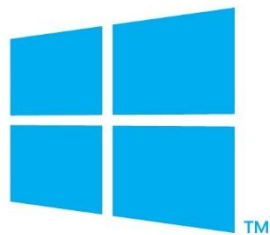


# Clash of the Client Side Hypervisors: Windows 8 Hyper-V and VMware Workstation

- Mike Nelson
- nGenx LLC
- Twitter - @nelmedia
- [mike.nelson@nGenx.com](mailto:mike.nelson@nGenx.com)

# Topics

- What We're Going to Talk About
- In All Fairness
- Your Use Cases
- The Good & The Bad
- Making Them Work
- Nesting
- Wrap Up



Windows® 8  
Client Hyper-V

# Is Someone Having Identity Issues?



**vThis, vThat**

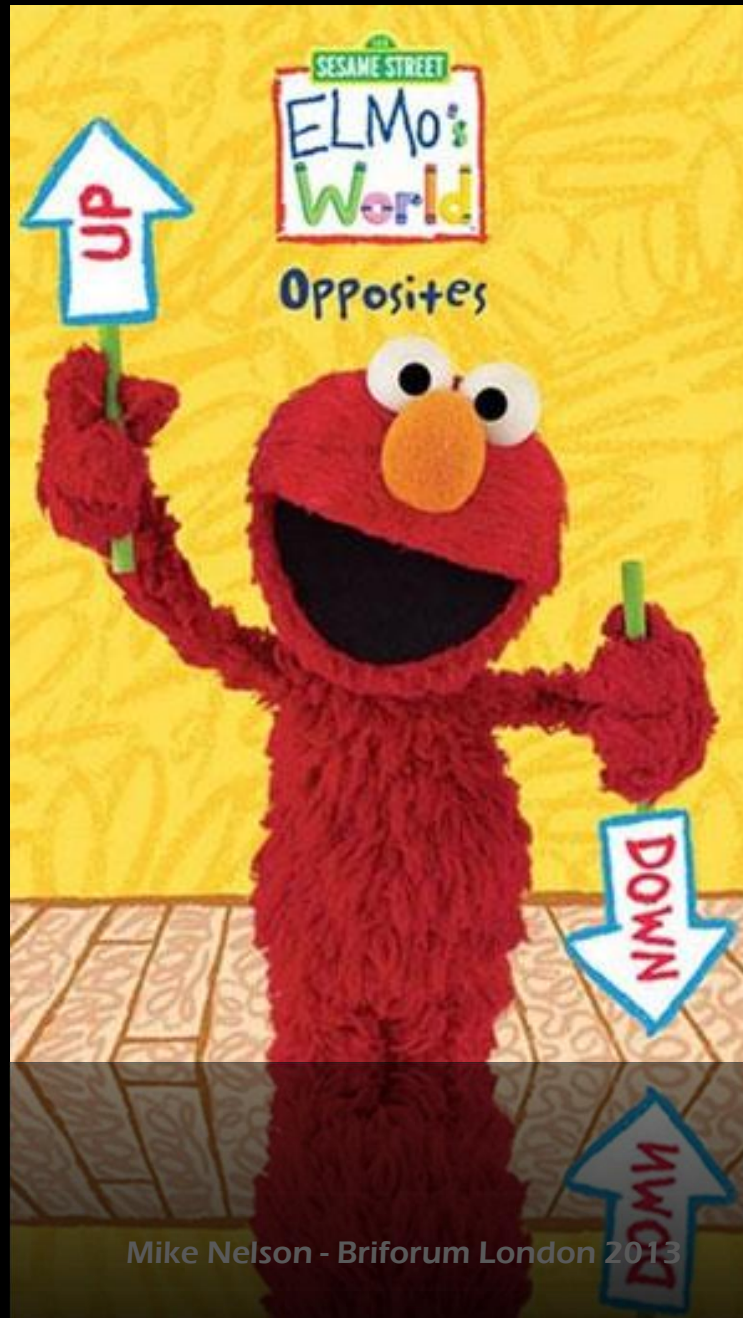


VMware  
vSphere™ 5.0





Think different.







