

DATALINK SERVICES IN BRAZIL



Departamento de Controle
do Espaço Aéreo



OUTLINE

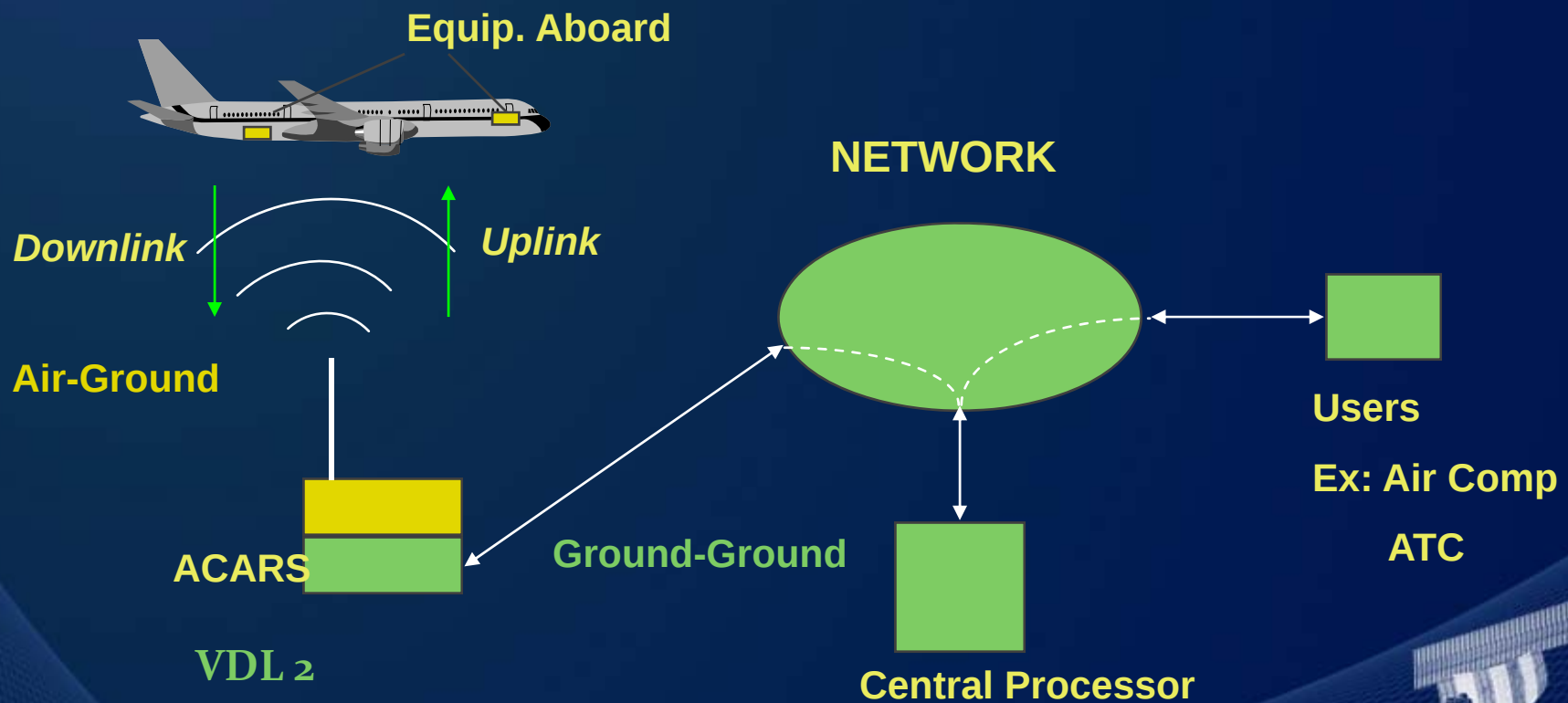
- THE DATALINK SERVICE
- CONTINENTAL DATALINK
 - CONCESSION INFRAESTRUTURE
 - SERVICES
 - AOC Messages
 - D-ATIS
 - DCL
 - D-VOLMET
- OCEANIC DATALINK
 - INFRAESTRUTURE
 - SERVICES
 - CPDLC
 - ADS



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DATALINK SERVICE



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CONTINENTAL DATALINK CONCESSION INFRAESTRUTURE

- Term of Contract : 20 years
- Enterprise: SITA
- Start of Concession: 23/08/2012;
 - 24 ACARS stations;
 - 05 VDL 2 stations.
- Next fases:
 - + 7 ACARS + 12 VDL – 12/2013;
 - + 7 ACARS + 12 VDL – 12/2014;
 - + 7 ACARS + 12 VDL – 12/2015; and
 - + 05 VDL - 12/2016.



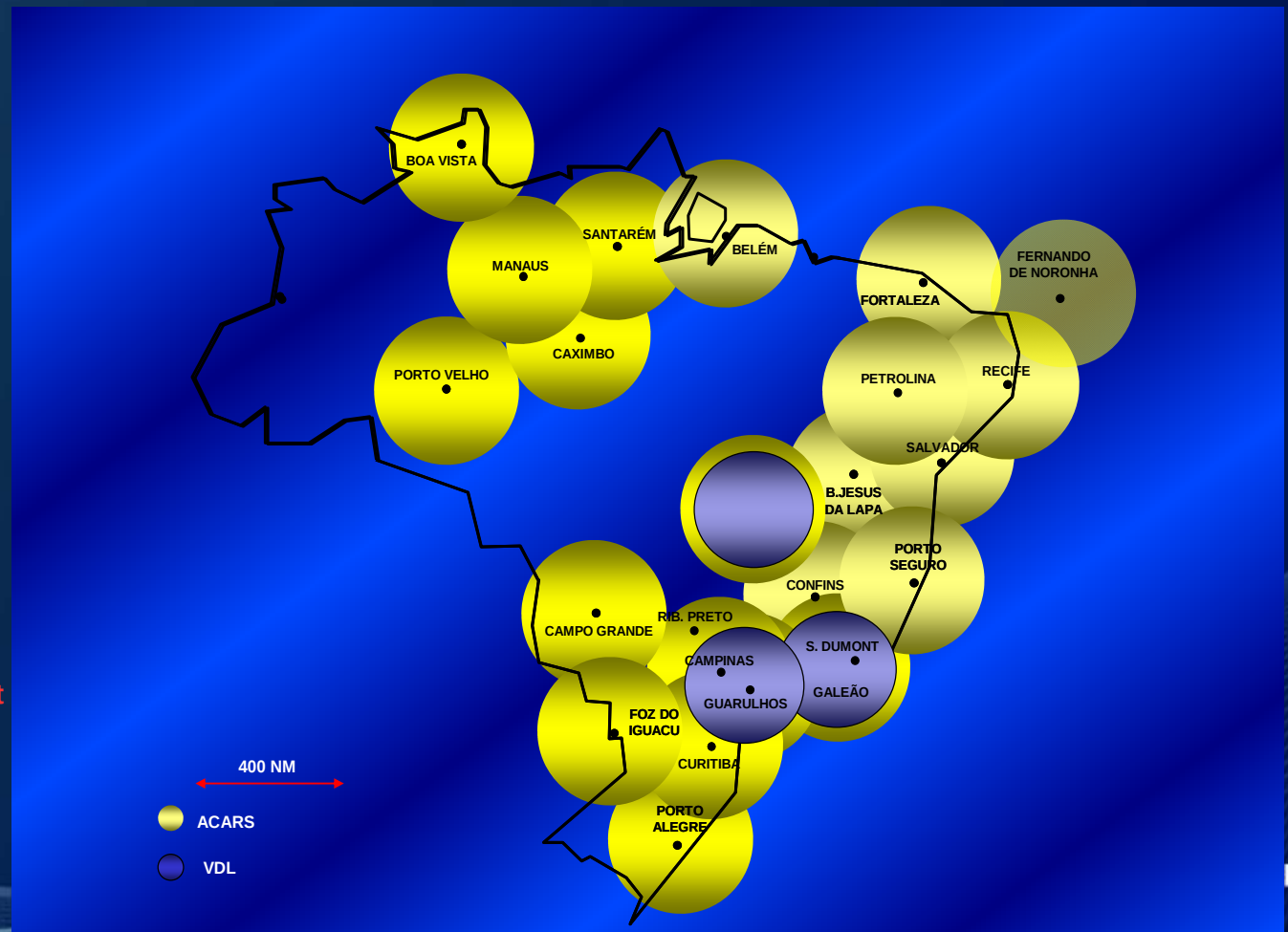
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Initial Coverage

