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CAPACITY & EFFICIENCY

# **P/02 Airspace Optimization**

## **Presented by the Secretariat**

### **Agenda Item 7**



# Airspace Optimization CAR Region

✈ North American, Central American and Caribbean Working Group (NACC/WG)  
Air Space Optimization Task Force

- Working Collaboratively
- Two Pronged Attack
- Moving to Free Route Airspace
- Results



**SAFETY**

**EFFICIENCY**

**ENVIRONMENTALLY - FRIENDLY**



## Airspace Optimization CAR Region

North American, Central American and Caribbean Working Group (NACC/WG)  
Air space Optimization Task Force

- ✈ States
- ✈ CANSO
- ✈ IATA
- ✈ ICAO

### Working Collaboratively - CIIFRA

CADENA IATA ICAO Free Route Airspace

## Airspace Optimization CAR Region

North American, Central American and Caribbean Working Group (NACC/WG)  
Air Space Optimization Task Force

### Two Pronged Attack

- ✈ End to End route Optimization
- ✈ User Preferred Route
- ✈ Free Route Airspace



# Airspace Optimization CAR Region

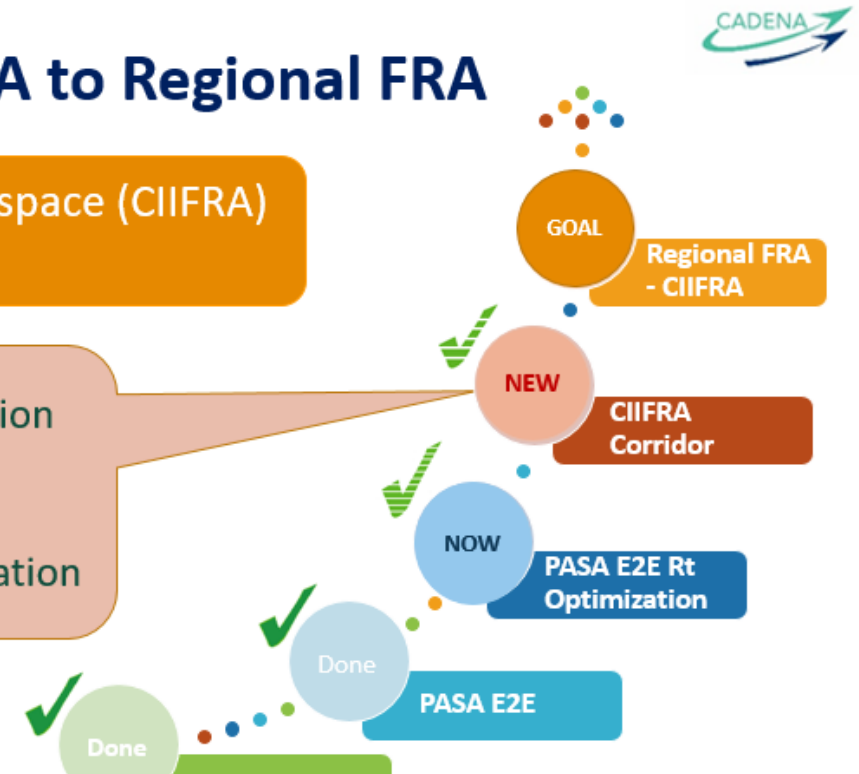
North American, Central American and Caribbean Working Group (NACC/WG)  
Air Space Optimization Task Force

## Move to Free Route Airspace

### Step-by-Step: From PASA to Regional FRA

CANSO IATA ICAO Free Route Airspace (CIIFRA)  
for Latin America Regional FRA

- Approaches of FRA Implementation
- Formation of Focus Team
- Selection of the 1<sup>st</sup> CIIFRA Trial
- CIIFRA Trial Plan and Implementation





# Airspace Optimization CAR Region

North American, Central American and Caribbean Working Group (NACC/WG)  
Air space Optimization Task Force

## Results Track 1

Estimated 1-year savings of the 6 completed PASA Optimized Routes

- KATL ↔ SPJC
- KATL ↔ SBGR
- TTPP ↔ KMIA
- KIAH ↔ MMPR
- SAEZ ↔ KATL
- KATL ↔ SAEZ

<b>Savings</b>	
<b>Flight min:</b>	<b>13,126</b>
<b>Fuel (lb):</b>	<b>2,583,088</b>
<b>CO2 (kg):</b>	<b>3,702,477</b>
<b>Cost (\$):</b>	<b>2,107,410</b>





