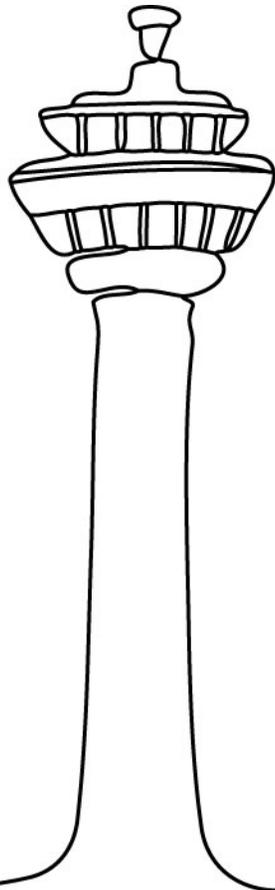


7th ICNS Conference
Herndon, Virginia
May 1-3, 2007

ATS Datalink Implementation Status

Kathleen Kearns
Manager, AIRCOM CNS Services
North America

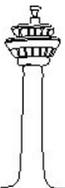


Straightforward aircraft operations

SITA

Outline

- SITA AIRCOM Network Evolution and ATS Solutions
- ATS Implementations
 - ACARS-based
 - ATN-based
 - D-OTIS and D-TAXI Trials
 - ADS-B
- Summary

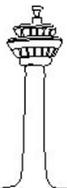


SITA Ground Network

Evolved over the past 50 years to provide network services to over 220 countries

Backbone of SITA business for communications and applications:

- *airports*
- *airlines*
- *passengers*
- *governments*



VHF AIRCOM ACARS Service

Introduced in 1984
using global SITA
network service as
backbone

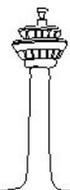

AIRLINE OPERATIONS



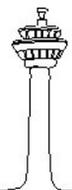
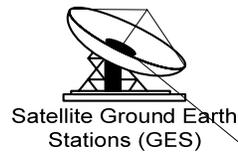
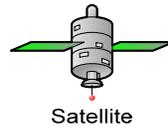

REMOTE GROUND STATION (RGS)
ACARS


ACARS PROCESSOR
(SINGAPORE)


ACARS PROCESSOR
(MONTREAL)



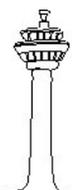
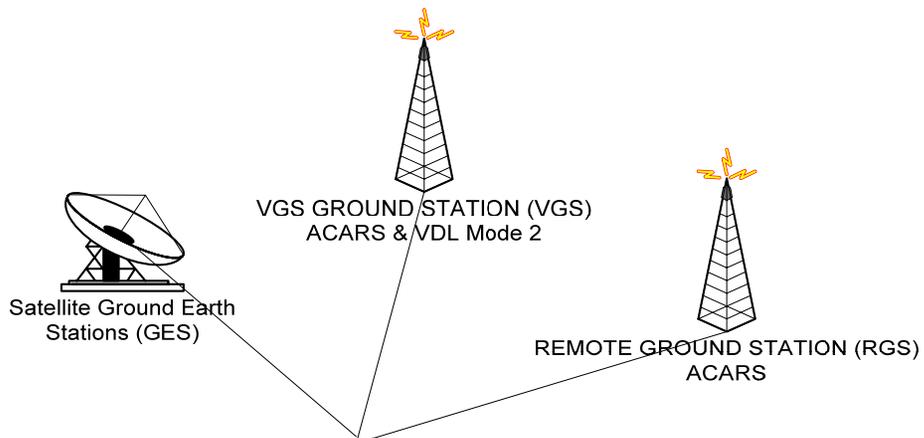
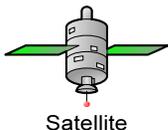
Satellite AIRCOM and ATS AIRCOM Introduced in early 1990s