24 Stations ACARS + 5 VDL

RGS Caximbo
 RGS Belém
 RGS Porto Seguro
 VGS/RGS Brasília
 RGS Boa Vista
 RGS Campo Grande
 RGS Confins
 RGS Curitiba
 RGS F. de Noronha
 RGS Fortaleza
 RGS Galeão
 RGS Guarulhos
 RGS Foz do Iguaçu
 RGS Bom Jesus da Lapa
 RGS Manaus
 RGS Porto Alegre
 RGS Recife
 RGS Santarém
 VGS/RGS Santos Dumont
 RGS Salvador
 RGS Petrolina
 VGS/RGS Campinas
 RGS Porto Velho
 VGS/RGS Galeão
 VGS/RGS Guarulhos



DATA LINK CONCESSION

- 45 Sites will cover all national territory at FL 245.
- 21 New stations (2013 – 2015)

• Natal (TMA)	• Campos
• Florianópolis (TMA)	• Gurupi
• Assis	• Jacareacanga
• Barcelos	• Ji-Paraná
• Vilhena	• Jataí
• Barreiras	• Marabá
• Caruari	• Rio Branco
• Marechal Rondon	• São Gabriel da Cachoeira
• Cruzeiro do Sul	• São Luis
• Conceição do Araguaia	• Uruguaiana
• Canarana	

