



TRUST
Over **IP**

5 Year
Symposium

The Human Stack

A panel discussion about human agency in
the Age of AI

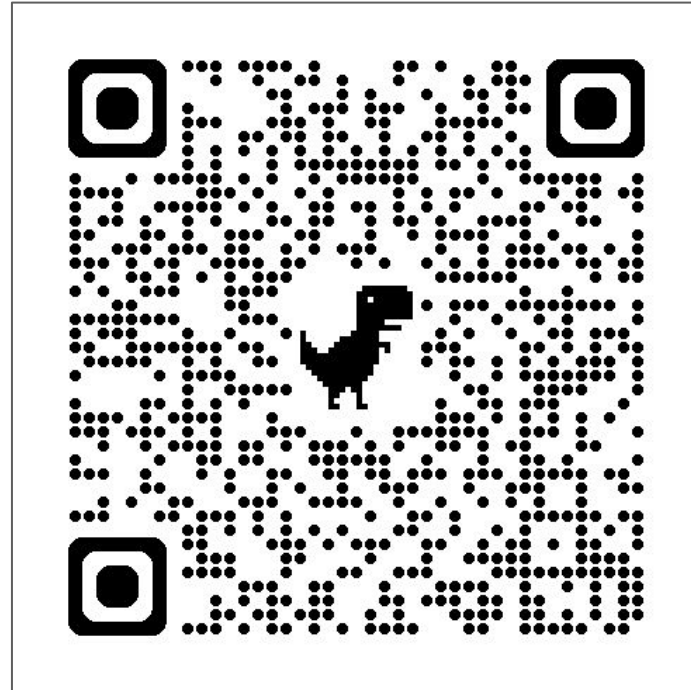
Drummond Reed, Doc Searls, Michael Casey,
Sheila Warren, Wendy Seltzer, Wenjing Chu
November 20, 2025



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 THE **LINUX** FOUNDATION

AI & Human Trust Working Group



Thesis:

For humans to have full
digital sovereignty and
agency in the age of AI,
they must be running
the Human Stack