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Airline	City Pair	Southbound Route	Northbound Route	Status	Start Date	End Date	Comments
Aerolinas Argentinas (ARG)	SAEZ - KJFK - SAEZ	Not requested	SAEZ PTA6A KUKEN UL324 MIGOT UM402 BVI UM423 KIKER DCT DONQU L454 OKONU DCT YAALE Y495 CAMRN DCT KJFK	Approved	7/15/2022	10/13/2022	
Aerolinas Argentinas (ARG)	SAEZ - KMIA - SAEZ	KMIA GWAVA1 URSUS UP406 BILSI UL795 LORBA DCT EMABU UP525 SJE UB689 LET UP525 RCO UL417 LOKOX UM784 BOLET UL404 ISOPO UT672 MULTA UW24 SNT SNT6A SAEZ	SAEZ BIVAM2A BIVAM UW8 PAR UL417 PABON EJA KILER UM779 ZEUSS VIIICE1 KMIA	Approved		3/5/2023	Aerolinas Argentinas has requested a route modification
American (AAL)	KMIA - SPJC - KMIA	KMIA MAYNR1 FUNDI DCT LEPON DCT ARNAL DCT TINPA DCT VAMOS DCT GYV DCT VAKUD DCT ATATU ATATU2 SPJC	SPJC ISRE2F ISREN DCT VAKUD UL780 GYV DCT VAMOS DCT TINPA DCT LEVOR UP536 GCM UG448 ATUVI DCT IKBIX SNDBR2 KMIA	Approved	6/15/2022	10/7/2022	
American (AAL)	KDFW - SPJC - KDFW	KDFW ARTZ8 TNV MUSYL L207 IPSEV UL207 CPE IOS URPOS LIXAS UL203 ATEN O UM542 TAL UV1 ATATU ATATU2 SPJC	Not requested	To be coordinated			
American (AAL)	KMIA - SCEL - KMIA	KMIA MAYNR1 FUNDI LEPON ARNAL TINPA VAMOS GYV VAKUD ATUTU ILMAR UL302 SIMOK SIMO5D SCL	SCEL DONT4B DONTI UL780 ISREN VAKUD UL780 GYV VAMOS TINPA LEVOR UP536 GCM UG448 ATUVI IKBIX SNDBR2 KMIA	In coordination			
Caribbean (BWA)	TTPP - KMIA - TPPP	KMIA SKIPS2 SKIPS Y290 HAGIT Y421 HARBG L452 ANADA UG449 PERGA ITRAK NAPKO LEXOR TALUS TTPP	TTPP DCT ANADA DCT MUNOZ DCT HARBG Y330 FODED DCT MADIZ DCT FOXID DCT FLIPR FLIPR7 KMIA	Approved		11/4/2022	
Caribbean (BWA)	TTPP - KJFK - TTPP	KJFK JFK SHIPP SPDEY DOGRS BLUUU DUMPR ISLES SQUAD DARUX ENAPI SHEIL ODUCA GEECE PERGA ITRAK NAPKO LEXOR TALUS TTPP	TTPP POS GEECE ODUCA L459 SHEIL ENAPI DARUX L459 SAVIK YAALE YETTI MOUGH OWENZ PREPI LEECY CAMRN KJFK	Unable by ZNY. Further coordination required.			