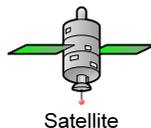


VDL AIRCOM

Introduced in 2001

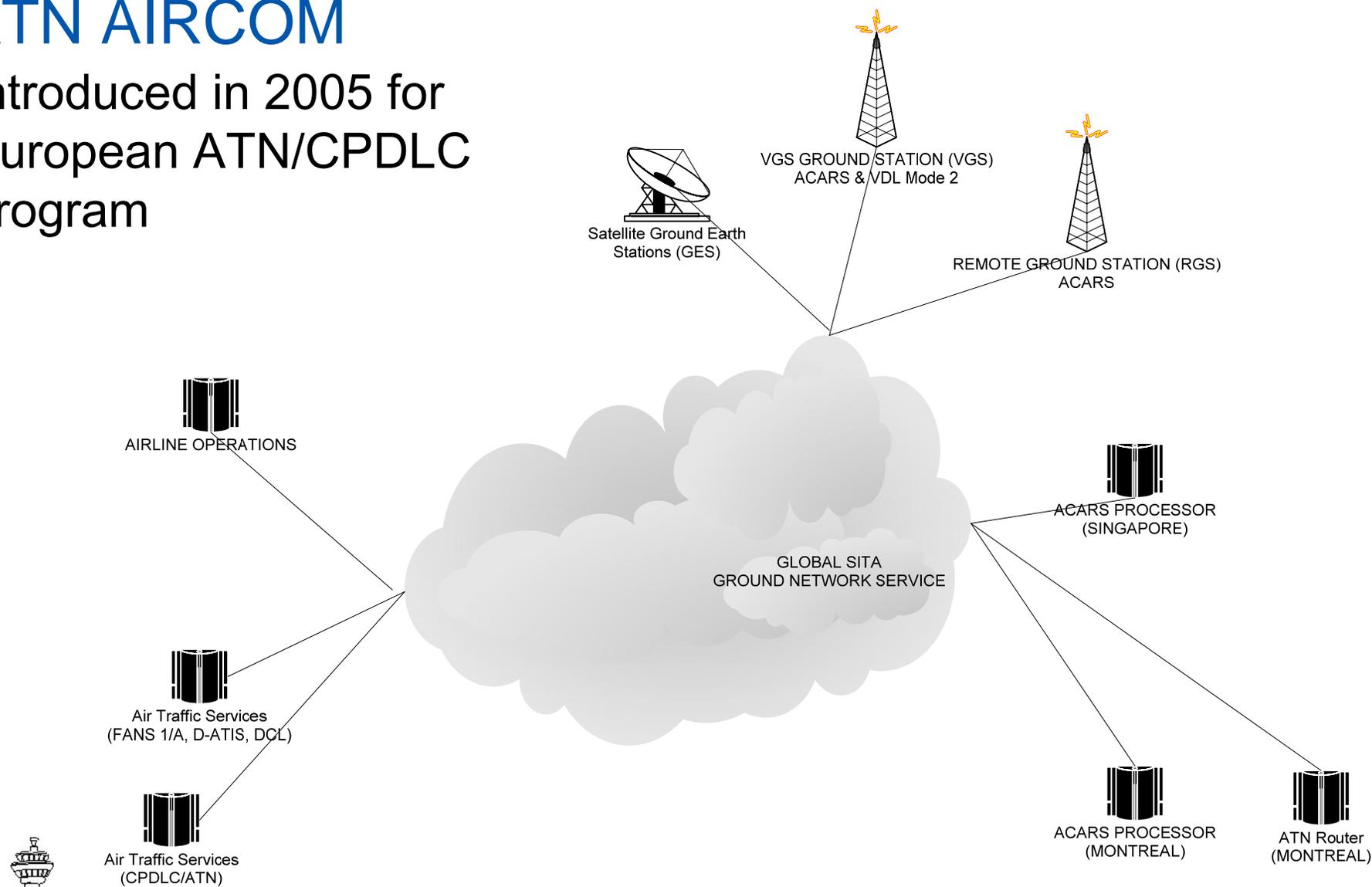
Compliant with ICAO
SARPs for VDL Mode 2



