



COFLIGHT

CLOUD SERVICES



PRESS KIT



SUMMARY

1 WHAT IS CCS	3
2 OUR STORY	4
3 CCS, KEY DATES	5
4 CCS, KEY FIGURES	6
5 AGILE METHOD	6
6 DESIGN BY CUSTOMERS, FOR CUSTOMER	7
7 SHAPING THE FUTURE OF ATM	8
8 ENVIRONMENT	9
9 WHAT MAKES CCS DIFFERENT ?	10
10 THE CCS OFFER	12
11 FOUNDED ON STRONG SHARED VALUES	14
12 ANTICIPATING CHANGE	15
13 CONTACT	16

1 WHAT IS CCS ?

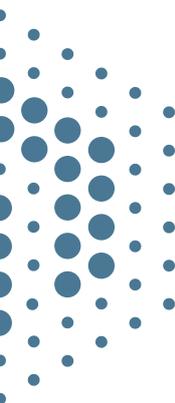


From the technological point of view, CCS which stands for **Coflight Cloud Services**, is an innovative concept of Flight Plan Processing Service delivery based on the industrial product Coflight.

As Coflight is developed by industrial suppliers Thales and Leonardo, ENAV and DSNA have added a service layer relying on SWIM principles and aligned with services defined in the frame of **SESAR Virtual center activities**, to allow any customer to access to the Coflight capabilities and performance through open and standardized interfaces and technologies.

From the European point of view, CCS is a strong and winning partnership of ANSP working for ANSP, ENAV and DSNA acting as ATM flight data service providers and MATS and skyguide acting as Air Traffic Services Provider.

To put in a nutshell, CCS is an enabler to meet **Single European Sky** and **Architecture Study** objectives and to achieve goals and vision from SESAR.



2 OUR STORY

CCS started with an out of the box idea. Daniel Weder, CEO of skyguide and former banker, did not understand why in Air Traffic Management (ATM), there was no backoffice data center like in the banking world. In Switzerland, there are two. So he proposed the totally unprecedented idea of creating a unique concept, the Virtual Center, based on a single data center to feed two operations rooms.

Aware that skyguide did not have the means to design one itself, he solicited the help of the DSNA, which studied the project and was soon convinced of its huge transformative potential. In parallel, DSNA and ENAV, the Italian ANSP, with their technological sub-contractor, Thales and Leonardo, are developing the Coflight system, an advanced flight plan data processing.

It will represent a major operational and technological breakthrough. The CCS project was born: use of Cloud Services to provide **flight trajectory data remotely**, based on Coflight. ENAV joined the collaboration with its own client, MATS, the maltese ANSP.

The feasibility study completed in 2014 didn't show any blocking points from a legal, economic, security or safety standpoint. And that was the start of the Coflight Cloud Services adventure, for this innovative flight plan data processing service, that will empower customers with greater flexibility.

Together the four partners are co-building the project and venturing into new areas to bring ATM into the future.

3 CCS, KEY DATES

- **2014-2016:** launch of the CCS project at the WAC 2014 in Madrid. Feasibility study.
- **2017- 2021:** development phase. Initial operational capability for Technical Integration, Validation and Training Services, validation of Operational and Continuity services September 2019 : successful and conclusive test phases
- **October 2019:** successful demonstration at the Frequentis Executive Day in Vienna (see explanations Further on).
- **January 2020:** training of technical staff February
- **2020:** deployment of the technical system between the data center in the Paris ACC and the operations room in the Geneva ACC
- **March 2020:** DSN A and skyguide will sign the first contract at the WAC in Madrid
- **March 2022:** full operational capability Recent examples of applications or test/reporting methods for determining success



4 CCS, KEY FIGURES

- 4 partners
- 40 CCS people
- **DSNA:** 3.3 million controlled flights
- **skyguide:** 1.2 million controlled flights
- **ENAV:** 2 million controlled flights per year

5 AGILE METHOD

SAFe AGILE framework is a program management method consisting to deliver value as quickly as possible and on a regular way. Lately, this approach has been offering a new dynamic to the development of the CCS project.

Main CCS added values is customer and ATM market oriented approach, especially by implementing the SESAR European R&D program outputs and delivering ATM services SWIM compliant.

By this way, the CCS SAFe AGILE process allows to deliver regularly various services on short cycles.

During this meeting, the goal of the incoming increment is detailed by the main SAFe roles: “Product management”, “System Architect” and “Release Train Engineer”. The objective is to synchronize the 3 international agile development teams. Each team estimates and commit what will be delivered and highlight the dependencies and the risks. Finally, a global roadmap with prioritized and agreed set of outcomes is endorsed.

SAFe AGILE framework is part of innovation methods supported by CCS. As developed, this value of innovation is represented in the working method with the project management, but not only; innovation is in the core of the system thanks to a collaborative process development and cost sharing method.

