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

- Cryptography
- Consensus
- No monopoly
- Secure
- Transparent
- Control
- Trust

What does that mean for the travel industry?
The bag messages use case to explore Blockchain technology

Our objectives
- Explore Blockchain
- Technical questions
- Multiple actors
- Private vs public
- Asset tracking
- Loyalty
- Settlement
- Customer experience
- Cost of inefficiency of legacy
- Centralized actors'/monopoly
- Manual processes
- Address industry pain points

Our approach
- Iterative
  - Prototype
  - Product?
- Real life
  - MVP
  - Multiple actors
  - Learn from the best
  - Collaborative
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

Test and learn Blockchain

Increase collaboration

Efficiency gains in mishandled bags

A live Blockchain-based experimentation to better share bag data between several airlines and airports
What a technical experimentation means

**Objectives**
- Define use case with customers
- Measure performances and costs

**KPIs**
- Throughput
- Scalability
- Bandwidth
- Installation and running costs

**Delivered**
- Architecture
- Framework
- Support
- Community
- Scalability

**Amadeus+ customers + external consulting**

**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**
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 + ~90 minutes per performance measurement test)

- **Storage scalability is not a big issue**, as long as data is not being stored on-chain. **Network bandwidth requirements are shared across participants, instead of one system requiring full bandwidth.**
Key desirability and feasibility insights

- **Customers rely on technology providers to develop blockchain solutions**
- **Blockchain technology progressing fast but not enterprise ready**
- **Customers love decentralization**
- **Blockchain can be GDPR compliant**
- **Potential for an airline-airport data sharing platform**
- **Participant scaling is key**