Drivers and Barriers for Microservice Adoption

Holger Knoche, Wilhelm Hasselbring
Software Engineering Group
Kiel University

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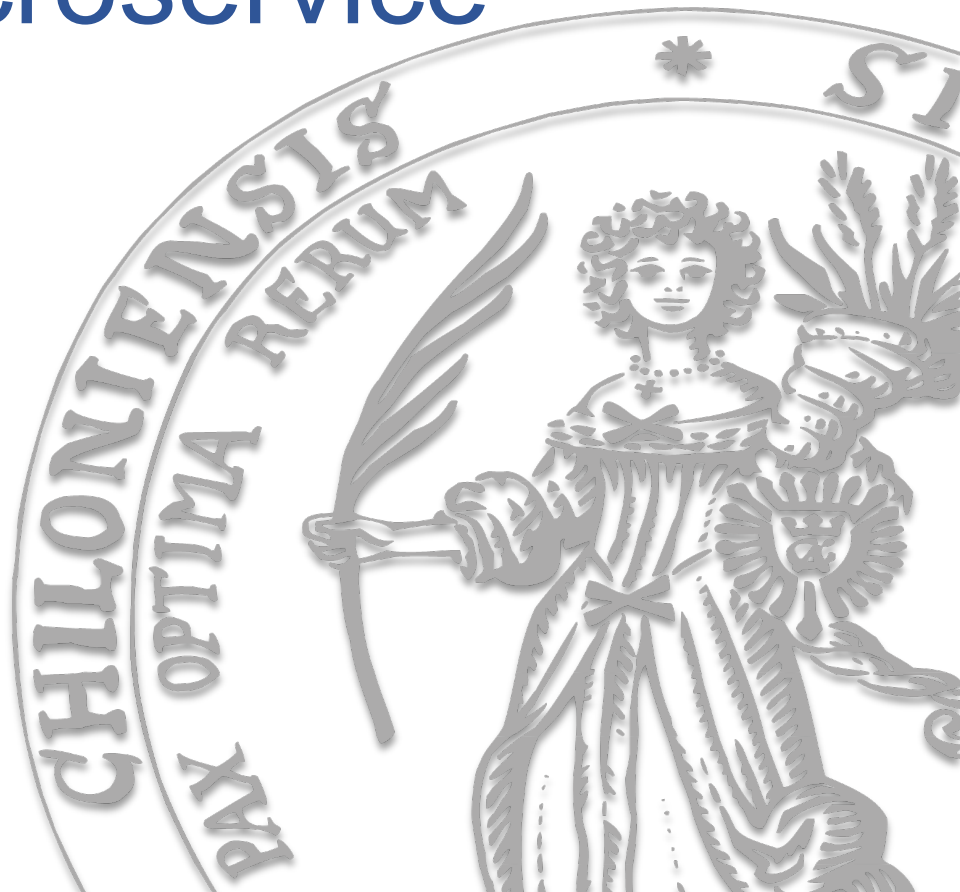

