Co-brand & Travel Rewards Sponsors

![Co-brand & Travel Rewards Sponsors Logos](image-url)
How Uplift can help your business

**Conversion lift**

With a convenient, pay-over-time payment option available at checkout, customers are more likely to book right away to lock-in perfect itineraries and attractive prices.

**Cart size increase**

When purchased using fixed monthly payments, trip add-ons and upgrades become much more affordable, increasing both take rates and average cart sizes.

**Immediate payment**

When a customer books travel on your site through Uplift, the total trip cost is immediately remitted via a secure, one-time-use virtual payment card.

[Request a Demo]
How Uplift can help your business

Zero payment risk
You'll never experience any payment, chargeback, or fraud risk from the moment a trip is booked on your site through Uplift.

Worry-free servicing
Our turnkey, fully integrated payment solution, intuitive borrower tools, and dedicated customer support team ensure that your staff can spend their valuable time focusing on travel, not financing.

Request a Demo
Smart Contracts 101:
Peer to Peer Ecosystems for the Travel & Hospitality Industry

Noah Marconi, CTO, TagInnovation.io
Co-brand & Travel Rewards Conference, Wilmington, June 2019
12+ year research and software development background with companies such as Vision Critical, LoyaltyOne, Blockable, and Tag Innovation.

Co-designed and developed George Brown College’s Blockchain Development Program. The first of its kind in Canada.

Numerous blockchain pilots and mainnet deployments.

Speaker at industry events, including Deloitte’s CryptoCamp & Crypto Chicks Hackathon Toronto 2019.
Outline

What are blockchain based smart contracts?

When are they appropriate?

How can we apply them?
Blockchain
Updatable Ledgers

Noah: 10
Morgan: 20
Updatable Ledgers

Transaction
Send 5 from Morgan to Noah

Noah: 10
Morgan: 20
Updatable Ledgers

Transaction
Send 5 from Morgan to Noah

Noah: 10
Morgan: 20

Noah: 15
Morgan: 15
Updatable Ledgers A Regular Database

Transaction
Send 5 from Morgan to Noah

Noah: 10
Morgan: 20

Noah: 15
Morgan: 15
Ledger of Record

Retail Partners

Noah: 10
Morgan: 20
Ledger of Record

Retail Partners

Transaction #1
Burn 5 from Morgan

Transaction #2
Issue 5 to Noah

Noah: 10
Morgan: 20
Ledger of Record

Transaction #1
Burn 5 from Morgan

Transaction #2
Issue 5 to Noah

Noah: 15
Morgan: 20

Noah: 15
Morgan: 15

Update Ledger
easy
So why rock the boat?
Peer to Peer (e.g. Bitcoin)
Peer to Peer (e.g. Bitcoin)

Network

Blocks

Transactions

Ledger

- **Transaction**
  - Send 5 from Morgan to Noah
- **Transaction**
  - Send 10 from Noah to Madeleine

**Noah**
- 10
- 5

**Morgan**
- 20
- 15

**Madeleine**
- 10
- 15
Ordering Matters

Co-brand and Travel Rewards Conference, 2019, #Cobrand
Chain of Blocks (it’s in the name)
What this means

Network participants all have a copy of current information

History is preserved

Anyone can propose an update to the ledger
What this means

Network participants all have a copy of current information

History is preserved

Anyone can propose an update to the ledger

How do we know the updates are valid?
Smart Contracts
State Transition Functions
State Transition Functions

- Previous State
- Transaction data
- Smart Contract
- New State
State Transition Functions

Previous State

Transaction data

Confirm permissions, Verify balances, Restrict by date, and more.