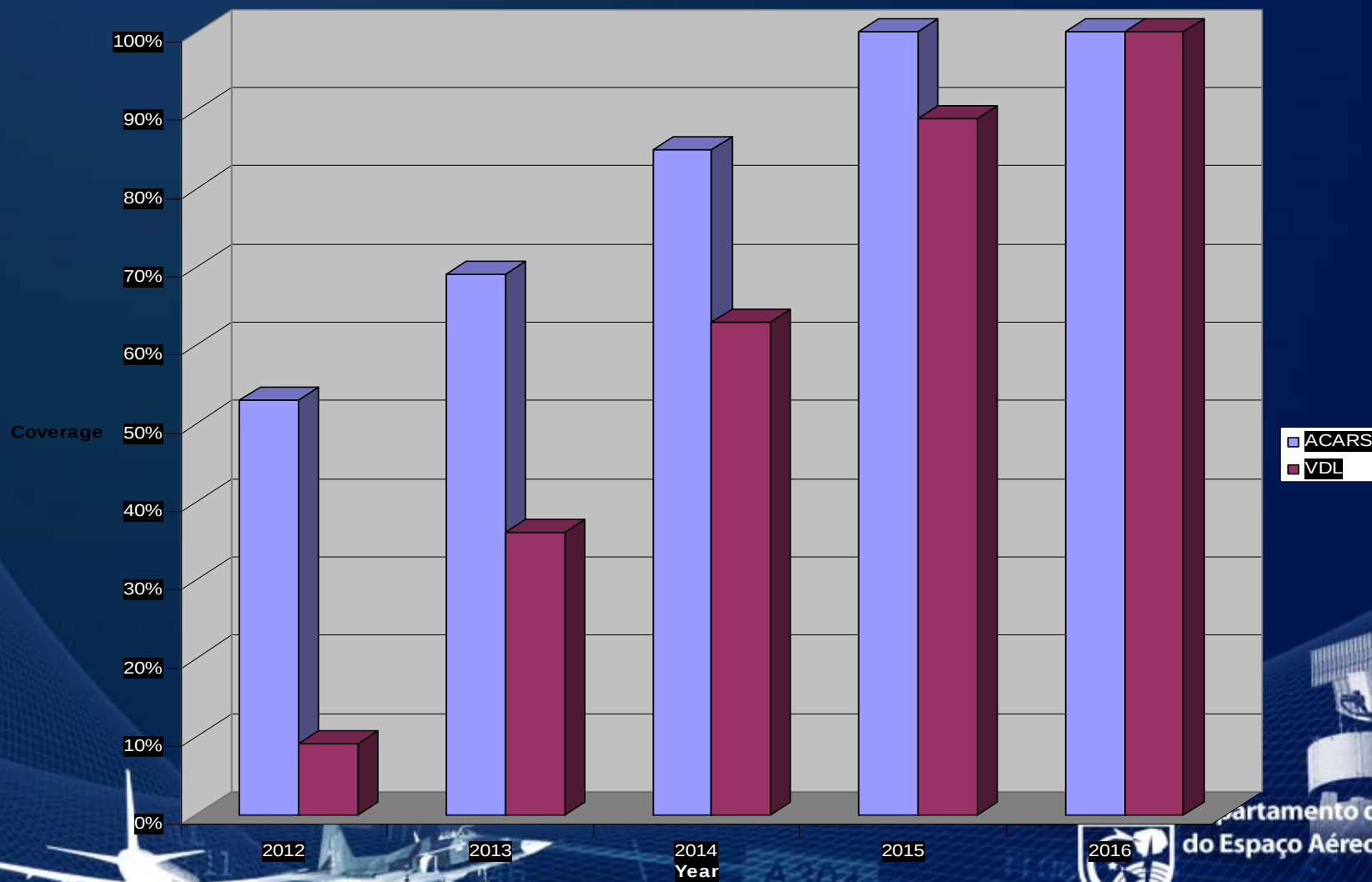


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DATALINK CONCESSION

NATIONAL COVERAGE - FL 245

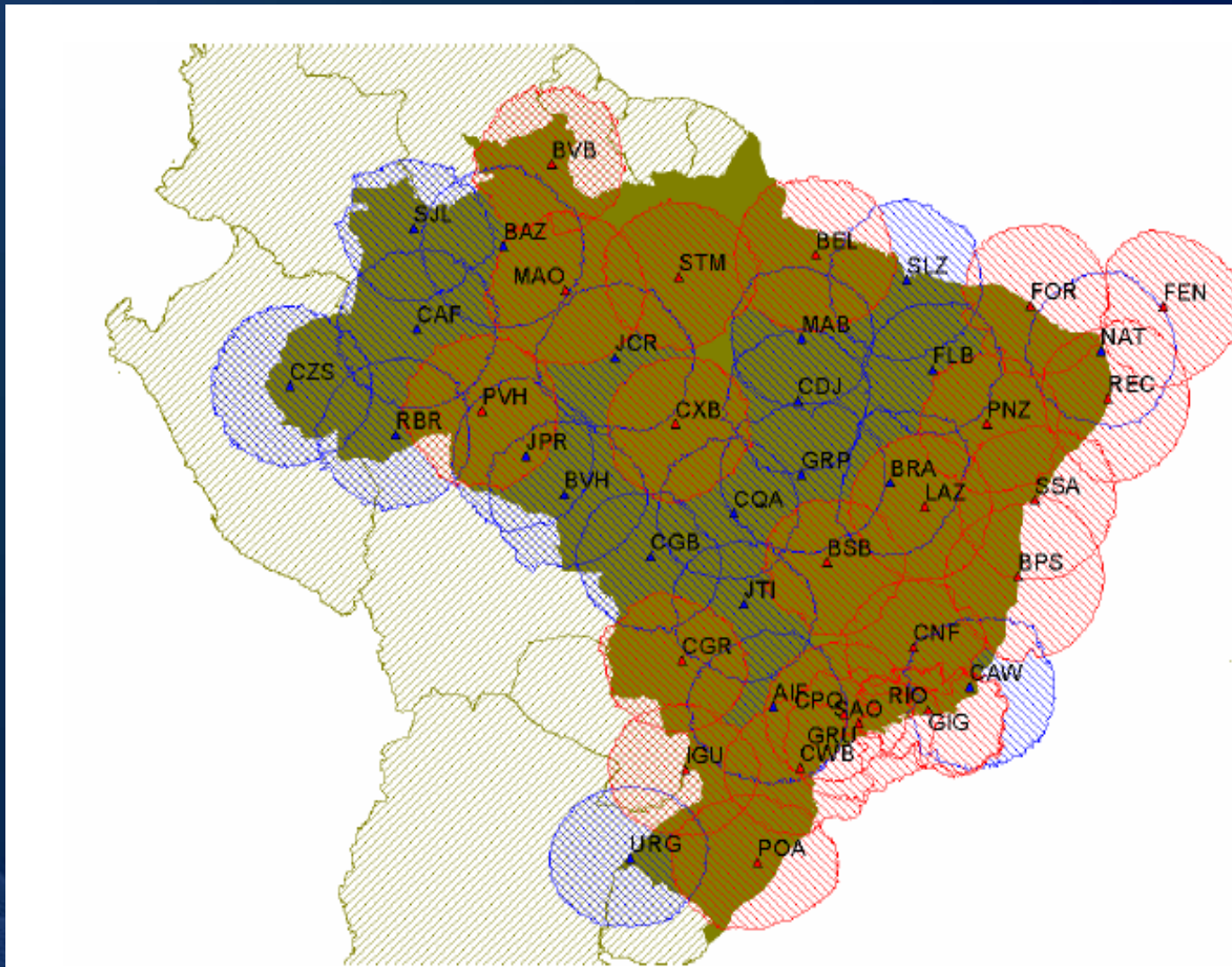


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FINAL COVERAGE (2016)

100 % ACARS and VDL



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do Espaço Aéreo



AOC/D-ATIS / D-VOLMET / DCL SERVICES

- AOC Messages: Text messages between air company and aircraft.
- D-ATIS: Text message with information about the conditions of the airport;
- D-VOLMET: Text message with meteorological information about the airport;
- DCL: Text messages between the pilot and the tower controller in the authorization process for takeoff.



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D-ATIS / D-VOLMET / DCL SERVICES

- D-ATIS

- Implemented: June 2012
- Airport: Guarulhos and Galeão

- D-VOLMET

- Implementation : scheduled for November 2012
- Airport: coverage of infrastructure concession

- DCL

- Implementation : in process
- Airport: Guarulhos



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Services Benefits

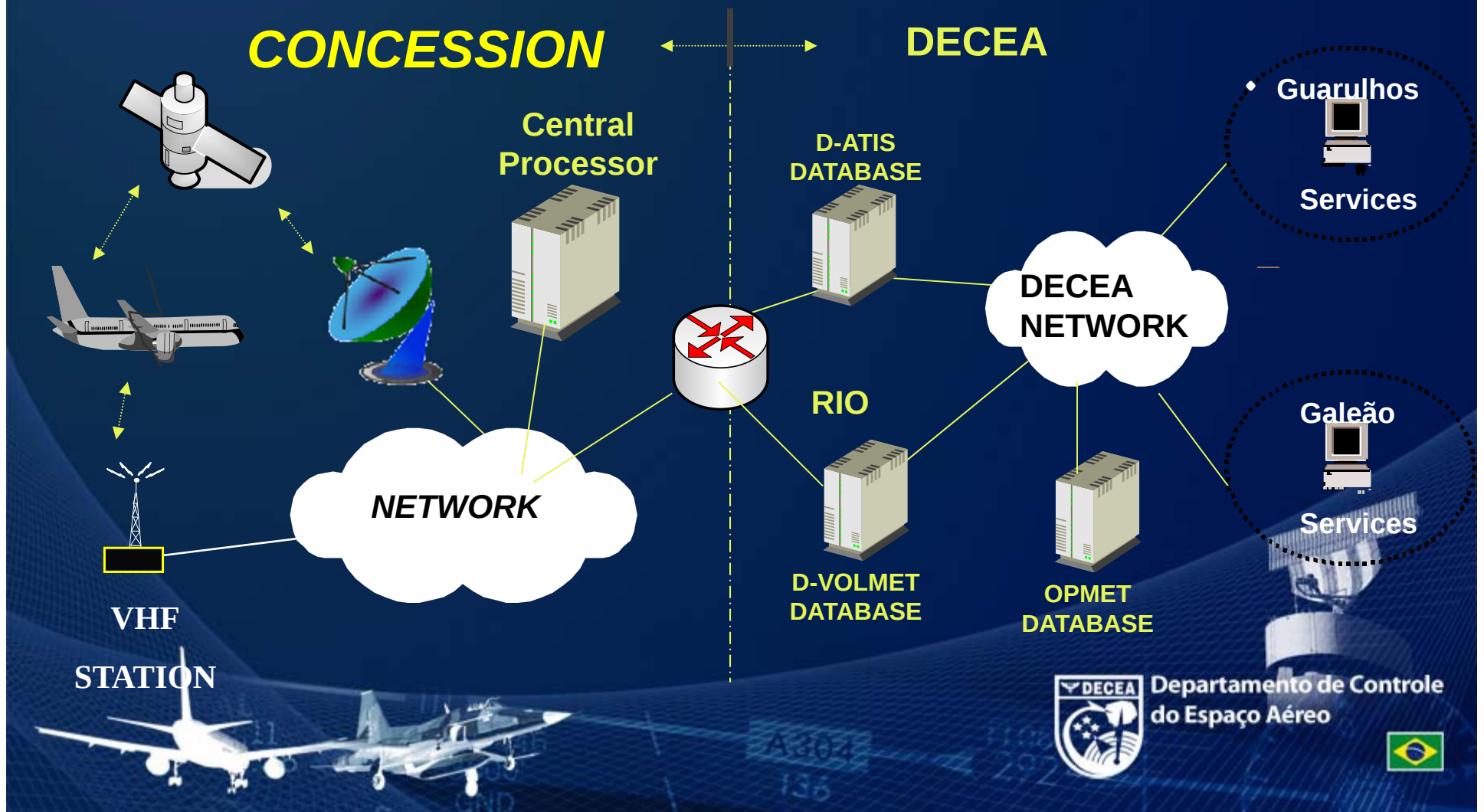
- Reduction of controller workload.
- Reduction of pilot workload.
- Reduction misunderstanding between the pilot and the controller due to the low VHF quality.
- Enhanced communication reliability.
- Reduction of the frequency congestion.