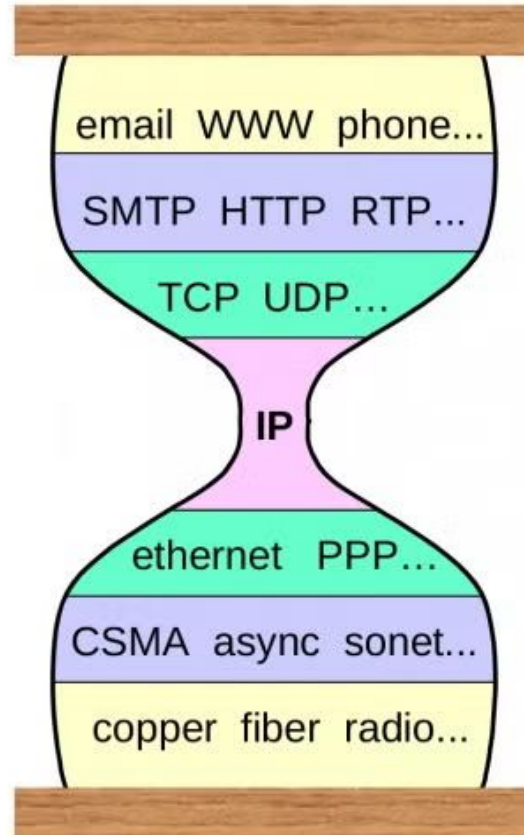


Part One

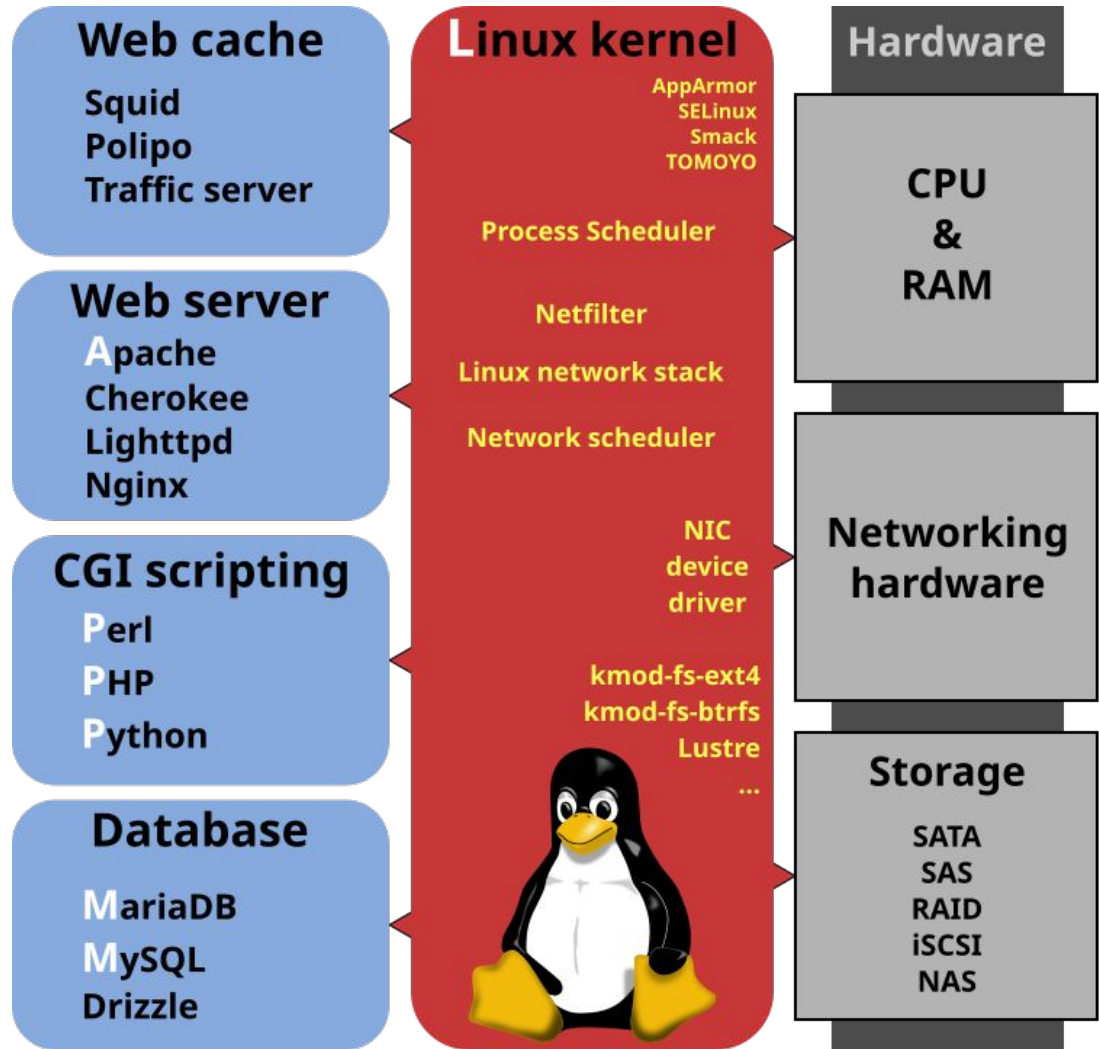
What is a “stack”?



The TCP/IP Stack (for the Internet)



The LAMP Stack (for the Web)



The India Stack (for the India ecosystem)

Consent Layer

A modern privacy data-sharing framework
Example: DEPA

Cashless Layer

Electronic payment systems for a transition to a cashless economy
Examples: IMPS, AEPS, APB, UPI

Paperless Layer

Rapidly growing base of paperless systems with billions of artifacts
Examples: Aadhaar e-KYC, e-Sign, DigiLocker

Presenceless Layer

Unique digital biometric identity with open access of over a billion users
Example: Aadhaar authentication

Sources: Tanuj Bhojwani, "The Best Way Forward for Privacy Is to Open Up Your Data," iSPIRT, August 21, 2017, <https://pn.ispirt.in/the-best-way-forward-for-privacy-is-to-open-up-user-data>; and India Stack, "India Stack," India Stack, <https://indiastack.org>.

A “stack” is a layered set of protocols designed to support particular features of a network.



