Utilizing the Blockchain to Manage Open Source Across the Supply Chain

Featuring:

- Hyperledger Sawtooth Platform
- SParts Project - Software Parts Ledger
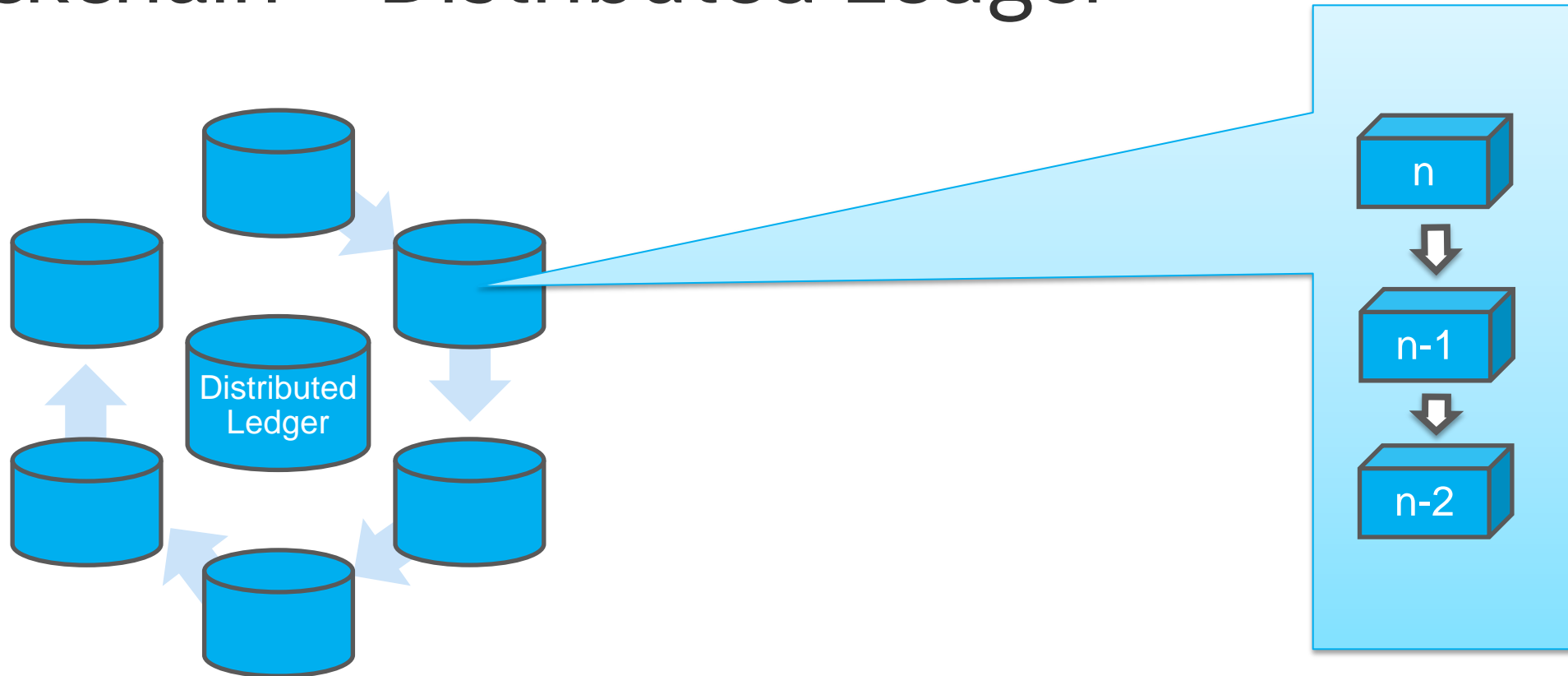
WIND™

AN INTEL COMPANY

The Technology

HYPERLEDGER

- A Linux Foundation open source initiative
- Infrastructural support for blockchain-based distributed ledgers
- Plumbing analogous to Linux processes but for distributed ledgers
- Early Stage (almost 2 year old)
- Support for supply chain ledgers
- Intel's Sawtooth Platform

Blockchain = Distributed Ledger

Each node is an instance of a database (ledger) managed by all participants.

