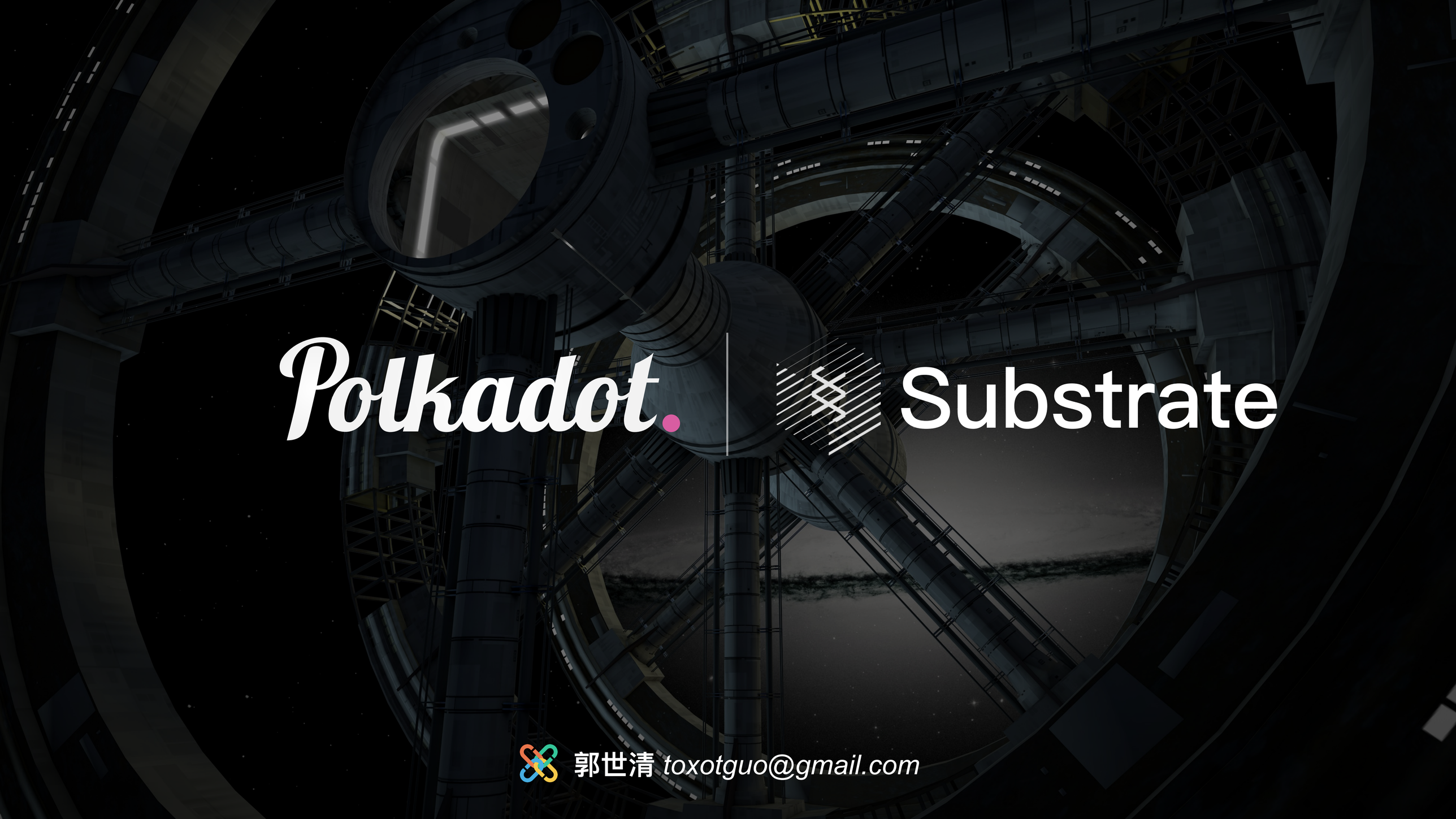


郭世清 *toxotguo@gmail.com*

ChainX

Contents

- **Polkadot** Introduction
- Quick start Substrate Development
- **Substrate** Introduction
- Substrate & **ChainX**

ChainX

Web3

Web 1.0：
Static Website

Replacing inefficient dialogue and paper, IT machines become new mediators

Web 2.0：
Dynamic Website

Open up the layer of physical intermediary, monopoly as single platform intermediary

Web 3.0：
Decentralization technology

Weaken the last power intermediary and complete the machine transformation of the intermediary

Situation

Diversification

Endless public chains, consortium chains, private chains

Verticalization

Single chain cannot expand without limit, multi-chain difference division of competition

Fragmentation

Users, assets, and applications are separated from each other and cannot be widely distributed.