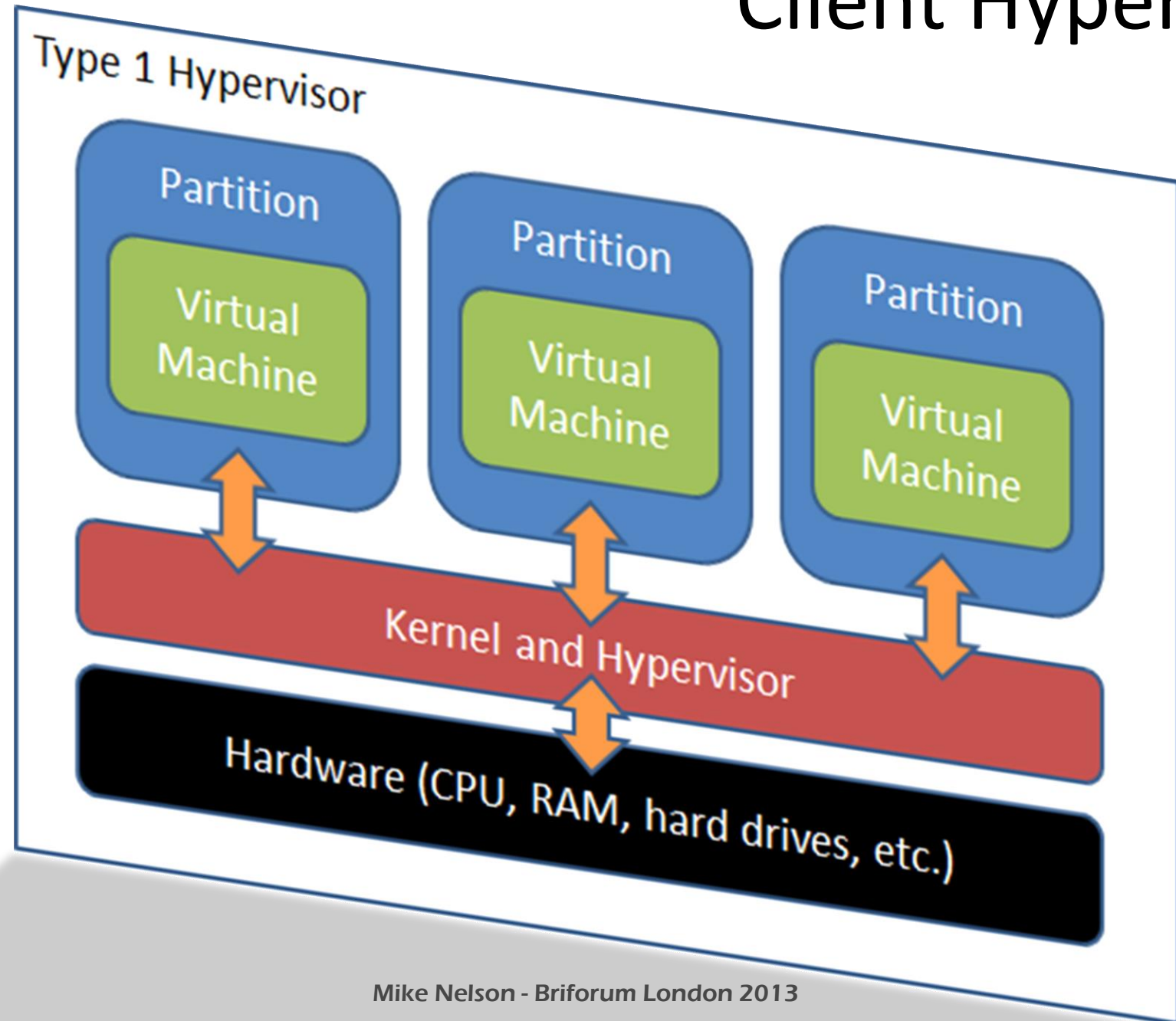
Mike Nelson - Briforum London 2013



