VINTURAS

"Built by the industry for the industry"

Digitizing & Securing Multi-Modal Supply Chains with Blockchain

HYPERLEDGER FOUNDATION

Business Challenge

Structural lack of interoperability and lack of real-time supply chain traceability

Impact

Real-time sharing of actionable supply chain information and data with all contributors in the network benefitting from the value they generate collectively

PROBLEM

VINTURAS
Interoperable Network

Vinturas connects all systems, functionalities, supply chain nodes and trading partners in the entire ecosystem and shares all Logistics and Technical data and information in a shared, trusted, and controlled manner

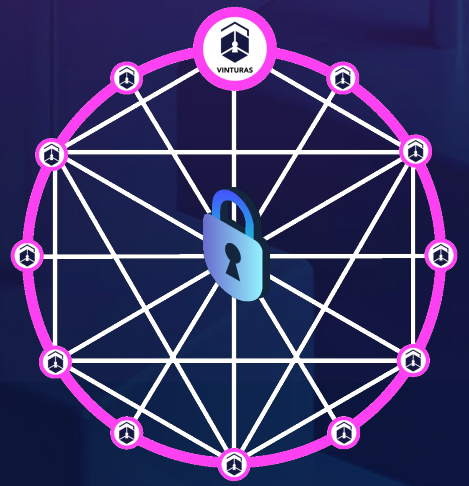
SOLUTION

VINTURAS

PRIVATE BLOCKCHAIN

Vinturas Key Differentiators

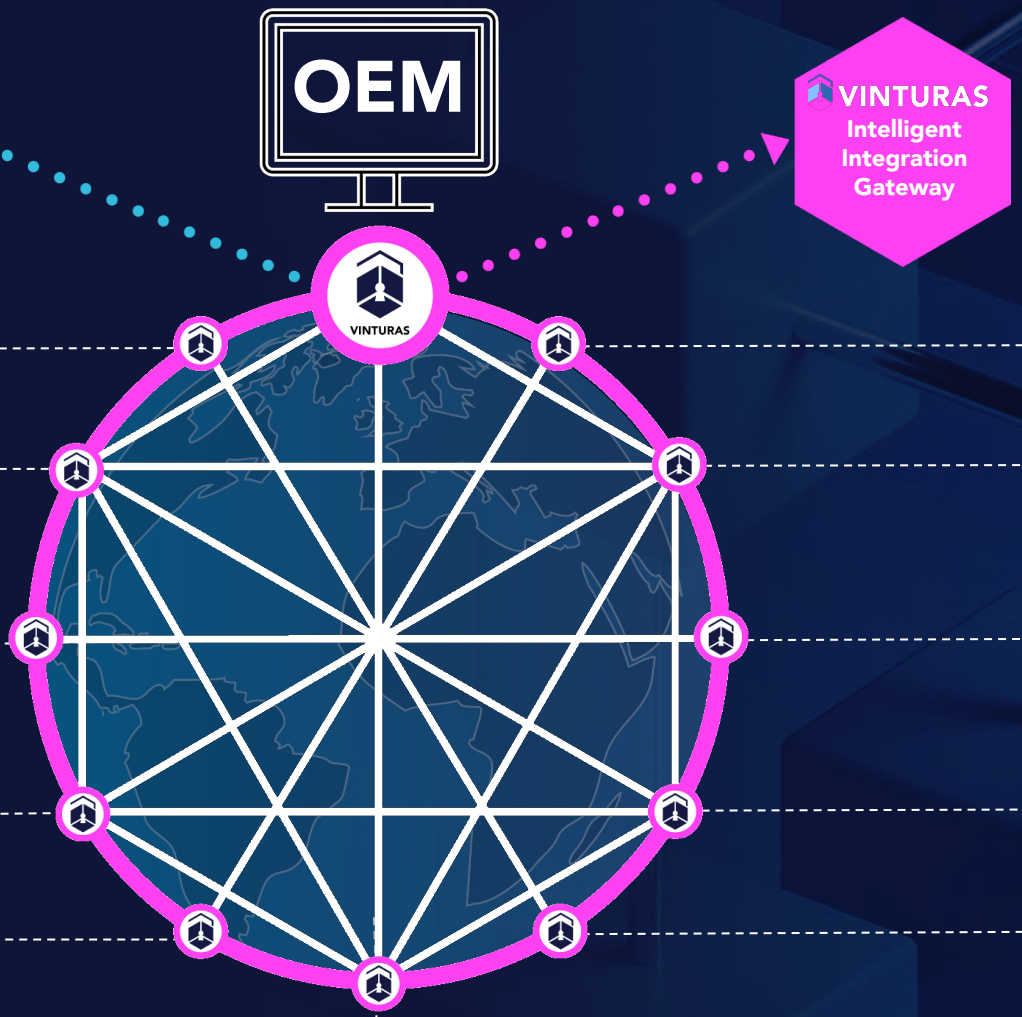
Solution	Traditional TMS & Visibility Platforms	VINTURAS Network Solution
Technology	Centralized	Decentralized
Data Ownership	Data Mining	Owned & Controlled by OEM
Data Sharing	Point-to-Point	Point-to-Any
Security	Standard	Encrypted



