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Production use of blockchain based invoice and reimbursement network over high scalable infrastructure

Michaelli@tencent.com
alphawwang@tencent.com

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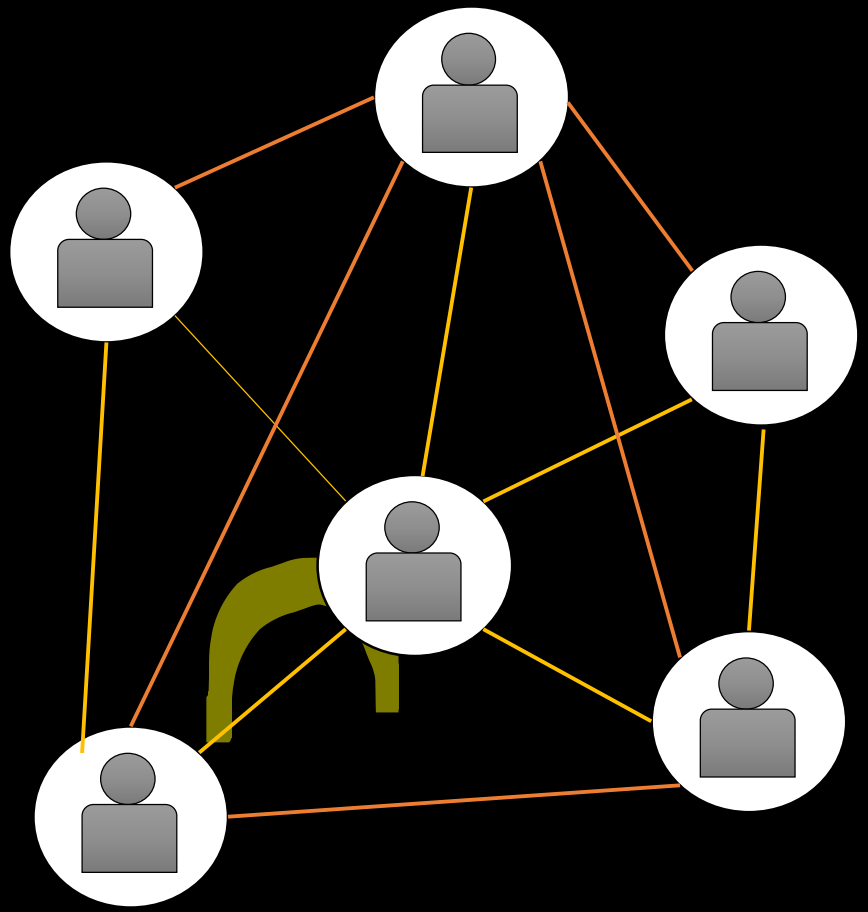
interconnected brains enable human being's dreams come true



4mln invoices issued

- E-commerce

- Transportation& Express

- Financial

- Retail

- Realstate

- Hotel

- Insurance

Enabling Everywhere

Invoice amount up to 3.5billion RMB
(approx. 58million USD)

Invoice connects billions of customers and business everyday through DLT based SirNet

5300+
Enterprises

Applicable to countries and territories to ease the re-imbursement process

Approx. 700mln dollars can be saved if deploys DLT invoice (paperless) for one Province(eg. Guangdong) in China

Up to 160 industries kickoff

Catching up the TPS of payment transaction pace by and by

Our vision is to enabling the most convenient way to for invoicing and re-imbursement, facilitating cost down.

Benefiting Everyone

Provide Merchants with assured invoice services with lower cost and easy customer reach

Facilitate TAX Admin with solid flexibility to endorse the policy in different sectors

Give customer secure way to get invoice and convenience for re-imbursement with efficiency

Provisioning payment platform the capability to facilitate the invoice issuance under customer authorization

