



# JORNADA DATALINK

Automated system for Continental CPDLC

2016/03/17

Edson Fagundes Gomes

**To present the past, the present and discuss the future of automated system as a solution for CPDLC Continental operation**

- **About Atech**
- **SAGITARIO as ATM system with ADS-C/CPDLC capabilities**
- **From 1993 until now**
- **Atech vision as a roadmap for the future**

# ATECH CHRONOLOGY

1981

**ATM & C4I  
Offset Program**

1997

**Foundation  
Atech**

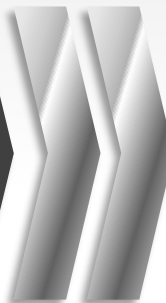
2009

**Atech S/A**

2011

**Atech  
Embraer  
Defense &  
Security**

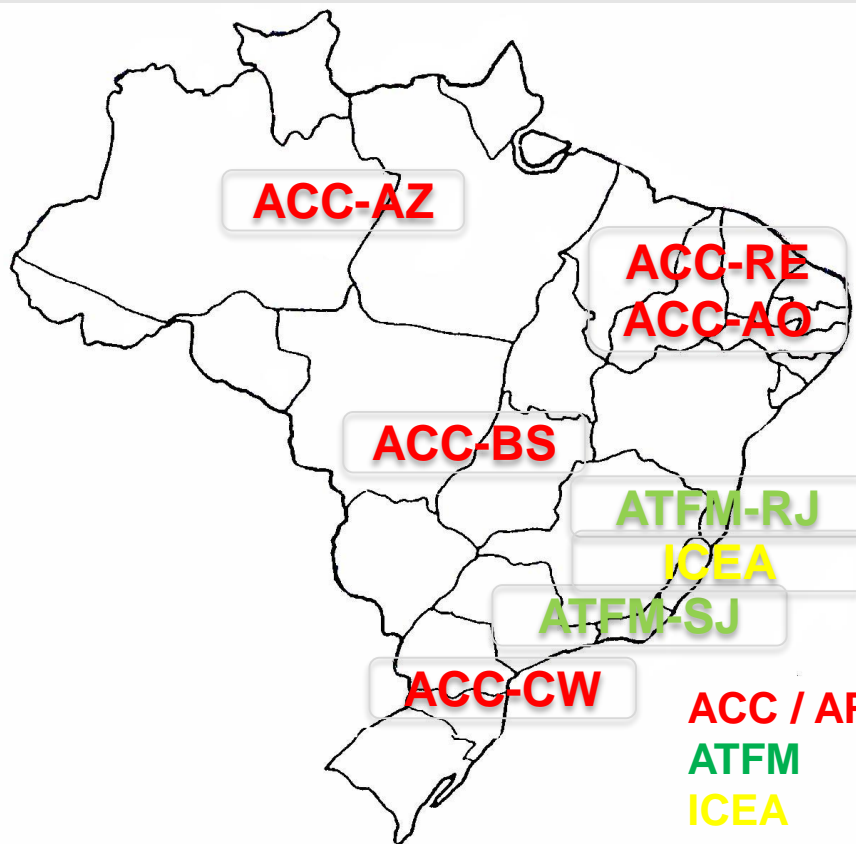
2016 ...



