



Thirty Fourth APEC Transportation Working  
Group Meeting, Brisbane, Australia  
13-17 June 2011

# *The Applications of e-Seal to Supply Chain Security and Visibility*



***Investigation Department  
Directorate General of Customs,***

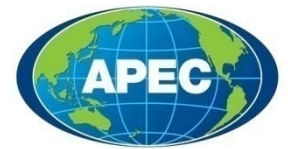
***Ministry of Finance  
Chinese Taipei***



Asia-Pacific  
Economic Cooperation

# Outline

- *Introduction*
- *Chinese Taipei's Effort to Supply Chain Security and Visibility*
- *Cross-border Cooperation Project*
- *Conclusion*



# Introduction

- *The integrity and safety of container are highly concerned by the Customs authorities since September 11 attacks.*
- *The Customs authorities take countermeasures to possible threats to the border security. However any countermeasure can not create barriers to the logistic flows even impede the global trade.*
- *The World Customs Organization (WCO) introduced SAFE framework to get the balance between security and facilitation in the end-to-end supply chain.*

**Behind the border**

- Business environment improvement

**At the border**

- Trade and investment Liberalization

**Across the border**

- Physical connectivity

- Identification of 8 chokepoints
- Cooperation between public and private sectors to develop efficient supply chain model

**2 pillars guidelines**

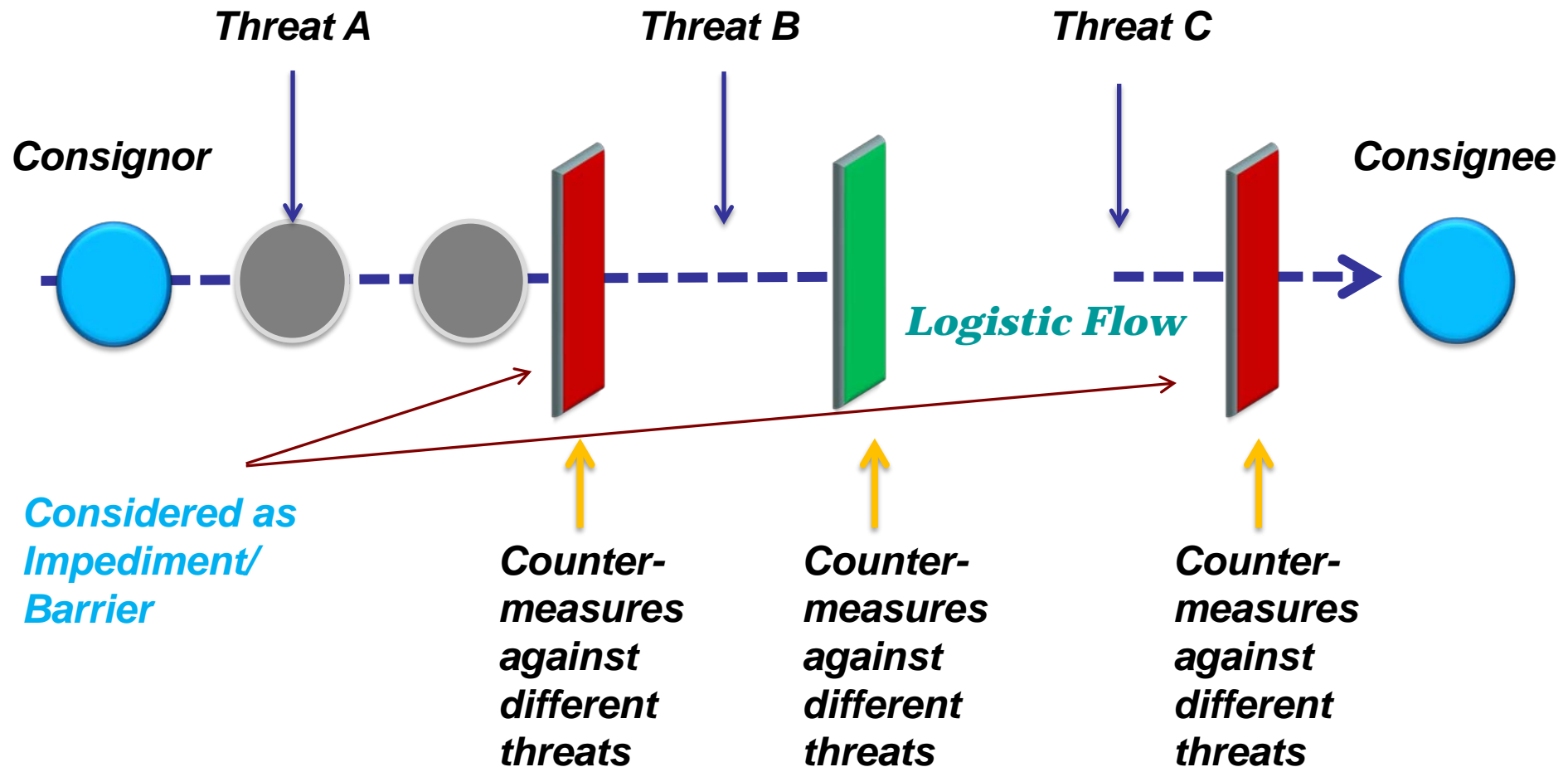
- Customs/Customs Relationships
- Customs/Business relationships

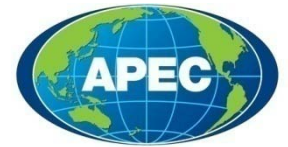
2005 WCO  
SAFE

2009 APEC  
Regional  
Economic  
Integration  
(REI)

2010-2013  
APEC Supply  
Chain  
Connectivity  
Initiative  
(SCI)

# Impediment to Logistic Flow





# Chinese Taipei's Effort to Supply Chain Security and Visibility

- *To be in line with the international trend of enhancing the security and facilitation of international trade, Chinese Taipei Customs has successfully developed the technology of RFID E-seal system, and applied it to the enhancement of the movement of containers.*