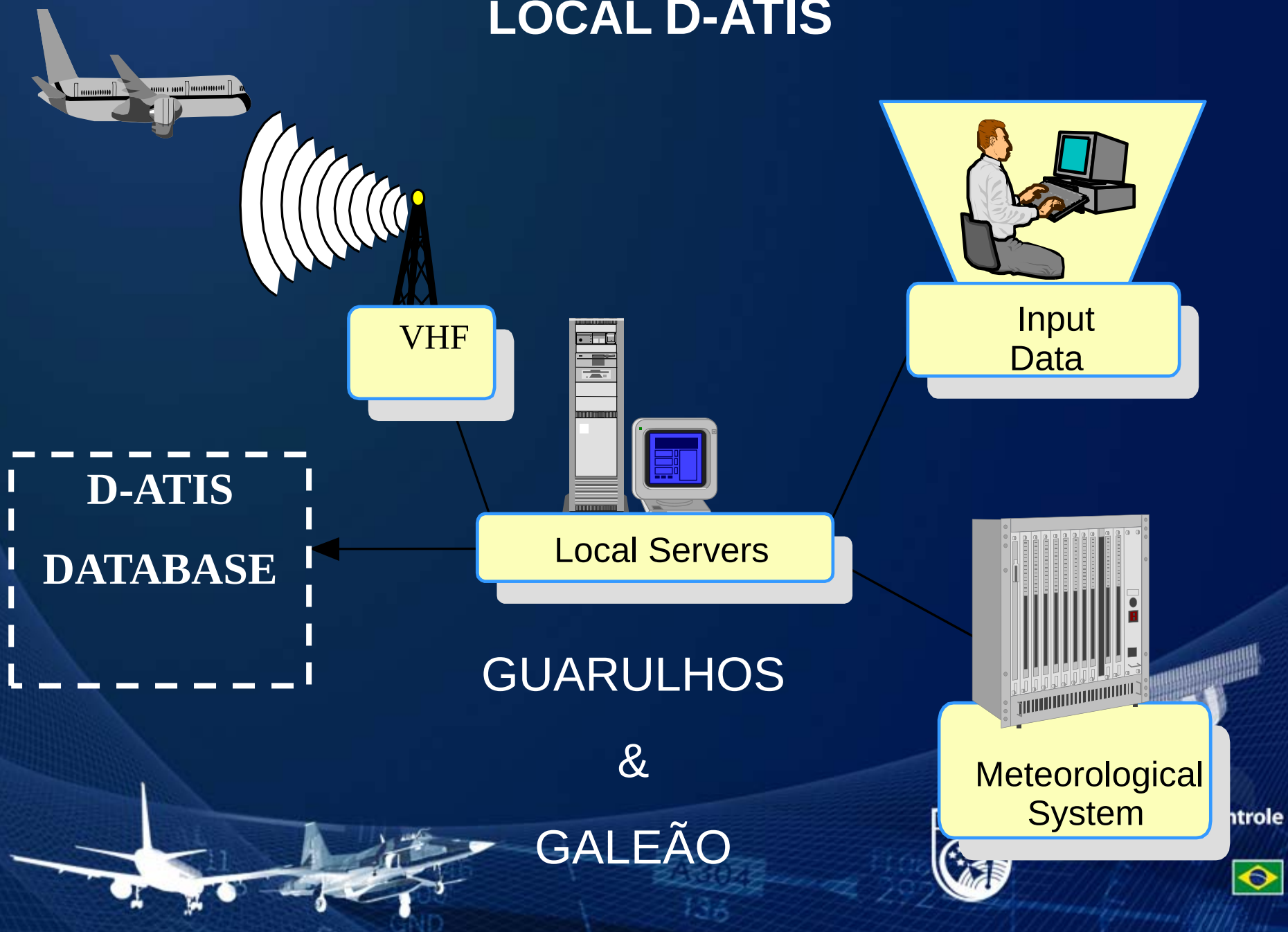
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D-ATIS / D-VOLMET SERVICES



LOCAL D-ATIS



MOVIE D-ATIS TEST



D-VOLMET SERVICE

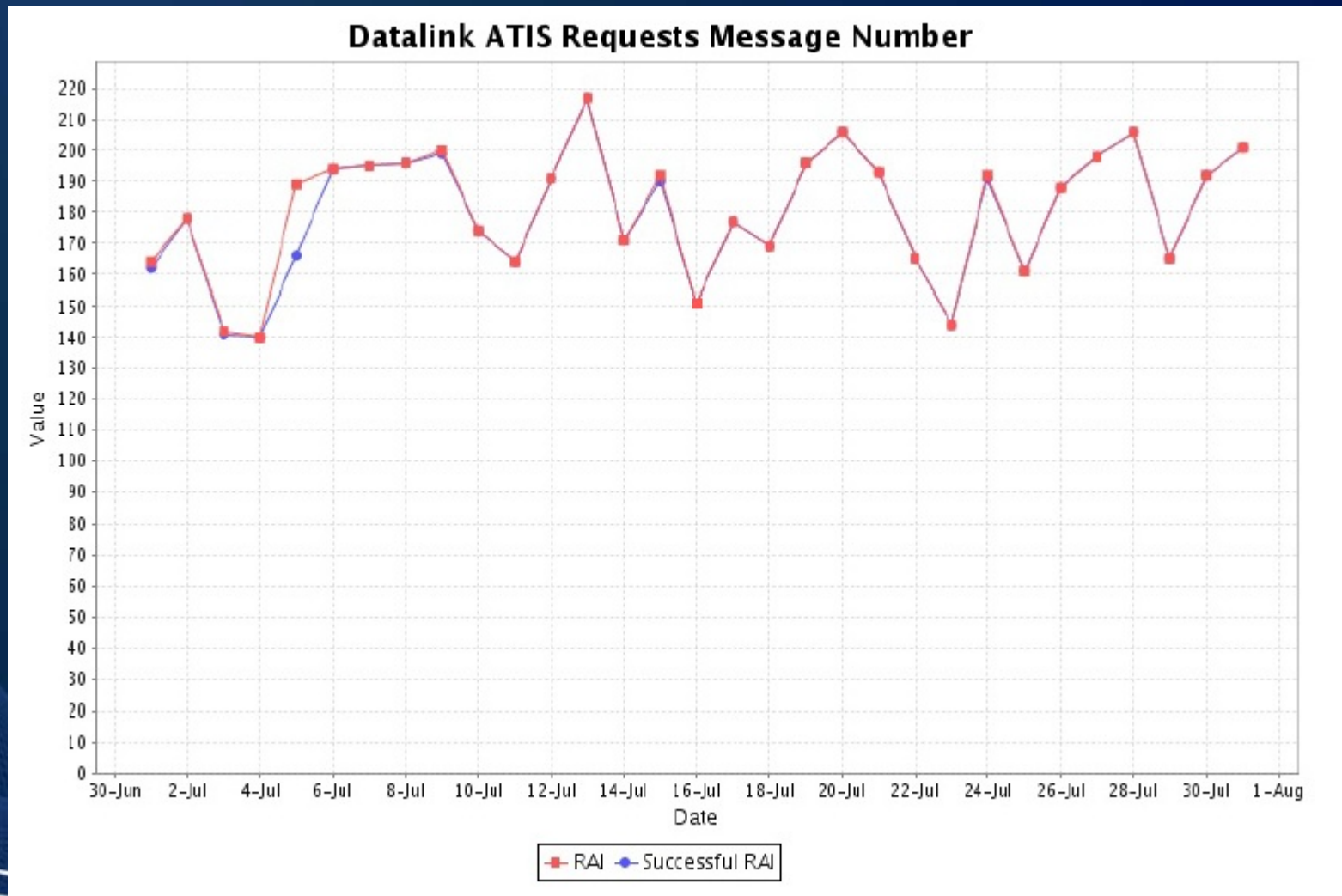
- To request a D-VOLMET information, a pilot would use the same on board “AEEC 623” application.
- To request for D-VOLMET, pilot should request for a D-ATIS request, with a code “E”.
- D-VOLMET are usually very long messages (several ACARS blocks)



