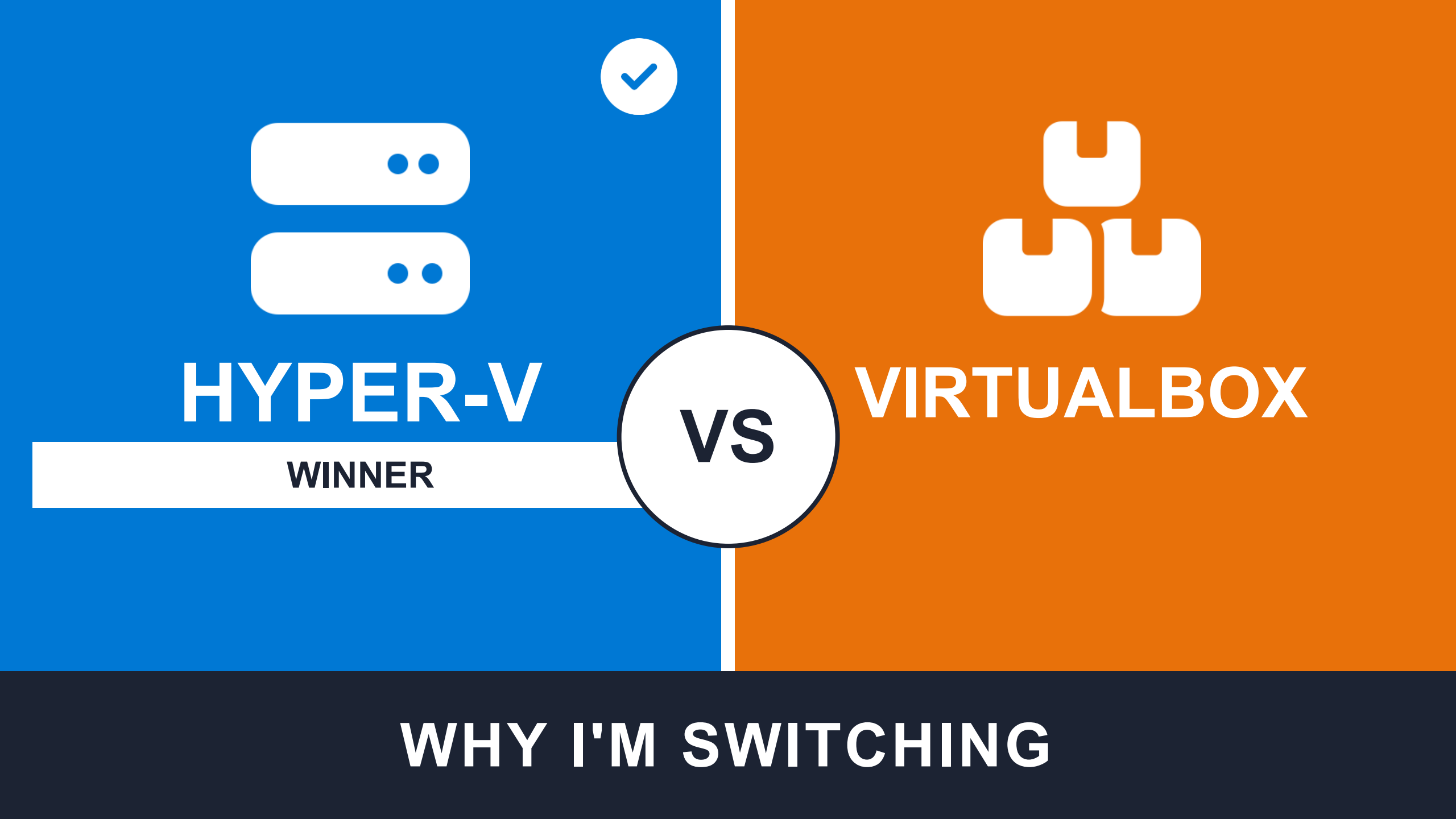
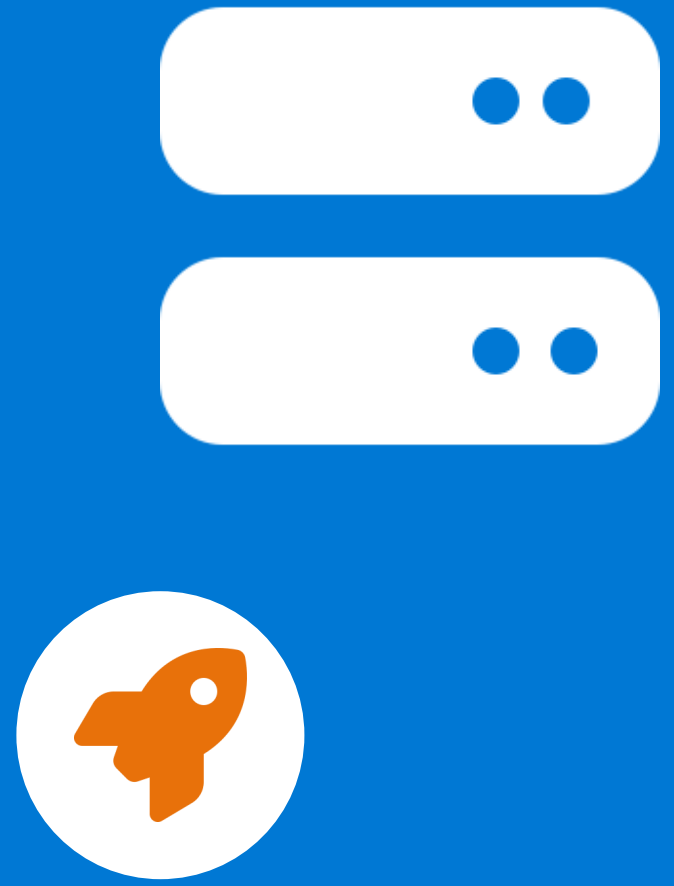

