

Homework 3:

due Sep: 24, 2024

You will need to read additional resources besides the two papers mentioned, but you can use them as a starting point.

Problem 1:

Use the article

Sharma, Prateek, Lucas Chaufournier, Prashant Shenoy, and Y. C. Tay. "Containers and virtual machines at scale: A comparative study." In *Proceedings of the 17th international middleware conference*, pp. 1-13. 2016.

https://dl.acm.org/doi/pdf/10.1145/2988336.2988337?casa_token=ARKIQRhK0NUAAAAA:oxT9ovwurYTIsf4HTjEtHGDX9ktJtr3nSMKpmQUkDyBYXzWg0ROEYFNifjZOtKRli8DylboJt4A

to answer the following questions in your own words:

- (1) What are and what are the differences between hardware and Operating System Virtualization.
- (2) What is the "noisy neighbor effect". How did the two virtualizations compare with respect to Isolation.
- (3) What were the differences (in 2015) between the two virtualization techniques when migrating.

Problem 2:

Use the following article by van Rijn and Rellermeier as a starting point and use your own words.

Van Rijn, Vincent, and Jan S. Rellermeier. "A fresh look at the architecture and performance of contemporary isolation platforms." In *Proceedings of the 22nd International Middleware Conference*, pp. 323-335. 2021.

https://pure.tudelft.nl/ws/portalfiles/portal/100821657/middleware2021_camera_ready.pdf

- (1) What is a "hypercall" (Section 2.1)
- (2) What is a unikernel?