ChainX

Reason

Availability

Transaction correctness
(calculation dependence)

Canonicality

Consensus consistency
(accounting rights dependencies)

Function

Extensibilty

Provides access to any blockchain

Para-chains parallel processing transactions can be expanded infinitely

Shared security

Relay-chain aggregation network security

Para-chain sharing collective security and does not need to start from zero

Interoperability

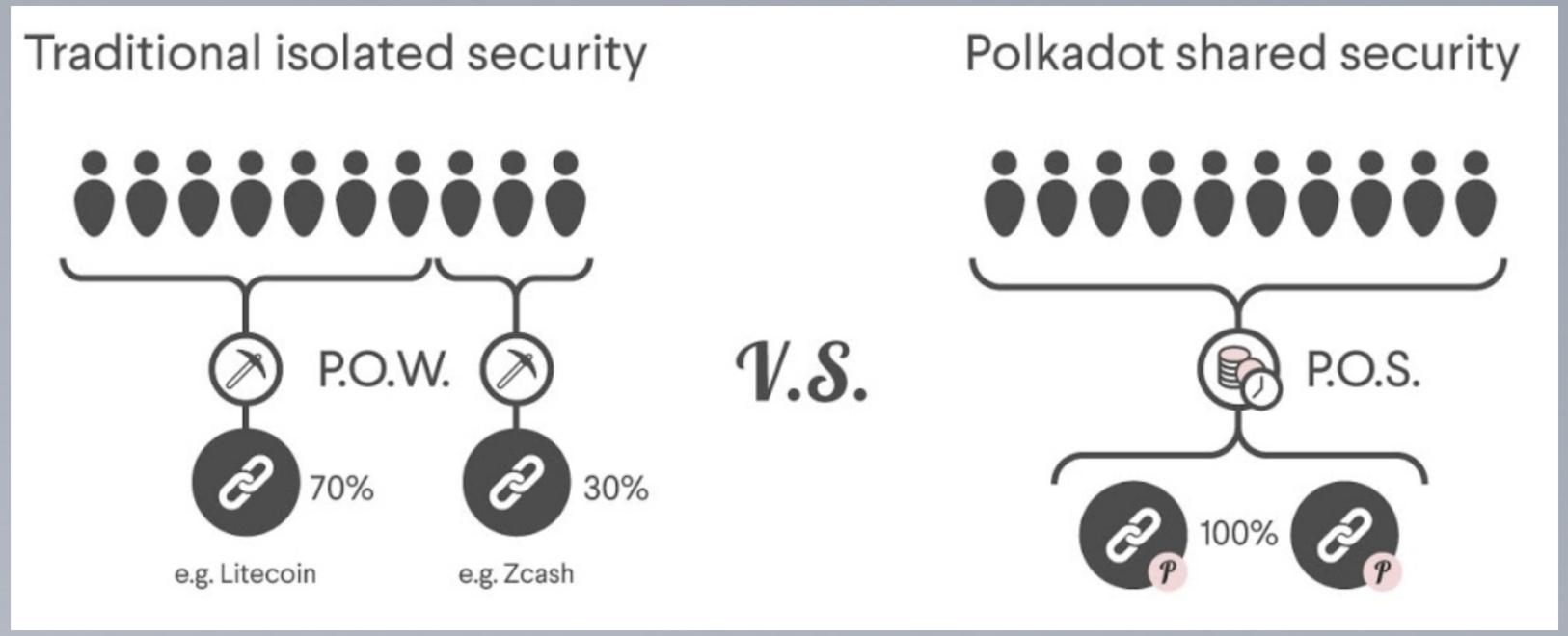
Sending cross-chain messages between parallel chains trustlessly