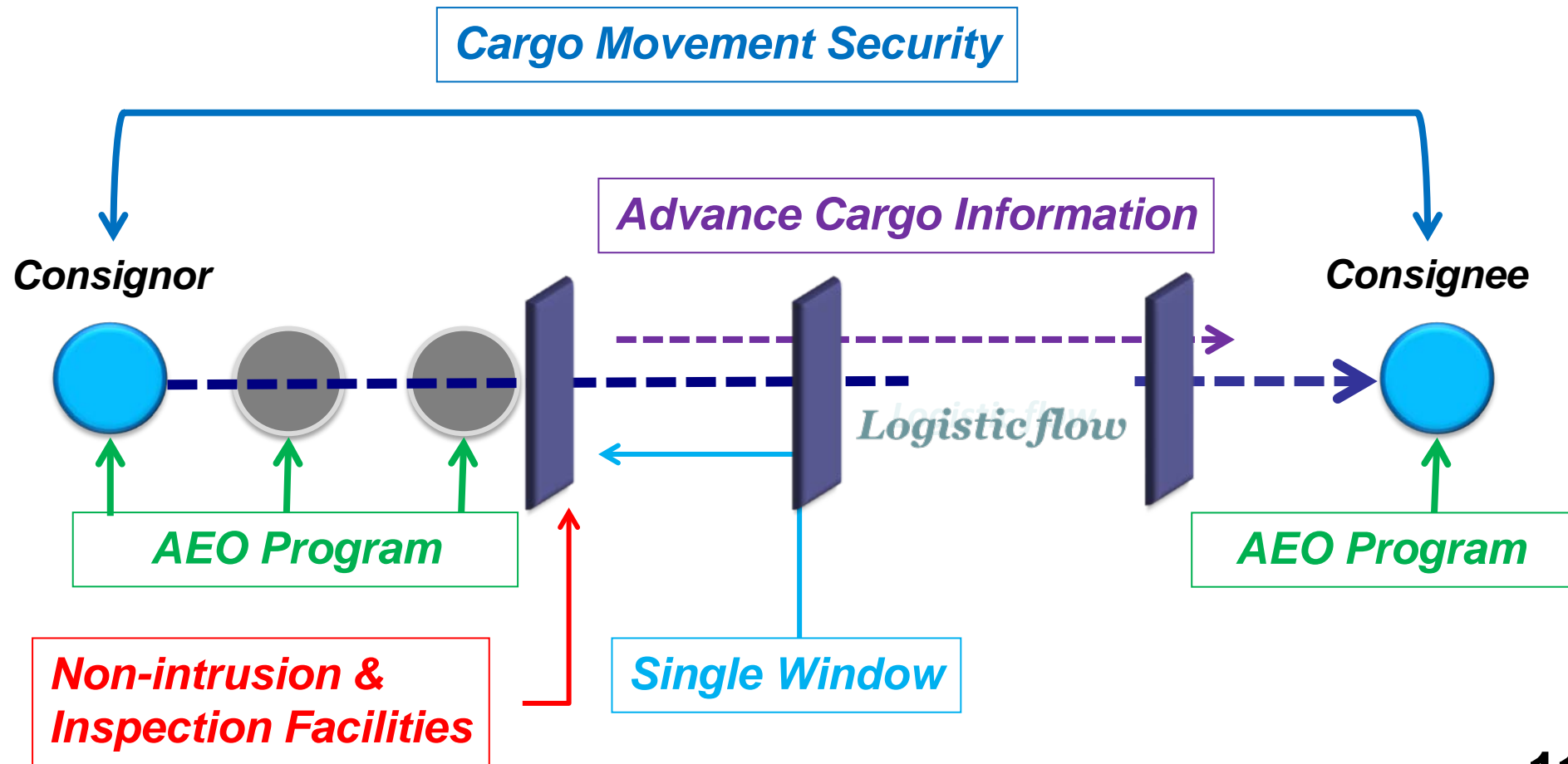


- *RFID e-Seal System for transshipment container in Kaohsiung port.*
  - *Operates since Feb. 2009.*
  - *Apply for transshipment containers in Kaohsiung port only.*
  - *From Feb. 2009 to April 2011, there were 55,410 containers affixed with e-Seals as replacement of physical escort.*

