

# Questions on Migration to Microservices

## Applicability of Microservices

1. Since when are you concerned with microservices?

- Since    months  years  
 Not yet

2. Is your company or customer already employing microservices?

- Yes, to a large extent  
 Yes, to a lesser extent  
 No

3. How relevant do you think the following properties commonly attributed to microservices are for the decision to employ microservices?

	irrelevant	hardly relevant	relevant	crucial <sup>1</sup>
Easy and specific scalability / elasticity	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Short "time to market" (i.e. time from development to productive deployment)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
High maintainability	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Service-specific choice of programming language ("Polyglot Programming")	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Service-specific choice of database / persistence solution ("Polyglot Persistence")	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Enabler for Continuous Delivery / DevOps	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Suitedness for Cloud deployment and container-based virtualization	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Improvement of organizational structures	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Improvement of attractiveness as an employer	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

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<sup>1</sup> Please choose this option for properties which alone would already justify employing microservices.

4. How relevant do you think the following barriers are for the decision to employ microservices?

	irrelevant	hardly relevant	relevant	crucial <sup>1</sup>
Resistance by development teams	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Insufficient developer skills	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Resistance by operations teams	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Insufficient operations skills	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Increased effort for supporting and licensing databases, etc	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Increased deployment complexity	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Incompatibility with compliance and regulations	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Insufficient maturity of technologies	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Difficulty of consistent backups due to distributed persistence	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Incompatibilities with existing software	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

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<sup>1</sup> Please choose this option for barriers which alone could prevent the introduction of microservices.

5. How difficult do you think it is to implement the following aspects related to micro-services?

	simple	medium	difficult	impossible <sup>1</sup>
Creation of an automated deployment pipeline	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Ad-hoc provisioning of resources (e.g., for automated integration tests)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Decentralized / distributed persistence	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Have ops tasks performed by development teams	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Change of tasks and responsibilities for ops teams	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Running heavily distributed applications in production	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Automation of integration tests and further test stages	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Formal description of infrastructure ("Infrastructure as Code")	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Support for several programming languages ("Polyglot Programming")	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Establishment of sufficient monitoring	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

6. Microservices are commonly related to web applications, but are not limited to them. How well do you think microservices are suited for the following types of applications?

	not at all	moderately	well	perfectly
Public web applications	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Internal web applications	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Client-server applications	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Legacy applications	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Batch applications	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

<sup>1</sup> Please choose this option for aspects which you consider so difficult to implement that you would have to refrain from implementing them.

7. Most well-known microservice applications are run in the Cloud. However, many companies run self-developed or licensed software on their own hardware. How well do you think microservices are suited for such situations (e.g., with respect to elasticity and frequent deployments)?

	not at all	moderately	well	perfectly
Running self-developed software on own hardware	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Running licensed software on own hardware	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

## Introducing Microservices to Existing Applications

8. Are there already plans or projects in your company to introduce microservices to existing applications?

- Yes
- No

9. Which goals would you pursue by introducing microservices to an existing application?

	primarily	secondarily	not at all
Improve scalability	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Improve "time to market"	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Improve maintainability	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Improve quality	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Gain access to new technologies	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Pave the way for Continuous Delivery / DevOps	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Improve employee motivation	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

10. (If you chose "Gain access to new technologies" above): To which technologies would you like to gain access to?

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**11.** Would you only add new functionality or would you also replace existing functionality by microservices?

- No, I would only add new functionality
- Yes, I would also replace existing functionality

**12.** *(If you would also replace existing functionality):* Do you expect to be able to re-use parts of the existing implementation?

- Yes, to a large extent
- Yes, to a lesser extent
- No, but I would like to
- No, I do not want to even if I could

**13.** Microservices lead to an increase in inter-process or network communication. Do you expect this to cause a decrease in runtime performance?

- Yes, critical
- Yes, serious
- Yes, but minor
- No

**14.** The distributed persistence of microservices commonly requires to eschew ACID transactionality across services. How do you rate this eschewal?

- Critical
- Relevant
- Hardly relevant
- Irrelevant

**15.** Introducing service invocations to existing transaction contexts may elongate their runtime, thus reducing throughput. Do you think this is a problem?

- Yes, a serious problem
- Yes, but only in specific cases
- No

**16.** How important do you think it is to incorporate transactional boundaries into the service design?

- Very important
- Important
- Not too important
- Unimportant

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## Additional Data

17. In what line are you / is your company in (e.g., Banking, Consulting)?

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18. What position(s) do you hold?

- Management
- Software Architect
- Software Developer
- Consultant
- Other: \_\_\_\_\_

19. In what department(s) / area(s) do you work?

- Development
- Operations
- Specialist Department
- Other: \_\_\_\_\_