Introduction to Blockchain and Airport Operations in a COVID-19 Environment

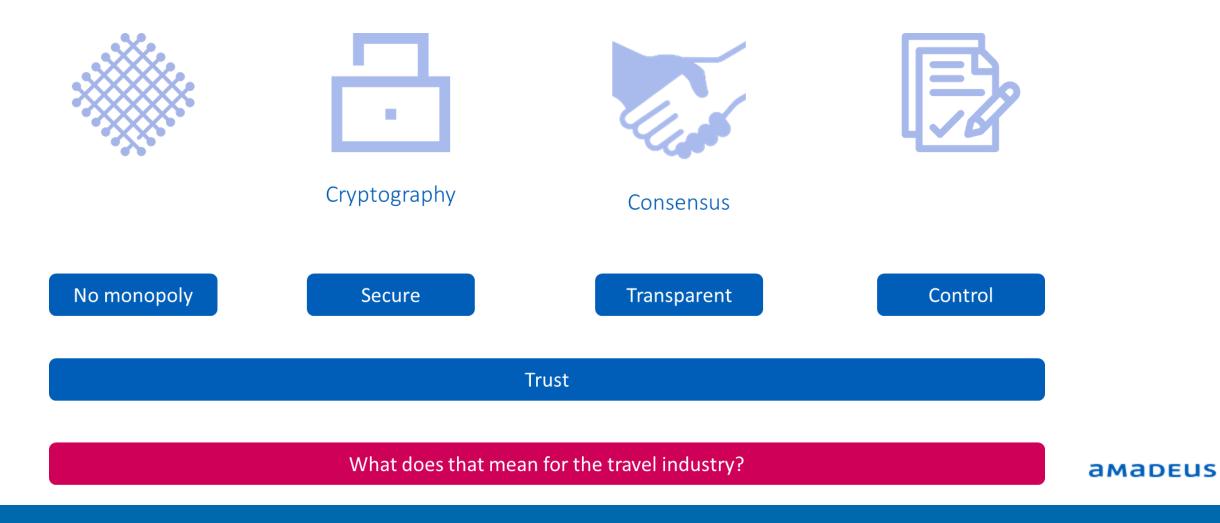
Amadeus Blockchain Technical Experimentation

August 4, 2020





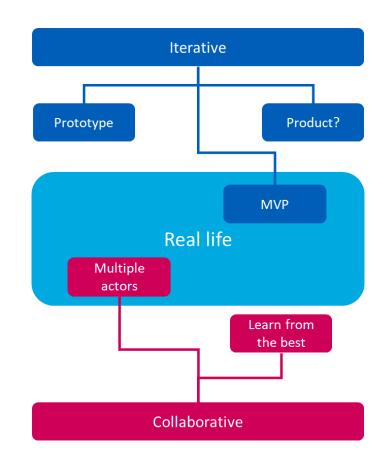
Emerging Blockchain technology raises questions to the travel industry





The bag messages use case to explore Blockchain technology

Explore Blockchain Technical questions Operational cost Our objectives Multiple actors Private vs public Permissioned / permission-less Asset tracking B**₫**gchain ^{Loyalty} Settlement Cost of inefficiency of legacy Centralized actors/ monopoly Manual processes **Address industry** pain points





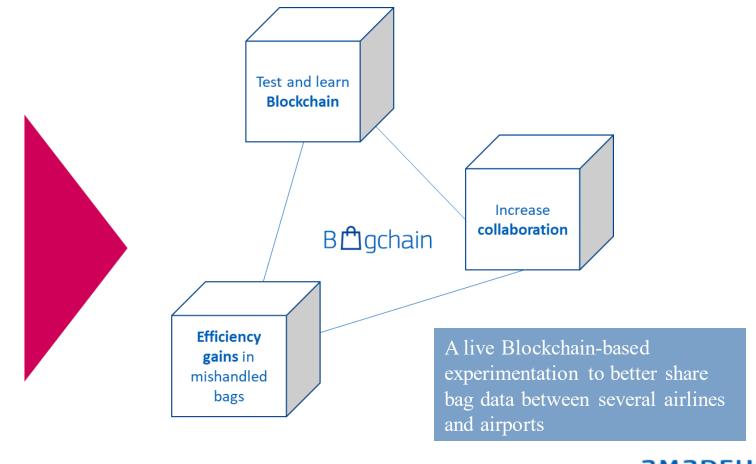
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Favorable conditions for a technological experimentation

Airlines and airports share a need for better bag data sharing

IATA New resolution 753 mandates airlines to improve their bag trackability

Blockchain promises







What a technical experimentation means

Define Objectives

Select Technology Develop Prototype Test and Measure

Evaluate and Decide

Objectives

- Define use case with customers
- Measure performances and costs

KPIs

- Throughput
- Scalability
- Bandwidth
- Installation and running costs

AIRFRANCE / 🖗



Experienced blockchain experts

Capgemini

accenture

Delivered

- Architecture
- Framework
- Support
- Community
- Scalability



Amadeus+ customers + external consulting

Capgemini

Delivered

- Exchange and message storage platform
- Ready-to-install solution
- Monitoring tools
- Environment test

Phase 0

- Amadeus host airline nodes
- Simulated bag messages

Phase 1

- Airlines host nodes
- Simulated bag messages

Phase 2

- Airlines host nodes
- Bag messages from airline systems

Continue

- Benefits and limitations of blockchain
- Fit with bag tracking use case?
- Inspiration for other use cases
- Next steps of the project

Pivot

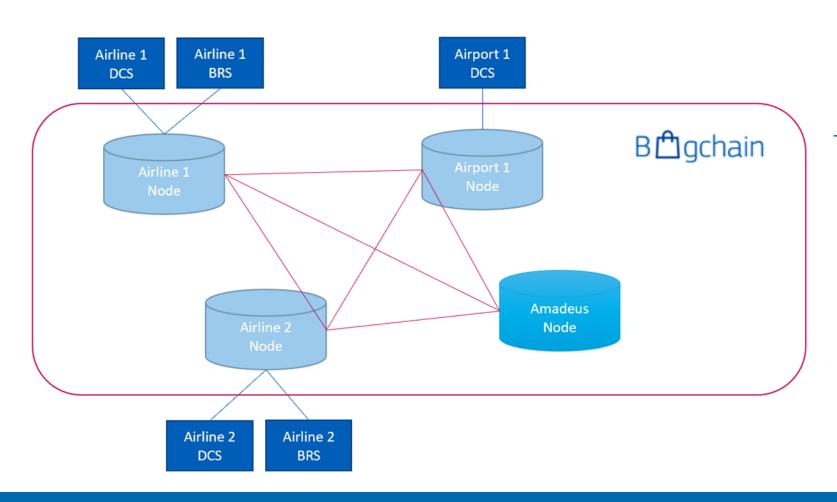
Stop

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Bagchain network and test objectives



Tests of the experimentation

- Functional tests
- Storage (size of the ledger)
- Network (impact of nodes)
- Performances (throughput)





Technical key learnings

Hyperledger Fabric is not very easy to use (Documentation, community, support is limited.)

Time to setup the test-network from scratch is huge (30-45 minutes for AWS + 30-45 minutes (per node) + 60-70 minutes for simulator setup + \sim 90 minutes per performance measurement test)

Storage scalability is not a big issue, as long as data is not being stored onchain. Network bandwidth requirements are shared across participants, instead of one system requiring full bandwidth

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Key desirability and feasibility insights

