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

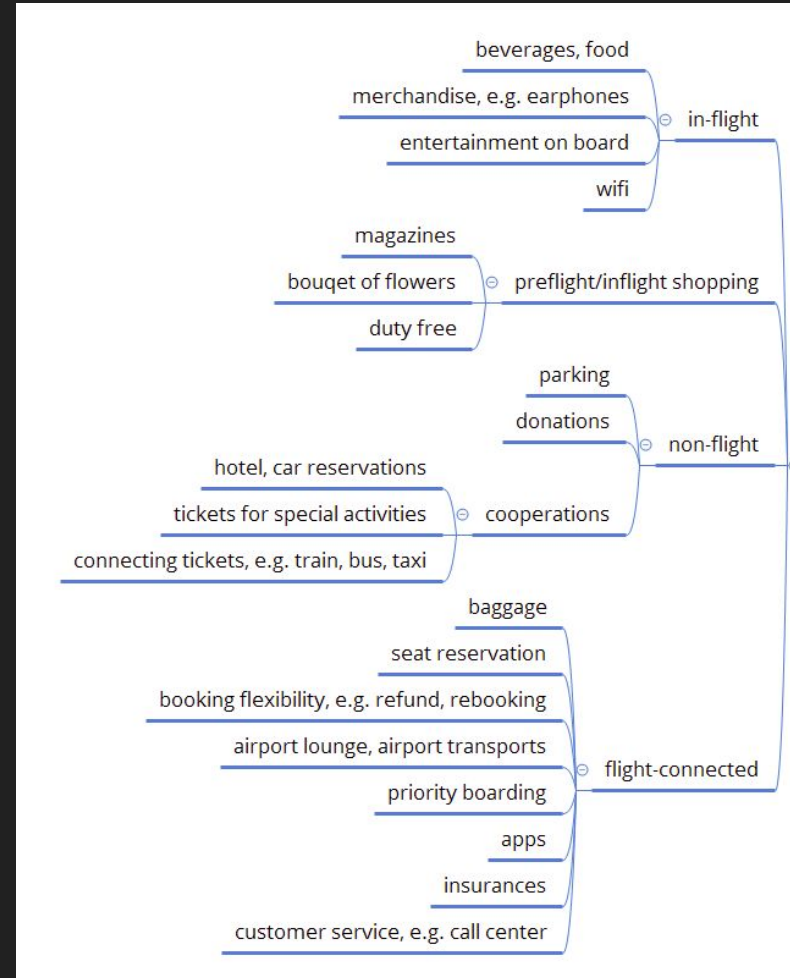M. Biel, K. Lehmann, M. Malawski, J. Pancake-Steeg, J. Reichardt, B. Somoskoi

