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**Fifth North American, Central American and Caribbean Working Group Meeting (NACC/WG/5)**  
Port of Spain, Trinidad and Tobago, 22-26 May 2017

**Agenda Item 3: Implementation on Air Navigation Matters**  
**3.3 ANI/WG Progress on AIM, ATM and CNS**

**CANSO ATFM DATA EXCHANGE NETWORK FOR THE AMERICAS (CADENA)**

(Presented by CANSO)

**EXECUTIVE SUMMARY**

CANSO is supporting the implementation of ATFM/ Collaborative Decision-Making (CDM) in the Region, expand the work being conducted by ICAO NACC and SAM and assist in fulfilling the requirements specified in the *Port-of-Spain* and *Bogota* Declarations.

CANSO's CADENA initiative offers a regional, cross-border ATM communications protocol and a seamless operational atmosphere that incorporates operational procedures and practices. Implementing regional, networked ATFM requires the establishment of CDM practices among members and regional and international stakeholders. These practices will be inclusive and transparent and provide the opportunity for exchanging operational information to facilitate a shared situational awareness and promote sound strategic and tactical planning in a CDM environment of multilateral decision-making.

<i>Strategic Objectives:</i>	<ul style="list-style-type: none"><li>• Safety</li><li>• Air Navigation Capacity and Efficiency</li></ul>
<i>References:</i>	<ul style="list-style-type: none"><li>• CAR/SAM ATFM CONOPS</li><li>• <i>Port of Spain</i> and <i>Bogota</i> Declaration</li><li>• Doc 9971 -</li><li>• CADENA ATFM-CDM Procedures Manual</li><li>• CADENA Requirements Document and Business Rules Document</li><li>• High-level CADENA Data Exchange Implementation Requirements And Information Request For Connectivity and Data Handling</li><li>• CADENA Air Traffic Management and Collaborative Decision Making Letter of Agreement</li></ul>

## 1. Introduction

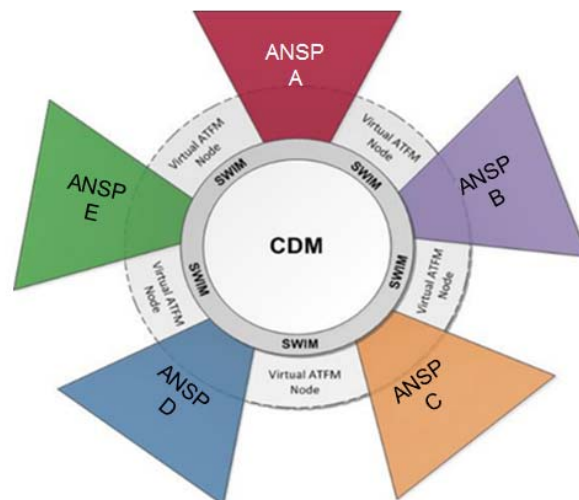
1.1 The Latin America and Caribbean CANSO CEO Committee (LAC3) established a virtual-node Air Traffic Flow Management (ATFM) network named CANSO ATFM Data Exchange Network for the Americas (CADENA), among Air Navigation Service Providers (ANSP) and stakeholders to contribute to a safe, orderly and expeditious flow of air traffic.

## 2. Discussion

2.1 ATFM is essential for managing and operating safe and efficient airspace. It helps to regulate air traffic to avoid exceeding airport or airspace capacity while ensuring that available capacity is used efficiently.

2.2 There are many essential components for successful implementation of ATFM capabilities and CDM processes in the Region, and sharing information among stakeholders is primary. CADENA will promote universal situational awareness through timely communication, collaboration and coordination of operational data and information to ANSPs, airspace users, and other stakeholders. Implementing regional, networked ATFM requires the establishment of CDM practices among members and stakeholders.

2.3 The end state is a virtual ATFM node concept as shown in the figure below. In this concept, each ANSP operates as an independent entity and ANSPs are interconnected by the information sharing network (i.e., SWIM), forming a virtual ATFM node. By exchanging flight information with each other, the regional traffic flow becomes apparent among participants and enables efficient ATFM. Participating ANSPs manage the air traffic flow and address associated issues by using the standard set of principles and procedures established by the CADENA governance process.



