Product Authentication at Retail Points – Infrastructure and System

LSCM

Stephen Wai

Business Development Manager

Counterfeit Products

Existing Labeling Methods
Inadequate in Combating Counterfeit

Barcode ID Method

Genuine Product

Counterfeit Products
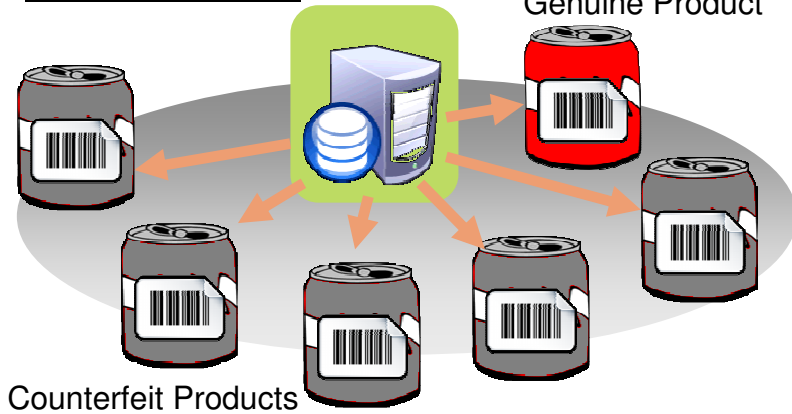
RFID Standalone-Label Method

Genuine Product

Counterfeit Products

Call-Query-by-Secret Method

Genuine Product

Call Center
27903126

Secret code is 3298

27903126
3298

27903126
3298

Counterfeit Products
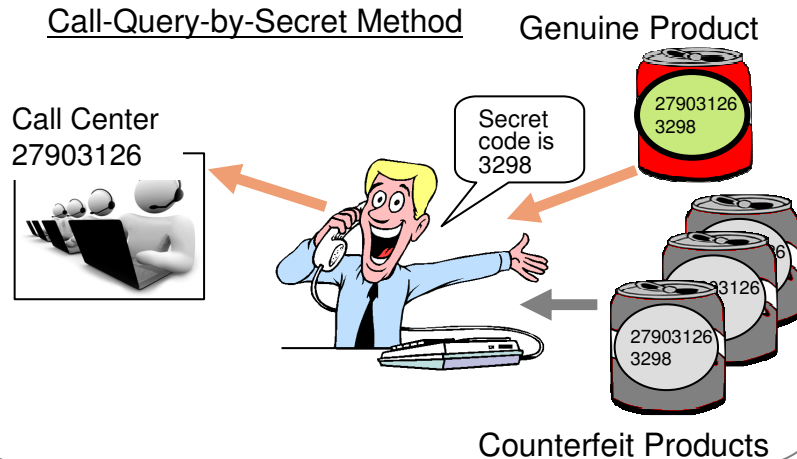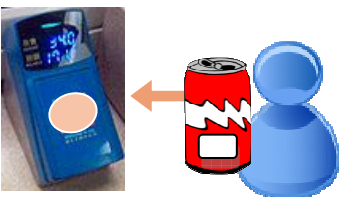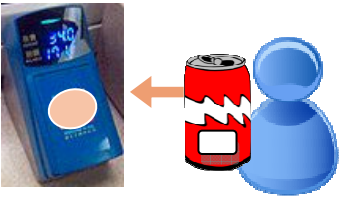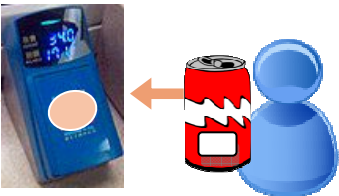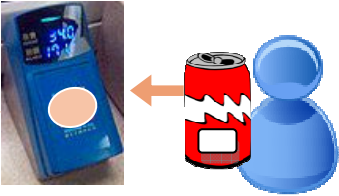
Challenges

- Ensure code valid for authentication over long transaction chain until package gets opened
- Ensure code is invalidated upon replication. Combat counterfeiters along SC from stealing info and replicating product ID
- Able to neutralize rogue authentication readers
- Use market available RFID and security tech while innovate in security models, protocols and processing methods
- Support friendly operation, viable business models

