HouseChain: Providing Better House Renting Service with Blockchain

"Genesis"
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Dec 21st, 2016

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How is House-Renting Now?

Lack of Transparency

Credit Crisis: Transaction-Fraud

Low Market Efficiency

What we want?

Secure, Reliable, Trusted House-Renting Service

And our solution...

Blockchain+

In Blockchain we are Trusted

Tamper-Resistance
Block data is linked and irreversible

Data-Privacy
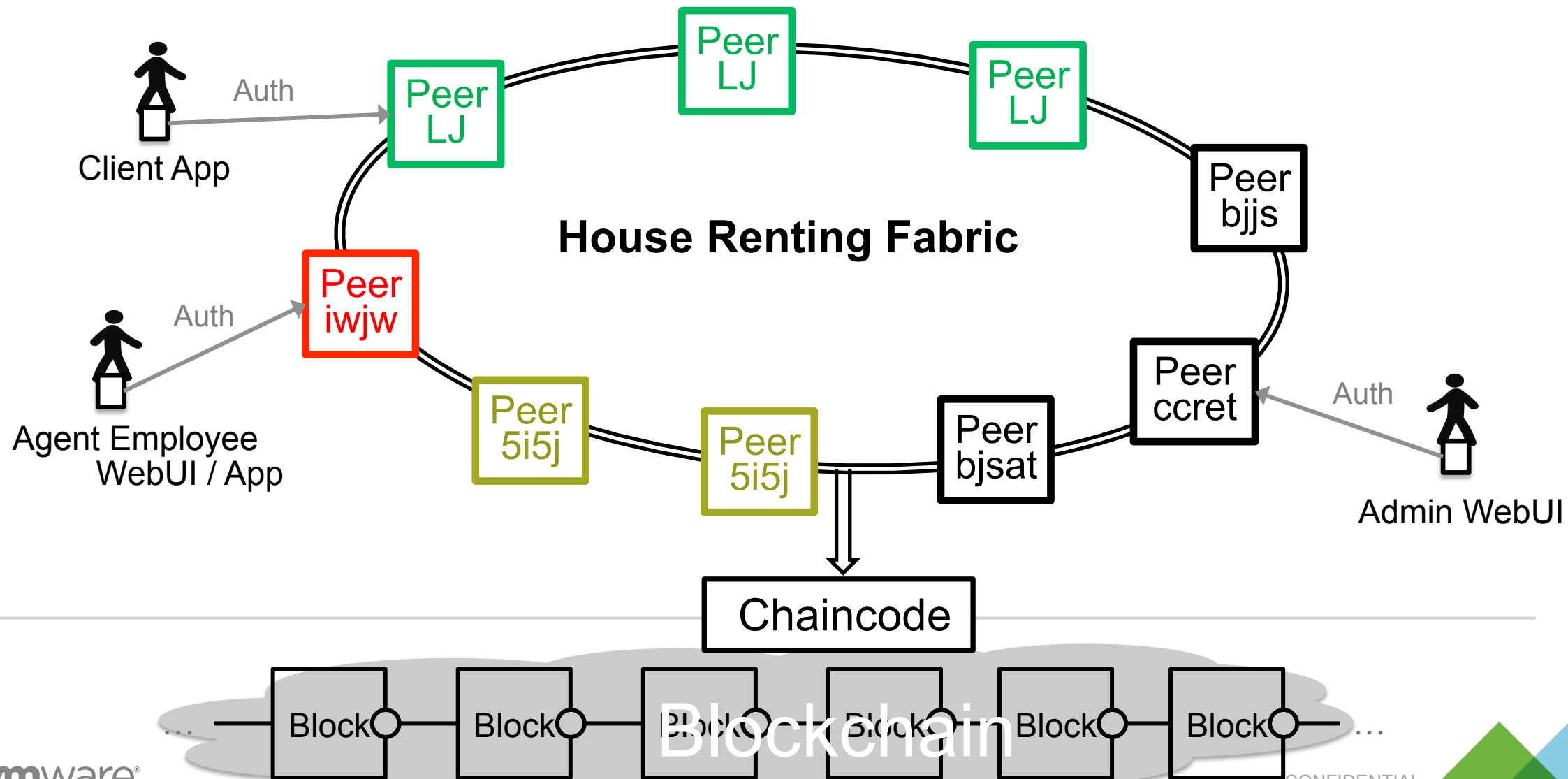Encryption and signed by chaincode
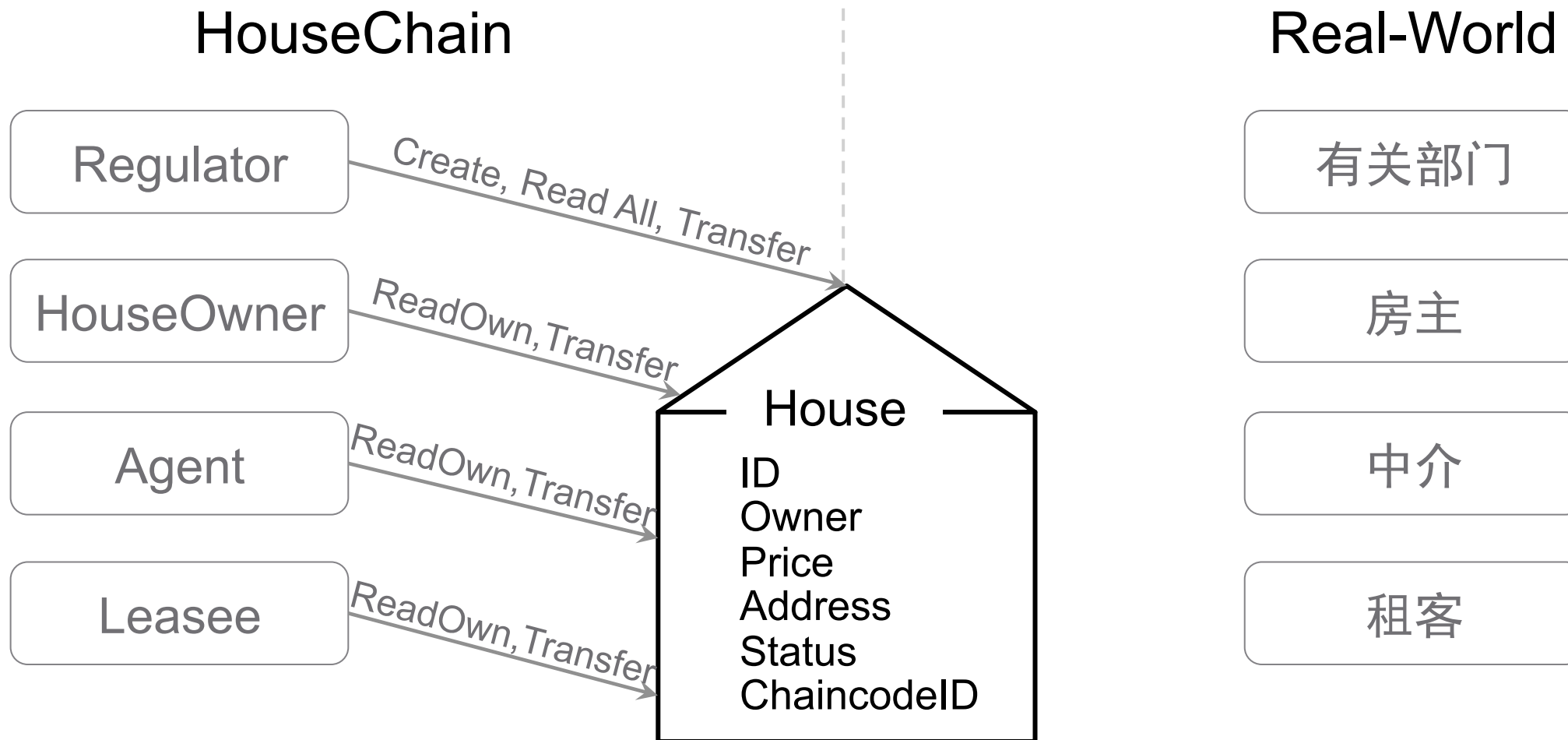
High-Availability
Persisted in distributed ledger
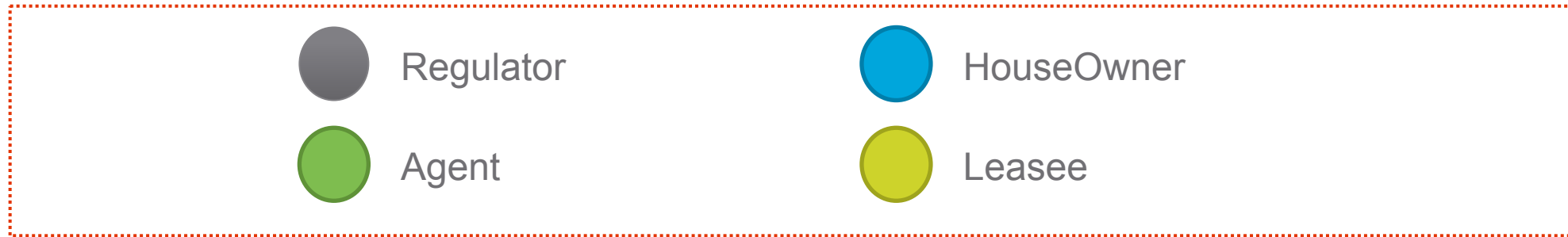
Data-Integrity
Confirmed via de-centralized consensus