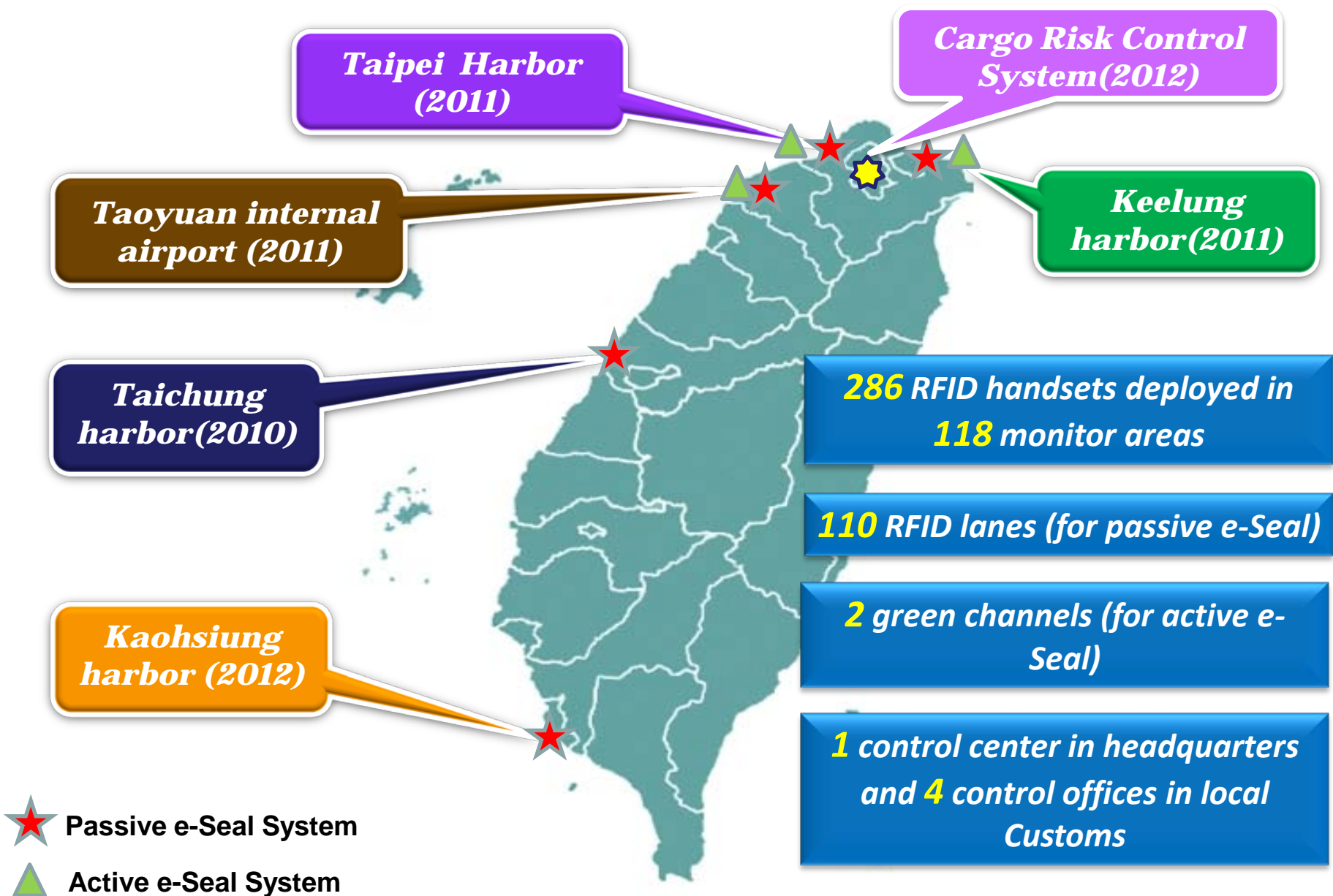
## Benefits

- *55,410 containers were replaced physical escort with passive RFID e-Seals.*
- *Saving of Customs escort manpower more than 22,614 man-times.*
- *Business entities reduce cost and save escort fee more than NTD 11,307,000 (USD 390,000).*
- *Enhance Logistic efficiency by time saving of 9,235 hours.*

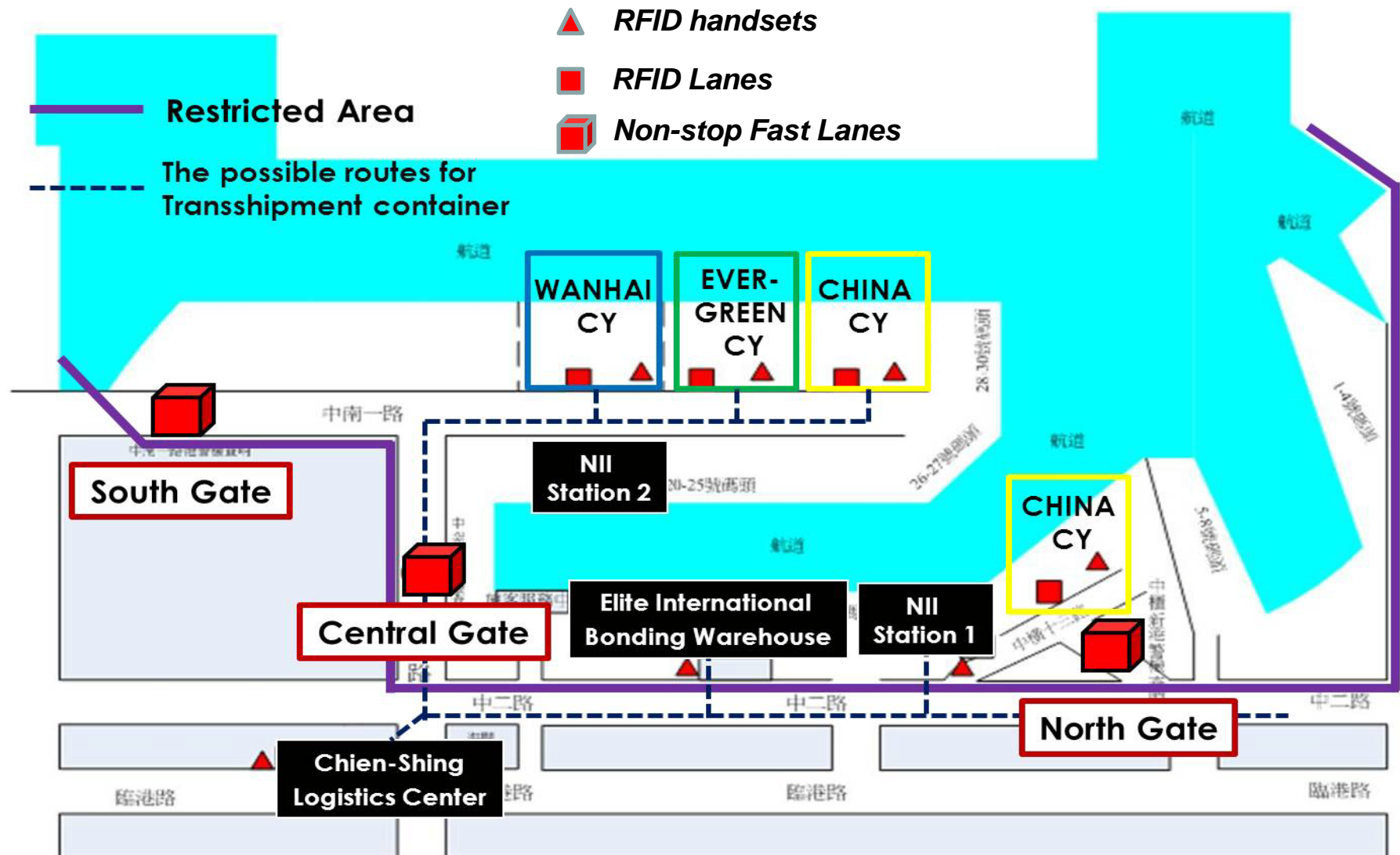
# Developing project of Chinese Taipei: Superior Network for Economic and Trade



