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# National e-Payment

Infrastructure for the Digital  
Thailand

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# Ultimate Goals

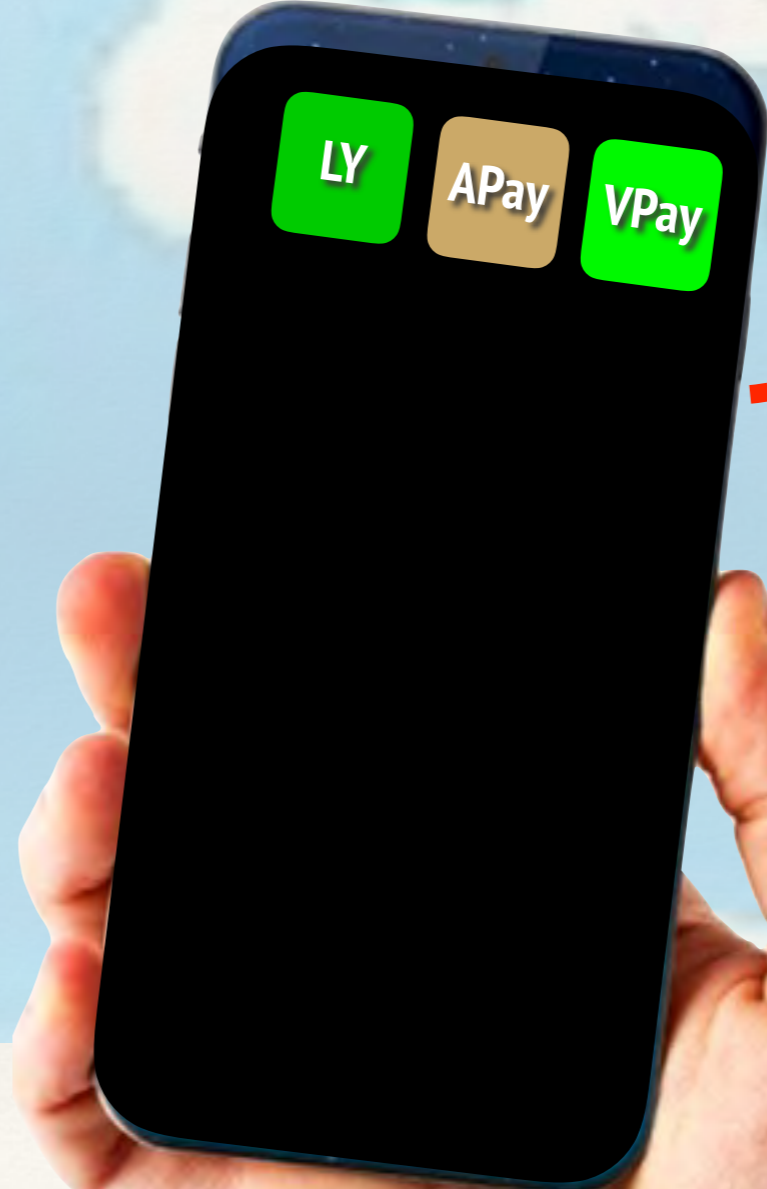
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- ❖ Reduce the Usage of Cash / Bank Notes
- ❖ Reduce Direct & Hidden Costs  
embedded in existing inefficient payment systems
- ❖ Ease of Doing Business
- ❖ Reduce Corruption, Underground Economy, Illegal Tax Avoidance
- ❖ Maintain Thai Payment System “Sovereignty”
- ❖ Collect Accurate Data of Real Economic Activities  
for better macro economic planning & policy making

APay



APay ID	Account Balance
xxxxxxx	100.00
yyyyyyy	200.00
...	
...	



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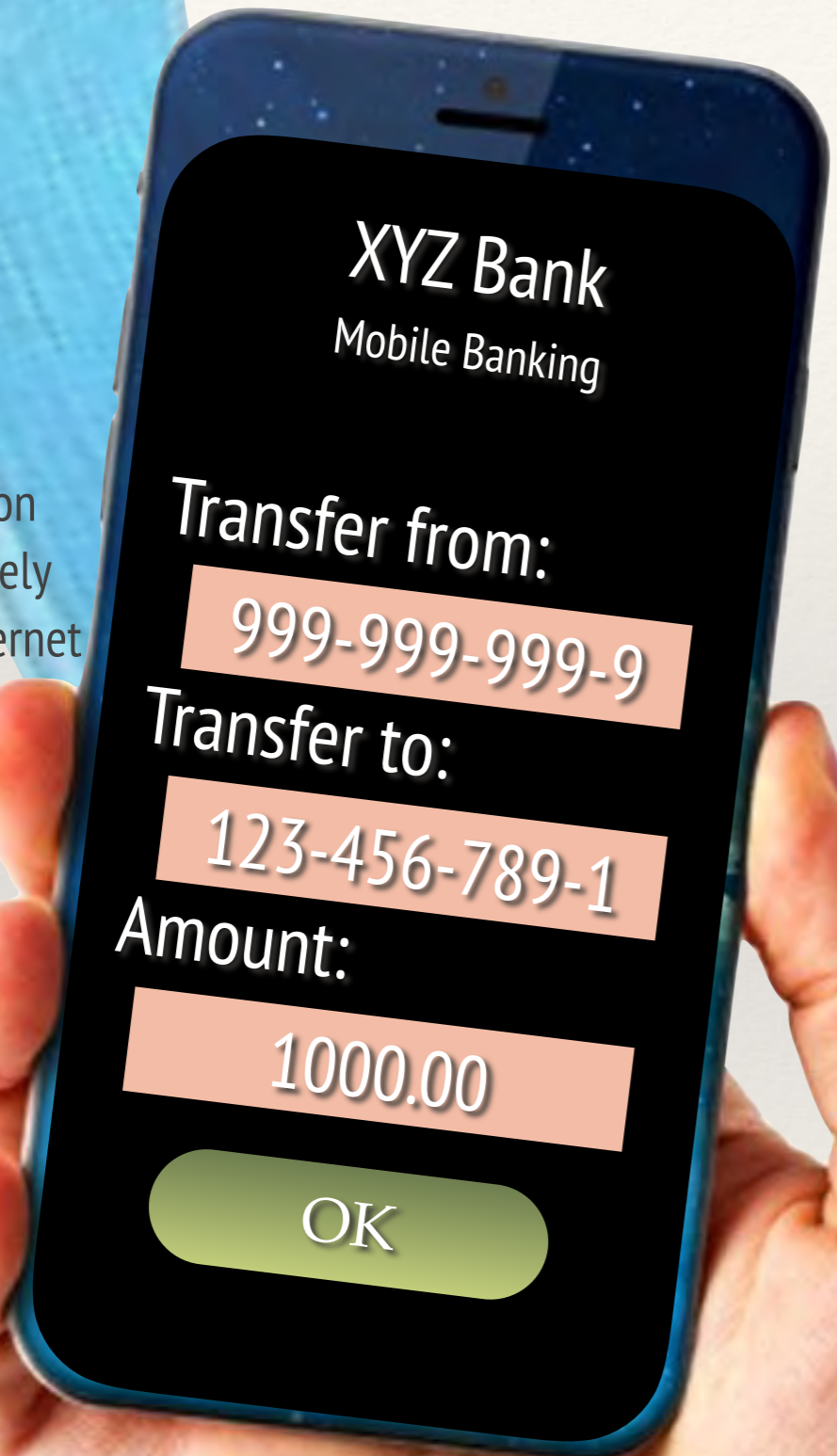
# Five Groups of e-Payment Projects

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1. AnyID Payment System Infrastructure
2. Card Usage and Acceptance Infrastructure
3. Electronic Trade and Tax Transaction & Document
4. Government Adoption of Electronic Payment & Integration of Social Welfare Management
5. Promotion of e-Payment

# Current Payment System Infrastructure

Transaction sent securely through Internet



Bank processes transfer transaction

... and sends to Switch/Clearing House



Switch/Clearing House routes transfer transaction to receiving bank.

## Transfer Money with Mobile Banking

Money is transferred into the receiving account as specified by Bank Account Number

# Upgraded Payment System Infrastructure

Transfer Instruction  
with AnyID  
"Spiderman"

Bank processes  
transfer transaction  
... and sends  
to Switch/Clearing House

using AnyID  
instead of  
Bank Account Number

[ AnyID ]

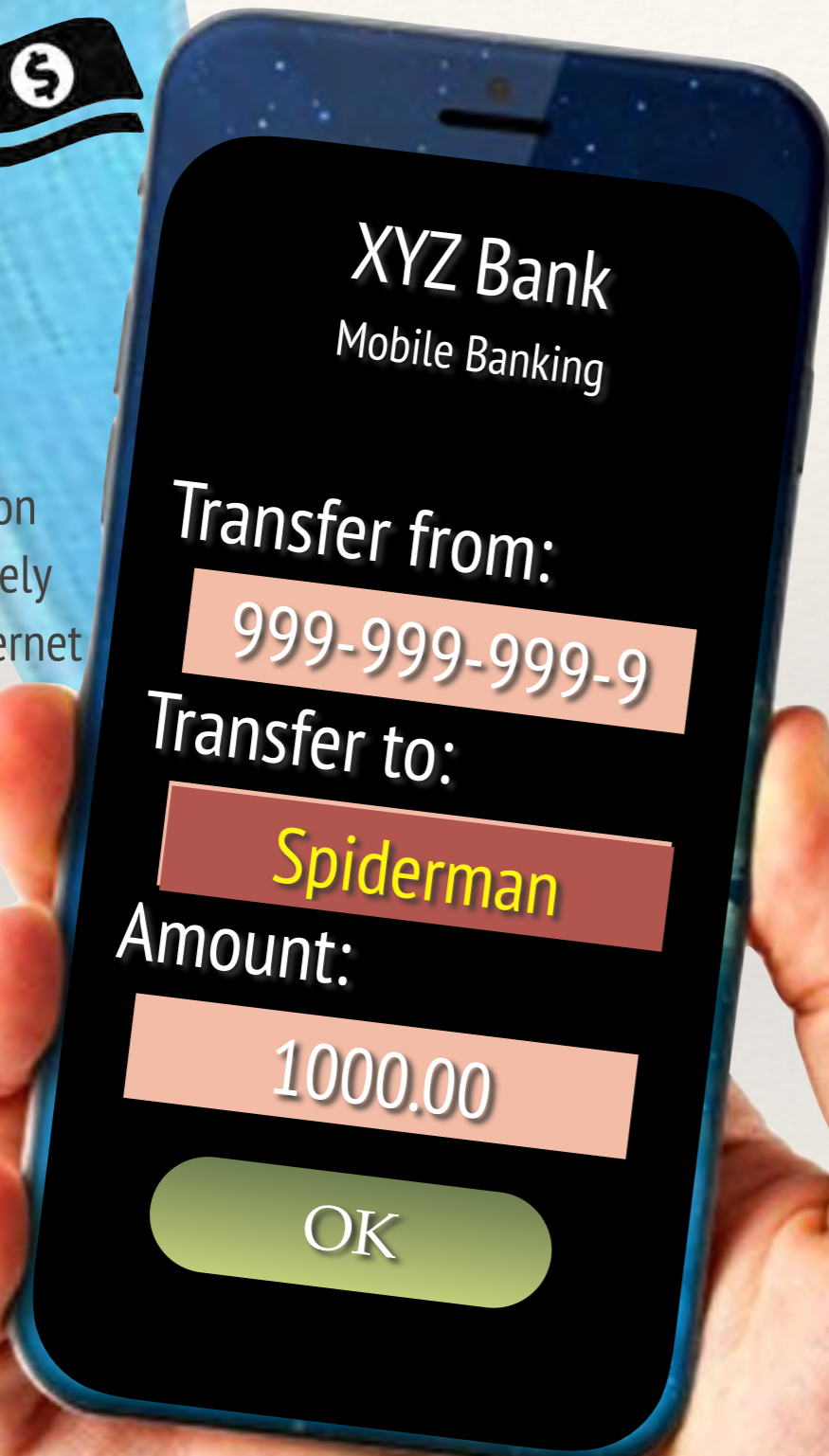
using the same  
bank's app

Transfer Money  
with Mobile  
Banking

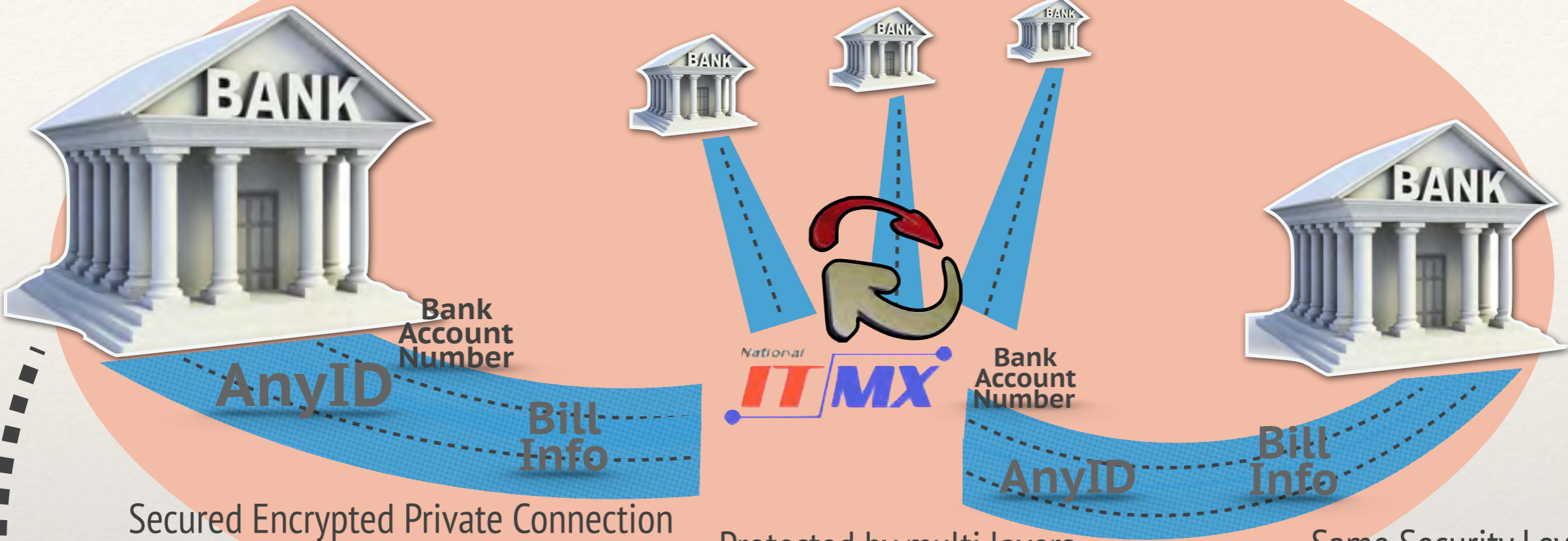
Switch/Clearing House  
routes transfer transaction  
to receiving bank.

