



# **GACHain**

# **The Revolutionary of Blockchain**

**SHENZHEN GACHAIN TECHNOLOGY CO., LTD**

Aug, 2018



# GACHain Brief Introduction

- GACHain is a primary case of the research and study by the Ministry of Industry and Information Technology, written and rewarded in the “2018 China Blockchain Industry White Paper” On May 2018 .
- GACHain is the world-first public blockchain in the world that owns sovereign hierarchical management ecosystem , realizing decentralization and centralization management in transaction.
- GACHain is a new blockchain underlying protocol based on the consensus mechanism of DPoVE (Delegated Prove of Valued of Ecosystem). To meet the requirements of government, business, and regulator, the “smart contract” mechanism is created to place them in the framework of law. The authorization of the formulation of smart contract is owned by various government departments and respective agencies, making a blockchain a ecosystem of commercial/financial and businesses, guided and supervised by the government.



# SHENZHEN GACHAIN TECHNOLOGY CO.,LTD



## Background

Founded in September 2017, located in Qianhai, Nanshan district, Shenzhen city. It is a wholly-owned subsidiary of Shenzhen Chain Hold Technology Investment CO., LTD.



## Specialization

A newly-developing high-tech company that specialized in blockchain R&D and application



## Achievement

GACHain has applied for more than ten patents invention and other company qualifications



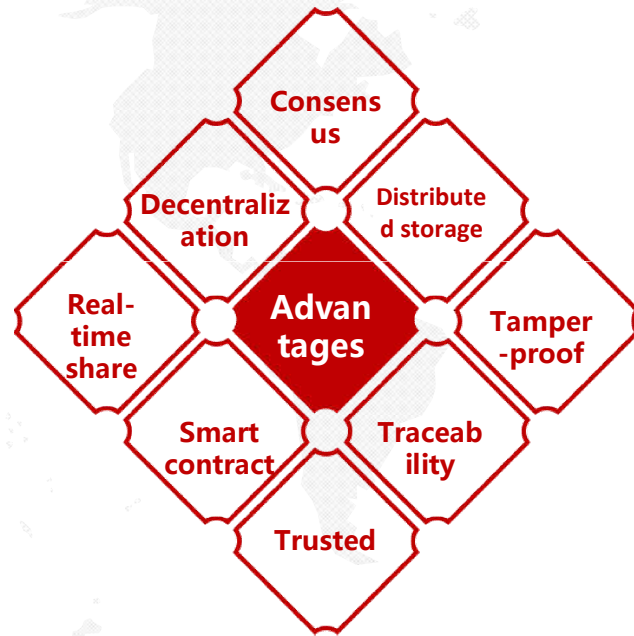
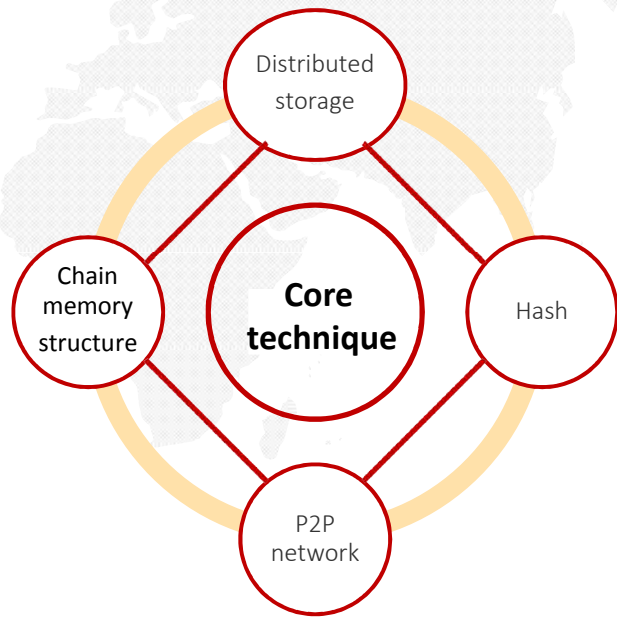
## Core product

The underlying framework took seven years to accomplish, and owned the public blockchain, that is, Blockchain as a Government Affairs -- (GACHain).

GACHain, as a primary project being researched and studied by the Ministry of Industry and Information Technology of China and written in the “White Paper of China's Blockchain Industry in 2018”. GACHain is the first public blockchain in the world that owns sovereign hierarchical management ecosystem, realizing decentralization and centralization management in transaction. GACHain is a new blockchain underlying protocol based on the consensus mechanism of DPoVE (Delegated Prove of Valued of Ecosystem). To meet the requirements of government, business, and regulator, the “smart contracts” mechanism is created to place them in the framework of law. The authorization of the formulation of smart contracts is owned by various government departments and respective agencies, making a blockchain ecosystem of, commercial, and financial businesses, guided and supervised by the government.

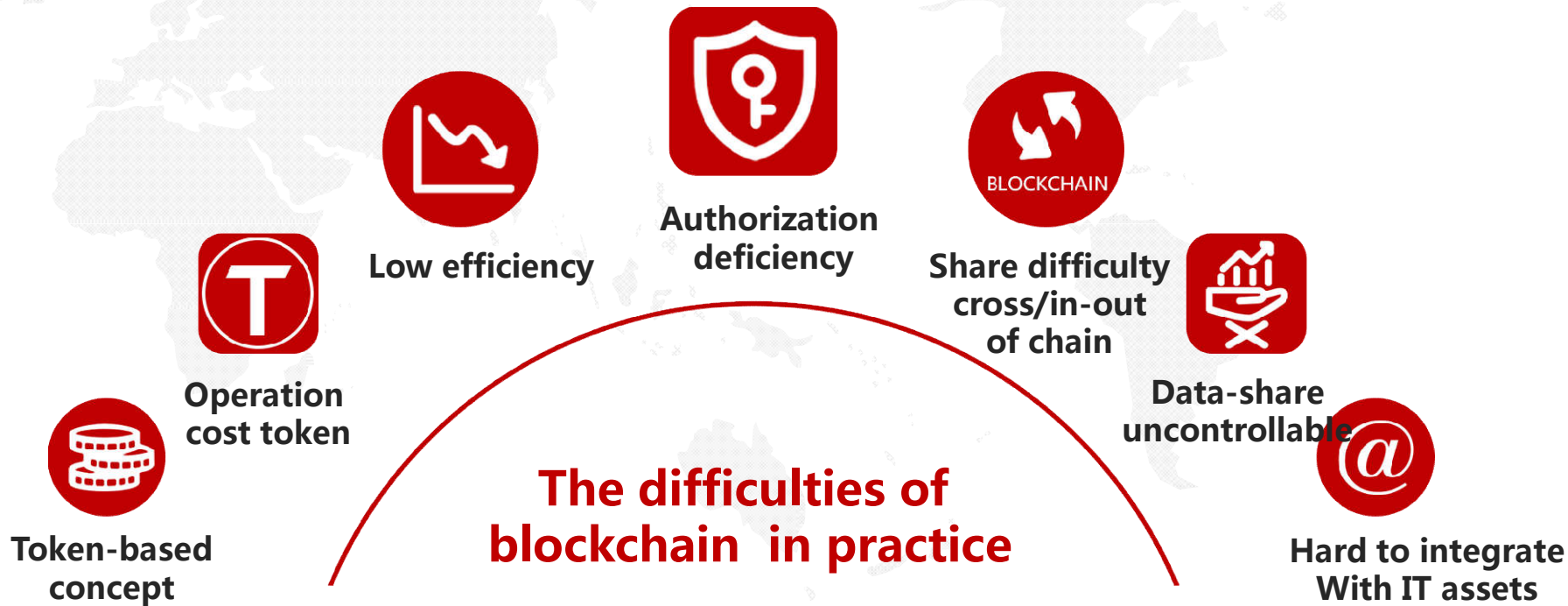


**History of Blockchain** : With the rapid development of digital currency like Bitcoin and Ethereum, the underlying blockchain technique has gradually received more attention, especially the merit of distributed storage and decentralization





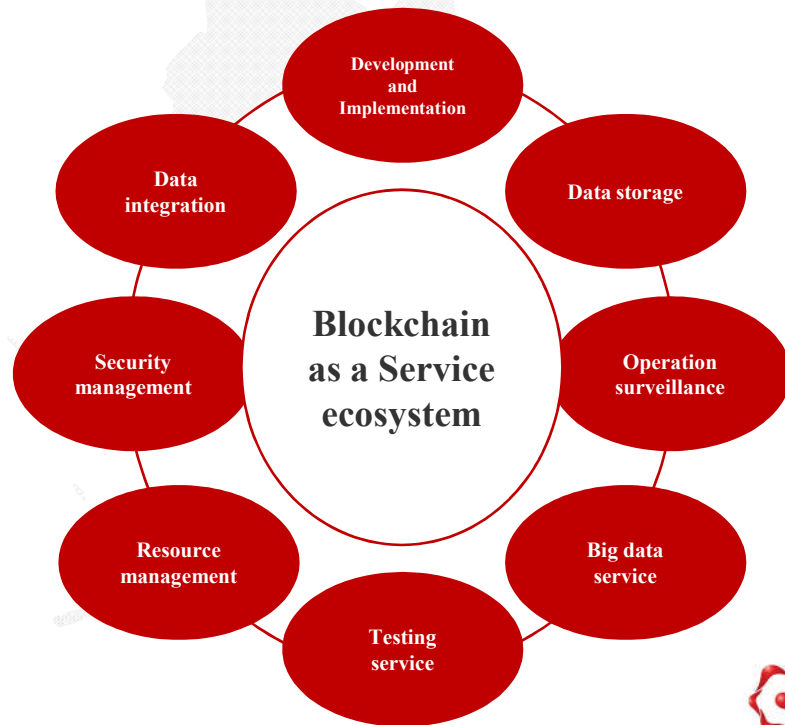
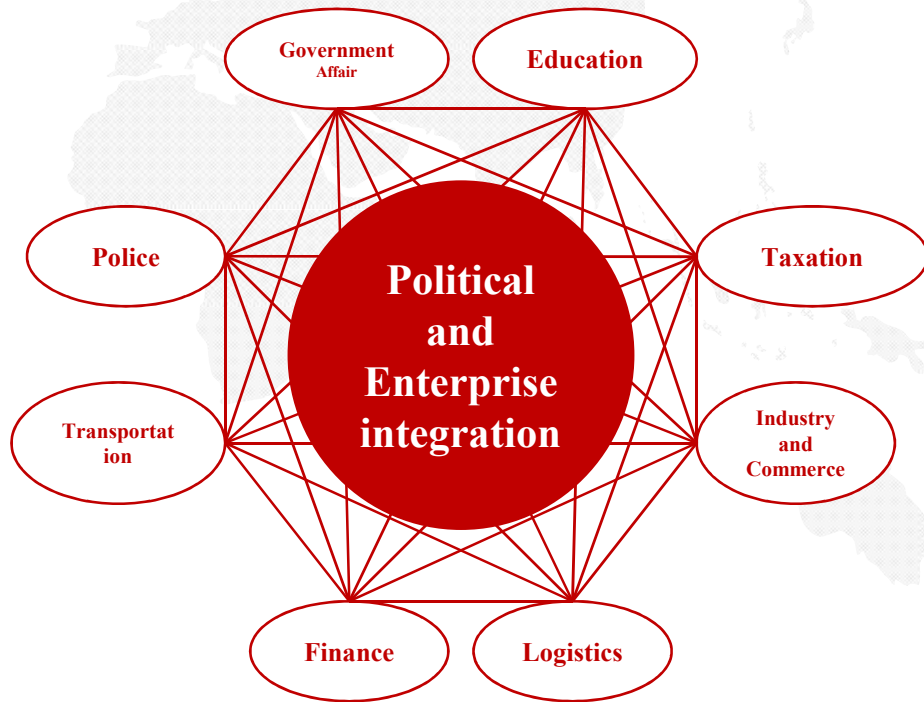
The difficulties of blockchain in practice: low efficiency, hard to adapt to existing IT framework, advantages are hard to reveal