6 DESIGN BY CUSTOMERS, FOR CUSTOMER

The **customer-oriented approach** offers a modern and modular vision for the ATM of tomorrow. This vision is innovative for this sector and represents the most appropriate approach to respond to market evolution in real time.

CCS is developed by DSNA (France) and ENAV (Italy), two ANSP members of the A6, an alliance between two of the leading air navigation service providers in Europe. Both of them have a deep understanding of the operation of air navigation systems. The project is held in close cooperation with partners acting as clients; skyguide (Switzerland) and MATS (Malta) that are addressing industry requirements. These four ANSP members are supported by their technological subcontractors which are market leaders: Thales, Leonardo and more recently, Frequentis. This collaboration allows designing a **personalized service** closed to customer's needs. And, this way of thinking resume the main value of CCS development.

CCS considers that all contributors have an added value in the services development for the ATM of the future.

Thus, CCS project leaders and partners invite many new customers to join CCS. It consists of participating in a customer-oriented approach, from definition phase to daily operations, by being a part of a Coflight User Group. The objective is to define the future service evolutions according to the customer's needs.

Certainly, the more ATM actors there are, the more complete and precise the service will be, by taking into account the needs and expectations of each one of them. New ATM needs will appear at the same time of involving of new customers. CCS is committed to remaining continuously modular in order to expand its operational services offer while keeping in line with the European ATM regulations.

7 SHAPING THE FUTURE OF ATM

Today with DSNA and ENAV as ATM Data Service Providers, CCS is on the way to achieving three objectives crucial to the ATM community:

- CCS is working to meet **Single European Sky challenges** by defragmenting air traffic systems and is aligned with the values and ambitions of the SESAR program.
- CCS is providing an innovative **customer-centric service** developed by and for ANSPs to answer their specific needs.
- CCS is driving the digital transformation of aviation with its package of **advanced interoperable remote flight data processing services**.

“The CCS initiative is the best fitting contribution to this strategic transformation of skyguide, as it will propose the flight data processing (FDP) information provision as a remote service delivered by DSNA and ENAV platforms acting as ADSPs directly to skyguide ATSU. Through an appropriate service-oriented approach adequately interfaced with the Enterprise Service Bus platform deployed by skyguide, it will allow the Swiss ANSP to keep its specific transformation agility for the upstream part (the ATSU) while relying on the benefits of economical scalability and services’ mutualisation on the downstream part (the ADSP).”

Klaus Meier, CIO skyguide

8 ENVIRONMENT

To answer new worldwide **green challenges**, every sector must be implicated and work actively on reducing their environmental footprint. ATM community is fully concerned by these major environmental issues, and needs benefits from existing technological advances to make progress. Over the past few years, efforts have been made to improve the performance of air traffic management, and this environmental performance represents a core priority for DSN A. Indeed, in terms of air navigation, one of the objectives fixed by the DSN A is to reduce gas emissions by reducing distances travelled by aircrafts as well as the waiting and rolling times.

In this way, SESAR is working on a new **Architecture Airspace Study** (AAS) in order to anticipate the significant growth in traffic, while maintaining safety, improving flight efficiency and reducing environmental impact.

Based on this latter objective, the study encourages service provider collaboration to operate as one organization in order to optimize both airspace and service provision.

This overall SESAR vision allows answering to a significant evolution of core air traffic management capabilities thanks to multiple approaches as the Virtual Centre concept development.

Thus, CCS aims to use its technological advancement developed by industrial leaders, Thales and Leonardo on Coflight, to reduce the environmental impact of the aviation sector.

Coflight Cloud Services improves **trajectory prediction** which allows more flexible planning and enhanced free route. Consequently, travel distance and flight time will be reduced fuel burns and CO₂ emissions.

The data normalization and the system **interoperability** have also an important impact on reducing infrastructures and DATA centers which enables saving electricity consumption and logistics.

9 WHAT MAKES CCS DIFFERENT ?



9.1 - Unrivalled advantages to take ATM to the next level

Superior performance. CCS offers the most advanced technology to push forward the digital transformation of aviation.



9.2 - Interoperable

CCS ensures interoperability allowing seamless exchange of digital information between all ATC actors through SWIM and IOP concept.



9.3 - Compliant with the latest standards

CCS is compliant with Single European Sky implementing rules and SWIM.



9.4 - Reduced environmental impact

- Today every sector must actively work to reduce its environmental footprint.
- CCS improves trajectory prediction, allows more flexible trajectory planning and allows free route thus limiting flight time and reducing CO₂ emissions.
- CCS reduces infrastructures, DATA centers, electricity consumption and logistic.



9.5 - Reduced investment and operating costs

With its advanced capabilities, CCS allows several ANSPs to remotely use the same system to deliver FDP services, offering a new economic model for sharing investment and operating costs.



9.6 - Resilience

CCS guarantees service continuity, provides safeguards in the event of cyber-attacks and achieves optimal security through its security operations center.



