

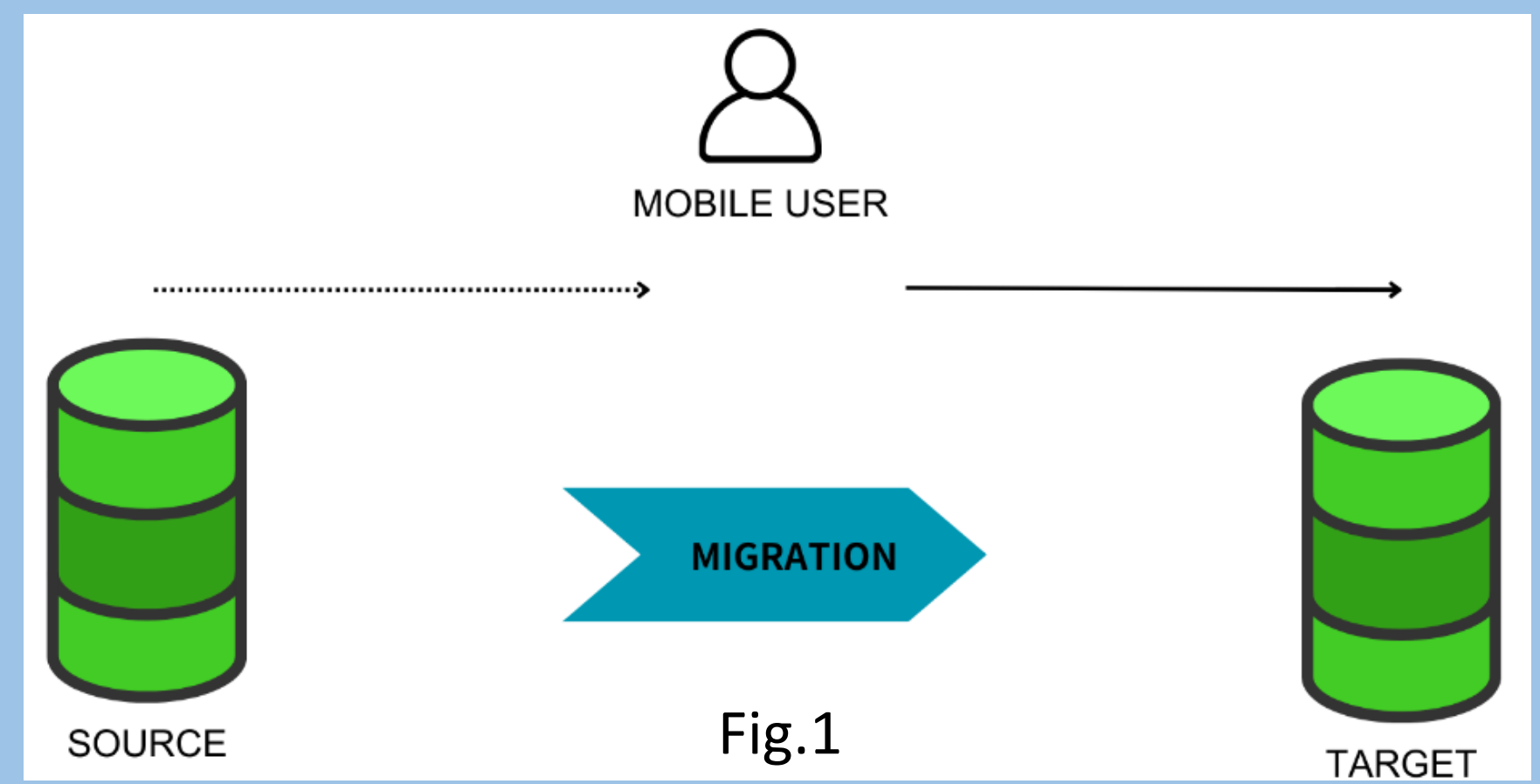


減少虛擬機遷移時間的一種新方法 A new way to reduce virtual machine migration time

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Abstract.

