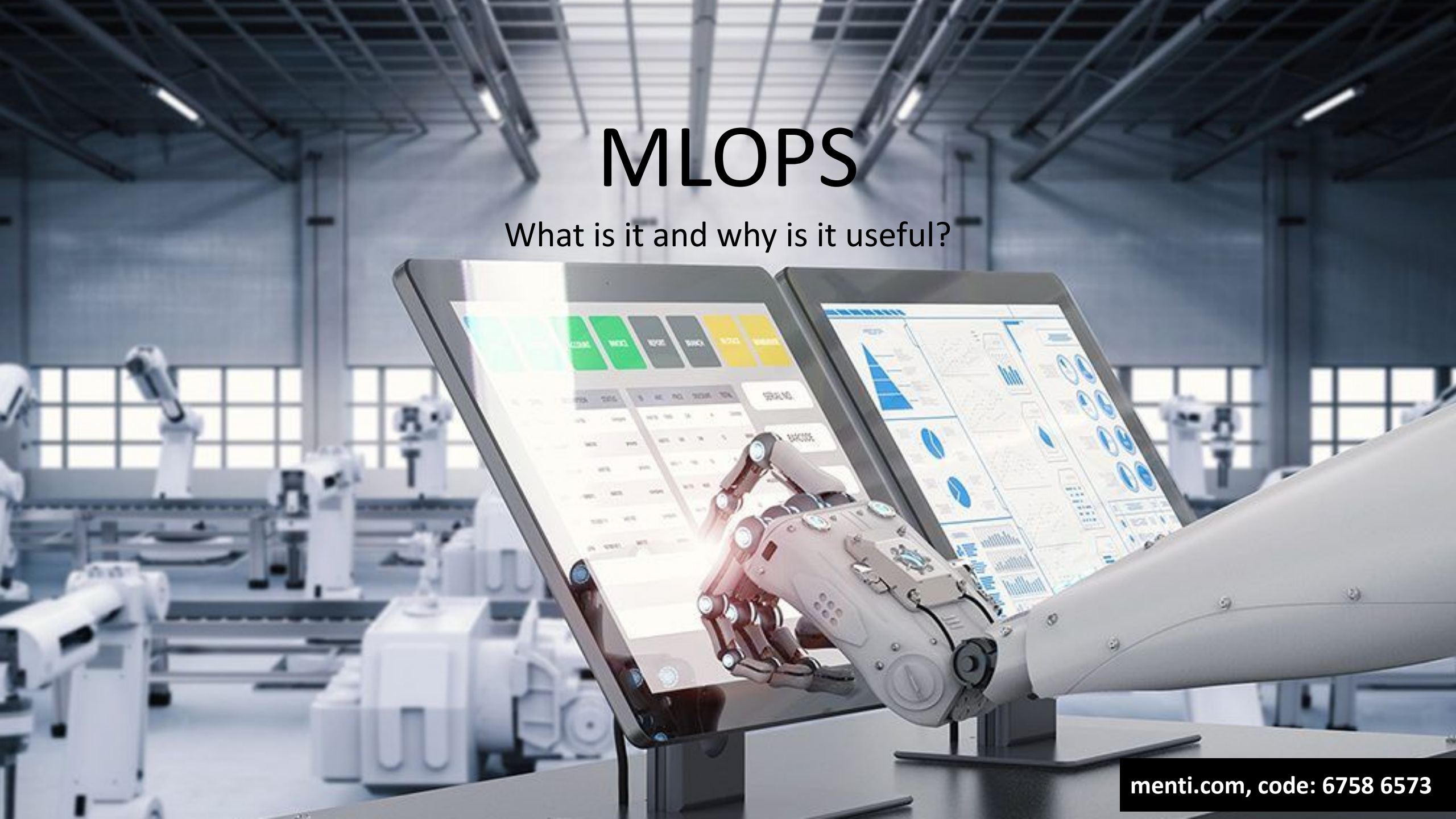
MLOPS

What is it and why is it useful?