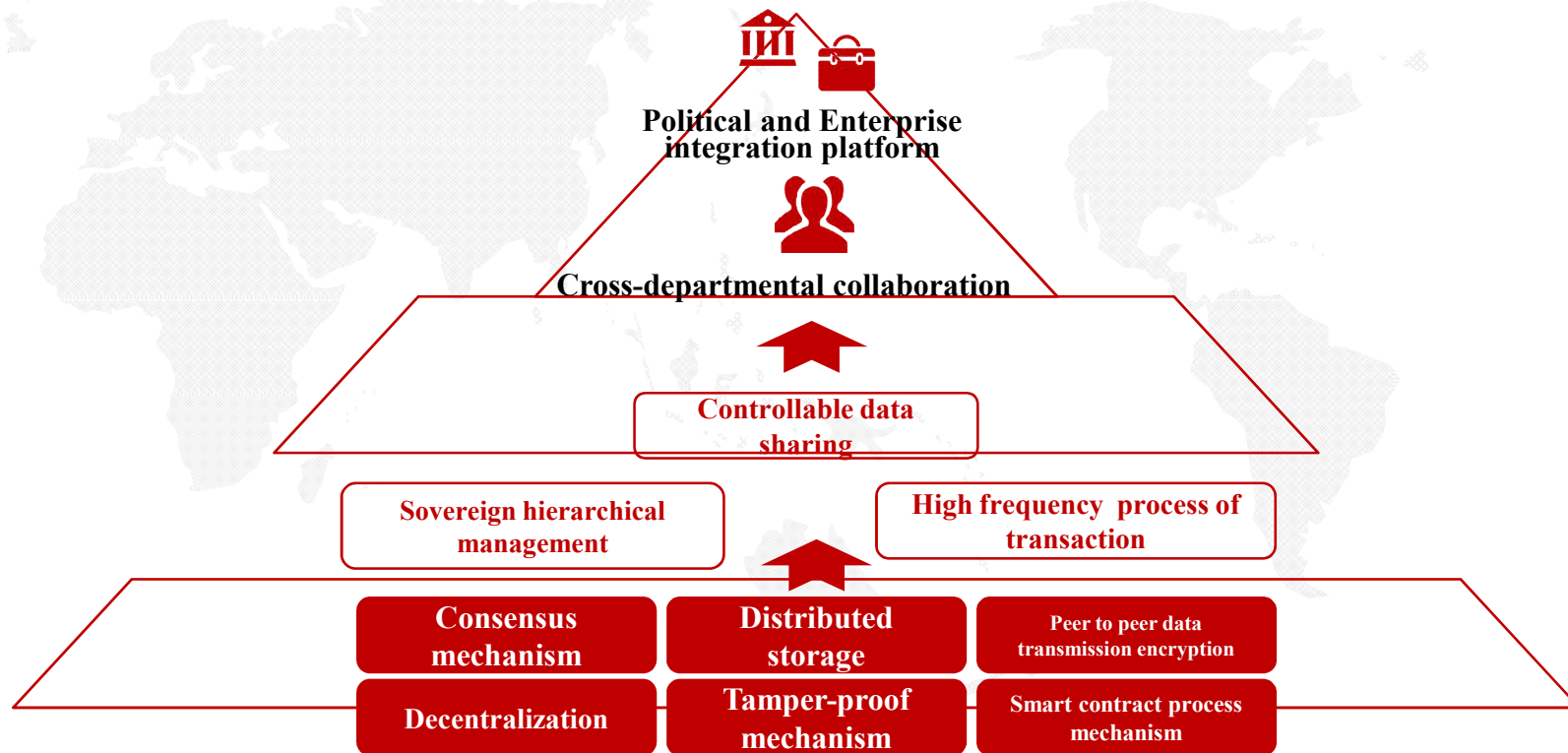
# The purpose of GACHain

1. Develop the public blockchain that can suitable for traditional applications in all industries
2. Blockchain as a Service ( BaaS )





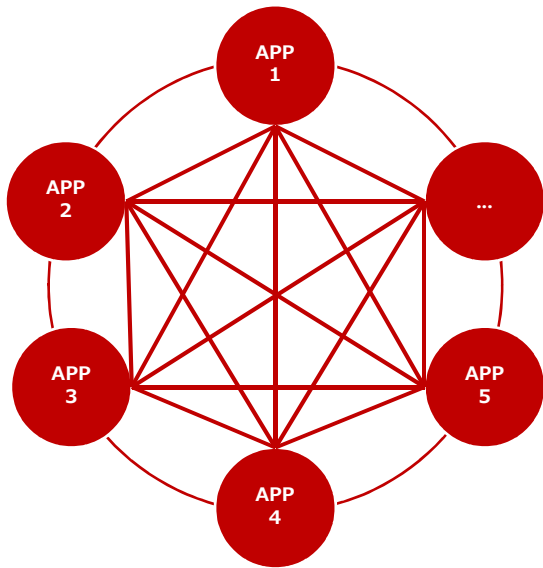
**Features of GAChain:** to achieve a safe and credible political and enterprise integration platform utilizing management centralization and business decentralization .



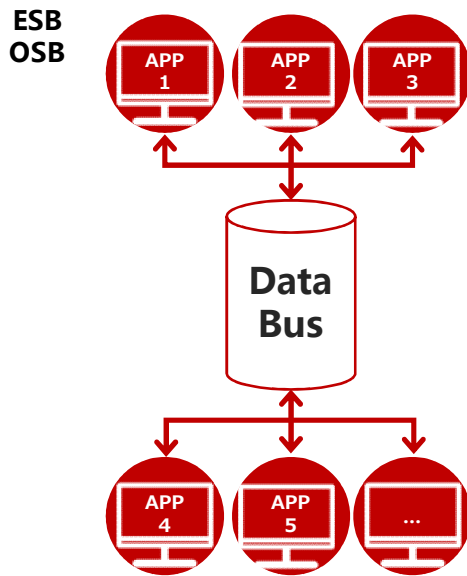


**Data sharing (traditional character)** : the costs of construction, modification, operation and maintenance continually increase, management being complex, along with interface stability, data accuracy and ownership, and transmission security can not be guaranteed.