Part Two

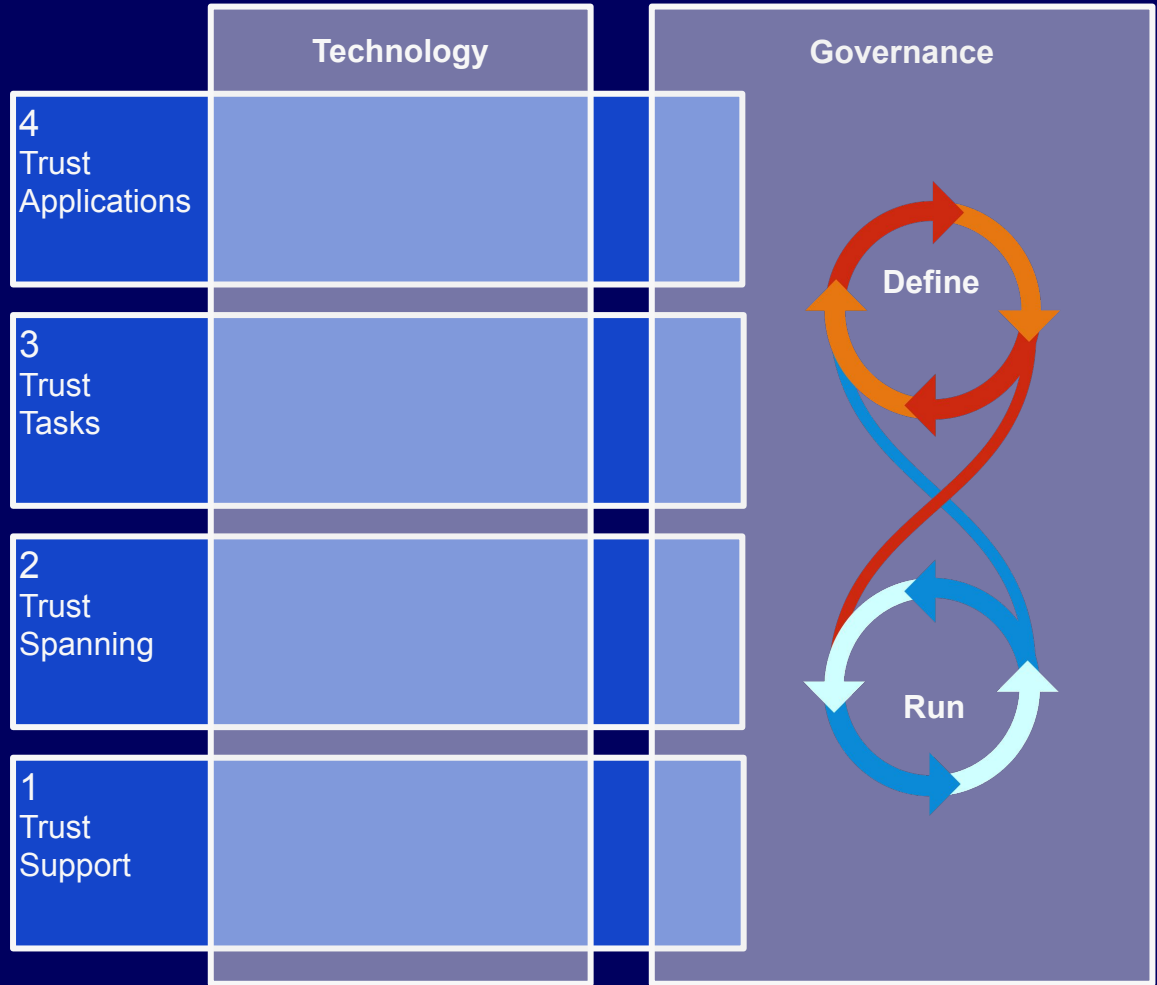
What is the
“Human Stack”?



The Human Stack is the
layered set of protocols
necessary to **fully**
empower human agency
in a world of AI agents.

The Human Stack is a
profile of the ToIP stack
that includes specific
requirements at each of
the four layers.

The ToIP stack is modeled directly after the four layer TCP/IP stack, except it combines technology and governance. Both are required for digital trust.



So what are the special
requirements of the
Human Stack profile?