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Agenda

- Motivation for MLOps
- MLOps vs DevOps
- MLOps workflow
- Current trends within MLOps
- Reflection & Conclusion

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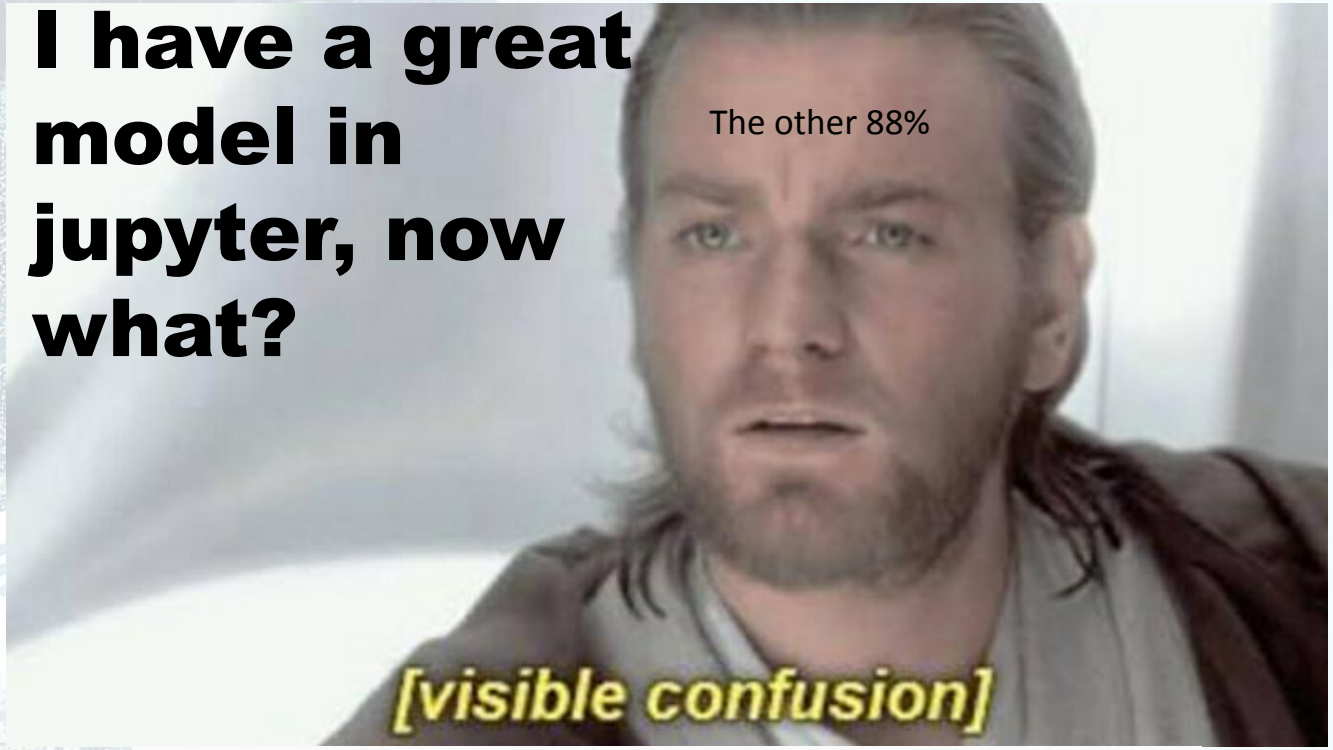
Motivation

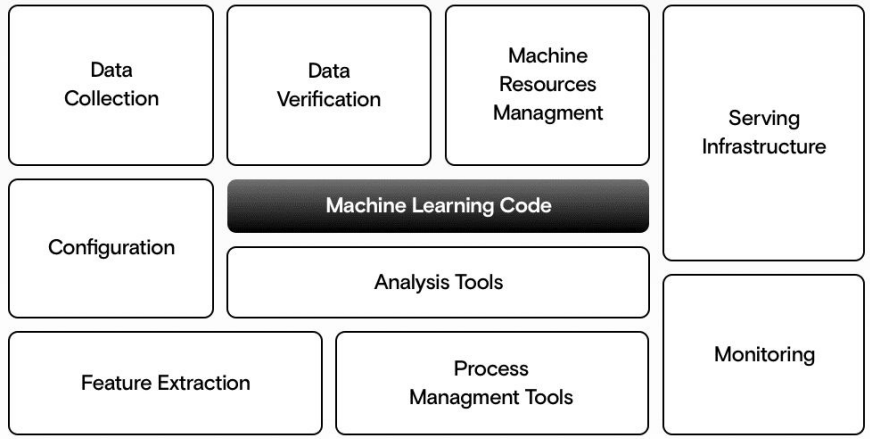
The problem

22% of companies using ML have successfully deployed a model

- ML applications are complex distributed system (not just algorithms in notebooks)