- *The cargo movement security subproject*
  - *From 2009 to 2012.*
  - *Implementation scope including import, export, transit and transshipment containers.*
  - *Uses information and communication technologies.*
  - *Provides a feasible solution to balance facilitation and security.*
  - *Propose cross-border cooperation plan for supply chain connectivity.*

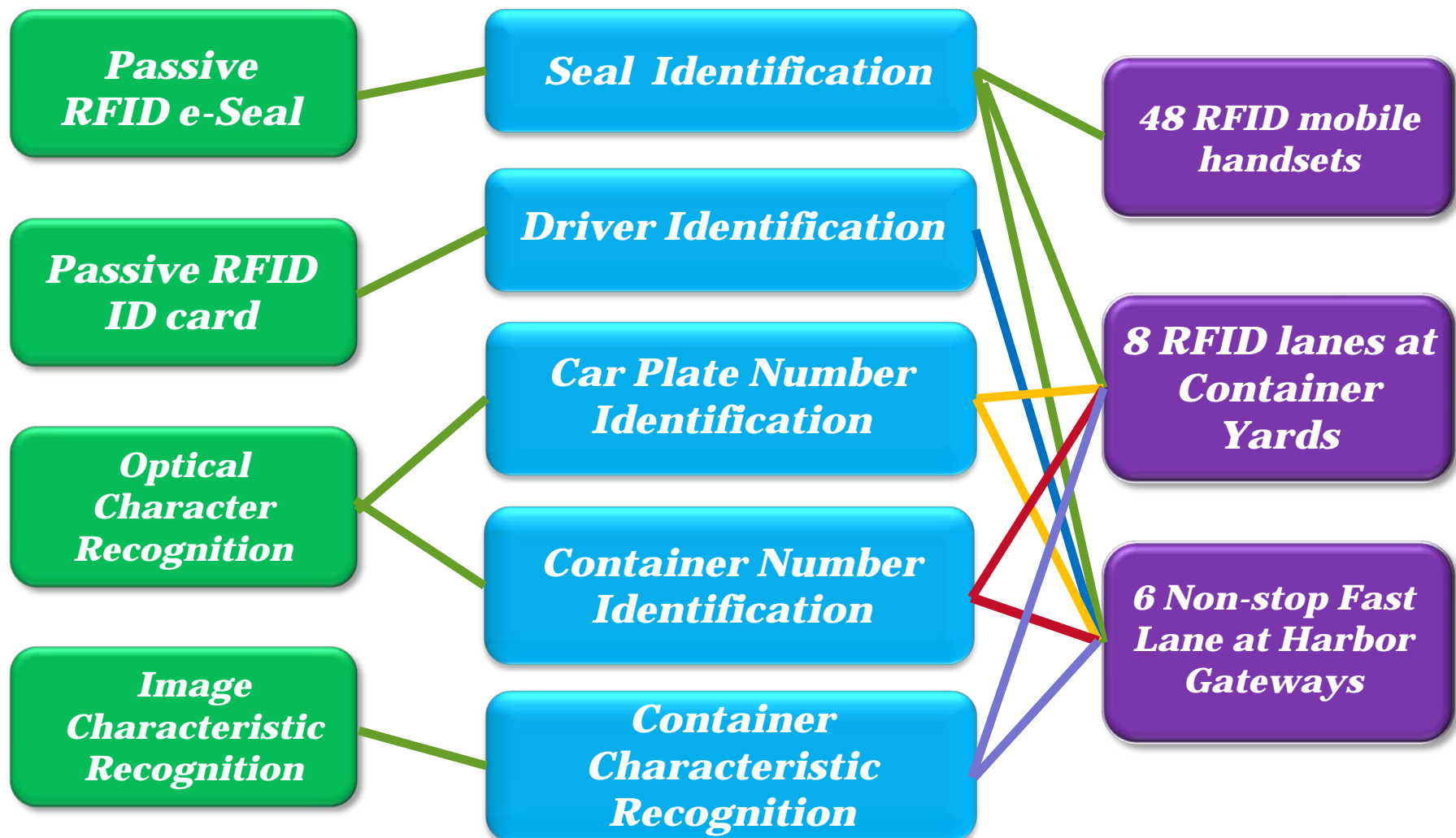


# Taichung Harbor Implementation (2010.12.1)

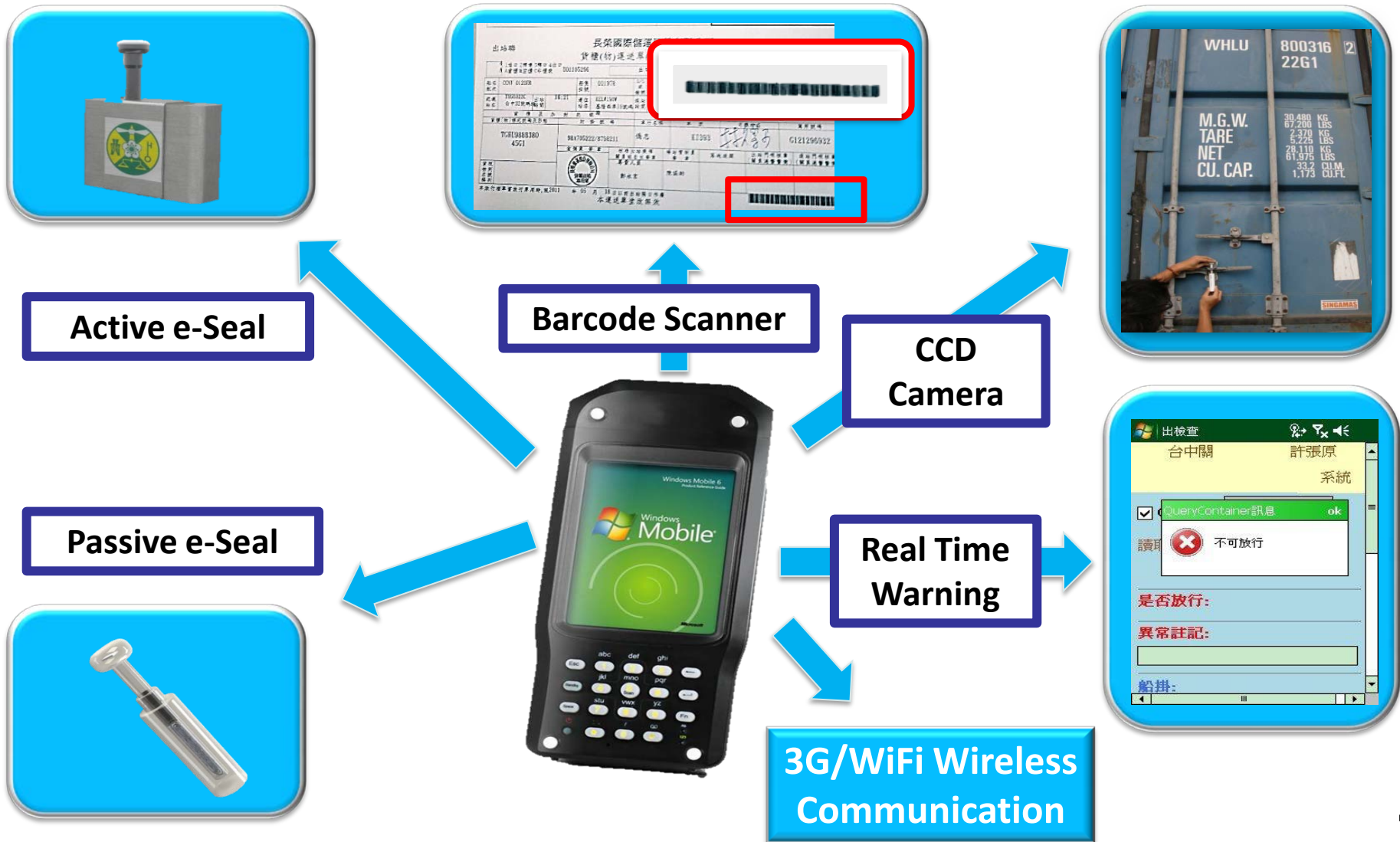




# Taichung Port Implementation



# RFID Handset





# RFID Lane in Container Yard



DVR



Infrared  
Triggers



OCR:  
Container No.  
