



WWCODE BIRMINGHAM: OCT 2019 CODE CAFE

INTRO TO VIRTUAL MACHINES

ABOUT ME



Leah Pope

Software Engineer

Birmingham, Alabama Area · 213 connections

[Sign in to Connect](#)



[Numbers Place Inc](#)



[George Mason University](#)

About

Software Engineer with 20 years of experience in providing technical solutions to a variety of Federal Government customers. Master's Degree in Software Engineering with a dual emphasis in Software Design and Software Project Management. Bachelor's Degree in English with a Technical Communication minor.

WHAT WE'LL COVER

- ▶ Virtual Machine background info
- ▶ Use cases
- ▶ Overview of popular software
- ▶ Demo of using VMWare Fusion
- ▶ Where to find VM images

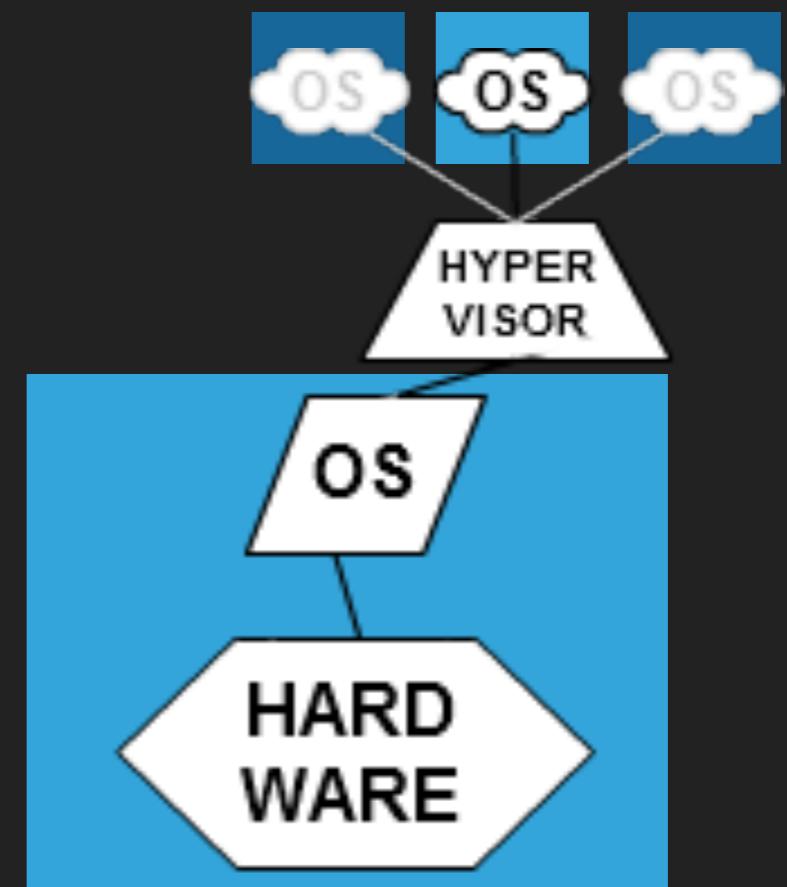
SO... WHAT EXACTLY IS A VIRTUAL MACHINE?

A virtual machine (or "VM") is an emulated computer system created using software. It uses physical system resources, such as the CPU, RAM, and disk storage, but is isolated from other software on the computer. Virtual machines... do not run directly on the hardware. Instead, a software layer exists between the hardware and the virtual machine.

The Tech Terms Dictionary
https://techterms.com/definition/virtual_machine

MORE DETAILS

- ▶ A **hypervisor** is a computer software, firmware, or hardware that creates and runs virtual machines
- ▶ A computer on which a hypervisor runs one or more virtual machines is called a **host machine**, each virtual machine is called a **guest machine**
- ▶ The hypervisor presents the guest operating system(s) with a virtual operating platform and manages the execution of the guest operating system(s)



USE CASES

- ▶ Attributes of VMs that make them so useful
 - ▶ Easily created, modified, or destroyed without affecting the host computer
 - ▶ Can be used as a playground/sandbox
 - ▶ Enable you to create a saved state (or "snapshot") that you can reverted back to when needed

USE CASES

- ▶ For the Privacy-Conscious
 - ▶ run a secure second desktop with different privacy settings, tools and networking configurations to keep host system secure while browsing online
- ▶ For Educators
 - ▶ VMs provide students with a simple environment for exploring new operating systems and faculty can distribute repeatable lab environments for classroom activities