Within each database blocks of transactions are cryptographically chained in order.
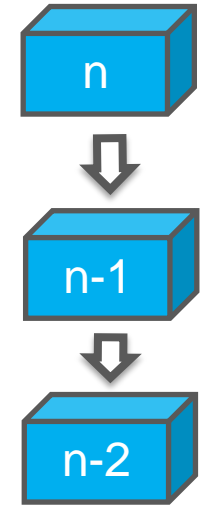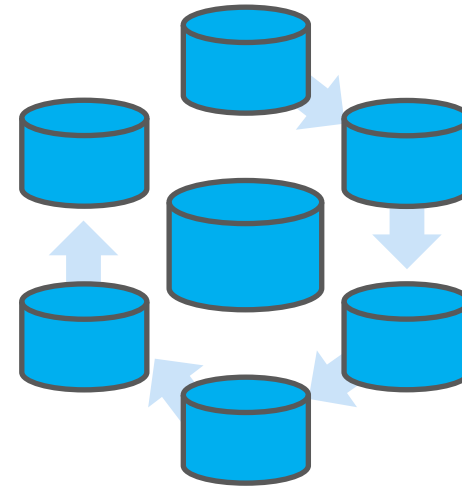
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Why Blockchain

Mutually distrusting organizations update the same database.

Immutable transaction history

High availability
- Crash Fault Tolerant
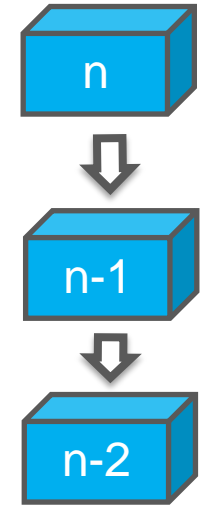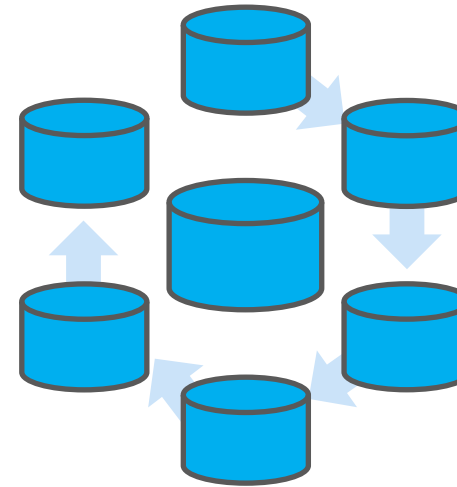- Byzantine Fault Tolerant
- Liveness

Why Not Blockchain

Active Research Areas:

- Throughput
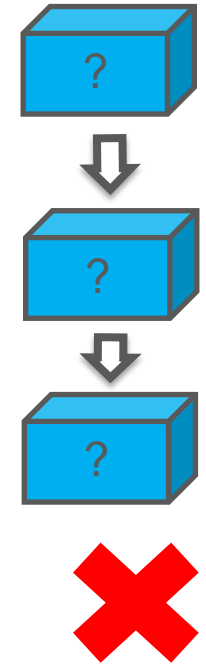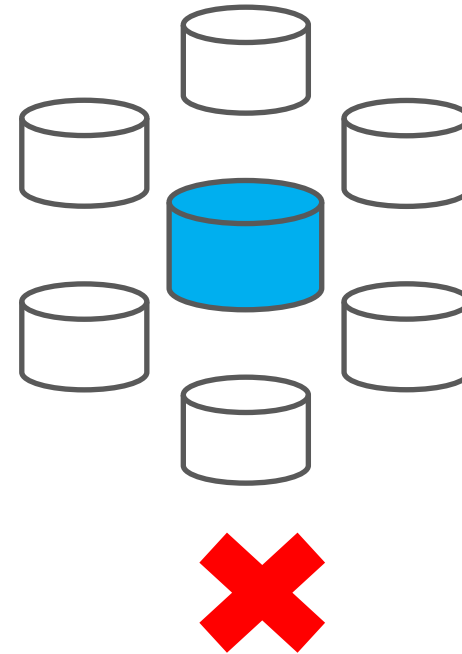- "Private Transactions"

Wrong Usage Model:

- Internal-only Business Process

Today when people talk about blockchain security, they mostly mean availability and integrity guarantees. Confidentiality is open research.
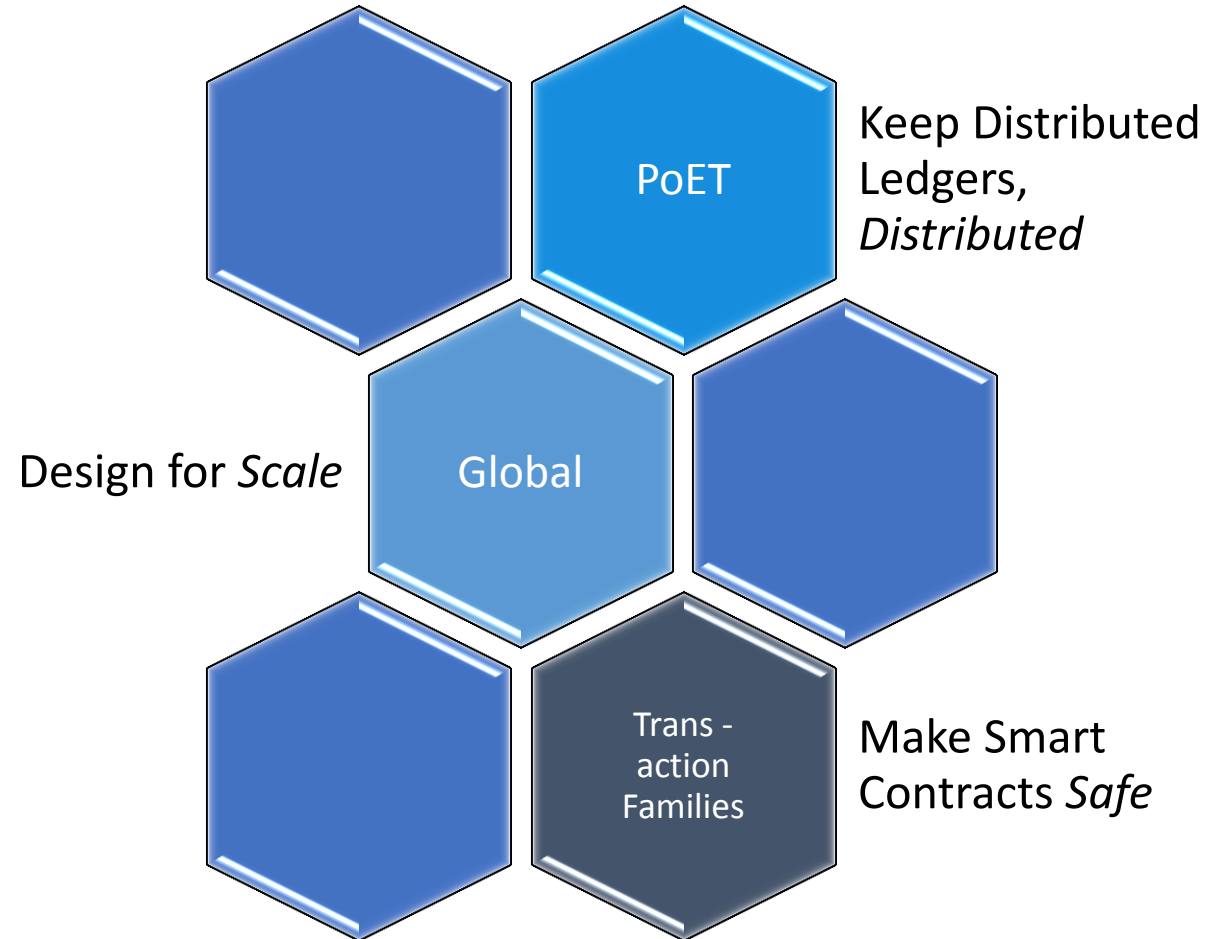
Bad Enterprise Blockchain Shortcuts

- Centralized Architectures

- No Ledger State (database fields)

> A centralized architecture removes the main value of a distributed ledger.
> Committing only transaction receipts turns the database into a log of opaque events.