HYPER-V
WINNER
VS
VIRTUALBOX
WHY I'M SWITCHING

HYPER-V

VIRTUALBOX

I SWITCHED. HERE'S WHY.



THE DIRECT PATH TO VIRTUALIZATION

Hyper-V vs VirtualBox

Why I'm Switching My Linux Training Labs to Hyper-V

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AGENDA

What We'll Cover Today

What Is a Hypervisor?

Type 1 vs. Type 2 — the core concept behind every VM tool

VirtualBox Explained

Pros, cons, and where it still shines

Hyper-V Explained

Pros, cons, and why it changes the game

Head-to-Head Comparison

Performance, snapshots, networking, licensing

Why I'm Switching

The real reasons behind the move

What It Means for You

System requirements & how to follow along

FOUNDATIONS

What Is a Hypervisor?

A hypervisor is the software layer that lets one physical machine run multiple, isolated virtual machines — each with its own OS, CPU, memory, and storage allocation.

Type 1 — "Bare Metal"

Runs directly on the physical hardware. No host OS in between. Examples: Hyper-V, VMware ESXi, KVM.

Type 2 — "Hosted"

Runs as an application on top of a full host operating system (Windows, macOS, Linux). Examples: VirtualBox, VMware Workstation.

THE CHALLENGER

What Is Oracle VirtualBox?

Free, open-source, cross-platform Type 2 hypervisor from Oracle — installs as an app on Windows, macOS, or Linux.

Runs on nearly any host

Windows, macOS, and Linux hosts are all supported — great for mixed-OS classrooms.

Completely free

No licensing cost for personal, educational, or most commercial use.

Simple snapshot tree

Easy point-and-click snapshots, ideal for "undo my mistake" training labs.

Huge community & guest support

Runs almost any guest OS, including older/legacy systems.

THE NATIVE OPTION

What Is Microsoft Hyper-V?

A Type 1, bare-metal hypervisor built directly into Windows 10/11 Pro, Enterprise, Education, and Windows Server.

Near-native performance

VMs talk almost directly to hardware — no "guest OS on top of host app" overhead.

Built into Windows

Already licensed with Pro/Enterprise/Education — no extra software to install.

Deep OS integration

Powers WSL2, Docker Desktop, Windows Sandbox, and Windows Containers.

PowerShell automation

Script entire VM fleets for repeatable, version-controlled lab builds.

ARCHITECTURE

Where Each One Sits on the Stack

Fewer layers between the VM and the hardware means Hyper-V VMs generally get more consistent CPU, memory, and disk I/O performance.

VIRTUALBOX

VirtualBox: Pros & Cons

PROS

- Free and open-source
- Runs on Windows, macOS, and Linux hosts
- Simple, beginner-friendly GUI
- Flexible snapshot tree
- Wide legacy/guest OS support

CONS

- Higher performance overhead (hosted architecture)
- Conflicts with Hyper-V-based features (WSL2, Docker Desktop) on Windows
- Limited 3D/GPU acceleration
- Weaker integration with Windows security features
- Not ideal for heavy, multi-VM enterprise labs

HYPER-V

Hyper-V: Pros & Cons

PROS

- Near-native performance (Type 1 hypervisor)
- Free with Windows Pro/Enterprise/Education
- Native WSL2, Docker Desktop, Sandbox support
- PowerShell scripting & automation
- Enterprise features: Live Migration, clustering
- Generation 2 VMs with Secure Boot/UEFI

