## **Implementing Memory Ballooning Concept for OpenBSD Hypervisor**

**Project Abstract**

**by**

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**ABSTRACT**

## **Implementing Memory Ballooning Concept for OpenBSD Hypervisor**

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A computer system uses an operating system to control its hardware and memory. It may be desirable to host Virtual Machines with different operating systems. A hypervisor or Virtual Machine Monitor (VMM) is a computer software that allows the host operating system to host several guest VMs. The VMM presents each VM with a virtual operating platform and manages the operation, execution and memory of all the hosted VM’s.

Only a finite amount of physical memory is available on the host machine which must be shared among all the VMs as virtual memory. However, not all physical memory will be utilized at all times by each VM which is an inefficient use of the limited resource. It is possible for the total amount of virtual memory allocated to the VMs to exceed the physical memory available with is called memory overcommitment. However, the situation can arise where the host runs out of memory and is in a low memory condition.

Memory Ballooning is a computer memory reclamation technique used by hypervisors to allow the physical host system to retrieve unused memory from certain VMs and share it with the host and vice versa. When the host system runs low on physical memory, the hypervisor will communicate to the hosted VM’s and return a certain amount of memory to the host with the help of a balloon driver . If the VM has unused memory, a virtual balloon expands which signifies a temporary reduction in that VMs available memory. When the low memory situation has passed, the balloons can be deflated and the VMs can again access their preallocated memory.