Why Sawtooth

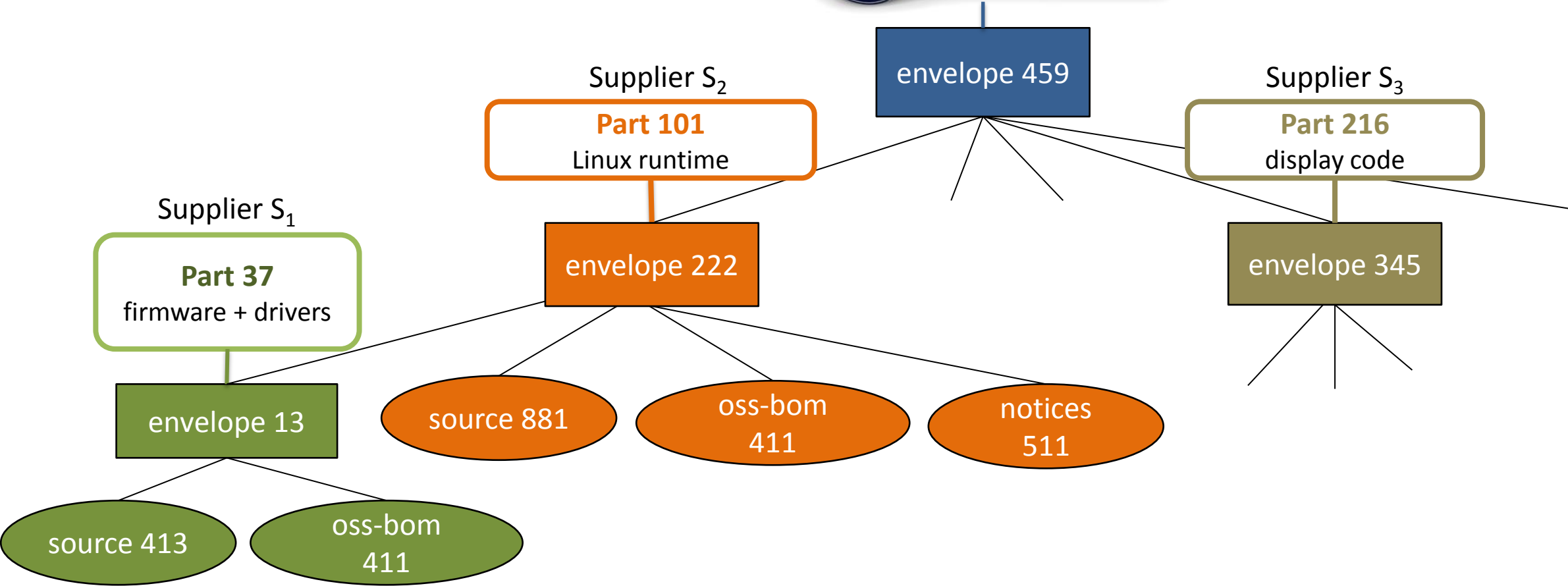- Distributed

- Consensus of Shared State

- Safe Smart Contracts

PoET

Keep Distributed Ledgers, *Distributed*

Design for *Scale*

Global

Trans - action Families

Make Smart Contracts *Safe*

The Solution

Product V

Product V
Part 101
Part 37

Supplier S_2

Part 101
Linux runtime

envelope 459

Supplier S_3

Part 216
display code

Supplier S_1

Part 37
firmware + drivers

envelope 222

envelope 345

envelope 13

source 881

oss-bom
411

notices
511

source 413

oss-bom
411

Software Parts Ledger

112	REPLACE source-881 WITH source-919 IN envelope-222	**Nov 8**	🔒
111	ADD_ARTIFACT notices-824 TO envelope-13	**Nov 5**	🔒
110	ADD_ARTIFACT oss-bom-97 TO envelope-222	**Nov 1**	🔒
109	ADD_ARTIFACT notices-511 TO envelope-222	**Nov 1**	🔒
108	ADD_ARTIFACT source-881 TO envelope-222	**Nov 1**	🔒
107	ADD_ARTIFACT envelope-13 TO envelope-222	**Nov 1**	🔒
106	CREATE_ENVELOPE e-222 FOR part-101	**Oct 30**	🔒
105	CREATE_PART part-101 FOR supplier-S2	**Oct 30**	🔒
104	ADD_ARTIFACT oss-bom-23 TO envelope-13	**Oct 14**	🔒
103	ADD_ARTIFACT source-413 TO envelope-13	**Oct 14**	🔒
102	CREATE_ENVELOPE e-13 FOR part-37	**Oct 12**	🔒
101	CREATE_PART part-37 FOR supplier-S1	**Oct 11**	🔒

Part 101

Part 37

Contact

🌐 https://sawtooth.hyperledger.org

🌐 https://github.com/Wind-River/sparts

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