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Motivation: Success Stories

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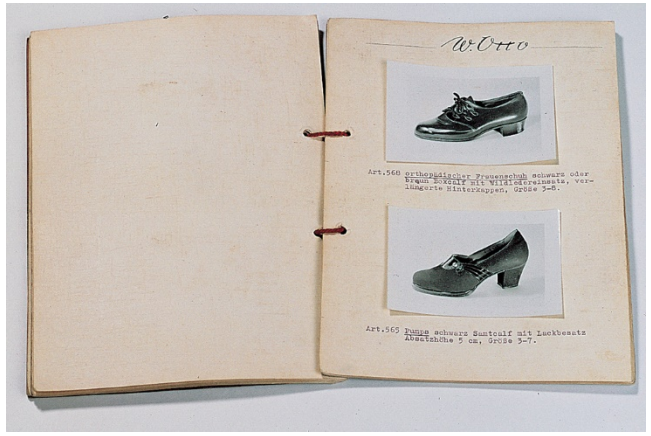
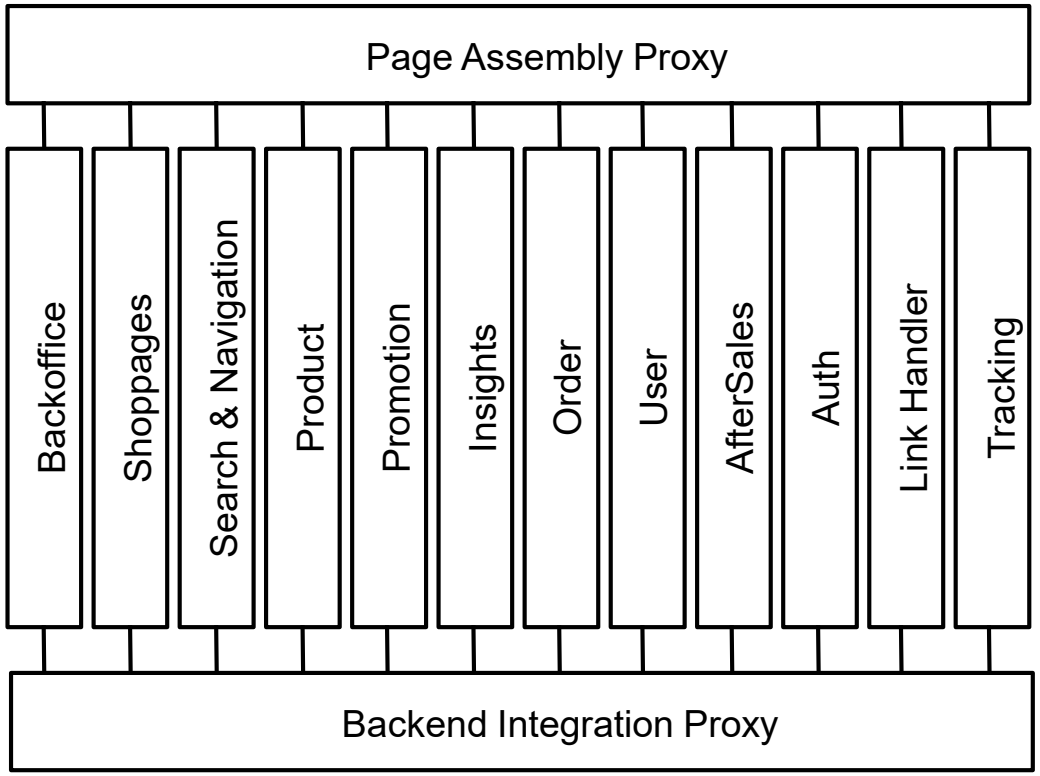
Example: otto.de





Microservices: [Hasselbring 2016, 2018, Hasselbring & Steinacker 2017]