USE CASES

- ▶ For IT Admins
 - ▶ Server consolidation – instead of maintaining multiple servers that each have a different function, server virtualization allows you to split the resources of a single server for multiple purposes
 - ▶ Config testing – use VMs to test and verify configuration changes on the legacy system before rolling out to production

USE CASES

- ▶ For Developers
 - ▶ Learning a new OS – install a VM to learn about a new operating system and experiment with the command line and other OS features/common apps
 - ▶ Learning a new software stack – more about this in **Where to Find VM Images** section
 - ▶ Testing applications – use VMs to test apps on different environments without having to set up several different computers (ex: multiple web browsers and versions on multiple operating systems)

POPULAR SOFTWARE

- ▶ Parallels Desktop (cost varied by product)
 - ▶ Mac hosts only
- ▶ Microsoft Hyper-V (Free)
 - ▶ Windows 10 and Windows Server hosts (and limited Linux hosts)
- ▶ VMware (cost varies by product)
 - ▶ Windows, Mac and Linux hosts
- ▶ Virtual Box (Free)
 - ▶ Windows, Mac, and Linux hosts
- ▶ We'll go into more details on **Virtual Box** and **VMWare** product line

VIRTUAL BOX - FREE AND FULL OF FEATURES

- ▶ Well known and established software (created in 2007)
- ▶ Open source software – FREE for personal and business use
- ▶ Actively developed with new features being added
- ▶ Online documentation and community support
- ▶ Runs on Windows, Mac, and Linux hosts
- ▶ Large number of supported OSs

VIRTUAL BOX - FREE AND FULL OF FEATURES

- ▶ Snapshots – can save arbitrary snapshots of the state of the VM
- ▶ VM groups – enables the user to organize and control VMs collectively, as well as individually
- ▶ Guest additions – optional, Guest OS tools to improve performance and provide additional integration and communication with the Host system
 - ▶ Shared Folders – easy way to exchange files between Host and Guest
 - ▶ Shared Clipboard

VMWARE - BEST KNOWN WITH LOTS OF OPTIONS

- ▶ Well known, established company – in the VM game since 1998
- ▶ Business Users
 - ▶ VMware Workstation Pro (runs on Windows and Linux)
 - ▶ VMware Fusion Pro (runs on Mac)
- ▶ Individual Users
 - ▶ VMware Workstation Player (runs on Windows and Linux)
 - ▶ VMware Fusion (runs on Mac)

VMWARE WORKSTATION PLAYER (WINDOWS OR LINUX HOSTS)

