Air France KLM RFID Baggage Project: "Enabling the Event-Driven Enterprise"

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Introduction of speakers

AIR France, one of the two airlines in Air France KLM Group:

- World leader in terms of turnover, international passenger traffic, cargo activities1
- Number 1 in Europe for passenger traffic
- Key figures:
  - 21.4 billion euros turnover
  - 70 million passengers
  - 1,800 flights per day
  - 247 destinations in 107 countries
  - 561 aircrafts in operation
  - 102,000 employees

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- Management and IT consulting assisting client project managers
- Expertise: traceability in logistics and maintenance,, RFID

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Airline industry context

- **Low margins**
- **Important investments and human resources**
- **Impossibility to stock "production" (transport)**
- **Multiple partners and sites**

Role of RFID for Air France / KLM :
on-going optimization of costs and processes

- Automate and systematic data collection
- Make new tracking points financially possible
- Increase speed of data collection and volume of business data
- Enhance flexibility and speed of operations
  - Move from transactional to real time systems
  - Drive IT system by events and business rules

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RFID: a reality in the airline industry

For many years, 125 kHz RFID tags have been used by operations in the industry:

- In automatic sorter at CDG to carry, stock and dispatch baggage using trays

- At cargo warehouse in CDG (G1XL) to manage automatic cart and track pallets

For these applications, Air France KLM has a seven year + experience in operations.

Baggage tags, a key issue since several years (1/2)

- **First experimentations with baggage tags at 13,56 MHz were conducted at Amsterdam, Narita, San Francisco…**

This technology was undoubtedly attractive
(worldwide standard, radio regulations with light constraints)
but did not deliver the expected performance.

Baggage tags, a key issue since several years (2/2)

- First UHF implementations in Hong Kong, Las Vegas, San Francisco

Results were encouraging but only had a local scope, due to the lack of UHF standards for the industry…

2004: common efforts to develop RFID for baggage

- **StB Program (Simplifying the Business) launched by IATA (International Air Transport Association) in 2004**
  - CUSS (Common Use Self Service kiosks)
  - e-ticket
  - BCBP (Bar Coded Boarding Pass)
  - **RFID**
  - e-freight

- **RFID objectives in StB**
  - Support RFID pilots
  - Confirm business case for baggage RFID
  - Provide consulting on other RFID opportunities in the airline industry
  - Ensure coordination with ACI (Airports Council International)

RFID officially becomes an industry priority.

