Mobile Phone as a medium for Electronic Toll Collection
Toward developing a virtual e-wallet

Tehran Congestion Charging Experience

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Mobile Phone and Mobile Payment
A Trend Analysis

- **Global Trend (A 2012 Research in 26 countries)**
  - Number of mobile payment users worldwide is projected to be increasing and reaching to 400 million in 2016
  - In Q1, 2012, less than 30 percent of Smartphone and tablet owners in US were using devices for payment
  - Most of mobile payment transactions in Europe includes Invoices and micro-payments
  - In Japan more than 200 million monthly mobile contactless payments were being conducted in 2012

- **Mobile usage in Iran – the opportunities**
  - With about 73 million population, Iran has 55 million Mobile Phone subscribers
  - Mobile VAS are developing and Local banks gradually approach to Mobile Payment Services
Mobile Payment Service Providing Models

- **Operator-Centric Model**: The mobile operator acts independently to deploy mobile payment service.

- **Bank-Centric Model**: A bank deploys mobile payment applications or devices to customers and ensures merchants have the required point-of-sale (POS) acceptance capability.

- **Collaboration Model**: This model involves collaboration among banks, mobile operators and a trusted third party.

- **Peer-to-Peer Model**: The mobile payment service provider acts independently from financial institutions and mobile network operators to provide mobile payment. For example, the MHITS SMS payment service uses a peer-to-peer model.
Methods of Mobile Payments

- SMS / USSD transactional Payments
- Direct Mobile Billing
- Mobile Web Payments
- Contactless Mobile Payment (NFC, QR Code, Bluetooth, Audio Tag, ….)
Operator/Bank Dependent Mobile Payment

Internet and Operator Data Services Network

Consumer

Content Provider

Operator Payment System

Merchant A/C System

Stored Value Prepay

Prepay Top-up

Wallet Server

Acquiring Gateway

Voice Prepay

Bank

Billing System
Some points on Operator Based Model

- In some countries, Mobile Service Providers have some difficulties with VAS management
- People are not willing to bind their bank account to mobile payment applications
- Online bank transaction through Mobile phone is time consuming in some hours

A Payment Solution somehow independent of Bank and Mobile Service Provider
Tehran Congestion Charging

- More than 32 Sqr meters of Restricted Traffic Zone
- 105 entry gates
- 220,000 vehicles entry each day
  - 90,000 vehicles hold annual permits (decreased to 85.00 by April 2013)
  - 10,000 vehicles could get daily or weekly passes (increased to 15,000 by April 2013)
- Totally under Automatic Control System based on ANPR Technology
  - 17,000 daily unauthorized entries are recognized and recorded for law enforcement
Movie Clip of Tehran Congestion Charging
Tehran Congestion Charging
Some facts on Toll Collection

2009 to 2011
- Annual permits were sold out
- Daily and weekly passes sold through Tehran Municipality Portal by online bank payment
- Average 120 to 150 passes were purchased each day from 10,000 existing passes

2011 to 2013
- Plate registration via mobile phone added as a complementary method of using daily passes
- Within 6 months daily pass uses reached to 6000 a day
- In March 2013 in average, 2200 daily requests were rejected due to full capacity
- In April 2013, 5000 passes were added to daily capacity and the same quantity decreased from annual permits
Introducing Congestion Charging Toll Payment Via Mobile Phone

- PIN codes are sold to the customers via Scratch cards.
- The Customer sends the PIN Code to the system CMS via SMS or USSD service.
- The Customer registers his vehicle Number Plate in the next steps.
- After receiving the confirmation message, the car is allowed to enter the zone for the current day.
Relative Advantage of implemented Model of Mobile Payment

- Independent from Mobile Service Providers and Direct Banking System Involvement
- Credit is virtually assigned to Mobile Phone Number not to Mobile Phone Subscription
- Frequent application potential in urban transport (both fares and tolls)
- Needless to smart platforms
- Fast and simple expansion
- Interoperability with possible contactless payment application
Thank you

Tehran municipality
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