HouseChain: based on Fabric

House Renting Fabric

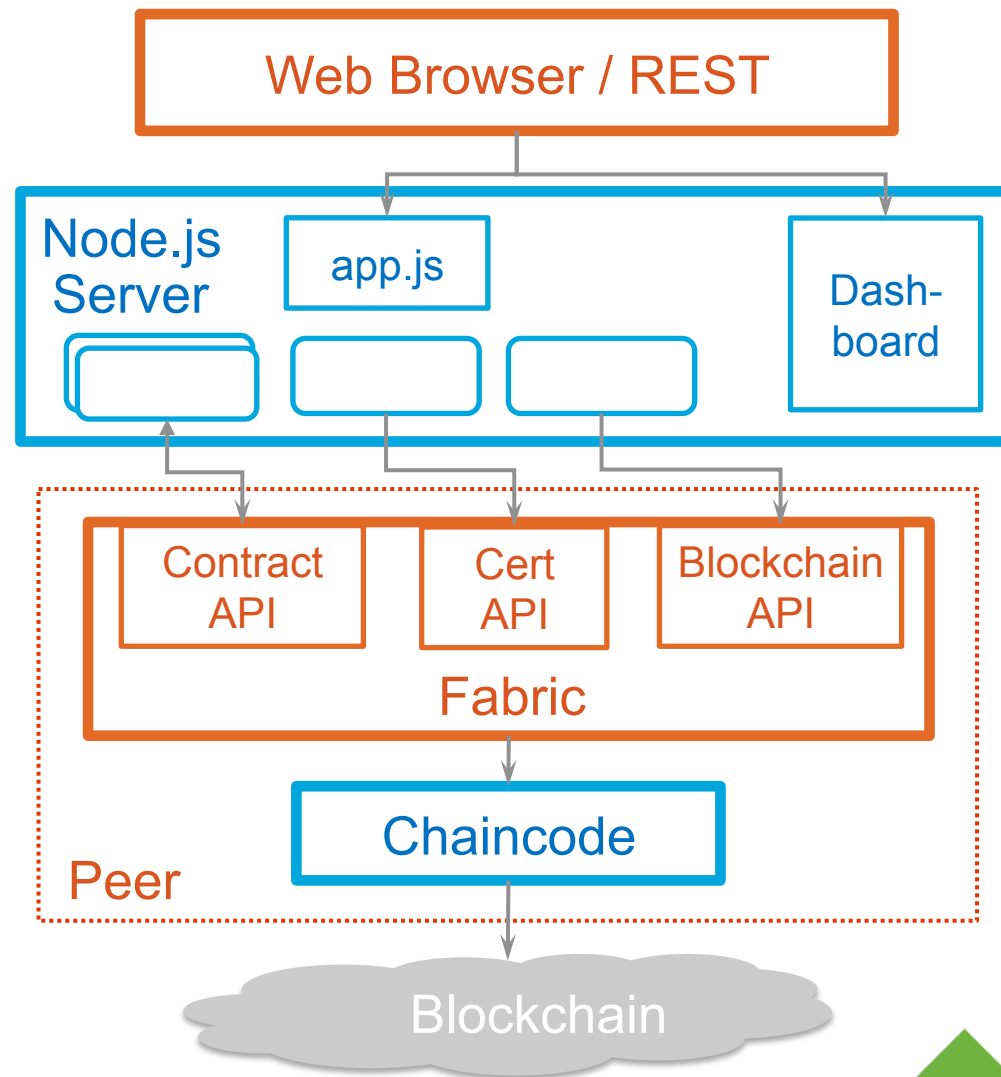Client App · Auth · Peer LJ · Peer LJ · Peer LJ · Peer bjjs