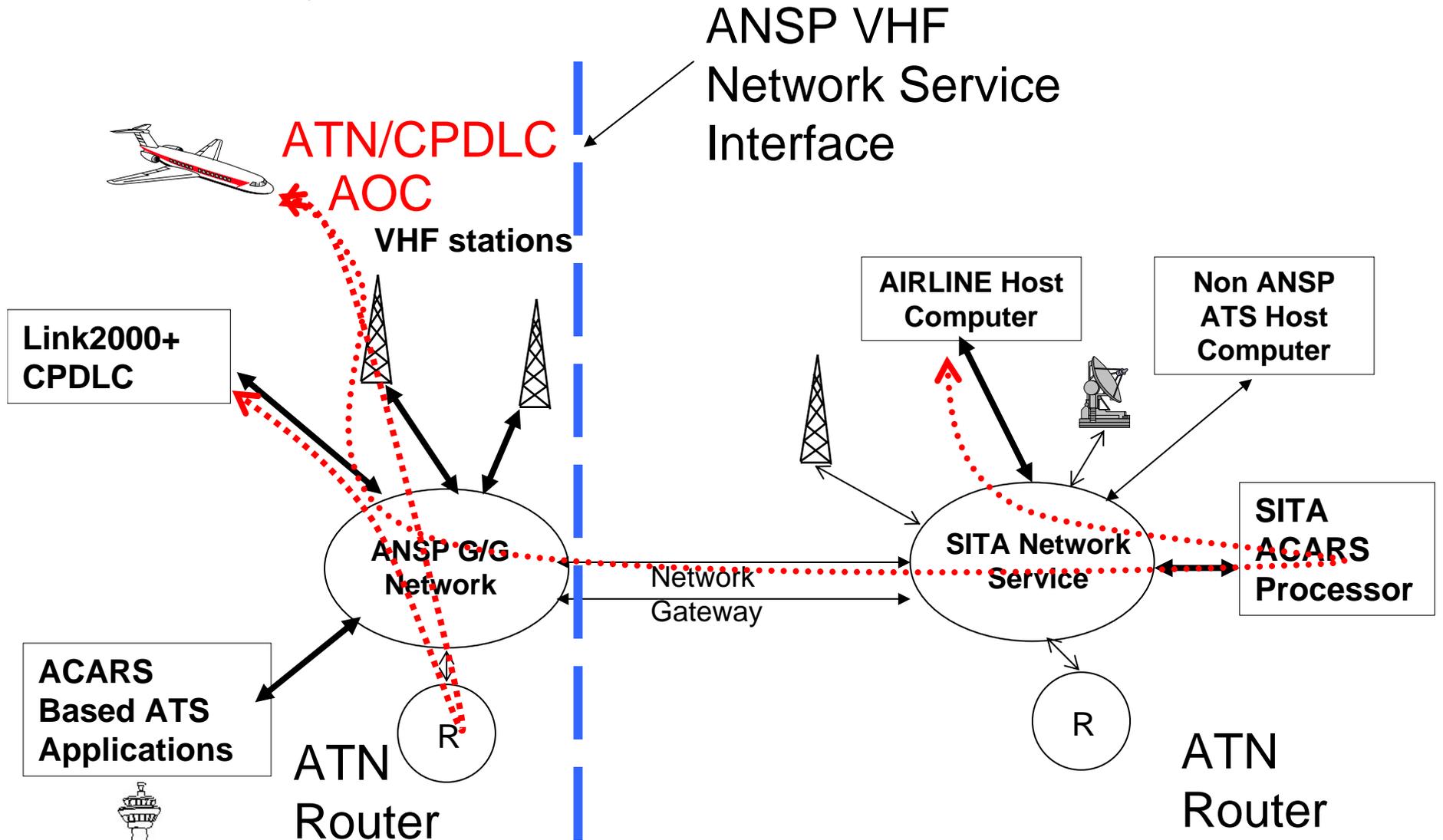


ATN AIRCOM

Introduced in 2005 for European ATN/CPDLC program



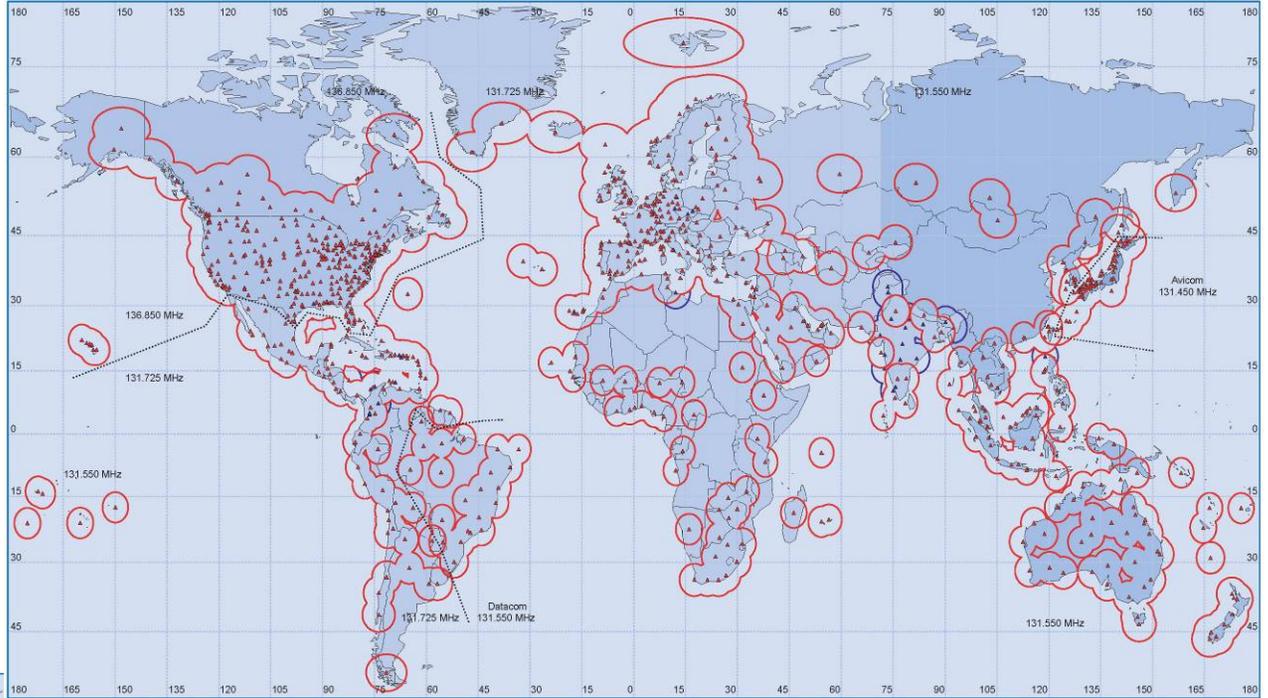
VDL Partnerships – Implemented in Spain and Germany