- The real challenge is to have an integrated system and to continuously operate it in production





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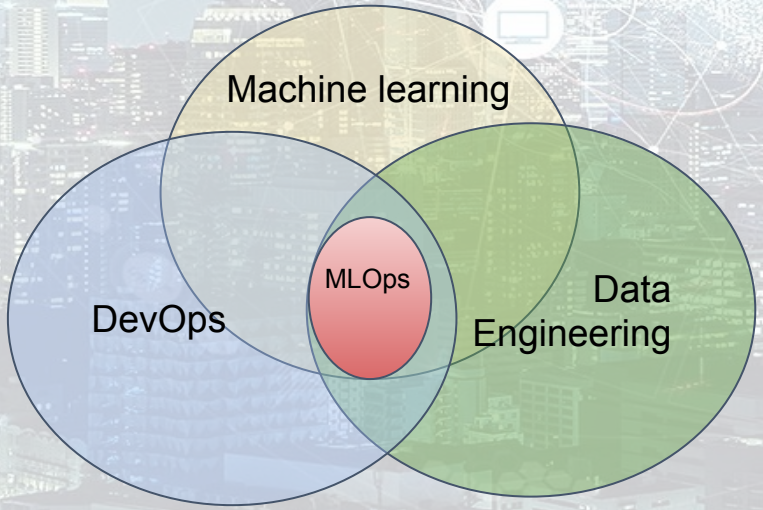
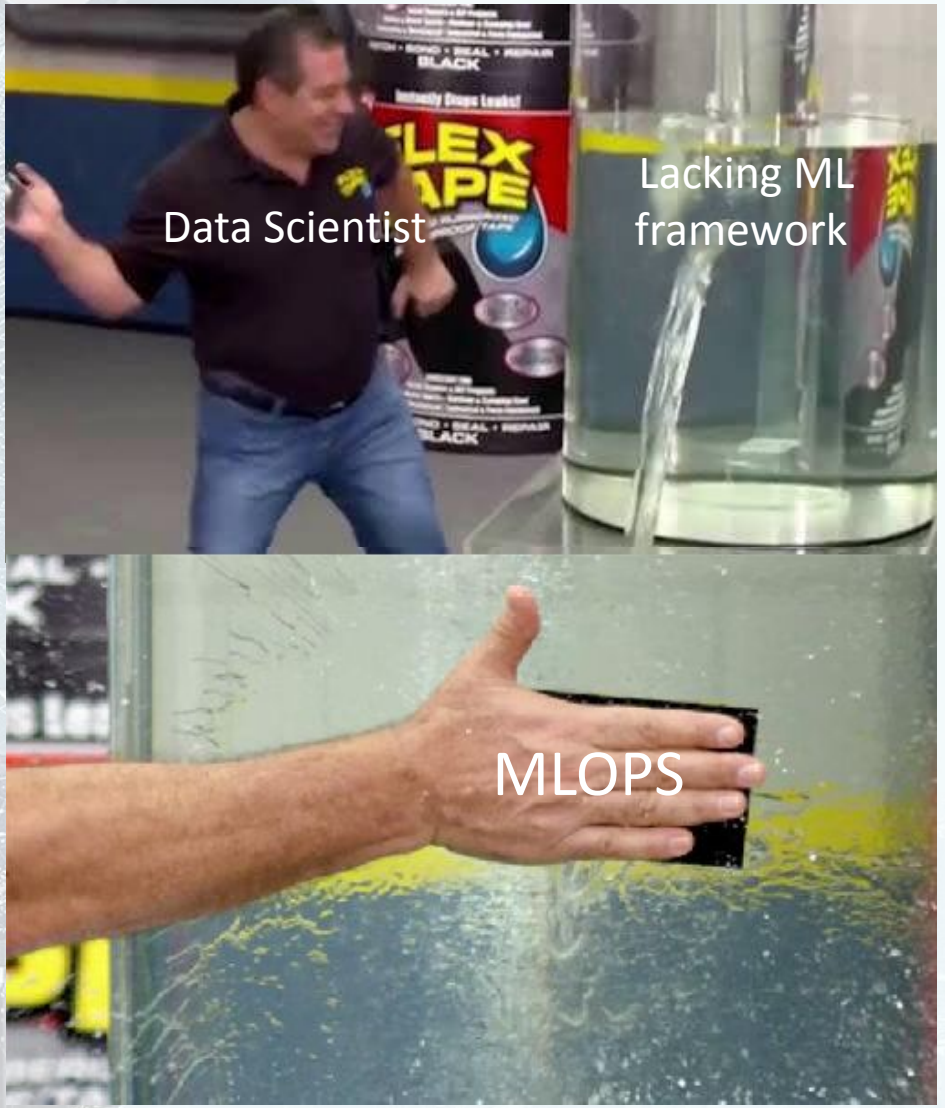
The solution