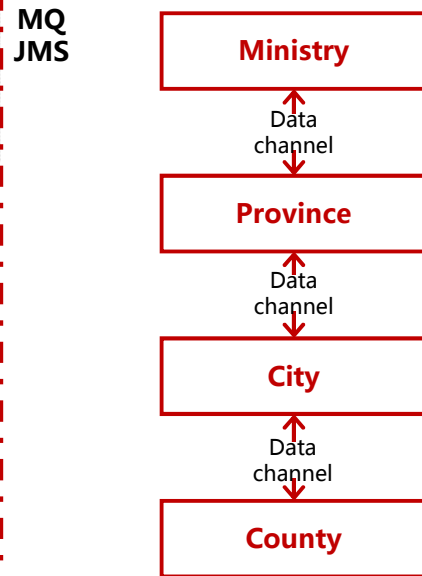
### End-to-End Method



### Data Bus Method



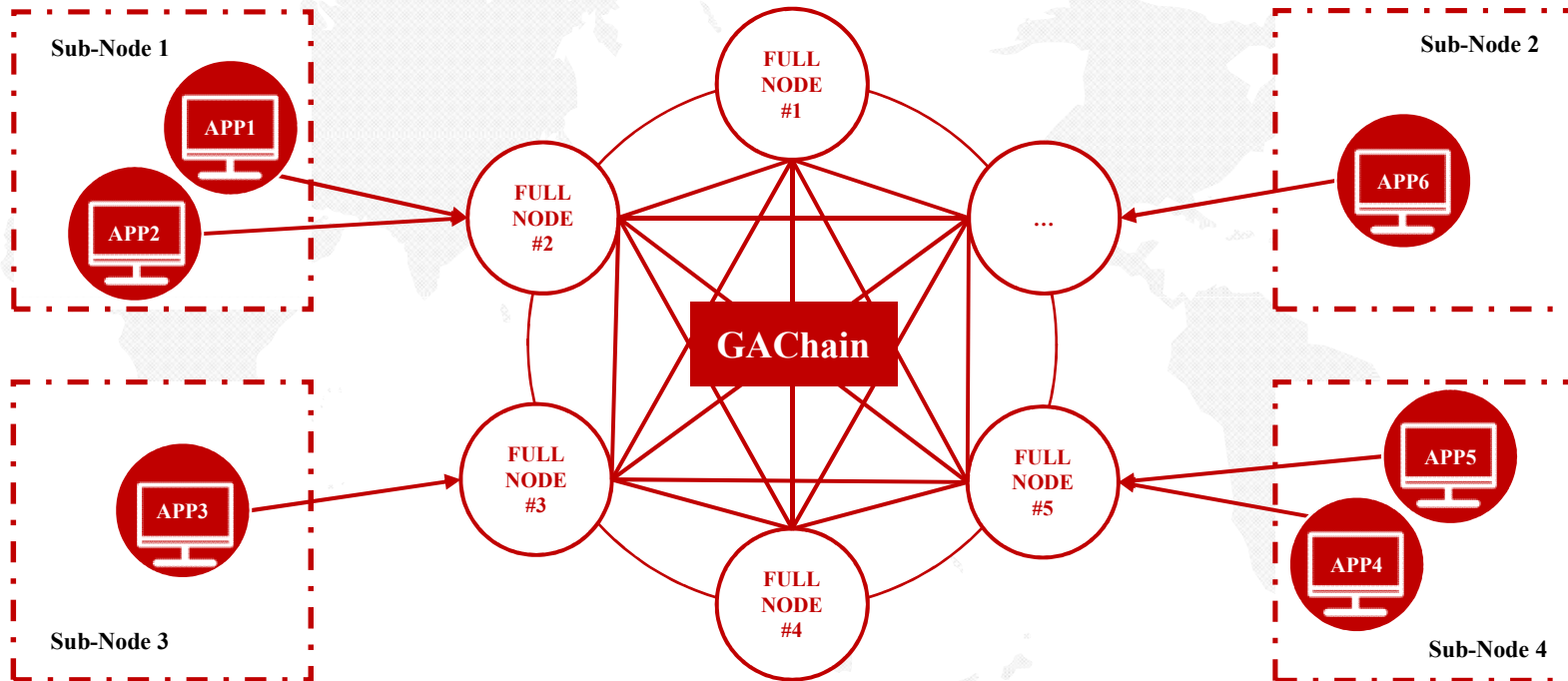
### Hierarchical Reporting Method





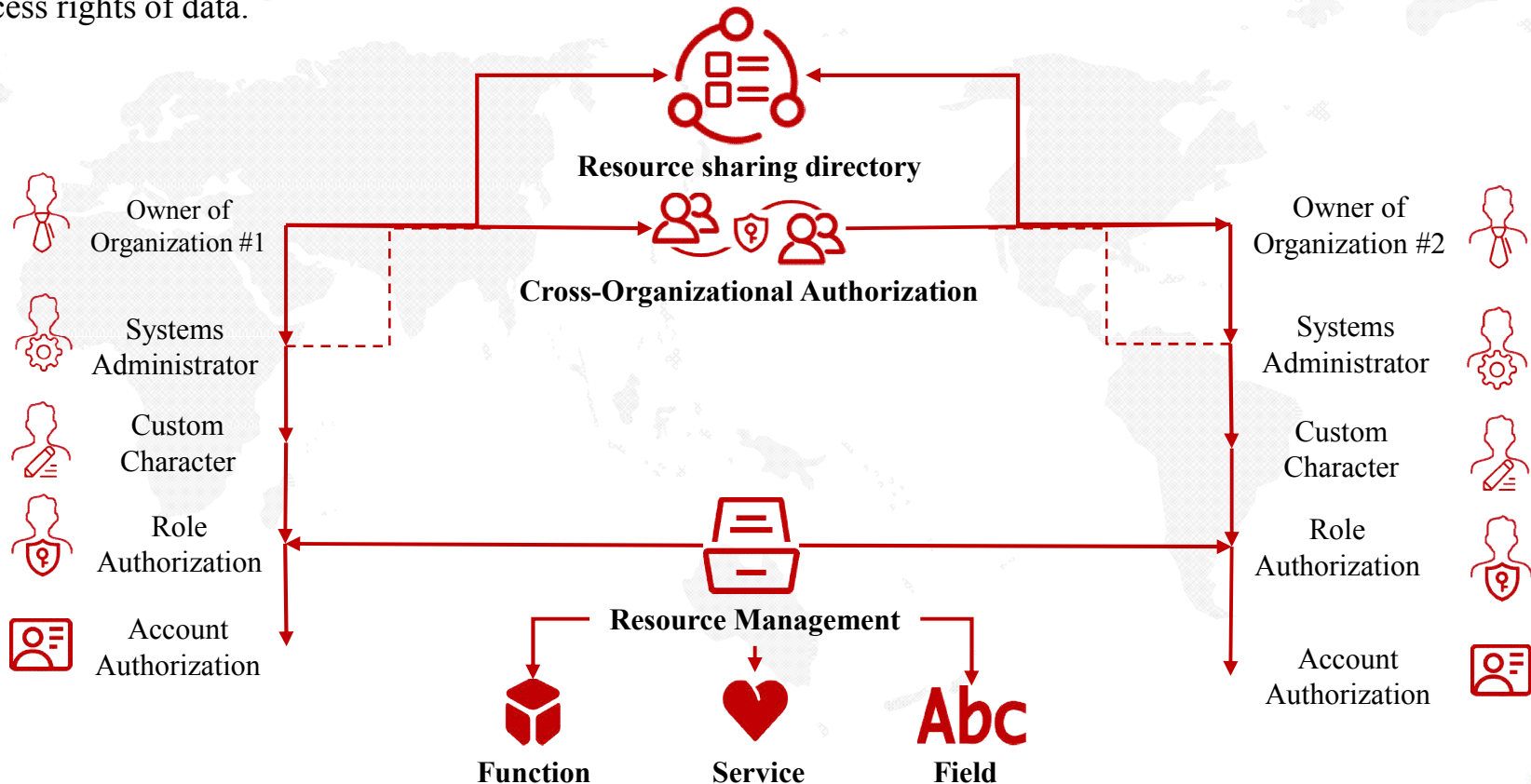


**Data sharing (GACChain character)** : Naturally-owned data sharing; Costs reduction of IT construction and maintenance; Guarantee the accuracy, security, tamper-proof and traceability of data.



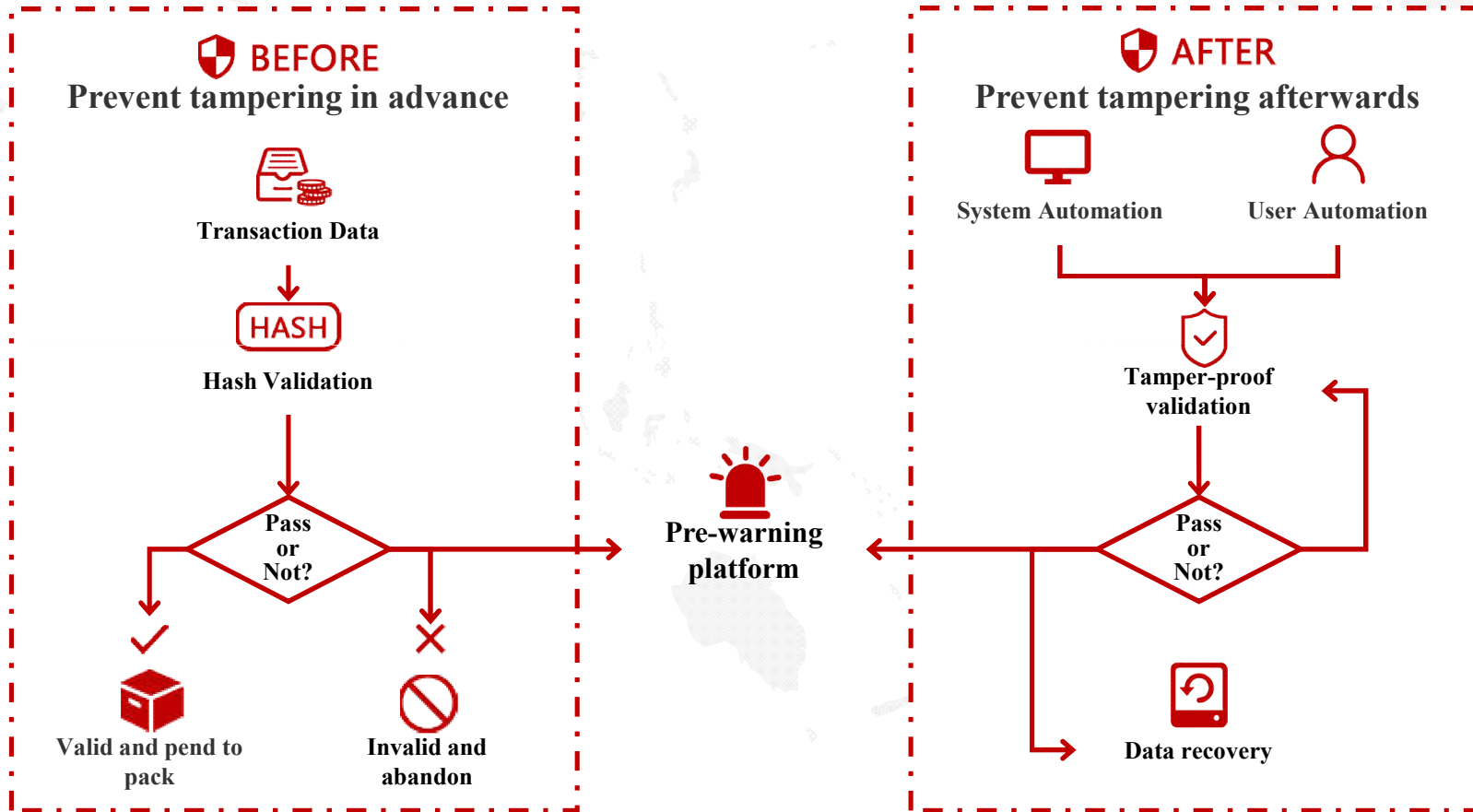


**Sovereign hierarchical management:** Support vertical authorization for multiple applications within the organization, and horizontal authorization across organizations to ensure centralized control of applications and access rights of data.