Applications and smart contracts can be accessed by cross-chain way

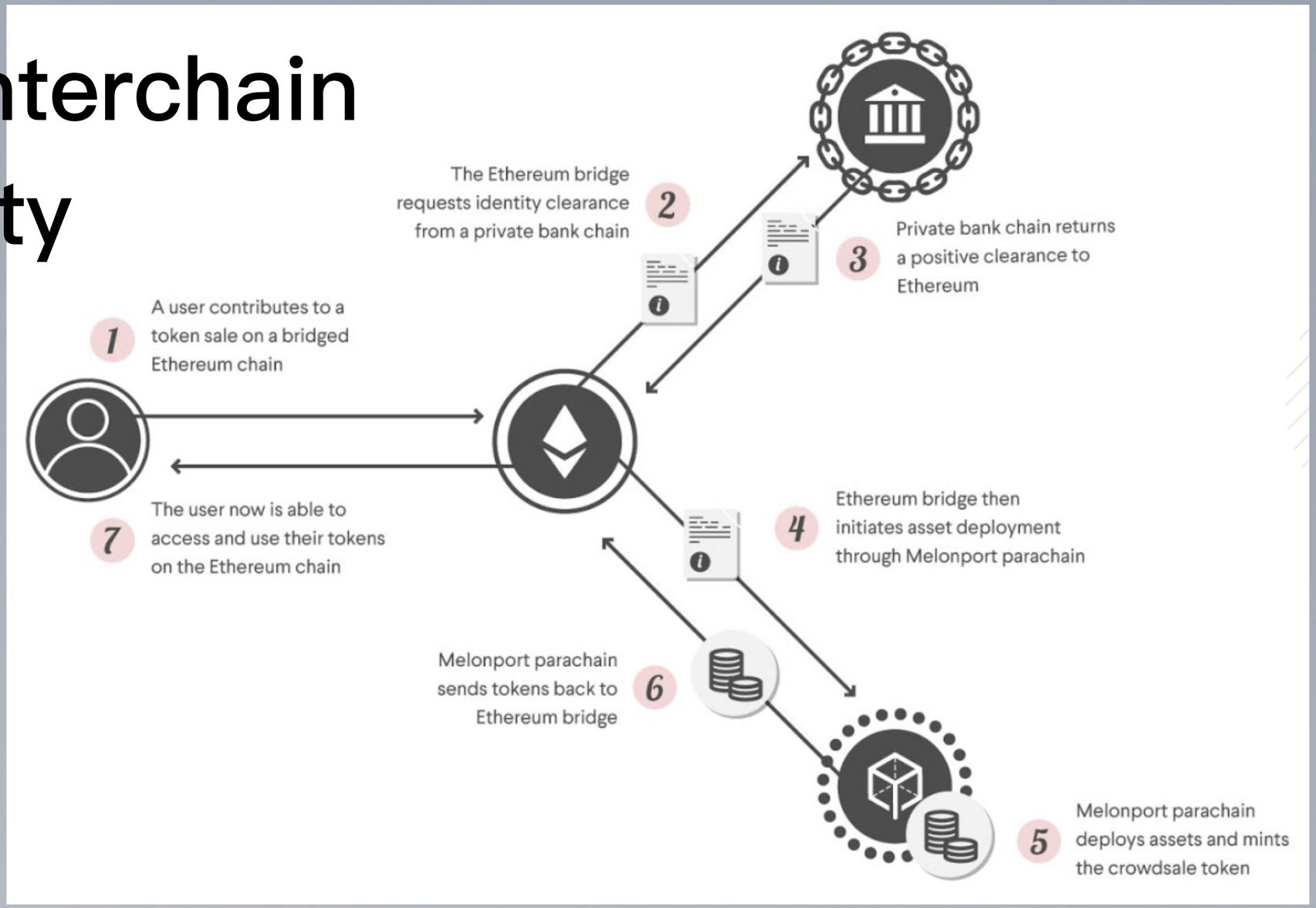
ChainX

ChainX

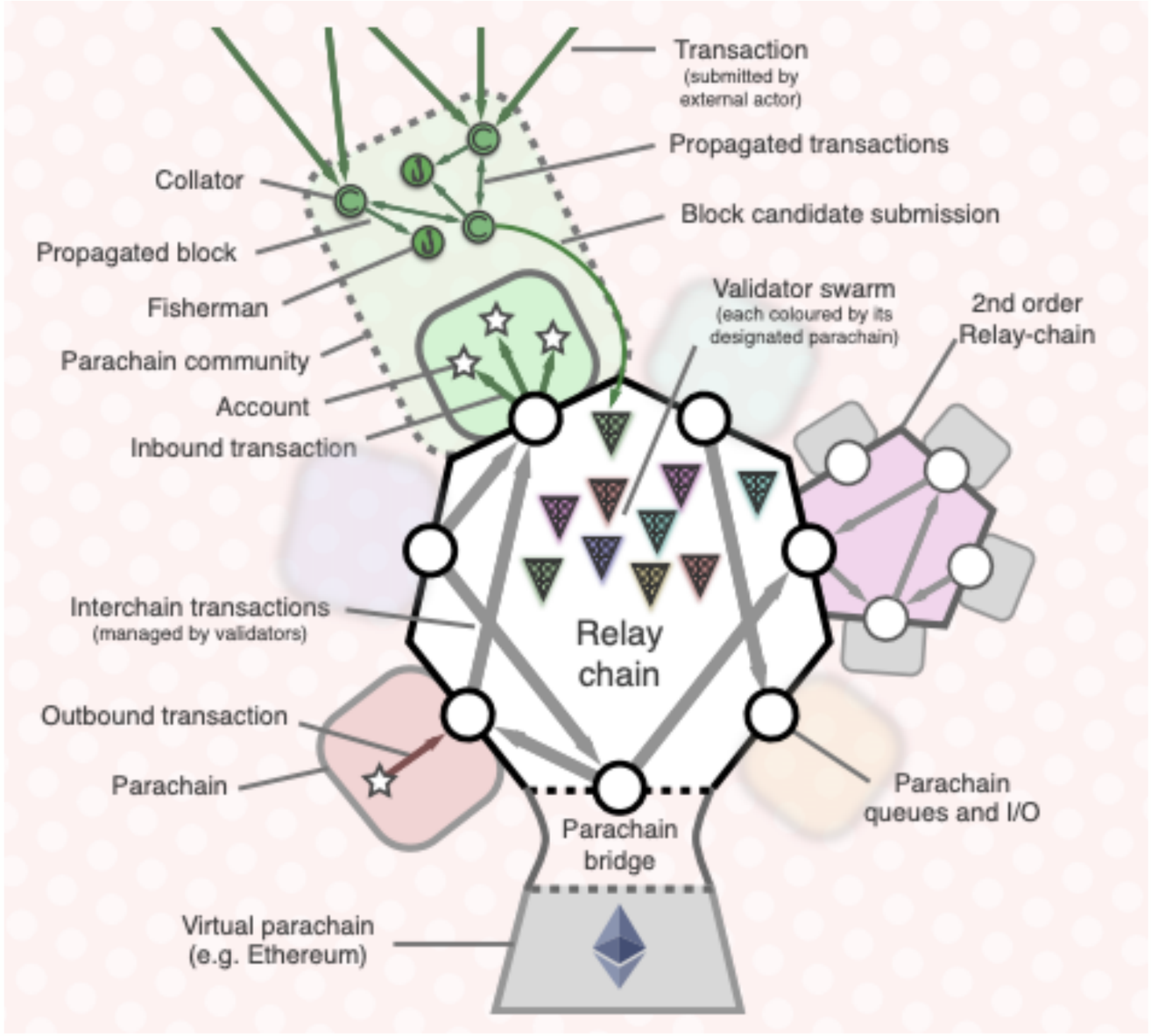
Shared security



Trust–free interchain transactability



ChainX



Architecture

- Nominator
- Validator
- Collator
- Collator
- Fisherman
- Bridges
- Para-chains
- Relay-chain

Gavin Wood’s 15 minutes

ChainX

Substrate

1.