Money is transferred  
into the receiving account  
as specified by  
AnyID  
"Spiderman"

Transaction  
sent securely  
through Internet



Closed Environment & Secured Point-to-Point Networks.



Secured Encrypted Private Connection  
between Banks and Switch only.  
No public or internet access.

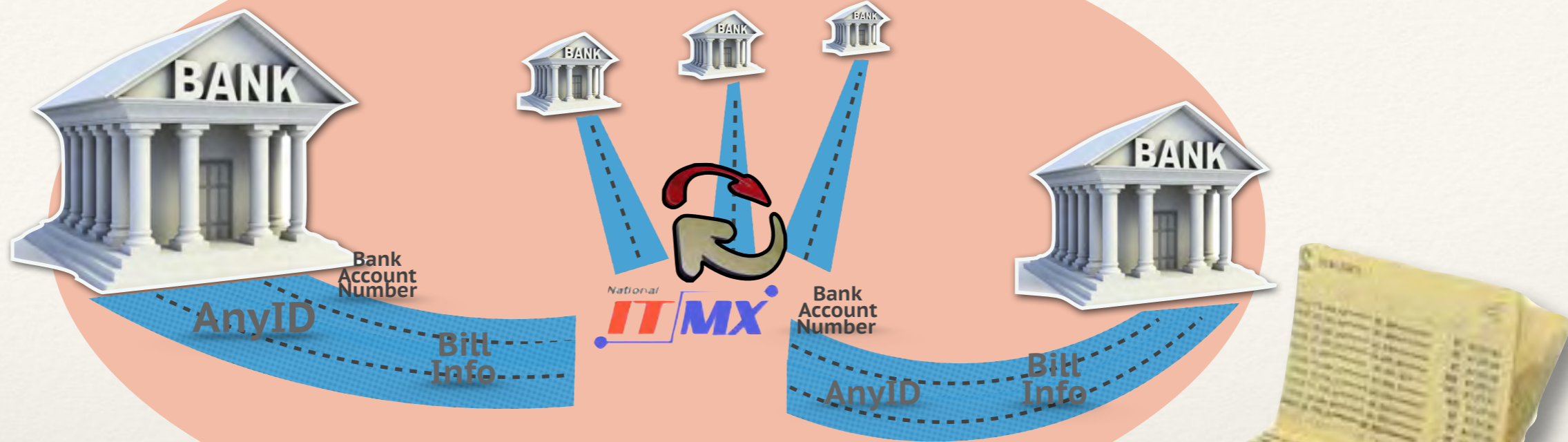
Protected by multi layers  
of firewalls

Same Security Level  
as the current existing  
Funds Transfer  
Infrastructure.

Bank's Customers  
(via internet) are protected by  
each bank's firewalls  
and existing computer security systems



Closed Environment & Secured Point-to-Point Networks.



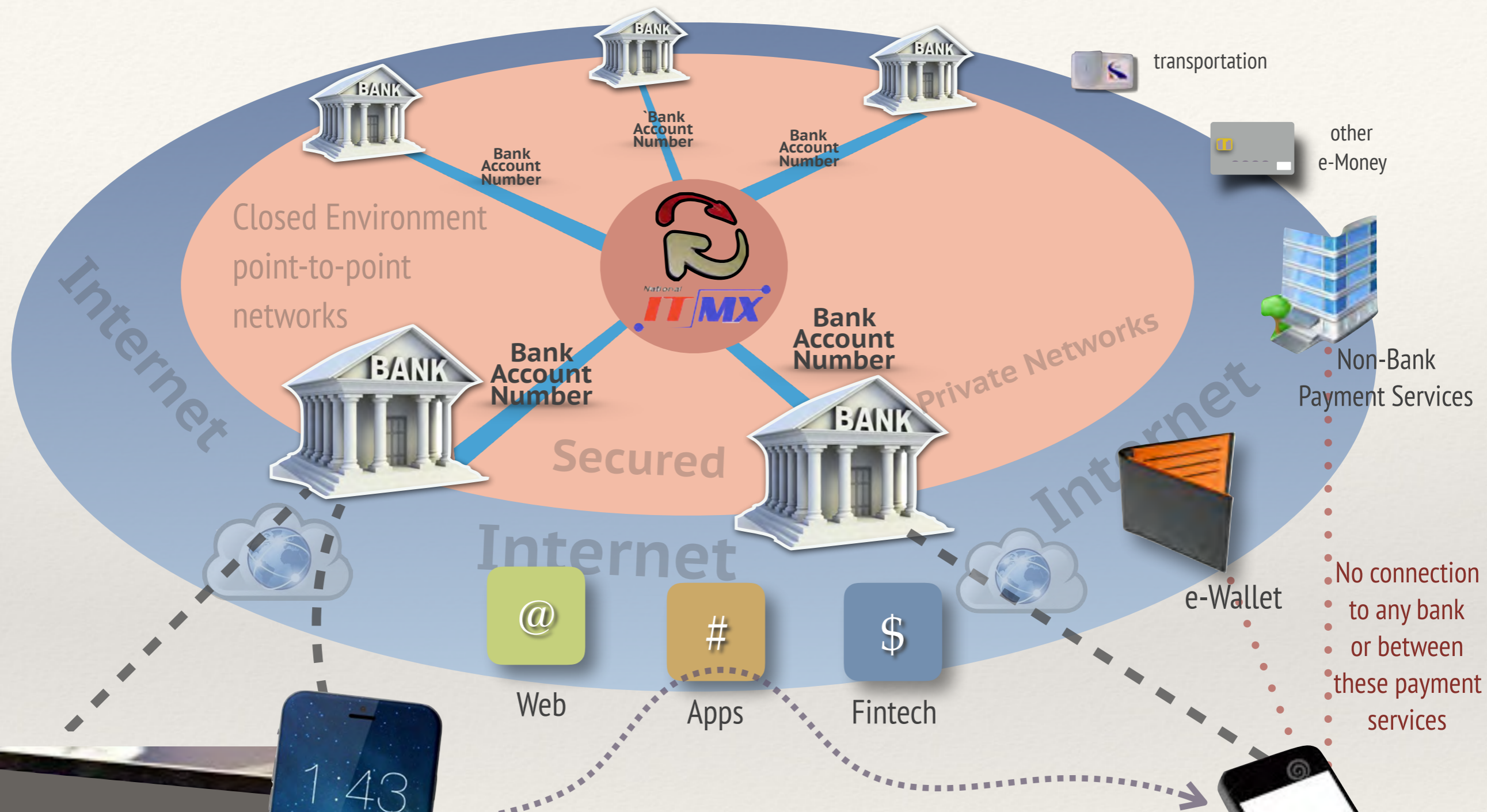
## Data Privacy & Security

- Switch does not keep personal data or transactions
- Switch has no access to outside networks
- Switch does not belong to Government
- More secured because confidential information such as account number is not kept or passing through switch.

ID (AnyID)	Switch to Bank
xxxxxx	ABank
yyyyyy	BBank
zzzzzz	CBank
aaaaaa	DBank

- Transaction info is kept at the bank (i.e. statement). Same as current normal banking operation.
- National ID and Phone number are not info to banks.
- Name look-up during transfer is secured as current ORFT on ATM. When looking up with phone number, names are masked ... XXXX... XXXX.

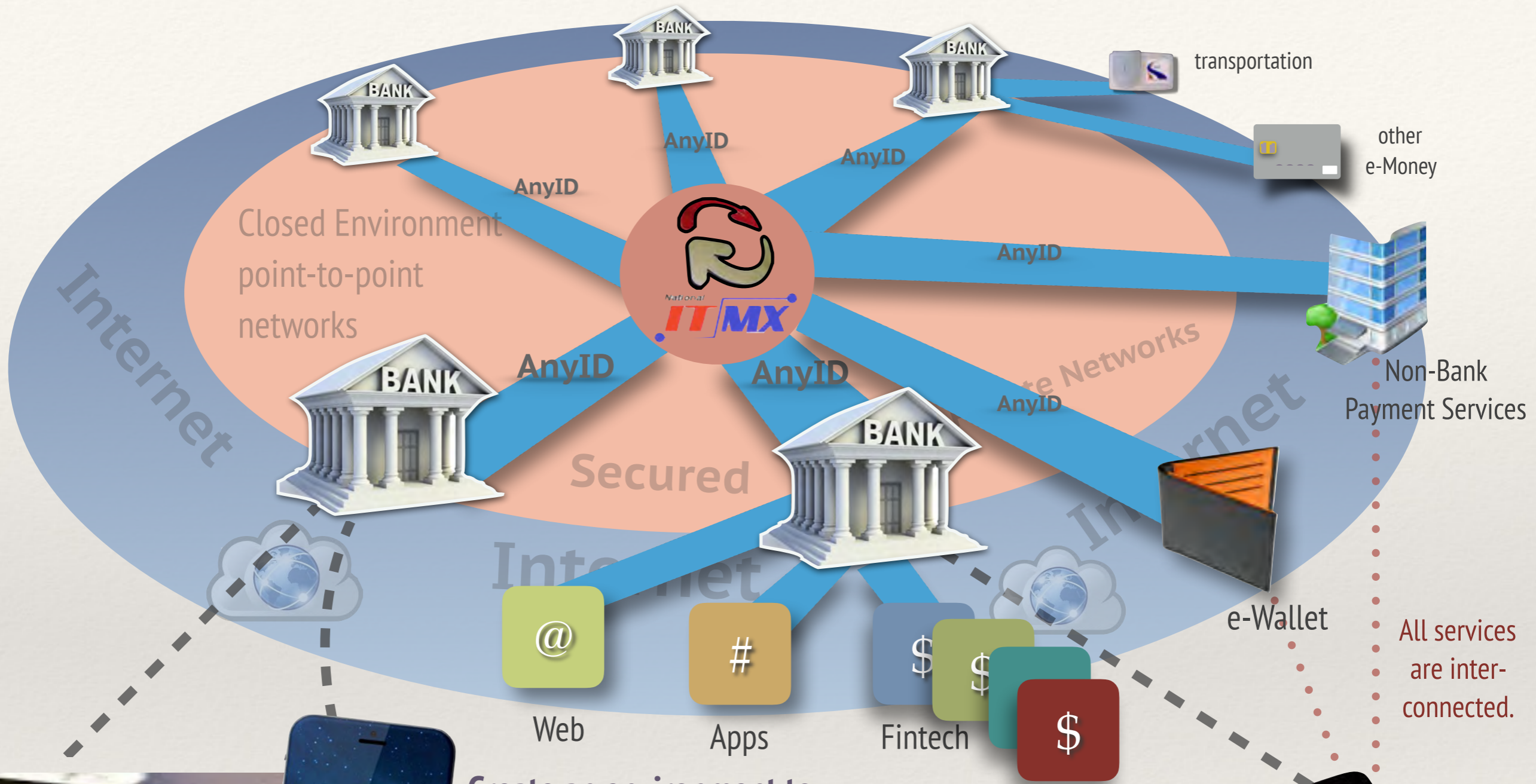
# Current Limitations of Payment System



Making a money transfer through these apps/services is unsecured and fully exposed to the Internet. The transaction does not go through secured banking networks.

Most of these services use ID or alias to make the payment to. Thus, they could not go through current banking infrastructure.

# Expand Payment System Infrastructure to handle AnyID

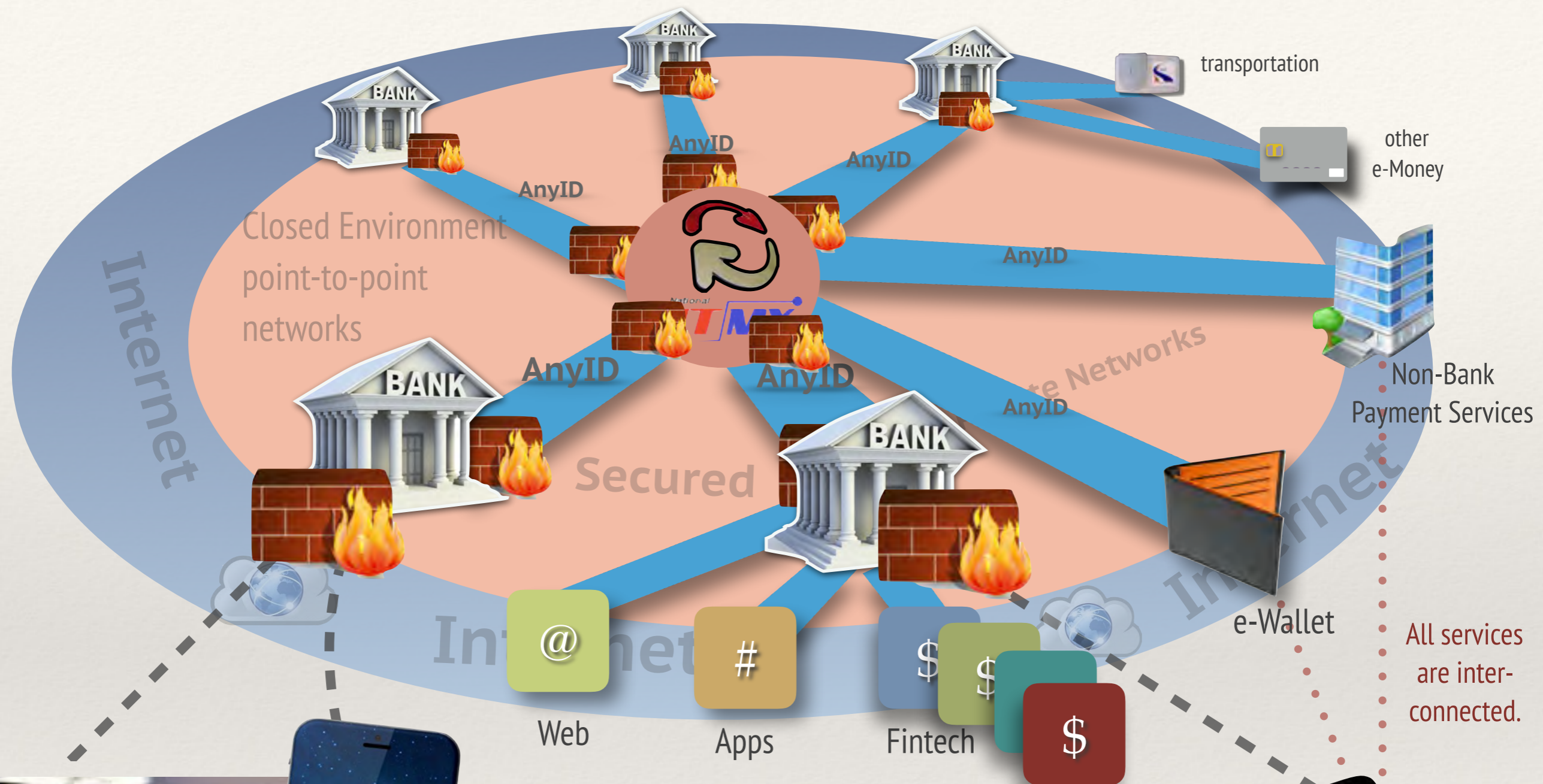


Create an environment to for secure payments via AnyID infrastructure

Create an environment to support the growth of innovative digital service industry

All services are inter-connected.

