



EPCglobal U.S. CONFERENCE 2005



Using EPCglobal Network to track baggage around the world

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Agenda

- The Problem
 - Baggage in the airline industry
- The Opportunity
 - Use EPC to improve baggage tracking
- The Collaborative Effort
- The Solution
 - TSA UHF Worldwide Interoperability Trial
 - BagTrackNet
- The Successes

The Baggage Problem in the Airline Industry

- \$1.6B/year spent on recovering, expediting and replacing lost or delayed baggage
- Almost 1% of checked baggage is delayed or lost
- Added security requirements since 9/11 require improved data management and processes
- Significant cost pressures on the Airline Industry will require improved operational efficiencies

Opportunity to Use EPC to Improve Baggage tracking

- Barcode readers have 70% - 80% read rate on airline Baggage tags
 - Tag orientation
 - Tag positioning
- Augment barcode read tunnels with RFID devices
- Translate between airline data standards (IATA Baggage license plate) and EPCglobal Standards
- Move from proprietary peer-to-peer communication networks to open standardized infrastructures (EPCglobal Network)
- TSA approached EPCglobal to explore possibilities of using EPC



The Collaborative Effort

- EPCglobal US partnered with
 - Transportation Security Administration (TSA)
 - Avicon
 - Incite! Consulting
 - Hummingbird Defense Systems
 - Kellam Group
 - Mightycard
 - Symbol
 - Wyle Labs



The Solution

The TSA UHF Worldwide Interoperability Trial

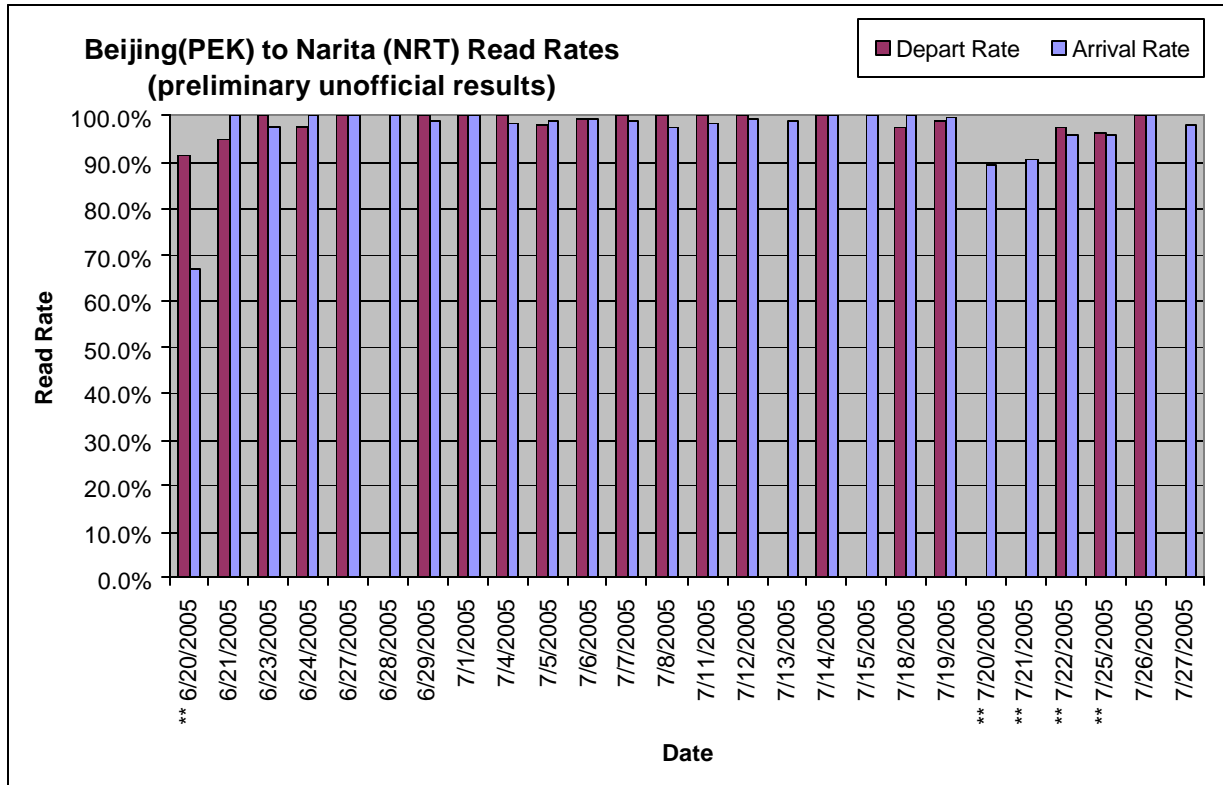
- Q2/Q3 2005
- 40+ days
- United Airlines,
China Air,
Kenya Air
- Beijing, Narita,
Nairobi, Chicago
O'Hare, Amsterdam
Schipohl



