

# Machine Learning for Airline Pricing Use Case in HPC and Cloud Infrastructures

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## Process project

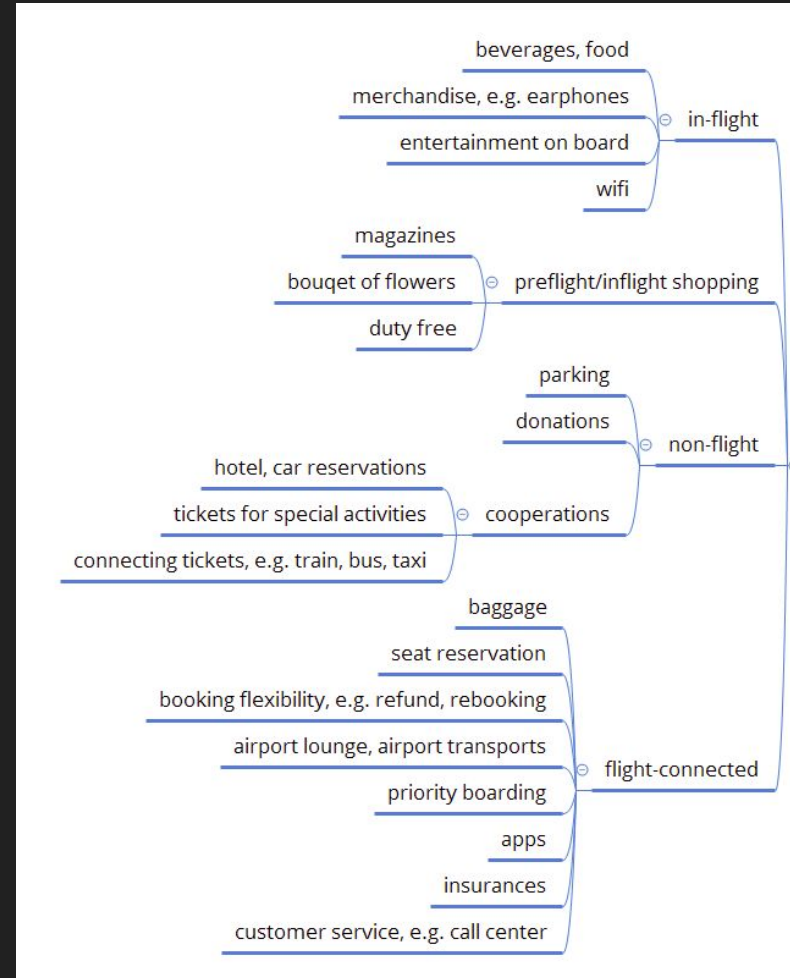
- Collaborative research and innovation programme under the EU Horizon 2020 Programme
- PROviding Computing solutions for ExaScale challengeS

The logo for the PROCESS project. The word "PROCESS" is written in a bold, dark blue, sans-serif font. The letter "O" is replaced by a dark blue gear icon with a white center.

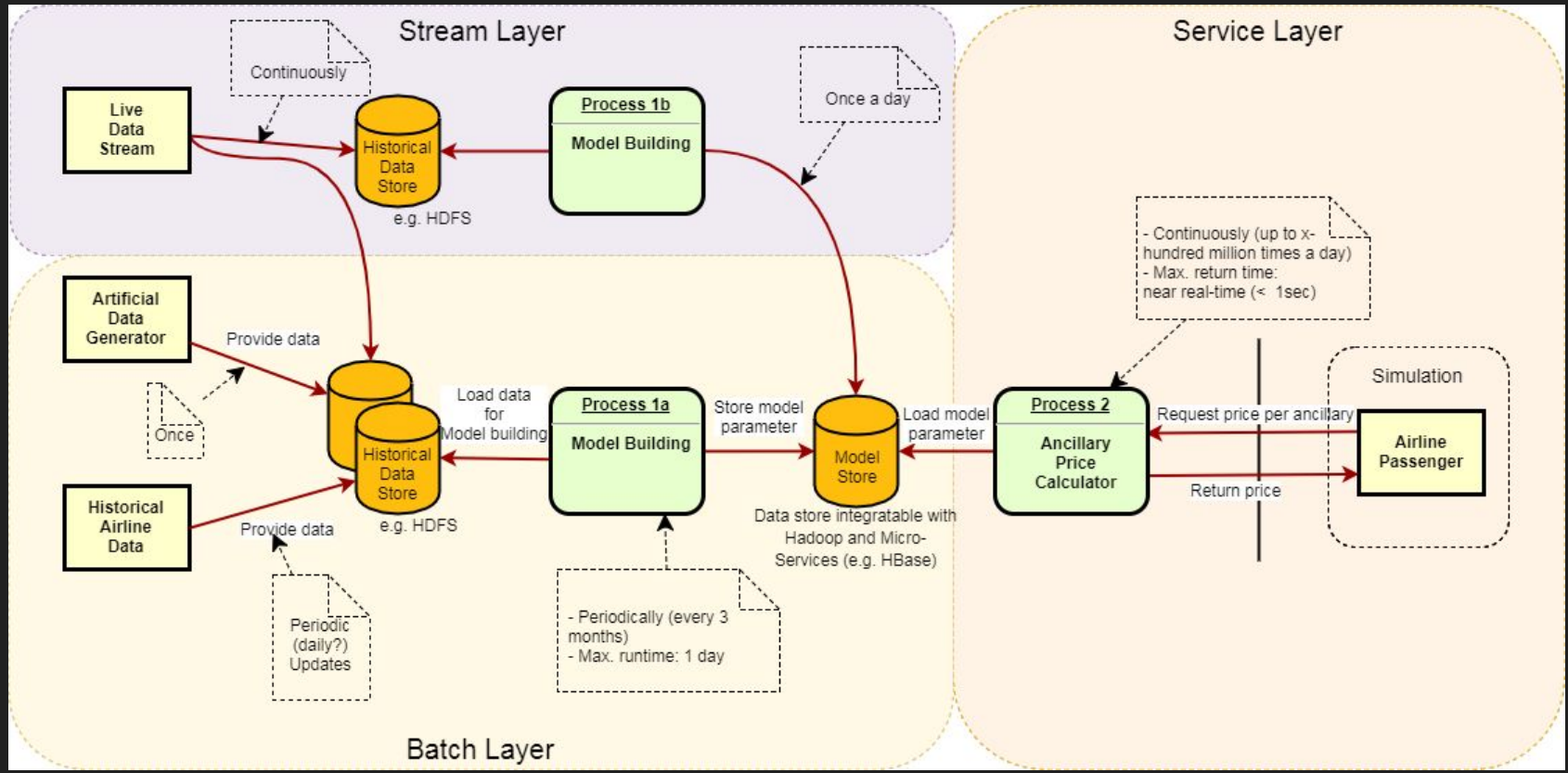
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# Use Case - Ancillary Pricing