Copa (CMP)	MPTO - SBGL - MPTO	MPTO DCT OREPI DCT DAKMO UW36 VASIL DCT OBKIL DCT GAVIT DCT ILKOD DCT 0835S05957W DCT PALEP DCT 1404S05339W DCT NAXIV DCT SAMGA DCT OGMUK UTBOM2A SBGL	SBGL EVRAD1A ENSOD DCT VULER DCT GELIB DCT NAXIV DCT SAMAR DCT ESDAG DCT 0901S05939W DCT MIMUM DCT 0428S06440W DCT GAVIT DCT OBKIL UM549 DAKMO DCT ISOKO ISOKO1 MPTO	Approved	5/9/2022	No end date	
Copa (CMP)	MPTO - KLAX - MPTO	KLAX PNDH2 TCATE DCT PPE DCT ALGUN DCT OTOSO DCT IPSAG DCT OTITI DCT EMOBI DCT EMADA DCT IOS DCT ANSON DCT VUMAN VUMAN1A MPTO	MPTO SIMAN2A SIMAN DCT AMUBI DCT VOKAS DCT ATUTO DCT AXOMU DCT RAULS DCT CVM DCT AVAPA DCT ASUTA DCT AMMOR OLAAA2 KLAX	In coordination			
Delta (DAL)	KATL - SPJC - KATL	KATL SMLT22 WALET DCT YUESS Q79 MCLAW Y442 FUNDI DCT LEPON DCT ARNAL DCT TINPA DCT VAMOS DCT GYV DCT VAKUD DCT ATATU ATATU2 SPJC	SPJC ISREN2F ISREN DCT VAKUD UL780 GYV DCT VAMOS DCT TINPA DCT LEVOR UP536 GCM UG448 ATUVI DCT IKBIX Y183 PEAKY Q87 MATLK Q77 SHRKS DCT LAIRI DCT LARZZ JJEDI2 KATL	Approved		10/7/2022	
Delta (DAL)	KATL - SBGR - KATL	KATL VRSTY2 MCN DCT YANTI Q89 MANLE Y185 RENAH Y355 FIPEK Y294 GESSO L467 ANADA DCT KORTO DCT SUMVA ... SBGR	SBGR ... SUMVA DCT KORTO DCT ANADA L452 HARBG Y421 HAGIT Y306 VENDS Y185 MANLE Q89 SHRKS DCT LAIRI DCT LARZZ JJEDI2 KATL	Approved		10/25/2022	
Delta (DAL)	KATL - SAEZ - KATL (Option 1)	KATL SMLT22 WALET DCT YUESS Q79 FEMID DCT DHP A509 URSUS UP406 BILSI EMABU UP525 RCO UL417 TOPOG UL404 ISOPO UT672 MULTA UW24 SNT SNT6A SAEZ	SAEZ BIVAM2A BIVAM UW8 PAR UL417 BORDO Y259 OCTAL Q77 SHRKS DCT LAIRI DCT LARZZ JJEDI2 KATL	Approved		10/7/2022	
Delta (DAL)	KATL - SAEZ - KATL (Option 2)	KATL VRSTY2 MCN DCT YANTI Q89 SHRKS DCT CRG DCT DEBRL DCT OMN DCT URSUS UP406 BILSI UL795 LORBA DCT EMABU DCT BOBKA DCT VULNO DCT LONAX DCT PUPAS DCT LET DCT ARNUB DCT ISARA DCT PUBUM UL417 TOPOG UL404 ISOPO UT672 MULTA UW24 SNT SNT6A SAEZ	SAEZ BIVAM2A BIVAM UW8 PAR UL417 PUBUM DCT CITRA DCT PUBU DCT ARUXA DCT LONAX DCT IROTI DCT NEVPA UL417 LENAX DCT ALTIB UM779 ZEUSS DCT OCTAL Q77 SHRKS DCT LAIRI DCT LARZZ JJEDI2 KATL	Approved	6/24/2022	10/7/2022	
Delta (DAL)	KATL - SCEL - KATL	KATL VRSTY2 MCN DCT YANTI Q89 SHRKS DCT DEBRL Q97 EBAYY DCT DHP A509 URSUS UL780 SULNA DCT TOY UV208 SIMOK SIMO6B SCEL	Not requested	To be coordinated			