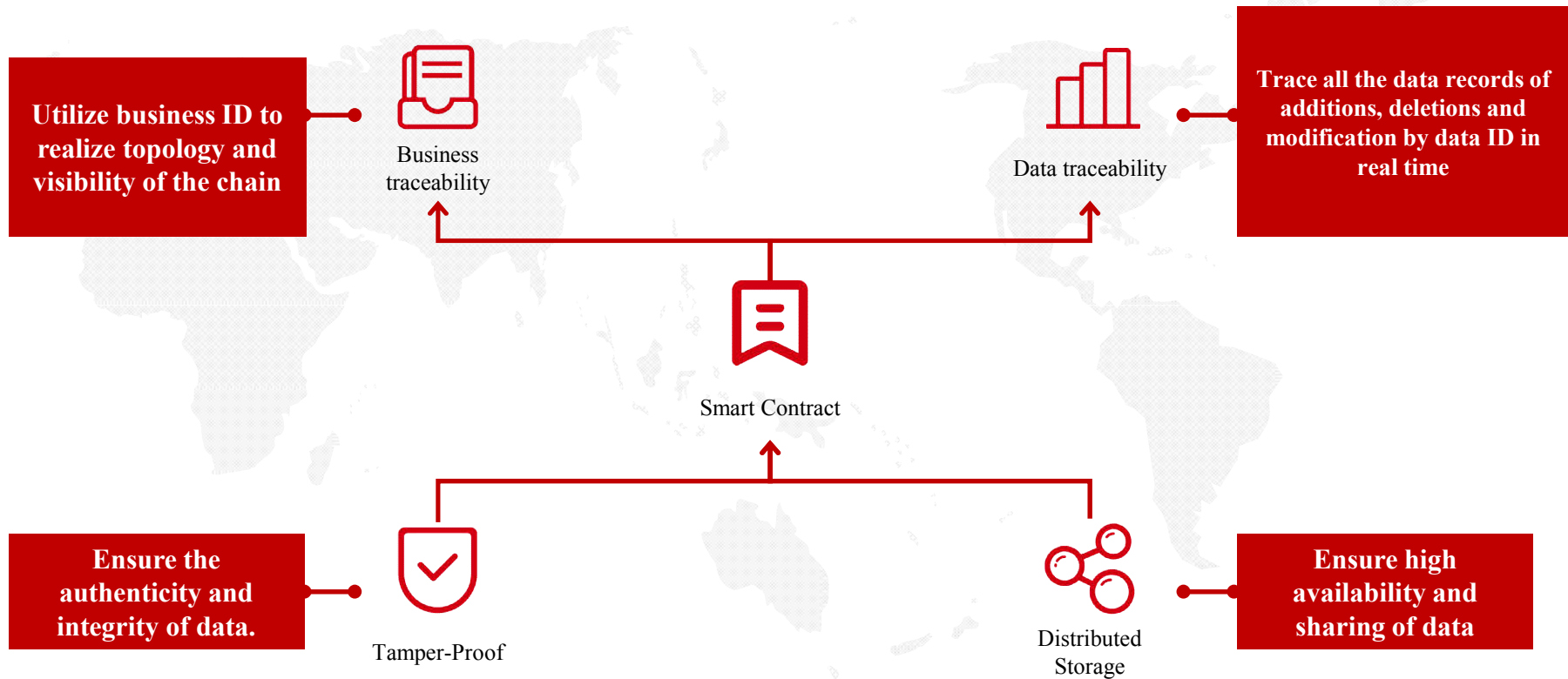


**Tamper-proof**: ensure data security by warning mechanism and prevent tampering in advance and afterwards.



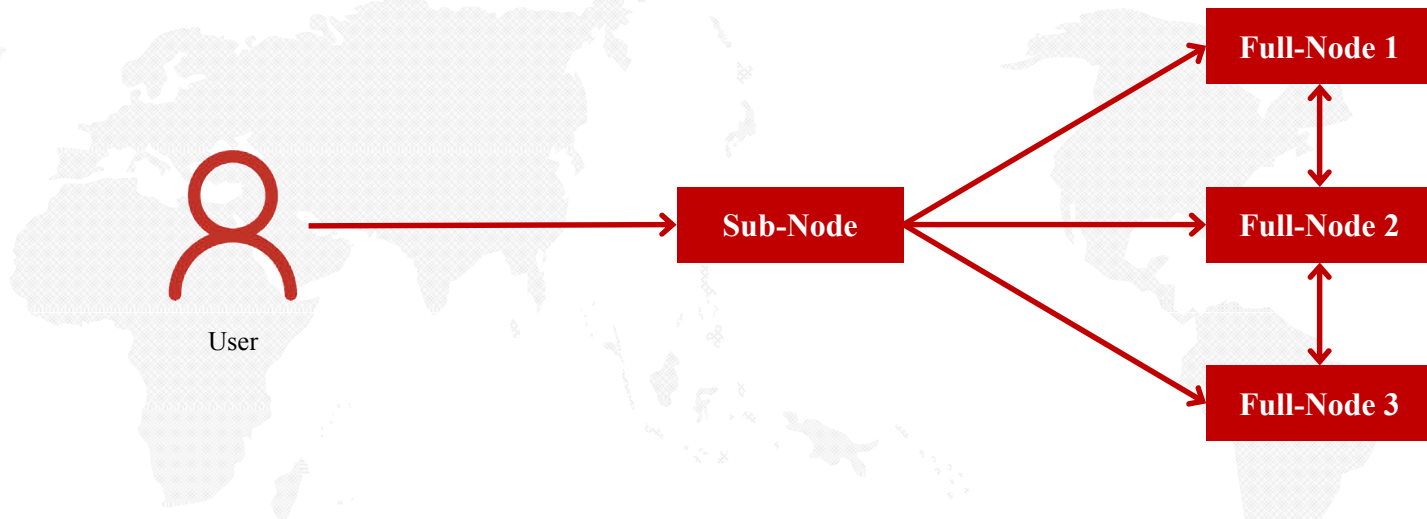


**Traceability** : based on smart contract and tamper-proof mechanism, ensure the traceability of transaction and data.





## High frequency process of transaction, within safe and reliable system.



GACHain utilizes Full-Node and Sub-Node separation architecture. The Sub-Node carries the transaction, and the Full-Node plays the role of disaster recovery and the data synchronization, which realizes multiple activities, disaster recovery, and supports high concurrency;



**Standard architecture of GACHain application** : self-independent development framework, development language, and database components; easy operation for all users of GACHain to implement application development, testing, deployment and data storage.



web



Smart Contract

PGSQL



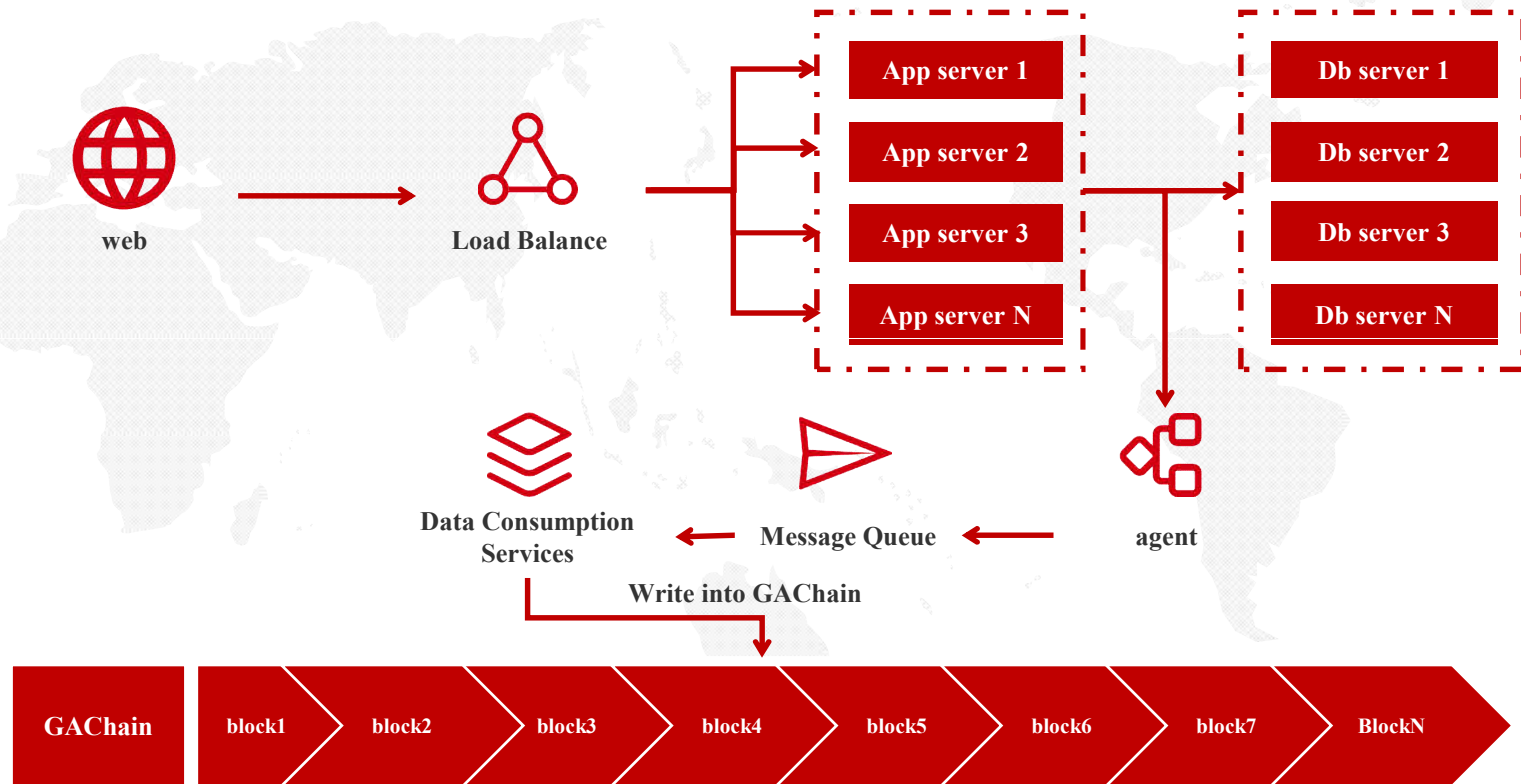
Write into  
Block



Write into data  
table

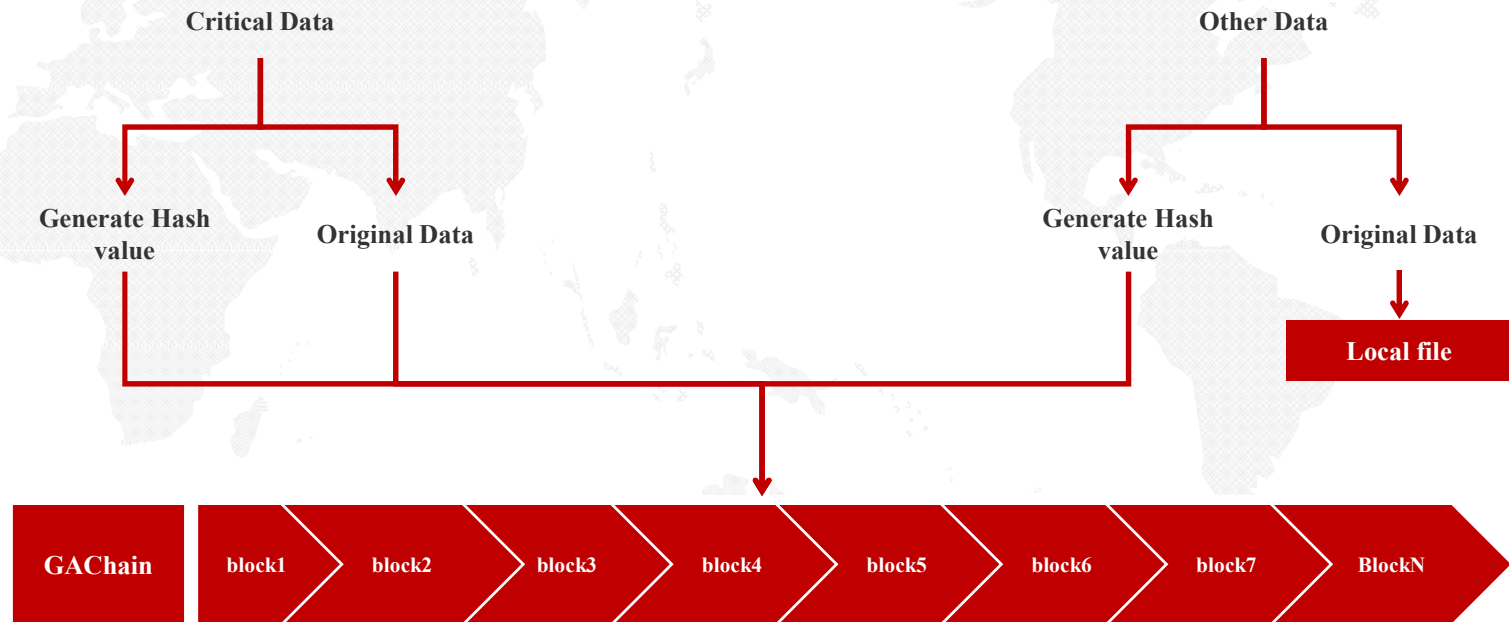


**Integrate the traditional / existing system with GACHain:** zero code modification;  
low energy consumption of probes; fast-gained advantage of blockchain.