MLOps is a set of practices that combines ML, DevOps and Data Engineering, which aims to <u>deploy and maintain ML systems in production reliably and efficiently</u>





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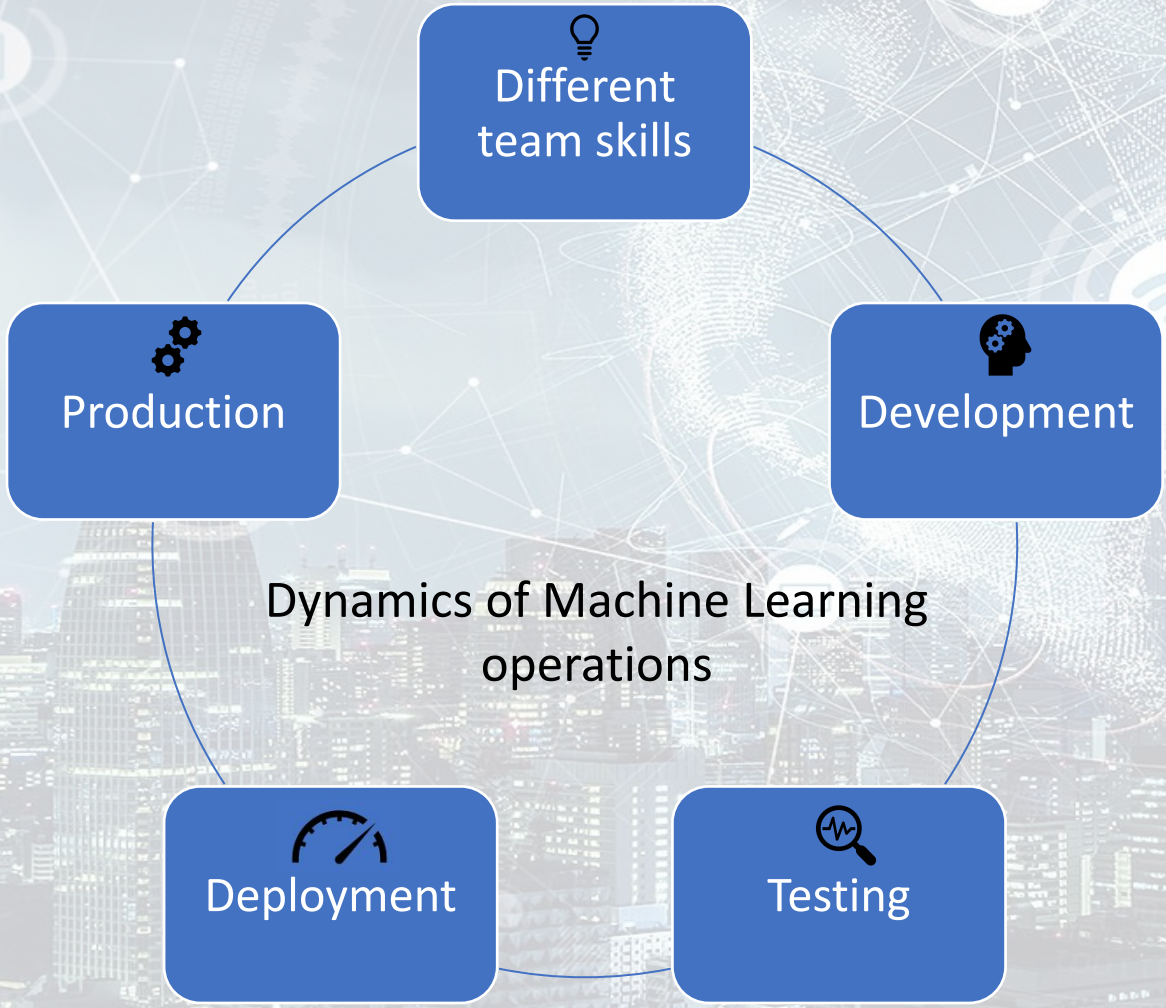
MLOps vs DevOps