VHF Coverage*

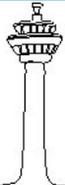
- World's largest a/g VHF datalink network with over 1000 Ground stations worldwide in over 150 countries as of Mar 30, 2007 and growing.
- 140+ contracted airlines serving 6000+ aircraft.

* Maps as of November 2006.
On-line in red, planned in blue.

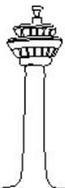
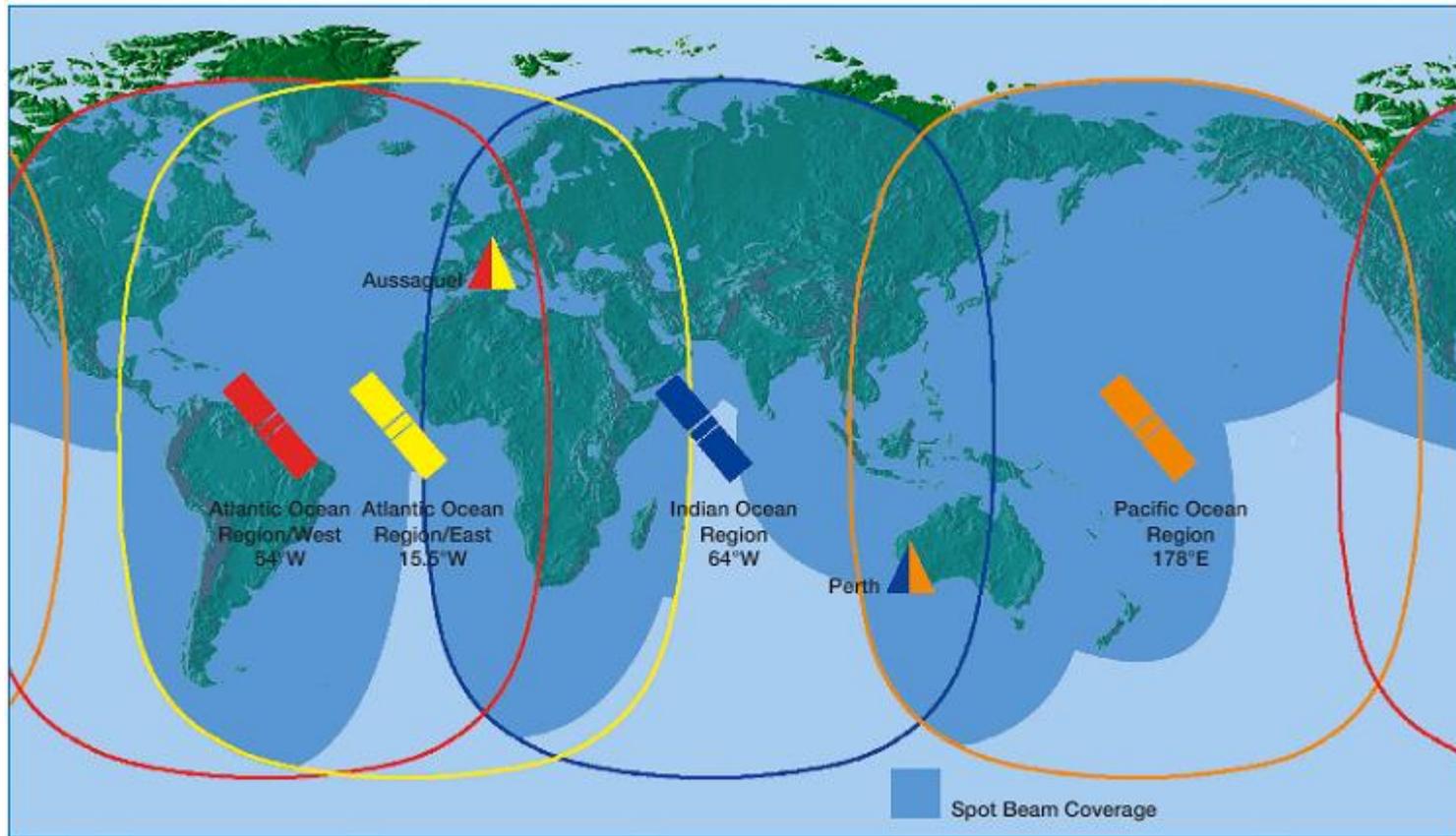


VDL Mode 2 Coverage*

- 72 VDL Mode 2 sites on-line as of Mar 30, 2007 and growing.