VINTURAS

PRIVATE BLOCKCHAIN

Vinturas End-to-End Value Stream Interoperability



Telemetry & IoT Devices

Sustainability & Industry Standards

AIAG

Claims & Insurance Handlers

Customs Brokers

Container Terminals / Ground Handling

Other OEM Entities/Countries

OEM Component Suppliers

OEM Assembly Plants

Logistics Service Providers

Ocean Lines, Barge Lines,
Airlines,Rail Operators, Motor Carriers

Other OEM or 3rd party application providers
(e.g. ERP, CRM, TMS, WMS)

VINTURAS

PRIVATE BLOCKCHAIN

Why Vinturas Chose Hyperledger Fabric

What Logistics Data Looks Like

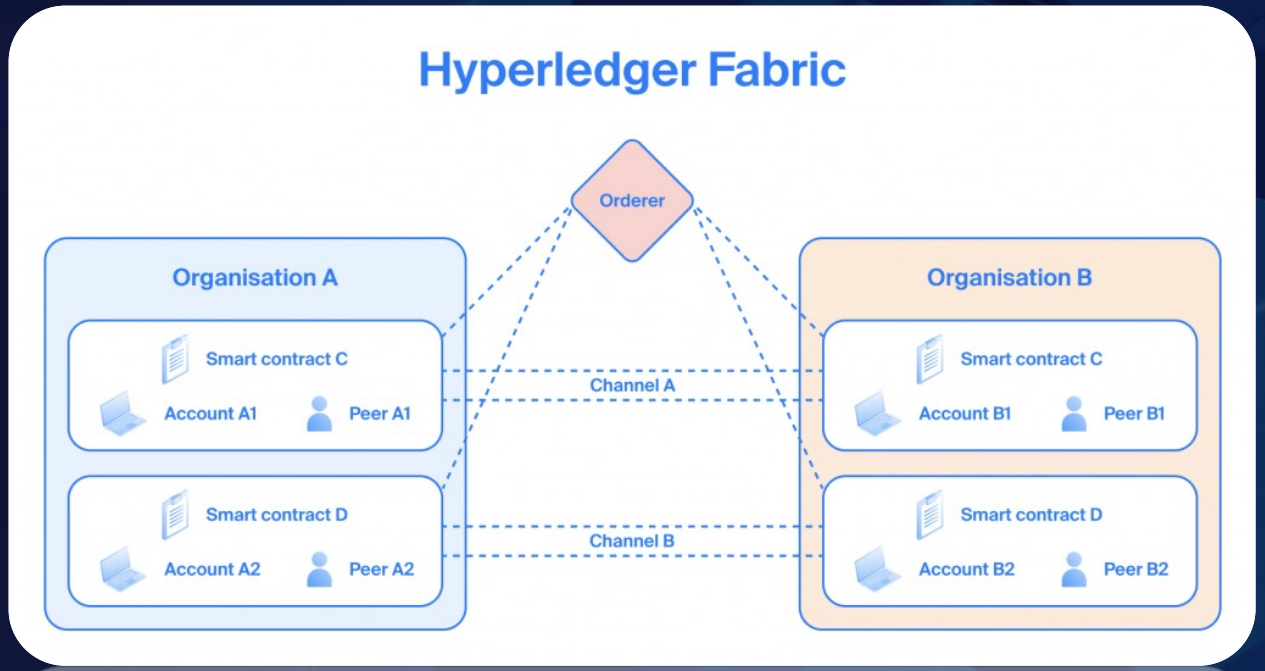
- Long chains of events that involve multiple parties, many of whom are competitors.

What We Needed

- To create a data sharing environment that allowed confidentiality while still being verified and decentralised.
- Any solution that requires all nodes to verify every transaction AND maintain the chain are slow and hard to scale and can't accommodate private bi-lateral contracts.

Why Hyperledger Fabric

- Open-source framework, enterprise grade & widely adopted (now!) We were early adopters in 2017!
- Flexible operational cost-structure.
- Allows for innovation (so we could develop multi-lateral contracts & data confidentiality within network.)
- Modular and scalable.