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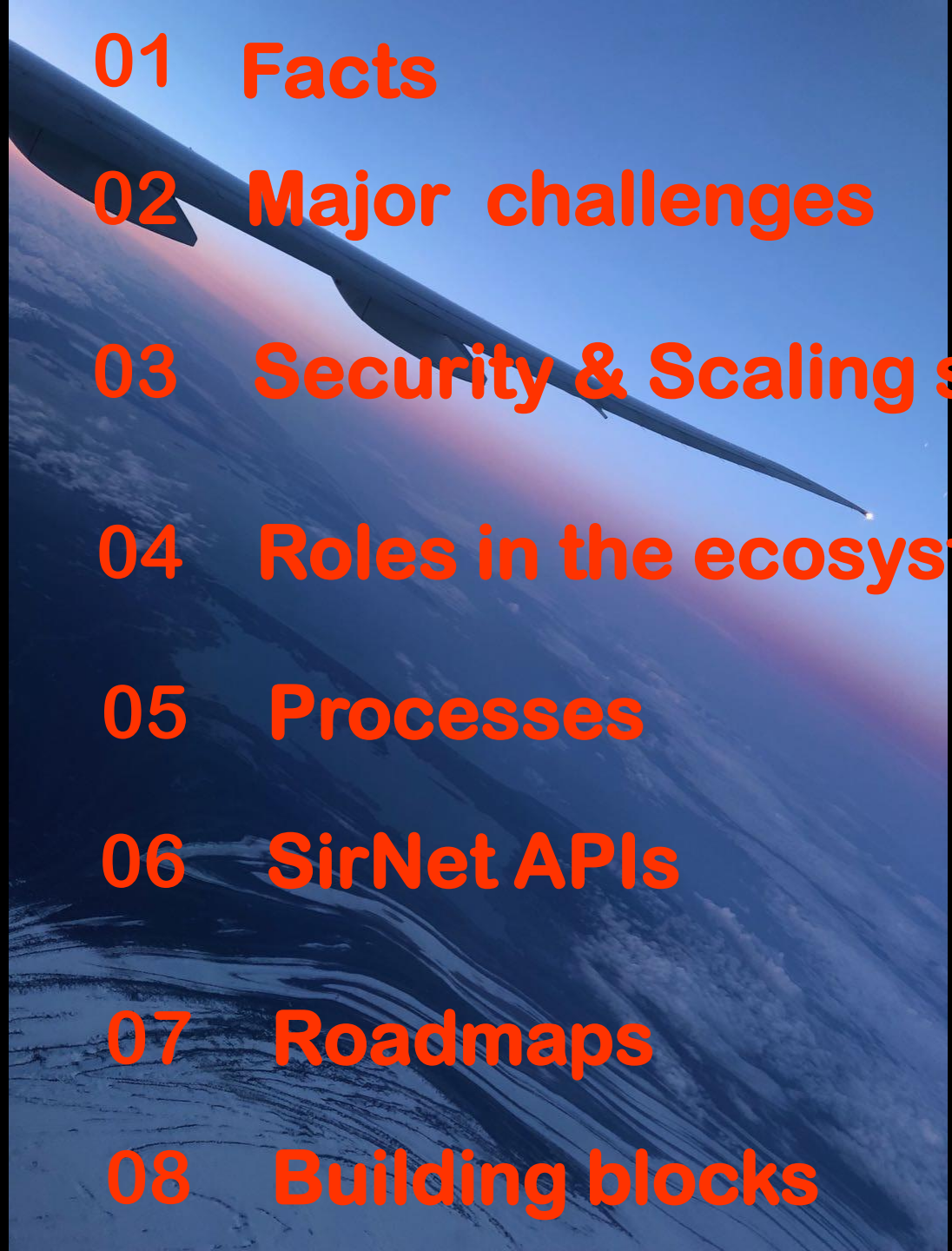

