**Report On Virtualization 101**

VM (virtual machine  
  
In computing, a virtual machine (VM) is the virtualization/emulation of a computer system. Virtual machines are based on computer architectures and provide functionality of a physical computer. Process virtual machines are designed to execute computer programs in a platform-independent environment

Linux c groups and namespaces

What is the use of c groups in Linux?

A control group (c group) is a Linux kernel feature that limits, accounts for, and isolates the resource usage (CPU, memory, disk I/O, network, and so on) of a collection of processes.

Namespaces are a feature of the Linux kernel that partitions kernel resources such that one set of processes sees one set of resources while another set of processes sees a different set of resources.  
Application Containers. An application container is a stand-alone, all-in-one package for a software application. Containers include the application binaries, plus the software dependencies and the hardware requirements needed to run, all wrapped up into an independent, self-contained unit.

Vagrant

Vagrant is a tool for building and managing virtual machine environments in a single workflow. With an easy-to-use workflow and focus on automation, Vagrant lowers development environment setup time, increases production parity, and makes the "works on my machine" excuse a relic of the past.

hypervisor

A hypervisor, also known as a virtual machine monitor or VMM, is software that creates and runs virtual machines (VMs). A hypervisor allows one host computer to support multiple guest VMs by virtually sharing its resources, such as memory and processing.

Docker

Docker is an open source containerization platform. It enables developers to package applications into containers—standardized executable components combining application source code with the operating system (OS) libraries and dependencies required to run that code in any environment

Proxmox

Proxmox VE is a complete, open-source server management platform for enterprise virtualization. It tightly integrates the KVM hypervisor and Linux Containers (LXC), software-defined storage and networking functionality, on a single platform. With the integrated web-based user interface you can manage VMs and containers, high availability for clusters, or the integrated disaster recovery tools with ease.

The enterprise-class features and a 100% software-based focus make Proxmox VE the perfect choice to virtualize your IT infrastructure, optimize existing resources, and increase efficiencies with minimal expense. You can easily virtualize even the most demanding of Linux and Windows application workloads, and dynamically scale computing and storage as your needs grow, ensuring that your data center adjusts for future growth.

Podman

Podman is a daemonless, open source, Linux native tool designed to make it easy to find, run, build, share and deploy applications using Open Containers Initiative (OCI) Containers and Container Images. Podman provides a command line interface (CLI) familiar to anyone who has used the Docker Container Engine System Containers. Most users can simply alias Docker to Podman (*alias docker=podman*) without any problems. Similar to other common [Container Engines](https://developers.redhat.com/blog/2018/02/22/container-terminology-practical-introduction/#h.6yt1ex5wfo3l) (Docker, CRI-O, containerd), Podman relies on an OCI compliant [Container Runtime](https://developers.redhat.com/blog/2018/02/22/container-terminology-practical-introduction/#h.6yt1ex5wfo55) (runc, crun, runv, etc) to interface with the operating system and create the running containers. This makes the running containers created by Podman nearly indistinguishable from those created by any other common container engine.

A system container (also known as operating system container) is the oldest container type. It is an operating system (OS) centric solution that behaves like a standalone system, which does not require specialized software or custom images such as Docker.

LXC

LXC—short for “Linux containers”, is a solution for virtualizing software at the operating system level within the Linux kernel

Kubernetes

What exactly is Kubernetes?

Kubernetes is an open-source container orchestration platform that enables the operation of an elastic web server framework for cloud applications. Kubernetes can support data center outsourcing to public cloud service providers or can be used for web hosting at scale.

ESXi

What is ESXi used for?

VMware ESXi is the bare-metal hypervisor in the VMware vSphere virtualization platform. As a bare-metal hypervisor for creating and running virtual machines (VMs), VMware ESXi runs on top and accesses the hardware directly without the need to install an operating system.