### **3. CADENA Development**

3.1 CANSO Members signed the CANSO ATFM Data Exchange Network for the Americas (CADENA) Member ANSP Air Traffic Management and Collaborative Decision Making Letter of Agreement. This agreement commits signatories to promote and facilitate the safe and efficient movement of air traffic in the region and will enable the continuity of active operations through ATFM and CDM procedures and processes. CADENA also committed to organising weekly ATFM planning web-conferences following CDM processes among regional ANSPs and regional and international stakeholders.

3.2 CADENA held and completed its third CADENA Regional Implementation Group (RIG) meeting. On the first day of the event, CANSO Associate Members offered an educational session concentrated on ATFM solutions.

3.3 CADENA RIG completed a High-Level Requirements Flight Data Exchange Information document.

3.4 CADENA is developing the Operational Information System (OIS) web page, which will provide the following: delay information and trend information, traffic management measures current/planned, daily operations plan, constraints, and a regional traffic management log. The CADENA OIS would be accessible to stakeholders as well as to public.

3.5 CADENA hosts weekly ATFM planning web-conferences following CDM processes among regional ANSPs and stakeholders. Weather, staffing, sectorization, constraints, equipment outages, restrictions, special events and airport configuration are some of the items openly discussed and shared among CADENA members, airlines and airports.

3.6 Since December 2016, CADENA has trained a total of ten airlines, as well as the Latin American and Caribbean Air Transport Association (ALTA), the International Air Transport Association (IATA) and the National Business Aviation Association (NBAA) to participate in the weekly web planning conferences. We expect additional regional carriers to join in the future.

3.7 CADENA ANSP Members include: COCESNA, DC-ANSP, DECEA (CGNA), EANA, ECASA, FAA, IDAC, JCAA, SENEAM and TTCAA.

3.8 CADENA stakeholders and International Organization Members currently include: Aeromexico, American Airlines, COPA, Delta, Jetblue, United Airlines, Sky Airlines, Volaris, ALTA, IATA and NBAA.

3.9 Most importantly, CADENA offers each partner the opportunity to have its say and play a central role in improving the safety, efficiency, cost effectiveness and environmental sustainability of ATM in the Region. Partners are encouraged to lead by example, determine best practice and ultimately decide how they want to shape the future of Air Traffic Management.

#### **4. Identified benefits by CADENA members and stakeholders**

4.1 Since CADENA began operations in August 2016, CADENA Members identified the following improvements:

- Supports operational safety
- Reduced delays due to weather conditions
- Reduced delays due to ATC sector congestion
- Reduced fuel consumption and CO<sub>2</sub> emissions
- Increased airport acceptance rates
- Supports connectivity of ANSPs in the Region
- Assists with ATFM implementation process and roadmap
- Enabled increased cooperation and collaboration with adjacent FIRs in high-volume winter season
- Improved efficiency and flow of information between FIRs through the weekly CADENA operations planning web conference
- Promoted regular teleconferences with their underlying TMAs
- Established means for receiving advanced notification of TMM including miles-in-trail and minutes in trail
- Enabled better operational planning, such as de-combining sectors and conducting training

4.2 Following the CADENA planning web conference, stakeholders identified:

- ATFM coordination has moved from single ANSP perspective to a regional perspective allowing improved coordination
- CADENA initiative utilizes CDM, allowing the entire aviation community to participate and provide input to the strategic planning. This provides operators a forum to inform of deviation in the number of operations for planning purposes
- Reduction in surprise to operators allowing for improved operational performance
- Early detection of constraints and identification of real alternatives routes and trajectories
- Awareness of special events including VIP movements and expected impact to the day's operations
- The sharing of the agreed and documented CADENA operational plan is very useful for coordination purpose

#### **5. Recommendation**

5.1 Air Navigation Services Providers which are not members of CADENA are encouraged to partake in the weekly ATFM/CDM operational planning web conference