Both Agile and Reliable

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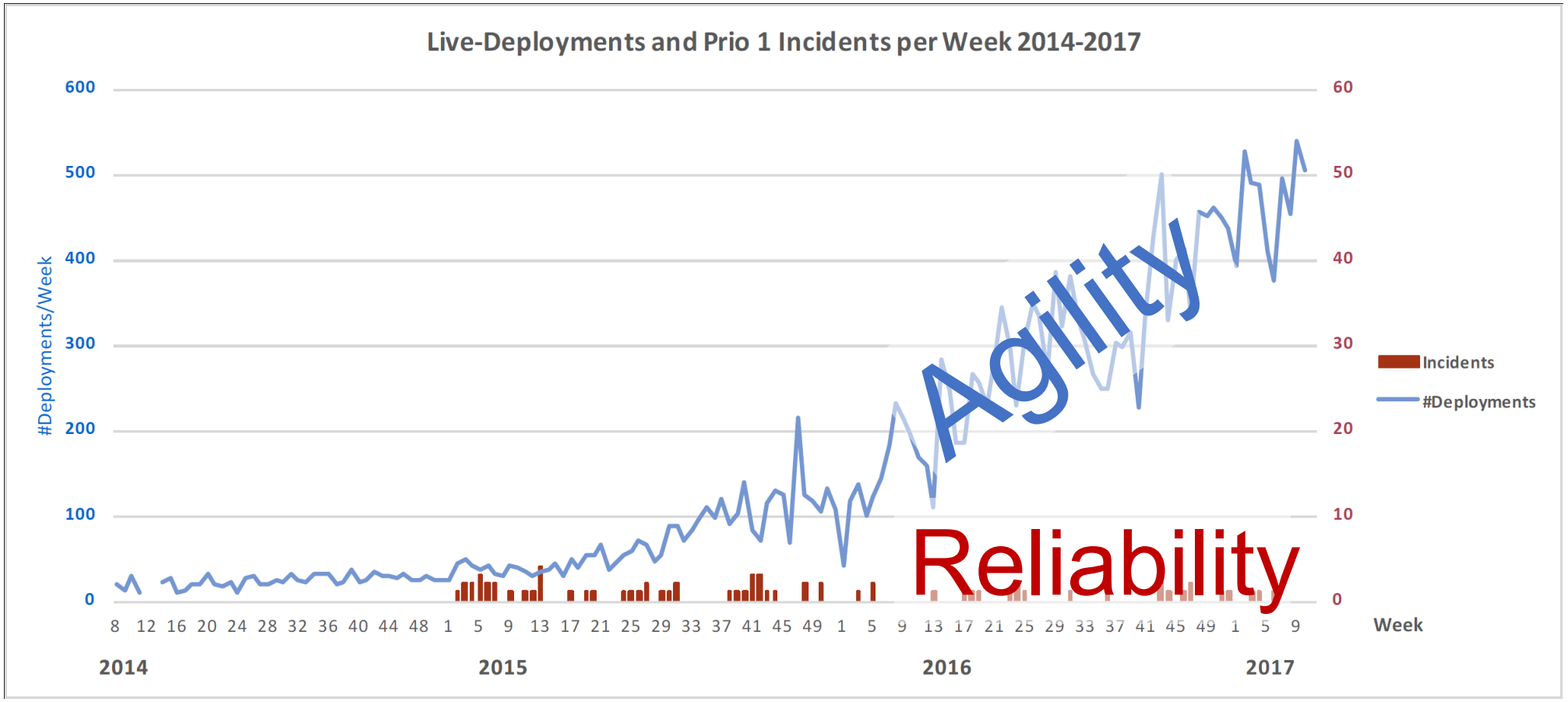

Scalability, Agility and Reliability [Hasselbring & Steinacker 2017]

Does this also work in other Domains?