Recognition

ICR: Image  
Characteristic  
Recognition



Passive  
RFID E-Seal



LED Signal

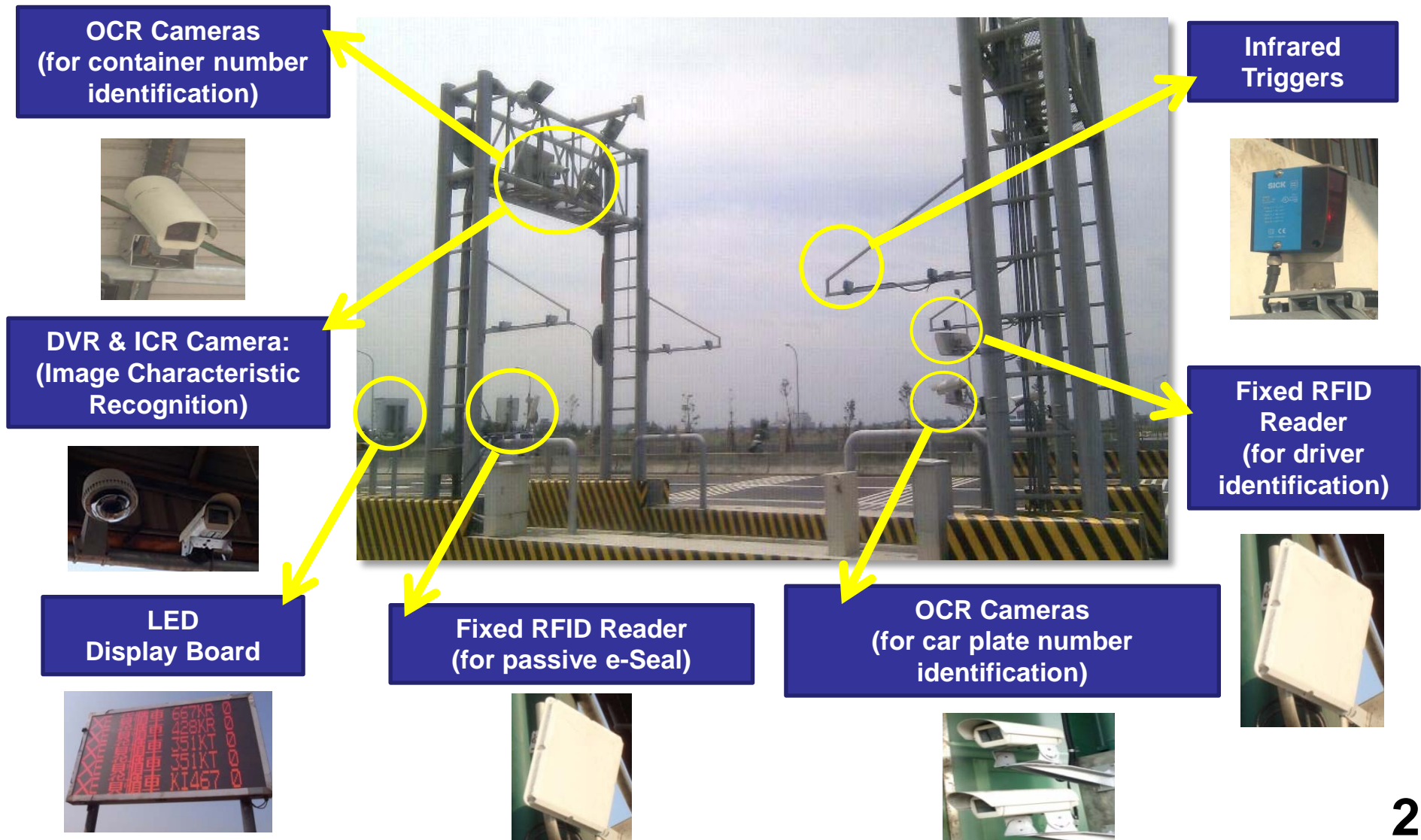


OCR:  
Car plate No.  
Recognition



Barcode  
Scanner

# Nonstop Fast Lane in Harbor Gateway

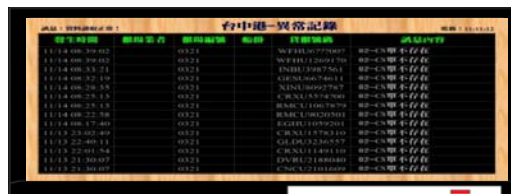




# Monitoring Center in Taichung Customs Office



Surveillance TV



Real Time Warning and Alarm



Devices Monitoring



Synchronized Display of  
Comparison Results of  
RFID Lanes



Container Status from  
Customs Clearance  
Systems



Instant Log of  
Container Notes

## **Implementation Plans in 2011**

### **Taipei Customs Systems are scheduled to**

- deploy 38 RFID handsets in 18 monitor areas
