15-440 Homework #4
Kesden/Fall 2013

Virtual Machines

1. Please identify and describe three way that virtual machines ease the implementation and management of distributed systems

2. What are the differences and relative advantages and disadvantages of simulators, emulators, and virtualizers?

3. What is a hypervisor? What role do they play in the management of computing.

4. Consider computation, disk I/O, network I/O, human input such as via keyboards and mice, and GPU computation. Please rank these in terms of the penalty encountered through virtualization on same-architecture virtual machines (consider VMware or KVM, if you'd like). Then, please explain the underlying reasons that each type of function experiences the relative VM penalty that it does.