Worldwide Satellite AIRCOM Coverage



SITA ATS AIRCOM Services

ACARS-Based

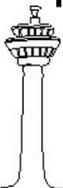
- Digital-Automatic Terminal Information Service (d-ATIS) (also supports d-VOLMET)
- Departure Clearance
- Oceanic Clearance
- FANS-1/A
- Centralized Position Reporting Services
 - Centralized FMC Waypoint Reporting System Service (CFRS)
 - Centralized ADS Reporting System Service (for FANS-1/A ADS) (CADS)

ATN-Based

- ATN AIRCOM

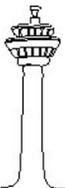
Broadcast-Based

- Regional ADS-B Service Provision

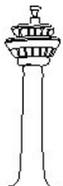
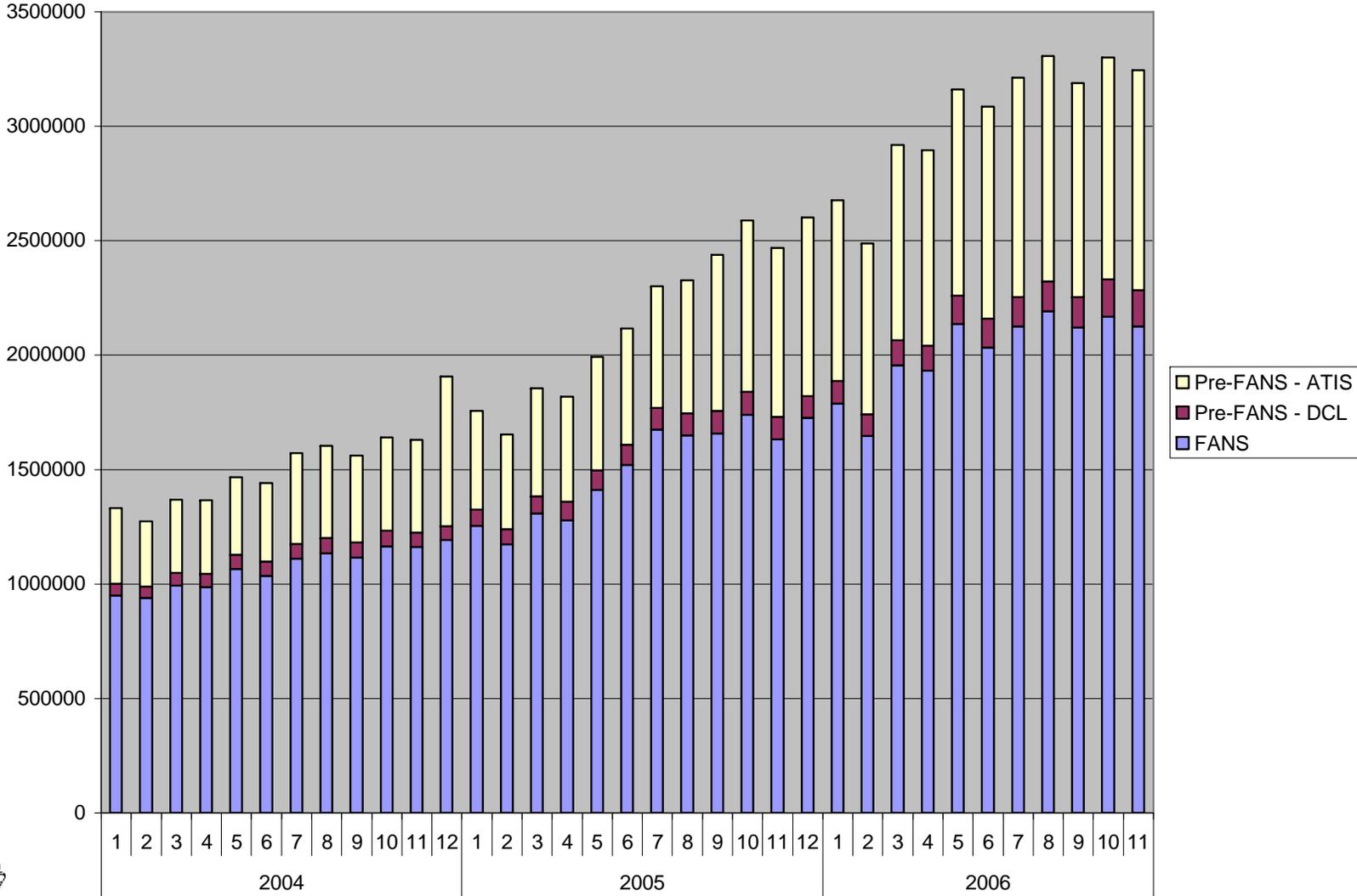