- be on-line at December 1, 2011
- install 1 green channels (for active e-Seal)
- be on-line at September 1, 2011

### **Keelung Customs Systems are scheduled to**

- deploy 111 RFID handsets in 34 monitor areas
- install 34 RFID lanes (for passive e-Seal)
- install 1 green channels (for active e-Seal)
- be on-line at December 1, 2011

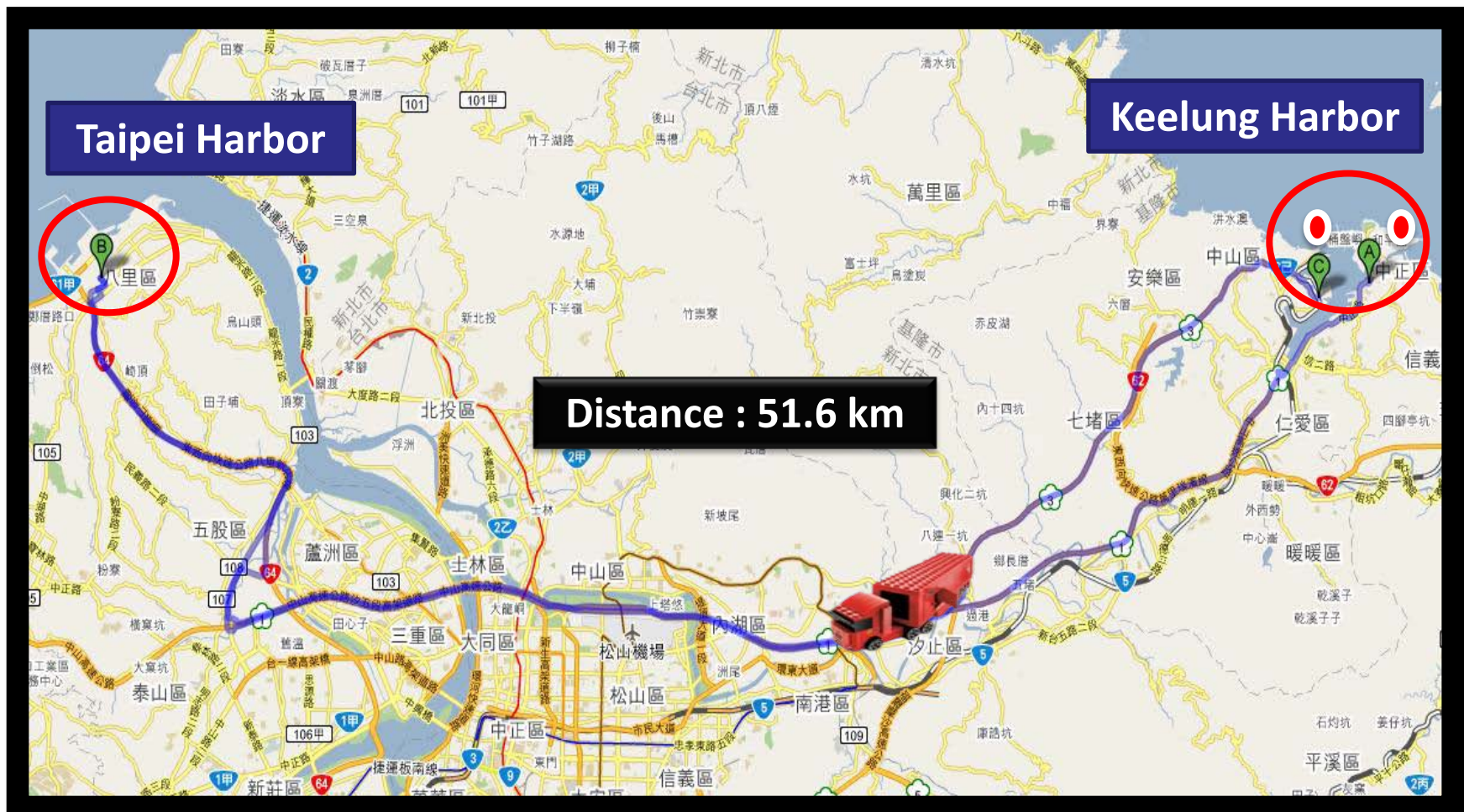
## Active e-Seal

- *In-transit real-time tracking and warning*
  - *GPS function*
  - *3.5G communication modules*
- *AES 128 bits encryption*
- *Quick and easy to install and unlock*



