DYNAMOS: Dynamic Adaptive Microservice-OS

For data-exchange scenarios

- Master Software Engineering, University of Amsterdam
- Create ‘atomic’ microservices, to be combined for different use cases
- Middleware to orchestrate services, restricted by *programmable policy*
Data exchange marketplaces

AMdEX translates your data sharing agreements into machine-readable policies, that can automatically be enforced.

Use cases:
- Medical: analysis on patient data
- Federated Machine Learning (Predictive maintenance on airline data)
- Sharing anonymous sensor data (smart buildings)
Goal

- Orchestrate microservices aligned with data-sharing archetypes
- Create *Trust*; the system will follow policy
- Create algorithms to optimize on extra-functional properties (Green IT, server load, optimal archetype selection)
- Self-adaptivity, deployments, archetypes and configurations can change *per request*  

Archetypes

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How it works

1. Check policy and additional requirements
2. Generate microservice chain
3. Create single-use data-exchange jobs
Next steps

● Experiment with additional data-sharing archetypes

● Link Fabric into DYNAMOS
  ○ Full distributed scenarios
  ○ Sharing large datasets
  ○ Move control plane components into the network

● https://delaat.net/ofc/