Agent Employee WebUI / App · Auth · Peer iwjw · Peer 5i5j · Peer 5i5j · Peer bjsat · Peer ccret · Auth · Admin WebUI

Chaincode

Block · Block · Block · Block · Block · Block

Blockchain

Our Model (I): Role and Permission

HouseChain

Regulator —— Create, Read All, Transfer ——→

HouseOwner —— ReadOwn,Transfer ——→

Agent —— ReadOwn,Transfer ——→

Leasee —— ReadOwn,Transfer ——→

House
ID
Owner
Price
Address
Status
ChaincodeID

Real-World

有关部门

房主

中介

租客

Our Model (II): Workflow of a House

Regulator

HouseOwner

Agent

Leasee

2. Transfer
`Authority_`
`To_HouseOwner()`

3. Transfer
`HouseOwner_`
`To_Agent()`

4. Transfer
`Agent_`
`To_Leasee()`

1. Creation
`Create_House()`

Blockchain

Our Model (III): Architecture and Tech details

- **4-Peer deployment**
  - Based on Docker
  - Transactions on-chain infograph

- **Dashboard & Node.js server**
  - Client REST

- **Our Chaincode on Peer**
  - CreateHouse
  - Transfers
  - GetHouses
  - GetHouseDetails

Web Browser / REST

Node.js Server — app.js — Dash-board

Contract API — Cert API — Blockchain API

Fabric

Chaincode

Peer

Blockchain

[Now](),
[Demo Time]()

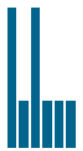**vm**ware®

Opportunities for VMware

- Federated Chain: for Enterprise use-case

- Peer deployment: for VIC and Harbor

- Blockchain storage: for vSAN deployment
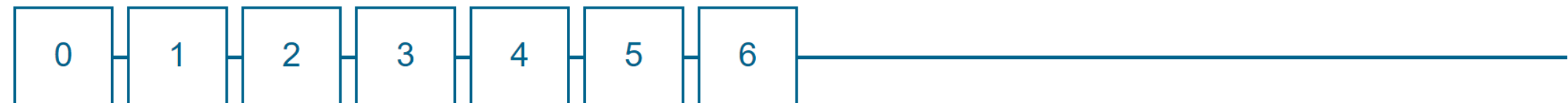
❗ Blockchain as a VMware-Service