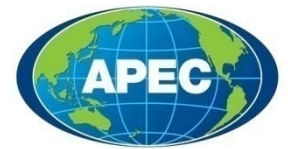


## Green Channel 1 – between Taipei Harbor & Keelung Harbor (for Sea Cargo)



## Green Channel 2 – between Taoyuan International Airport Ever Terminal (for Air Cargo)





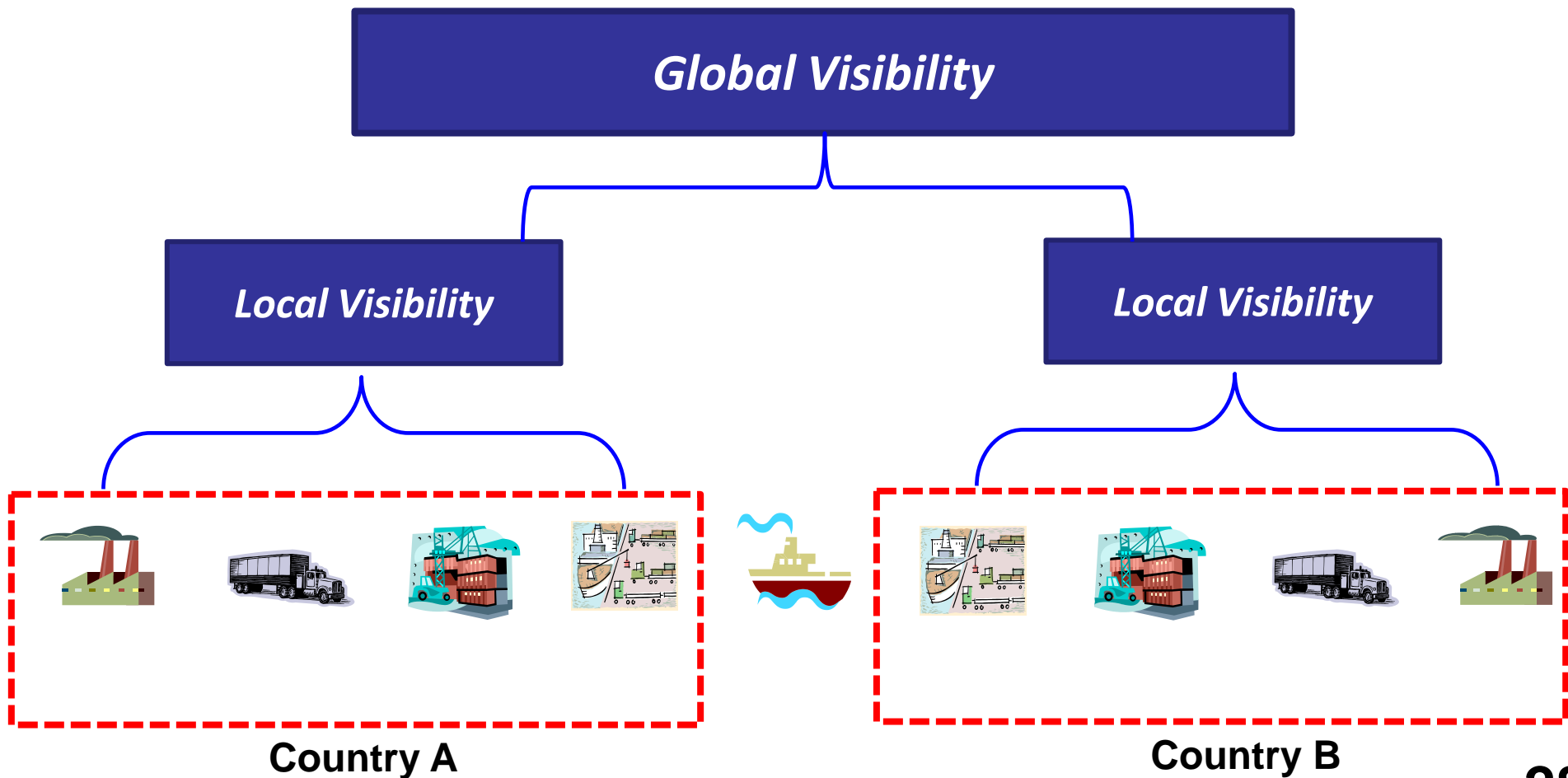
# **Cross-border Cooperation Project**



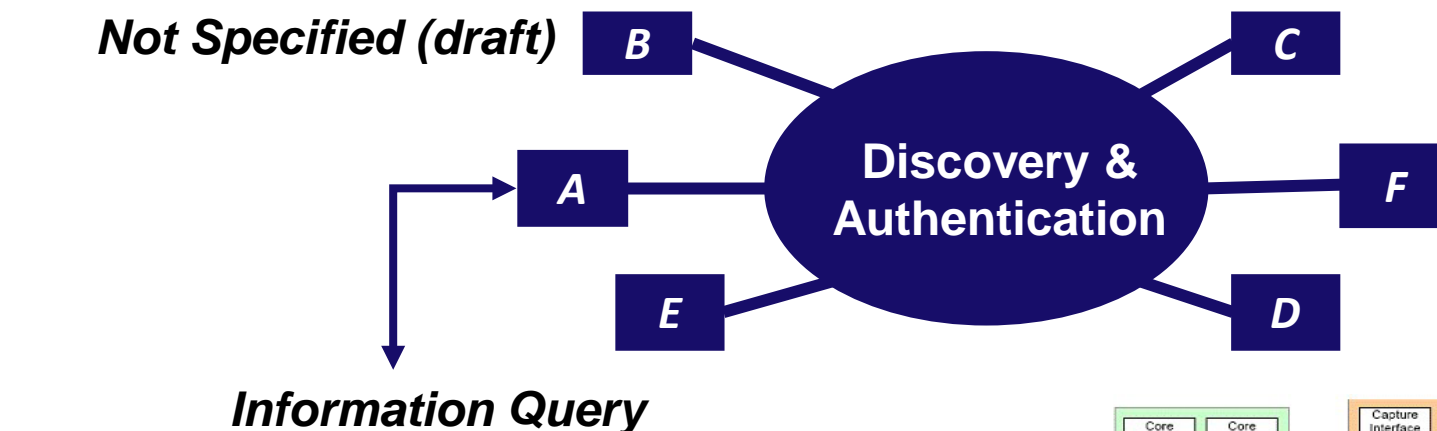
# Cross-border Control

- *A cross-border information exchange platform is essential to the Customs.*
- *The platform can provide critical or important information for Customs to*
  - *ascertain the lowest risk containers such as AEOs' and provide speedy clearance environment, and*
  - *target the highest risk containers.*