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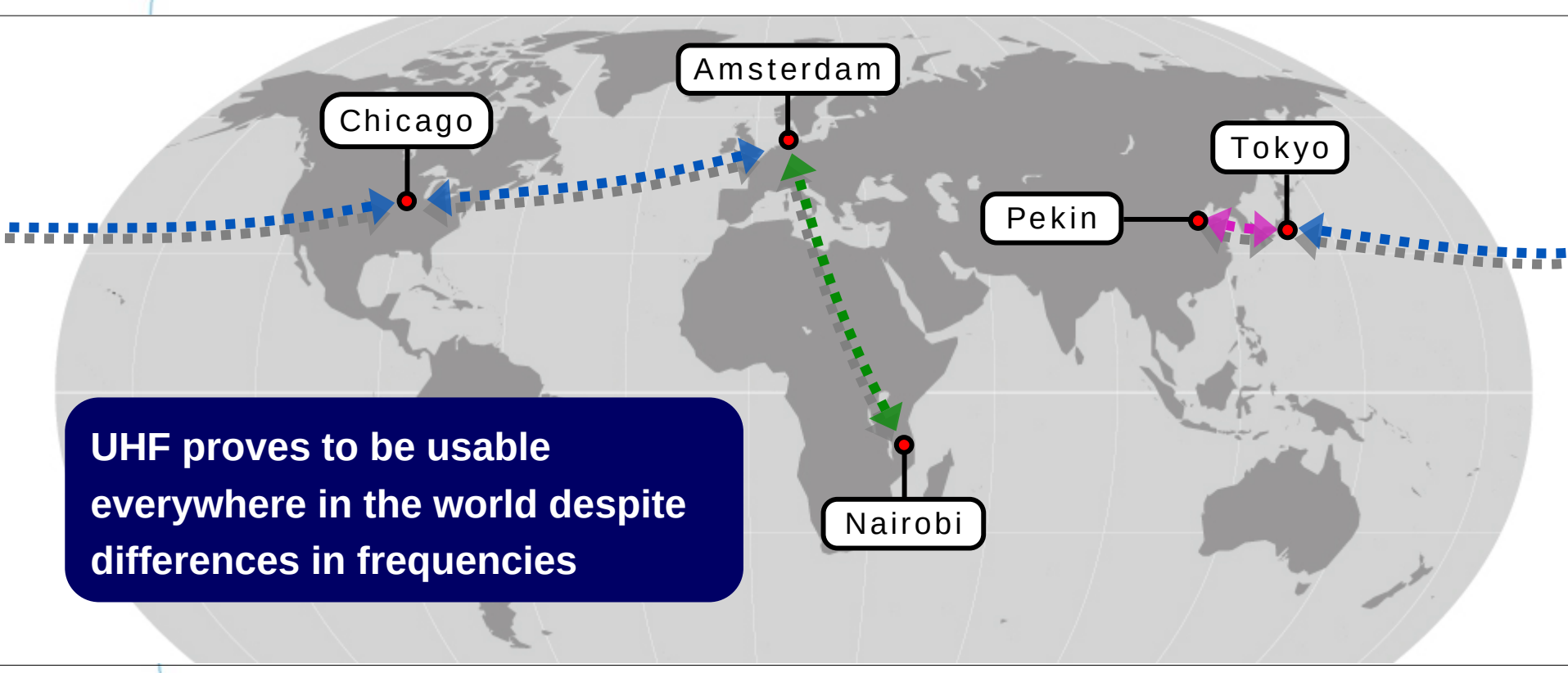
September 2005 : interoperability test by IATA and TSA

- TSA = Transportation Security Agency
- Test conducted on test baggage with passive UHF tags



UHF proves to be usable everywhere in the world despite differences in frequencies