Achievements

- EPCglobal Network provides transparency in an open, multi-vendor architecture
- EPCglobal framework allows for very quick network implementations
- EPCglobal tag data standards are applicable to baggage tracking
- EPC Gen 1 tags achieve phenomenal read rates (compared to bar codes)
- EPCglobal Network is a global solution

Read Rates Achieved with EPC Tags



Read rates

- PEK: **98.6%**
- NRT: **99.3%**
(excluding misleading results due to process problems)
- Total tags issued: **3422**

Disclaimer:

The results (read rates) presented as part of the EPCglobal pilot do not represent the official TSA test results. The TSA results involve a complete analysis of raw data, notes, and electronic communications to determine the final read rates. Some of this information was not available to EPCglobal therefore; these results may differ from the official TSA results.

BagTrackNet – Efficient Transparency in a Multi- Vendor Environment

READ RATE REPORT HOME | HELP | LOGOUT

Airline	Flight #	Departing	Arriving
Air China	925	Beijing, China (PEK) 2005-07-19 09:40:00	Tokyo, Japan (NRT) 2005-07-19 13:55:00

Total Number of Tags issued	Outbound	Inbound
250		
Number of Tags read	216	220
Translation Error / Unknown Data	1	3
Variations		
• oversize	3	-
• load at gate	-	-
• tags discarded (unused)	29	29
• not sent on the flight	-	-
Total Number of Tags accounted for	248	249
Read Rate	99.2 %	99.6 %

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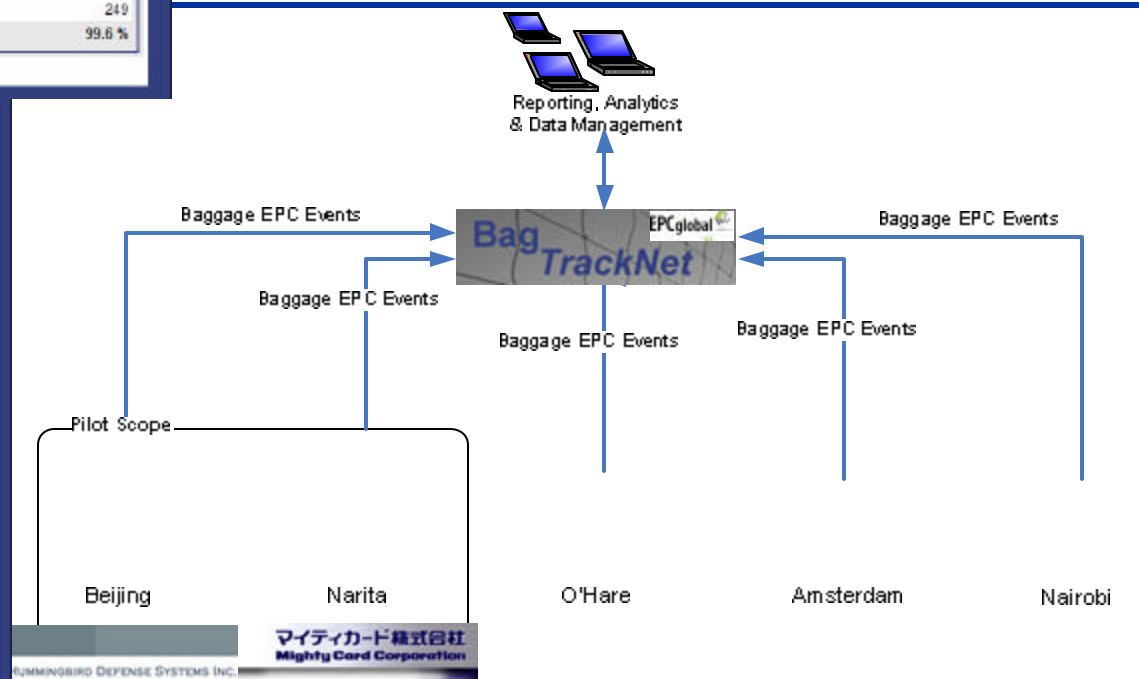
- Integrates RFID read data from Beijing and Narita
- Interacts with local EPCIS via standard EPC event format
- Implementation and deployment within four weeks
- EPC standards provide powerful platform for multi-vendor solutions (Wyle Labs, Hummingbird Defense Systems, Mightycard, Symbol, EPCglobal US, Avicon)

FLIGHT BAGGAGE LIST HOME | HELP | LOGOUT
Display of all RFID baggage detected on specified flight.