**FROM 1993 TO NOW**

**VIDEO FOR INTRODUCING SAGITARIO AS AN ATM  
SYSTEM**

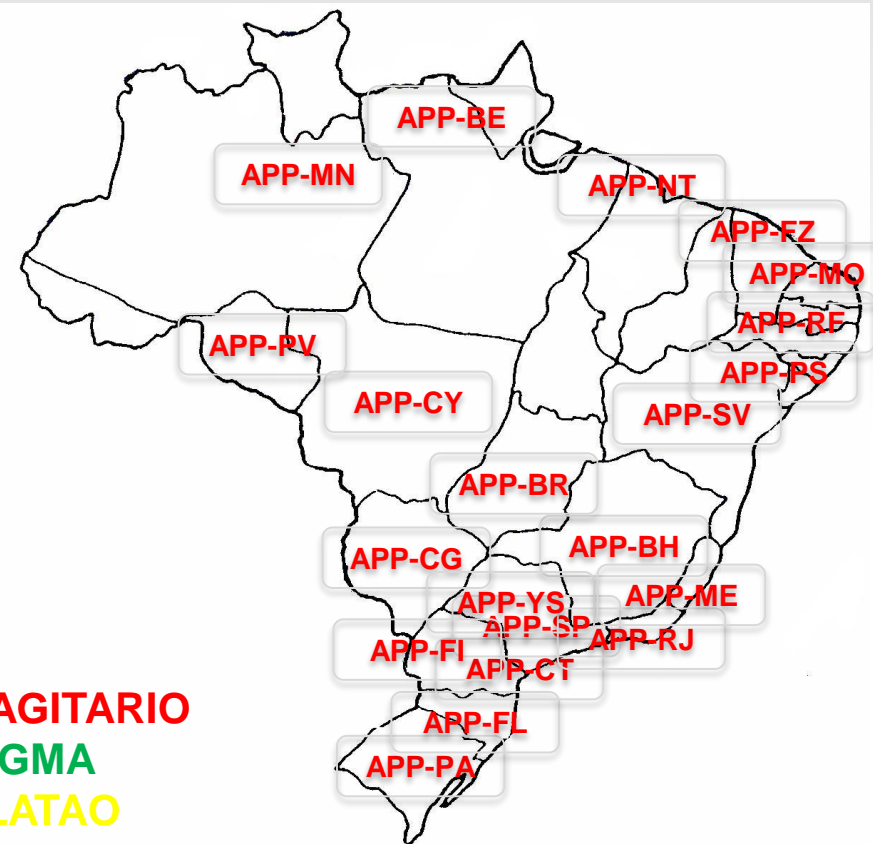
# ATM/ATFM/TRAINING SYSTEM in BRAZIL



**ACC / APP : SAGITARIO**

**ATFM : SIGMA**

**ICEA : PLATAO**



# FROM 1993 TO NOW

**From 1993 till 2007: ACC-RE works with ATM system (MITRA)**



# FROM 1993 TO NOW

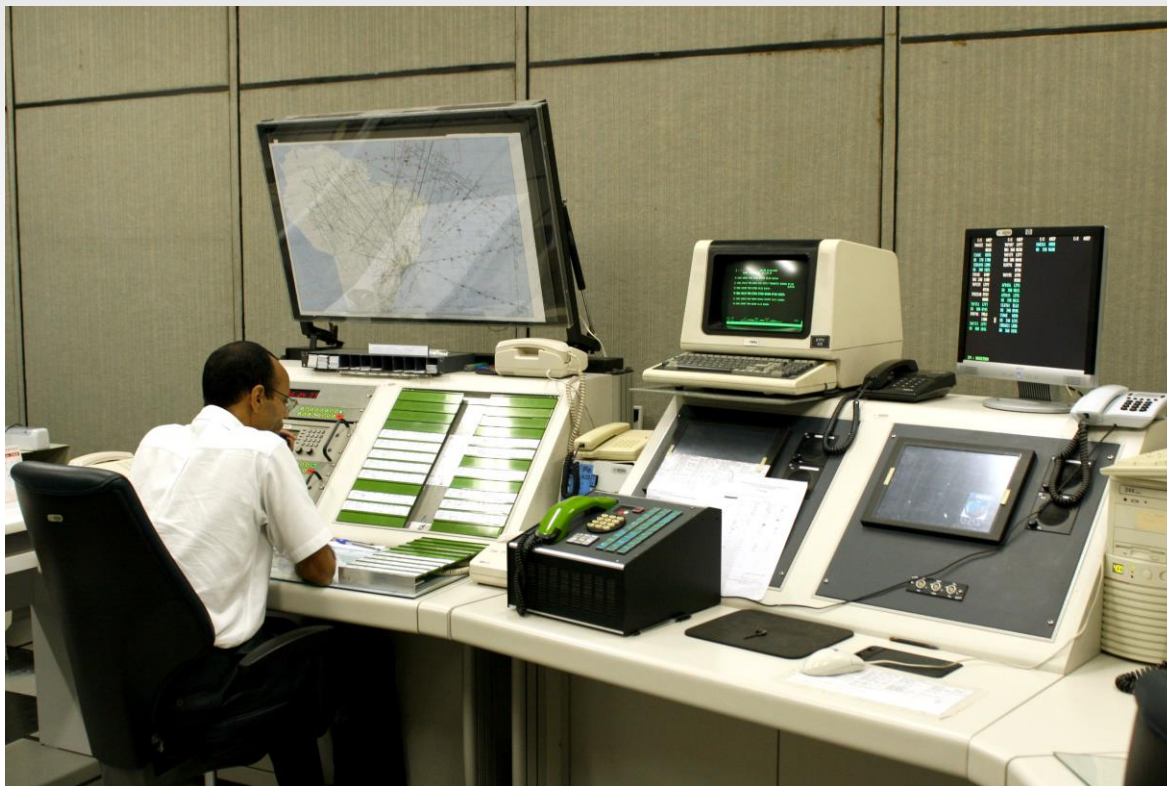
**From 1993 till 2007: ACC-RE works with ATM system (MITRA)**