Mike Nelson - Briforum London 2013

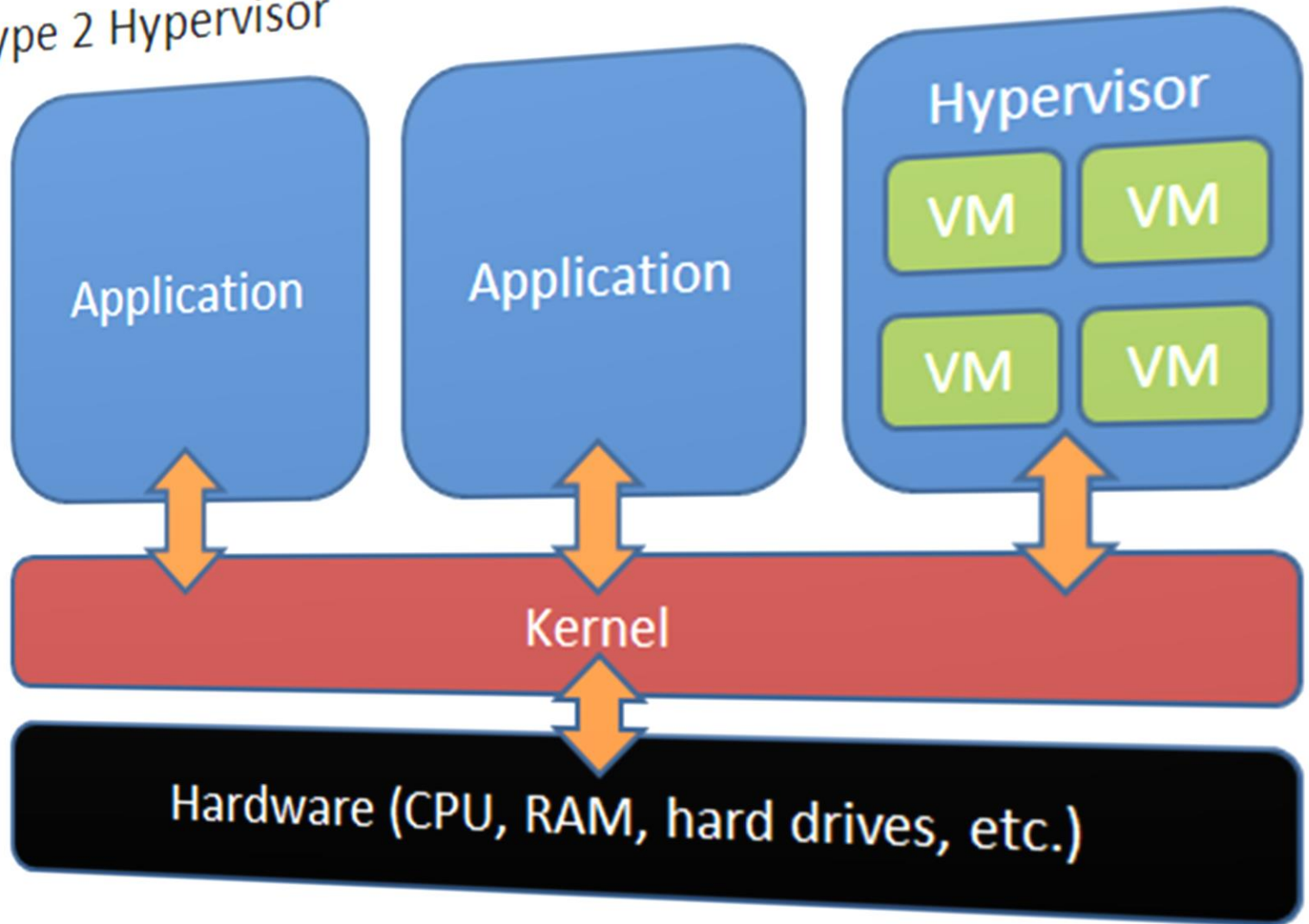