VINTURAS

PRIVATE BLOCKCHAIN

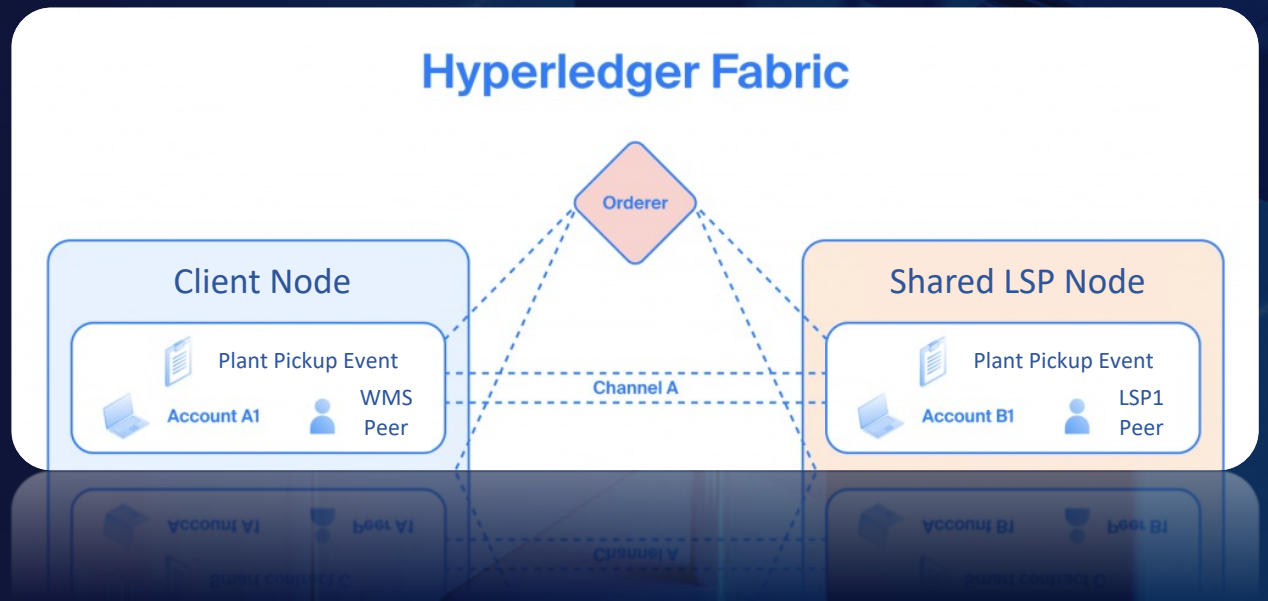
So How Does That Look in Reality?

Who Sees What?

- We created a network of networks, with cross-channel communication.
- We encrypt transactions using hybrid encryption so the ledger itself is encrypted.
- Keys are shared to the parties according to data dissemination policies also using public/private a key mechanism.

Data Security

- Public key and private keys separate data visibility even within shared nodes.
- Encrypt the asset with asset key → encrypt the asset key with public key(hole). A peer needs a private key to unencrypt the asset key and use the asset key to decrypt the transaction.
- No sharing of keys outside the network.



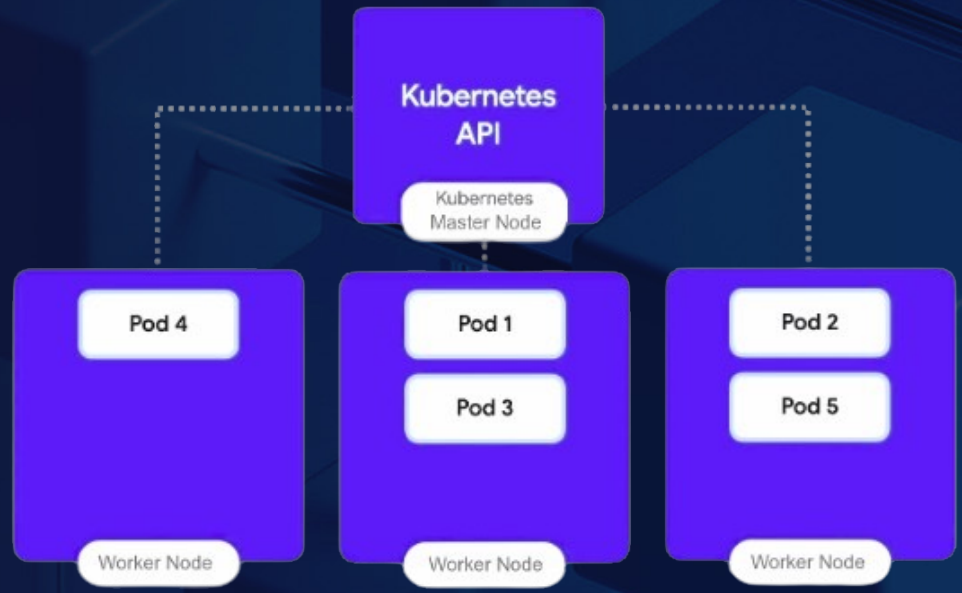
How Do We Make It Scalable?

How do we manage computing power?