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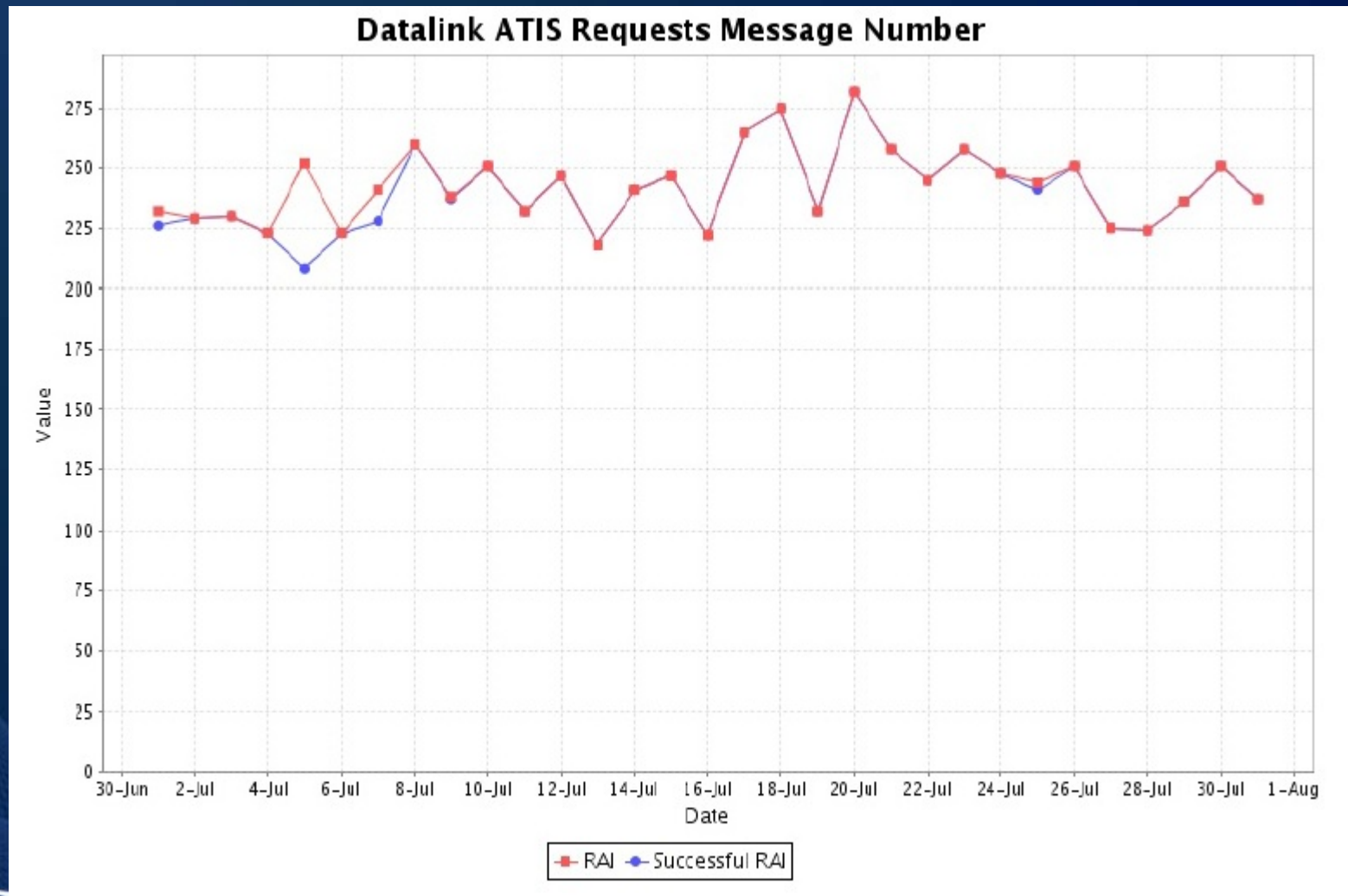
D-ATIS GL / Messages July 2012