ATS AIRCOM System Solutions

- SITA has developed a new series of ATS systems to accelerate ATS data link implementation:
 - Airport Tower Systems
 - Departure Clearance
 - Digital-ATIS
 - Centralized ATS Server (CATS) (d-ATIS for multiple locations on single platform)
 - FANS – ATN ADS-CPDLC Gateway Capable of dual stack ATN/FANS gateway, among other capabilities
 - FANS – ATN trial workstation

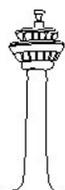


FANS/d-ATIS/DCL Traffic Evolution



SITA and LINK 2000+

- Airlines that have elected to use the SITA ATN Service include:



SAS
Braathens

Lufthansa
City Line

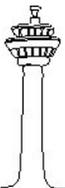
- Air Navigation Service Providers that have elected to use or partner with SITA include:

- DFS in Germany (Partner)
- AENA in Spain (Partner)
- NAV EP in Portugal
- DSNA in France
- Eurocontrol Maastricht UACC (via “internetworking”)

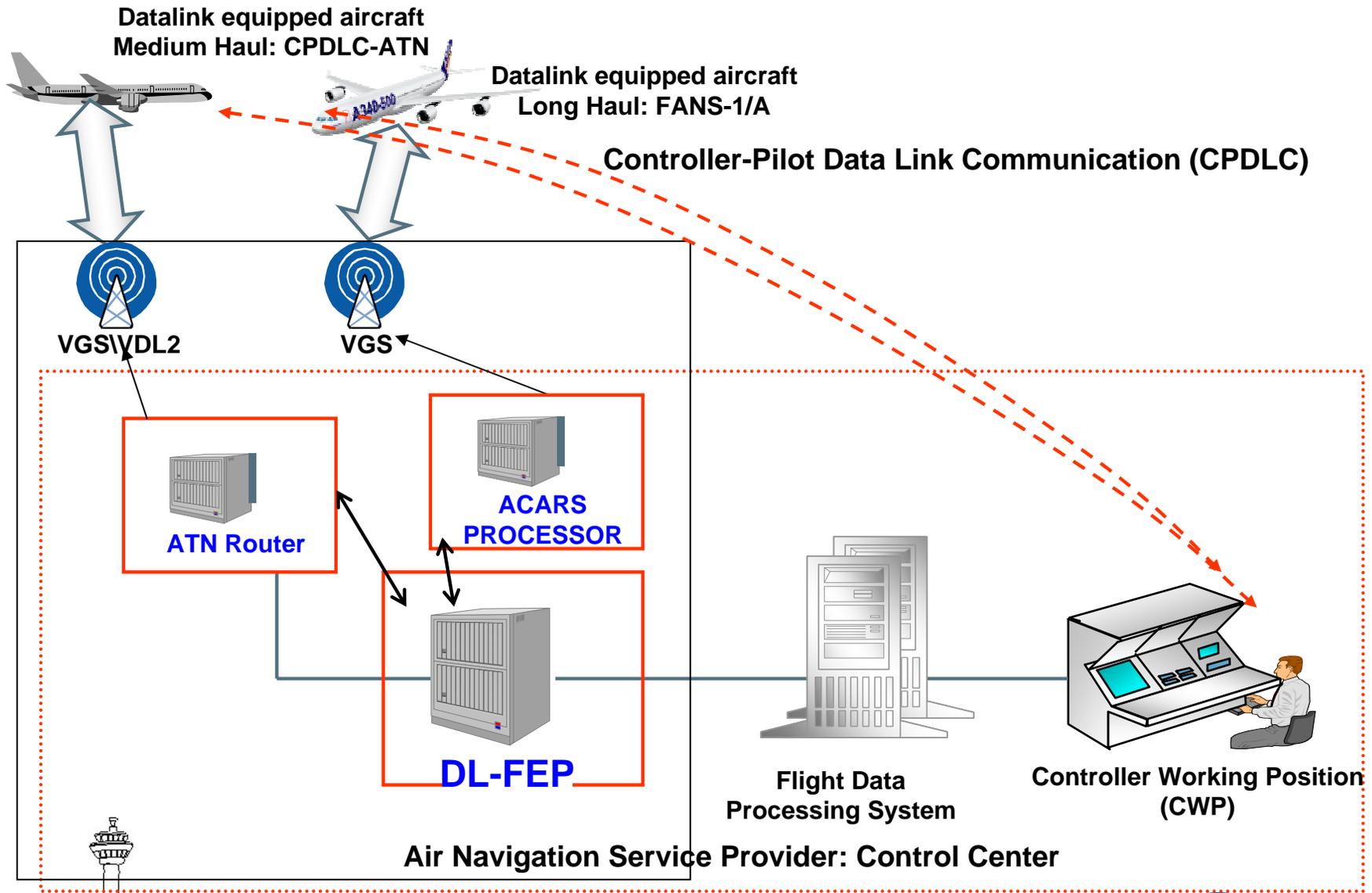


FANS-1/A Accommodation – DL-FEP: the Data Link Front End processor

- In Maastricht UAC, when initiating PETAL trials, decision was taken to accommodate FANS by implementing a dual stack (FANS and ATN) Front End Processor.
- EUROCONTROL and the German Air Navigation Service Provider, DFS, have contracted the SOFREAVIA/SITA consortium to supply the next generation of data link gateway systems, known as the Data Link Front End Processor (DL-FEP).
- The DL-FEP enables to communicate seamlessly with both ATN and ACARS/FANS aircraft.

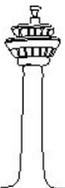


The DL-FEP for the Operational Environment



EUROCONTROL CASCADE Program Trials

- An objective of the Eurocontrol CASCADE program is the definition (and support to implementation) of future CDPLC applications.