Developed by Polkadot

2.

Next generation general blockchain technology architecture

3.

Future-oriented blockchain ecosystem platform

4.

Committed to service blockchain innovation

5.

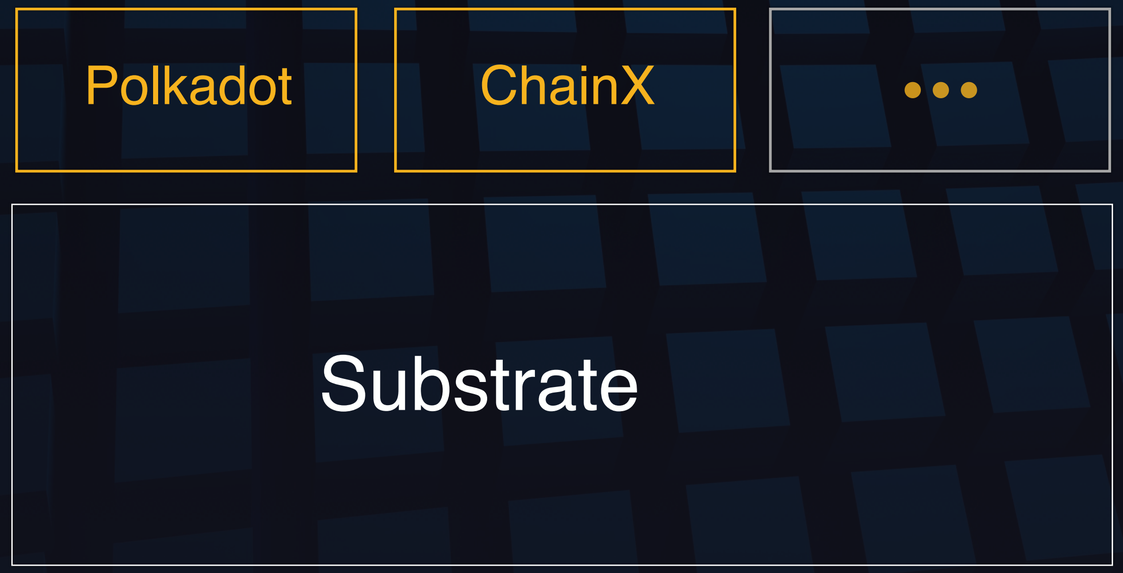
Promote blockchain industry change

ChainX

Redefine blockchain

ChainX

Industrial engineering implementation

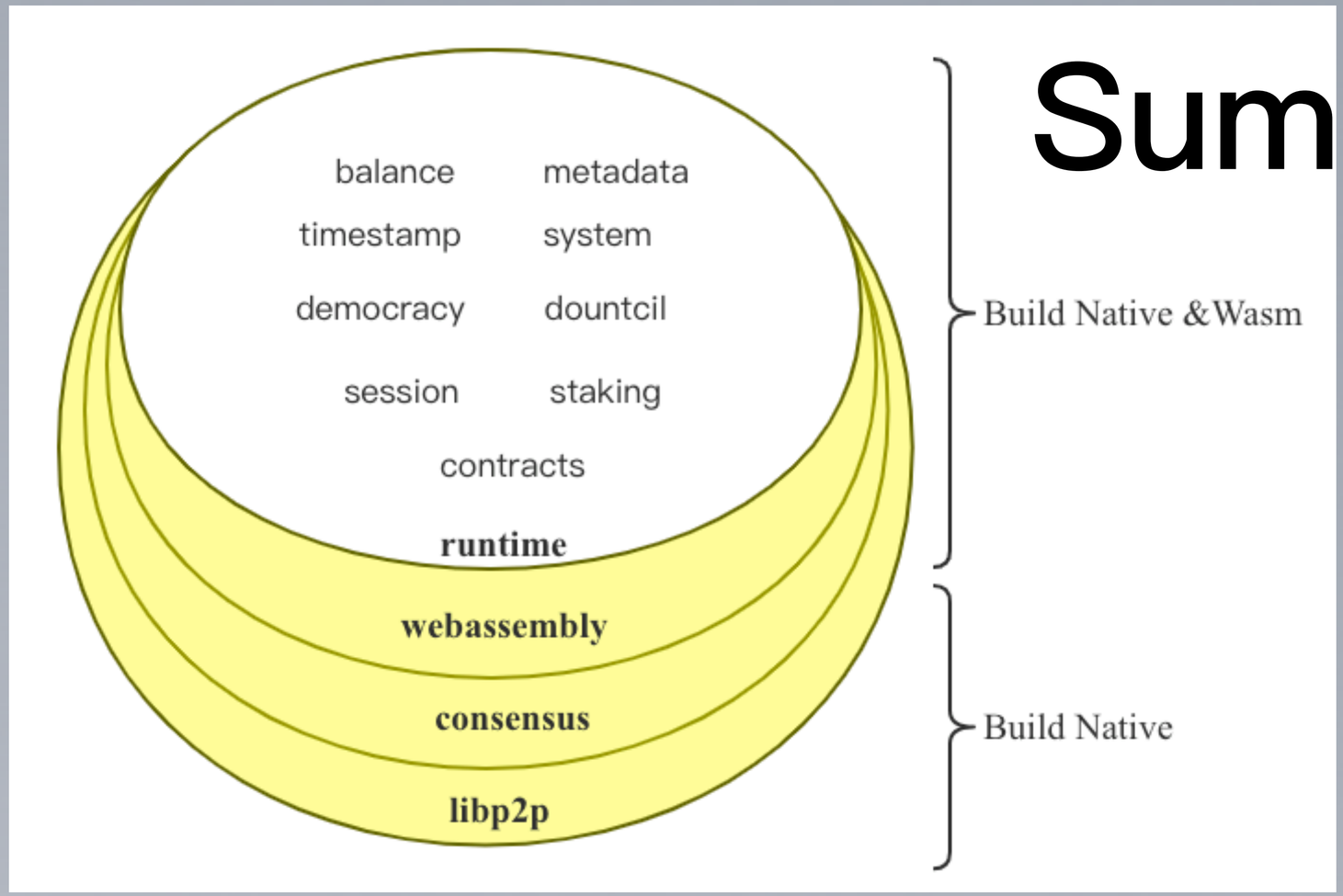


1. Powerful blockchain component library
2. Generic blockchain development framework
3. Complete blockchain client module
4. Continuously upgraded blockchain portfolio package
5. Standard of Polkadot parallel chain and relay chain

...