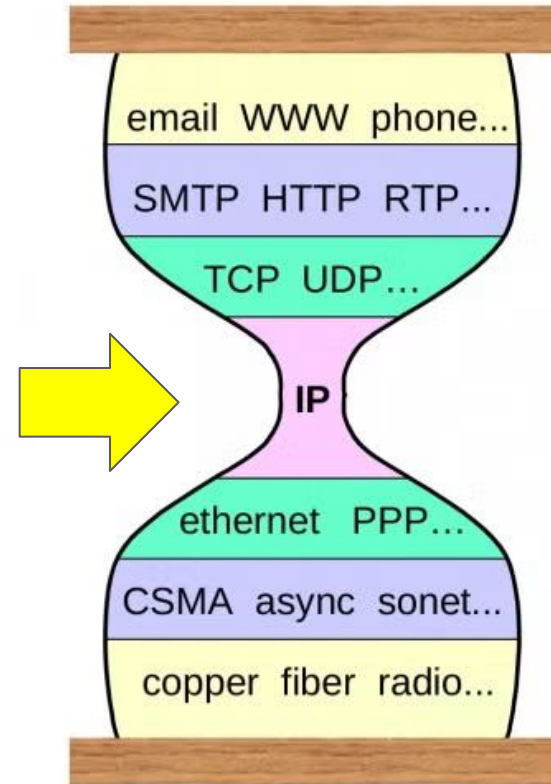
Part Three

Sovereign wallets

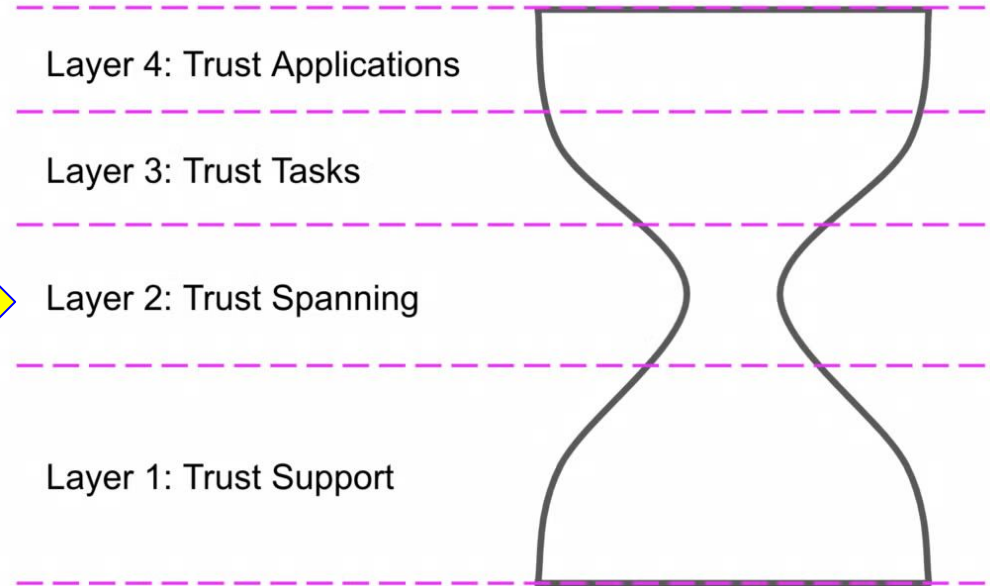
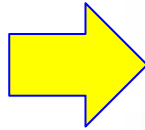


The secret to the four layer design of the ToIP stack is the **spanning layer**.

With the TCP/IP stack, the spanning layer is the IP protocol.



The **Trust Spanning Protocol (TSP)** protocol is the spanning layer of the ToIP stack.



The IP protocol was based on a new network-independent identifier: **the IP address**.

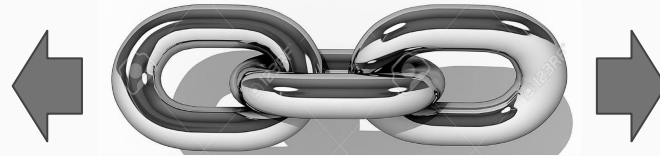
The Trust Spanning Protocol is also based on a new identifier: a **cryptographically verifiable identifier (VID)**.

The best known VID is a **decentralized identifier (DID)**, a W3C standard in 2021.

Every VID and DID is controlled by a
public/private key pair.



