

# Kernel Virtual Machine based High Performance Environment for Grid and Jungle Computing

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**Abstract**—Grid, cluster, cloud, and jungle enable high-speed computing in current domains. To tackle the rising data and the computation on the internet by dispersing the load between numerous nodes, grid and jungle computing originated as the largest option. In this article, we demonstrate two models—grid and jungle—using virtual machines. The java based virtual machine environment is used for constructing jungle and grid models. Our main aim is to reduce power consumption, gain high performance and reduce hardware costs for building these types of settings. The approach employs KVM (Kernel-based Virtual Machine) and OpenNebula cloud for configuration and deployment of grid and jungle in a virtual environment. The performance of different algorithms in virtual machines and regular machines are tested individually. The performance of models is calculated and compared using streaming Ramanujan number, firefly technique, and finding the prime numbers for both grid and jungle environment. The results provide the high execution of KVM for Ramanujan numbers and prime numbers while firefly technique requires more execution time on grid computing.

**Keywords**— *Jungle computing, Virtual machines, Grid computing, Cluster computing, cloud Computing, Firefly-Ramanujan code*