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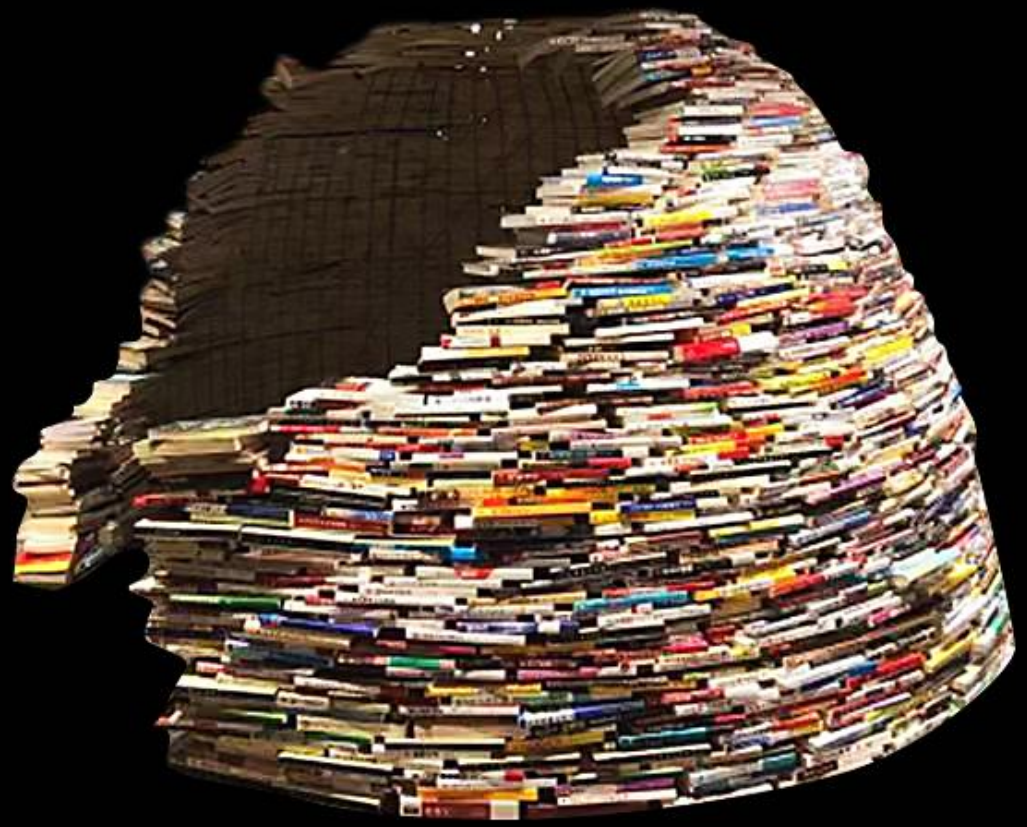

Lost receipts and paperwork

A recent survey of companies about the travel and expense management practices found that half of those surveyed – and 70 percent of the smaller ones – rely on manual processes. The biggest problem, respondents said, was the loss of paper receipts.

Mileage padding and fraud

There are estimates that billions of dollars are lost each year in fraudulent travel and expense reimbursements.

Delays in reimbursement

Quick re-imbursement is highly expected in any company.

Variant TAX categories across jurisdiction area

The remittance timing could have some impact over cash flow of the supply chain.

Emerging initiatives

- Making Tax Digital(MTD) initiated in April 2019 and requires digital VAT record keeping and VAT returns to be submitted electronically, transforming the UK VAT system;
- Ecomerce platform set up processes and systems through which taxes are applied to online transactions.
  - One example is Since there is no federal sales tax in the United States, this means Amazon has to comply with hundreds of different tax jurisdictions.

What could be the future?

a. Blockchain has the power to disrupt and strongly re-organize accounting and the way tax payments are processed. With the progress of the technology, introducing blockchain to the tax domain would require an evolution in both databases, network systems and streamline legal identities frameworks of enterprises.

a. In the long run, blockchain can be a driving factor in implementing real-time, automated tax processes for both small and large enterprises.

Major Challenges

Major Challenges

Privacy

To guarantee that the invoice data can only be accessed by the authorized parties

Scalability

To offer scalability for interconnections

Integrity

Data integrity verification before endorsed over blockchain

Performance

To support high concurrency

Security and scaling solutions

SirNet-Secure invoice &re-imbursement Net

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- 50+ Security experts and a large assortment of experienced technicians and associates

Data integrity &Privacy

- Attested oracle based on verifiable transaction data
- Authorized invoice transaction with private key signature

- Strict Isolation between the jurisdictions
- High Data storage scalability

Secure& scalable operation

Ecosystem Security

- Motivated stakeholders to guarantee the success business model

- System kernel smart contract, Guarantee the TAX policy execution
- Smart contract evaluation toolkit
- Timely Risks evaluation