Maintaining service continuity and stability for users is essential with the rapid development of real-time applications. For instance(Fig.1), as mobile users move, virtual machines may need to seamlessly migrate between different servers to ensure stable service. We propose a new live VM migration technique that enables VMs to execute the same task concurrently on both the source and target servers. This allows us to accurately determine the next page while employing a Queue-based method to optimize migration.



Design.

This study uses C language to simulate the process of virtual machine migration. We first compare the drawbacks of traditional VM migration methods (Fig. 2) and then introduce how our design (Fig. 3,4,5) addresses these issues.

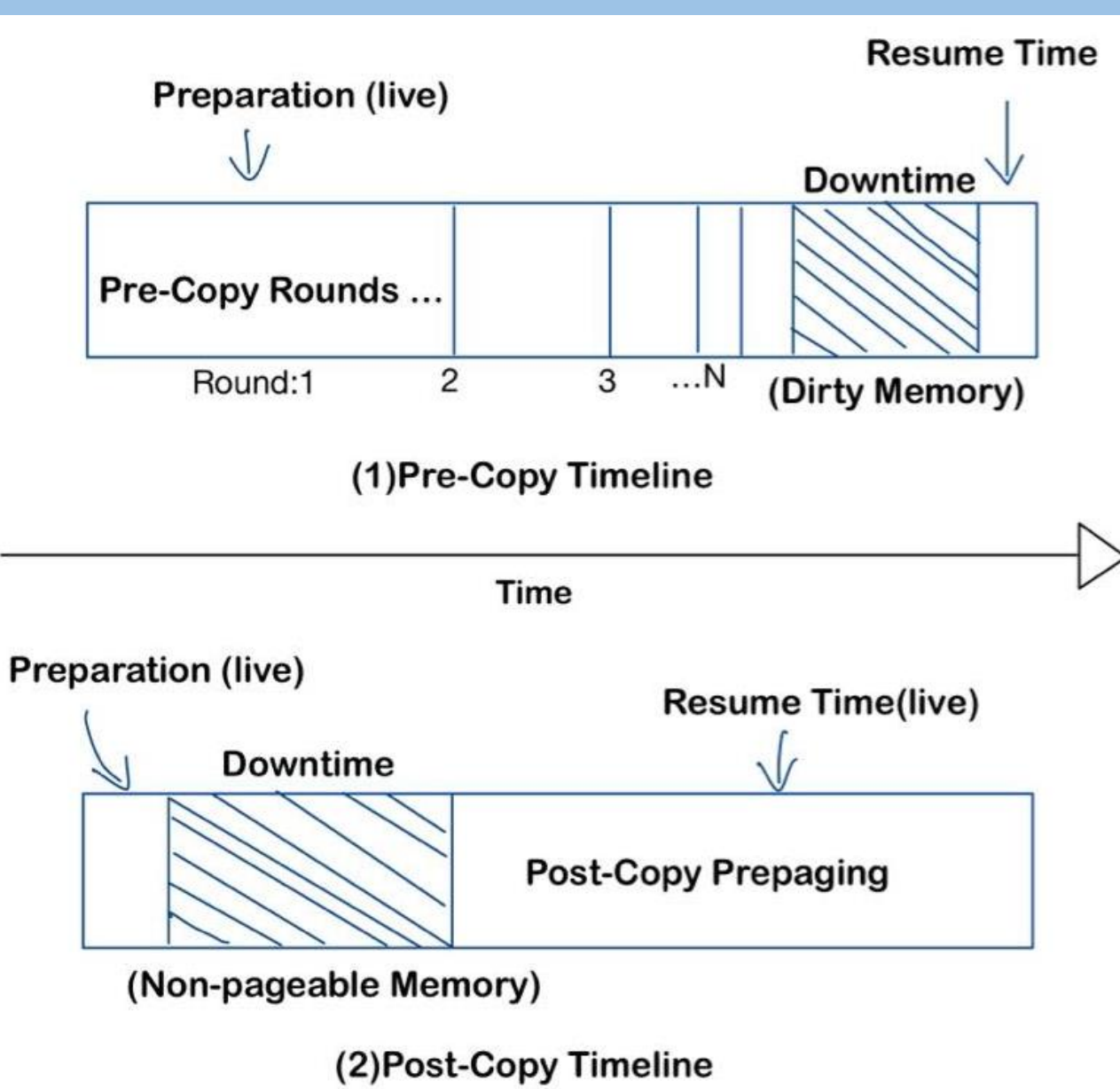


Fig.2 Traditional Migration Methods

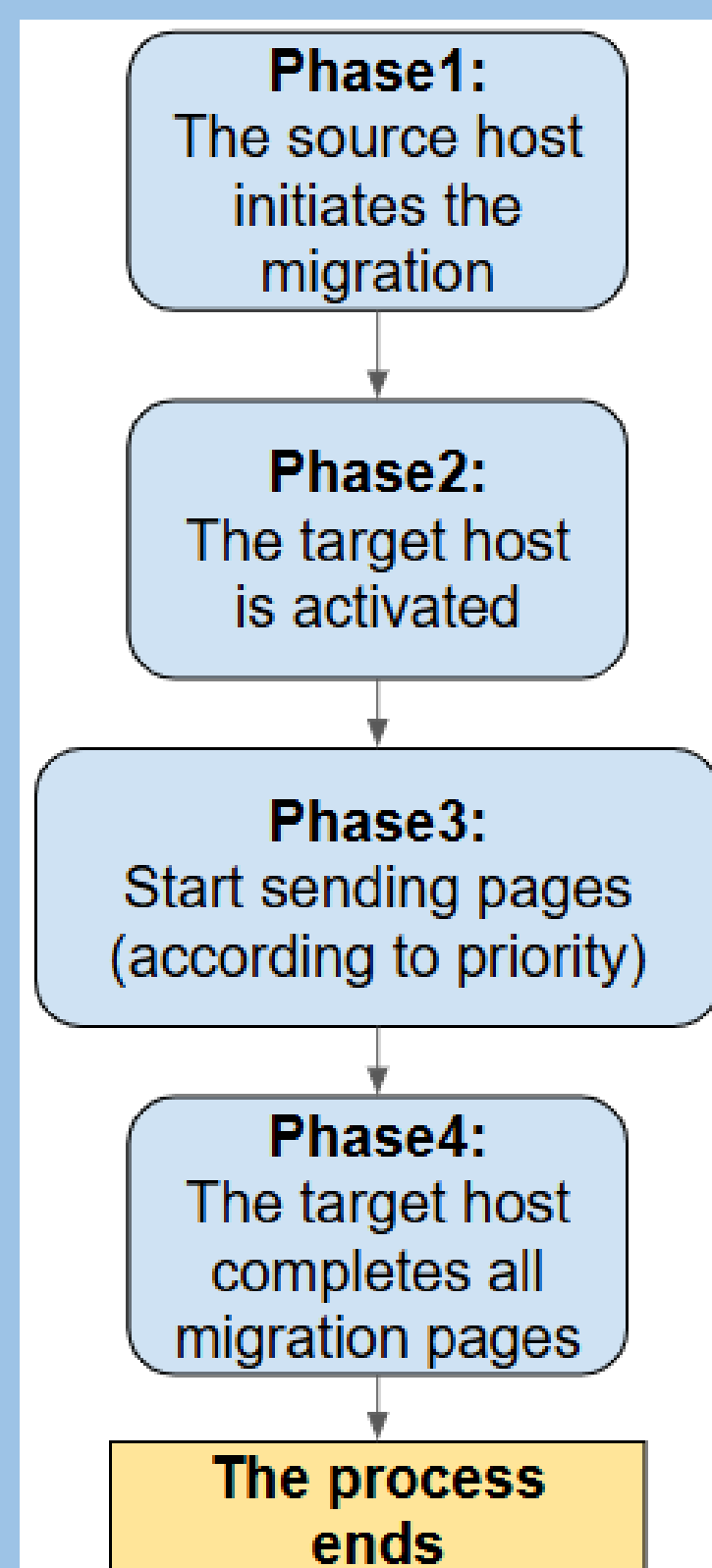


Fig.3 Our Flow Chart

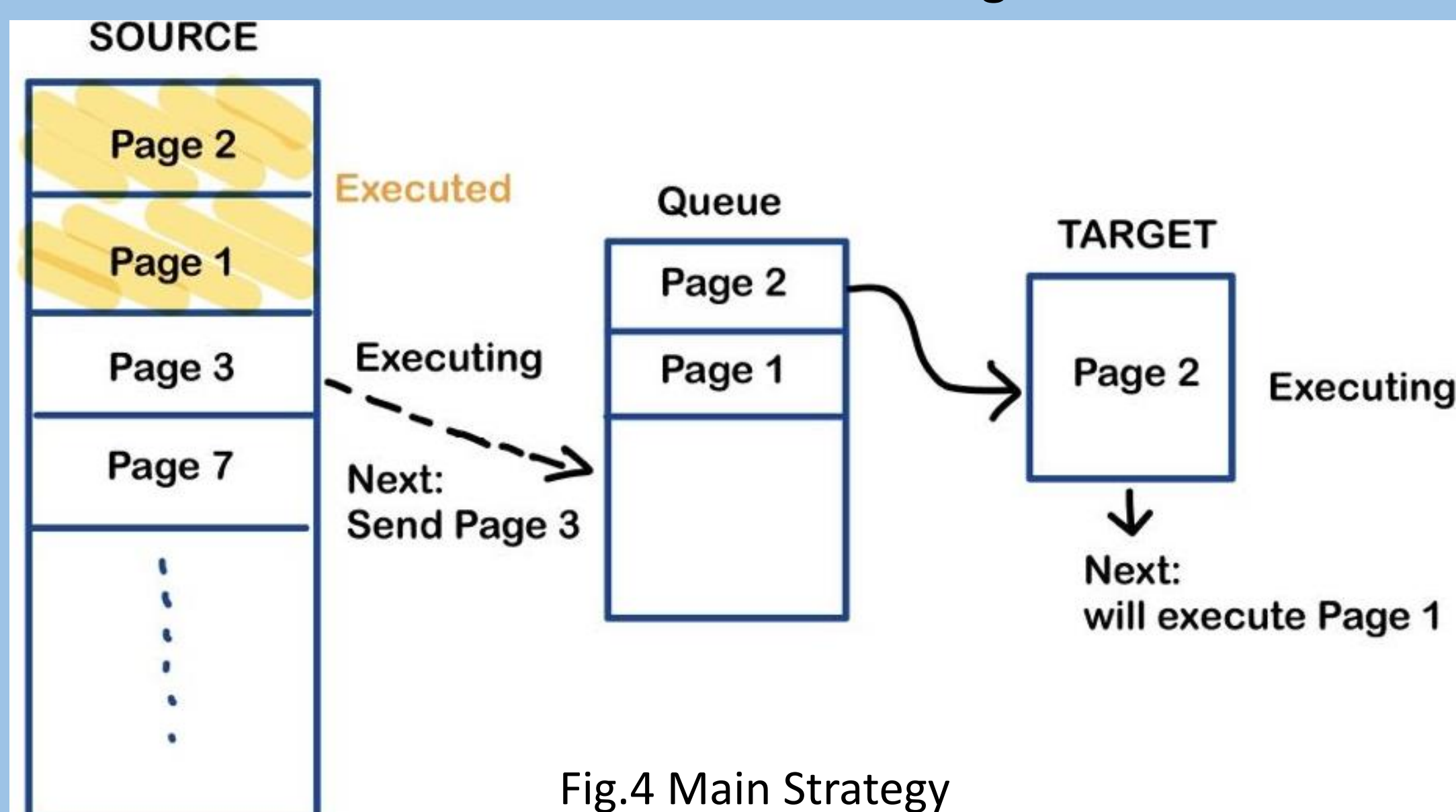


Fig.4 Main Strategy

Evaluation.