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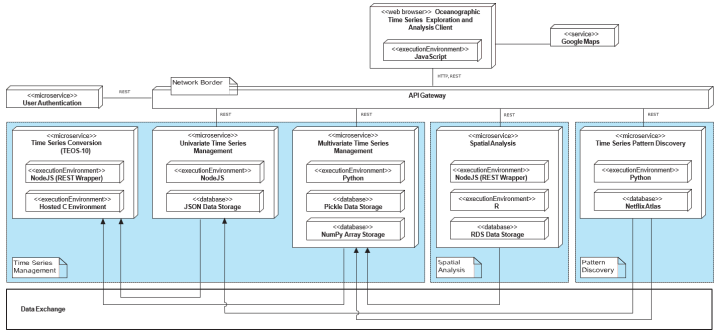
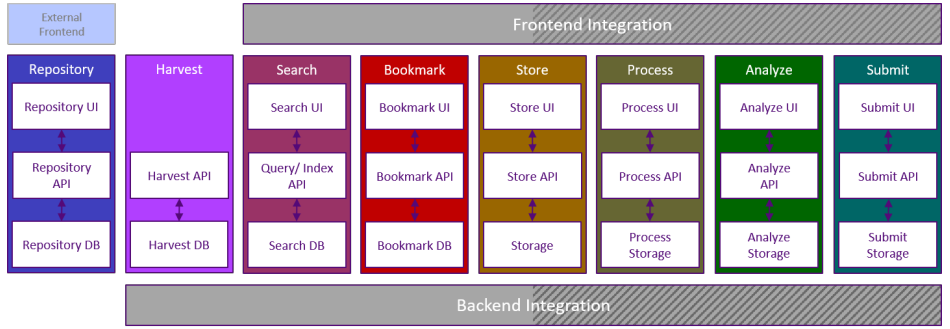
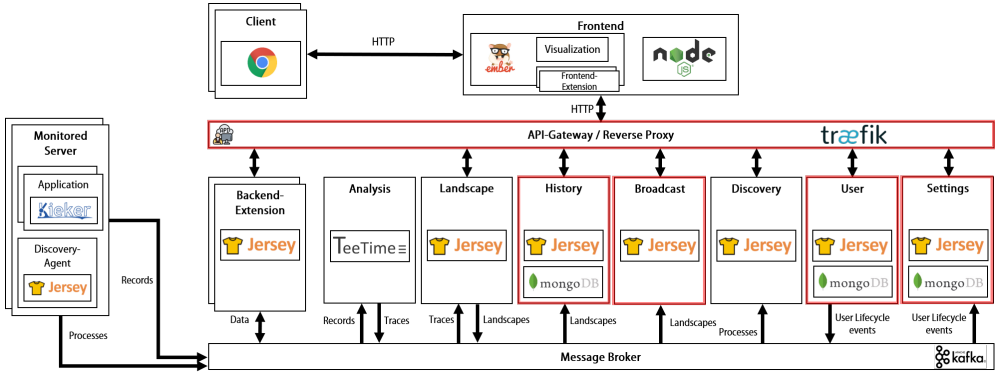
Some experience with research software



