

Represented by
Björn Scharfen



INTERPARKING

Represented by
Roland Cracco



LANDKREIS CONSTANZ

General Secretary
Represented
by Zeno Danner



RATP - Paris Transport
Operator

Represented by
Yann Poirier and
Agnès Coughard



Secretaría de Movilidad
de la Ciudad de México

Represented by
Andres Lajous



SNCF - French National
Railway Operator

Represented by
Joël Epe



STIB - Transport
Operator of Brussels

Represented by
Jean-Luc Van Ginder Deuren



UNICO CAMPANIA

Represented by
Guido Cangiano

THE CNA TEAM

At the end of 2023, Yann Chermat joined CNA's permanent team as Chief Operational Officer following the retirement of Phillipe Vappereau. Yann has been a part of the CNA community for over fourteen years. In his new role, he will continue to support the association as we evolve contactless ticketing systems through community, collaboration, and open standards.

The team operates from Paris, Brussels, Lisbon, Konstanz, and the Island of la Réunion to support CNA and its members.



Gianluca Cuzzolin

Chairman



Philippe Vappereau

General Manager



Yann Chermat

COO



Erik Baele

Treasurer



Neide Ohira

Finance Officer
and Assistant



Paulo Barreto

Technical Expert,
Calypso Range of Products



Manon Chaix

Communications and
Marketing Manager



Ralph Gambetta

Promotion Manager



Philippe Guillaumin

Technical Manager



Ludovic Teixeira Costa

Technical Expert,
Certification & Mobile



Pierre Terrée

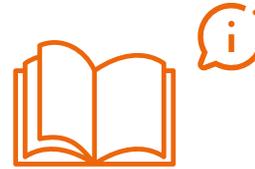
Technical Expert,
Eclipse Keyple & Applet

CNA CONSULTANTS AROUND THE WORLD

The core team also benefits from local support across the globe. The extended team is available to answer any local questions with their regional knowledge and can also act as a bridge to the core global experts.

- ◆ Enrique Gomez
- ◆ Artur Kassovicz
- ◆ Yuliia Kuznetsova
- ◆ Claudio Giovannini
- ◆ Ana-Maria Paladus
- ◆ Fernando Portella

RESOURCES



CNA is committed to providing free, valuable resources for the contactless ticketing community including eBooks, brochures and blogs.

Calypso library

Access all the technical and non-technical documentation about Calypso, and CNA services, with a powerful Document Search tool.

Training programme

View CNA's full training brochure with details of all modules, as well as information on how to arrange bespoke training tailored to specific requirements.

Newsroom

Read the latest updates and announcements from CNA in the [newsroom](#).

One-pagers

For all you need to know about Calypso Prime, Prime PKI, Calypso Light, Calypso Basic, Calypso's solutions for mobile, Keyple, our short guides provide the perfect introduction, all available in the [Calypso Library](#).

Guide for calls for tenders

The purpose of this [document](#) is to outline what is required in a call for tenders for Calypso contactless cards, NFC mobile ticketing systems and terminals to guarantee compatibility and scalability.

Newsletter

Subscribe to CNA's bi-monthly [newsletter](#) to stay up to date with the latest news, events and insights from the organisation. Your email address will never be shared with third parties and you can unsubscribe at any time.

Calypso handbook

The [CNA Handbook](#) provides an extensive guide to the role, offering and governance of the Calypso standard. It is a must-read for both existing and potential users of the technology.

Blogs

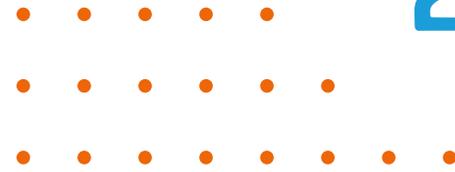
Read CNA's official blog, [Transport Ticketing Trends](#), to get the latest insights and commentary from the CNA team and its member community on contactless ticketing advancements, opportunities and challenges.

Events

CNA offers a [global programme of events](#) for members and non-members throughout the year with the latest information on the website.

Calypso

20 years



Calypso 20years

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1000 Bruxelles, Belgium

Paris Office

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Passage du Cheval Blanc,
Escalier Avril,
75011 Paris, France

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 contact@calypsonet.org

 [company/calypso-networks-association](https://www.linkedin.com/company/calypso-networks-association)

 [YouTube Calypso Channel](#)

Newsletter

Subscribe to the CNA newsletter via the [contact form](#).

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