UiO / IFI / PUT
Autumn 2025
Questions on Fog Simulators

1. What characteristics does the Fog paradigm has to guarantee?

2. Explain why is needed to have Fog simulators?

3. Explain the difference between the notion of a simulator and the notion of an emulator.

4. Mention two of the Fog simulators that are addressed in this course and derive from CloudSim.

5. Is iFogSim based on Java?

6. When using iFogSim, is it possible to define topologies using a GUI?

7. Is there mobility support in iFogSim?

8. Does iFogSim restricts the topology used to be an hierarchical tree topology?

9. Consider the iFogSim. Is communication only possible between a parent-child pair?

10. What are the main services offered by the iFogSim architecture? What do each service does?

11. Is CloudSimSDN (just as iFogSim) derived from the CloudSim?

12. Is there mobility support included in CloudSimSDN? Is CloudSimSDN based on Discrete Event Simulation?

13. The layers of CloudSimSDN start from Cloud Resources (in the bottom) to Workload (on the top). What are the other layers?

14. Is CloudSimSDN infrastructure-oriented?

15. Consider the simulator YAFS. The architecture is defined by six classes. Which are these?

16. Say if you agree with the next sentence: *"EmuFog is an emulation framework for Fog environments that allows the simulation of Docker-based applications."* What is the main difference between the concepts of simulation and emulation?

17. The EmuFog architecture is divided into three domains. What domains are these?

18. Consider FogTorchπ. What are the two metrics according to which results are aggregated?

19. Is FogTorchπ abstract enough to allow the definition of arbitrary topologies?

20. What about scalability. Is this aspect supported in FogTorchπ?

21. Consider EdgeCloudSim. Does it allow arbitrary topologies? Is it possible to define network link delays (which can vary during the simulation)?

22. For the configuration of EdgeCloudSim, there are 3 files that are needed. Which files are these and what is each´s one functionality?

23. About the tutorials or documentation available for each simulator/emulator, what can you say?

24. Regarding the topologies/fault injection supported by each simulator/emulator how do you compare the approaches considered?

25. Regarding fault injection, which are the 2 simulators that support it as well as adding or removing nodes and links arbitrarily?

26. Regarding EmuFog, does it use Docker-based applications in their emulation environment?

27. Which simulators/emulators offer native mobility support?

28. Which simulators/emulators offer the possibility to define a model or behavior regarding monetary or energy consumption?

29. Compare the several simulators/emulators that were studied regarding CPU consumption/Memory consumption/etc.