

This exercise sheet will be discussed in tutorials  
from June 27 to July 1, 2022.

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## AI: Internet Computing

### Summer 2022

### Exercise Sheet 4

**Please read the article “What Serverless Computing Is and Should Become: The Next Phase of Cloud Computing” till the first column on page 80: <https://dl.acm.org/doi/pdf/10.1145/3406011>**

#### Exercise 1: Differences between Serverful and Serverless Cloud Computing

Please read the paper “What Serverless Cloud Computing Is and Should become: The next Phase of Cloud Computing”. Then answer and discuss the following questions:

- Explain the concepts Serverless and Serverful Cloud Computing. Which are the main differences between Serverless and Serverful Computing stated in the paper?
- Explain both models based on the airport-taxi analogy given in the paper. Find other examples as well.

#### Exercise 2: Essential Qualities of serverless Cloud Computing

The paper “What Serverless Cloud Computing Is and Should become: The next Phase of Cloud Computing” introduces three essential qualities of serverless computing.

- What are the three essential qualities of serverless computing?
- Imagine you run an online store for creative and sustainable gifts. How would the three qualities mentioned affect your use case compared to serverful computing?
- Name two use cases where serverless computing does not make sense or is rather associated with disadvantages.

### **Exercise 3: Future opportunities of serverless Cloud Computing**

The authors of the paper predict that Serverless Computing will become the dominant form of cloud computing.

- a) Which are the named reasons for this trend? Identify the main advantages (e.g. for application developers) and explain how they lead to dominant usage of Serverless Computing.
- b) Which are possible challenges and how could these be overcome?

### **Exercise 4: Cloud Computing**

*The following exercise was part of the Summer 2020 exam [translated]:*

Briefly differentiate between the community cloud and multi-cloud deployment models.

### **Exercise 5: Cloud, Fog and Edge Computing**

*The following exercise was part of the Summer 2020 exam [translated]:*

Briefly describe a use case where the use of Fog Nodes in conjunction with cloud computing makes sense. Describe two benefits that would not have occurred without the use of Fog Nodes.