Interoperability Technology and Applications for Container RFID and E-Seal

Nowadays, 90% of the cargo shipments are conducted by means of containerized oceanic freights. China, in the recent years, has emerged in this world trend as the leader in such related industries, namely the container manufacturing, cargo shipping and trading. It is envisioned that the next generation container technology will be focused on smart container. Container RFID, e-Seal, and the relevant standards will be the essential elements for the realization of containerized global supply chains and international green lanes across the world.

China is coining IP assets with innovations in e-Seal, container RFID and the related IT infrastructures in the vision for the next generation smart container technology. Nevertheless, there is also a need for international standardization for these technology developments among different regulatory jurisdictions, vendor products and enterprise practices. Lack of interoperability will hinder the product development and industrial adoption. Today, technology proprietorship is still an issue for wide-scope implementation of the green lane at our Shenzhen-Hongkong border. Container tracking has not yet achieved interoperability among different tracking services and device vendors across the world.

This project, based on Shenzhen-Hongkong collaboration, has developed the key technologies of container RFID and e-Seal, in line with China's vision of smart container. It is also to address the current application issues and cross-technology interoperability to help advance the e-Seal capability of the local logistics industries and their integration with the worldwide market.

This project serves as reference work to the contemporary China container standards development as well as to the localized Shenzhen-Hongkong cross-border application standards. It also gives industry good understanding of the applicability of container RFID and e-Seal in respect of different levels of cross-border, China and international logistics requirements.

Licensable Deliverables
1. E-Seal Track & Trace Application
2. Active RFID Container Management System for River Trade
3. Interoperable Site Server

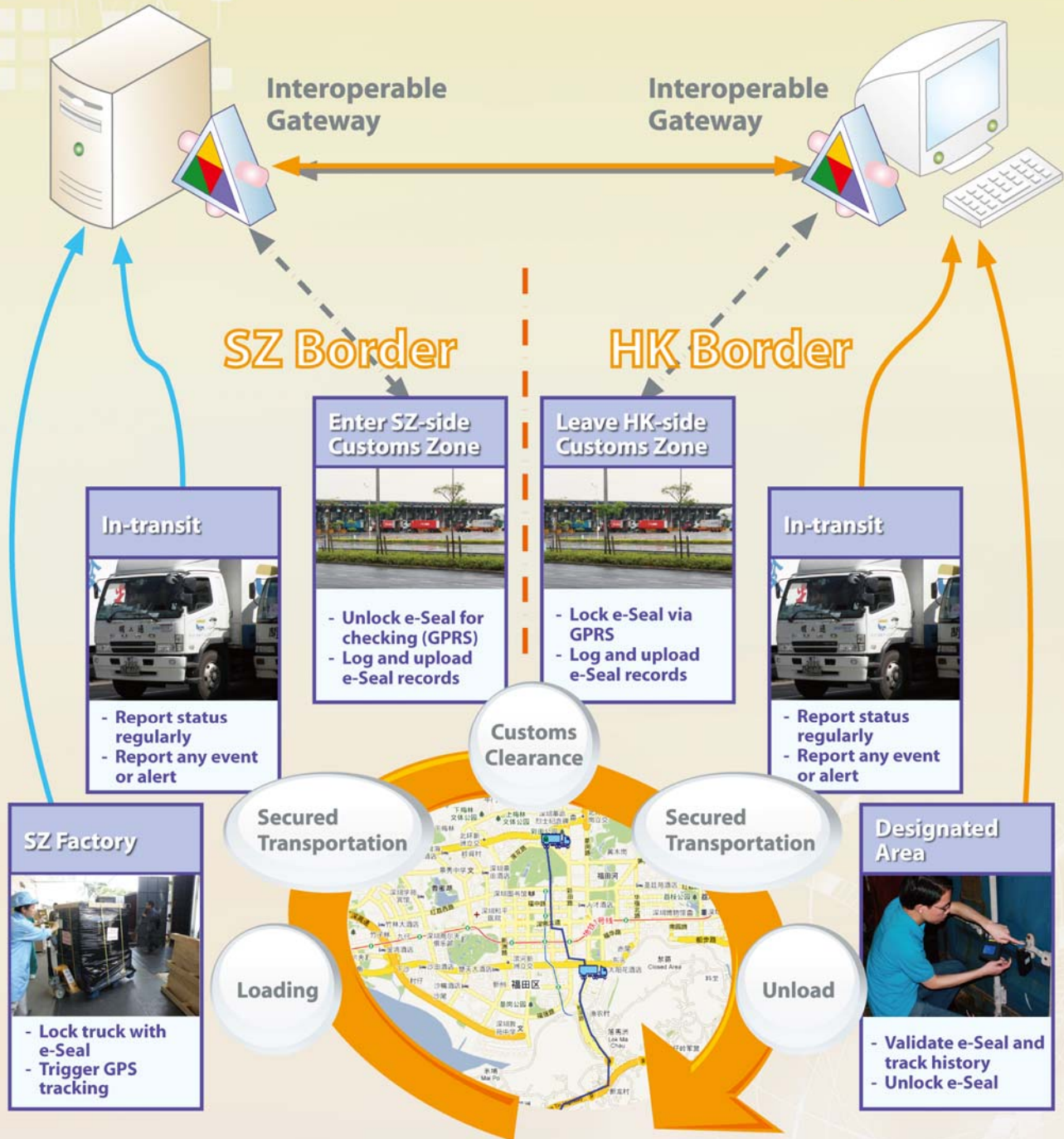NETWORKING AND
INFRASTRUCTURE TECHNOLOGIES

LSCM

Hong Kong R&D Centre for Logistics and Supply Chain Management Enabling Technologies
香港物流及供應鏈管理應用技術研發中心

Cross Border Transportation Tracking enabled by Container E-Seal and Interoperability Technologies

Vendor e-Seal Platform

Tracking Application

Interoperable Gateway

Interoperable Gateway

SZ Border

HK Border

Enter SZ-side Customs Zone

- Unlock e-Seal for checking (GPRS)
- Log and upload e-Seal records

Leave HK-side Customs Zone

- Lock e-Seal via GPRS
- Log and upload e-Seal records

In-transit

- Report status regularly
- Report any event or alert

In-transit

- Report status regularly
- Report any event or alert

Customs Clearance

Secured Transportation

Secured Transportation

SZ Factory

- Lock truck with e-Seal
- Trigger GPS tracking

Loading

Unload

Designated Area

- Validate e-Seal and track history
- Unlock e-Seal