# FROM 1993 TO NOW

**From 1993 till 2008: ACC-AO also works with ATM system (MITRA)**



# FROM 1993 TO NOW

**From 1993 till 2008: ACC-AO also works with ATM system (MITRA)**



**FROM 1993 TO NOW**

**AUDIO WITH A HF/VFH COMMUNICATION**

# FROM 1993 TO NOW

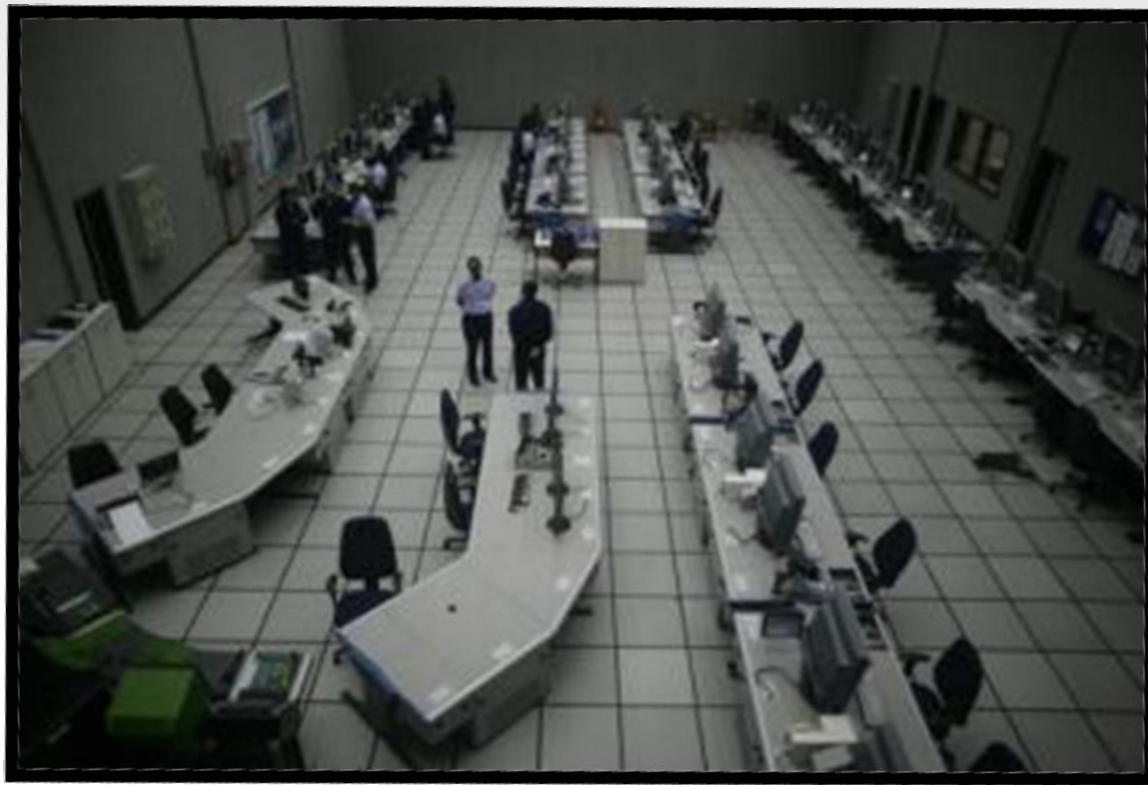
**2006: ACC-RE and ACC-AO start to migrate from MITRA to X-4000**