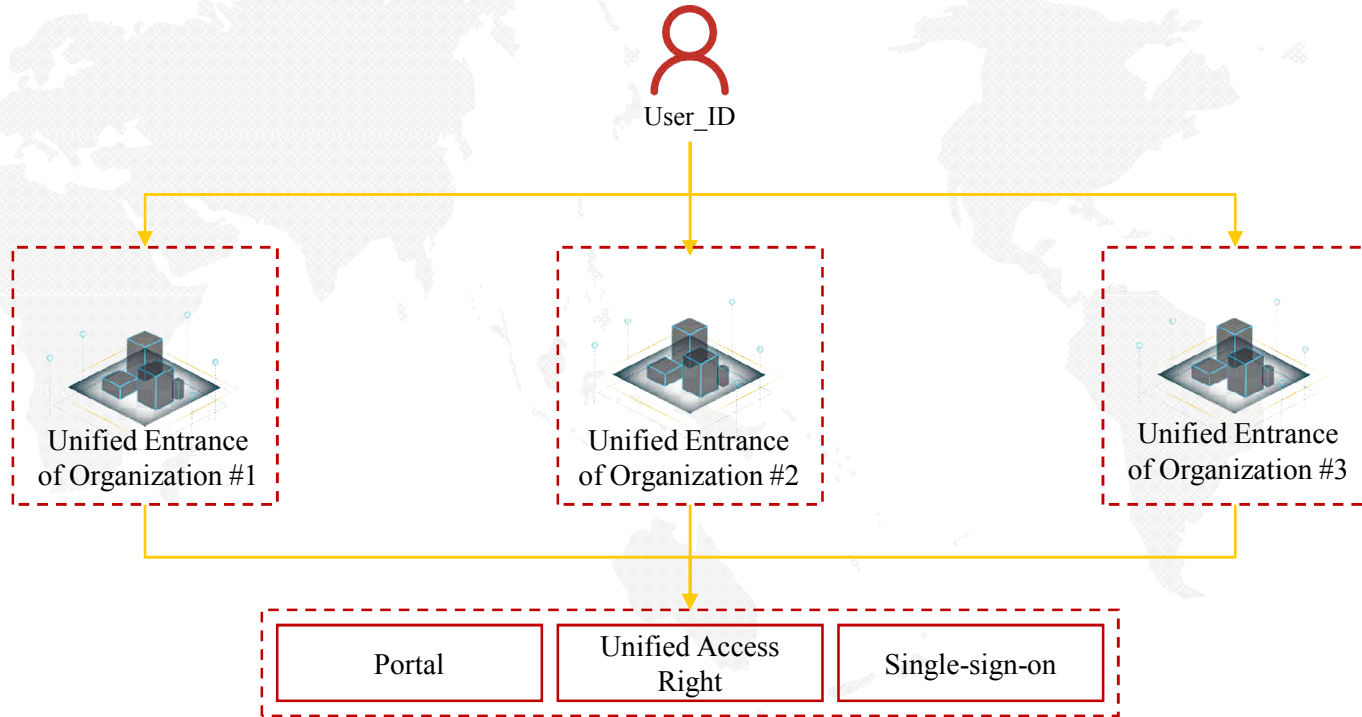
**Data storage selectively in blockchain:** critical data will be stored in chain; others can be hash-encrypted, while the hash values are stored in chain, and data is stored locally and related to hashed values.







**Unified platform entrance:** provide unified portal, access right, single sign-on capability to effectively reduce IT construction and maintenance costs.

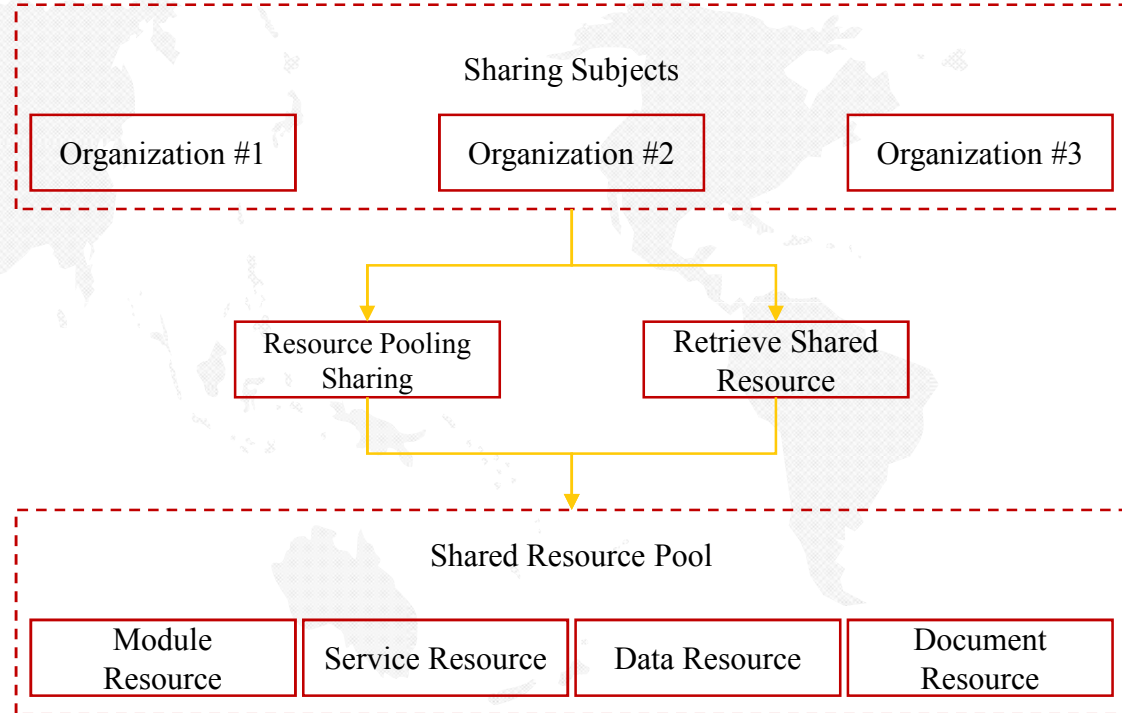




**Resource Directory sharing system:** standardize resource directory, establish sharing channel, improve the utility of IT resource.

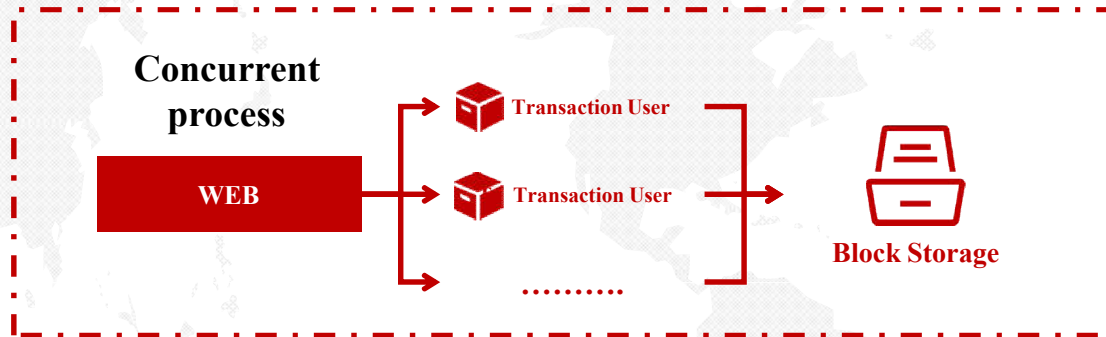


Resource Directory sharing system

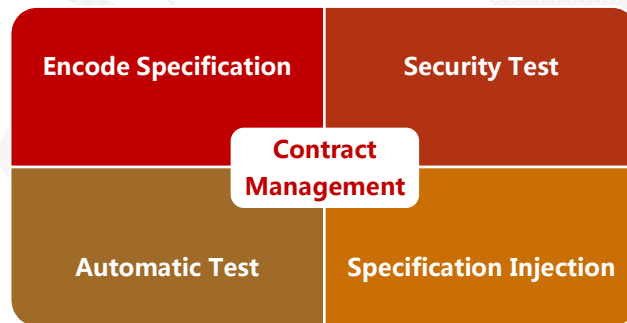




**Smart transaction process mechanism:** efficient execution of smart contract; standardization coding of smart contract; set-up smart contract security inspection mechanism; guarantee the safe and efficient operation of smart contract in chain;

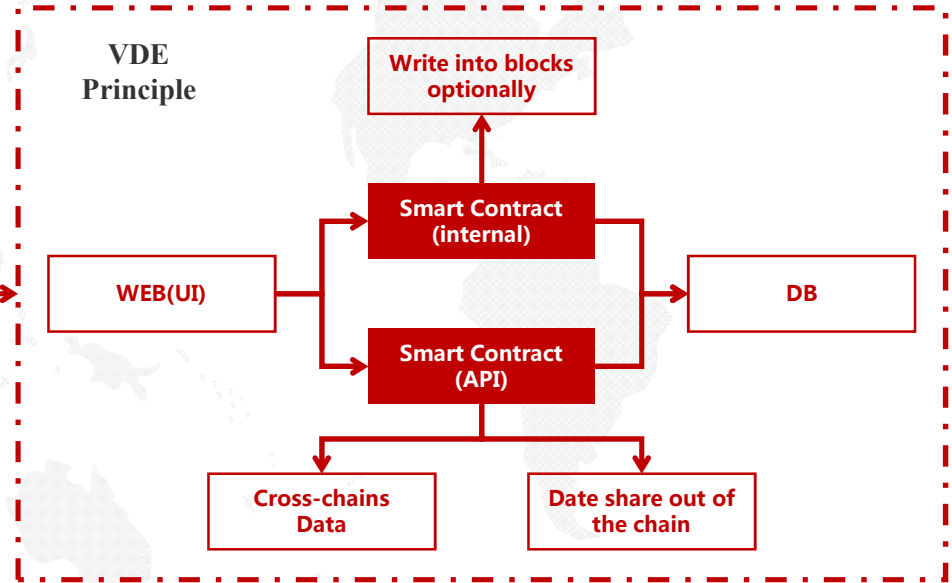
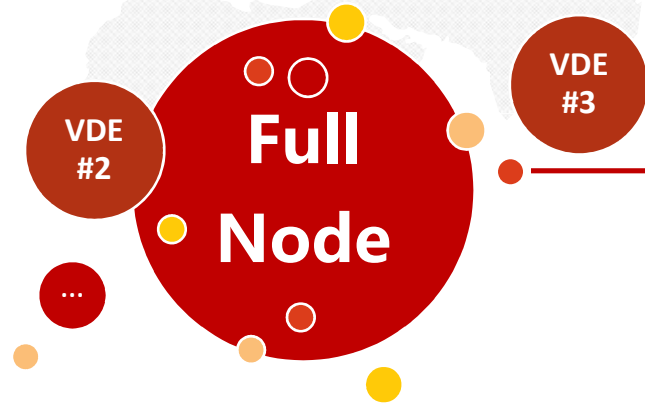


Smart transaction process mechanism





**Virtual Dedicated Ecosystems (VDE) :** a standard ecosystem, that interact the data in and out of the chain to realize the function of cross-chain.