Wish to give Consumers a Production Authentication Method

	Product Authentication Process	Cert Body	Product Brand	Retail Store	Consumer
1	Consumer asks: "Is this a genuine product?"				
2	CB tells: "Yes, it is a genuine product manufactured by 健宜堂, 批次#318, certified by 香港公證所,檔號 AQ203, under the HK Product Certification Scheme"				
3	健宜堂 tells: "This 蟲草 imported from 西藏 by 健宜堂 in 2011. 健宜堂 knows that 蟲草product is most (38%) asked about in 上環 district during the last 3 months		健宜堂		
4	上環泰康藥房promotes: "健宜堂 蟲草 sold at 10% discount if purchasing 康華堂川貝 together"			泰康藥房	

A New Product Authentication Method

Back-end Server — Enquiry / PA Report New PA-Code — Kiosk — PA-Code / New PA-Code — Product Tag

PA Report → Consumer
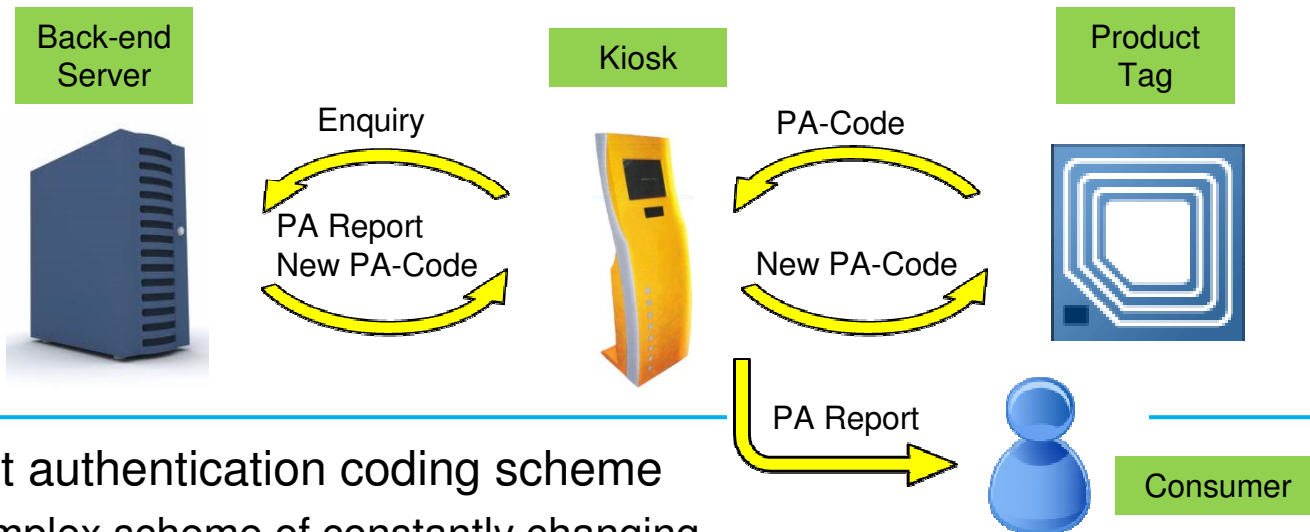
- Product authentication coding scheme
  - Complex scheme of constantly changing code to obsolete counterfeits from the market
- Consumer friendly system model for easy usage
  - In-Network Kiosk reader serves as a convenient device at storefront
  - Out-Network NFC phone as anywhere-anytime-personal device
- Novel method for security management
  - Information security
 - Authentication info via Trusted Kiosks & Untrusted Agents

PATENT FILED

PA – Network Organization

Product Manufacturer

Product Manufacturer

PA PLATFORM

Test Lab

Test Lab

PA Kiosk

PA Mobile

PA Kiosk

PA Mobile

PA Kiosk

PA - System Architecture

Production Information	Brand Owner Management	Certificate Body Management	RFID Label Printing	Retail Kiosk	Mobile Enquiry

