

Extending ATFM and CDM Tools



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GATE TO GATE

FLOW CENTRIC OPERATIONS:

DEPLOYING ENABLERS OF NETWORK COLLABORATIVE
MANAGEMENT FOR EN-ROUTE AND AIRPORTS



To adapt to new air traffic characteristics and contribute to flight efficiency, DSNNA is working at the heart of the SESAR operational concept of “Business Trajectory”.

DSNNA is taking further steps to develop new customer-oriented operational concepts for fine-tuned management of air traffic flow.



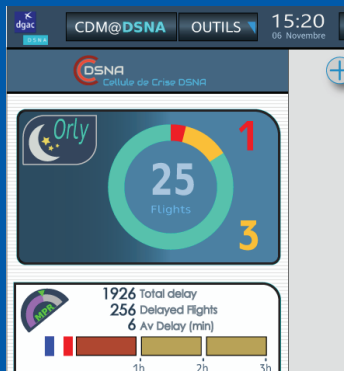
MINISTÈRE
DE LA TRANSITION
ÉCOLOGIQUE
ET SOLIDAIRE





DSNA PORTAL

DSNA has developed a portal in order to support the sharing of operational information and the use of a set of collaborative services for all partners. It currently hosts various activities like Collaborative Advanced Planning (CAP), monitoring of Paris-Orly curfew, dashboards, coordination of FMPs for Air Traffic Flow Management (ATFM) scenarios... Its development, supported by INEA funding, will offer not only an improved layout and more content, but will also pave the way for making available some DSNA data through a B2B portal, acting as an enabler of the Airport/Network Operations Plan (AOP/NOP) concept.



A DYNAMIC CDM APPROACH TO BALANCING TRAFFIC DEMAND

The Collaborative Advanced Planning (CAP) is an innovative collaborative process and tool developed by DSNA to balance traffic load in congested sectors and reduce the need for regulations. The objective is to off-load a congested sector, by acting only on a few flights during the short-term planning phase,

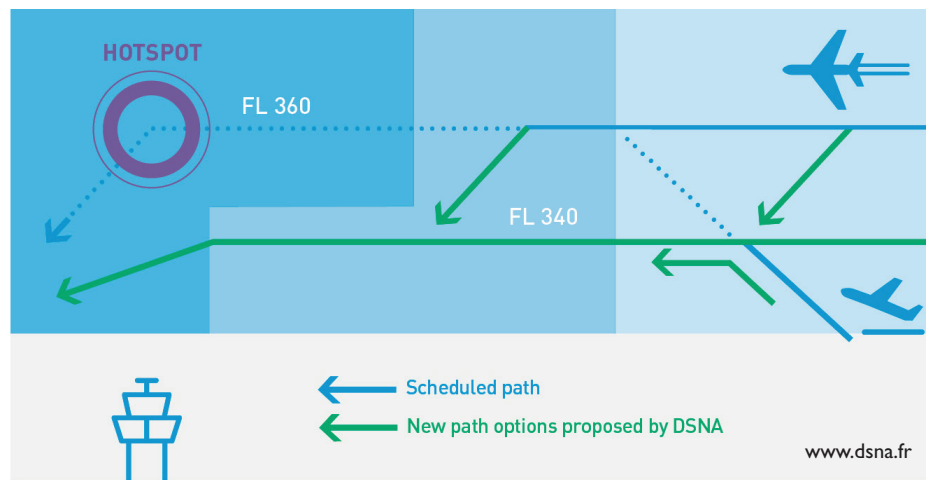
and thus diminishing the impact, or even the need, of applying a regulation. It is an additional measure in the Air Traffic Flow and Capacity Management (ATFCM) toolbox to balance Demand and Capacity. With CAP, the network of routes is safer and managed in a more balanced way.



CAP initiates a direct relationship between the operational units of DSNA, the Network Manager (EUROCONTROL) and the airlines involved. The portal www.dсна.fr is on line to support operations. Based on a web interface allowing direct live communication, CAP not

only builds trust between the Flow Management Position (FMPs) and the Airspace Users (AUs), but also facilitates decision-making based on shared situational awareness amongst ATM stakeholders.

Through the DSNA portal, DSNA suggests path options to the airline operations centers in order to avoid saturated control sectors (hotspot).





CROSS-BORDER CAP LIVE TRIAL: A FRANCE-SPAIN SUCCESS STORY

The 'Extended CAP' live trials as a part of the Network Collaborative Management Project were led in 2017 and 2018. They have offered the opportunity to extend the use of the CAP tool across borders, between Bordeaux FMPs (DSNA) and Madrid FMPs (ENAI) with four new Spanish airlines: Iberia, Air Nostrum, Iberia Express and Air Europa.

The improvement in local Demand and Capacity Balancing and flight planning efficiency for AUs by proposing alternative trajectory options for flights in the short-term planning phase was measured thanks to more collaborative and transparent processes. The solutions have helped to better distribute traffic among sectors and increase network predictability.

The positive results obtained have been used for the Airspace Architecture Study led by the SESAR JU.