FROM 1993 TO NOW

**2007: ACC-RE is fully operation with X-4000 ATM system**



## FROM 1993 TO NOW

**2008: ACC-AO is fully operational with X-4000 with ADS-C/CPDLC capabilities**

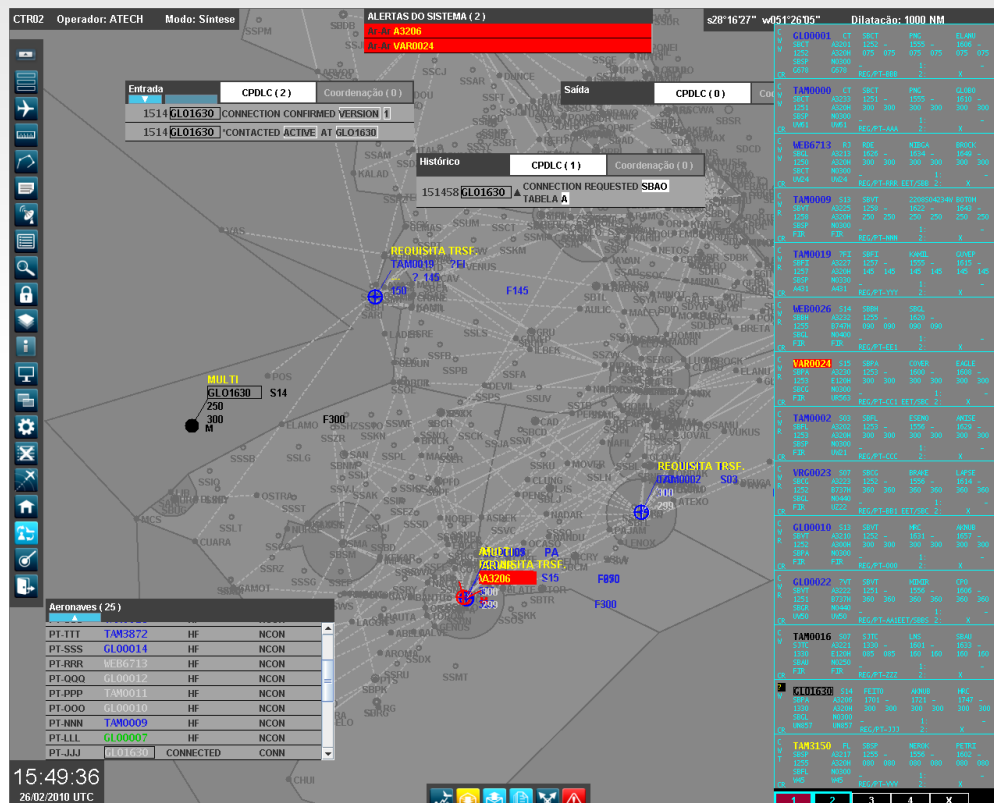
**VIDEO FOR X-4000 with ADS-C/CPDLC functionalities**