Platform Access control System

Production Authentication Platform

PA Tags Authentication Data	Product Information	Lab Test Results	Platform Configuration

PA Core Engines

PA algorithm and protocol
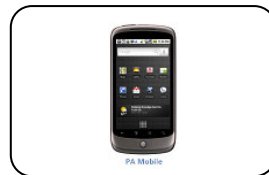
**Kiosk install at retail**   **Mobiles anywhere**   **Kiosk install at retail**   **Mobiles anywhere**

# PA – Kiosk Application Architecture
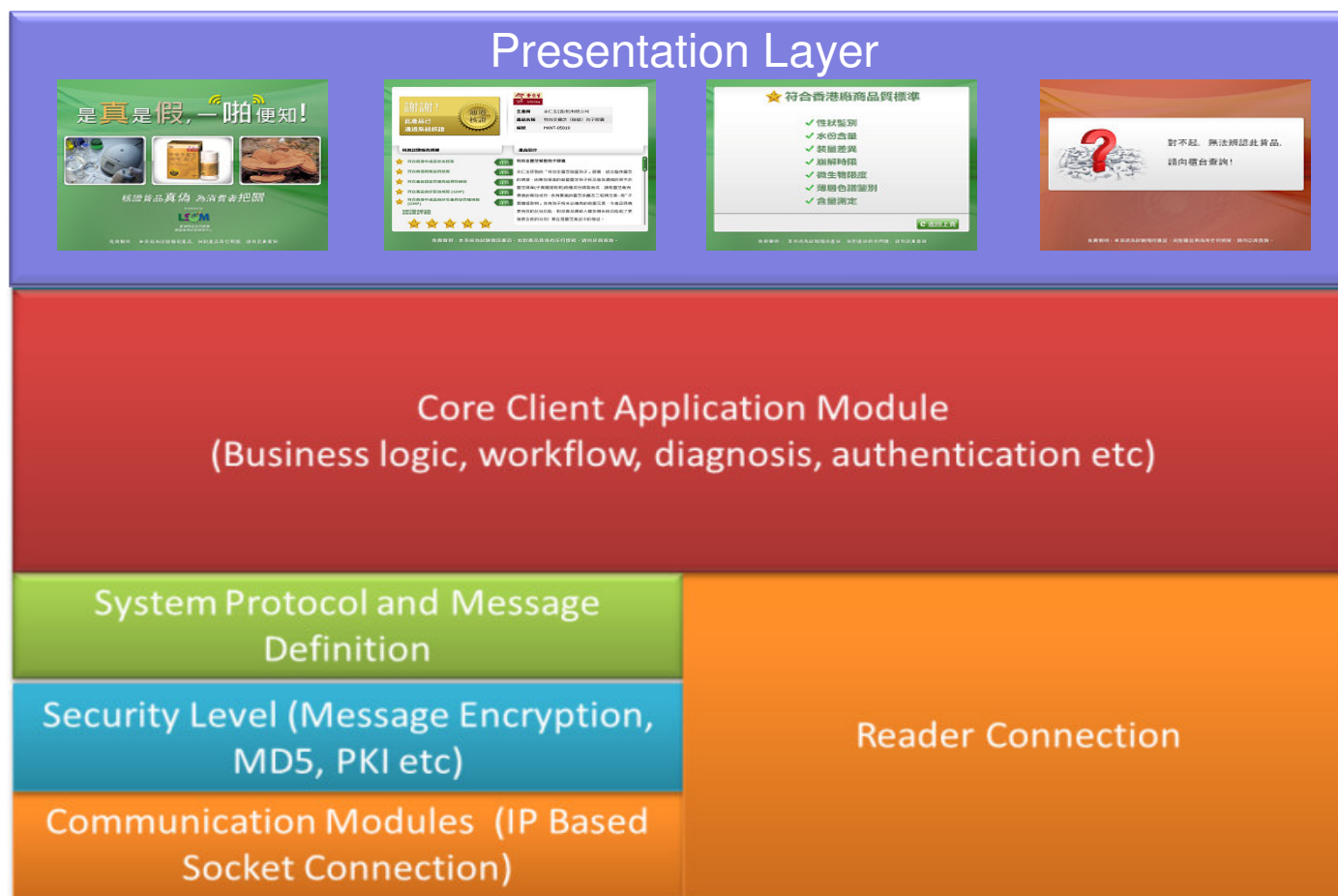
Complete Confidence to Consumer
From Quality Certification to Product Authentication