November 2005, an RFID baggage standard at last

Recommended Practice 1740C defined in November 2005

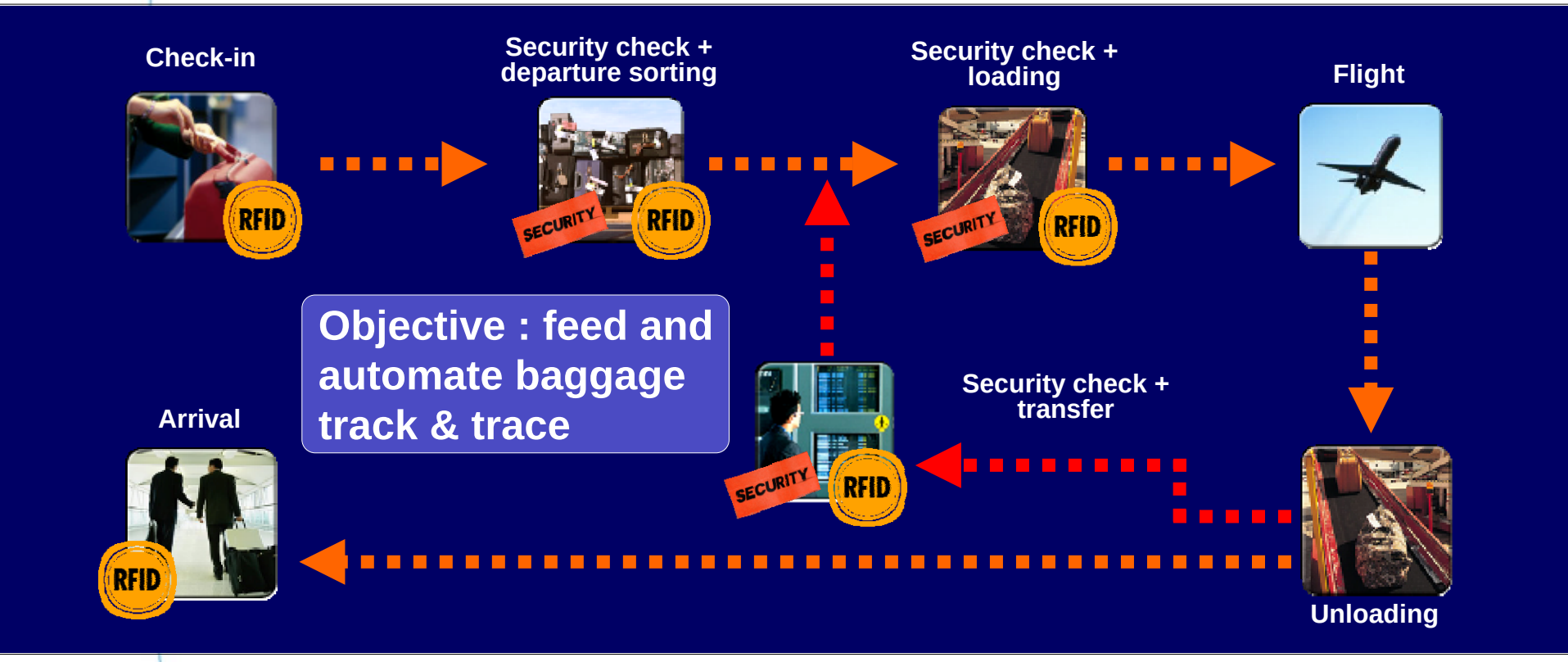
- ISO 18000 6C for the air interface
  - Consistent with EPC (Class 1 Gen 2)
  - Passive UHF tags
  - Multiple read/write
- ISO 15961 and 15962 for encoding

Object IDentifier	Object	Memory Bank
1 0 15961 12 1	License Plate Code (10 chiffres)	01
1 0 15961 12 93	Door to door Service Delivery Company	11

Technology choices are no longer uncertain, including those linked to future applications.