9.7 - Unprecedented flexibility

CCS services are:

- Open-architecture, modular and interoperable, for maximum flexibility and agility. With CCS, you define the offer according to your specific requirements, without having to take on the full package.
- CCS guarantees technological system updates and regulatory compliance, empowering clients to focus on their core activities.

10 WHAT MAKES CCS DIFFERENT ?

Coflight Cloud Services offering is divided into 5 modular services, according to the ANSPs specific requirements (all services following can be subscribe separately):



OPERATIONAL SERVICE

Comprehensive service to operate real-time flight plan data processing.

The operational service provides all the information and support customers' needs to ensure the air traffic control services in real-time in their own ACC. In a first step, only the civil part of the En-Route traffic is concerned (communication with adjacent approach is in the scope and will be addressed in further steps). In conclusion, this main service delivers the operational services processed by Coflight eFDP to the Customer(s) ATCOs, FDOs.



TECHNICAL INTEGRATION SERVICE

Service to allow system development, technical integration and testing activities.

The Technical integration offers services and support to enable to test any version or modification of customer ATM system during development phase, while taking into account CCS services (CCS dataset, under-development version of others components, etc.)



VALIDATION SERVICE

Service to validate the quality of datasets.

The Validation service aims at providing services and support to enable its own validation activities. It concerns any new version of ATM system (CCS or other component(s)) before any deployment. The validation environment on CCS side is the much representative as possible to the operational environment, in order to reduce the risks of gap between what has been validated and what will be operated after deployment on the operational platform.



TRAINING SERVICE

Service to feed an ATCO training system with 4D trajectories.

The Training service provides supports to enable the own simulation and training activities, training the staff to CCS functionalities in your own environment.



CONTINGENCY SERVICE

Service to increase cyber resilience - a backup mode in an alternate country.

The Contingency service ensures a back-up system providing the on-line services of the operational mission, in case the Provider in charge of the operational mission is no longer capable to provide an acceptable CCS level of service.

11 FOUNDED ON STRONG SHARED VALUES

11.1 - Innovation

CCS delivers the technological innovation to bring the air navigation sector to the next level. Innovation is not only in technology. We put innovation at the center of our process, team spirit, and work methods.

11.2 - Technical excellence

CCS project teams use their deep knowledge and expertise to meet even the most demanding ANSP customer requirements.

11.3 - Safety-focused

Safety is at the very heart of everything DSNA and ENAV do. Not only will CCS optimize the efficiency of the system, but it will improve user safety.

11.4 - Customer-centric and Collaborative

CCS is developed for and with clients. Fostering collaboration to meet today's and tomorrow's evolving customer needs is crucial to our approach.

11.5 - Reliable

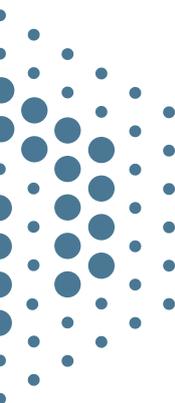
As air traffic management providers, DSNA and ENAV understand the needs of their ANSP customers. They share the same expertise and have in-depth knowledge of air traffic management systems.

11.6 - Agility

CCS is designed to adapt to new innovations, uses and needs. It has the agility and flexibility to meet new challenges. We implement SAFe to get from idea to deployment faster and more efficiently.

11.7 - Flexibility

The technology underpinning the solution - the remotely accessible service - offers considerable flexibility. And thanks to the system's open architecture, clients are free to take on only what they need.



12 ANTICIPATING CHANGE

To adapt to the growing of the market demand, aviation digitalization will accelerate in the next years. Various systems such as CCS, currently in implementation phase, provide a powerful solution to meet the increase in traffic. These systems have to take care about environmental challenges, to be extended to all ATM stakeholders.

The Coflight Cloud Services development team explains: «A new technology for air traffic management requires 10 to 15 years of development before a fully operational deploying. With CCS, we wanted to anticipate these changes in order to be ready to support air traffic growth by 2030, in line with the ambitions of the SESAR program”.

Coflight Cloud Services is constantly working on environmental challenges: to this day, the system improves trajectory prediction that allows more flexible planning and enhanced free route. Consequently, travel distance and flight time will reduce fuel burns and CO₂ emissions.

Data normalization and system interoperability have also an important impact on reducing infrastructures and DATA centers, which enable saving electricity consumption and logistics.

CCS contributes to modernize the industry, reducing environmental impact for the future generations with the integration of new services, which are driving the digital transformation of aviation.

13 CONTACT



Direction Générale de l'Aviation Civile

50 rue Henry FARMAN
75720 Paris Cedex 15
France

For more information:

François Richard Bole: francois.richard-bole@aviation-civile.gouv.fr



ENAV S.P.A.

Ente Nazionale Assistenza al Volo (ENAV)
Via Salaria, 716 – 00138 Rome
Italy

For more information:

Giulio Gamaleri: giulio.gamaleri@enav.it

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