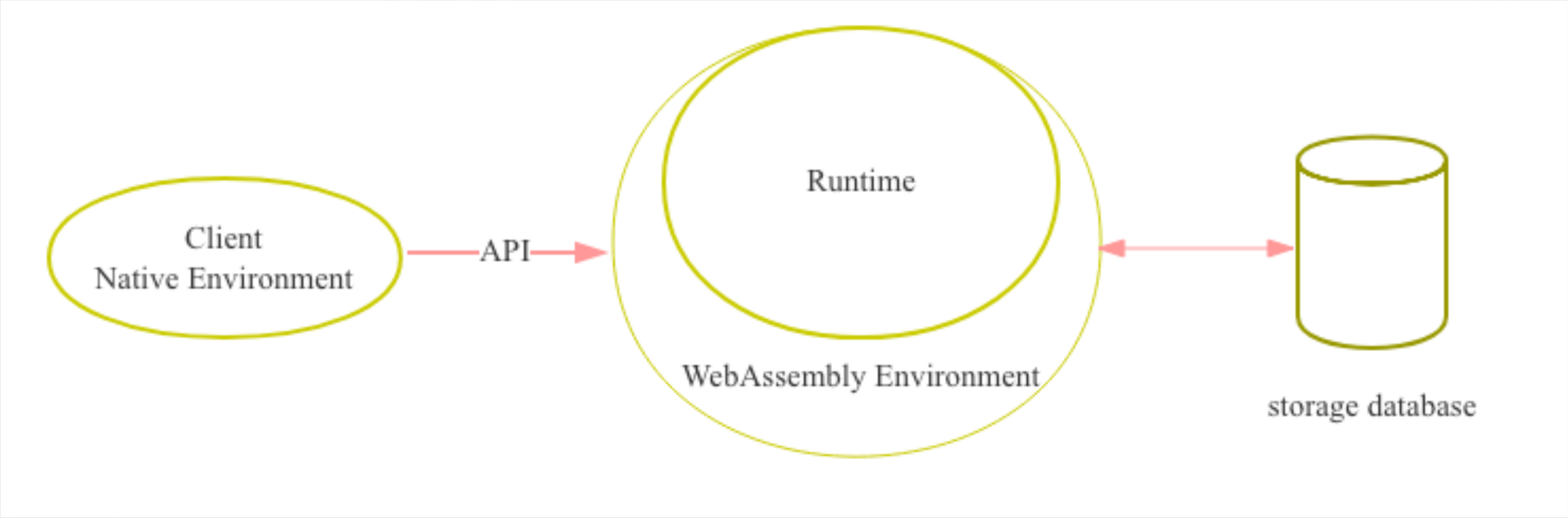
ChainX

Summary



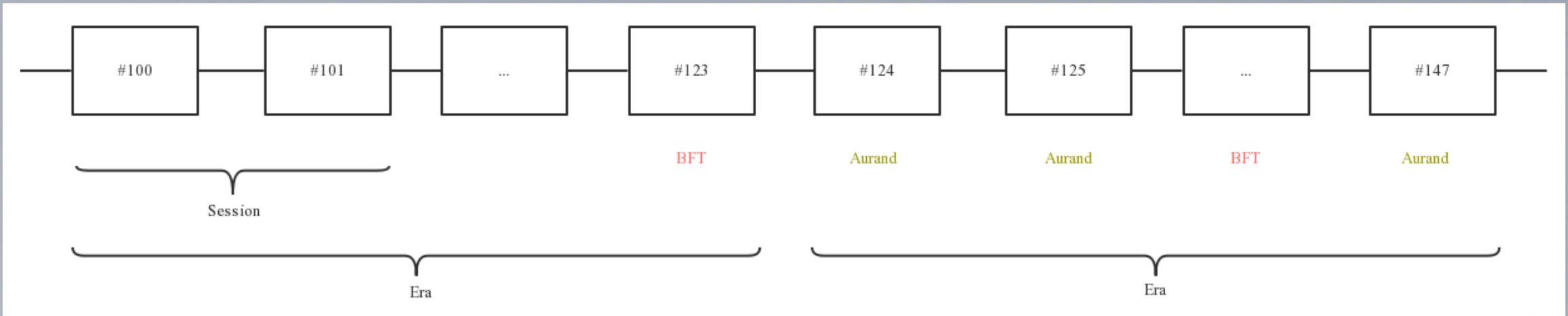
ChainX

Summary



ChainX

Consensus



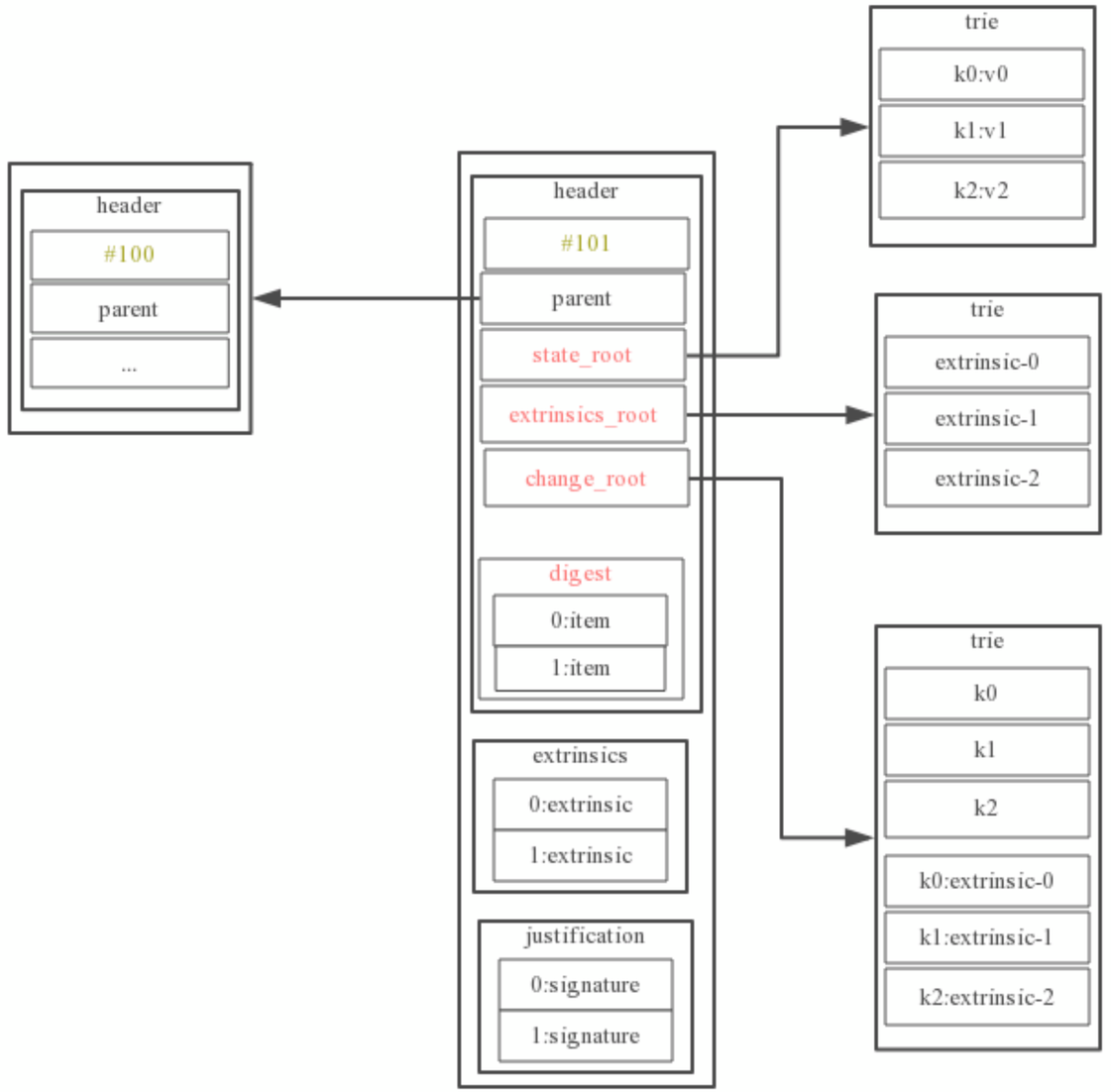
BFT provide “absolute” finality

Aurand provide “fast” “finality”