Thank you,
Q/A

10.117.4.230:8888/transactions/d45fadbd-f9ae-4998-b506-dbc0eda5d19e

ID	Value
transaction ID	d45fadbd-f9ae-4998-b506-dbc0eda5d19e
plain_chaincodeid	11883aa210b3d788a16ec79b9b4862883fd98b5cb15170b3c6b487681b4a585d7c932db0f31804f722049ae68a41bc01f02943f37c4efd2caec65695d84a06cd
plain_payload	create_house,regulator_01,regulator,WX4168413,
timestamp	2016-12-20 17:49:22.0
type	2
chaincodeid	EoABMTE4ODNhYTIxMGIzZDc4OGExNmVjNzliOWI0ODYyODgzZmQ5OGI1Y2IxNTE3MGIzYzZiNDg3NjgxYjRhNTg1ZDdjOTMyZGIwZjMxODA0ZjcyMjA0OWFlNjhhNDFiYzAxZjAyOTQzZjM3YzRlZmQyY2FlYzY1Njk1ZDg0YTA2Y2Q=
payload	Cr4BCAESgwESgAExMTg4M2FhMjEwYjNkNzg4YTE2ZWM3OWI5YjQ4NjI4ODNmZDk4YjVjYjE1MTcwYjNjNmI0ODc2ODFiNGE1ODVkN2M5MzJkYjBmMzE4MDRmNzIyMDQ5YWU2OGE0MWJjMDFmMDI5NDNmMzdjNGVmZDJjYWVjNjU2OTVkODRhMDZjZBo0CgxjcmVhdGVfaG91c2USDHJlZ3VsYXRvcl8wMQoJcmVndWxhdG9yCglXWDQxNjg0MTMKAA==
cert	MIICUDCCAfegAwIBAgIQflTS1zKqTvy8u0OFdjqWXzAKBggqhkjOPQQDAzAxMQswCQYDVQQGEwJVUzEUMBIGA1UEChMLSHlwZXJsZWRnZRZIxDDAKBgNVBAMTA3RjYTAeFw0xNjEyMjAwOTQ4MTZaFw0xNzAzMjAwOTQ4MTZaMEUxCzAJBgNVBAYTAlVTMRQwEgYDVQQKEwtIeXBlcmxlZGdlcjEgMB4GA1UEAxMXVHJhbnNhY3Rpb24gQ2VydGlmaWNhdGUwWTATBgcqhkjOPQIBBggqhkjOPQMBBwNCAAQ1+E2pk04/HFys1n/n4Dxvx5MsKsQ7rNyLk6UVLSTTWymrqO1u0nCJQzwGoEswS3EQhD7ojK+0NZ3Ntj3L4X/Ko4HcMIHZMA4GA1UdDwEB/wQEAwIHgDAMBgNVHRMBAf8EAjAAMA0GA1UdDgQGBAQBAgMEMA8GA1UdIwQIMAaABAECAwQwQwTQYGKgMEBQYHAQH/BEA5s2wpMgdLNe6o0JQXWq7cVBjyrz7fyGNRwU3x3AQyjN3w4enOL2pcxazYyd0LPY5Ex2iTzcb/5zEQyt4yDKXSMEoGBioDBAUGCARAIWsVzqbRcwJnJWlxMESsIq9T7H2fNGCrjjV3TT5gLiUFmS4gQ3vLXF9uFEt4pLEQ2EXtqB0mka/U4pamWmlMNzAKBggqhkjOPQQDAwNHADBEAiAgCQAC0d3JFNG3YXTZVKnfEkJLlh/OR2+H5PJdj05eJwIgKhdNTxSzBPrhEhQ2NKBdFAxqYxS9P0VpsJgkfvWlryA=
signature	MEUCIB6n6Xt4W+RVOZMy+fMagL5DYFtg6/Mbn5QqSjPM/y2wAiEA3NlRd7Xms/O48iL43rlw5Cbn4Hbx3o0tC26DNNL17qY=
nonce	C3OjUyNgouQJwWj6uxxyXF13TNYmCXuY

Blockchain Statistics   ×   Transaction   ×   Houses   ×

10.117.4.230:8888/houses

Apps   ★ Bookmarks   Bugzilla   ESS-TechOps KB   Engineering SSL-VPN   HelpZilla   Oracle   Kronos   Suggested Sites   VMware OWA   VMware Source   VMware Wiki   »

Operations:

Address: aaaaaaaaaaa   create_house

[YN2895420 ▾] Owner: [   ]   authority_to_houseowner

[▾] Agent: [   ] Money: [   ]   houseowner_to_agent

[▾] Leaser: [   ] Money: [   ]   agent_to_leasee

House List:

House ID	Owner	Status	Money	Address
WX4168413	yingji	3	2500	
YN2895420	regulator_01	0	UNDEFINED	aaaaaaaaaaa