[route catalogue](#)





## RULE of 20

- ✈ CIIFRA has agreed that 20 optimized point to point routes will be the maximum carried forward.
- ✈ Once routes are published, that makes space for additional routes to be added.
- ✈ Letter sent out to NACC states 2 weeks ago.
- ✈ state papers

# CANSO IATA ICAO Free Route Airspace (CIIFRA)

- ✈ CIIFRA initiative created for Regional FRA
- ✈ Airlines select a city pair route for UPR trials and ANSPs do their best to accommodate

KATL-SPJC-KATL  
DAL151/DAL150

## ✈ Small steps

- ✓ Step 0: one northbound and one southbound legs
- ✓ Step 1: one round trip
- ✓ Step 2: three consecutive round trips
- ✓ Step 3: seven consecutive round trips
- ☐ Step 4: 30 consecutive round trips (initiated on July 15, 2022)
- ☐ Step 5: 90 consecutive round trips
- ☐ Goal: continued use of CIIFRA UPR

	Baseline vs UPR	
Savings	12 Day	1 Year
Flight min:	116	3,528
Fuel (lb):	12,479	379,570
CO2 (kg):	17,887	544,057
Cost (\$):	15,325	466,138

Estimation of 1-year savings based on 12 days of data obtained from Steps 0, 1, 2, and 3



North American, Central American and Caribbean Working Group (NACC/WG)  
Air Space Optimization Task Force

## Results Track B

7 days      July 22 – 28  
35 minutes saved  
7,700 lbs fuel

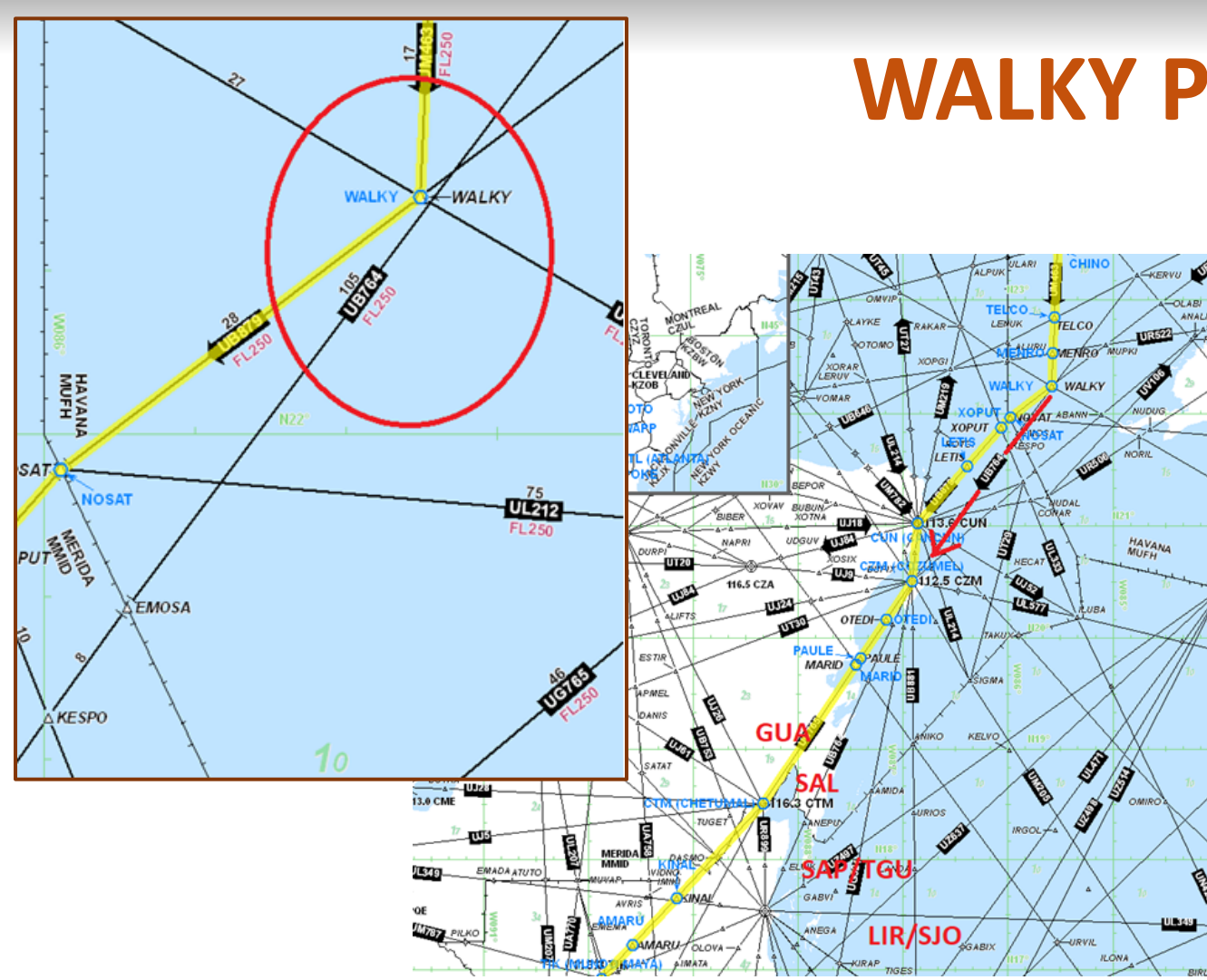


Airlines tell us why you would choose different routes daily

Traffic between US and top 10 airports in Latin America up 2.3%  
Jan 1-July 23 2019 vs 2022

# WALKY Project - Background

- ✈ UAL requested that Havana ACC and Merida ACC consider relocating WALKY intersection onto UB764 in addition to UB879
- ✈ Southbound traffic to CZM and Central America may flow better via L465 SHARQ UM463 WALKY UB764 CZM ...