Bordeaux ACC Flow Manager

MAIN OPERATIONAL BENEFITS

- A positive impact on the reduction of regulations and ATFM delays for the network.
- An acceptable impact on fuel efficiency regarding the benefits perceived by the AUs.
- Summer 2017: CAP has avoided potential regulations on 12 out of 15 days, corresponding to an estimated 4,111 minutes of delay on a single traffic flow.

LIST OF COORDINATED FLIGHTS

STATUS	PROC.	A/C ID	ADEP	ADES	EOBT	INIT. TV	ETO	SOLUTION
IMPLEMENTED	BRY-CLM	BAW2597	LIPX	EGKK	10:20	LFEHYR	11:25	Full Level Cap at FL360
IMPLEMENTED	BRY-CLM	BAW62NL	LIML	EGLL	10:20	LFEHYR	11:17	Full Level Cap at FL360
IMPLEMENTED	DFS OTHER	EZY36UM	EHAM	LIMC	08:35	EDUNT3C	09:11	Stay FL350 or below until ABUKA
IMPLEMENTED	BRY-CLM	EZY46RE	LFLS	EGGD	10:40	LFEHYR	11:28	Full Level Cap at FL360
IMPLEMENTED	DFS OTHER	RYR1829	LFOB	LKPR	08:30	EDUNT3C	09:07	Stay FL350 or below until BOMBI
IMPLEMENTED	BRY-CLM	RYR91SX	LIPZ	EGGD	10:00	LFEHYR	11:15	Full Level Cap at FL360
IMPLEMENTED	BRY-CLM	RYR96WE	LIME	EGSS	10:25	LFEHYR	11:25	Full Level Cap at FL360

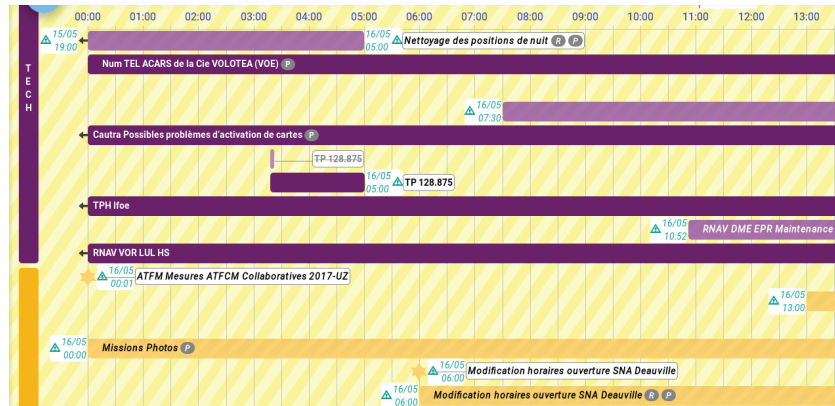
In 2019, CAP becomes N-CAP (Network-CAP)

CAP already uses NM B2B services to retrieve flight information and sector traffic loads. Further ongoing developments supported within the framework of the SESAR program are to send flight plan proposals to airlines via NM Reroute Proposals, using dedicated B2B functions,

which do not require the use of a specific website. This is the next step for an improved workflow and better sharing of information amongst all stakeholders.

EPEIRES, A DIGITAL LOG FOR SUPERVISORS

Its open and user-driven development started in 2014 aiming at providing a complete situational awareness for both technical and operational events: scheduled technical events, system failures, ongoing SAR operations, aerial work operations... To achieve this goal, relevant parts of the European Airspace Use Plan (EAUP) and ATFM measures are taken from NM B2B. Since 2014, EPEIRES has been deployed in 4 ACCs (Brest, Paris, Reims and Bordeaux) and 3 regional approach centers (Lyon, Paris-CDG and Toulouse). Marseille ACC, Bordeaux, Paris-Orly and West Indies will follow soon.



EPEIRES (Événements Programmés Et Incidents Reportés En Salle)



ADVANCED ATFCM TOOLS FOR FLOW MANAGEMENT UNITS

Developed by DSNA using the AGILE method, SALTO aims to provide flow managers with advanced functionalities, paving the way to tailor-made ATFCM measures, thus minimizing the impact on the network while optimizing resources management. It will progressively replace the ATFCM CHMI applications of EURO-CONTROL.

SALTO has been deployed in the 5 ACCs. It already offers a dashboard to monitor the ATFCM situation, 'what-if' functionalities (Level Cap and Regulation). The 2019 version is now able to upload data, either to the Network Manager system ('regulation request' and soon 'sce-

nario request') using B2B services, or to the DSNA CAP tool. Thanks to its links, SALTO contributes to Collaborative Decision Making (CDM) information-sharing through the DSNA portal.

Tools to optimize the configuration of operations rooms and assess traffic complexity will be a key factor in improving the performance of the ATM system. SALTO's advanced CDM functionalities will improve the quality of services provided to our customers and the cooperation with adjacent FMPs.

Furthermore, communication features between SALTO and the control working

positions will significantly improve situational awareness and help to fill the gap between ATFCM and ATC by disseminating timely and relevant ATFM information to the controllers.



SALTO used by Paris ACC Flow Manager