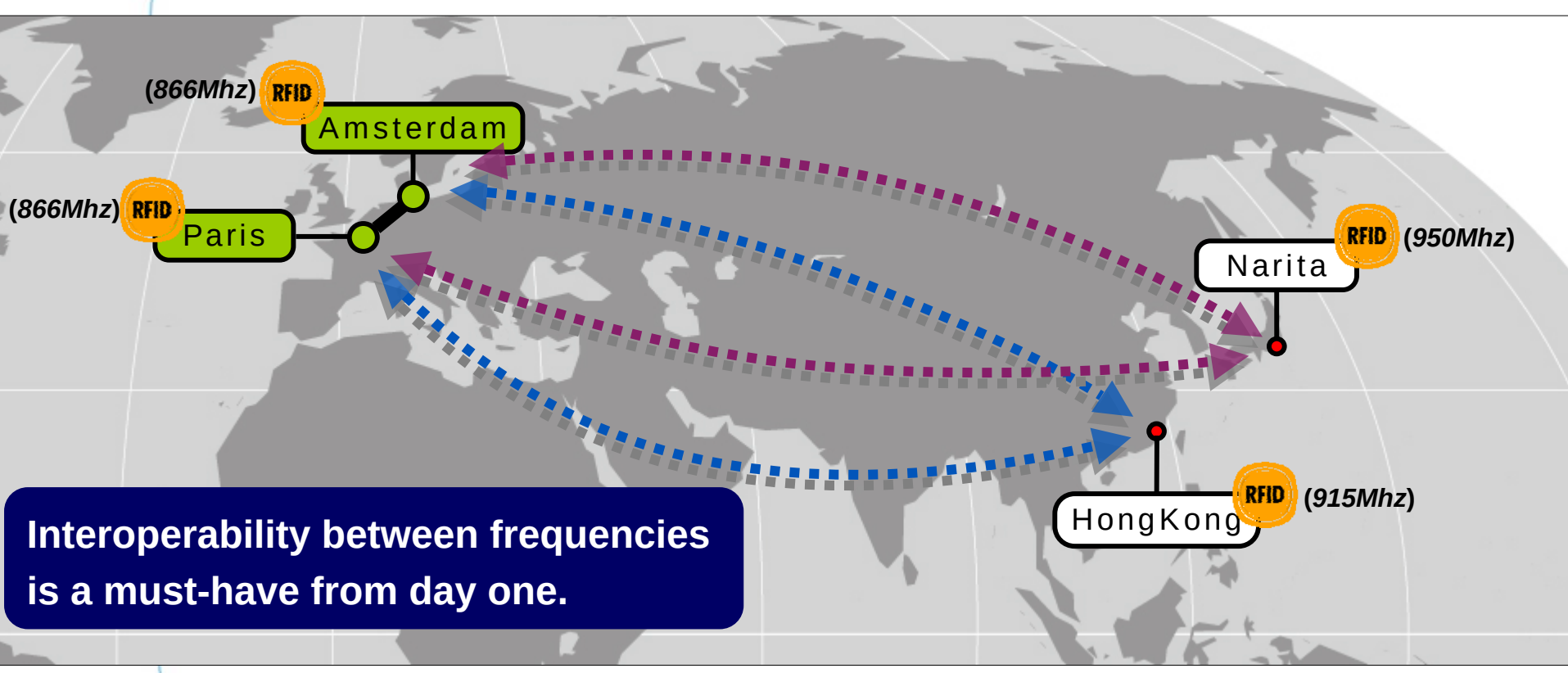
End of 2005, Air France and KLM relaunch baggage RFID

- Scope of RFID will ultimately go from check-in to baggage delivery



Baggage RFID is not just for hubs

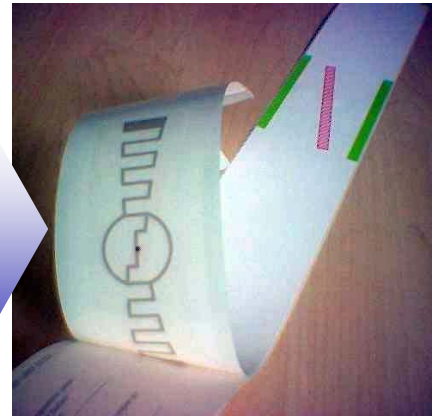
- **Experimentations will also include partnering outstations:**



Interoperability between frequencies is a must-have from day one.

RFID implementation starts at check-in…

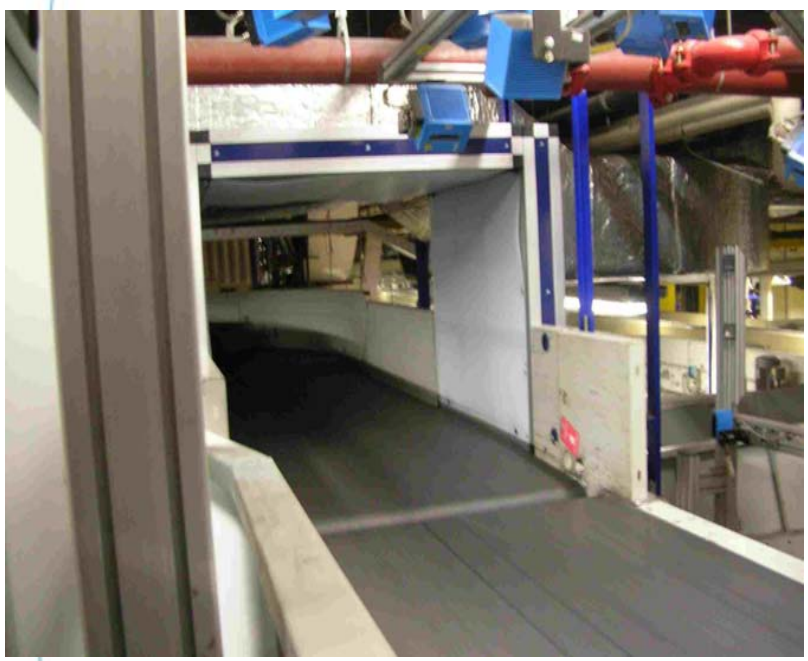
- **At Amsterdam terminal 2 and T2F1 in Paris CDG**