# WALKY Project – Benefit Assessment

If WALKY is moved onto UB764, flights from the NYC market, Washington metros, CLT, and ATL to destinations in Central America would be the most likely to use the newly aligned route.

**8,760 miles saved per year**

**1,251 min saved per year**

**115,340 lbs (fuel) saved per year**

**165,323 kg (CO2) saved per year**

40,102 US \$ saved per year (fuel cost)

125,143 US \$ saved per year (op cost)


**165,245 US \$ saved per year (fuel & op cost)**

### Assumptions:

- 6 miles saved per flight
- 79 lbs fuel saved per flight
- 4 flights per day
- 365 days per year
- B737
- 7 miles per min
- 3.16 kg of CO2 produced per kg of fuel
- 2.3295 US\$ per gallon
- 100 US\$ per min of op cost

## Next

## Steps

- 
- ✈ Coordination with Havana ACC and Merida ACC to determine if WALKY can be relocated/merged with multiple routes
  - ✈ Coordination with Merida ACC regarding the use of relocated WALKY and routes
  - ✈ Information sharing and training of airline dispatchers and ANSP personnel
  - ✈ Data collection, benefit analysis, and sharing of information regarding use of a relocated/merged WALKY





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ICAO / North American, Central American and Caribbean Regional Office (NACC) Office / Task Force - PBN

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- Meetings
- NACC Systemic Assistance Programme**
- Strengthening of the ECCAA
- Regional NACC Agreements**
- COVID-19**
- Mitigation measures
- Implementation guidance
- Monitoring of implementation
- NACC Meetings on COVID-19
- Frequent Q&A
- NAM/CAR Regional Plans**
- National Air Navigation Plan (NANP)
- Regional Aviation Safety Plan
- Regional Groups**
- GREPECAS
- RASG-PA
- NACC/DCA

## Task Force - PBN

### TASK FORCE ON IMPLEMENTATION OF PERFORMANCE-BASED NAVIGATION (PBN) AIRSPACE CONCEPT

Based on the ANI/WG Terms of Reference for expediting the work progress and to focus on the regional priorities, and considering the existence of various Ad hoc Groups that were working in support of the implementation working groups, such as the ADS-B Ad hoc Group, the AMHS Implementation Group, etc., the ANI/WG/1 Meeting considered necessary to group them under the ANI/WG structure, including any other specific implementation task group, with the aim of providing continuity. In this regard, seven topics that shall be developed through Task Forces under the ANI/WG were formed.

Rapporteur: **Riaaz Mohammed**, Trinidad and Tobago.

[Terms of reference](#)

[Membership](#)

[Work Programme](#)

Title	Language
New version of ATS Routes for the CAR/SAM Regions, <b>July 2018</b> (FINAL DRAFT Oct 12 2018)	<a href="#">(EN)</a>
Version 05 of the SAM ATS routes network: SAM-CAR interregional ATS routes	<a href="#">Link Zip</a> <a href="#">Link RAR</a>
New version of ATS Routes for the CAR/SAM Regions, <b>October 2020</b> (SECOND COMPLETE DRAFT)	<a href="#">(EN)</a>

CIIFRA



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**Overview**

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**Meetings**

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**COVID-19**

- Mitigation measures
- Implementation guidance
- Monitoring of implementation
- NACC Meetings on COVID-19

Frequent Q&A

**NAM/CAR Regional Plans**

National Air Navigation Plan (NANP)