Secure smart contract

Secure Invoice& Re-imbursement Net

Security compliance

- Compliance with ISO27001
- DLT Specific security checklist

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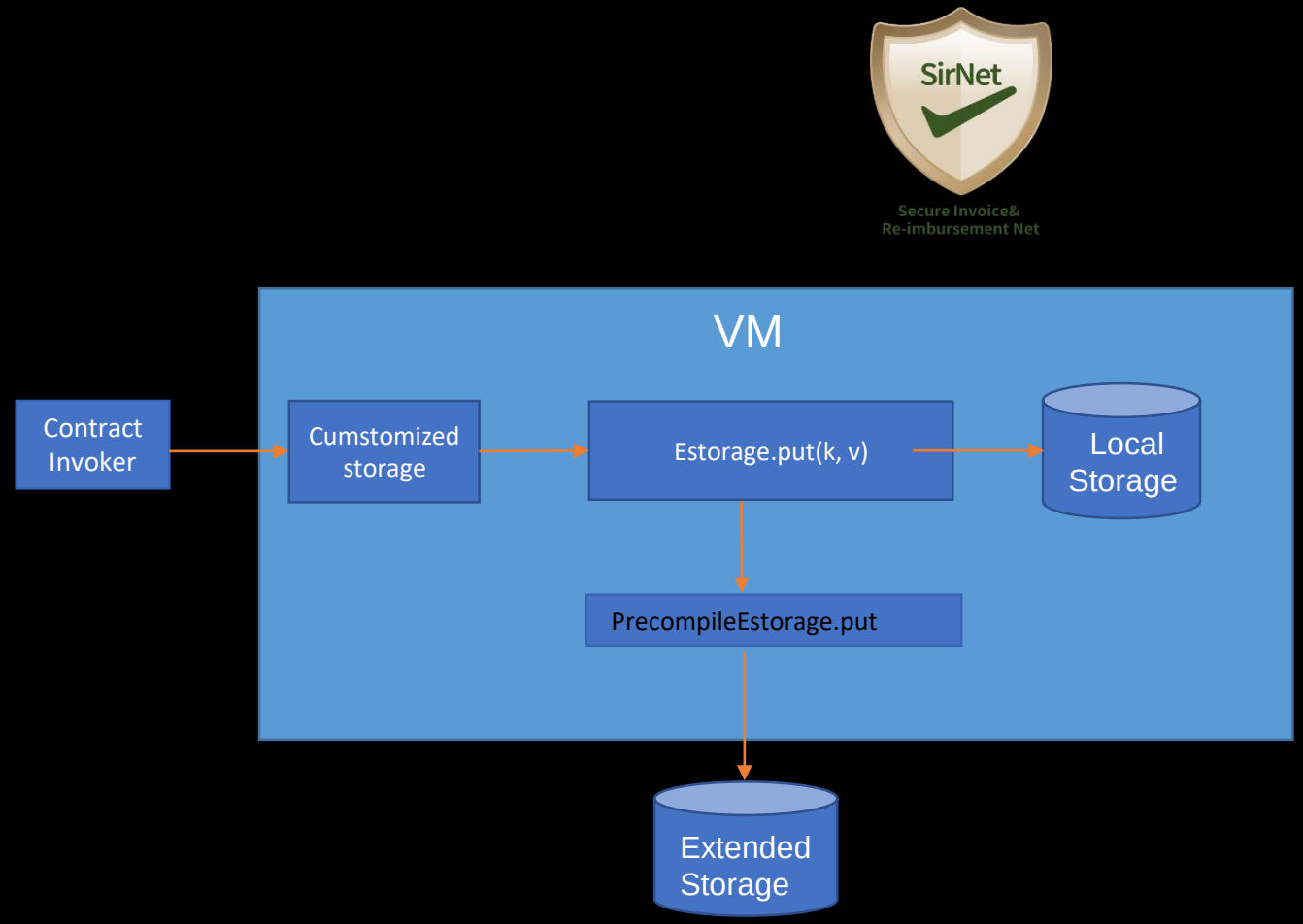
Dual layer smart contract

- Embedded Kernel Smart contract to guarantee the jurisdiction specific TAX policy execution with adequate performance and security
- Smart contract over EVM to provide flexibility after SirNet deployment



Roles and participants

Participants in SirNet

Participant	Name	Description
	Payment Platform	To facilitate the transaction between customers and merchants;
	Customers	The consumers purchase the items and may request the reimbursements later on;
	Merchant(Sellers)	The merchant as a seller associates with its Origin TAX Admin for claiming the TAX;
	Tax Admins	1. Origin TAX Admin manages the invoice issuance based on its local policy and the type of services that the sellers are supplying; the process could be processed by smart contract issued by Origin TAX Admin; 2. Destination TAX Admin manages the inbound invoice validations together with the Origin TAX Admin that issues the invoice;
	BER(Billing Service Provider)	BER is the Billing Service Provider that collect the invoice billing request from the customers and submit the request to the TA Admin.
	Acquirer (Invoice Acquire Service Provider)	Acquirer is to acquire the invoice for interfacing with the Tax Admin for invoice validation and or re-imbursement.