New State
State Transition Functions

Previous State + Transaction data → Arbitrary code → New State
Reward & Co-pay

4.0. Loyalty Scenarios

This section examines three possible blockchain or distributed ledger scenarios for a loyalty operator. Each scenario examines the potential for value creation for the following use cases:

**Use Case 1: Identity Authentication**
Associating a user’s identity with a system role and related privileges

**Use Case 2: Accounting Reconciliation**
Viewing historical data in the system for financial and performance reporting

**Use Case 3: Data Governance and Control**
Restricting the ability to read, write and delete system data to certain users

**Use Case 4: Currency Conversion**
How a unit of value in the operator’s system can be converted into a unit of value in a separate system

**Use Case 5: Currency Collection**
How a unit of value in the Operator’s system is correlated with the system’s future growth and can be liquidated or otherwise withdrawn later

**Use Case 6: Security and Fraud Prevention**
Ensuring system data cannot be compromised via alteration or theft and the network can’t be interrupted by bad actors

Linking Loyalty: Blockchain Principles and Loyalty Potential - LoyaltyOne
Mastercard Blockchain

Mastercard Blockchain creates new commerce opportunities for the digital transfer of value. Mastercard Blockchain APIs are experimental and available for selected testing with partners.

Features

By providing a permissioned platform to our network of developers and partners, our Blockchain platform delivers:

Privacy
The platform prioritizes the privacy of all participants on a Blockchain. Only direct partners will have insight into their specific transactions.

Ease of use
Allows integration of the benefits of Blockchain into applications without the overhead of setting up a local node.

Flexibility
Provides samples to get you started quickly, and provide a framework to help you design your application protocol.
Sharing Select Facts

ALICE = { 1 7 }
BOB = { 1 7 6 5 }
CARL = { 9 4 6 5 2 3 }
ED = { 9 4 8 3 }
DEMI = { 2 3 8 }

Numbered circles represent unique shared facts
# Need-to-Know Transaction Chains

<table>
<thead>
<tr>
<th>Noah’s Ledger</th>
<th>Morgan’s Ledger</th>
<th>Madeleine’s Ledger</th>
</tr>
</thead>
<tbody>
<tr>
<td>Points: 10</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Owned by: Noah</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Need-to-Know Transaction Chains

Noah’s Ledger

Points: 10
Owned by: Noah

Morgan’s Ledger

Points: 10
Owned by: Morgan

Madeleine’s Ledger

Points: 10
Owned by: Morgan

Transaction
Send 10 from
Noah to
Morgan
Need-to-Know Transaction Chains

<table>
<thead>
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<td>Morgan</td>
<td>Madeleine</td>
</tr>
</tbody>
</table>

Transaction
Send 10 from Noah to Morgan

Transaction
Send 10 from Morgan to Madeleine
History

Noah’s Ledger
Points: 10
Owned by: Noah

Morgan’s Ledger
Points: 10
Owned by: Morgan

Madeleine’s Ledger
Points: 10
Owned by: Madeleine
Benefits and Application
Might be useful if you require...

1. Censorship Resistance
2. Trustlessness
3. Reconciliation
4. Non-repudiation
5. Auditability
Reconciliation
Reconciliation

Reward Ledger of Record
Reconciliation
Reconciliation
Non-repudiation

Diagram:

- **Tx Block**
- **Transactions**
- **Fingerprint**
Non-repudiation

Permanent record of **who** said **what** and **when** they said it.
Non-repudiation

Permanent record of who said what and when they said it.

Tamper-evident paper trail.
Auditability

The days of sample based substantive testing will soon be challenged,

Deloitte.

Partnerships

This technology facilitates tightly coupled partnerships.

When being “on the same page” matters.
Partnerships

“Traditionally, Partnership models tend to be a collection of earn-and-burn mechanics: the ability to earn faster, earn in more places, and receive discounts at partners. However, with earn-and-burn elements comprising just one-quarter of what drives overall Member Satisfaction and three quarters related to the experience, there is more potential to unlock.

Loyalty partners should take advantage of experience-based components such as a more personalized experience, reciprocal status with each brand, and a better customer experience to drive appeal upwards even further.”

- The Loyalty Report 2019, by Bond Brand Loyalty
Thank you for your time today

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