Position paper for SATURN 2016 workshop on containers

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I am not an expert in containers so I am comparing them to virtual machines to try to determine a) what I know and what I don't know and b) what the differences are.

Attribute	VM	container
Memory isolation	Isolated from other VMS on same physical machine by hypervisor	Isolated from other containers in same VM by container manager
Communication	Two VMs communicate only through messages over a network. Each VM has its own IP address	Two containers communicate only through messages (?). Containers exist in a hierarchy. Going down or up in the hierarchy is via messages (?). Is it possible for two containers on the same level to communicate? Containers cannot be addressed directly from outside since they do not have their own IP addresses (?)
Disk management	Each VM is given a share of a physical disk. Isolation from other VMs that share the same physical disk is managed by the hypervisor.	A container creates a file by asking its supporting OS. This suggests that the OS manages isolation of disk files (through normal protection mechanisms?)
Size/moving	A VM has a fixed size created when it is allocated. If the VM is moved from one location to another, the fixed size is moved. If the VM is the size of a current laptop, it can be on the order of 8GB. Moving 8GB on a 1Gb network takes on the order of minutes	A containers size is determined when the container is created. It can be relatively small (compared to the 8GB of the laptop)
loading	Loading a VM will involve connecting to the network since it will have a new IP address.	Loading a container does not involve connecting since it will be loaded into a pre-existing VM that has already been connected.