**Quantifying the Performance Isolation Properties of Virtualization Systems**

*<web2.clarkson.edu/class/cs644/isolation/>* (download for profiling suite)

**Performance Isolation of a Misbehaving Virtual Machine with Xen, VMware and Solaris Containers**

*<web2.clarkson.edu/class/cs644/isolation/>* (download for profiling suite)

**Container-based Operating System Virtualization: A Scalable, High-performance Alternative to Hypervisors**

*<https://en.wikipedia.org/wiki/Operating-system-level\_virtualization>*

page 3, section 2.2

quantifying isolation in three ways

* fault isolation
  + ability to limit a buggy VM from affecting stored state/correct operation of another
* resource isolation
  + ability to guarantee fair share of resources to avoid cross-talk
  + physical and logical resources
    - physical, e.g. cycles, memory, link bandwidth, disk space
    - logical, e.g. file descriptors, ports, PIDs, memory buffers
* security isolation
  + extent of limiting access to (and information about) logical objects, e.g. files, virtual memory addresses, port numbers, UIDs, PIDs
  + promotes configuration independence (avoid global naming conflicts) and safety (sharing global namespace allows read but not write access)

**An Updated Performance Comparison of Virtual Machines and Linux Containers**

page 4

controlling level of isolation in containers

cgroups (linux control groups) limit memory/cpu consumption of containers

**iBench: Quantifying Interference for Datacenter Applications**

**Performance Evaluation of Container-based Virtualization for High Performance Computing Environments**