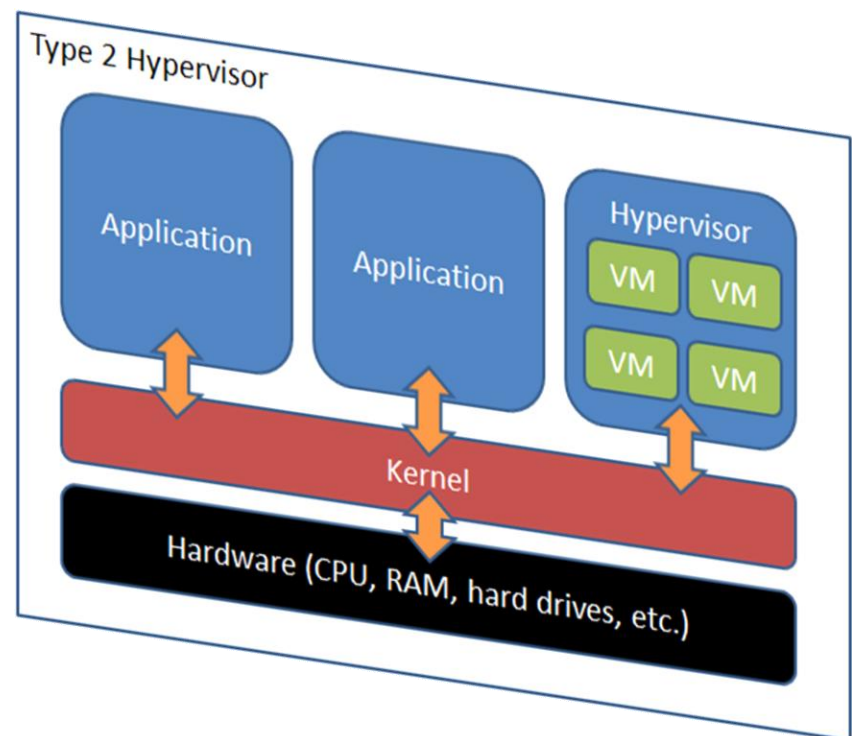
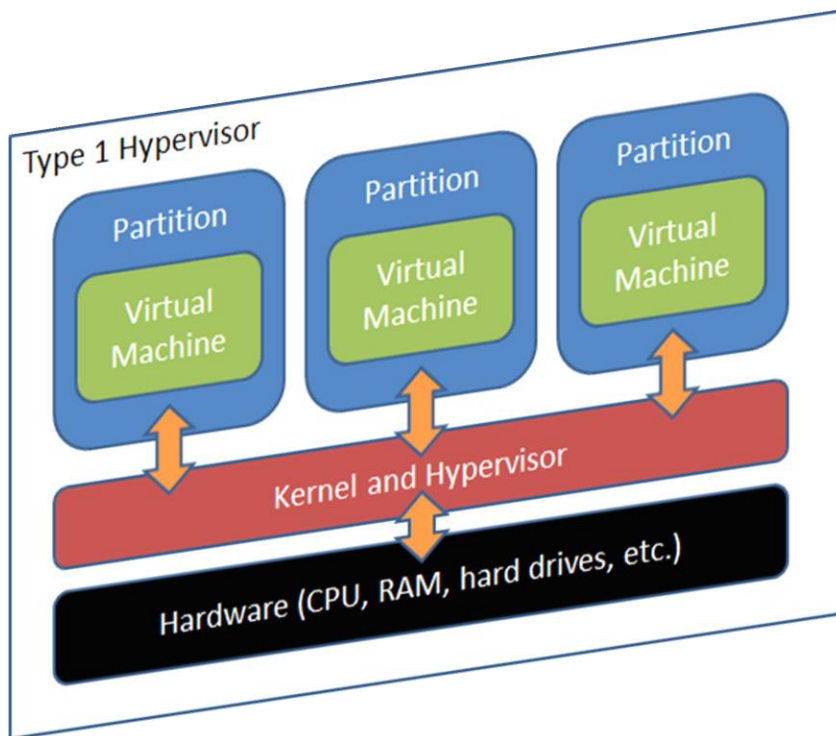
# Client Hyper-V