# GAChain: Target Industry



**Medical  
Healthcare**



**Banking &  
Finance**



**Education**



**Smart City**



**Network  
Security**



**Transportation**



**Ride  
Sharing**



**Agriculture**



**Supply Chain**



**Internet of thing**



**Industrial &  
Commercial  
Registration**



**Real Estate  
Management**



**Insurance**



**Stock  
Exchange**



**Payment  
Service**



**Energy  
Management**



## Project case by GACHain

網易 东京

NetEase Tokyo



中国·广州·南沙

NANSHA · GUANGZHOU · CHINA





# Online administrative examination and approval service platform of Government of Nansha ,Guangzhou ( the display page of log-in )

中国·广州·南沙  
NANSHA · GUANGZHOU · CHINA

南沙综合政务服务信息平台

用户名

密码

验证码

LH4AD5 换一张

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中国·广州·南沙

CHINA GUANGDONG ZHONGSHAN

综合窗口人员

黄子琛

设置

退出

早安, 黄子琛, 欢迎使用综合政务服务信息平台

窗口专员 | 广州市南沙区人民政府 - 南沙区事业单位登记管理局 - 行政部

当日收件数

56

本月收件数

208

待办数

23

挂起数

14

已办数

54

超期数

0

预警数

2

草稿件

9

公告

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2018-03-19

关于“人才引进”公示名单

2018-03-26

关于“五一”放假通知

2018-04-09

待办事项

办事流水号:

事项名称:

客户名称:

提交

清空

办事流水号	事项名称	客户名称	企业名称	申请日期	办理期限	剩余天数	操作
18051406000001	普通货运车辆办理《道路运输证》	罗超	粤ABW917	2017-10-31	2个工作日	2个工作日	<a href="#">审核</a>
18051406000002	加工贸易业务审批(加工贸易企业经...	高小林	黄朝红	2017-10-31	13个工作日	13个工作日	<a href="#">审核</a>
18051406000003	建筑起重机械安装拆卸备案	李香芹	南沙2014NJY-6地块...	2017-10-31	4个工作日	4个工作日	<a href="#">审核</a>
18051406000004	集体土地上私人建房申请《建设工程...	蔡厚德	任强	2017-10-31	1个工作日	1个工作日	<a href="#">审核</a>
18051406000005	建设工程质量安全监督登记	严培培	番禺南沙新嘉物花园	2017-10-31	2个工作日	2个工作日	<a href="#">审核</a>

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中国·广州·南沙  
NANSHAN SUBURBAN CAMP

菜单

窗口管理

文件管理

流程配置

事项管理

事项配置

申请材料管理

待审核事项

待发布事项

已发布事项

后台管理

企业单位管理

活动管理

数据字典

节假日管理

事项配置

日志名称:  事项性质:  状态:

实施主体:  事项编号:

日志名称	事项编号	事项性质	事项级别	实施主体	状态	审核意见	操作
民办教育机构招生简章和广告...	NS78378193...	行政许可	区县级	南沙区教育局	内部审批	材料不对	<a href="#">修改</a> <a href="#">新建子项</a> <a href="#">删除</a>
民办学校的理事长、理事长兼董...	NS78378193...	行政许可	区县级	南沙区教育局	内部审批	材料不对	<a href="#">修改</a> <a href="#">删除</a>
幼儿园、小学和初级中学教...	NS78378193...	行政许可	区县级	南沙区教育局	内部审批	材料不对	<a href="#">修改</a> <a href="#">删除</a>
义务教育阶段学校政策性照顾...	NS78378193...	行政许可	区县级	南沙区教育局	内部审批	材料不对	<a href="#">修改</a> <a href="#">新建子项</a> <a href="#">删除</a>
民办教育机构招生简章和广告...	NS78378193...	行政许可	区县级	南沙区教育局	内部审批	材料不对	<a href="#">修改</a> <a href="#">新建子项</a> <a href="#">删除</a>
民办学校理事长、理事长兼董...	NS78378193...	行政许可	区县级	南沙区教育局	内部审批	材料不对	<a href="#">修改</a> <a href="#">新建子项</a> <a href="#">删除</a>
幼儿园、小学和初级中学教...	NS78378193...	行政许可	区县级	南沙区教育局	内部审批	-	<a href="#">修改</a> <a href="#">删除</a>
义务教育阶段学校政策性照顾...	NS78378193...	行政许可	区县级	南沙区教育局	内部审批	材料不对	<a href="#">修改</a> <a href="#">新建子项</a> <a href="#">删除</a>
幼儿园、小学和初级中学教...	NS78378193...	行政许可	区县级	南沙区教育局	内部审批	-	<a href="#">修改</a> <a href="#">新建子项</a> <a href="#">删除</a>
义务教育阶段学校政策性照顾...	NS78378193...	行政许可	区县级	南沙区教育局	内部审批	-	<a href="#">修改</a> <a href="#">新建子项</a> <a href="#">删除</a>

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# YouKe for Netease(Tokyo) ( the display page of log-in )

網易 东京

账号密码登陆

用户名

密码

☐ 自动登录 [忘记密码](#)

登录



Defect of society service: information supervision has been deficient, people strongly demand a professional/credible/ authoritative service platform

**Data Island**

**Information  
Overload**

**Multiple  
Information  
Resources**

**Claim Difficulty**

**Reliable Service  
Where to find ?**

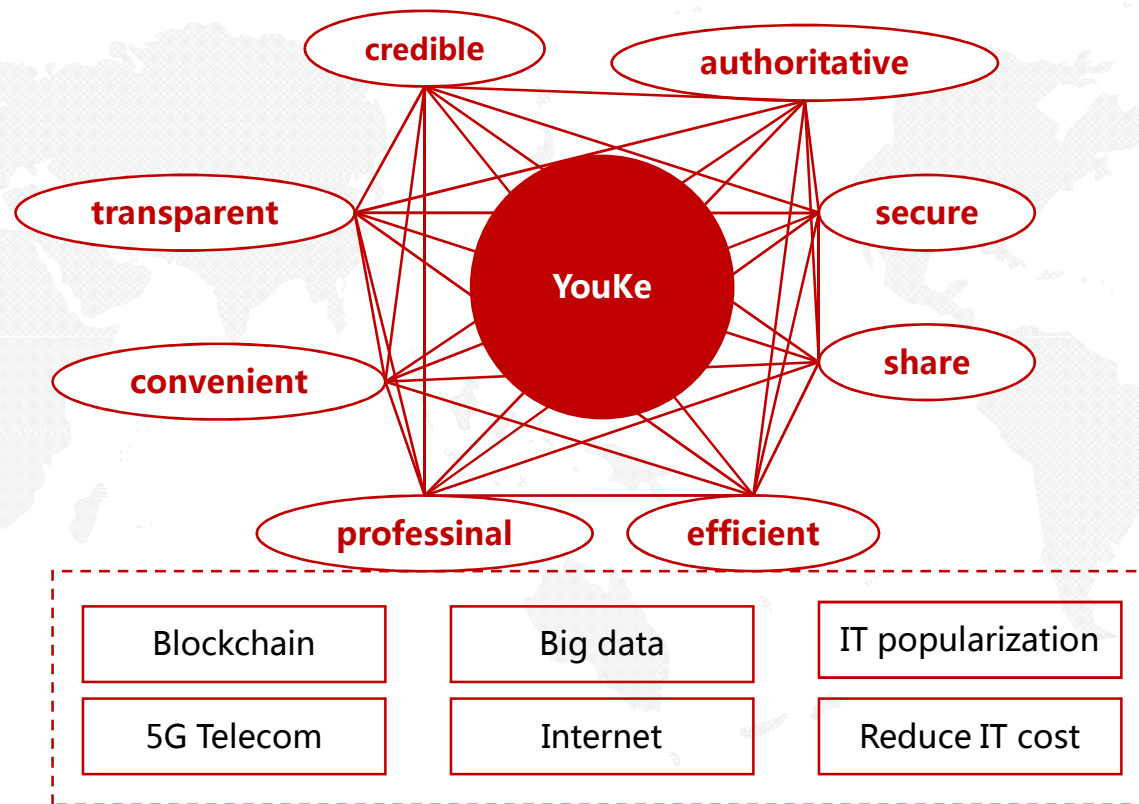
**Hard to  
Distinction**

**Supervision  
Dificient**

**Information  
Asymmetry**

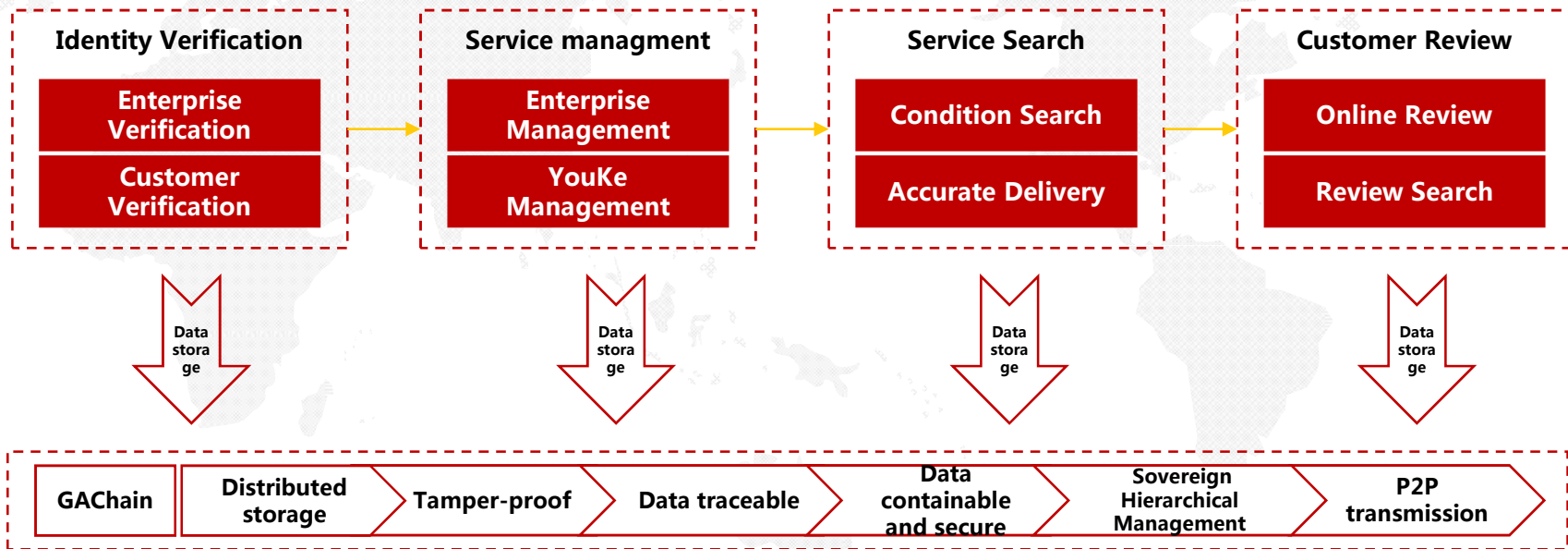


The society service on GACHain: utilize the advantage of GACHain, develop a platform of secure/credible/ authoritative