Participants in SirNet

Participants	Name	Description
	Wallet	Wallet is as a customer’ s account to store the invoice for the customer;
	Customer Associating Enterprise(CAE-Buyer)	1. Customers submit the invoice in the wallet to its Customer Associating Enterprise(CAE) for re-imbursement; 2. Customer Associating Enterprise(CAE) claims its tax with its TAX Admin, when claiming the VAT reverse and invoice validations, the TAX admin is generally considered as the Destination TAX Admin;

Processes

Leveraging the payment domain and tax domain

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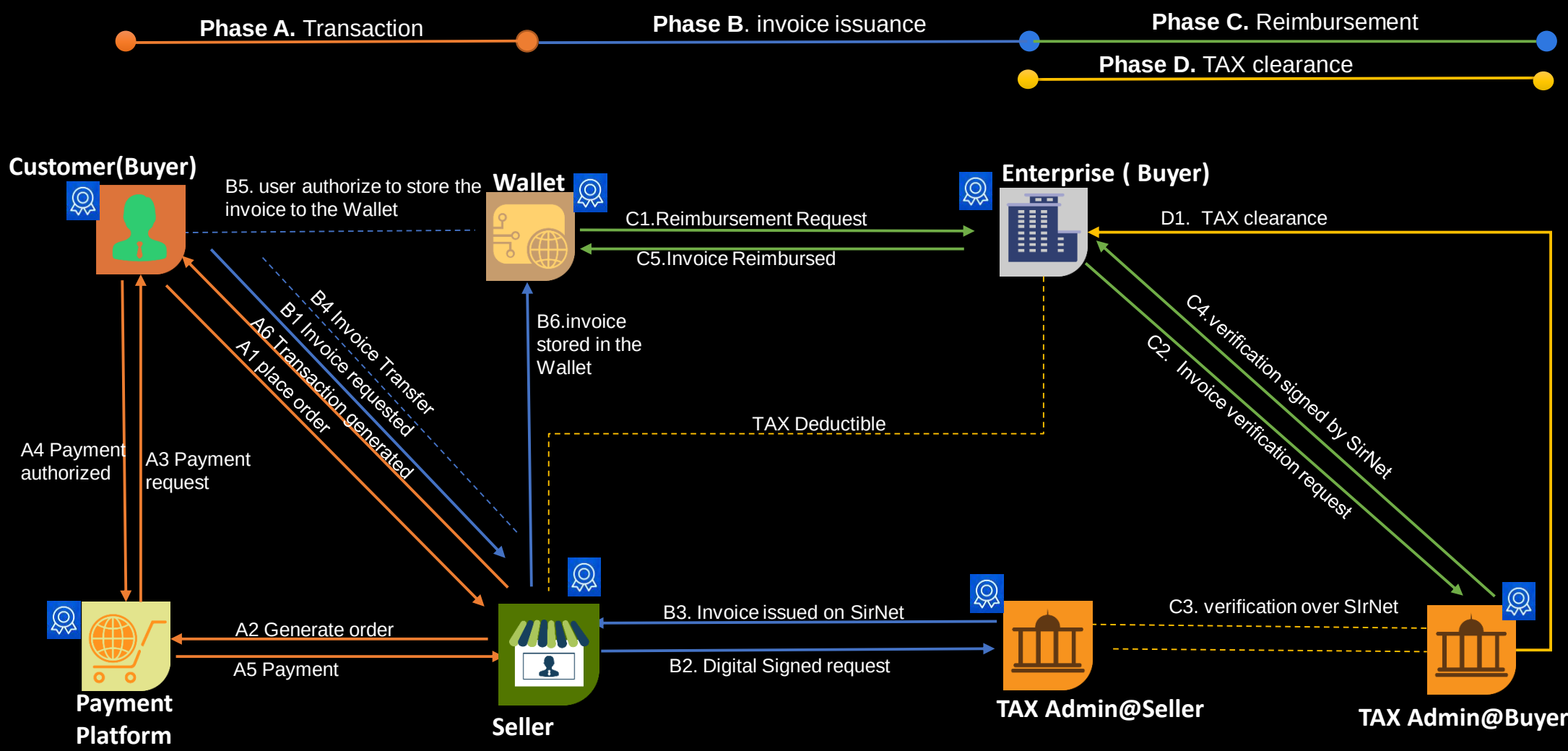