Figures 6 and 7 show that utilizing the queue method improves efficiency, with the best case achieving up to a 38% increase compared to the Post-Copy method.

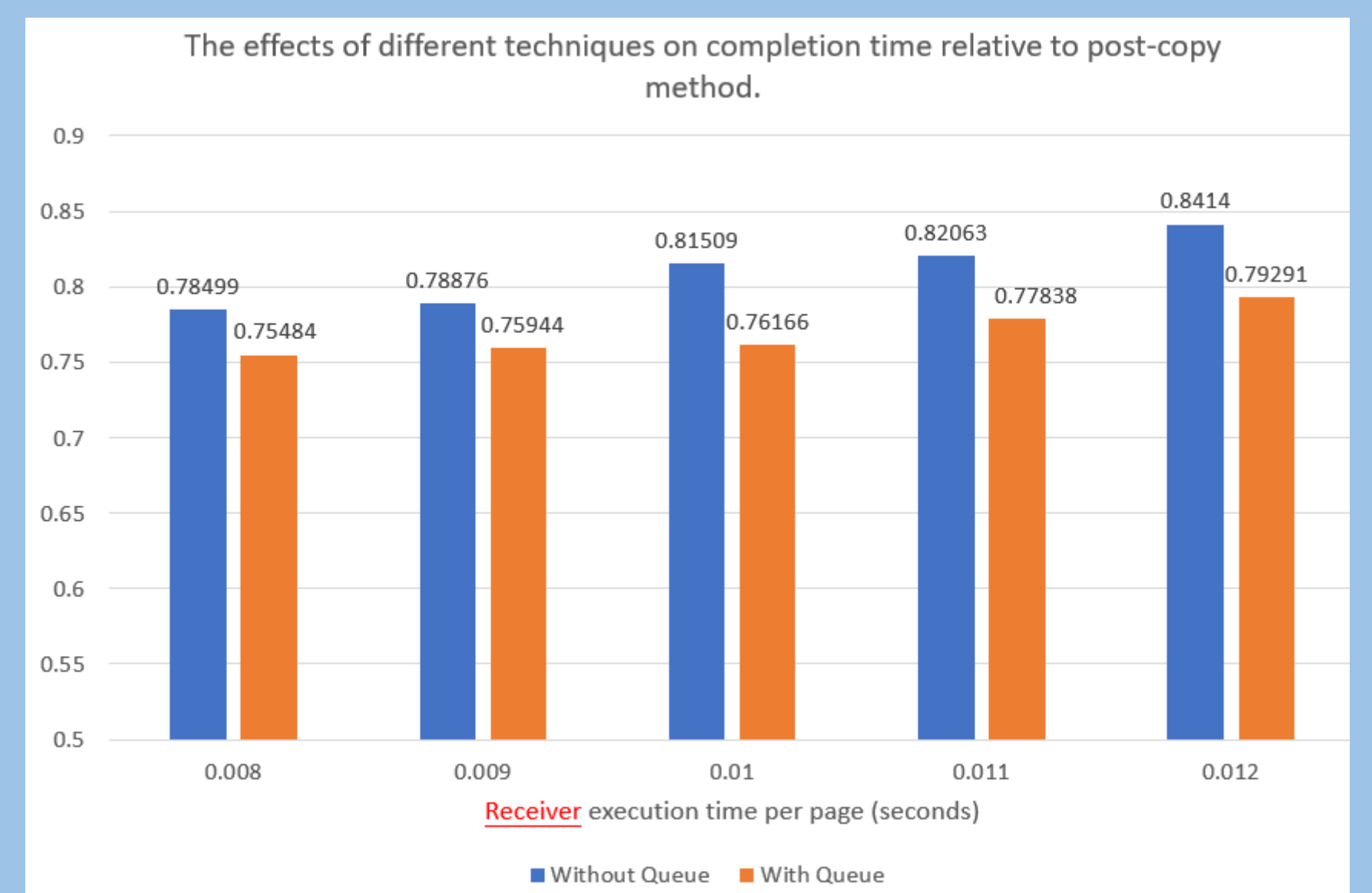


Fig.6

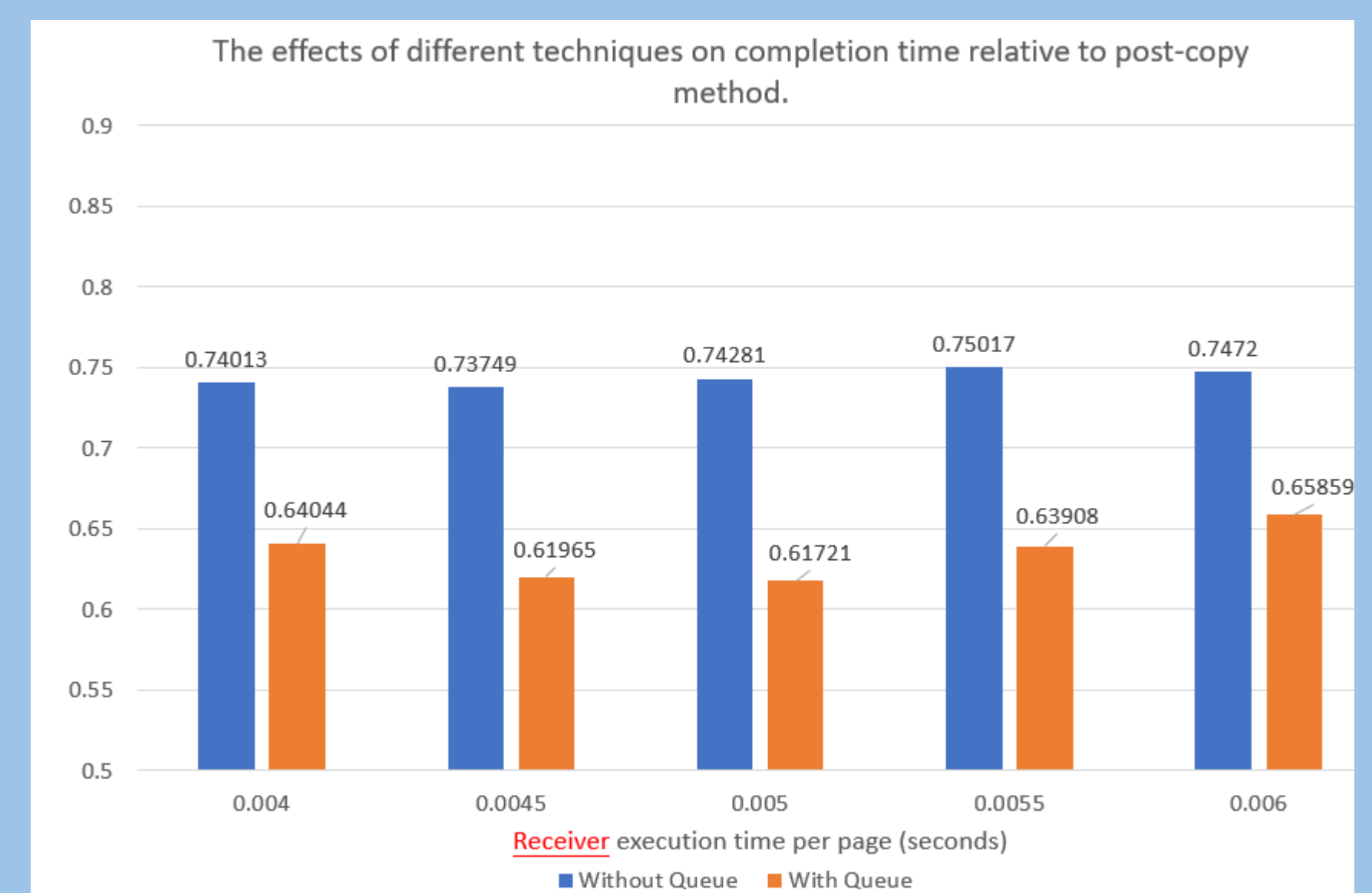


Fig.7

Conclusion.