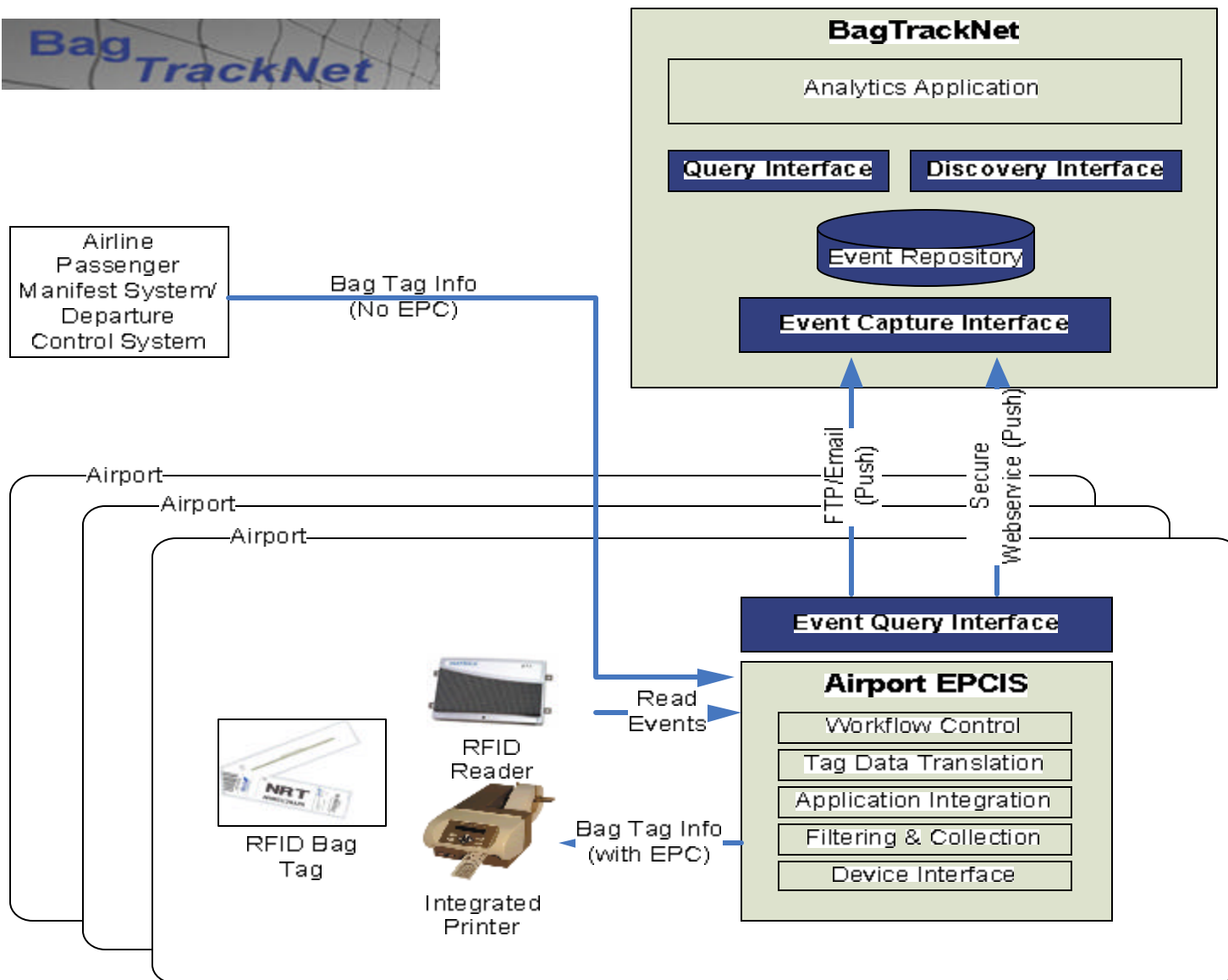
Air China

Flight #	Departing	Arriving
925	Beijing, China (PEK) 2005-07-20 09:40:00 (APT)	Tokyo, Japan (NRT) 2005-07-20 13:55:00 (APT)