# Same security as current banking practice



Create an environment to support the growth of innovative digital service industry

# Use [AnyID] to receive payment

to the Bank Account or eWallet that you choose and register by yourself

Payer does not have to register for AnyID.



Please pay to me!  
My AnyID is ...xxxxxx

- [Mobile Phone Num] \* oct 2016
- [Citizen ID] \*
- [Bank Account No.] \*
- [eWallet ID] \* Jan 2017
- [Card Number]
- [eMail]

Payee is not required to own a smart phone

Payee registers xxxxxx as payee's [AnyID]

# Receive payments securely.

No one can “hack” into your account using ID such as phone number.

Payers know only the AnyID you tell them.



For example, if you do not use any of your bank’s electronic channels, the only way to withdraw money is to go to the bank’s branch.

Anyone who knows your ID cannot have access to withdraw your money.

They do not even know which bank you uses or which bank account the money is.



# Use as many [AnyID]'s as you need

One [AnyID]  
can link to  
only one account



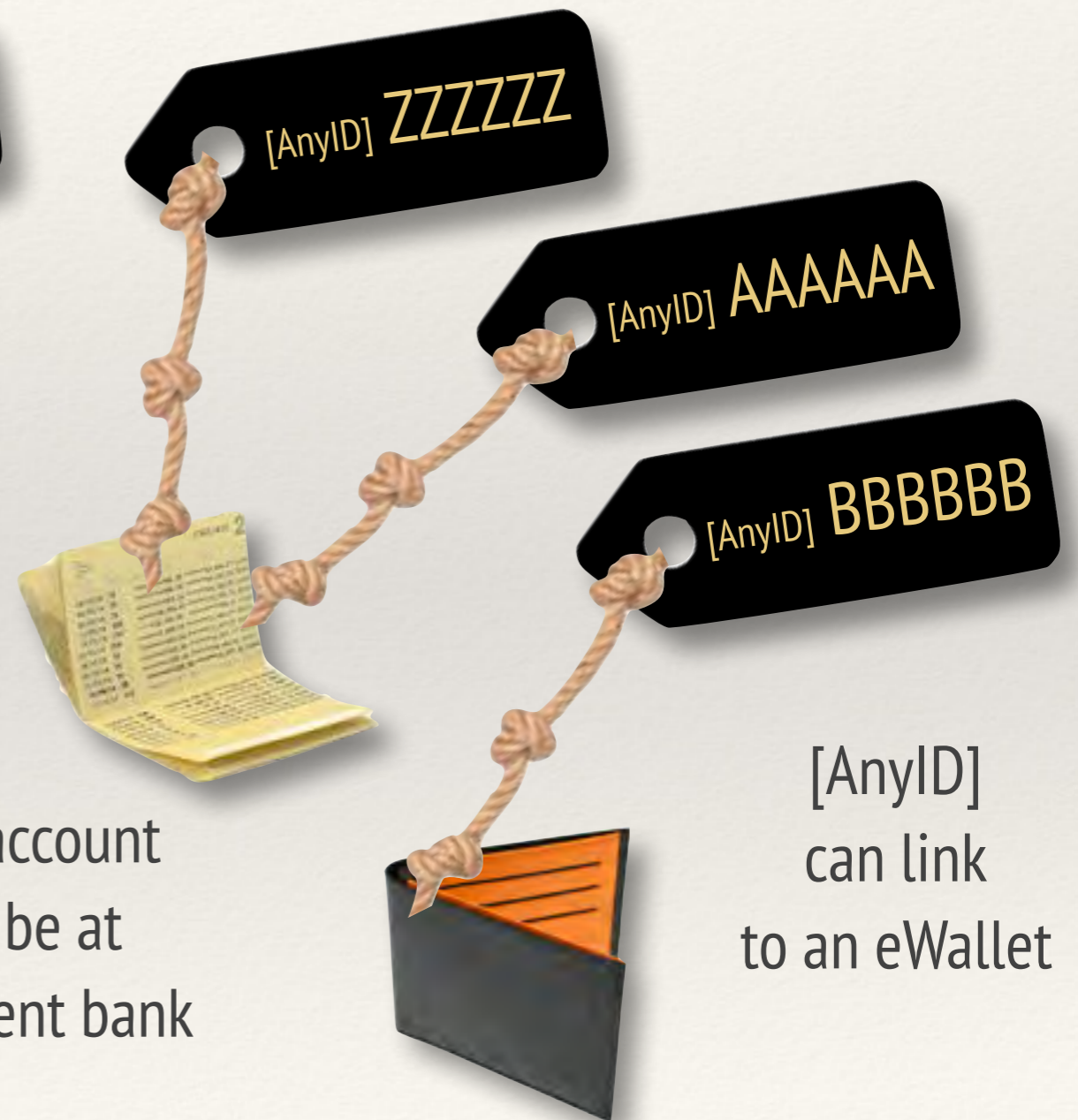
Each account  
may be at  
any bank or  
can be an eWallet

But each person  
can use many  
[AnyID]'s



Each account  
may be at  
a different bank

Many [AnyID]'s  
can link to  
the same account



[AnyID]  
can link  
to an eWallet

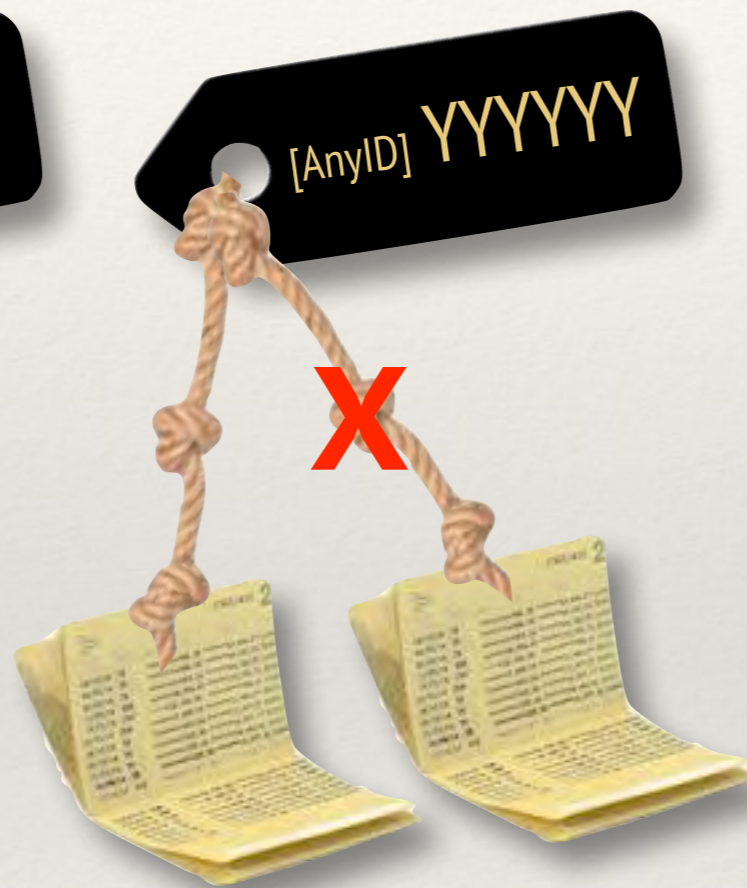
# How to use [AnyID]

Bank account number or eWallet ID can be used as [AnyID] to receive money but cannot link to another different bank account or eWallet



123-456-789-1

Transfer into a bank account or an eWallet can be done anytime and does not require [AnyID] registration



One [AnyID] must not link to more than one account at the same time

The owner of the [AnyID] can change the link from an [AnyID] to a different account at any time



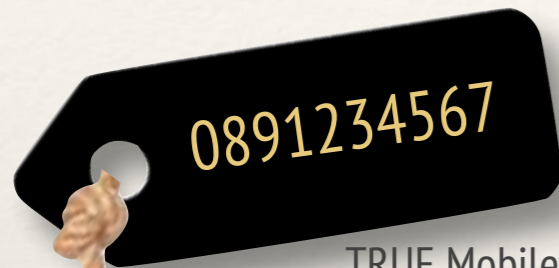
# How to use [AnyID]



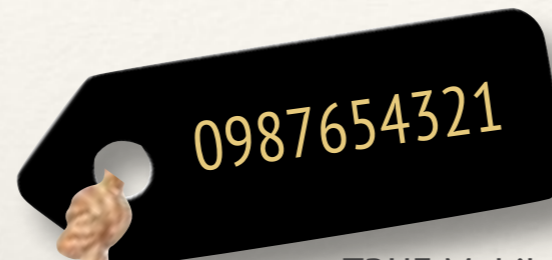
Prepaid/Postpaid Mobile No. can be used as [AnyID] as long as ownership or possession can be positively proven.

ID owner may choose to link mobile number to a bank account, even though the number may have an eWallet with a mobile operator

ID owner may choose to link mobile number to an eWallet of a different mobile operator



TRUE Mobile No.



TRUE Mobile No.

a Child's Mobile Number or Company's Staff Mobile Number



an [AnyID] may be linked to an account if both ID owner and account owner consent



a bank account

eWallet TRUEMoney



eWallet AIS MPay



Parent's Bank Account or Staff's Bank Account

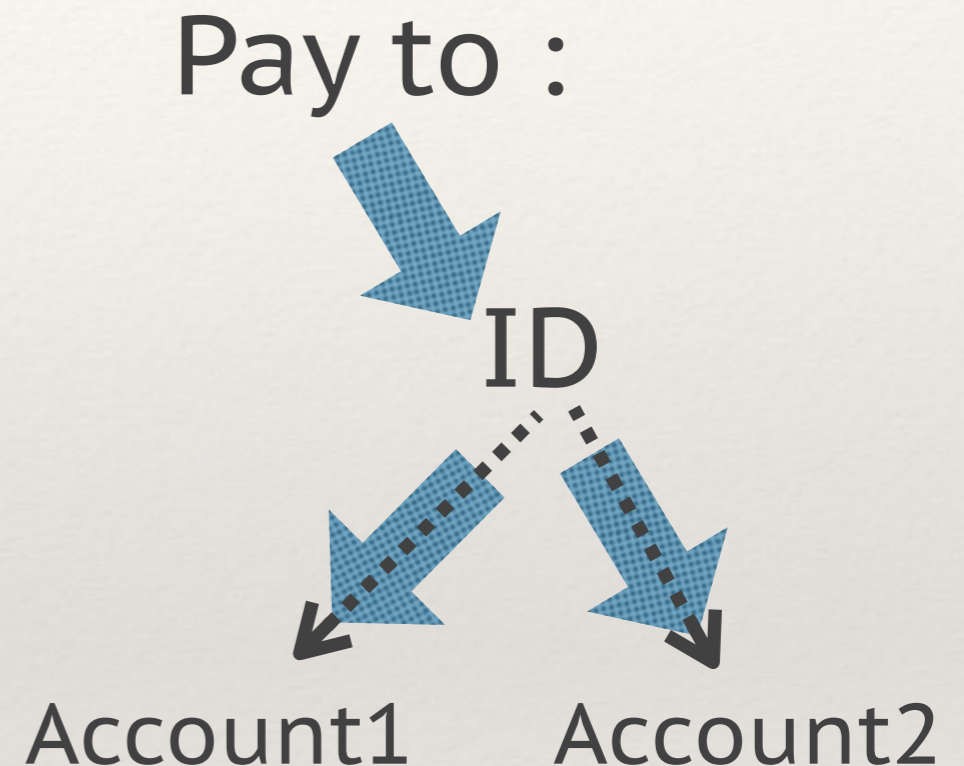
Owner can still use eWallet to pay via eWallet's own Apps, while receiving incoming payment into the linked bank account

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# Number (“ID”) Portability

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- ❖ Switch Banks / instruments (type of accounts, current saving or e-money)
- ❖ Efficiency : no need to inform / update bank accounts when changed
- ❖ Payroll by AnyID



Select from Contact List



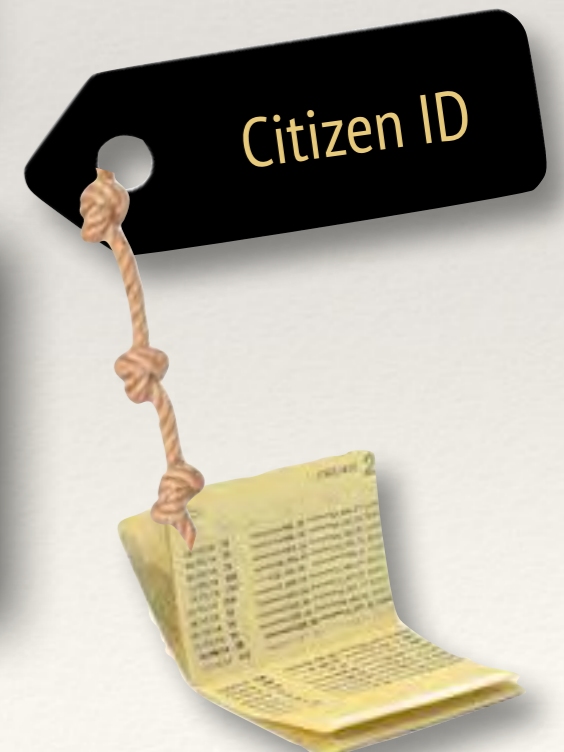
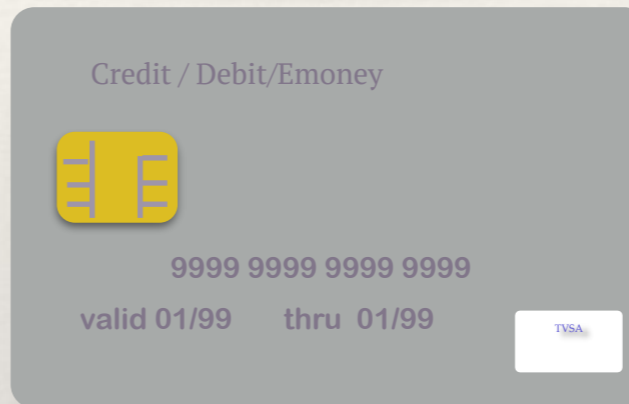
# Using [AnyID] on Every Bank's Channel