Product Brand sends samples to Test Lab

Test Lab performs tests on samples

Product Brand publishes Test Lab results on PA Platform

Product Brand obtains PA labels by test report

Products are tagged with PA labels at factory

Products are sold in Retail Stores

Consumers scan product for authenticity check at PA Kiosks
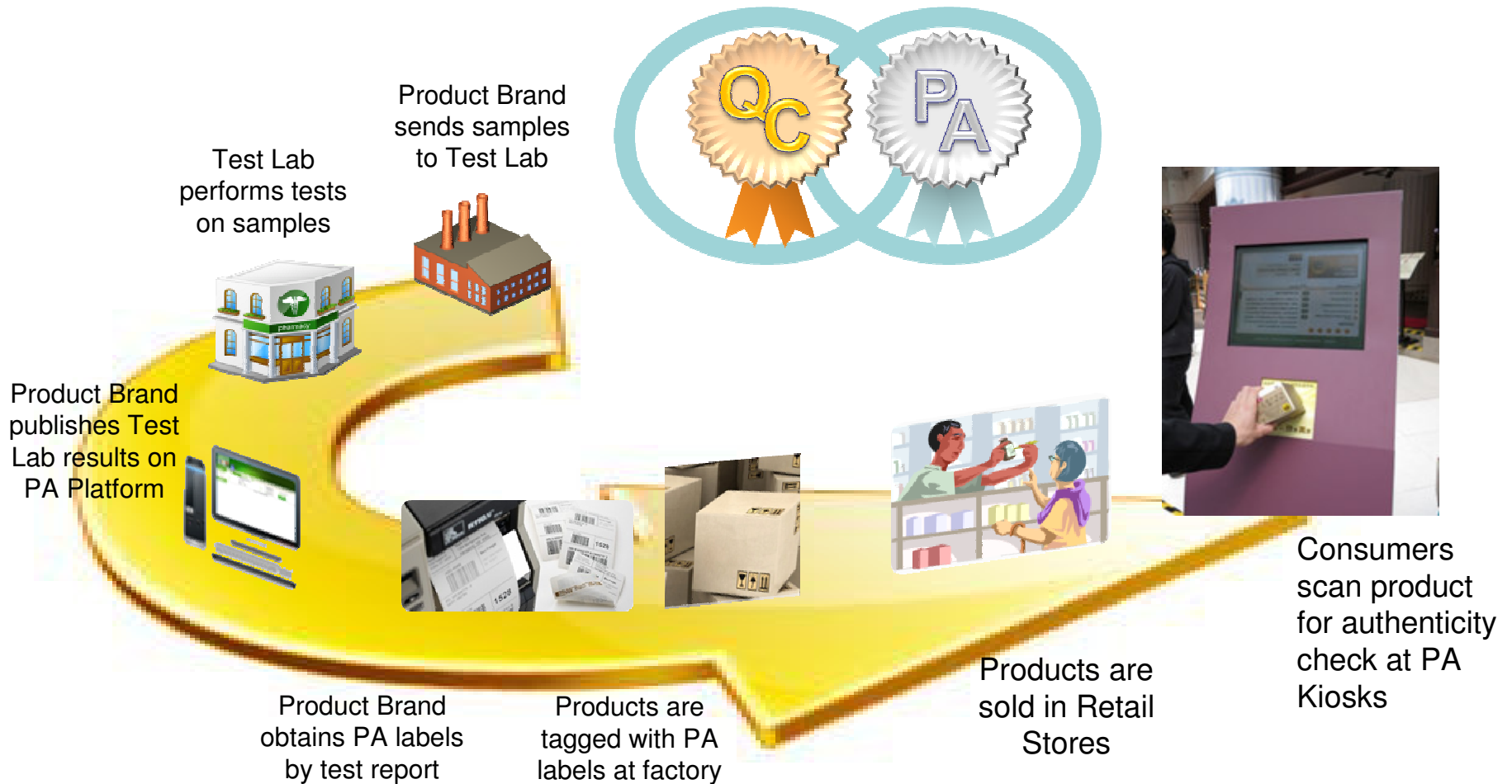
Case 1: Pilot implementation with a Product Brand

