Mastercard Provenance Solution

Leveraging Mastercard’s secure Blockchain with traceability capabilities and value-added services to achieve transparency and gain efficiencies in complex supply chains
Liability with no visibility

Greater complexity and a lack of visibility across modern supply chains have made it increasingly challenging for brands to protect their reputations and uphold quality and authenticity standards.
Mastercard Provenance Solution delivers end-to-end visibility

Using our global, blockchain-based solution to deliver **real-time traceability**, parties can bridge the gap between data silos and make business decisions based on a shared record that drives **visibility** and **accountability** between supply chain participants.

With this transparency, brands will be empowered to gain efficiencies in their businesses, such as enabling **automatic payments** between parties, improving **reconciliation times** and reducing disputes.
Industry agnostic and applicable to many use cases

Mastercard's Provenance Solution works across industries and businesses of all sizes to bring greater visibility to a product's journey.

Greater transparency builds trust between parties, driving supply chain efficiencies, streamlining processes, and increasing overall resiliency.

Platform may be used to address many different industry use cases, for example:
Mastercard Blockchain | Design Principles
Interoperable, resilient, scalable and secure.

**Performance**
Proven to process +20k events per second (TPS)

**Scalability**
The consensus mechanism brings commercial processing speed and extensibility to the Blockchain

**Privacy & Permission**
Event between two participants remain confidential, through the private peer-to-peer value back-channel.

**Flexibility**
A platform capable of running multiple applications

**Safety & Security**
Compatible with Mastercard’s existing security infrastructure

**Mastercard Assets**
Combined with Mastercard capabilities to create unique value, e.g., AI, insights, counterfeit programs
How It Works

BUILD YOUR SUPPLY CHAIN FROM MULTIPLE DATA STREAMS

- **ORGANIZATIONS**
  Data about companies and their products and locations

- **SUPPLY CHAIN EVENTS**
  Events happening to items as they move through the supply chain

- **IOT SENSOR DATA**
  Data from IoT sensors such as temperature, geolocation, humidity, etc.

- **DOCUMENTS**
  Key data about documents throughout their lifecycle

- **PAYMENT TRANSACTIONS**
  Data about payment transactions between supply chain parties

THEN LEVERAGE TOOLS TO PROCESS DATA TO AUTOMATE & OPTIMIZE SUPPLY CHAINS

- **SMART LOGIC & TRIGGERS**
  Use tools like smart contracts to build self-executing conditional logic to automate workflows, such as payments

- **NOTIFICATIONS**
  Leverage webhooks to connect and automate workflows

- **AI/ANALYTICS**
  Identify actionable insights. Advanced techniques like AI or machine learning can also help flag anomalies

- **MASTERCARD PORTFOLIO**
  Leverage integrations to existing products & services in Mastercard’s portfolio such as payments, analytics, etc.

Provenance Solution

Blockchain
**Technical Solution Architecture**

- ERP Systems
- TMS Systems
- On-boarding
- Other Systems with Source Data

**Partner's Application**

**Mastercard Provenance Solution**

- SDK
- REST APIs
- Batch APIs

**Microservices**

- Notification Service
- Business Event Service
- Smart Contract Service
- IoT Events Service
- eDocuments Service
- Payment Service
- Integrations Service

**Blockchain**

- Blockchain Consensus Node
- Audit Nodes
- Smart Contracts
- Digital Assets

**Systems Integrations**

- Mastercard Payment Solutions

**SIMPLE INTEGRATION**

Integration is made easy through an out-of-box solution which includes SDK and REST APIs. Also includes hands-on support team to identify and address any gaps in out-of-box solution.

**MODULAR**

Easily add or remove usage of features to cater to different use cases.

**MANAGES BLOCKCHAIN COMPLEXITY**

Manages the complexity of blockchain so you can focus on solving for your use case and scaling your solution instead of building and maintaining infrastructure.
Provenance Live Cases: Intel IOT Sensors

Continuous, Cloud-Based, Multiparty Visibility
POWER TO FOCUS ON EXCEPTIONS

Damage Data
SOP-Compliant & Digital Payments Enabled

ICLP - SUPPLY CHAIN ORCHESTRATION - WEB CONNECT - APIs

CONTINUOUS MONITORING

Origin
Intermediate Points
Destination

Producer Provenance Data
End User Provenance Data

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Provenance Live Cases: Seafood Traceability from Ocean to Grocery Stores

Partnered with Envisible’s food system, the solution is distributed through Topco, a coop of over 50 regional grocers that in aggregate form the second largest grocery network in the US.

Topco and Envisible traceability program starts with seafood.
Provenance Live Cases: Dry Commodity Traceability in Agriculture

Mastercard partnered with GrainChain to bring authenticity to supply chains, tracing more than 24 commodities, such as coffee, sorghum and grain, in Latin America and North America.

Using Mastercard’s award-winning proprietary and industry-agnostic blockchain technology, Mastercard and GrainChain together are creating digital records of commodity data, building trust and leveling the playing field across supply chains.
Provenance Live Cases: Avocado Traceability

Mastercard partnered with Fresh Supply Co., a supply chain digitization company based in Australia, to deliver end-to-end visibility of the journey of avocados from Australia to Southeast Asia. Consumers were able to trace each step of the product journey.
Additional Provenance Links & Videos

• Videos:
  o Mastercard Provenance Solution
  o Payment Trigger Video

• Articles
  o Hungry for information: How blockchain can build trust in food supply chains
  o Growing Demand for Transparency: Mastercard and GrainChain Give Producers Visibility into Commodity Supply Chains
  o Tracing shrimp to the source using blockchain
  o Mastercard Blockchain to Bring Visibility to Food Systems
  o Mastercard Enables Luxury Shoppers To Purchase With Confidence
Provenance

Driving supply chain insights.
Building a global network of trust.