# Refilling eWallet

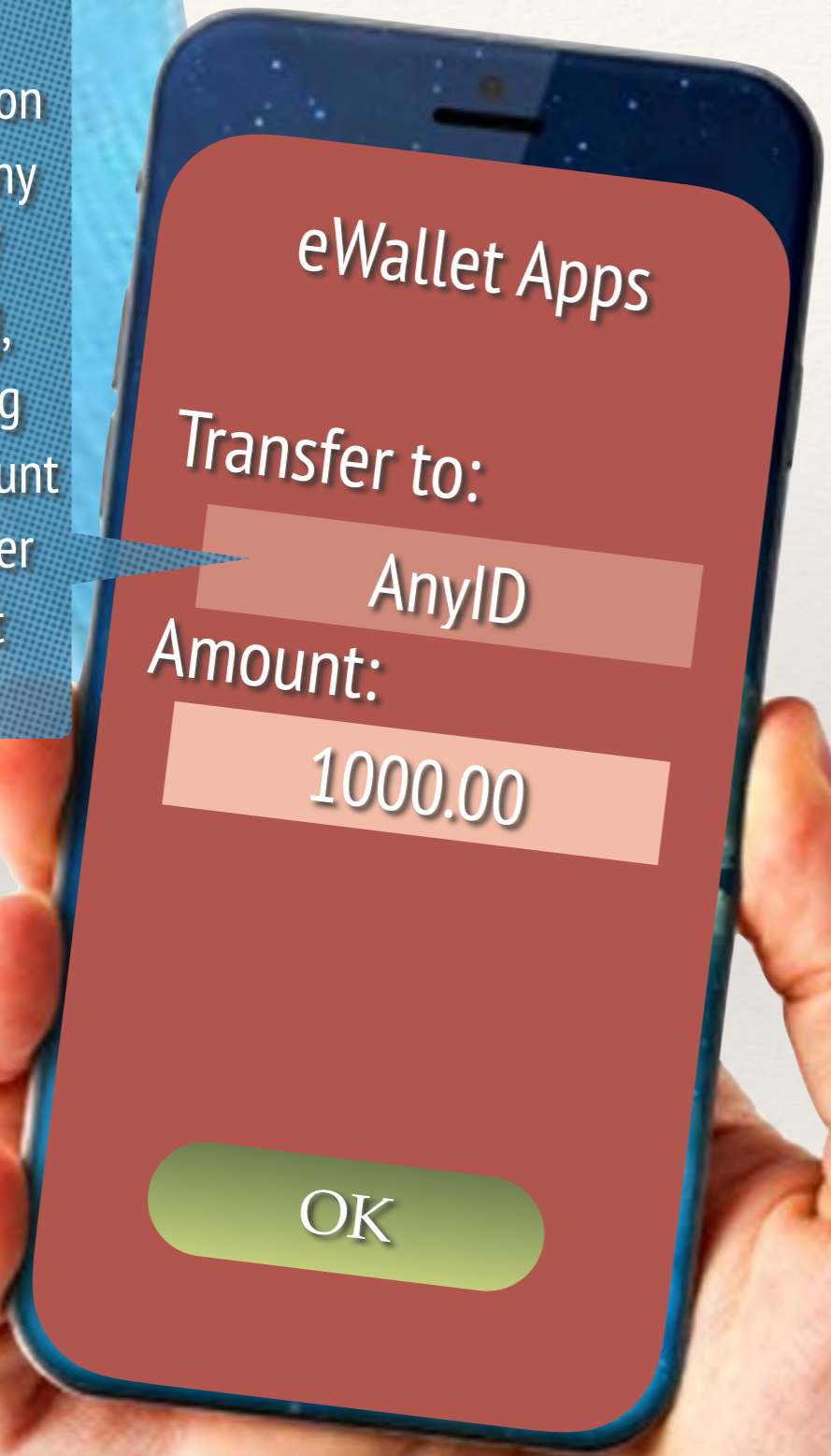
including common ticket/EasyPass

... from any bank channels



eWallet can pay to any bank account or eWallet through [AnyID]

Destination can be any kind of [AnyID], including bank account or another eWallet



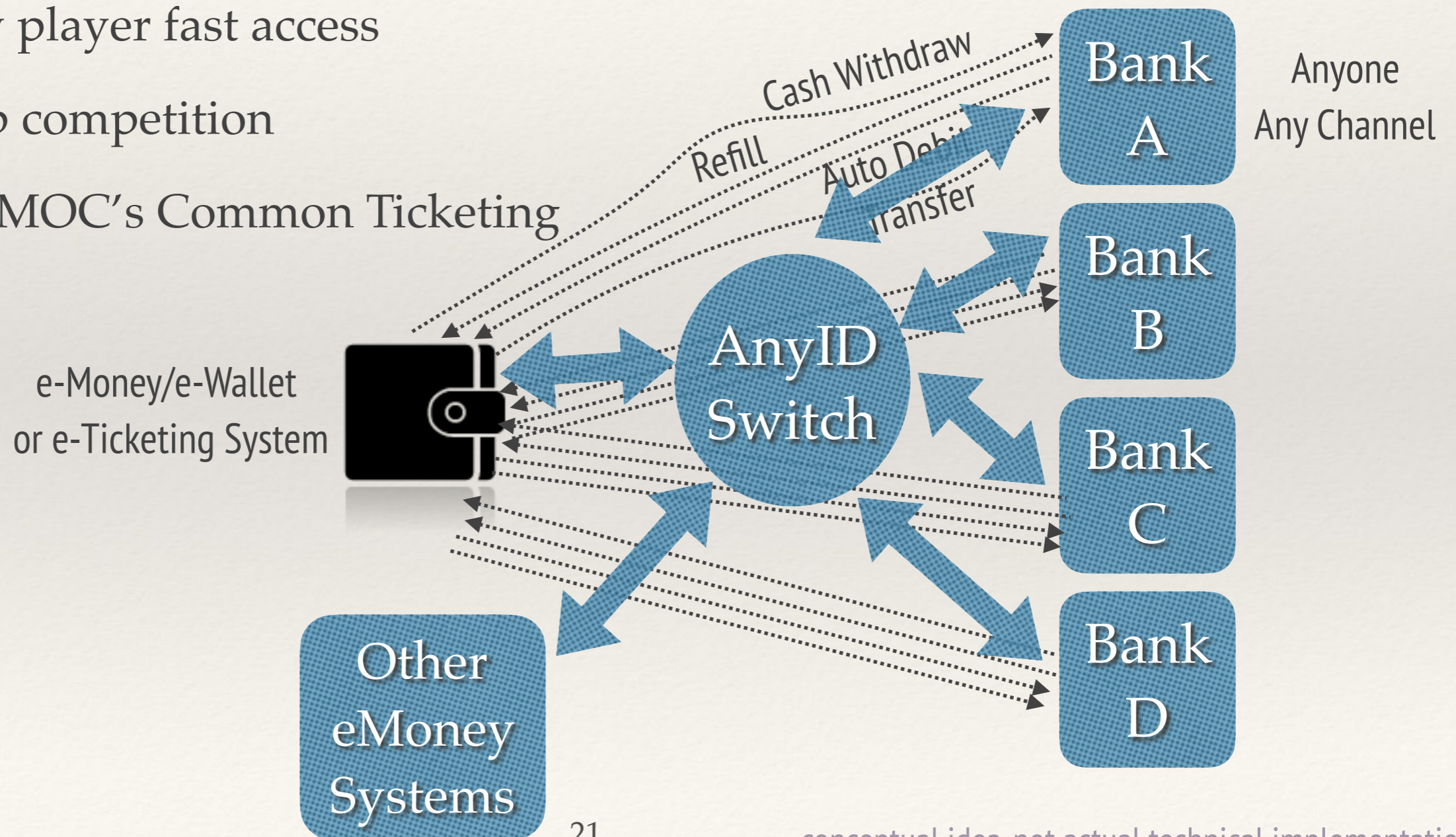
... or even refill another eWallet

via eWallet Apps or any front end system accepting eWallet devices



# e-Money / e-Wallet ID

- ❖ example EasyPass
- ❖ Any new player fast access
- ❖ Speed up competition
- ❖ Support MOC's Common Ticketing



# Mobile P2P Payment

Driver Mobile No.  
**0854598731**

Amount:

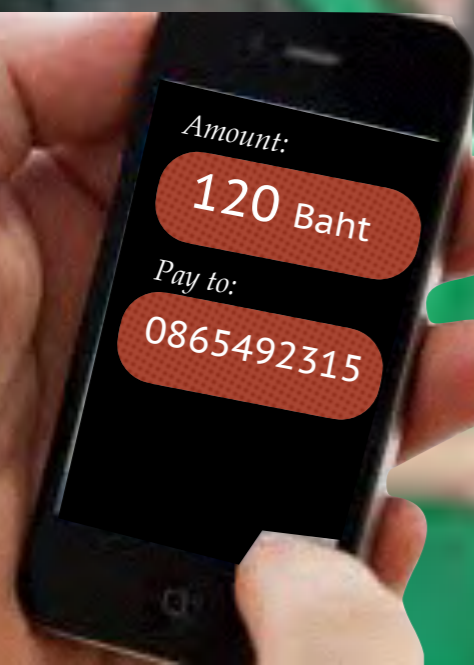
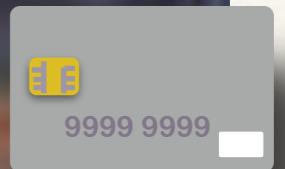
**85 Baht**

Pay to:

**0854598731**

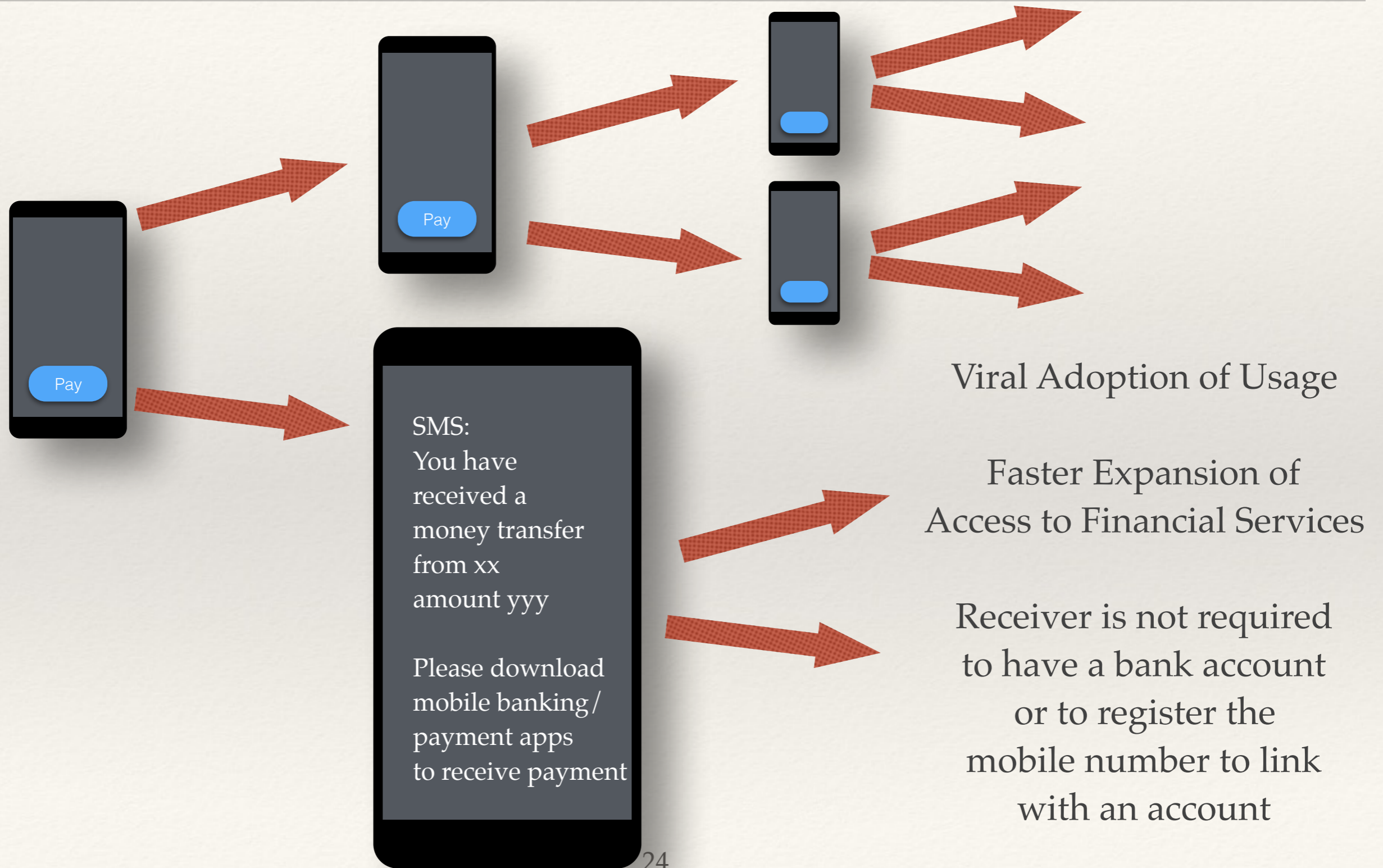
# Mobile P2P Payment

Merchant is not required to use mobile banking!