# FROM 1993 TO NOW

**2010: ACC-RE is fully operation with SAGITARIO ATM system**



## 2016: ACC-AO will start its operation with SAGITARIO with ADS-C/CPDLC capabilities

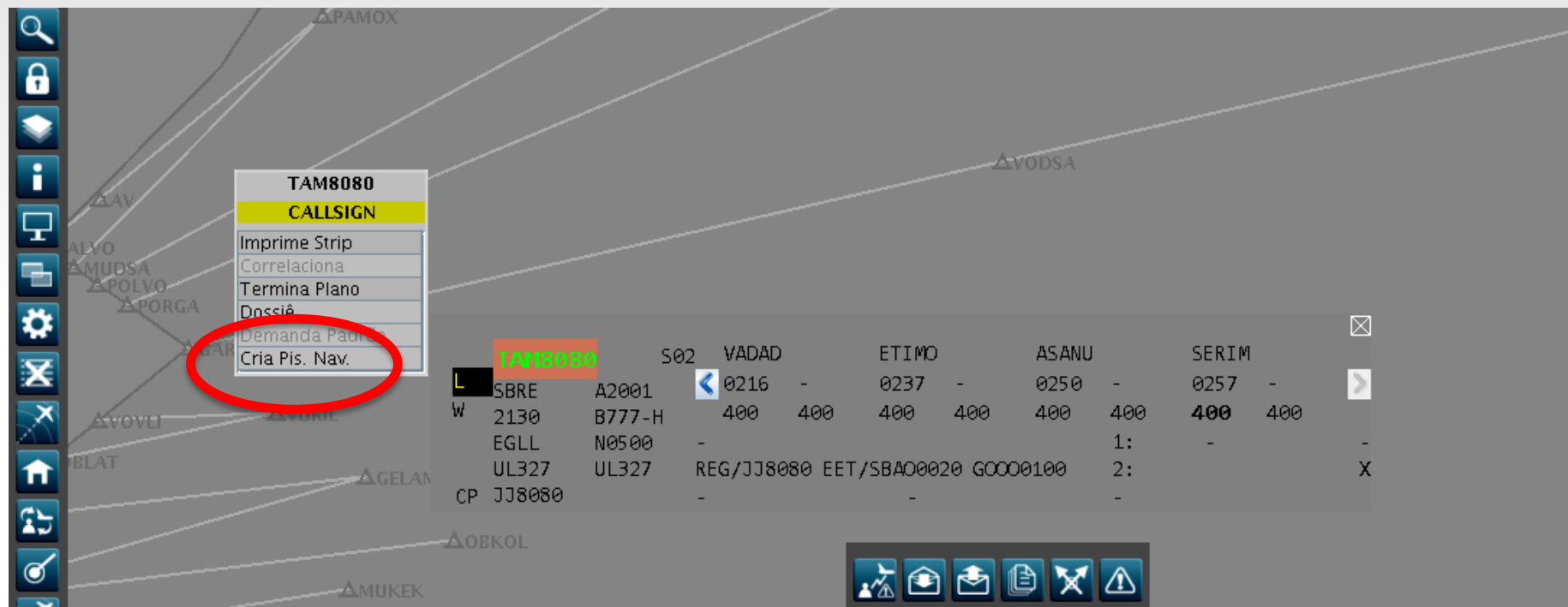




# SAGITARIO WITH ADS-C/CPDLC CAPABILITIES



# SAGITARIO WITH ADS-C/CPDLC CAPABILITIES



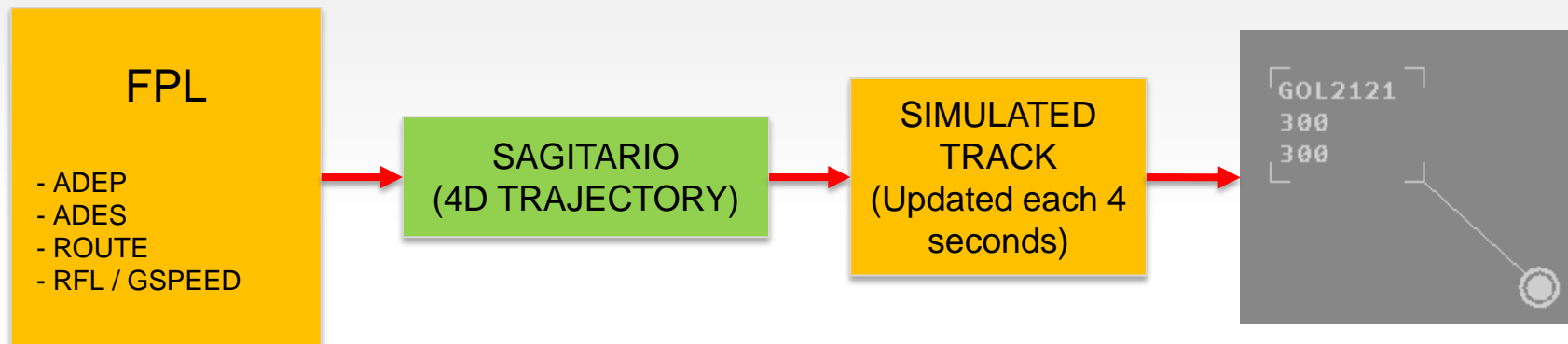
The interface displays a map with various airports and a data table for flight information. A context menu is open for the flight TAM8080, with the 'Cria Pis. Nav.' option highlighted by a red circle.