SirNet API Services

SirNet APIs

The SirNet API is organized as service each comprise of operations that associate with the SirNet messages;

Registration API
Taxpayer Profile
Commodity code classification
Binding the BER

ReceiptApply
Tax Number Validation
……

BillTransferApply
Tax Number Validation
……

DeliverApply
Tax Number Validation
…….

ReceiptSubmit
Tax Number Validation
……

BillTransferSubmit
Tax Number Validation
…….

DeliverSubmit
Tax Number Validation
…….

RedReceiptApply
Tax Number Validation
……

RedReceiptSubmit
Tax Number Validation
……

Roadmaps for standardizations

Objectives

- Establish interoperable interface for all the stakeholders to enable a consistence invoice for message content, transmission and security;
- Deliver consistent representation of dataset for each participants;
- Support common verification principles to enable access to established invoice data;
- Provide autonomous transparency between the participants to facilitate the truth authentication and identifications;
- Leveraging the payment domain and tax domain for cross domain authenticated digital verification process;
- With potential to introduce linkage across several domains, including production domain, transaction domain, governance domain and consumer domain ;

Scope

- Preparation and assertion of data passed along through existing payment and tax domain;
- Consistency in payload to provide structure and ubiquity to help ease global integration;
- Elements for incorporation to allow for mutual invoice recognition;
- Guidance /clarity for developers to make use of the Secure Invoice & Reimbursement system(SIR) for their localized innovations and applications;
- Toolbox for TAX authorities to guarantee the local policy;

Building blocks in 3rd generation Operating system

Wechat Pay footprint

1.4billion user base worldwide,
250,000 transactions every second.
Footprint in 40 countries

Evolutions of the Operating Systems

1st generation of OS

The 1st generation of operating system (OS) is system software that manages
computer hardware + software resources

provides common services for computer programs.

2st generation of OS

The 2nd generation operating system (OS) is system software that manages
computer hardware + software+ networking resources
and provides common services for typical networking application programs .

3rd generation of OS

The 1st gen operating system (OS) is system software that manages
computer hardware +software resources + social networking+ payment resources

and provides common services for variant applications related to human life, incl.

wx.pauseBackgroundAudio
wx.seekBackgroundAudio
wx.stopBackgroundAudio
wx.onBackgroundAudioPlay
wx.onBackgroundAudioPause
wx.onBackgroundAudioStop
Background Audio Playback Management
wx.getBackgroundAudioManager
Audio Component Control
wx.createAudioContext
wx.createInnerAudioContext
wx.getAvailableAudioSources
Video
wx.chooseVideo
wx.saveVideoToPhotosAlbum
Video Component Control
wx.createVideoContext

API

Framework provides many WeChat native APIs that can be conveniently called to access abilities provided by WeChat, such as acquiring user information, local storage, payment functions etc.

Instruction:

- APIs that start with wx.on are API interfaces for monitoring certain events. They accept a CALLBACK function as a parameter. When the event is triggered, the CALLBACK function is called.
- If there are no special arrangements, other API interfaces all accept an OBJECT as a parameter.
- Within the OBJECT you can specify `success`, `fail`, `complete` to accept the interface call result.

Parameter Name	Type	Required	Description
success	Function	No	Callback function when interface call succeeded
fail	Function	No	Callback function when interface call failed
complete	Function	No	Callback function when interface call completed (always executed whether call succeeds or fails)

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SirNetis being everywhere today to help common people to access their invoice services in inclusiveness way.
For the first time, invoice and re-imbursement is becoming easier, connecting the end users, merchants, enterprises and TAX Admin… thanks to more and more building blocks and DLT technology