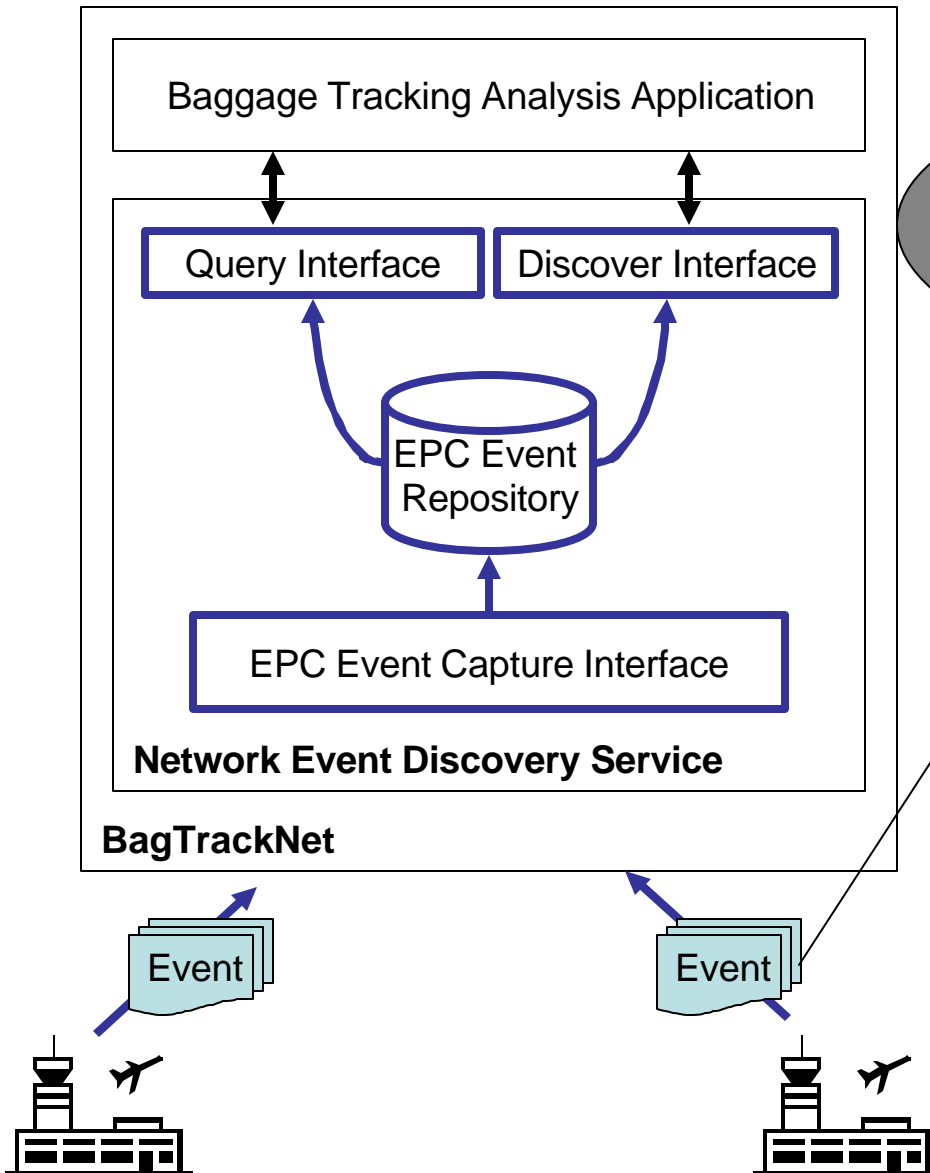
Bag Tag #	Reader Location	Read Time
CA-000132	NRT-Term002-Cam0B5-Reader004	2005-07-20 14:51:17
CA-000132	NRT-Term002-Cam0B5-Reader004	2005-07-20 14:57:28
CA-000134	NRT-Term002-Cam0B5-Reader004	2005-07-20 14:50:14
CA-000134	NRT-Term002-Cam0B5-Reader004	2005-07-20 14:56:19
CA-000201	NRT-Term002-Cam0B5-Reader004	2005-07-20 14:50:57
CA-006069	NRT-Term002-Cam0B5-Reader004	2005-07-20 14:51:12
CA-006075	NRT-Term002-Cam0B5-Reader004	2005-07-20 14:52:22
CA-006076	NRT-Term002-Cam0B5-Reader004	2005-07-20 14:53:36
CA-006077	NRT-Term002-Cam0B5-Reader004	2005-07-20 14:53:44
CA-006078	NRT-Term002-Cam0B5-Reader004	2005-07-20 14:52:26
CA-006080	NRT-Term002-Cam0B5-Reader004	2005-07-20 14:56:29
CA-006081	NRT-Term002-Cam0B5-Reader004	2005-07-20 14:56:30



BagTrackNet – The Framework



Inside BagTrackNet.EPCglobalUS.org



Leveraged all EPCglobal standards available AND utilized standard vocabulary for business events and business locations



Baggage EPCEvent:

- EPC:
343529056001000000000050
- TimeStamp:
2005-07-18T16:01:07-09:00
- BusinessLocation:
NRT-Terminal002-
Conveyor0B5-Reader004
- BusinessTransaction:
CA925
- BusinessStep:
UNLOADING

Summary

- EPCglobal Network provides transparency in an open, multi-vendor architecture
- EPCglobal standards are open, easily extensible and adaptable to new problems, new industries and new supply chains
- EPCglobal Network created foundation for fast implementation (< six weeks) of visibility and track/trace infrastructure
- EPC provides significant value to baggage tracking in the airline industry
- The Baggage Tracking Pilot provides approaches to solving the Track and Trace issue in other industries
- EPCglobal Network is a GLOBAL solution!