Public key— **MUST**
be shared



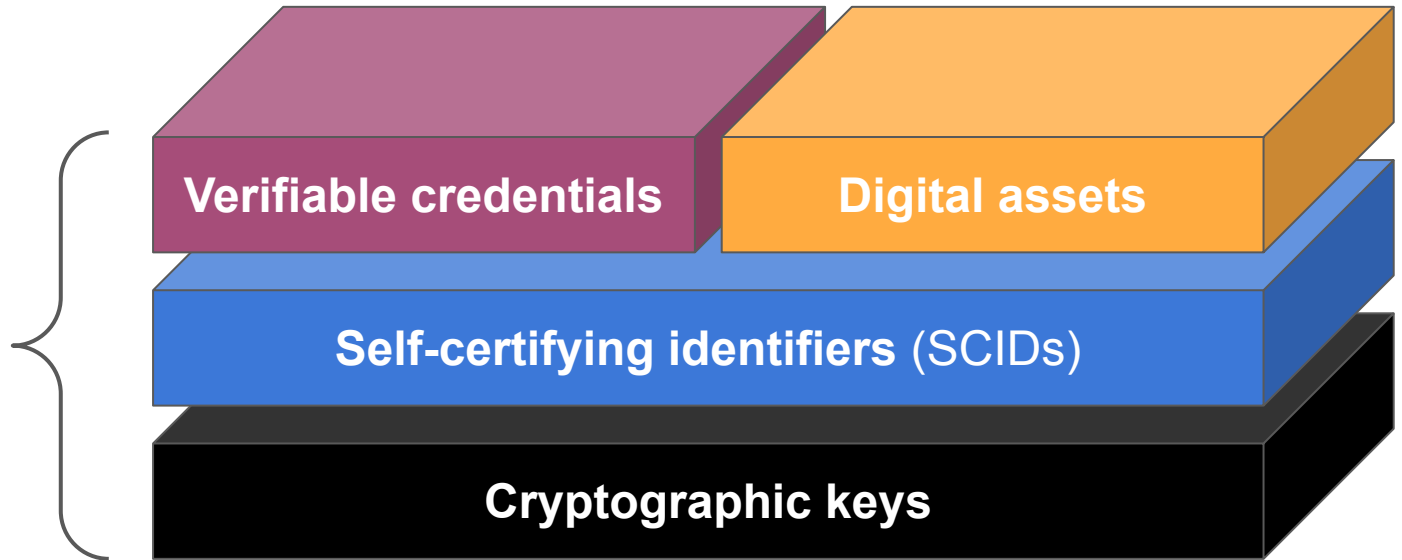
Cryptographic
binding



Private key— **MUST**
NOT be shared

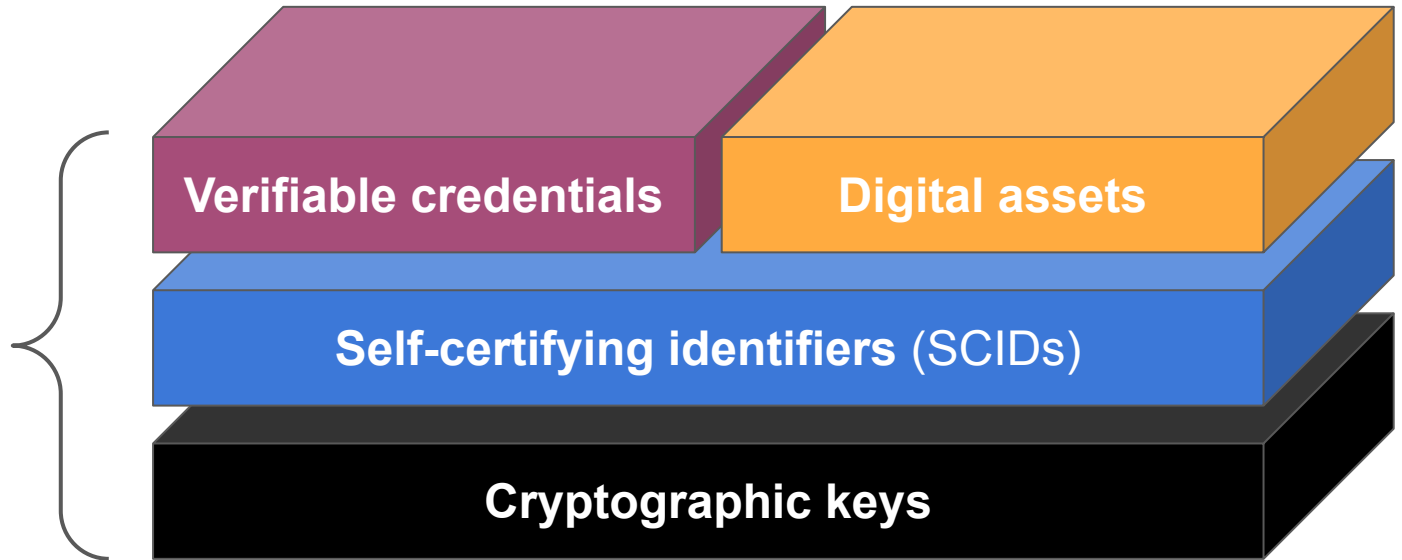
Therefore the bedrock foundation of the Human Stack is control of cryptographic keys in a **sovereign wallet**—a wallet over which the human has full control and portability.