Regional Aviation Safety Plan

**Regional Groups**

- GREPECAS
- RASG-PA
- NACC/DCA

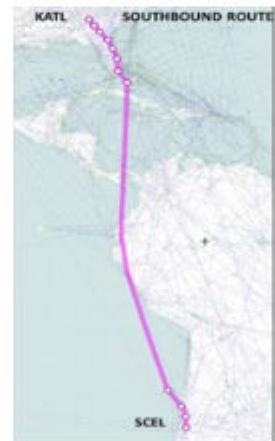
## Welcome to CIIFRA



History

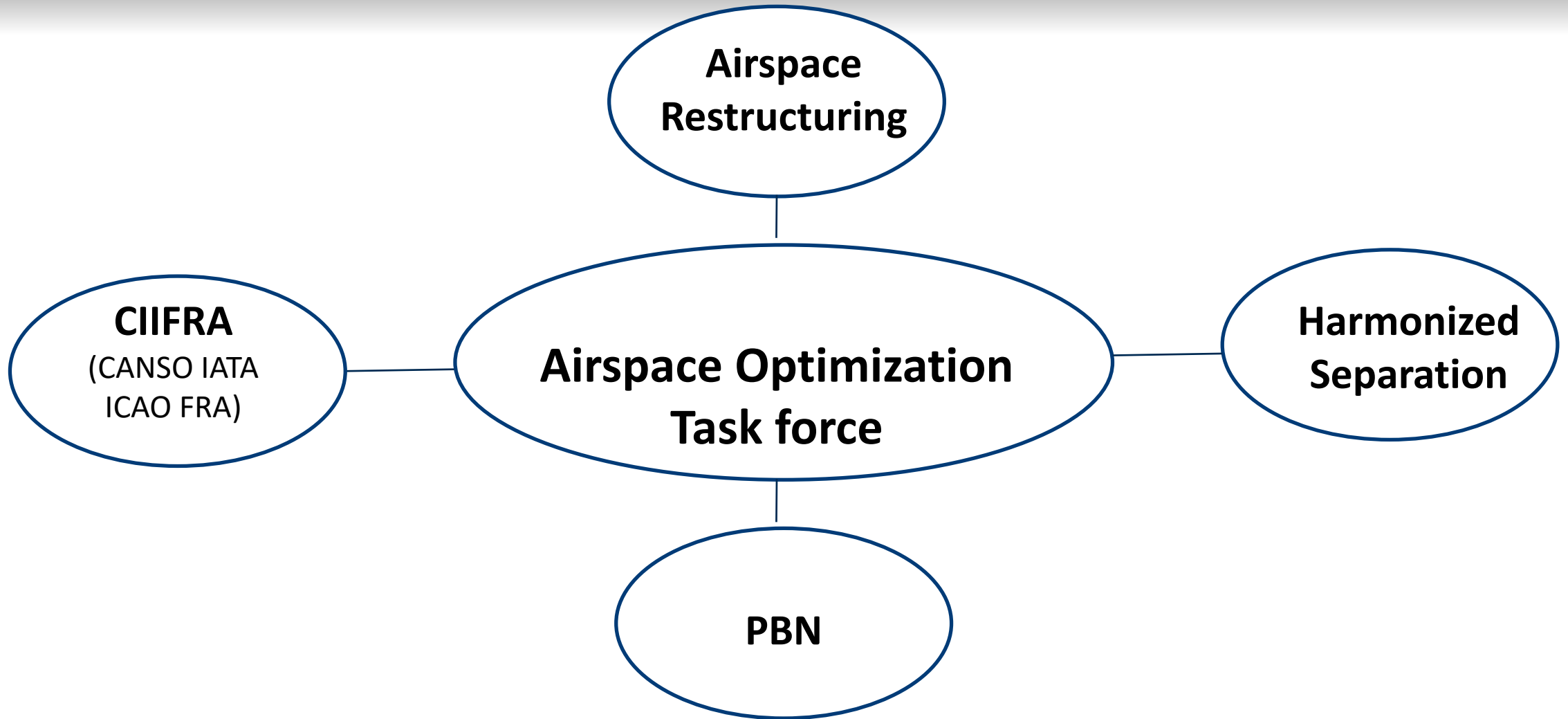


Collaboration



Route Request

Title	Language
New version of ATS Routes for the CAR/SAM Regions, <b>July 2018</b> (FINAL DRAFT Oct 12 2018)	(EN)
Version 05 of the SAM ATS routes network: SAM-CAR interregional ATS routes	<a href="#">Link Zip</a> <a href="#">Link RAR</a>
New version of ATS Routes for the CAR/SAM Regions, <b>October 2020</b> (SECOND COMPLETE DRAFT)	(EN)





# Airspace Optimization Concept Document

## Airspace Optimization Concept



# Participants

✈️ ANGUILLA

✈️ ANTIGUA AND  
BARBUDA

✈️ BRITISH VIRGIN  
ISLANDS

✈️ SINT MAARTEN

✈️ TRINIDAD AND  
TOBAGO

✈️ UNITED KINGDOM

✈️ UNITED STATES