# Information Sharing Mechanism to All Stakeholders



*Not Specified (draft)*

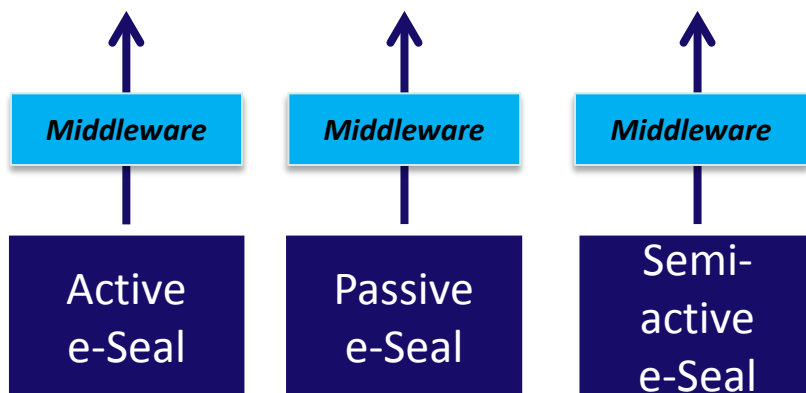


**Information Query**

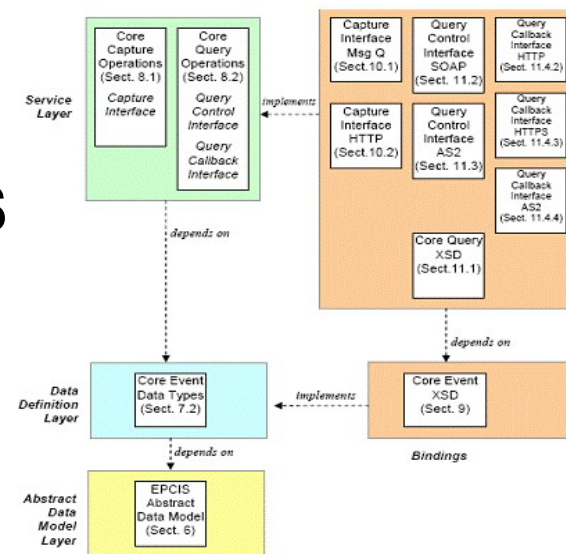
**Data Repository**

**EPCIS**

**Information Capture**



**Information  
Carrier**



**ISO 18000**

**ISO 18185**

**ISO 18186**

**EPC C1G2**

**ISO 17712**

# Two-Stage Test Plan

## *Stage 1: CY to CY test*

- *The end-to-end test is limited to the **container yards** that Customs can commence.*
- *The containers affixed with e-Seals are verified at the check points.*
- *The information exchanged between two sides is **limited**.*

## *Stage 2: Trader-to-trader test*

- *The container movement along the entire supply chain is logged and traceable.*
- *Enterprises with good reputation are encouraged to join the trader-to-trader test.*
- *The containers movement along the end-to-end supply chain are traced and tracked by the above-mentioned platform.*

# The Cross-border Pilot Project Implemented by Chinese Taipei

- *Chinese Taipei Customs initiated the cross-border pilot project in January 2010.*
- *The 7<sup>th</sup> Kuala Lumpur-Taipei Trade and Investment meeting held in April recognized Chinese Taipei's proposal for bilateral cooperation in the use of RFID e-Seal between Malaysia and Chinese Taipei.*
- *The meeting of the Cooperation and Cross-Border Pilot Project on RFID E-Seal between Malaysia and Chinese Taipei for further discussion on the cooperation issues, was held in May 2010.*

# Achievements

- 1**      **Validate the effectiveness and reliability of the passive RFID e-Seals for the import/export container**
- 2**      **The speedy clearance and transnational green lane concepts raised in this project are workable and feasible.**
- 3**      **Verify AEOs could enjoy the privilege of facilitated clearance at the import/export countries.**

# Cross-border Test Cases

*Chinese Taipei side: Kaohsiung harbor*

*Malaysia side: Penang harbor*

*Case 1: 5 containers*

*Vessel name: WANHAI 313 VOY 060N*

*Departure date: 2010/9/18*

*Arrival date: 2010/9/25*

*Case 2: 4 containers*

*Vessel name: WANHAI 316 3F*

*Departure date: 2010/9/26*

*Arrival date: 2010/10/1*

*Chinese Taipei side: Taichung harbor*

*Malaysia side: Penang harbor*

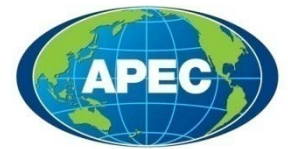
*Case 3: 3 containers*

*Vessel name: EVER PEARL*

*Departure date: 2010/12/26*

*Arrival date: 2011/1/3*

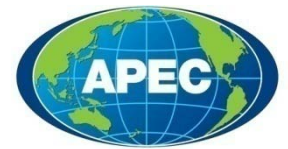
**The container  
movement were logged  
and tracked in the  
cross-border platform**



# Conclusion



- *The active and passive e-Seal can be apply to diverse operational scenario.*
- *Cross-border cooperation should be conducted by the agencies that in charge of border security, such as Customs.*
- *The cross-border platform should be conducted and implemented under APEC multilateral cooperation model.*



**Thank you**