Mobile No.  
**0865492315**

# Mobile P2P Payment



# “Dangling” Payment : Pay before ... Register later

e.g. Welfare payment

Government agencies do not have to maintain a database of citizen's bank accounts

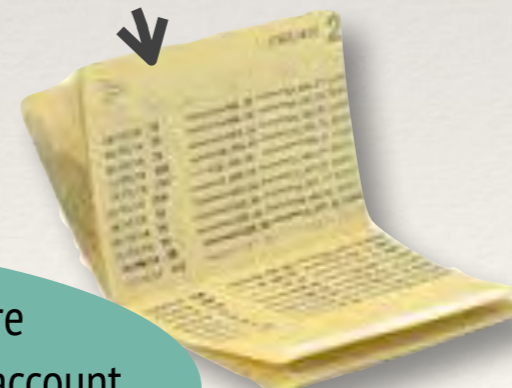


Payer (e.g. Government)

If payee links citizen id to an account, the money is transfer into the account immediately.



Then, the payee can open a new bank account/ eWallet, or use an existing bank account/ eWallet to link and receive money.



If the citizen id is not linked to an account, the money is waiting for the payee in the citizen id.

After registration of Citizen ID2, money is automatically transferred into the linked account.

Citizens don't need an account before receiving payment, and can change bank account anytime without informing government.

# Personal Information

## Data Privacy :

Government database requires less information from welfare recipients



National ID	Name	Bank	Bank Account
XXXXXXXXXX	xxx xxxx	ABank	11111111
YYYYYYYYY	yyy yyyy	BBank	222222
ZZZZZZZZ	zzzz zzzz	CBank	333333
SSSSSSSS	sss sssss	DBank	44444

Welfare Recipient's Database is being built to handle aging society problem

Direct payment reduces losses and makes sure the money gets into the right hand

More efficient and direct to target as well as suit individual welfare recipients' needs, e.g. half-priced tickets

The ability to check individual's rights and entitlement to different kinds of welfares.

# If you currently use many banks, ...

- \* you don't have to close your bank accounts
- \* you can still manage and move money between accounts – using bank account no.
- \* you can still **pay and receive** with all bank account numbers that you have
- \* you have an **option** to adopt [AnyID] and register your IDs to **receive** payments from other people



# If the ownership of an ID (e.g. Mobile No.) has changed, ...

New owner of the ID has the option to register the ID and link it to the new owner's account

0891234567

The new owner logically will not tell anyone to transfer into this ID, before registering to his account.

Old owner of the ID can delink (deregister)

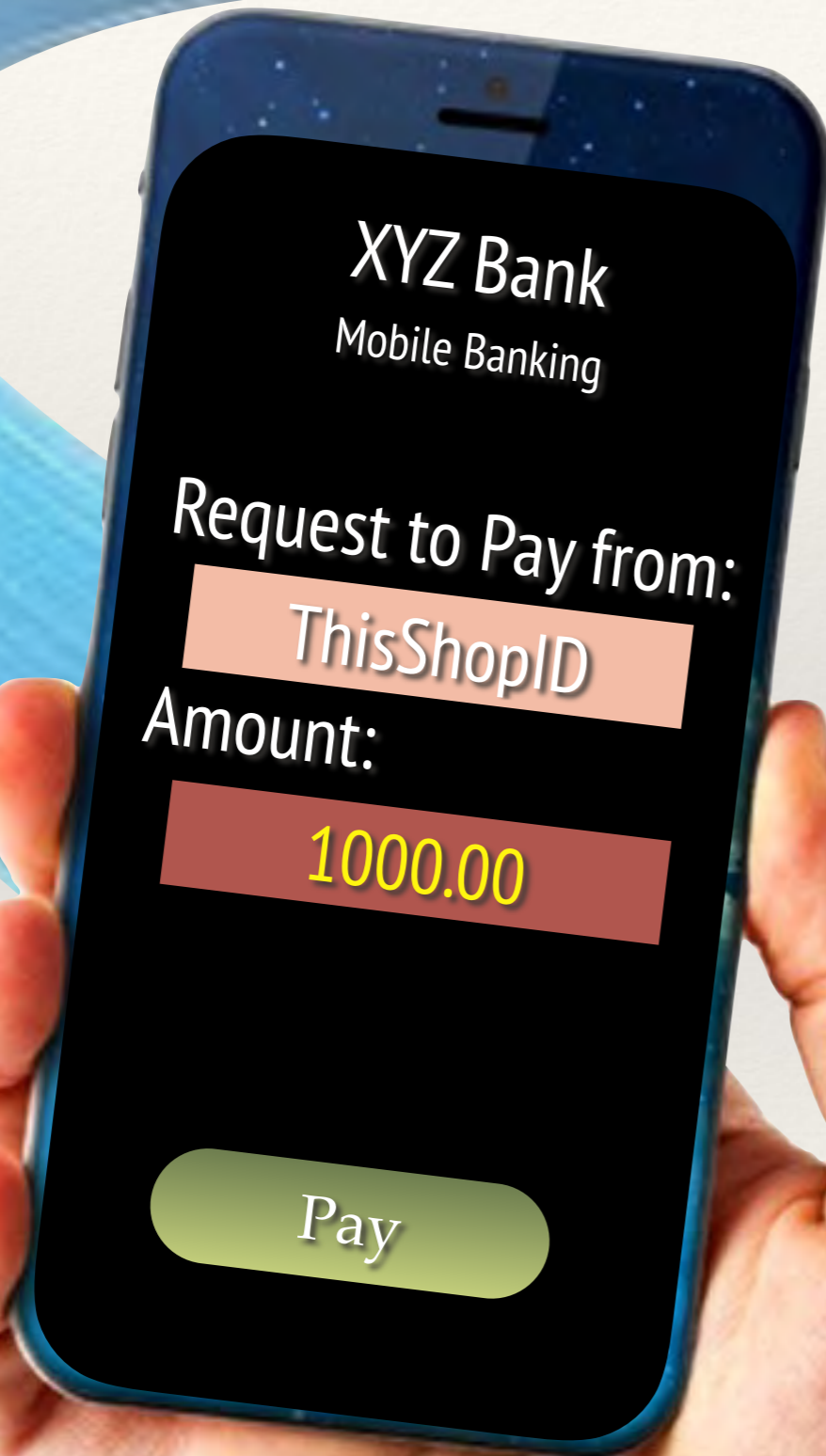
NBTC and TelCo's will automatically inform banks/switch to deregister, in the event of a change in ownership – whether or not the old owner deregisters or the new owner registers.

The old owner is not affected whether or not the ID is registered by the new owner.

Automatic cleansing ...