Layer 1

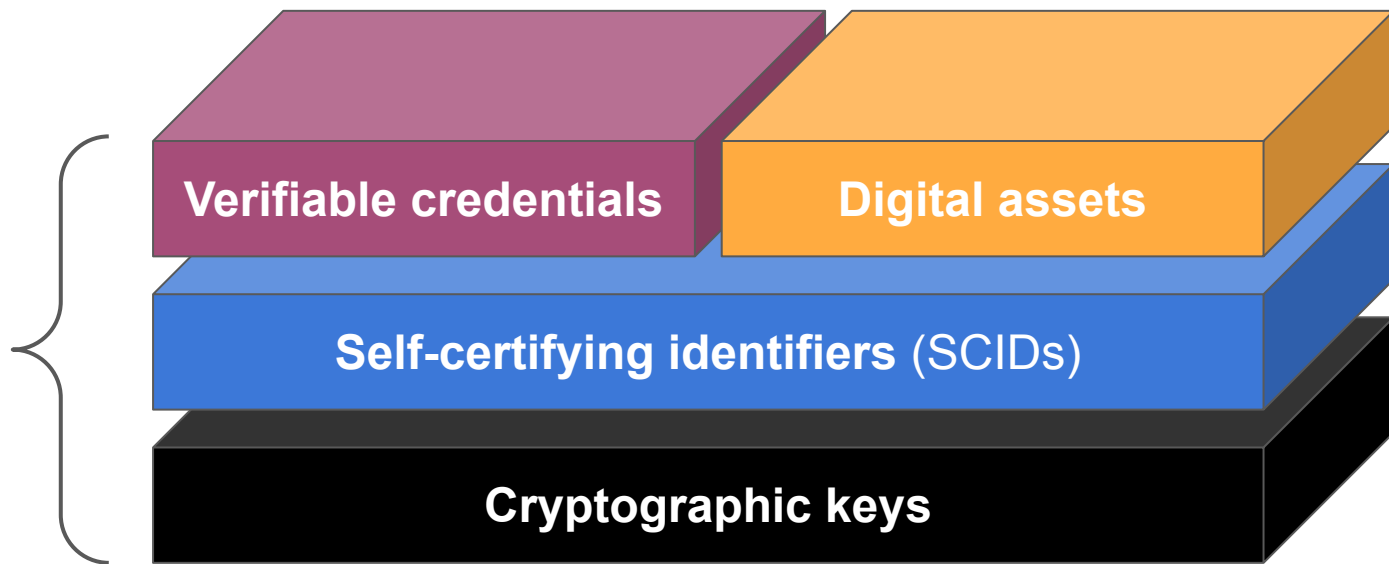


Feature	Cryptocurrency Wallet	Identity Wallet
Stores public/private key pairs	Yes	Yes
<u>Custodial</u> and <u>non-custodial</u> types	Yes	Yes
Protects security and privacy	Yes	Yes
Includes backup/restore functions	Yes	Yes
Performs blockchain transactions	Yes (cryptocurrency trades)	Yes (public key verification)
Types of data objects managed	Cryptocurrency balances	Digital credentials
Binds digital identity to real person	No	Yes
Can support <u>digital agents</u>	Yes	Yes