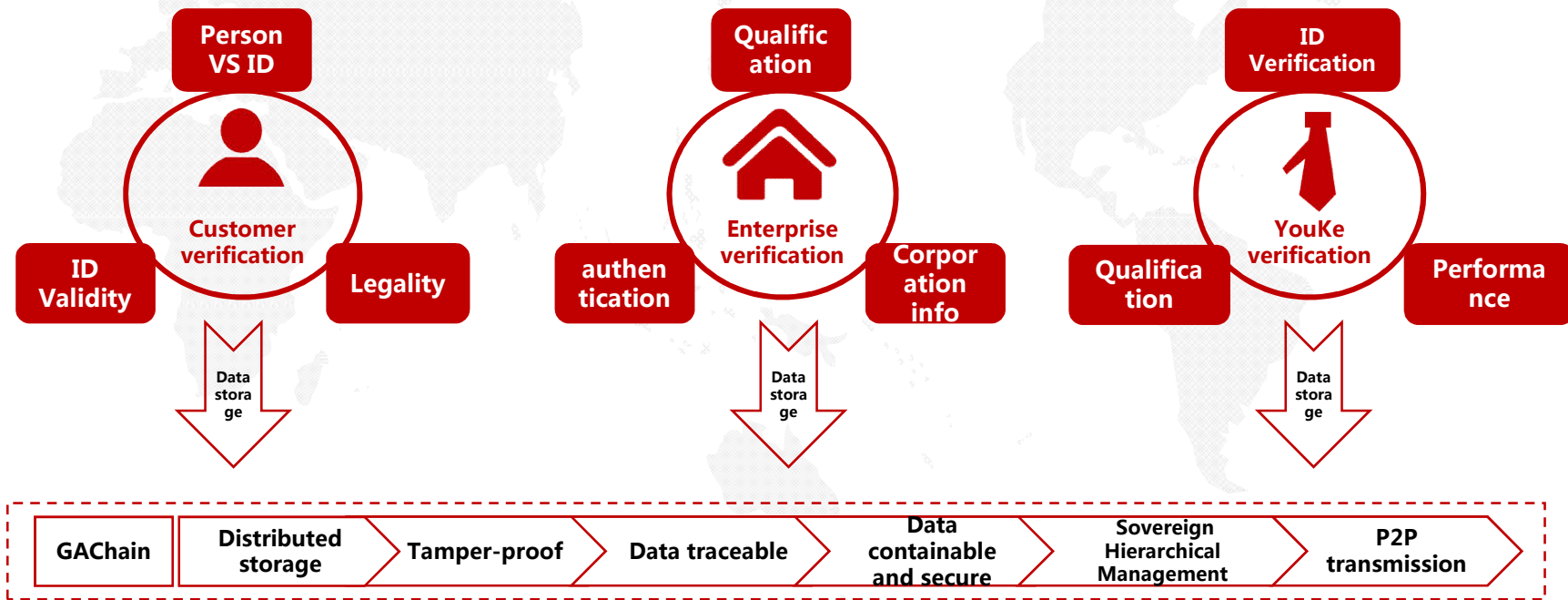


# Advantage of YouKe: tamper-proof/data containable and secure/traceable make a reliable platform



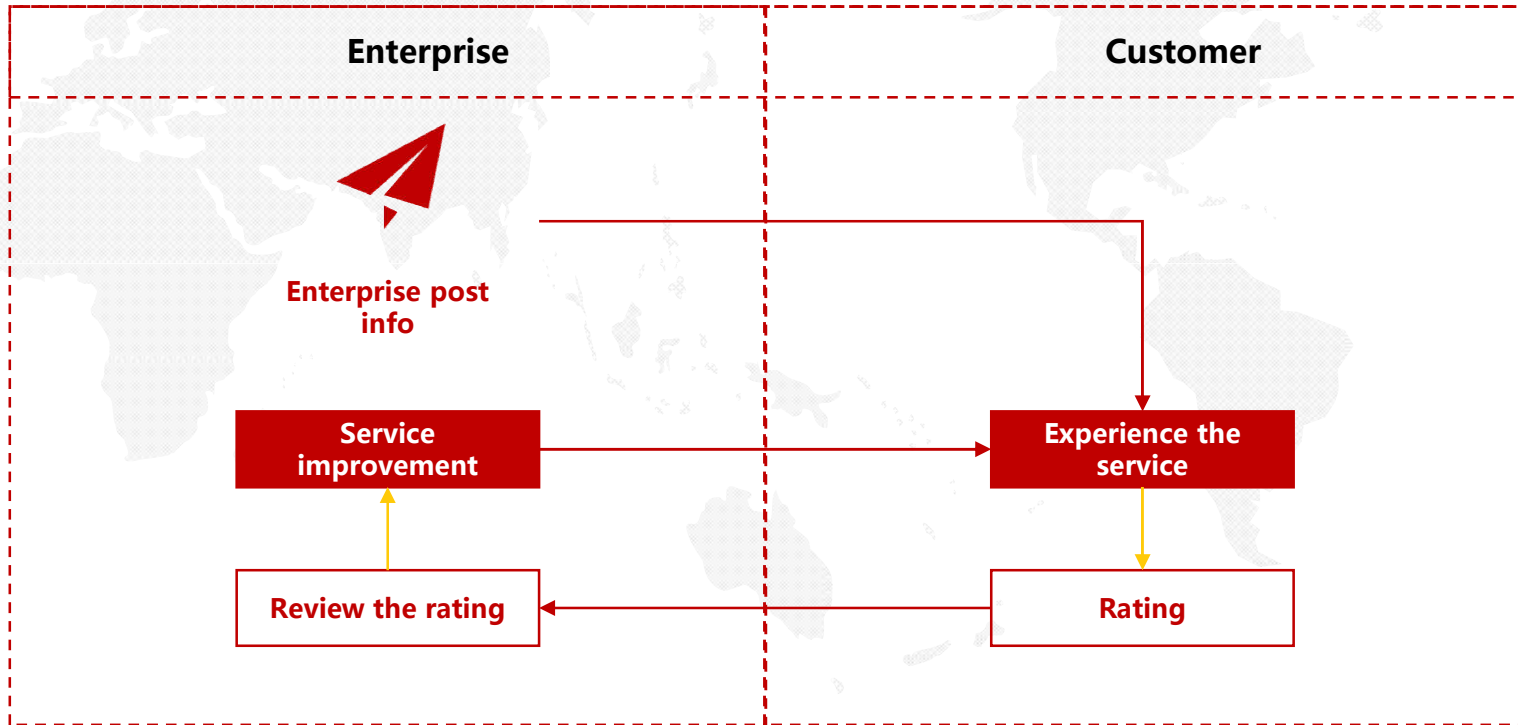


# Identity Verification of YouKe: visiting via Wechat, bounded with Wechat account, guarantee data secure and tamper-proof

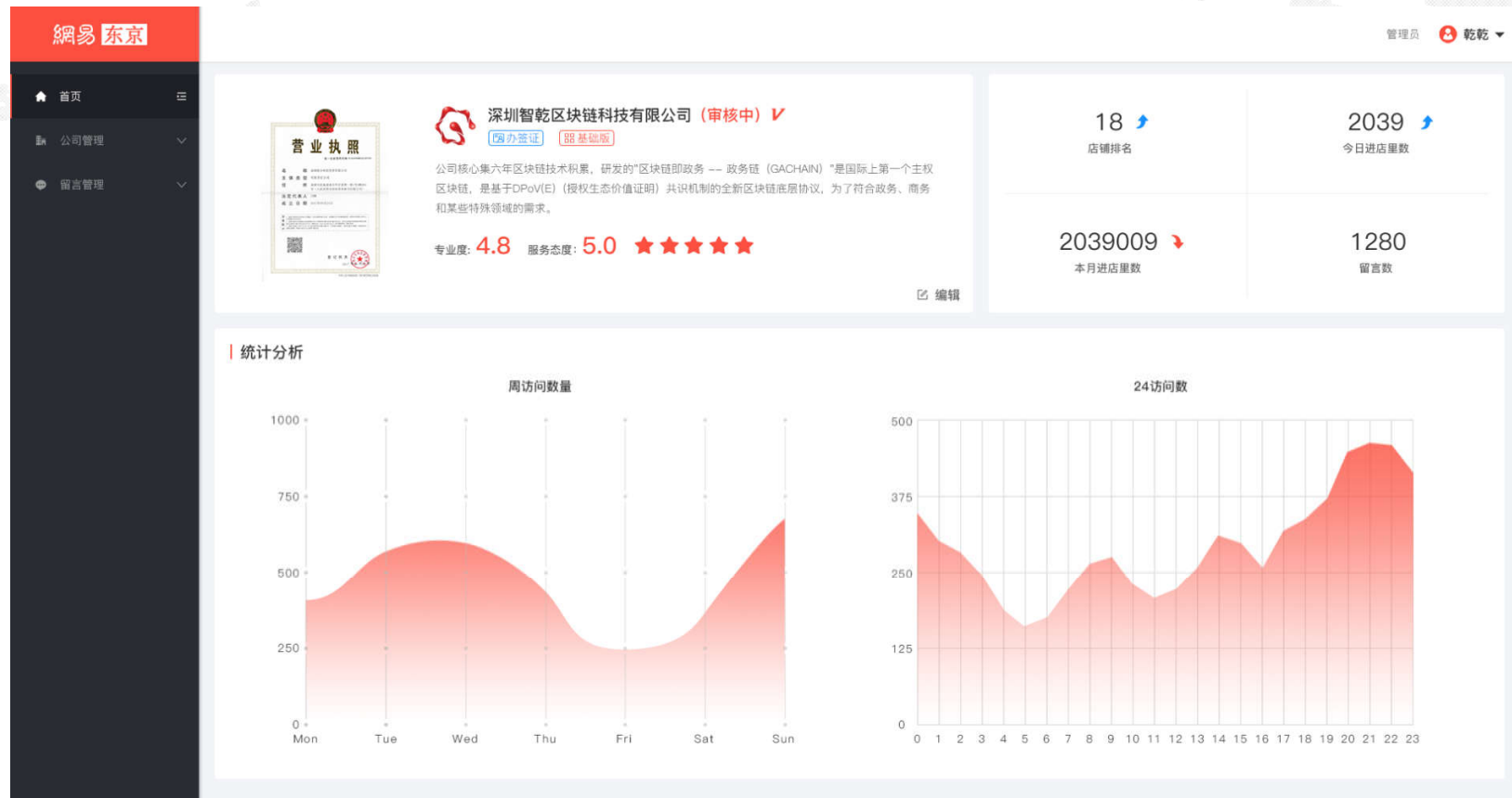




Service ecosystem of YouKe : make service post/rating/improvement in closed-loop management, realize self-operation, improve service and user experience