https://github.com/w3f/consensus/

Light Client

- state_root
- extrinsics_root
- change_root
- digest



Element

Signature

ed25519

Hash

blake2b

Header

parent_hash | number | state_root

extrinsics_root | digest | change_root

Block

Header | extrinsics | justification

Transcation

Inherent | Public | Root

sender

call

ChainX

Api

runtime

authorities()

initialise_block(header)

apply_extrinsic(extrinsic)

finalise_block()

rpc

websocket

http

ChainX

Quick Start Substrate Development

One Node

Substrate NodeIChainX-Testnet

Two Languages

Rust & Javascript

Three lines of code

oo7 call runtime

Startup

One mechanism

Runtime

Two Macro Definition

decl_module & decl_storage

Thirty lines of codes

Custom runtime module

Specialist

Custom substrate blockchain

Beyond

ChainX

ChainX

Lesson One

Target

Build a blockchain network of two nodes

Main Steps

1. Understand the basic concepts of Rust language and regular commands
2. Download Substrate and prepare to install the environment
3. compile the node program
4. Run the first node
5. Config the second node's bootnodes，run the second node
6. The two nodes are successfully connected and the blocks can be produced

Lesson Repo：https://github.com/chainx-org/Quick-Start-Substrate

ChainX

Lesson Two

Target

Interact with the blockchain by client's API, send the transfer transaction

Main Steps

1. rebuild lesson one's two nodes blockchain network
2. Understanding how blockchains interact with client
3. Install the client environment and oo7 js package
4. Write client code, call the transfer interface
5. Transaction are mined，transfer successfully

Lesson Repo：https://github.com/chainx-org/Quick-Start-Substrate

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Lesson Three

Target

Implement new runtime module，Implement a new dapp with gambling capabilities

Main Steps

1. Learn substrate’s runtime mechanism
2. learn decl_module and decl_storage
3. Design new module and storage
4. Implement new module’s decl_module and decl_storage
5. Compile the node program and run the blockchain network
6. Write client code, call new module interface, implement user function