**TAM8080**  
**CALLSIGN**

- Imprime Strip
- Correlaciona
- Termina Plano
- Dossiê
- Demanda Padron
- Cria Pis. Nav.**

		S02	VADAD	ETIMO	ASANU	SERIM
<b>L</b>	<b>TAM8080</b>	<b>0216</b>	<b>-</b>	<b>0237</b>	<b>-</b>	<b>0257</b>
SBRE	A2001	400	400	400	400	400
W 2130	B777-H	-	-	-	-	-
EGLL	N0500	-	-	-	-	-
UL327	UL327	REG/JJ8080	EET/SBA00020	G0000100	1:	-
CP JJ8080	-	-	-	-	2:	X

# SAGITARIO WITH ADS-C/CPDLC CAPABILITIES

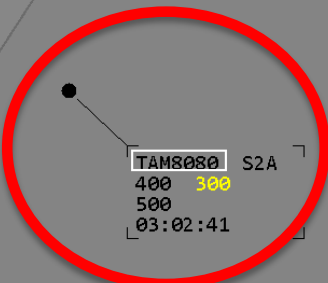


# SAGITARIO WITH ADS-C/CPDLC CAPABILITIES

SBAO CTR01 Operador: ATECH1 Modo: Síntese s23°29'52" w030°56'17" Dilatação: 1800 NM