Layer 1



**Sovereign
wallet**





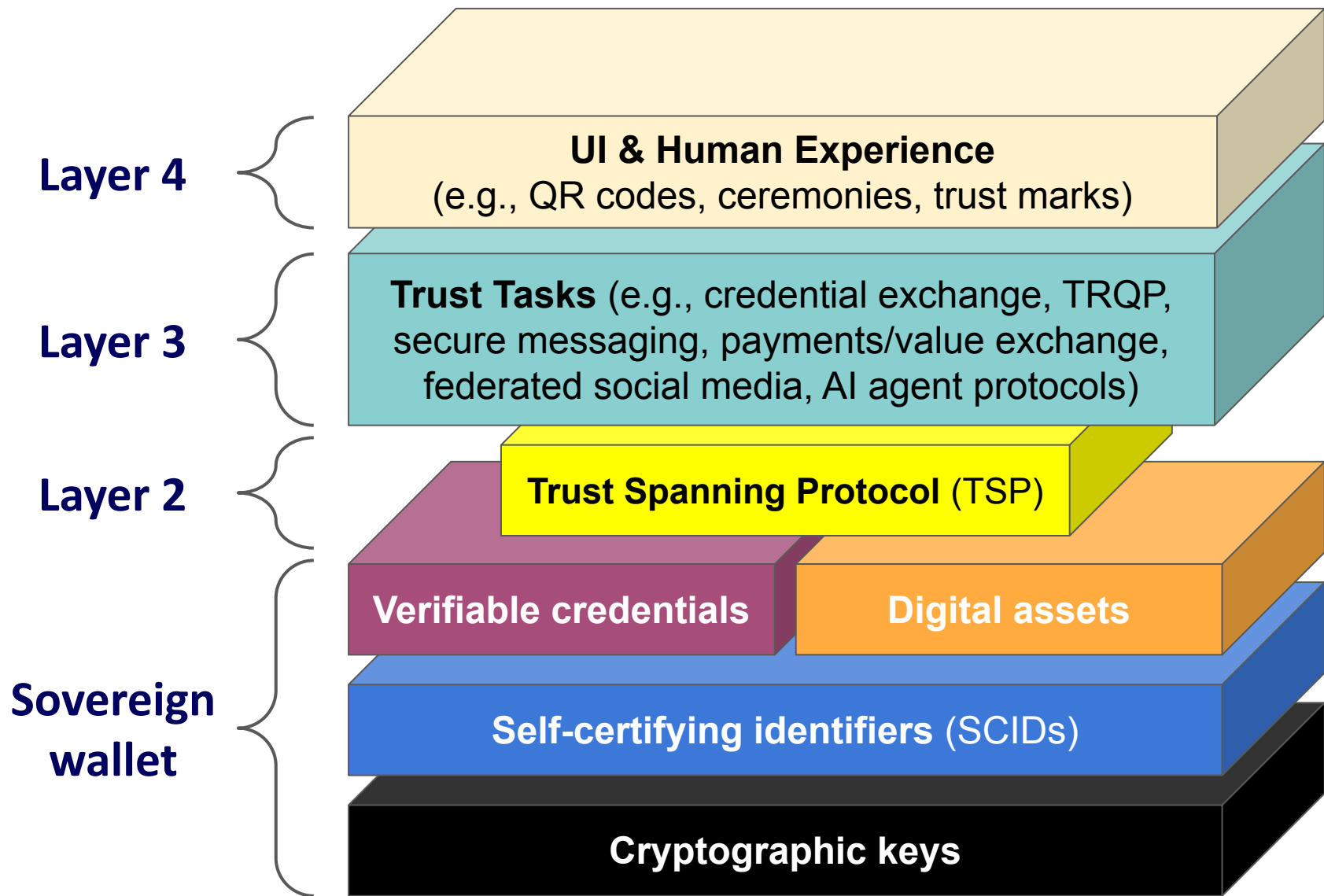
Part Four

Sovereign agents



Now, how do you connect
a sovereign wallet with the
rest of the world?

As a **peer**—not as a
client of some server?



**Sovereign
agent**

UI & Human Experience
(e.g., QR codes, ceremonies, trust marks)

Trust Tasks (e.g., credential exchange, TRQP,
secure messaging, payments/value exchange,
federated social media, AI agents)

Trust Spanning Protocol (TSP)