- Ancillary pricing in airline industry
- Current status
- Desired solution



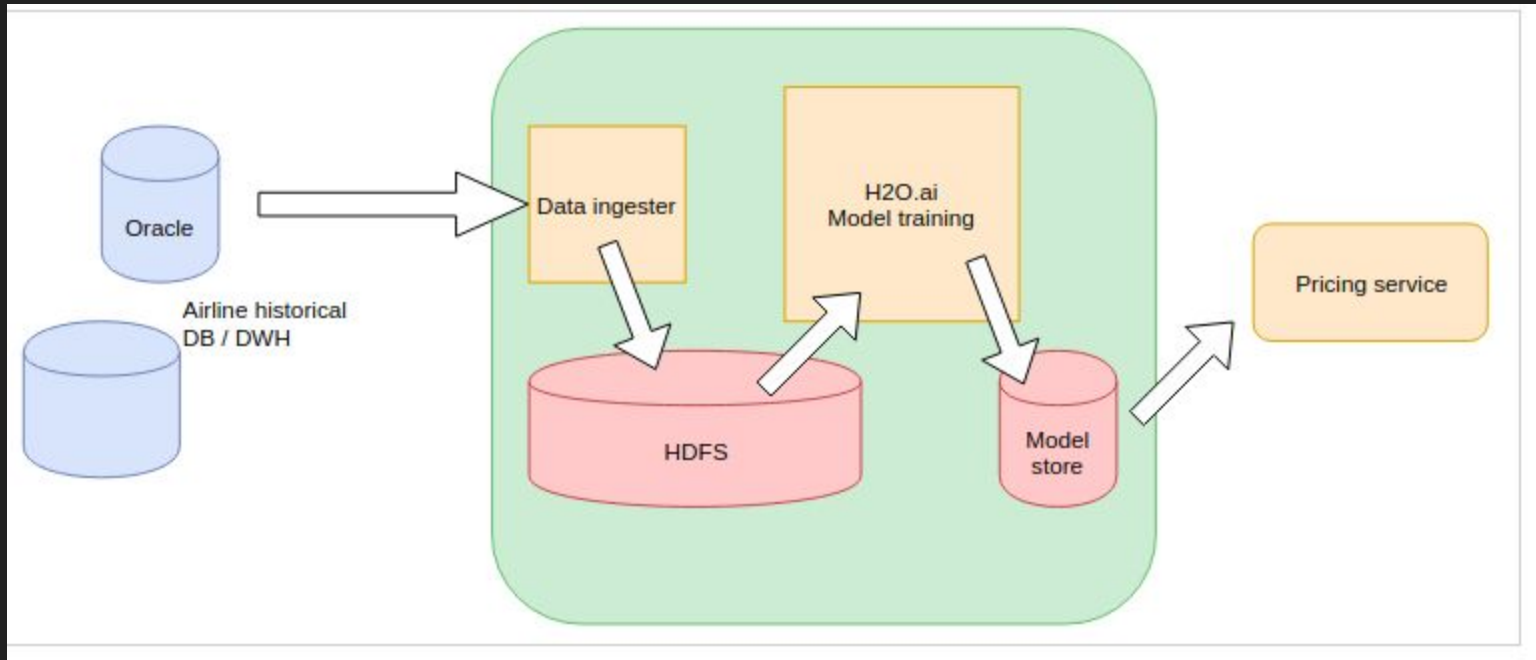
# Architecture



## Steps

- Prepare a model and generate data for start
- Get historical bookings
- Integrate with Process architecture
- Implement machine learning algorithms (random decision forest) to derive a probability that a customer is going to book first bag
- Test algorithms on real customers

# Architecture



## Process environment #1

- Cloud maintained by Institute of Informatics, Slovak Academy of Sciences in Bratislava.
- Docker containers
- H2O optional with Spark

## Process environment #2

- Prometheus, a High-Performance Computing cluster at the Academic Computer Centre CYFRONET, AGH.
- More options
- Singularity containers on GPUs
- TensorFlow for computations



## Evaluation

- Comparison of these two approaches
- Functional aspects
- Scalability
- Non-functional evaluation

Thanks for your attention!