Controle



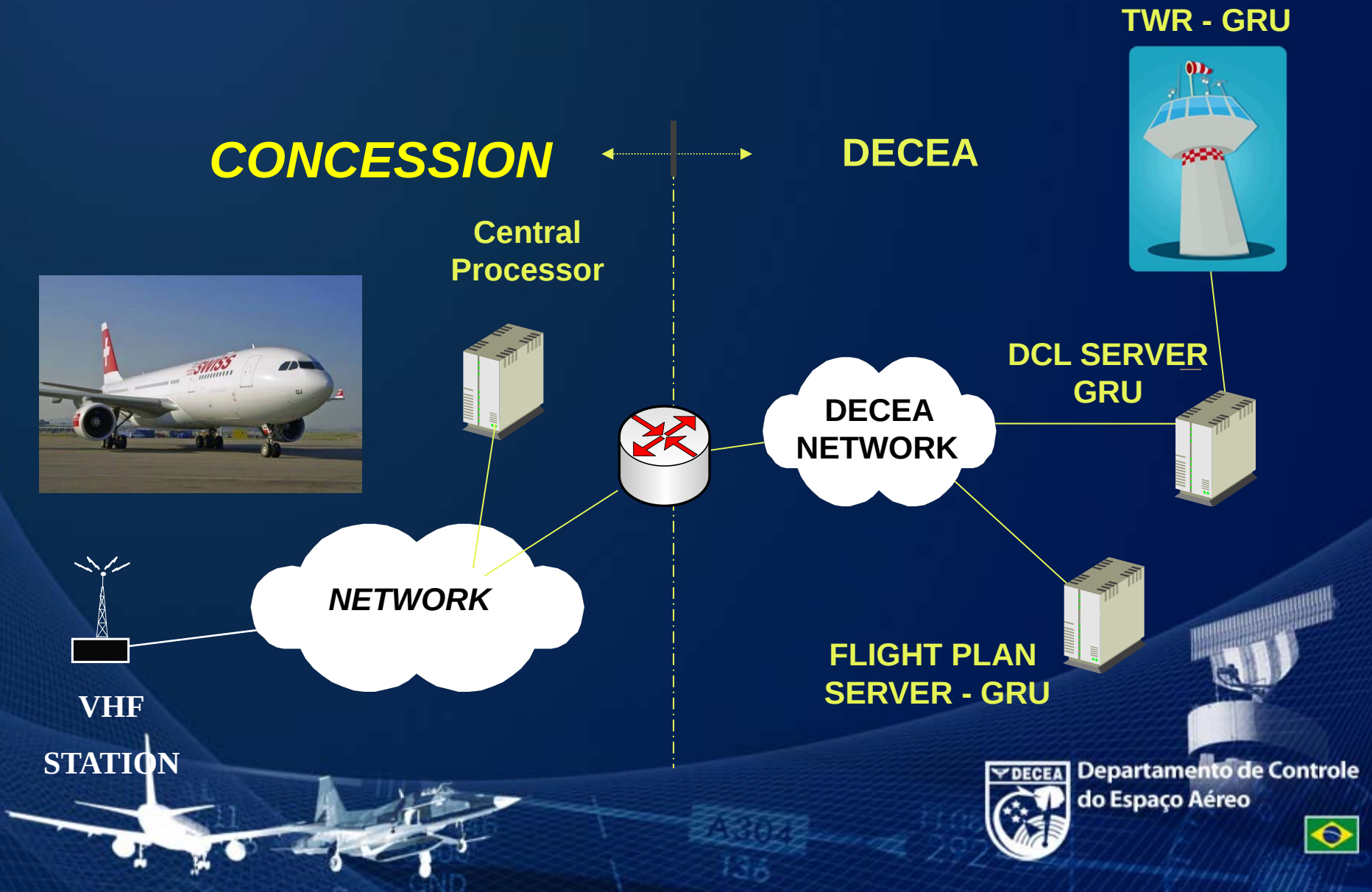
D-ATIS GR / Messages July 2012



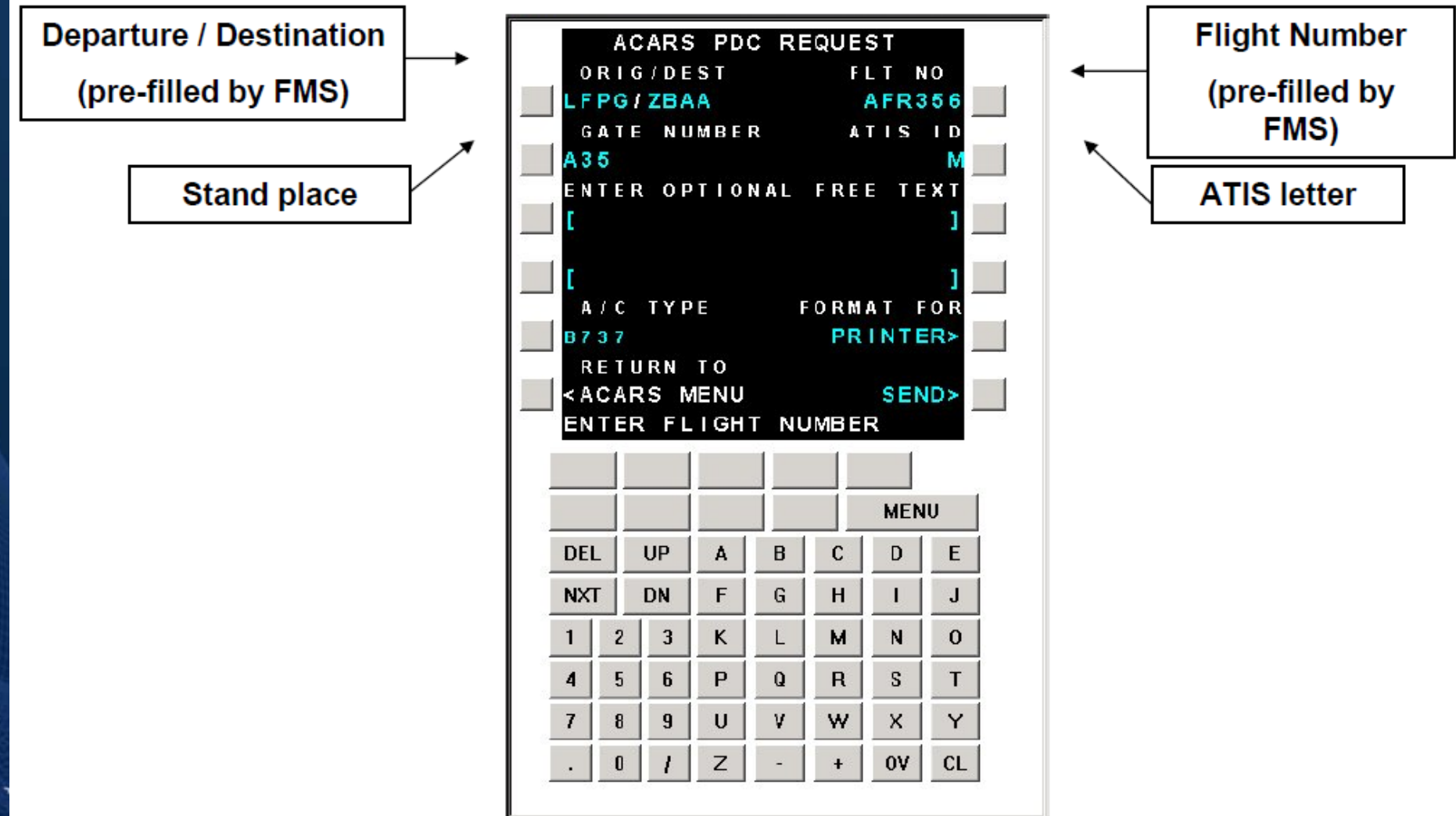
Controle



DCL SERVICE - GUARULHOS



DCL – PILOT REQUEST



DCL – TOWER CONTROLLER

File Action Info CLEVER-1 v1.8

 **DECEA** **ATIS A [09:22]** **SÃO PAULO/GUARULHOS INTL** 27R 27L 09R 09L
09 May 2005 09:43:45

Flight Plan **DCL Request** **Granted DCL**

Flight Plan	DCL Request	Granted DCL
TAM8000 SBGR SAEZ A320 0936* 3560	TAM3342 SBGR SBCF F100 0945* 4235 Rmk -	TAM3750 SBGR SBBR NEMO-27 A320 0925* 4157 A Rmk -
TAM3804 SBGR SBCG A320 0930* 3552		TAM3867 SBGR SBPA CONGON... F100 0925* 3305 A Rmk -
GLO1727 SBGR SBFZ B737 0940* 4261		VRG2266 SBGR SBBR MOZI B733 0930* 4160 A Rmk -
BRB9506 SBGR SBBR B733 0945* 4270		
COA93 SBGR SBGL B762 0935* 4314		
TAM3869 SBGR SBCT F100 0939* 3306		
PTMEV SBGR SBLO C208 0950* 3307		
BRB9508 SBGR SBGO B734 1000* 4141		
ARG1249 SBGR SAEZ B737 1005* 3532		
VRG8880 SBGR SLVR B733 0955* 3604		

controle 

CLEVER-D CLEVER-F

DCL – PILOT

Clearance
Readback

ACARS MSG DISPLAY

LFPG PDC 005

CLD 1456 031101 LFPG PDC
005

AFR356 CLRD TO ZBAA OFF
26R VIA ARSIL2B

SQUAWK 4565 ADT 1200 /
1210 NEXT FREQ 121.830

<ACCEPT

RETURN TO

<REC MSGS PRINT>

PRINTER MESSAGE

						MENU	
DEL	UP	A	B	C	D	E	
NXT	DN	F	G	H	I	J	
1	2	3	K	L	M	N	O
4	5	6	P	Q	R	S	T
7	8	9	U	V	W	X	Y
.	0	/	Z	-	+	OV	CL

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DCL – TOWER CONTROLLER

File Action Info CLEVER: v1.8

 **DECEA**

ATIS A [09:22]