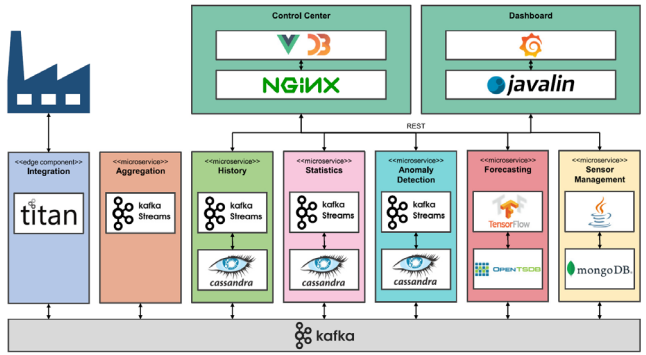
OceanTEA [Johanson et al. 2016]



GeRDI [Tavares de Sousa et al. 2018]



ExporViz [Fittkau et al. 2017]
[Zirkelbach et al. 2019] [Hasselbring et al. 2020]



Titan [Henning & Hasselbring 2021]

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Drivers and Barriers for Microservice Adoption – A Survey among Professionals in Germany

Holger Knoche
University of Kiel
http://orcid.org/0000-0002-0282-8632

Wilhelm Hasselbring
University of Kiel

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Demographics

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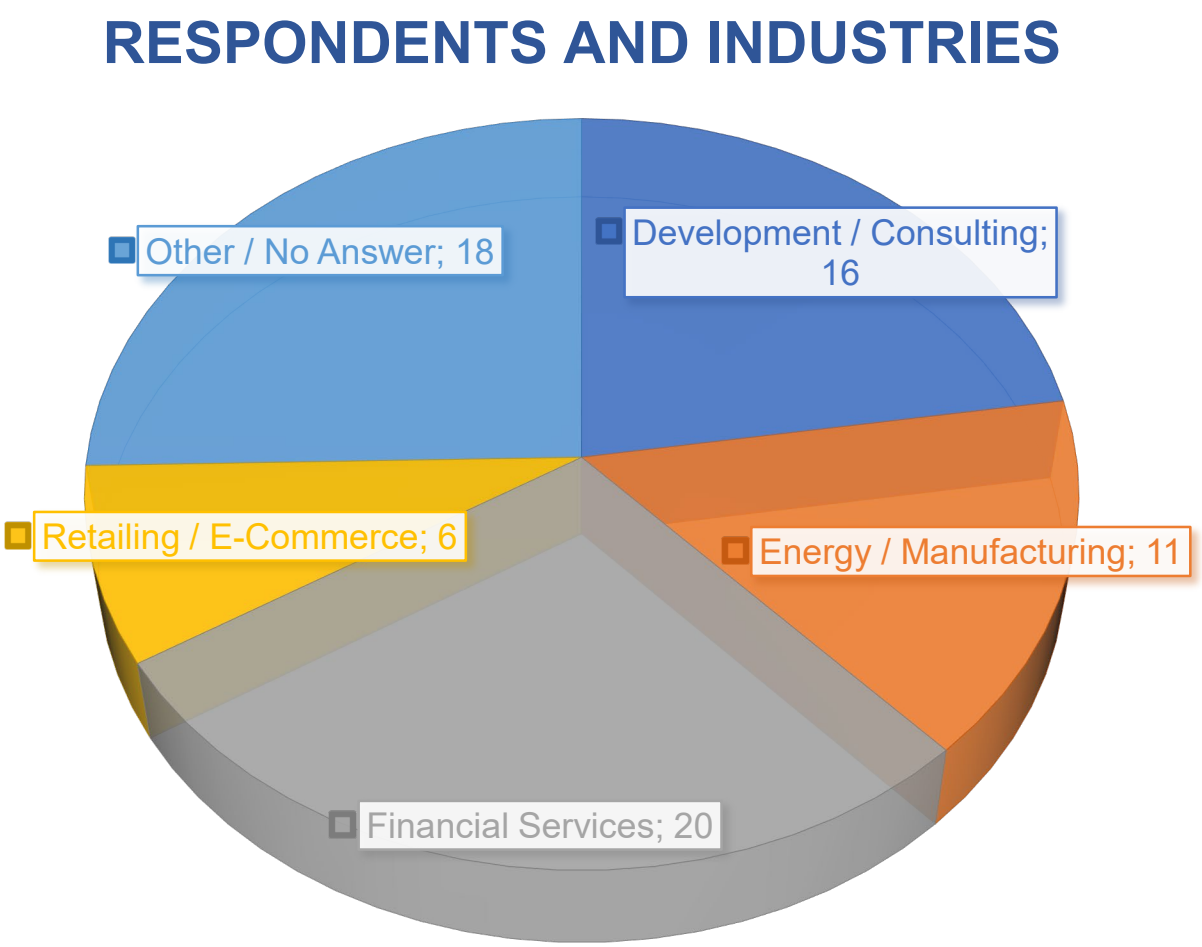

Usage of Microservices

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Microservices are already used to a considerable extent in practice.

Usage of Microservices

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- 27% of the respondents reported to use Microservices to a large extent
- Highest percentage (83%) in Retail / E-Commerce
- Lowest percentage (10%) in Financial Services

Drivers for Microservice Adoption

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The main drivers for Microservice adoption are Scalability, Maintainability and Time to Market.

Drivers for Microservice Adoption

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- Scalability was crucial for 34% of the respondents and relevant for 46% of the respondents
- Maintainability was crucial for 29% and relevant for 57%
- Short Time to Market was crucial for 31% and relevant for 51%

- Runners-up were:
  - Enabler for Continuous Delivery and DevOps (14% / 45%)
  - Suitability for Cloud and Containers (15% / 35%)

Barriers for Microservice Adoption

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The main barriers for Microservice adoption are insufficient skills as well as resistances.

Barriers to Microservice Adoption

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- Insufficient ops skills were rated critical by 16% and relevant by 46% of the respondents
- Ops resistances were rated critical by 14% and relevant by 47%
- Insufficient developer skills were rated critical by 20% and relevant by 34%
- Compliance and regulations were also important for specific industries (17% / 23%)
- Technical challenges were considered manageable

Microservices for Modernization

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67% of the respondents stated that here are plans to introduce microservices to existing software assets.

Microservices for Modernization

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Improved Maintainability is the key driver for modernizing existing assets with Microservices.