- In this context, the **D-OTIS** and **D-TAXI** datalink applications are being experimented in operational environment.
- The **D-OTIS** service includes delivery of d-ATIS, VOLMET and NOTAM information.
- The **D-TAXI** service enables the ground controller to safely transmit push-back and taxi clearances via datalink.
- SITA is actively participating in both **D-OTIS** and **D-TAXI** trials operated at Brussels Airport.



D-OTIS Trial

SITA

SN Brussels
Airlines

Belgocontrol

EUROCONTROL

- SITA was responsible for project management and coordination, and for developing and hosting the D-OTIS ground server.
- SNBA specified the on board D-OTIS application, and will retrofit all SNBA fleet (35 a/c , Avro RJ85/100, Bae146, A319 and A330).
- Belgocontrol provided access to Belgium ATIS and VOLMET data.
- Eurocontrol provided access to European AIS Database (EAD) for NOTAM retrieval. Interop specifications and operational guidance material are currently being drafted under Eurocae TF.
- In collaboration with other partners (Blusky, Systex)



SITA

D-TAXI Trial

SITA

- SITA is responsible for project management and coordination, and provide datalink gateway.

SN Brussels Airlines

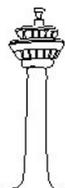
- SNBA specifies the on board D-TAXI application, and will retrofit all SNBA fleet (35 a/c , Avro RJ85/100, Bae146, A319 and A330).

Belgocontrol

- Belgocontrol provides will implement the D-TAXI application on Brussels ATM system.

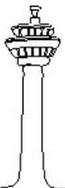
NLR

- NLR provides safety and human factors expertise.
- In collaboration with other partners (Blusky, heading the consortium)