SÃO PAULO/GUARULHOS INTL
09 May 2005 09:46:49

27R

27L

09R

09L

Flight Plan

TAM8000	SBGR	SAEZ
A320	0935*	3560
TAM3804	SBGR	SBCG
A320	0930*	3552
GLO1727	SBGR	SBFZ
B737	0940*	4261
BRB9506	SBGR	SBBR
B733	0945*	4270
COA93	SBGR	SBGL
B762	0935*	4314
TAM3869	SBGR	SBCT
F100	0939*	3306
PTMEV	SBGR	SBLO
C208	0950*	3307
BRB9508	SBGR	SBGO
B734	1000*	4141
ARG1249	SBGR	SAEZ
B737	1005*	3532
VRG8880	SBGR	SLVR
B733	0955*	3604

DCL Request

Granted DCL

TAM3750	SBGR	SBBR	NEMO-27
A320	0925*	4157	A
Rmk: -			
TAM3867	SBGR	SBPA	CONGON...
F100	0925*	3305	A
Rmk: -			
VRG2266	SBGR	SBBR	MOZI
B733	0930*	4160	A
Rmk: -			
TAM3342	SBGR	SBCF	NEMO-27
F100	0945*	4235	A
Rmk: -			



CLEVER.D

CLEVER.F

de Controle



DCL – PILOT



ACARS MSG DISPLAY

LFPG AFR356

FSM 1459 031101 LFPG
AFR356 CDA RECEIVED
CLEARANCE CONFIRMED

<ACCEPT
RETURN TO
<REC MSGS PRINTER MESSAGE

<PRINT>

MENU

DEL UP A B C D E

NXT DN F G H I J

1 2 3 K L M N O

4 5 6 P Q R S T

7 8 9 U V W X Y

. 0 / Z - + OV CL

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OCEANIC DATALINK CPDLC / ADS

- ACC – Atlantic (Recife – Brazil);
- CPDLC Implemented: July 2009;
- CPDLC: Text messages between pilot and controller;
- ADS: Position of Aircraft;
- To optimize means of communication, navigation and surveillance, fundamentally based on satellites, centralized in a single ATC; and
- ATC Capacity Improvement.



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AREA OF RESPONSIBILITY

8.6 M Square Miles 13 INTERNATIONAL FIRS



CPDLC Benefits

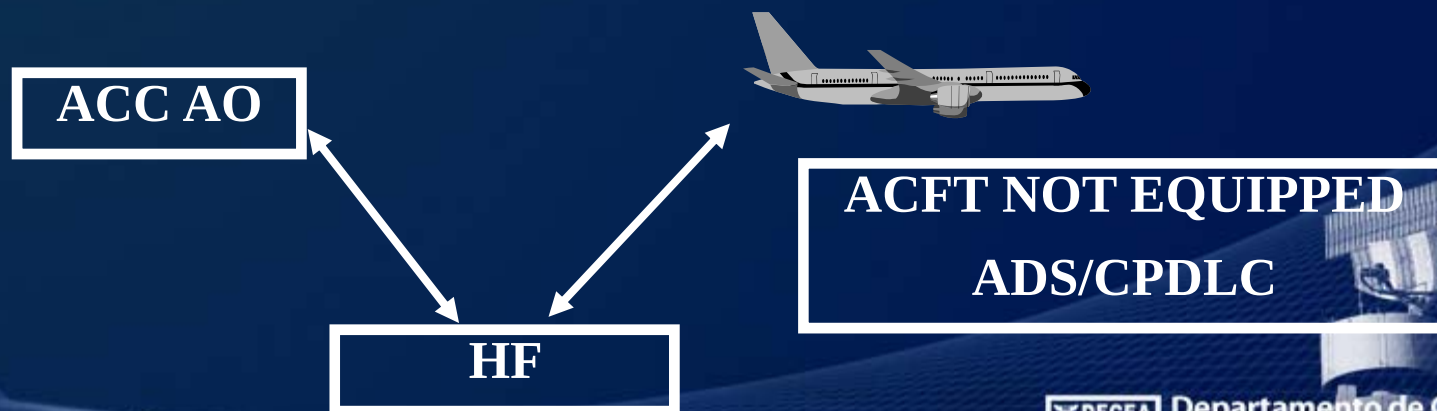
- Reduction of controller and pilot workload.
- Reduction misunderstanding between the pilot and the controller due to the low HF quality.
- Enhanced communication reliability.



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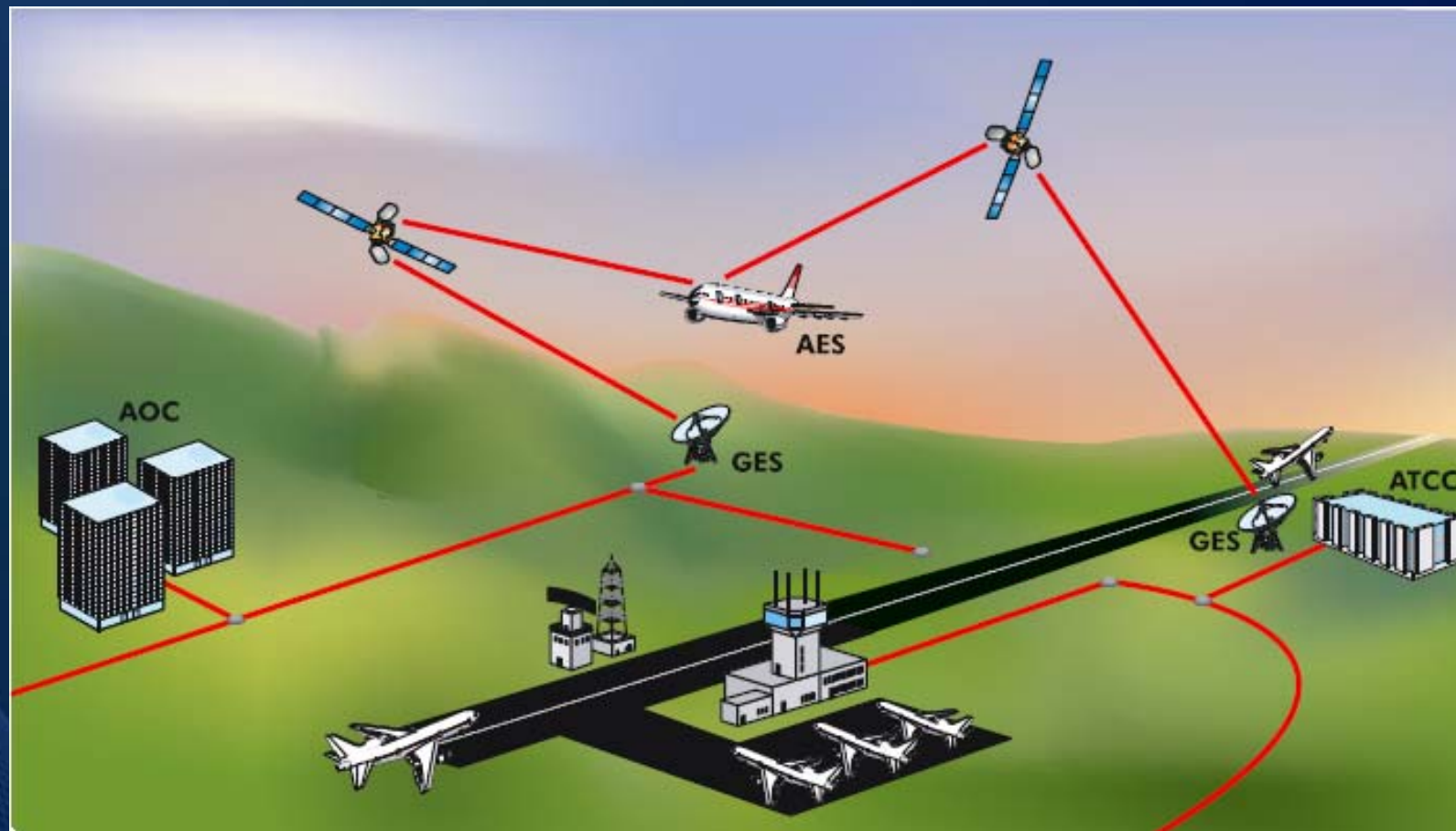
Operational Model - ACC -AO