We present enhancements to the original post-copy live migration method. We introduce the concept of concurrently executing the same target program on both the source and target hosts. The source host utilizes a queue-based method for transferring pages, effectively addressing the issue of dirty pages.

Reference.

Hines, M. R., & Gopalan, K. Post-Copy Based Live Virtual Machine Migration Using Adaptive Pre-Paging and Dynamic Self-Ballooning.

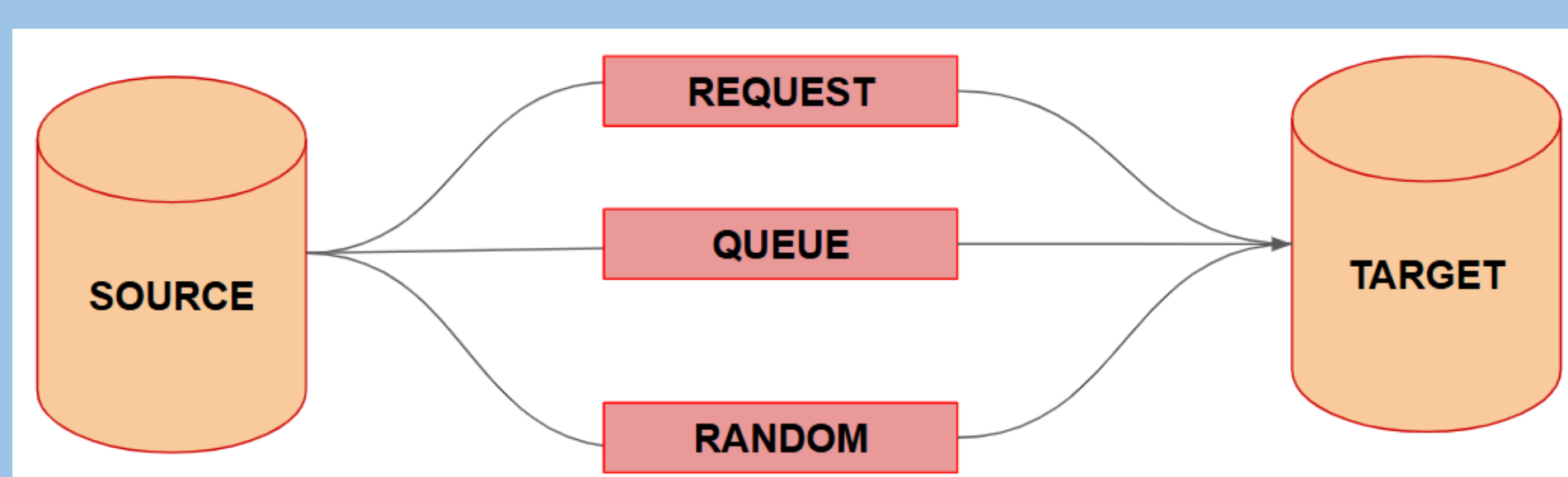


Fig.5 Priority Scheme for Transferring Pages