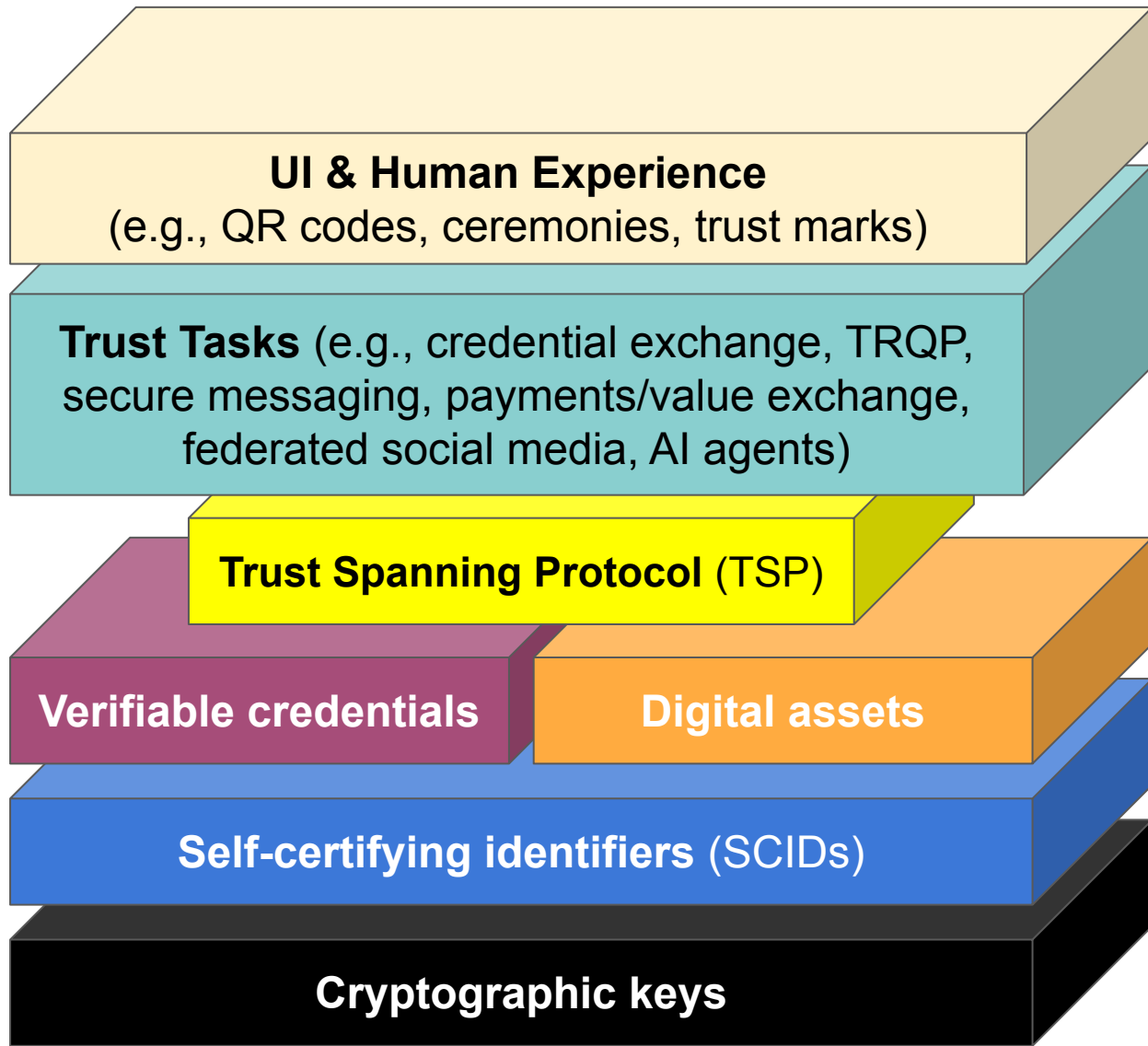
Verifiable credentials

Digital assets

**Sovereign
wallet**

Self-certifying identifiers (SCIDs)

Cryptographic keys





Conclusion

The Internet of Trust

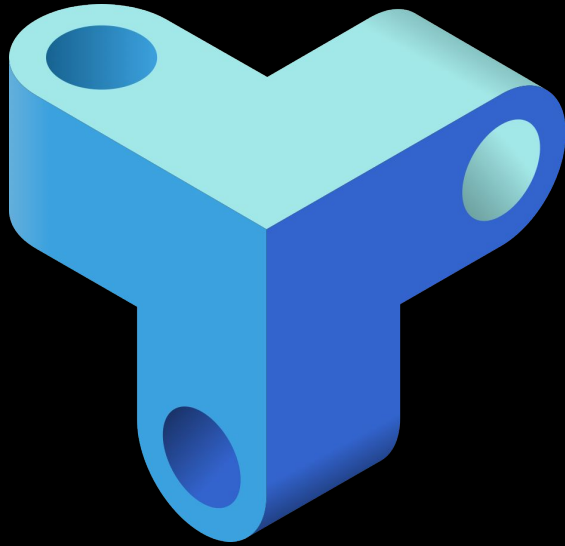
In conclusion, the Human Stack consists of a fully portable sovereign wallet plus a fully portable sovereign agent, both under the full control of the human.

The Human Stack will power
the Internet of Humans.

The Agent Stack will power
the Internet of Agents.

The Internet of Trust =
The Internet of Humans +
the Internet of Agents.

Discuss!



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