

## ***Abstract***

*In the virtual machine live migration, including pre-copy method, there is a problem where free unallocated pages of virtual machine's memory will still be transferred to the destination host when migration takes place. This should be avoided, because not only useless, it will also increase the total migration time, which should be kept as small as possible in the virtual machine live migration. The technique proposed to overcome this problem is by optimizing the virtual machine's memory page transfer using ballooning.*

*At this final project, a system is created to perform virtual machine live migration with pre-copy method and implements ballooning in virtual machine to analyze the effect of ballooning implementation to virtual machine live migration's performance, measured from the page transferred and total migration time.*

*The tests showed that implementation of ballooning can improve the performance of virtual machine live migration that uses pre-copy method by optimizing the virtual machine's memory pages transfer up to 15.39% in the scenario that represents the best-case workload and 8.93% in the scenario that represents the worst-case workload, when the workload given to the memory is 128 MB, with a very small trade-off.*

***Keywords:*** *Virtual Machine, Live Migration, Pre-Copy, Ballooning, Page Transferred, Total Migration Time.*