
Drivers and Barriers for Microservice Adoption (Extended Abstract)

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Abstract: In this research talk, we present the results of a survey on drivers and barriers for microservice adoption among professionals in Germany; published in Enterprise Modelling and Information Systems Architectures (EMISAJ) – International Journal of Conceptual Modeling [KH19].

In addition to overall drivers and barriers, we particularly focus on the use of microservices to modernize existing software. We observe interesting differences between early adopters who emphasize scalability of their Internet-scale systems, compared to traditional companies that emphasize maintainability.

Keywords: Microservice architecture; Software modernization; Microservice adoption

1 Microservices

Microservices are an architectural style for software which currently receives a lot of attention in both industry and academia. Several companies employ microservice architectures with great success, and there is a wealth of blog posts praising their advantages. Especially so-called Internet-scale systems use microservices to satisfy their enormous scalability requirements and to rapidly deliver new features to their users. In addition to scalability [Ha16], microservices may furthermore enable both agility and reliability [HS17]. However, microservices are not only popular with large, Internet-scale systems. Many traditional companies are also considering whether microservices are a viable option for their applications. These companies may have other motivations to employ microservices, and see other barriers which could prevent them from adopting microservices.

2 Drivers and Barriers

As a consequence, many companies are currently considering whether microservices are a viable option for their software systems. However, many of these systems are not *Internet-scale*; instead, they are used by a known, limited, and stable number of users. Therefore, these companies may consider microservices for other reasons than the early adopters. Even more interesting are expected barriers which may prevent these companies from adopting microservices. Several authors warn against considering microservices as viable for every

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software system, as there are numerous trade-offs to consider [Ki16; Si16]. Furthermore, these drivers and barriers possibly differ among industry sectors.

Although microservice adoption is discussed extensively in online media, there is yet little research data on the subject. While some studies on microservice adoption in practice exist, many of them have only been conducted with few participants, and several open questions still remain. In order to gain insight into the reasons why *traditional* companies are considering the adoption of microservices, we conducted a survey among software development professionals in Germany. Since many companies already have existing software assets, we furthermore investigated to what extent microservices are perceived as a tool for software modernization, which goals are pursued by introducing microservices into existing software, and how the potential impact on runtime performance and transactionality is rated. A particularly interesting aspect of microservices is that they are considered as a viable means for incrementally modernizing monolithic software applications [KH18].

3 Results

The premier drivers were found to be scalability, maintainability, and time to market, while the skill set of both development and operations staff was identified as the main barrier. In particular, for the adoption of microservices as a means for software modernization, maintainability is the leading driver.

Literatur

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