CONS

- Windows-hosts only (no macOS/Linux host)
- NOT available on Windows Home edition
- Steeper learning curve for networking (virtual switches)
- Can't easily run alongside other Type-2 hypervisors
- Manager UI is less polished for beginners

SIDE BY SIDE

Head-to-Head Comparison

Feature	VirtualBox	Hyper-V
Hypervisor type	Type 2 (hosted)	Type 1 (bare metal)
Cost	Free	Free w/ Windows Pro+
Host OS support	Windows, macOS, Linux	Windows only
Performance	Good	Excellent
Windows Home support	Yes	No
WSL2 / Docker Desktop	Conflicts	Native integration
Automation	CLI (VBoxManage)	PowerShell / WMI
Enterprise scaling	Limited	Live Migration, Clustering
Snapshot terminology	Snapshots	Checkpoints

NETWORKING

Virtual Networking: NAT vs. Virtual Switches

VirtualBox

- NAT, Bridged, Internal, Host-Only modes
- Configured per-VM in the GUI
- Simple for single-machine labs
- Less flexible for multi-VM topologies

Hyper-V

- External, Internal, and Private virtual switches
- Switches are system-wide, reusable objects
- Built for multi-VM, multi-network lab topologies
- Integrates with Windows Firewall & VLANs

POINT-IN-TIME RECOVERY

Snapshots vs. Checkpoints

Both tools let you roll a VM back in time — the terminology and mechanics differ.

Term used	Snapshot	Checkpoint
Default type	Full snapshot	Production Checkpoint (VSS-based)
Best for	Quick "undo" during demos	App-consistent enterprise backups
Management	VirtualBox Manager GUI	Hyper-V Manager or PowerShell

THE HIDDEN CONFLICT

Why You Can't Just Run Both

Windows only allows one virtualization "root" active at a time. WSL2, Docker Desktop, and Windows Sandbox all quietly depend on the Hyper-V platform — so running VirtualBox alongside them can cause instability or forces VirtualBox into a slower compatibility mode.

WSL2

Runs on the Hyper-V platform under the hood

Docker Desktop

Uses Hyper-V (or WSL2) as its backend engine

Windows Sandbox

A lightweight Hyper-V-based disposable VM

WHY I'M SWITCHING TO HYPER-V

Better performance for heavy labs

Running multiple RHEL/Rocky VMs at once for demos stays smooth with near-native disk & CPU access.

No more tool conflicts

Docker Desktop, WSL2, and my VMs now share one platform instead of fighting over the hypervisor.

Repeatable labs via PowerShell

I can script, version, and rebuild entire training environments in minutes.

More relevant to enterprise students

Many of you work in Windows Server shops where Hyper-V is already the standard — this is a real skill, not just a lab tool.

BEFORE YOU FOLLOW ALONG

What You Need to Use Hyper-V

Hyper-V is NOT available on Windows 10/11 Home edition. If you're on Home, VirtualBox remains your best (and free) option.

Windows 10/11 Pro, Enterprise, or Education (or Windows Server)

64-bit CPU with SLAT (Second Level Address Translation)

Virtualization enabled in BIOS/UEFI (Intel VT-x / AMD-V)

Minimum 4 GB RAM (8 GB+ strongly recommended for multiple VMs)

WHAT'S NEXT

Coming Up in This Series

1

Installing Hyper-V Manager

Enable the Windows feature and take the first tour of the console.

2

Building Your First Virtual Switch

Set up External, Internal, and Private networking for your labs.

3

THE DIRECT PATH TO RHEL 10.2

Deploying and exploring RHEL 10.2 on Hyper-V.

4

THE DIRECT PATH TO ROCKY LINUX 10.2

Deploying and exploring Rocky Linux 10.2 on Hyper-V.

RECAP

Which One Should YOU Use?

Choose VirtualBox if...

- You use macOS or Linux as your host
- You're on Windows Home edition
- You want the simplest possible GUI
- You need broad legacy OS support

Choose Hyper-V if...

- You're on Windows Pro/Enterprise/Server
- You already use WSL2 or Docker Desktop
- You want maximum VM performance
- You want enterprise-relevant skills

Don't Miss the Next Video

Subscribe and hit the bell — Hyper-V Manager setup, virtual switches, and the RHEL/Rocky 10.2 and Ubuntu 26.04 series are coming next.

Like

Comment your OS below

Share with a classmate

Thank You!

Questions? Drop them in the comments — I read and answer everyone.

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