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

Use Case - Ancillary Pricing

- Ancillary pricing in airline industry

- Current status

- Desired solution
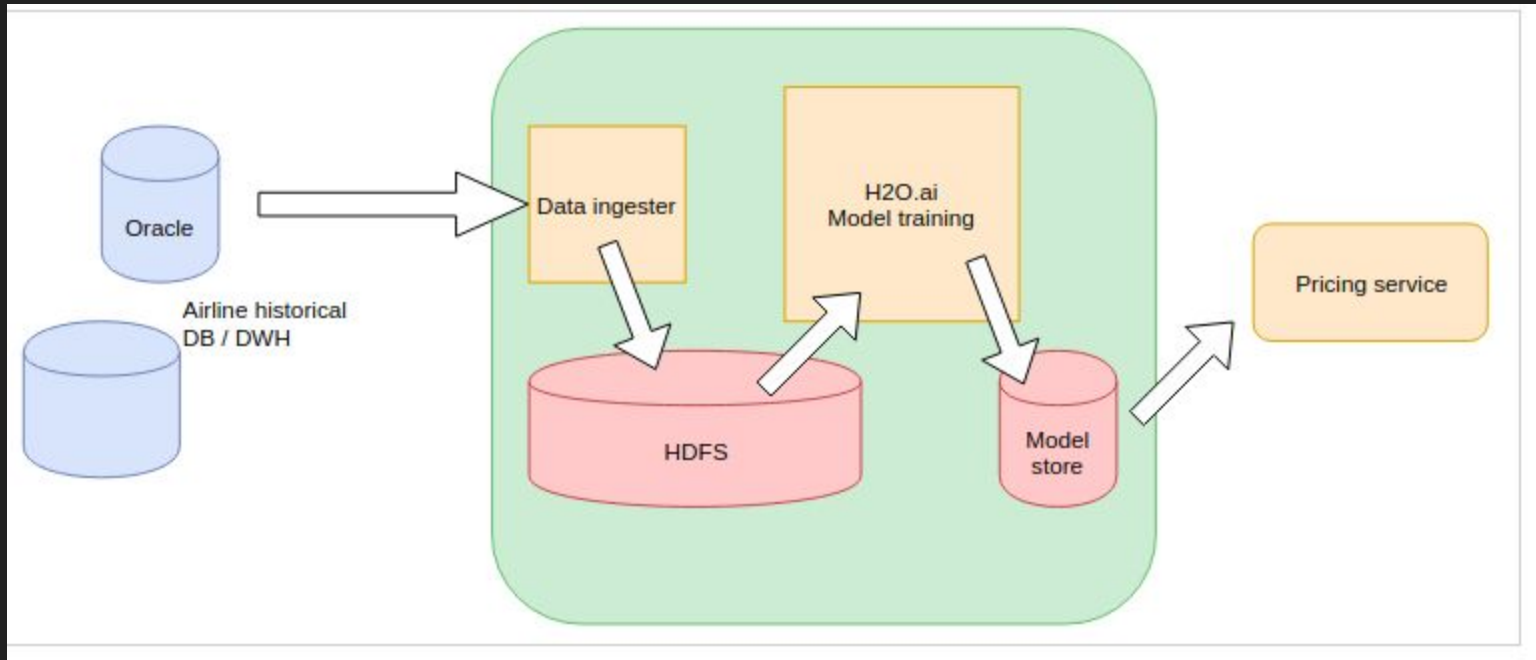
Architecture
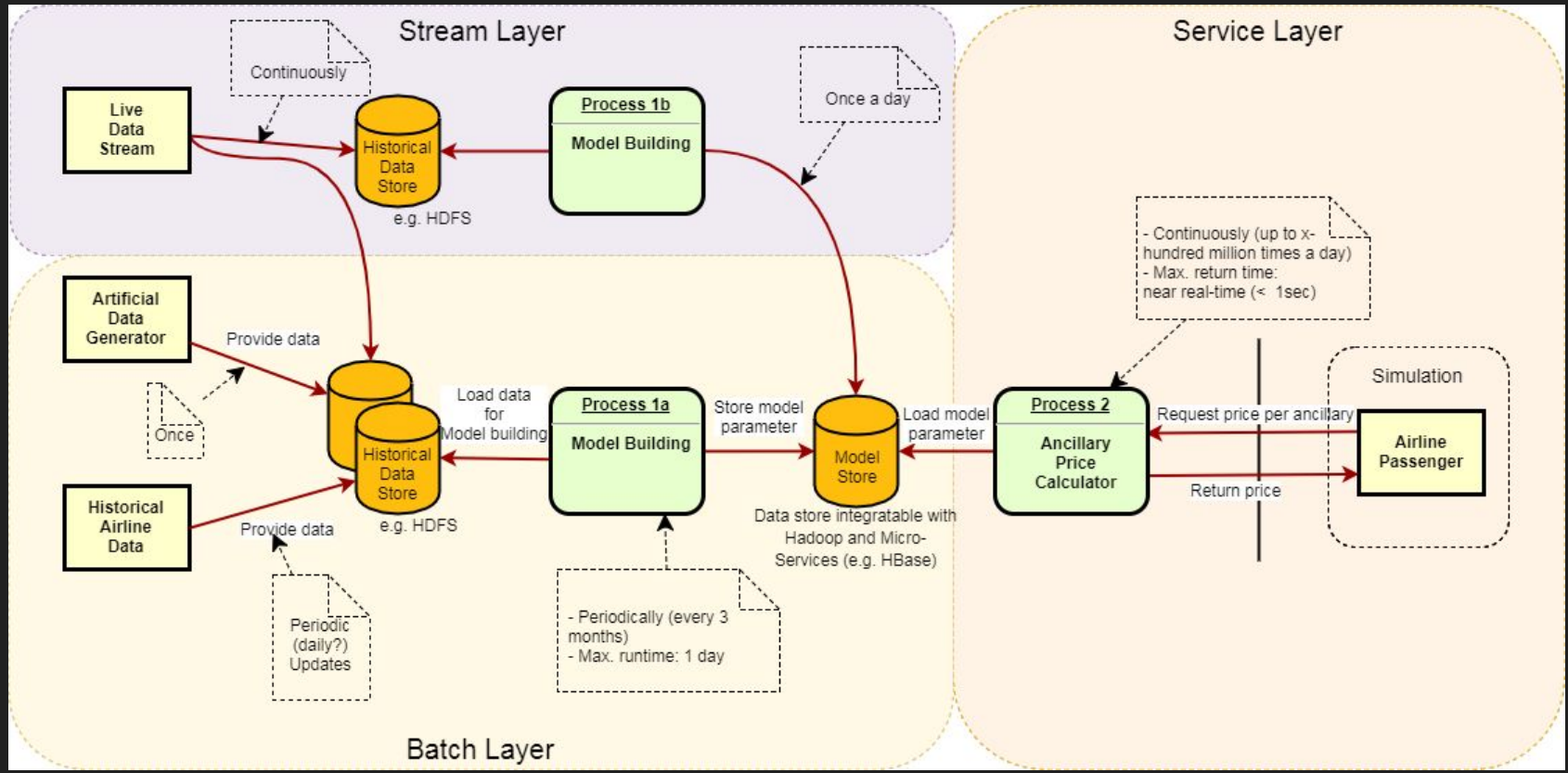
- Prepare a model and generate data for start

- 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

- Cloud maintained by Institute of Informatics, Slovak Academy of Sciences in Bratislava.

- Docker containers

- H_2O optional with Spark

- Prometheus, a High-Performance Computing cluster at the Academic Computer Centre CYFRONET, AGH.

- More options

- Singularity containers on GPUs

- TensorFlow for computations

- Comparison of these two approaches

- Functional aspects

- Scalability

- Non-functional evaluation

Thanks for your attention!