Pilot Case	A brand-named Lingzhi product for sale in retail stores is trial tested with the product authentication technology. The product packages are tagged with RFID product authentication label. Kiosks are installed in the stores. Consumers can scan the product packages at the kiosks to authenticate the product.
Participants	(1) Product Brand of herbal health food (2) Test Lab for product testing and certification (3) RFID vendors for product authentication labels (4) E-Cert services providing e-cert
Pilot Duration	The pilot trial is in operation since Dec 2012

Brand-name Product in Pilot Trial

- "特效全靈芝「破壁」孢子" is selected for pilot test

- During the pilot period

  - ♦ Product manufacturer will tag all product packages with PA RFID label

 - ♦ PA readers will be made available at selected retail stores for consumers to experience the use case

Front Side   Back Side

RFID Tag Location

Implementation at Retail Store

Telford Shopping Centre

Nathan Road

Technology Road-show
at Olympian City Plaza

Case 2: Pilot Implementation with NFC +QR

Pilot Case	3 product brands will be participating in pilot trial with the PA technology on NFC platform. They will tag their products with RFID and QR code PA label. Then, consumers can scan their product packages using personal smart phones to check product authenticity conveniently anywhere and anytime.
Participants	(1) Product brands of herbal health food (2) Retail chain piloting products at storefronts (3) Test Labs for product testing and certification (4) RFID and print-product vendors for PA labels
Pilot Duration	Pilot trials have been conducted in phases since July 2013

Brand-Name Products with NFC and QR Labels

Product Authentication on NFC Mobile App Platform

Mobile NFC App

Front Side

Back Side

QR + NFC RFID Tag

QR for Quick Check by Smartphones

A Brand-Name
Lingzhi Product

Product info by
QR access on
Mobile

『認』真『析』貨
QR Label

Pilot Implementation with Market-Available Readers

MegaPad

Impinj

Sirit

NFC-enabled phones

PA Reader with
LSCM-Innovated Low-Cost Reader Chip

LSCM-Designed Secure Kiosks for In-Store Use

Standing Kiosk suitable for in-store self-service usage

Desktop Kiosk with Small Footprint

Tech Transfer Potential for Commercialization

Product Brands	• Product Brand offers Consumers product authenticity check for "Genuine Goods, Original Manufacturer's Package" • Also protect post-sales product servicing from loss to counterfeit products • Product Brand owns and operates a PA service by its own • Viable only with NFC technology, no need for kiosk network
Product Certification Bodies	• Cert Body extends from product cert services to PA authority for PA code management, PA label printing control and authentication query services • Protect integrity of product certs and labels it issued, which are being operated in the market
PA Network Services	• Powerful service provider offering generic PA services to all product brands, test labs and retail stores • Provide PA equipment services, e.g. secure kiosks, mobile apps, PA labels. It serves as technology and service center for adoption • Offering PA equipment and services by subscription model, low entry barrier for all users – brands, labs, retail stores, consumers, product servicing

Tech Transfer Potential for Commercialization

PA Equipment Vendors and SI's – servers, kiosks, readers, labels	• OEM manufacturers of PA kiosks, handheld readers, RFID labels, PA server and database equipment for PA services operators • SI with LSCM licenses, provides application system development services to their customers for PA, supply chain track and trace, etc. • LSCM provides licenses for manufacturing for kiosk and reader designs, RFID antenna designs, patent of PA algorithms, and software licenses for systems of PA server, NFC mobile apps, etc.

~ Thank You ~

LSCM R&D Centre

Tel: (852) 2299-0551

Email: info@lscm.hk

Web: www.lscm.hk