Differences

- CI: testing and validating data, data schemas and models
- CD: A system rather than a single software package or service
- *Continuous training (CT):* Automatically retraining and serving models

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Workflow

Extraction

Data stream unification

Labeling

Feature engineering

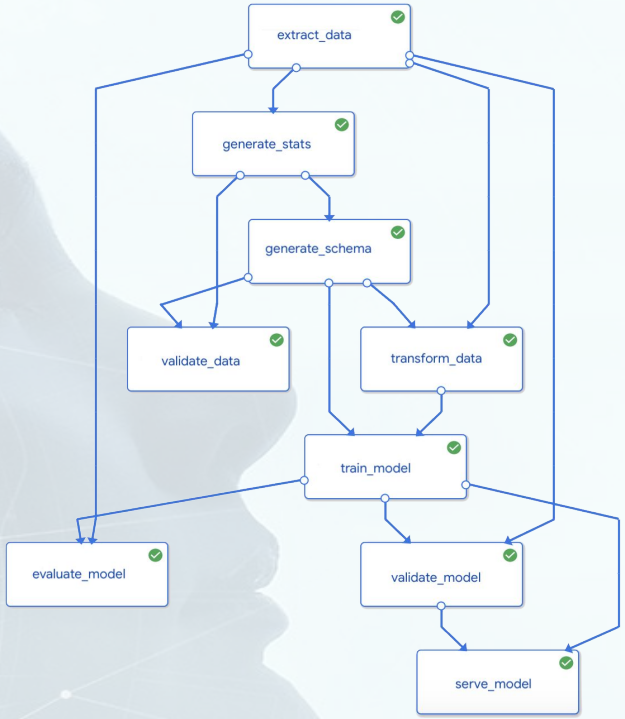
Feature storage

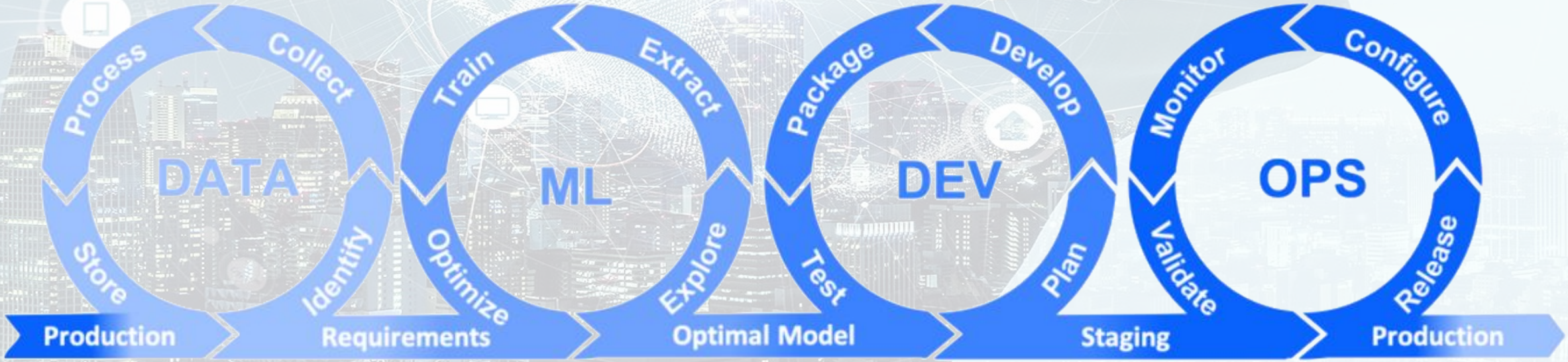
Exploratory data analysis

Visualization

Data validation

Model engineering





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Current trends

- No Jenkins-like tool yet
- Rapid development of new tools
- Mostly task orchestration - pipelines
- MLops-as-a-Service
- Combine with cloud