**Lista de Aeronaves (4)** ✕

		CPDLC	ADS	(0)
TAM0009	TAM111	CONN	NCON	
TAM0009	TAM0000	CONN	NCON	
TAM0009	TA111	CONN	NCON	
PT-XXX	PT-XXX	PEND	NCON	

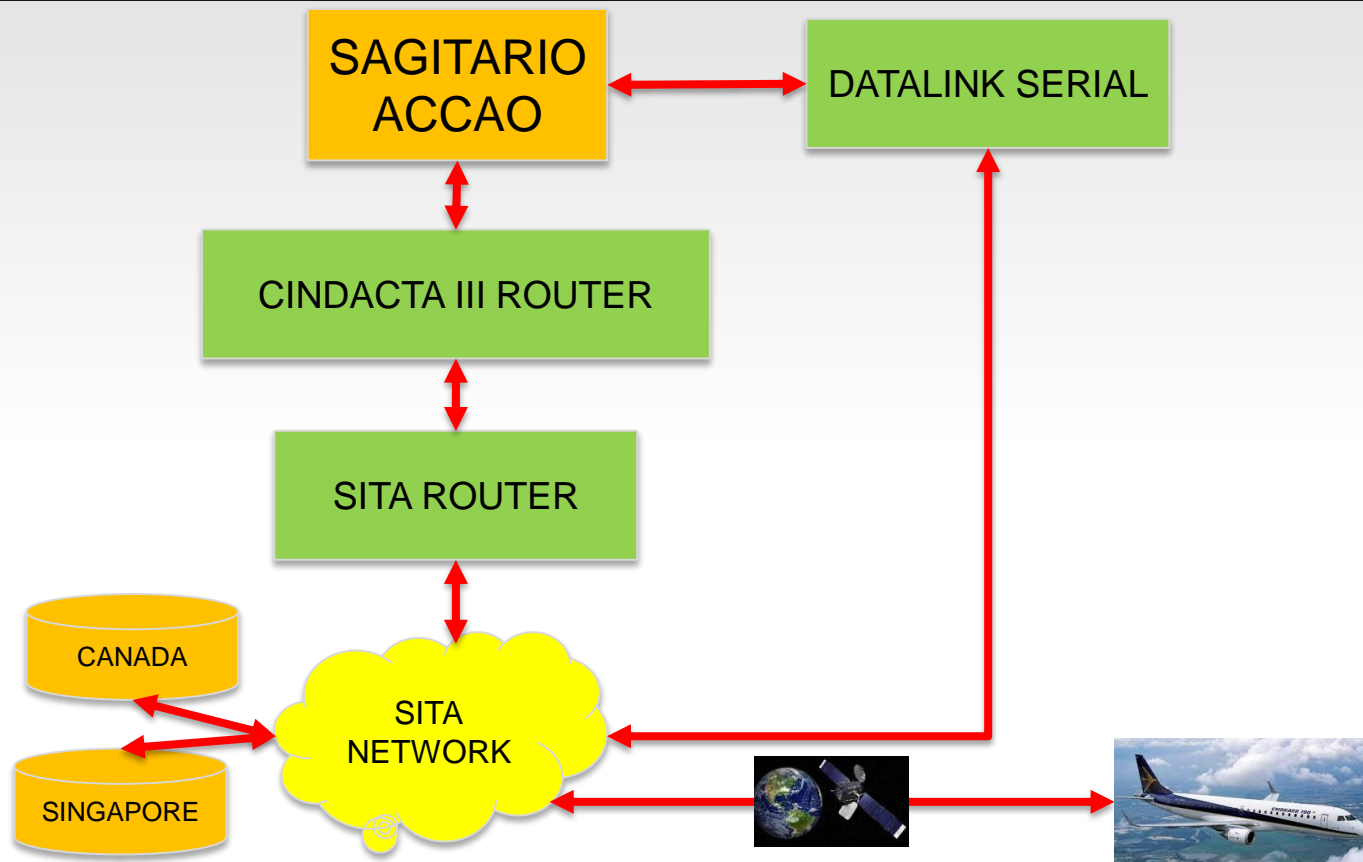


**TAM8080** S2A  
400 300  
500  
03:02:41

	TAM8080	S2A	PORGA	GUSOD	ONSEK	VADAD
C	SBRF	A2001	0310	0333	0414	0456
W	0300	B777-H	300 300	300 300	300 300	300 300
	EGLL	N0500	-	-	1:	-
	UL327	UL327	REG/JJ8080	EET/SBA00010	G0000100	2:
CP	JJ8080	-	-	-	-	-



# SAGITARIO WITH ADS-C/CPDLC CAPABILITIES



# SAGITARIO WITH ADS-C/CPDLC CAPABILITIES

Dowlink	CPDLC (8)	Coordenação (0)
1726 <b>AMG0021</b>	MAYDAY MAYDAY MAYDAY	
1727 <b>TAM0000</b>	REQUEST 300 GS TO 350 GS	
1725 <b>GL00017</b>	AT 294248S0533742W 17:24 F100 TRUE HEAD	
1721 <b>TAM0000</b>	CONNECTION CONFIRMED VERSION 1	
1721 <b>TAM0015</b>	CONNECTION CONFIRMED VERSION 1	
1721 <b>TAM0006</b>	CONNECTION CONFIRMED VERSION 1	
1721 <b>GL00017</b>	CONNECTION CONFIRMED VERSION 1	
1721 <b>AMG0021</b>	CONNECTION CONFIRMED VERSION 1	

Uplink	CPDLC (2)	Coordenação (0)
1726 <b>GL00017</b>	EXPECT 410FL [NT]	
1725 <b>GL00017</b>	MAINTAIN 400GS (KNOTS) [NT]	