# New Payment Infrastructure Supports New Kinds of Transactions

## REQUEST-TO-PAY

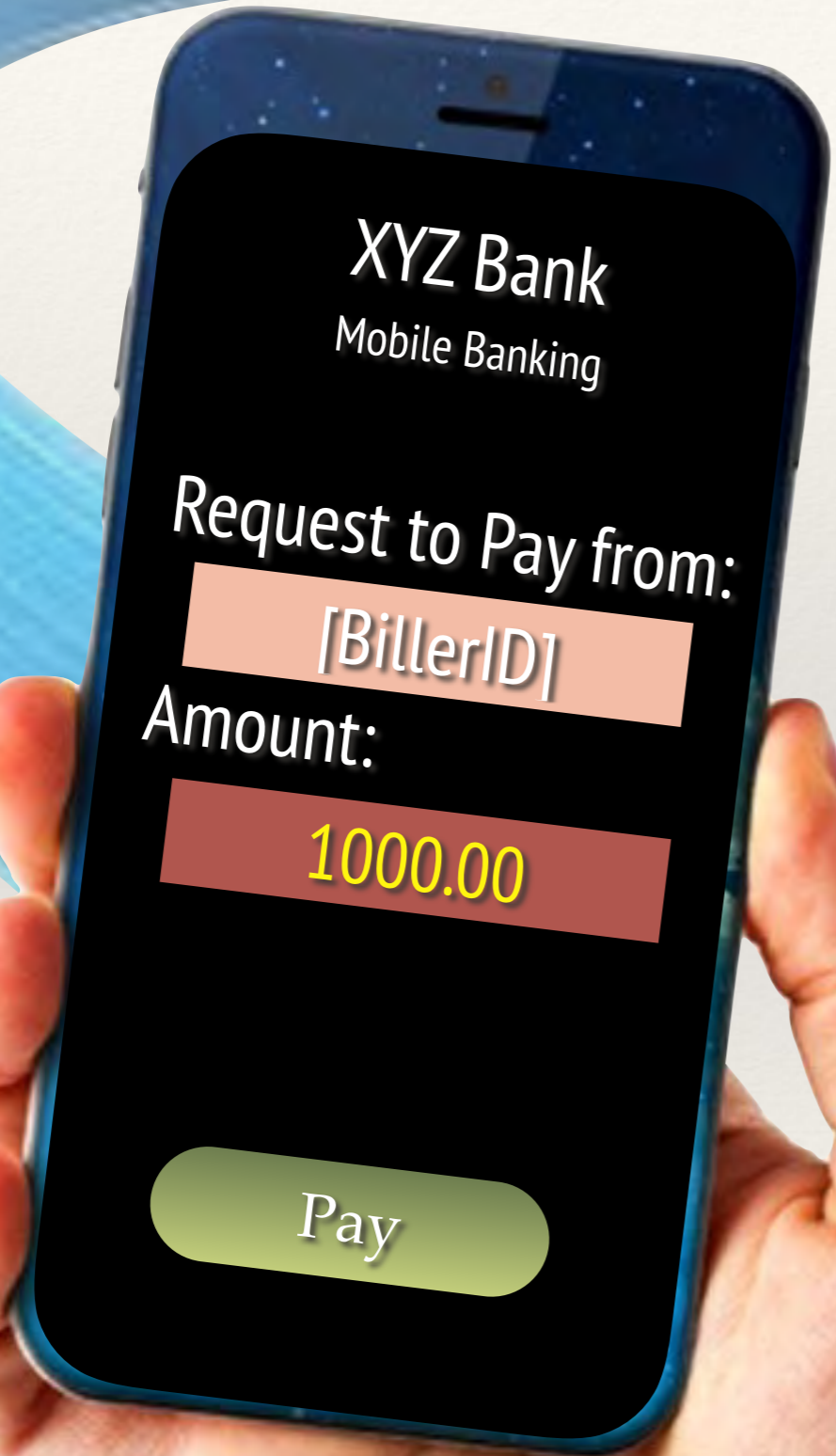


# New Payment Infrastructure Supports New Kinds of Transactions

## REQUEST-TO-PAY + BILL PAYMENT



มรส-มหานคร  
METROPOLITAN WATERWORKS AUTHORITY



Bill  
Payment

### B2C/B2B Bill Presentment



# Payments carry References and a URL for Bill Presentment



Any business can utilize this, not limited to utilities

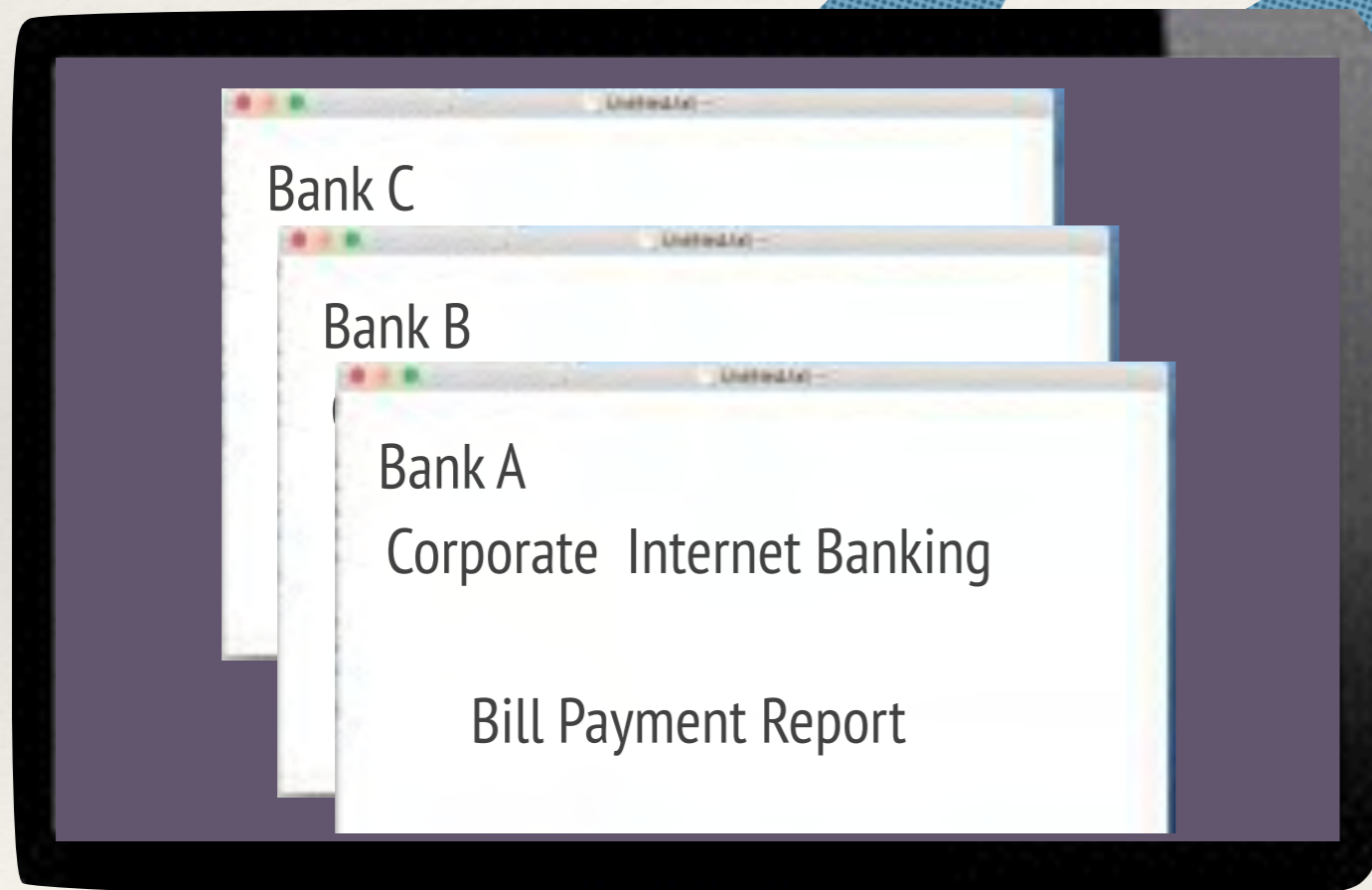


# Currently, Payer and Biller must use the same bank.

## No cross-bank bill payment service



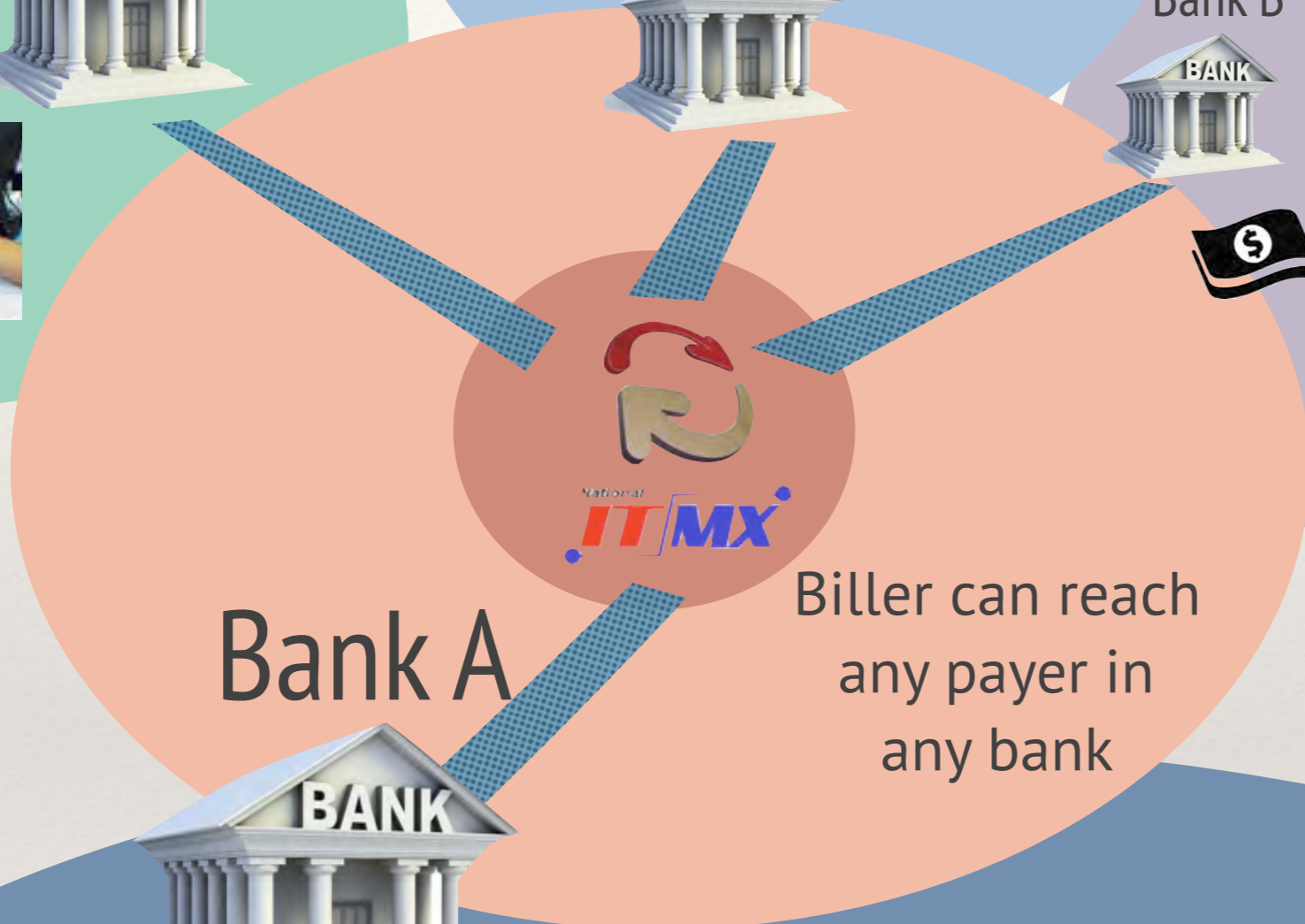
Customer of Bank D cannot pay this biller.



Biller



# Cross-Bank Bill Payment



Stop faxing slips!



Biller can reach any payer in any bank

Biller only needs to connect to one bank.

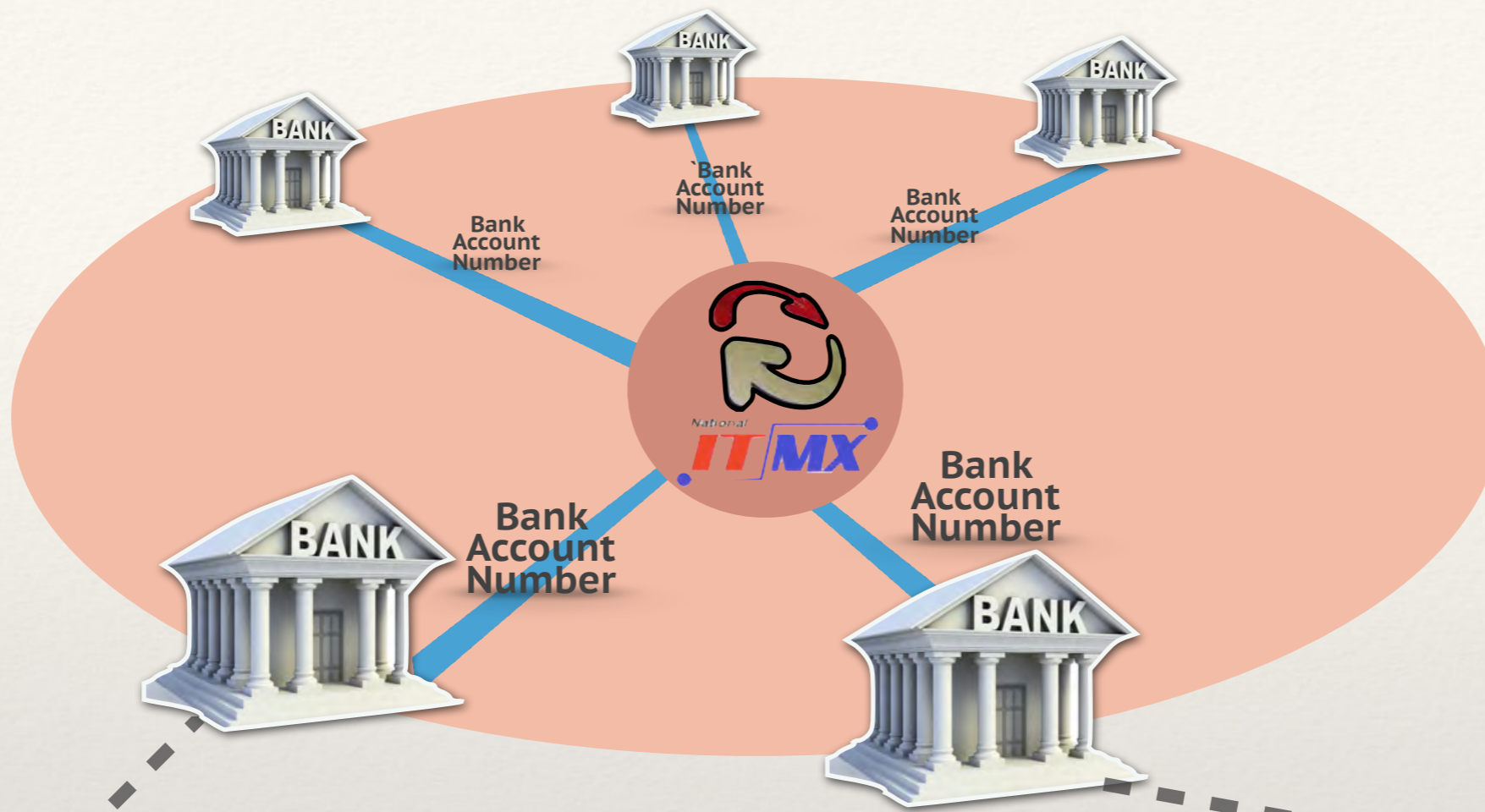


Biller can utilize RTP (Request-to-Pay) to present bills, together with cross-bank Bill Payment Service

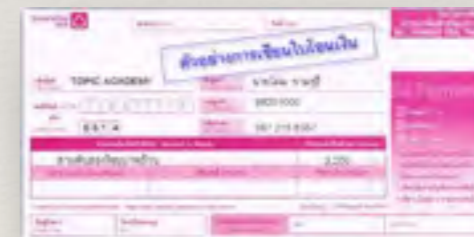
New 2D Barcode/  
QR Code Standard  
to support bill payment  
with extra info (e.g. URL)  
via AnyID  
infra



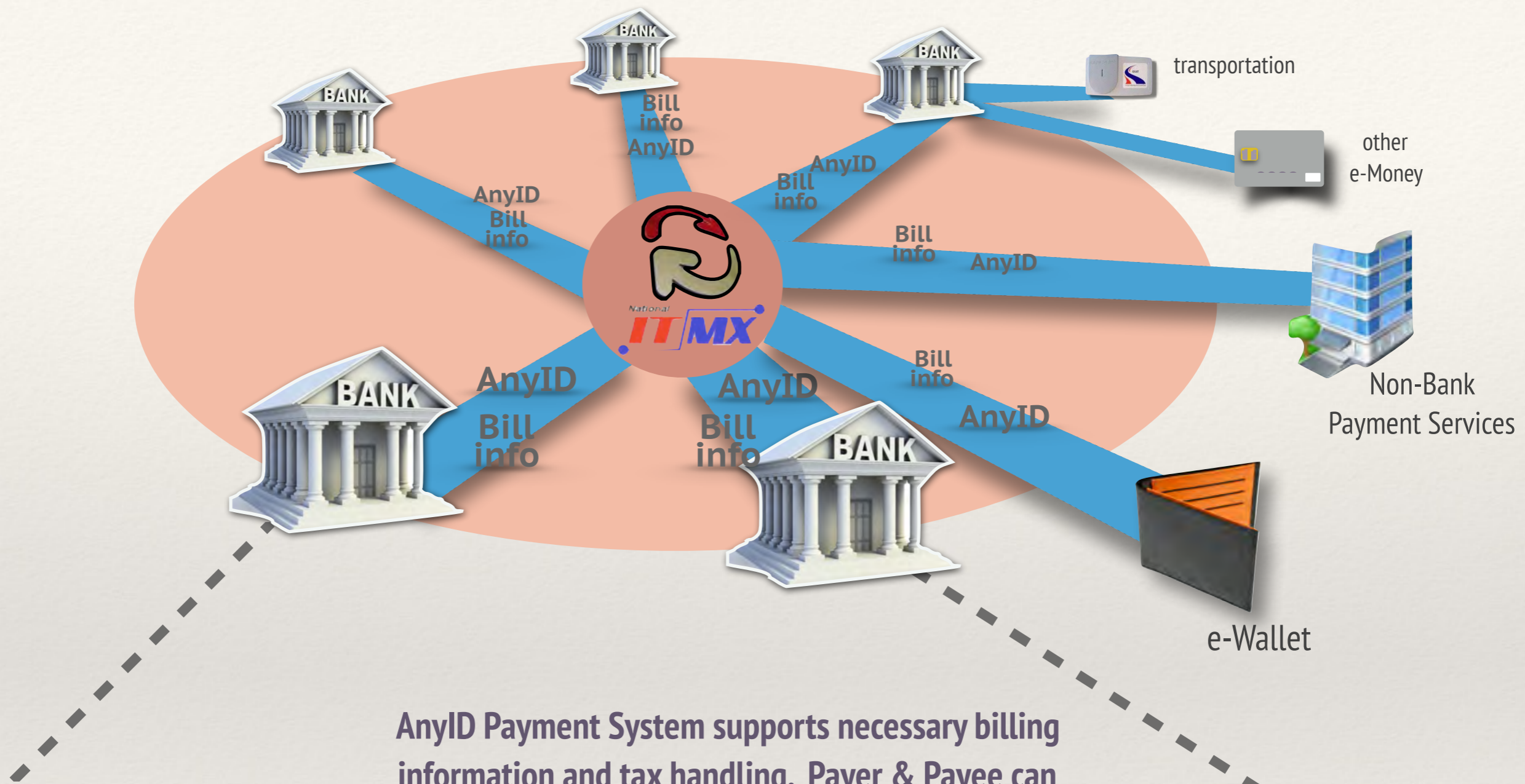
# Current Limitations of Payment System



Current Payment System does not support necessary information. Payer & Payee must exchange info and document outside of the system (offline)



# Expand Infrastructure to handle more info & transaction types



AnyID Payment System supports necessary billing information and tax handling. Payer & Payee can exchange info and document electronically within/through the system