Lesson Repo：https://github.com/chainx-org/Quick-Start-Substrate

Cross-chain Hub of Crypto Assets

ChainX

ChainX

Cross-chain

Centralization
Centralized exchange

Hash Lock
State Channel、Ripple

Notary
Wanchain

Side chain or Relay
Cosmos、Polkadot、ChainX

ChainX:
Multi-chain System

ChainX v3将于2020年Polkadot发布v2后上线

ChainX将拆分为多链架构，作为Polkadot的第二层中继网络运行。Polkadot专注于底层消息跨链，ChainX专注于实现其内部的资产跨链。

ChainX中继链

全系统的最高安全性保障，负责第二层网络的整体共享安全共识。

转接桥平行链

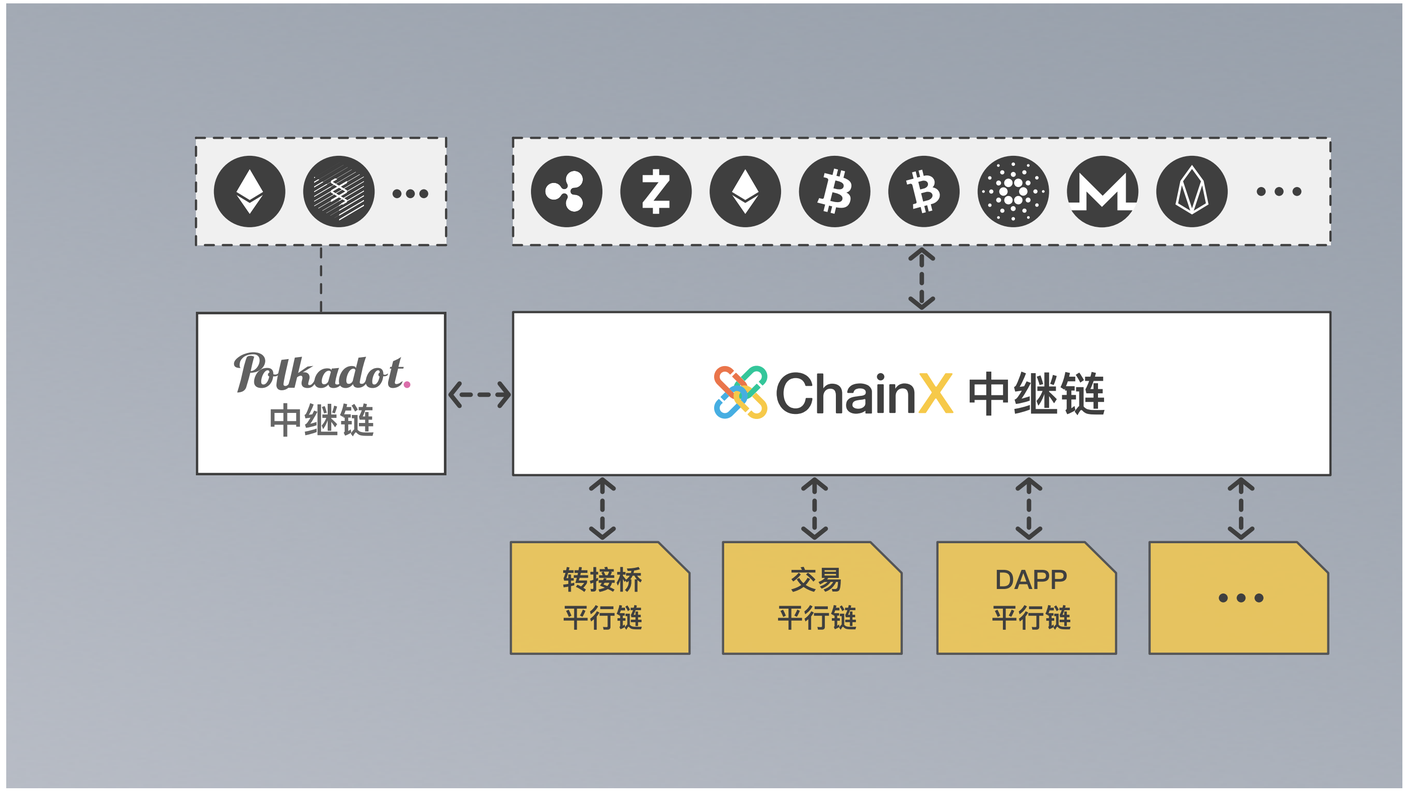
将各个转接桥拆分为独立的平行链，用于分担压力。

交易平行链

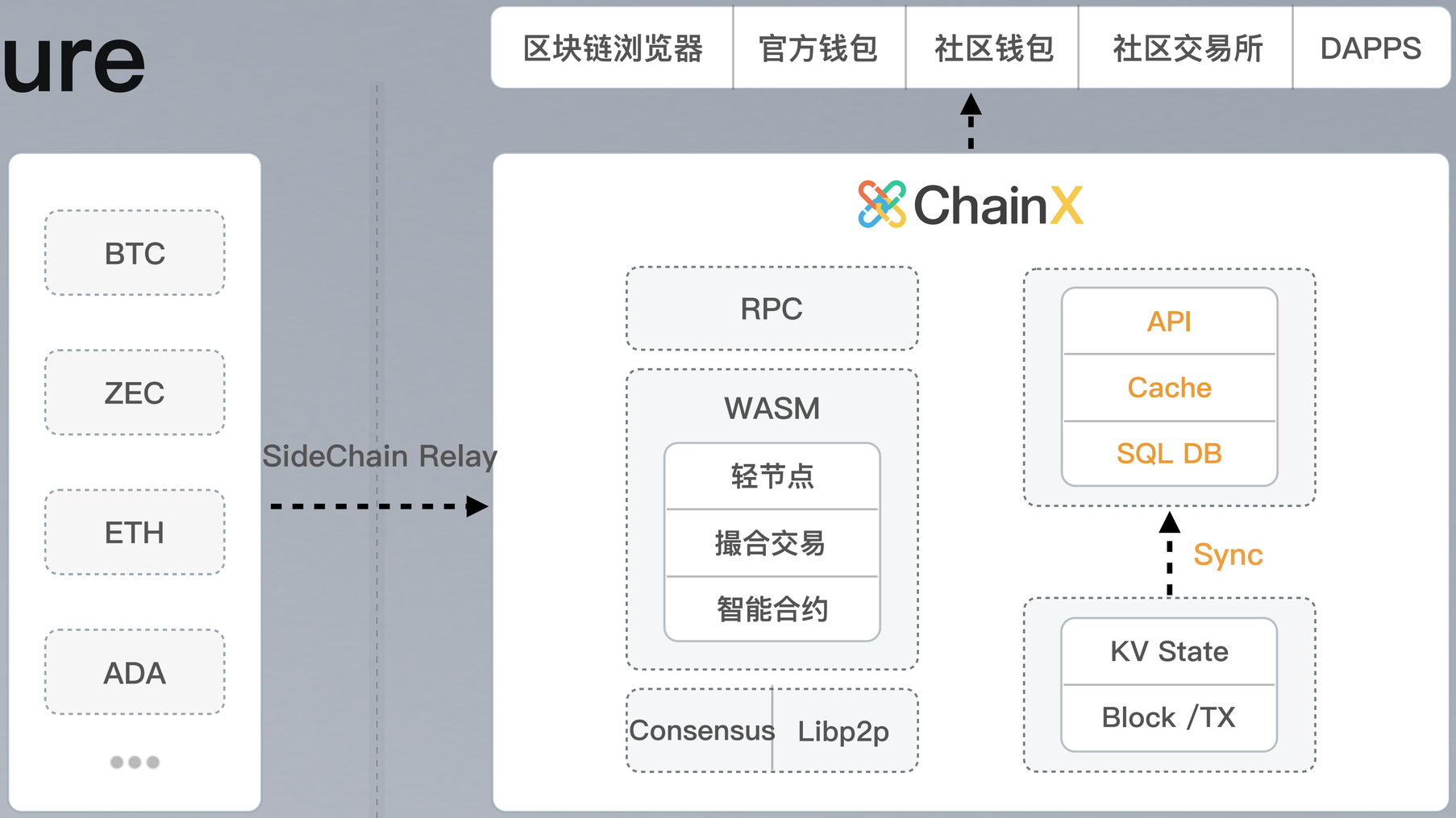
为全系统的资产提供免费撮合服务，提升交易吞吐量。

DAPP平行链

社区开发的各类应用可以独立运行，并保持跨链通信能力。



ChainX: Architecture




Thank You
ChainX