SCION and modern blockchains:
Opportunities and synergies

OCTOBER 18 | 2023   Markus Legner

MystenLabs

A very brief history of
Mysten Labs

SEP '21

Founding of Mysten Labs

MAY '23

Launch of the Sui mainnet

JUL '23

65 million transaction blocks in a single day

Vision

Build the foundation of web3 with the Sui blockchain

- Scale technology to billions of people

- Enable novel web3 applications

How do blockchains benefit from SCION?

Distributed systems fundamentally depend on **secure global connectivity**

Blockchain nodes are globally distributed

Network-layer attacks can cause severe damage

Centralized networking solutions contradict decentralization

➜ **Build on a secure public network infrastructure**

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SCION can help **protect critical communication**

Need

High availability required for communication between blockchain nodes and client access

Current approach

Protections include **cryptographic signatures, filtering,** and **rate-limiting**

Future solutions

Build on SCION's **secure routing, authentication mechanisms,** and **bandwidth reservations**

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How can SCION benefit from blockchains?

Blockchains have come a long way

	Bitcoin	**Sui**
Sustainability	**Wasteful** proof of work (PoW) 1 tx ~ 1 person flying Zurich–Lisbon	**Efficient** proof of stake (PoS) 1 tx ~ traditional financial transaction
Programmability	**Limited** Bitcoin script	**Turing-complete** smart-contract language
Speed	Finality in **minutes–hours** **5–10** transactions per second	**Sub-second** finality **> 1000** transactions per second
Cost	**> 1 USD** per transaction	**< 0.1 cent** per transaction

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Sui can perform control-plane tasks for SCION

SCION has a **clean separation of control and data plane**
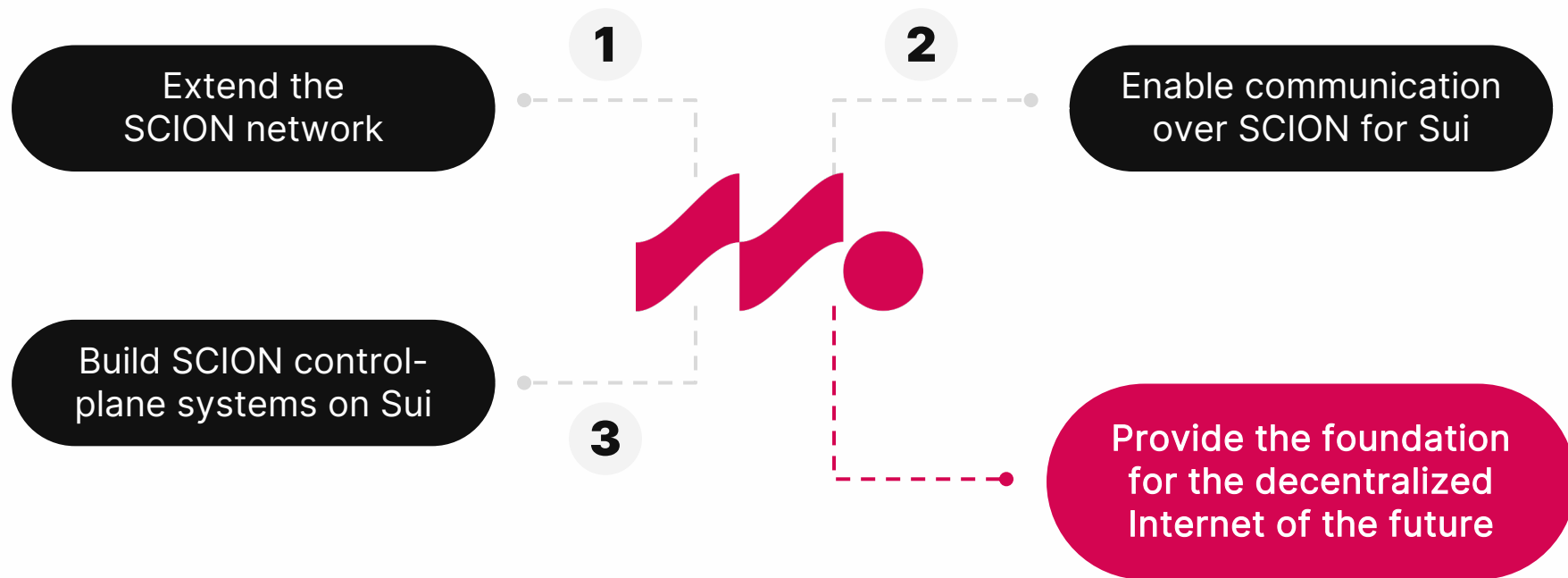
- Packet-carried forwarding state

- Forwarding information can be distributed out-of-band

Sui enables **digital assets for network resources**

- Compose, transfer, and **coordinate** assets

- Assets for forwarding information, keys, bandwidth reservations

- **Fast and cheap transactions** enable real-time applications

- Directly integrated **financial settlement**

Current efforts, next steps, and long-term vision

1 Extend the SCION network

2 Enable communication over SCION for Sui

3 Build SCION control-plane systems on Sui

Provide the foundation for the decentralized Internet of the future

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