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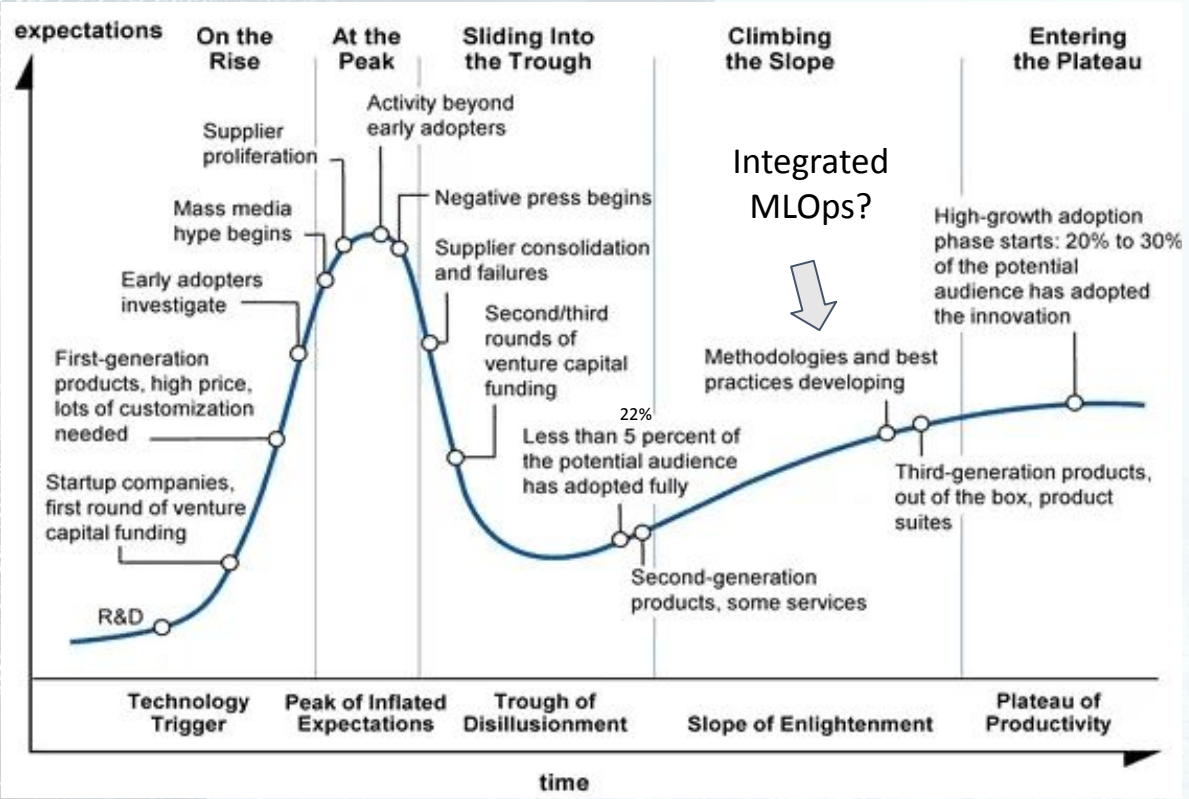
Conclusion and our thoughts

- Machine Learning systems are much more than building models!
- Improve the maturity of the ML operation workflow:
  - reproducible
  - accountable
  - collaborative
  - continuous
- The missing piece for many companies that enables scaling of ML use

The Gartner Hype Cycle



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Every Company Is A Data And Analytics Company

Source: https://www.forbes.com/sites/forbestechcouncil/2020/02/14/why-every-company-is-a-data-company/