# Using National ID

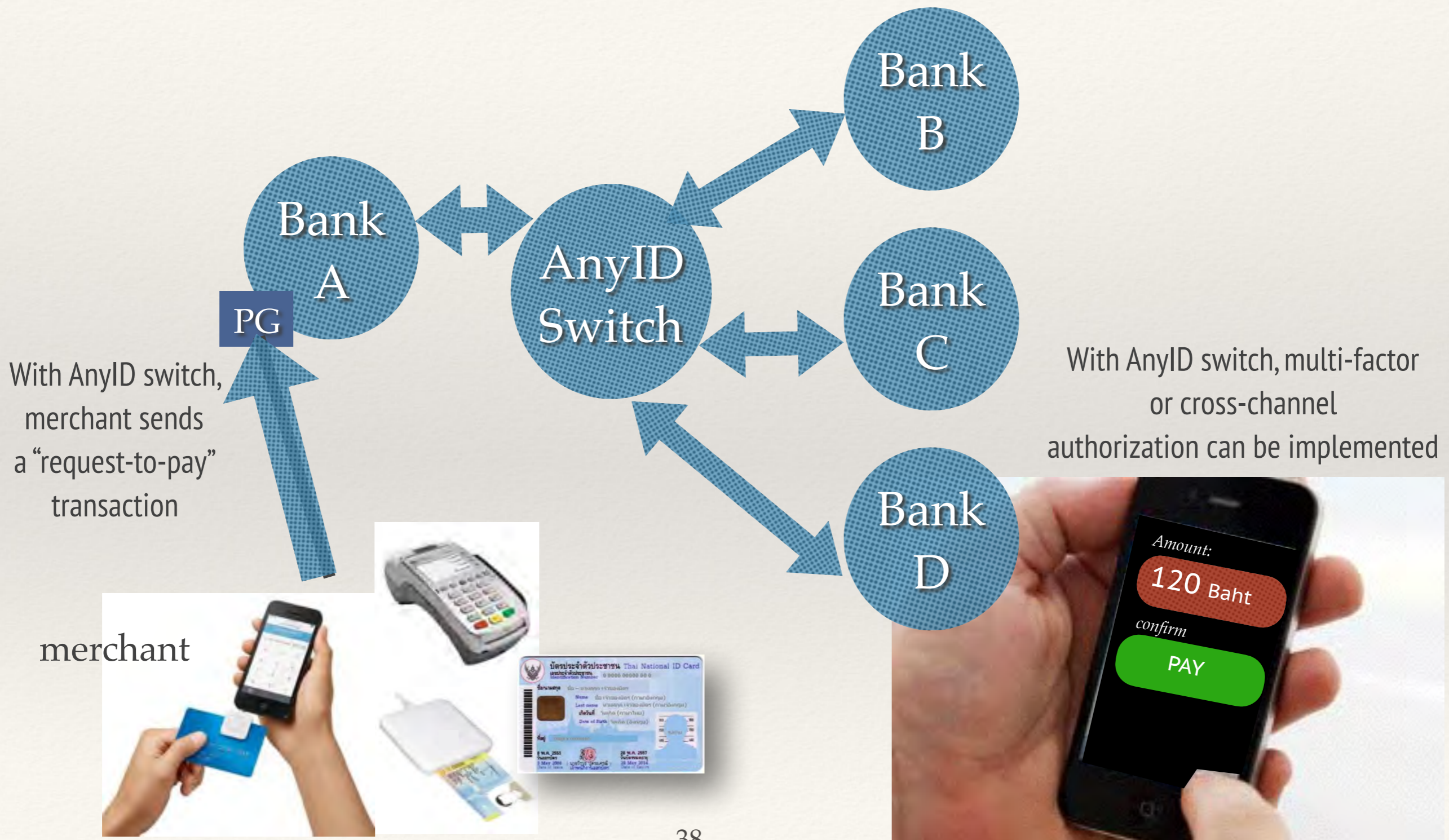
- ❖ Government payment / welfare
  - direct & fast
- ❖ Financial Inclusive : “every citizen has an account by birth”
- ❖ Efficiency : no need to inform / update bank accounts when changed
- ❖ National ID Card as payment instrument (2 factors: cross channel or with PIN)



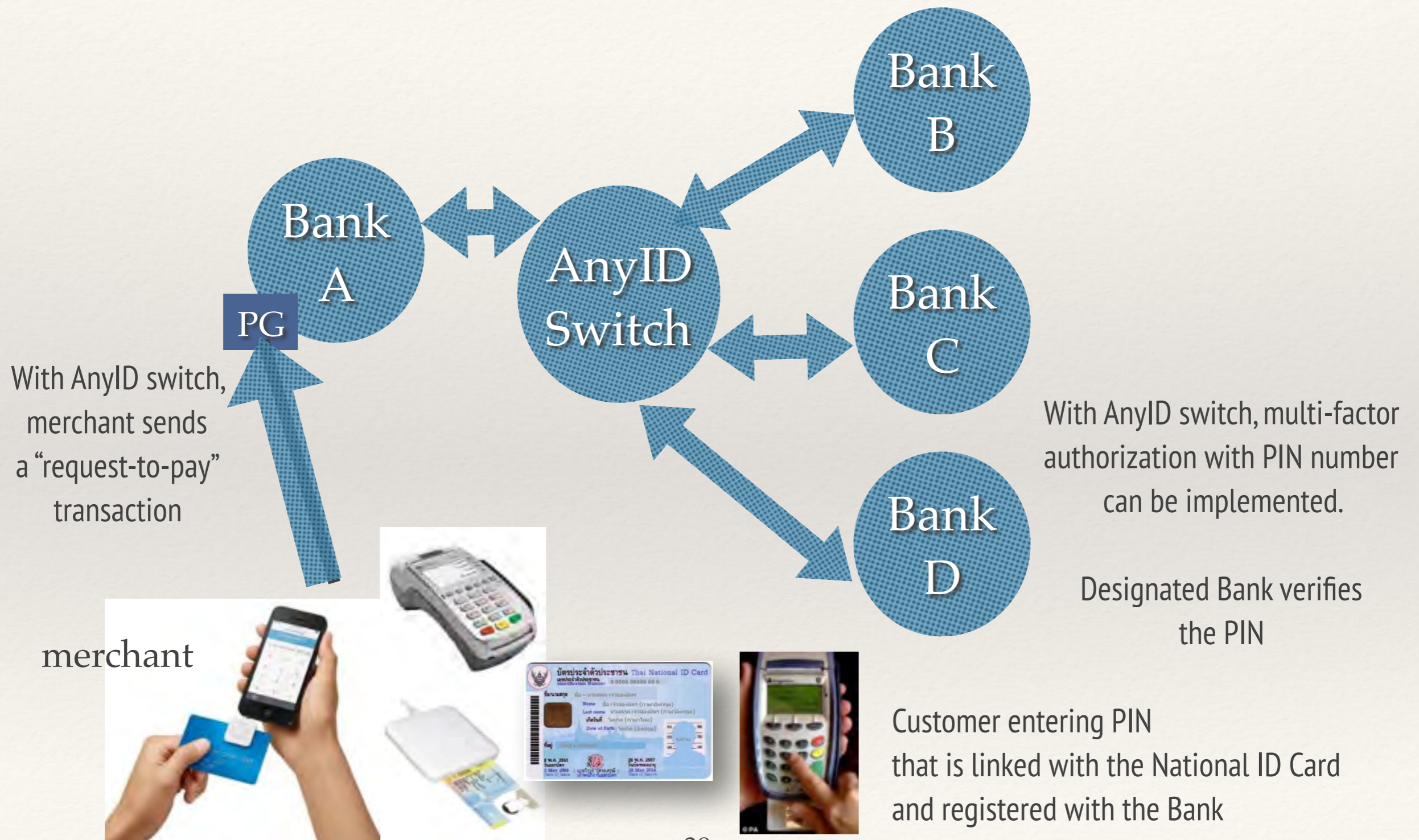
National ID Number = Account Number

National ID Card = Debit Card

# National ID Card Payment

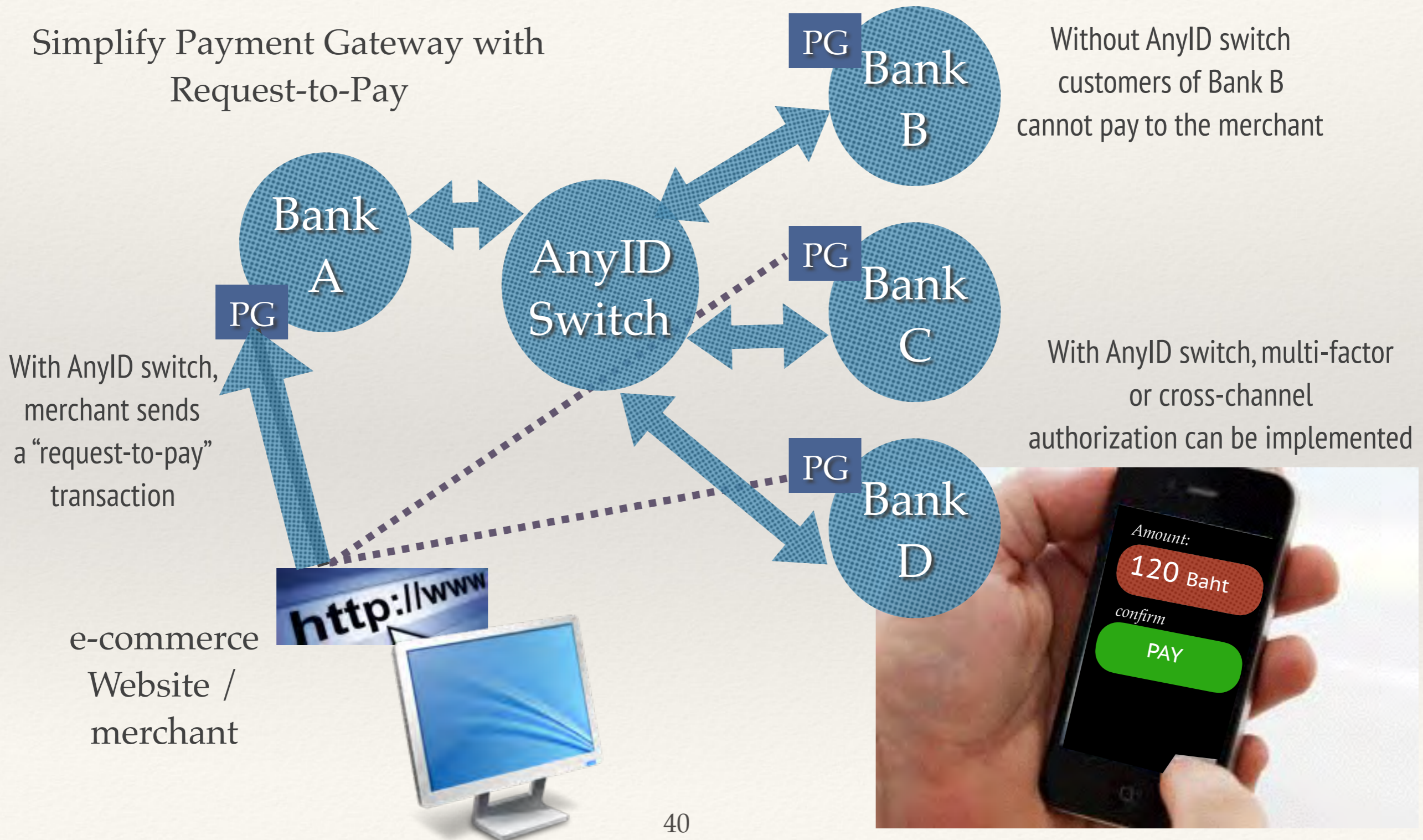


# National ID Card Payment

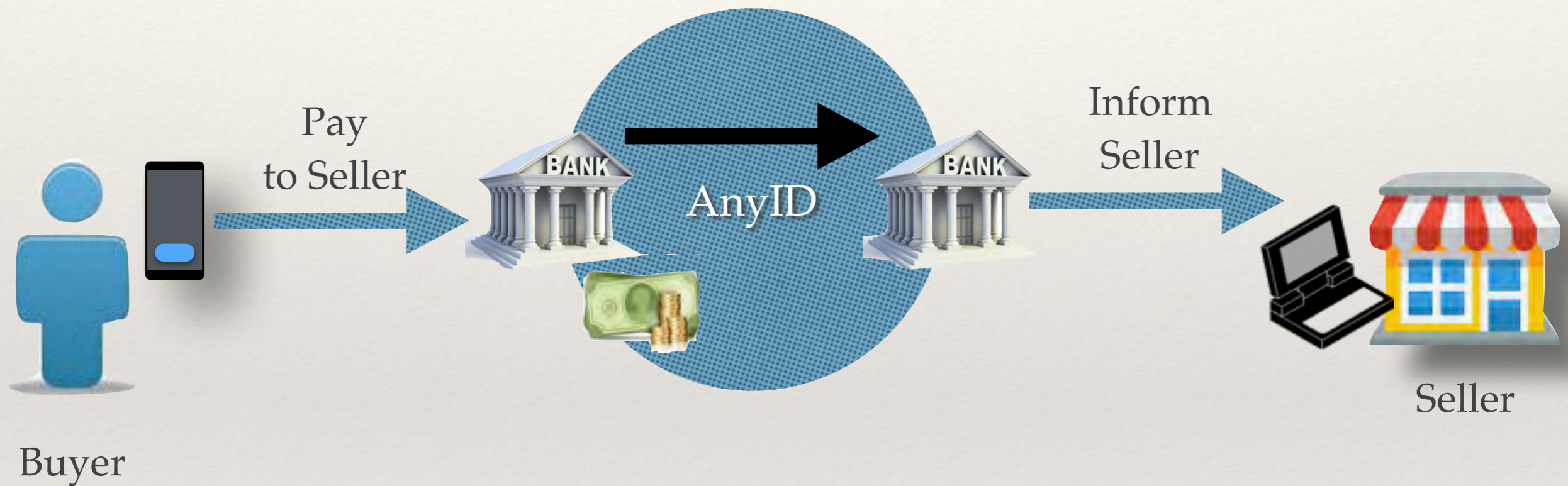


# E-commerce Enabler

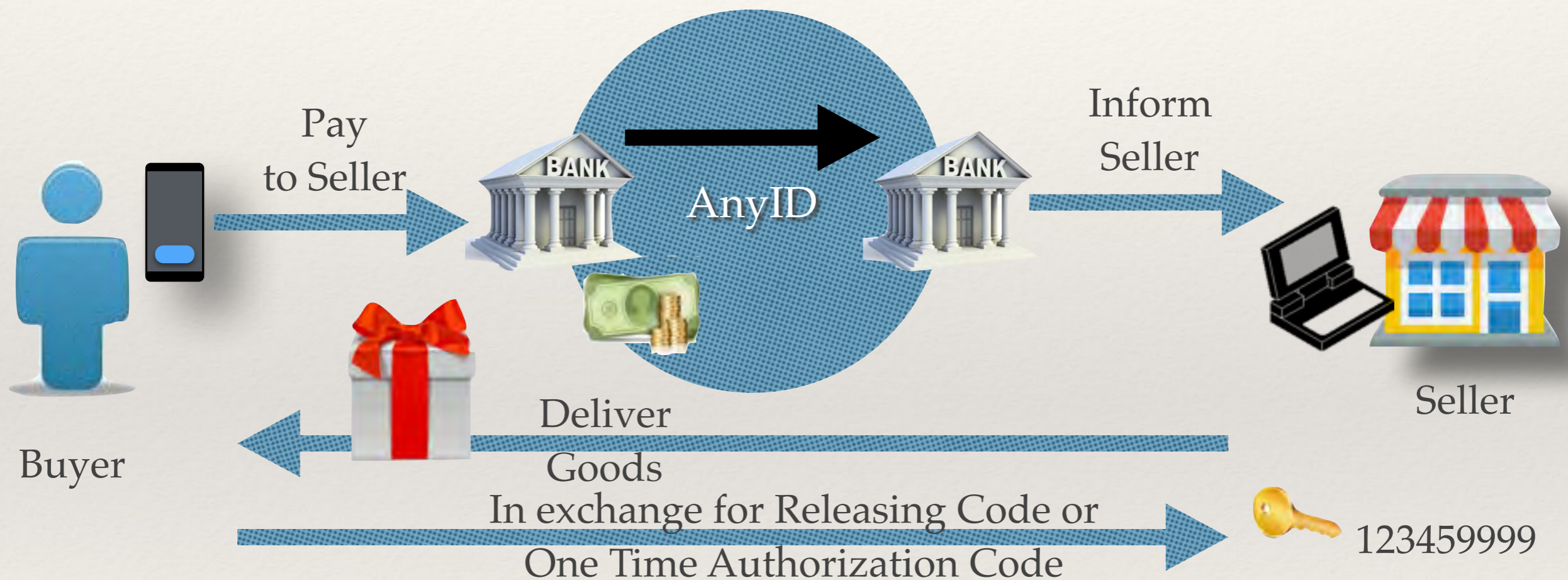
Simplify Payment Gateway with Request-to-Pay