The launch is communicated widely to passengers:

"*To improve baggage management, Air France is experimenting on this check-in counter a new bag tag with an RFID chip.*
Like bar codes, this computer chip only contains the bag identification number.
We thank you for your participation to this project"

RFID tags reading starts at departures…



- Amsterdam installs an RFID tunnel reader in its departure pre-sorter under terminal 2 with the aim to replace at some point 3D bar code scanners
- From the start, infrastructure and logistics flows specificities drive RFID tunnel installations.

RFID tags reading starts at arrivals…

- A first tunnel is officially started on the "hubway" at Amsterdam to read baggage coming from Paris CDG.
- A partnership with NAA and ASTREC allows to do the same at Narita Airport.

Interoperability between different frequencies and equipments is validated on a real scale, on actual baggage.

Tag reading is also implemented at Paris CDG

- **Two tunnels in T2F1 and T2F2 allow to read tags coming from Amsterdam and Narita**

The integration of tunnels in their environment, including upcoming RFID portals for containers, is taken into account.

In sorters, tunnel installations amounts to engineering

- **RFID tunnels must in no way disrupt operations or maintenance of these critical infrastructures for Air France and Aéroport de Paris**

Tunnel design is modified to take these constraints into account.

Standards: a key issue…

- **Standards are a key success factor to achieve the different RFID applications in Air France KLM**
  - Ground services: baggage and containers
  - Maintenance: textiles, spare parts, stocks…
  - Catering : trolleys, stocks
  - Other applications: cargo, boarding pass, marketing, geo-positioning…
- **The choice of Air France KLM and IATA is to build <u>all RFID projects</u> on open standards defined by ISO.**

Without open and consistent standards, it is not possible to harmonize business requirements and take advantage of technical synergies.

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… and standard interpretation as well

- **Experience shows that interoperability and interchangeability come from a common understanding and the implementation of common frameworks at different levels:**
  - Geographic and radio-frequencies: frequencies, power, duty cycle…
  - Hardware: interchangeability between manufacturers
  - Logical: data capture protocols, event management rules, security of data and exchanges
  - Application and business: processes and associated services (ref. SOA), harmonization and administration of repositories

Current maturity of standards and market requires controlling implementation, especially test phases.

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Third key issue: technical performance

- On real scale and in the field, even simple things can become complex.
- Security and tracking requirements for baggage lead to additional constraints in the sorters.
- On conveyor belts, distance between two pieces of luggage can be as small as 30 to 50 cm.

Thinness of the RFID reading beam is as important as read rate to compete with current 3D bar code readers.

Conclusion : RFID vision

- **RFID is a strategic technology which will be more and more used by the different departments of Air France / KLM to optimize or even reengineer business processes.**
- **To achieve these goals, a single event can be shared by several activities or organizations.**
- **RFID is part of a more global strategy to implement real time and event driven IT systems**

Now is the time to run pilots and gradually start roll-outs:

- At this stage, RFID is still at its beginning but it is not obvious that competition will allow you to do it later.
- RFID skill centers should be organized as early as possible to manage technical and business evolutions linked to RFID.

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Questions ?

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