# Display page of enterprise on YouKe



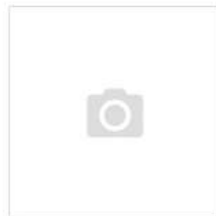




# Display page of enterprise on YouKe: Post info by enterprise

## 担当照片

点击图片左侧选择按钮，选择公司列表左侧头像展示图片



## 担当联系方式

\*手机号码1:

13980229187



+添加

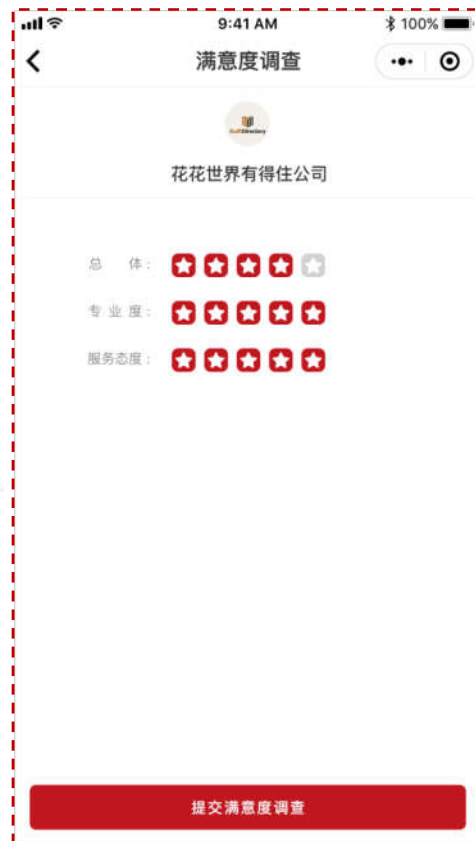


# Display page on YouKe: service catalogue





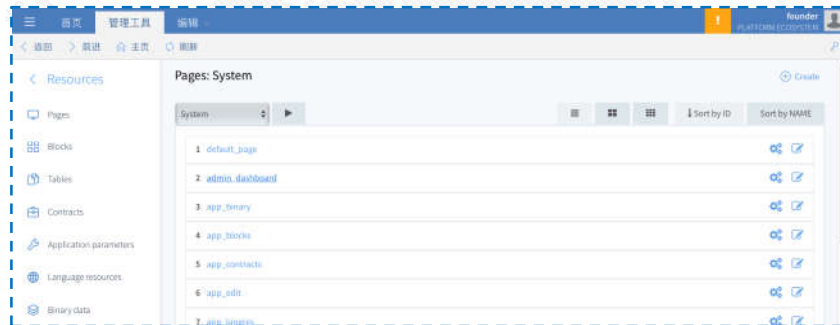
# Display page on YouKe : rating and review by customer





# The UI framework of GACHain: create/edit/design page and style under application freely by user

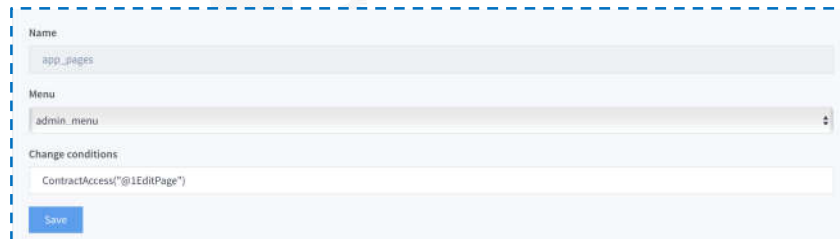
## Default Interface : display selected page



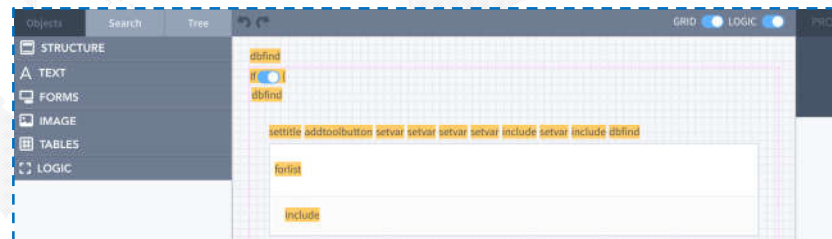
## Develop Interface : code editing



## Editor Interface : page editing



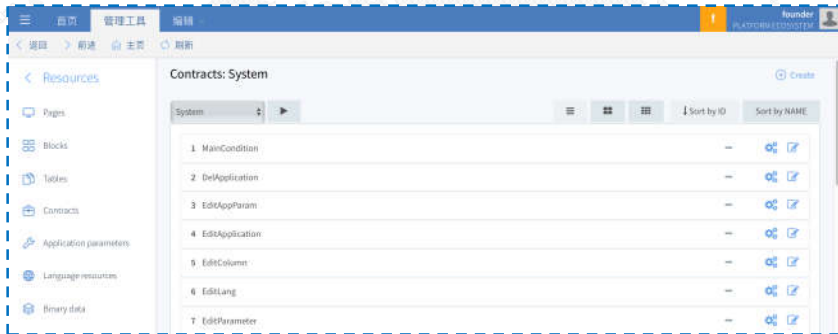
## Visualized Interface : develop visualization





# The smart contract development framework of GAChain: create/edit/trace smart contract under selected application freely by user

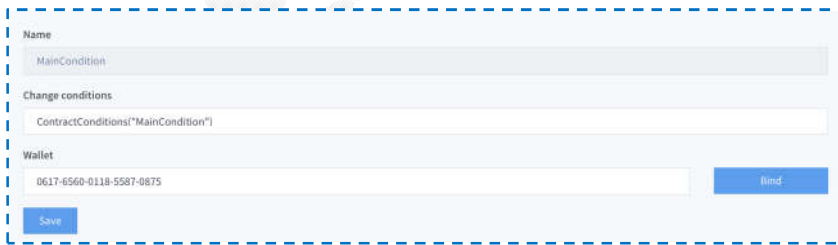
## Default Interface : display selected table



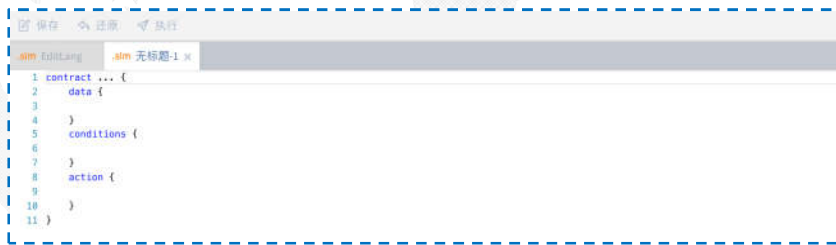
## Develop Interface : code editing



## Modifying Field : modify field properties



## Creating new contract : smart contract coding page





# The database development framework of **GAChain**: create/edit/retrieve database under application freely by user

## Default Interface : display selected table

The screenshot shows the GAChain management interface. On the left is a sidebar with navigation links: Resources, Pages, Blocks, Tables, Contracts, Applications parameters, Language resources, and Binary data. The main area is titled 'Tables: System' and contains a table with 7 rows. Each row represents a system table with columns for ID, Name, and a link to edit. The table is sorted by ID.

ID	Name	Link
1	contracts	118
2	keys	1
3	history	0
4	languages	0
5	menu	2
6	pages	88
7	blocks	8

## Create New Table : table visualization

The screenshot shows the 'Create New Table' interface. It includes a 'Name' field, a 'Columns' section with a table for defining columns, and a 'Write permissions' section with fields for 'Insert', 'Update', and 'New column'. A 'Save' button is at the bottom.

Columns	Type
id	Number
	Text

Buttons: Add column, Save

## Modifying Field : modify field properties

The screenshot shows the 'Modifying Field' interface. It includes a 'Column' section with a table for defining column properties, and a 'Save' button at the bottom.

Column	Type	Update
name	Text	false

Buttons: Save



# The dashboard framework of GACHAIN: Display the IT assets of selected application, view the detail, create new and edit

contracts			
ActivateContract	⌕	EditParameter	⌕
All_Allow_Condition	⌕	EditSign	⌕
AppendMenu	⌕	EditSignJoint	⌕
AppendPage	⌕	EditTable	⌕
CallDelayedContract	⌕	Export	⌕
CheckNodesBan	⌕	ExportNewApp	⌕
DeactivateContract	⌕	Gachain_Money_Transfer	⌕
DelApplication	⌕	Import	⌕
EditApplication	⌕	ImportUpload	⌕
EditAppParam	⌕	Lock_Fund_Buy	⌕
EditBlock	⌕	Lock_Fund_Create	⌕
EditColumn	⌕	Lock_Fund_Down	⌕
EditContract	⌕	Lock_Fund_Record_Return	⌕
EditDelayedContract	⌕	MainCondition	⌕
EditEcosystemName	⌕	MoneyTransfer	⌕
EditLang	⌕	NewApplication	⌕
EditLangJoint	⌕	NewAppParam	⌕
EditMenu	⌕	NewBadBlock	⌕
EditPage	⌕	NewBlock	⌕
		NewColumn	⌕
		NewContract	⌕
		NewDelayedContract	⌕
		NewEcosystem	⌕
		NewLang	⌕
		NewLangJoint	⌕
		NewMenu	⌕
		NewPage	⌕
		NewParameter	⌕
		NewSign	⌕
		NewSignJoint	⌕
		NewTable	⌕
		NewTableJoint	⌕
		NewUser	⌕
		NodeOwnerCondition	⌕
		UpdateMetrics	⌕
		UploadBinary	⌕
CREATE			

tables			
applications	⌕	history	⌕
app_params	⌕	keys	⌕
bad_blocks	⌕	languages	⌕
binaries	⌕	lock_fund	⌕
blocks	⌕	lock_fund_record	⌕
buffer_data	⌕	members	⌕
contracts	⌕	menu	⌕
delayed_contracts	⌕	metrics	⌕
ecosystems	⌕	node_han_logs	⌕
		notifications	⌕
		pages	⌕
		parameters	⌕
		roles	⌕
		roles_participants	⌕
		sections	⌕
		signatures	⌕
		system_parameters	⌕
CREATE			
app_params			
CREATE			
binaries			
CREATE			
languages			
CREATE			

pages			
admin_dashboard	⌕	app_tables	⌕
admin_index	⌕	app_upload_binary	⌕
app_binary	⌕	column_add	⌕
app_blocks	⌕	column_edit	⌕
app_contracts	⌕	confirmations	⌕
app_edit	⌕	confirmations_edit	⌕
app_langres	⌕	confirmations_new	⌕
app_pages	⌕	default_page	⌕
app_params	⌕	export_download	⌕
app_params_edit	⌕	export_resources	⌕
apps_list	⌕	import_app	⌕
		import_upload	⌕
		langres_add	⌕
		langres_edit	⌕
		menus_list	⌕
		notifications	⌕
		params_edit	⌕
		params_list	⌕
		properties_edit	⌕
		table_create	⌕
		table_edit	⌕
		table_view	⌕
CREATE			
blocks			
admin_link	⌕	export_link	⌕
export_info	⌕	pager	⌕
		pager_header	⌕
CREATE			





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