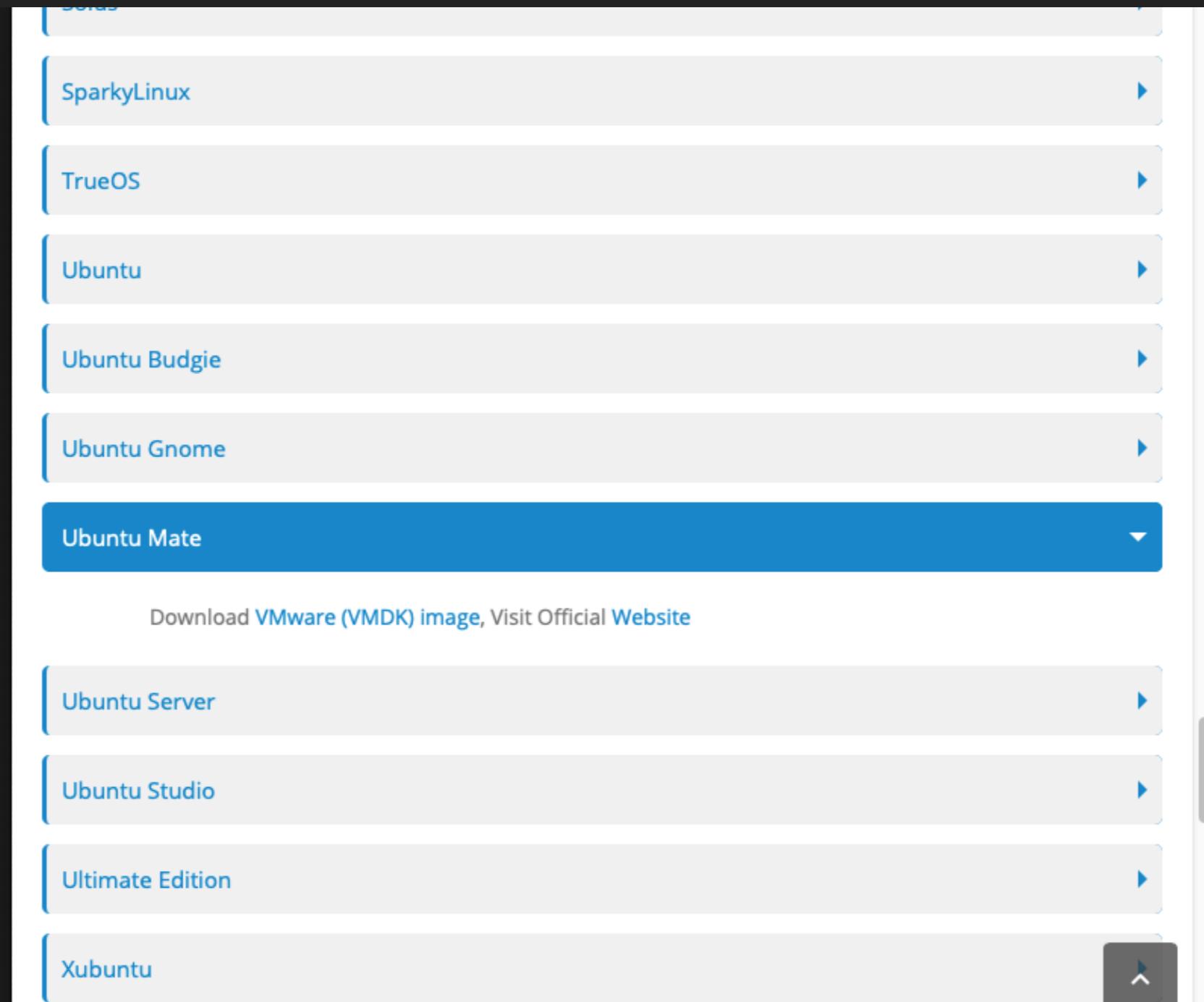
- ▶ FREE for personal use
- ▶ Host/Guest File sharing
- ▶ Over 200 supported Guest OSs
- ▶ Run a single VM at a time

VMWARE FUSION (MAC HOSTS)

- ▶ Affordable – free trial and ~\$80 for license
- ▶ Host/Guest File sharing
- ▶ Over 200 supported Guest OSs
- ▶ Create multiple Snapshots
- ▶ Create and run multiple operating systems as VMs

DEMO OF VMWARE FUSION

SCREENSHOTS OF STEPS TO SET UP A VM



Choosing Ubuntu from osboxes.org

WHERE TO FIND VM IMAGES

- ▶ Oracle provides several pre-build VMs for Virtual Box – developer-focused with full software stacks already installed and configured
- ▶ Linux/Unix VM images for both Virtual Box and VMWare are on [openboxes.org](#)
- ▶ For learning about Big Data – Cloudera's QuickStart VM (single-node cluster) includes a tutorial, sample data, and scripts for getting started

WHAT WE COVERED

- ▶ Virtual Machine background info
- ▶ Use cases
- ▶ Overview of popular software
- ▶ Demo of using VMWare Fusion
- ▶ Where to find VM images

LINKS

- ▶ [VMWare Workstation Pro info](#)
- ▶ [VMWare Fusion info](#)
- ▶ [VMWare Workstation Player info](#)
- ▶ [Virtual Box info](#)
- ▶ [Pre-built Developer VMs from Oracle \(software stacks\)](#)
- ▶ [Linux/Unix images on osboxes.org](#)
- ▶ [Cloudera's QuickStart VM](#)
- ▶ [Hypervisor definition](#)

LET'S CONNECT



LinkedIn

<https://www.linkedin.com/in/leahspope/>

Twitter

<https://twitter.com/leahspope>

Git Hub

<https://github.com/lspope>

WWCode Birmingham

<https://www.womenwhocode.com/birmingham>

TIP: Look for the Slack signup page after you register for WWC Birmingham

EXTRA CREDIT



1. Go to https://twitter.com/wwcode_bham
2. Scroll down to the tweet announcing our **Events and Interests Survey**
3. Tell what you want!

WOMEN WHO
CODE
BIRMINGHAM