- We have broken everything down into micro-services
- Kubernetes infrastructure to build resilience and scalability into our networks
- Periodic snapshots of the blockchain for backup & restore.
- Zero downtime as Kubernetes updates apps as it runs multiple instances (replicas) and can roll changes out across them incrementally.
- We have multi-zone, multi-region implementation for international clients.

How do we manage documentation?

- PDFs/Binaries/Images are not stored in the blockchain.
- Encrypted hash of location is stored, any party with the asset key for that transaction can download on demand.
- Each document has a cryptographic token signature.



How we fix logistics chains

Every party in the logistics chain relies on data for planning business operations.

Reliable ETAs are needed to keep waiting customers satisfied.

In addition…

Logistics data is sensitive and currently highly vulnerable.

VINTURAS

Poor data sharing and security

Business Costs

- Customers walking away
- Time spent on calls with frustrated partners
- Last minute discovery of issues and repair/bodyshop overload
- Operations team in permanent crisis mode
- Risk of increased cargo crime

Financial Costs

- Financing cost of vehicle down time
- Trucks/railhead running half-full loads
- LSPs billing for waiting times
- Unable to maximize ROI on land through capacity inefficiency
- Insurance cost related to cargo crime

This is logistics, things go wrong.

But when they do VINTURAS can help:

1. Prevent Trading Partner and Customer frustration through automatic real-time updates for all parties in the logistics chain in a hyper secure data sharing environment.

2. Get back on schedule through automated early warning and proactive planning.

VINTURAS

PRIVATE BLOCKCHAIN

Example: A 'Tale of Two Containers'

Container 1

Waybill
Gate Out

Pickup
BOL
Location Pings

Gate In
Inspection
Staged
Gate Out

Loading
Manifest/BOL
GPS
Vessel/Emissions Data

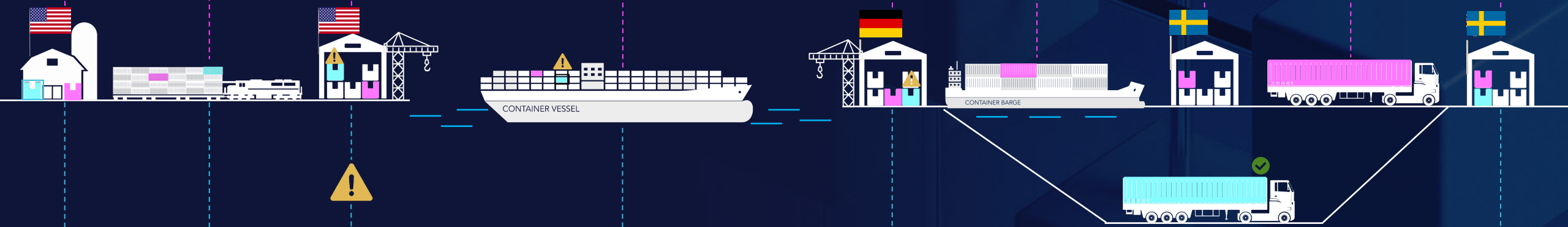
Gate In
Inspection
Staged for Barge
Gate Out

Loading
Manifest/BOL
GPS

Gate In
Inspection
Staging
Gate Out

Pickup Photos
BOL
GPS

Gate In
Inspection



Container 2

Waybill
Gate Out

Pickup
BOL
Location Pings

Gate In
Inspection
Damage Report
Damage Photos
Instant Claim File
Staged
Gate Out

Loading
Manifest/BOL
GPS
Vessel/Emissions Data

Gate In
Consignee Notified
New Transshipment Plan
Staged for Urgent Truck
Gate Out

Urgent Pickup Booked
Pickup Photos
BOL
GPS

Gate In
Inspection

PRIVATE BLOCKCHAIN

How Vinturas Makes a Difference

1. Accurate Data

- Single source of truth for all logistics data.
- Immutable, unfalsifiable, perfect record of data with timestamps.
- Real-time automatic updates for all relevant parties in your value chain.
- Adjust logistics lanes at the click of a button.

2. Secure Data

- Need-to-know basis data sharing.
- Secure data sharing environment for all parties.
- Double encryption prevents hacks so you have resilience in your logistics network.
- Network effect means no data bottlenecks or single points of reliance.

Why Vinturas Makes Sense

Immediate ROI

Vinturas has been shown to save $-$$ per shipment

1

Parallel System

No need to overhaul existing systems, Vinturas solution works in parallel with your infrastructure

2

No Extra Resources Required

You only need to set up a single instance Rest API and give Vinturas an LoA, we do the rest.

3

Rapid Implementation

Vinturas has resources ready to complete implementation in ~4-6 months

4

VINTURAS

PRIVATE BLOCKCHAIN

VINTURAS

Your Supply Chain's Missing Piece

PRIVATE BLOCKCHAIN