Microservices for Modernization

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- Improved Maintainability was stated as the primary modernization goal by 82% of the respondents
- Runners-up were Time to Market (61%) and Scalability (51%)
- 85% of the respondents would also replace parts of the existing application by microservices
- **But:** 79% considered incorporating transactional boundaries into service design important (52%) or very important (27%)

See also [Knoche & Hasselbring 2018, Krause et al. 2020]

Future Work: Migration Matrix

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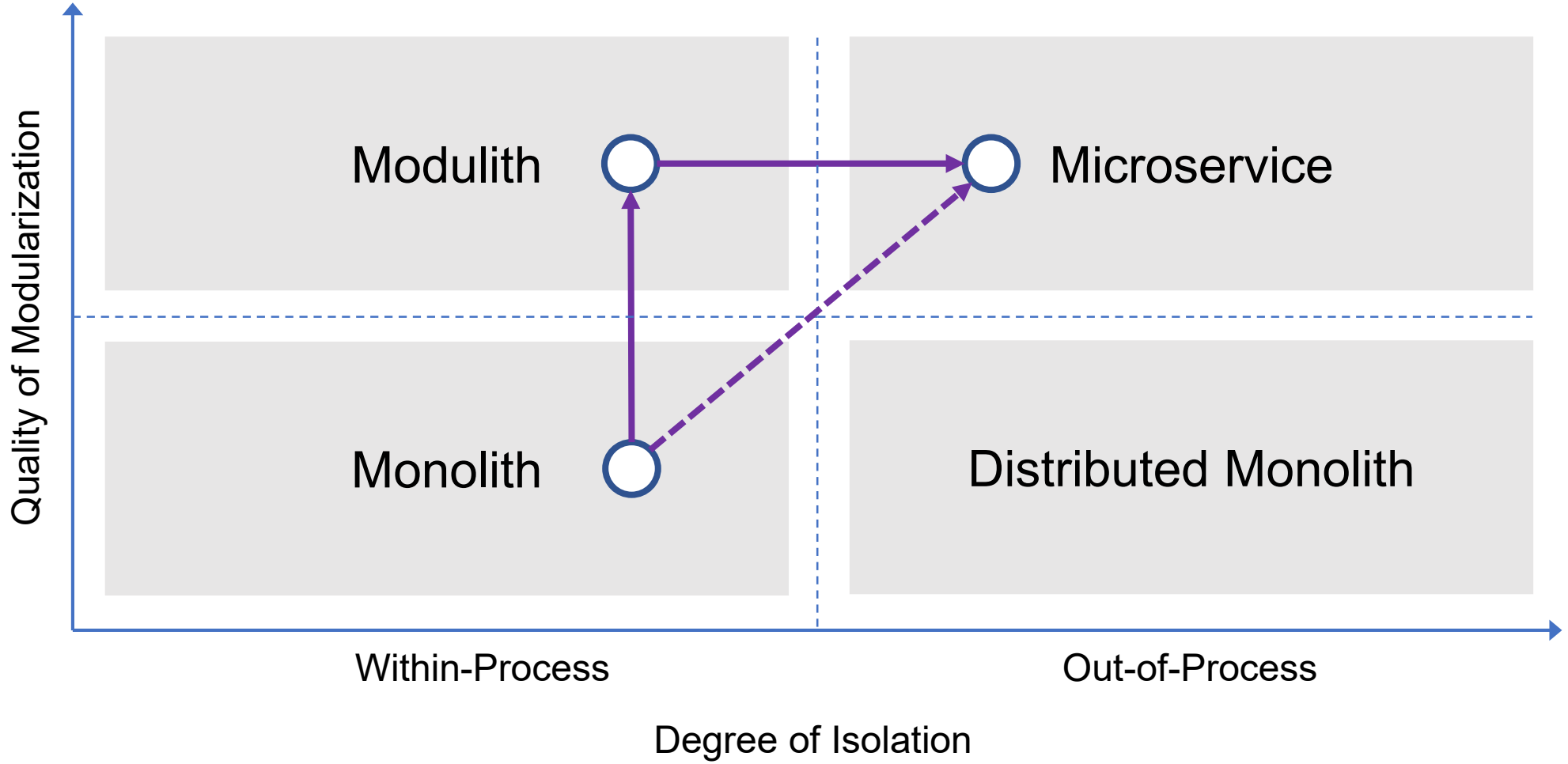

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