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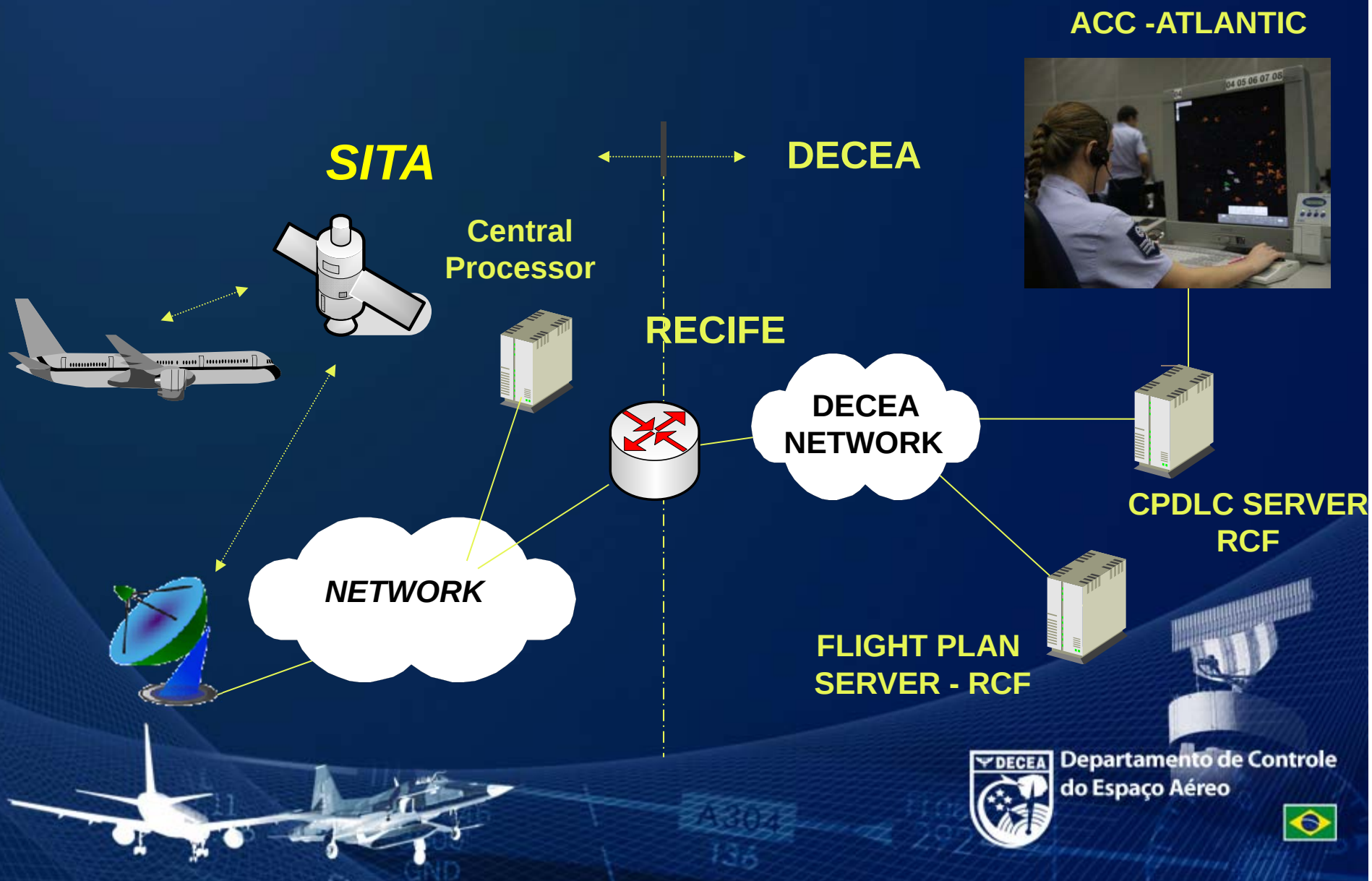
CPDLC / ADS



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CPDLC INFRAESTRUTURE



CPDLC

File Sound Help

EDDY **COCPIT** 21/11/2005 14:13:48

Connected Flights 9 Received Downlink 1

Aircraft ID	CM Status	CPDLC Status	ADS Status
AF7785	YES	ON	ON
AF7787	YES	ON	ON
AF7789	YES	ON	ON
AF7790	YES	OFF	ON
AF7791	YES	ON	ON
AF7792	YES	ON	ON
AF7793	YES	ON	ON
AF7794	YES	ON	ON
AF7795	YES	ON	ON

Downlink Dialog 0

Dialog History 1 Uplink Dialog 1

Aircraft ID	Time	Message	CM	ADS
AF7793	↑ 14:12:12	MAINTAIN FL170		
	↓ 14:12:43	WILCO		
AF7793	↑ 14:13:13	CONTACT EDDY MAASTRICHT center 25000	N	M
				WILCO

System Log 3

- ✓ 2005-11-21 14:12:04 ACS online.
- ✓ 2005-11-21 14:12:17 Flights server online.
- ✓ 2005-11-21 14:12:17 Trace Database Online

ACS Flights

ATC LOGON / STATUS

LOGON TO
YAXM SEND>

BFA54

ADS (ARM) ADS EMERG
< SELECT OFF
< INDEX DATA LINK
READY

INIT RTE DEP ATC VNAV BRT
REF ARR
FIX LEGS HOLD FMC C COMM PROG EXEC
MENU NAV RAD A B C D E



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ACC - ATLANTIC



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