Mudança de  
**TAM0000**

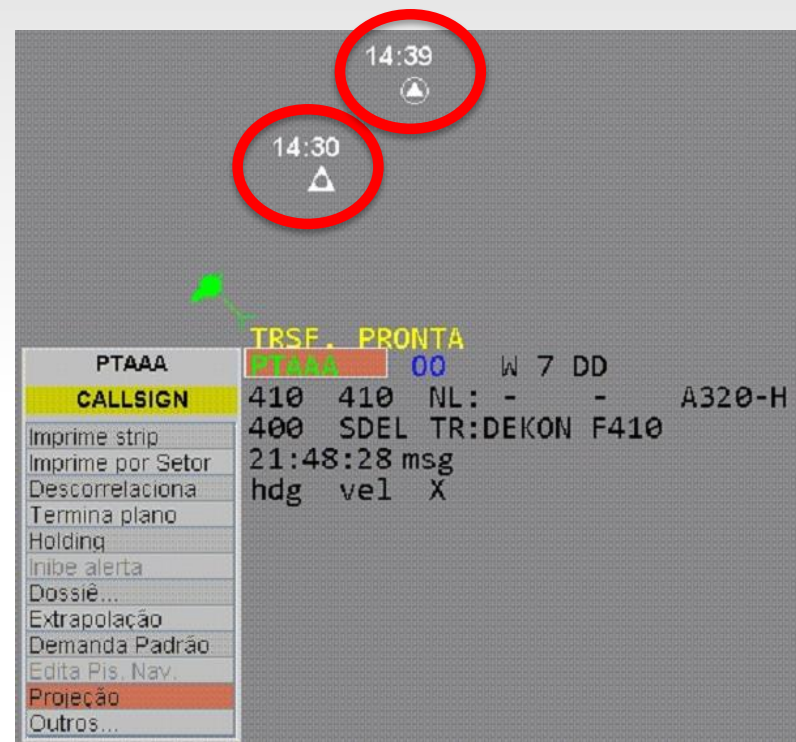
300  
299

Overshoot

**TAM0020**  
273 | 300  
353

508  
SBTL  
AULIC  
MAL F300

# SAGITARIO WITH ADS-C/CPDLC CAPABILITIES



# SAGITARIO WITH ADS-C/CPDLC CAPABILITIES

Composição de Mensagem - TAM111 - TAM0009

Composição Conexão

CROSS DESCN SPEED SURVL CLIMB RESPN GROUP  
EXTRA ROUTE **ADVIS** OFFST NEGOT OTHER REPRT QUICK

Composição de Mensagem

RADAR SERVICES TERMINATED  
RADAR CONTACT [POSITION]  
CHECK STUCK MICROPHONE [FREQUENCY]

Envia Remove Limpa

Fecha

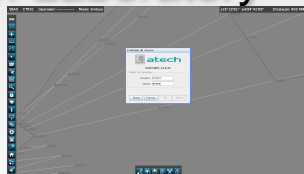
Histórico	CPDLC (11)	Coordenação (0)
172446	GL00017	▼ REQUEST 450 GS
172148	TAM0000	▲ CONNECTION REQUESTED SBCW TABELA A
172147	TAM0000	▼ *CONTACTED ACTIVE AS TAM2812 AT S23377W046397
+0001		▲ *CONTACT ACCEPTED AUTOMATICALLY
172141	TAM0015	▲ CONNECTION REQUESTED SBCW TABELA A
172140	TAM0015	▼ *CONTACTED ACTIVE AS TAM0015 AT S25186W053489



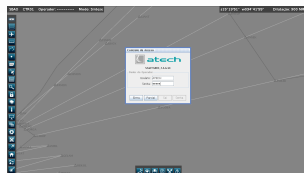
# ROADMAP FOR THE FUTURE

## Trial in order to integrate SAGITARIO to SITA Network for Continental Operation

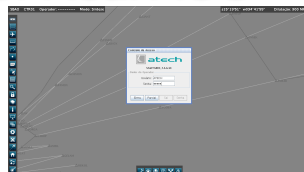
### Stage 1: Laboratory



### Stage 2: Laboratory



### Stage 3: Real ACC



# ROADMAP FOR THE FUTURE

**Approaching for SWIM: Presentation at Mini Global II – FAA – 2016, April, 25th. to 29th.**



## CLOSE OUT

- **The use of ADS-C and CPDLC technologies nowadays are fully operation with the X-4000 ATM system, in the ACC-AO FIR, and which will be replaced by SAGITARIO till the end of 2016**
- **Moreover, such mature operational concept achieved is result of a strategic plan built since de 90´s, with DECEA and industry working together in this quest**
- **It means that such success achieved can be used as a “lighthouse” to guide for the next steps regarding Continental CPDLC**
- **And while this walking to the Continental CPDLC use, to take into consideration all the operational assessment, as well as the experience acquired by other agencies (FAA and EUROCONTROL)**



Brasília

Rio de Janeiro

São José dos Campos

São Paulo

[www.atech.com.br](http://www.atech.com.br)



GRUPO EMBRAER