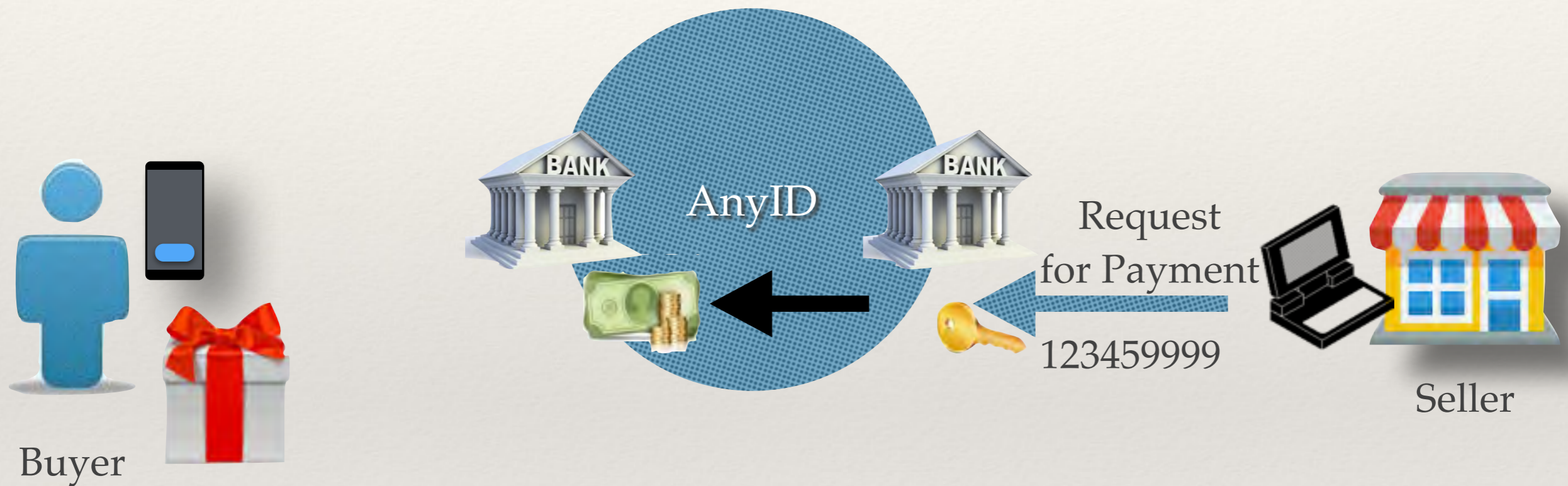
# Escrow/One Time Authorization



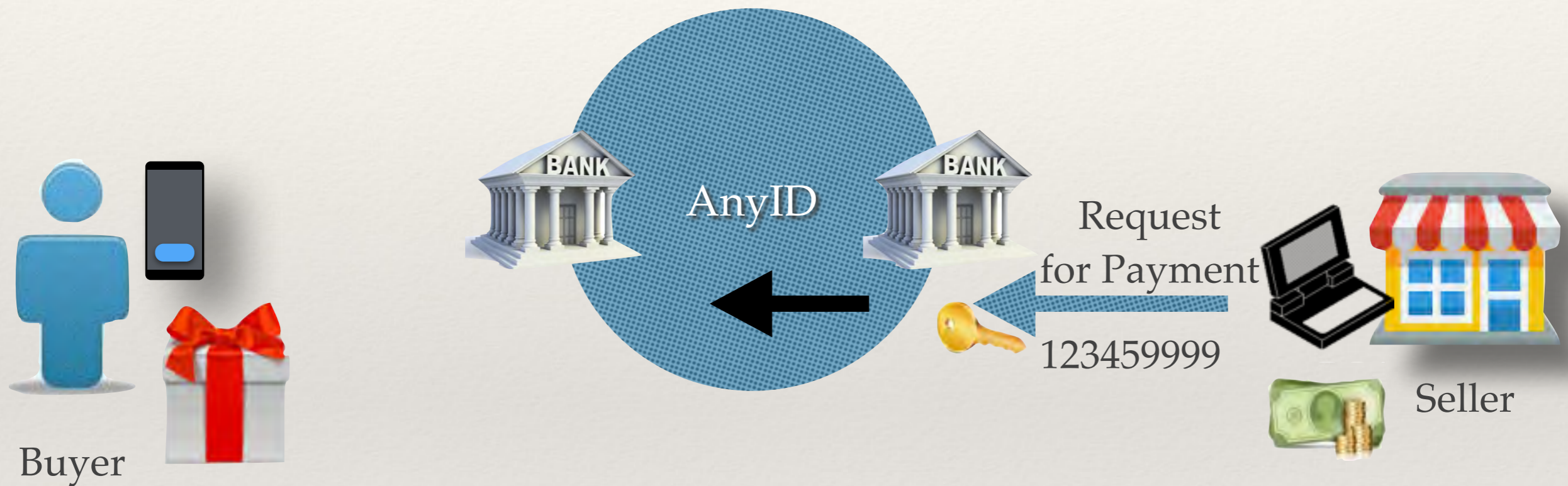
# Escrow/One Time Authorization



# Escrow/One Time Authorization



# Escrow/One Time Authorization



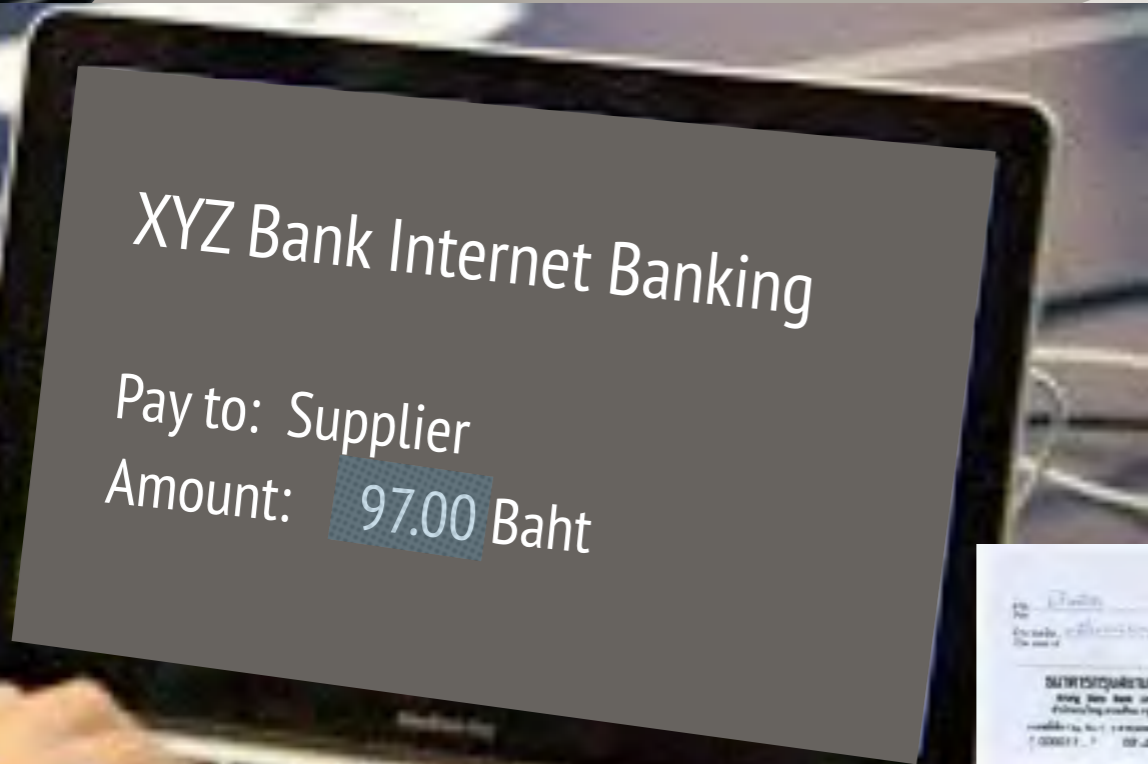
# Withholding Tax

Currently, Payment can be made electronically, but W/H Tax cannot be delivered electronically.

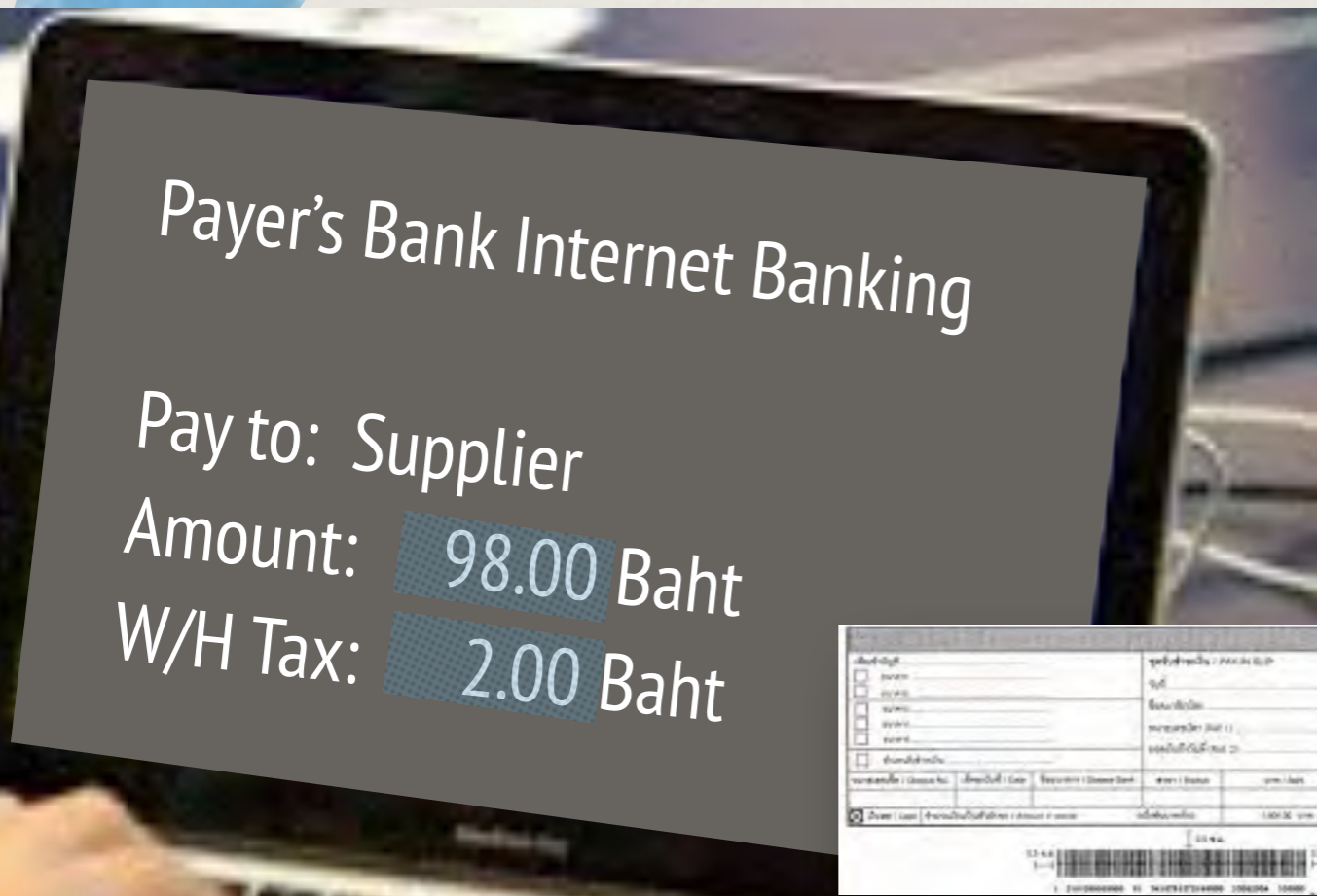
Supplier



B2B Business cannot pay bills via Bank Bill Payment or via agents, because of W/H Tax document collection.



# e-Withholding Tax



Automatic W/H Tax reporting.  
No addition filing — reducing burden & saving time for the payer.

Favorable W/H Tax Rate for electronic payment

# Tax Invoice

Currently, tax invoice is still in paper form and is delivered physically.

Buyer



Revenue Dept.

Auditor asks for paper form of tax invoices.



Print



Sign

Seller



Fax



# [e-mail] e-Tax Invoice

Central signing server  
(time stamp & digitally sign)



Buyer



Signed copies sent  
to Buyer & Seller for  
record-keeping

Auditor will  
ask for  
digital copies  
of e-Tax  
Invoices



Revenue Dept.

Seller registers with signing server  
using seller's own/any email address.

Any format

email your  
e-Tax  
Invoice



Take picture  
and email

# Vision of e-Payment Usage in Thailand

## 1. AnyID Payment System

On-line Mobile Based  
Self Initiated Payment

P2P Payment

Mobile Payment

Internet Payment

E-commerce Payment Gateway

e-Money Interoperability

Electronic Bill Presentment & Payment (EBPP)

B2B EBPP (or EIBP)

+

## 2. Card Usage & Acceptance

Off-line and On-line Card Based  
Payment

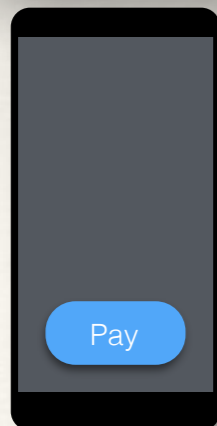
Card Payments Handled / Operated by  
Merchants

Multi-factored Payment

e-Money

Transportation Card

Micro payment



Self Serviced  
Initiated / Controlled

Merchant Serviced  
Handled / Operated



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# Card Acceptance

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- ❖ 2,000,000 pos
- ❖ EDC + Functions
- ❖ EDC reads Citizen Card
- ❖ Government accepts card payment