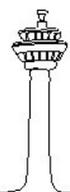
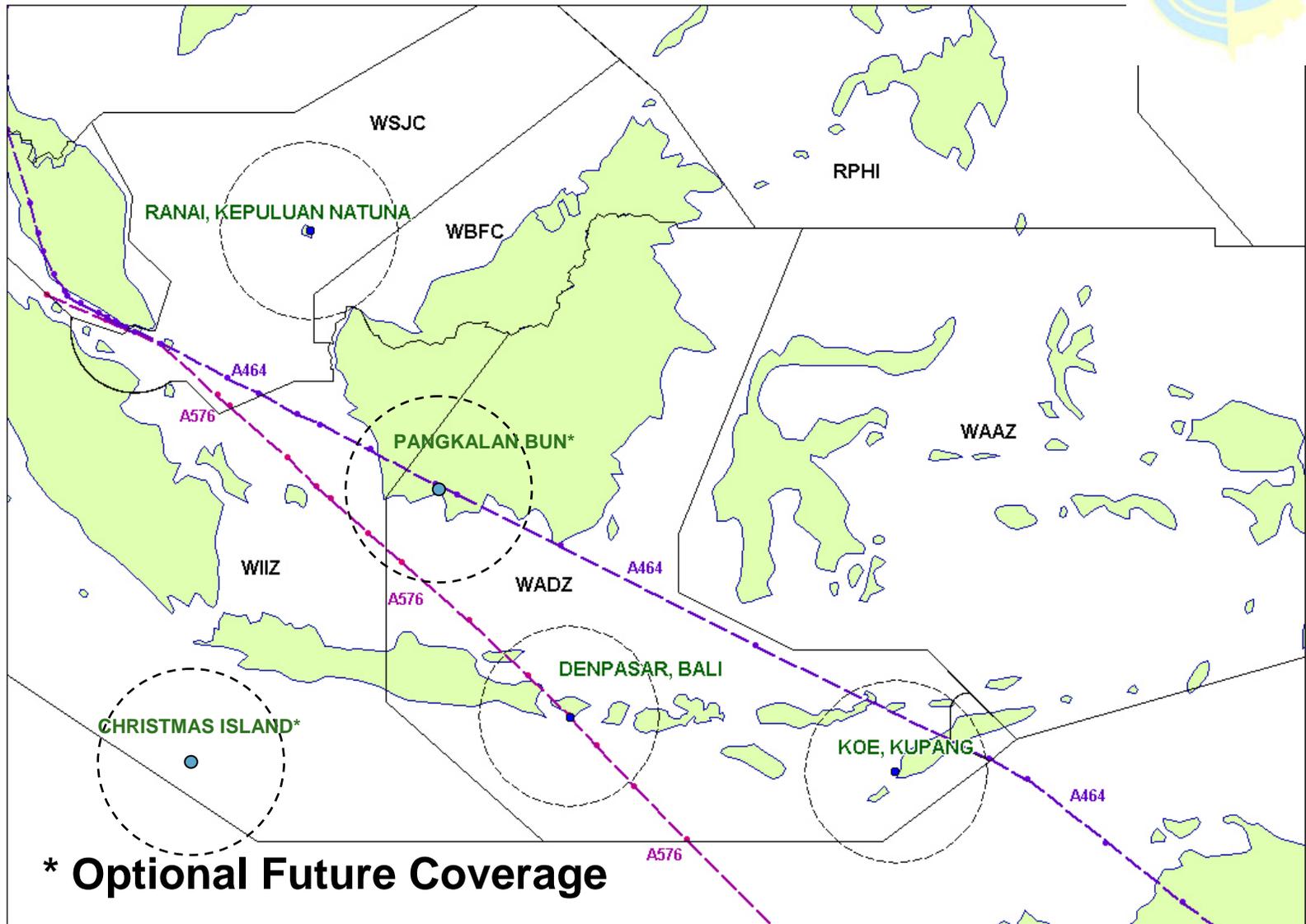


SITA ADS-B Activities

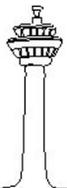
- SITA working with QinetiQ to validate their prototype receiver and performance of the network. The data feed is provided to UK NATS in the context of the EUROCONTROL CASCADE program.
- Airservices Australia and SITA formed alliance (officially announced on Feb 9, 2006)
 - to develop and promote a regional ADS-B service provision
 - aimed to accelerate regional cooperation in ADS-B implementation and one that enables cross international FIR data sharing in the Asia/Pacific region
 - Pilot Trial in Indonesia
- Unique complementary strengths
 - Airservices Upper Airspace ADS-B Program
 - SITA AIRCOM Data Link Service Provision
- Full support from IATA ASIA/PAC regional office



Pilot Regional ADS-B Trial in Indonesia

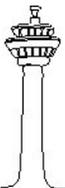


UK ADS-B Demonstration



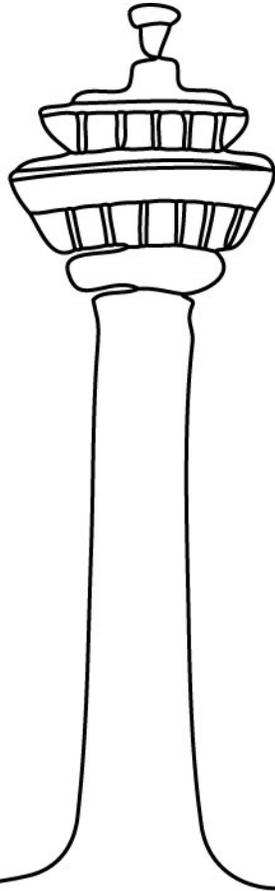
Conclusions

- ATS Datalink implementations continue to evolve.
- SITA continues to evolve services and systems to meet current and future ATS Datalink needs.
 - D-ATIS
 - DCL
 - OCL
 - FANS-1/A
 - ATN
 - D-OTIS and d-TAXI
 - ADS-B



Thank you for your attention!

For further information, please contact:
Kathleen.Kearns@sita.aero



Straightforward aircraft operations

SITA