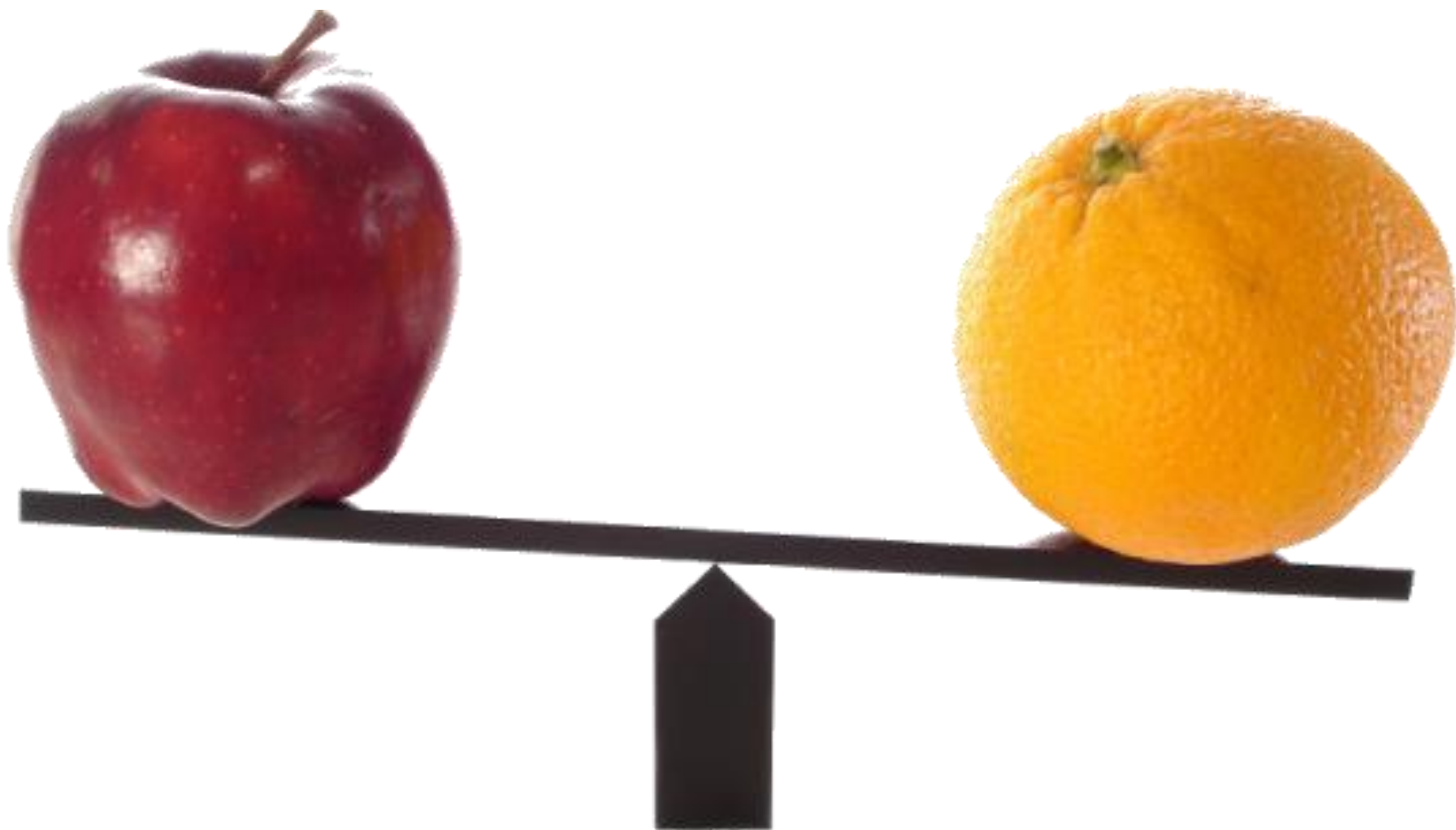


# VMware Workstation

Type 2 Hypervisor







# Your Use Cases

# Development

# “Lame” Applications

# Demonstrations

# Quality Assurance

## “Lame” Users

# OS Versions

# OS Patching

# OS Upgrades

# Split-Admin

# User Acceptance

# Application Testing

# Training

# Production

# Secure Isolation

# Troubleshooting

# Requirements - Compliance

# Fiddle & Tinker



ADVANTAGES	DISADVANTAGES
<h1>Type-1 VS Type-2 On the Desktop</h1>	

# VMware Workstation

## ADVANTAGES | DISADVANTAGES

- It has been around for a long time
- 3D hardware acceleration
- “Unity” mode
- Built-In Networking features
- Runs on older hardware
- Linked Clones
- Drag ‘ Drop Clipboard between VMs
- GUI with Tabs for VMs
- Auto-Resize
- Big list of Guest OS support
- Guest Isolation
- USB 3.0 Native
- Shared VMs
- Encrypted VMs

- Cost
- VM disk performance is inferior
- Portability of images
- Reliant on Host OS
- Reliant on behaved processes
- Display response compared to RDP 8.0
- Tab display gets messed up
- What? No PowerShell??
- Shared VMs

# Client Hyper-V

## ADVANTAGES | DISADVANTAGES

- \*Free
- Disk performance is very good
- Live Migration for Storage!
- Dynamic Memory
- “Ultra” Portability of images
- Bare Metal Type-1
- RDP 8.0 with RemoteFX
- Same VMM for Client & Server
- Smart-Resize
- Easier GUI than VMW
- It knows Windows
- Guest Isolation
- Virtual Fiber

- It's dot-0
- No 3D hardware acceleration (RemoteFX)
- \*SLAT capable (or emulated) CPU
- Drag n' Drop only via RDP (1way text via console)
- USB redirect only via RDP
- Cloning, Templates, and Linked Clones
- No Snapshot GUI (pretty pictures)
- Virtual Switch options limited
- No Tabs
- Limited VMM console – may need SCVMM
- Limited OS Guests
- No Encryption

# Did You Know??

Client Hyper-V has a couple of things Server doesn't...

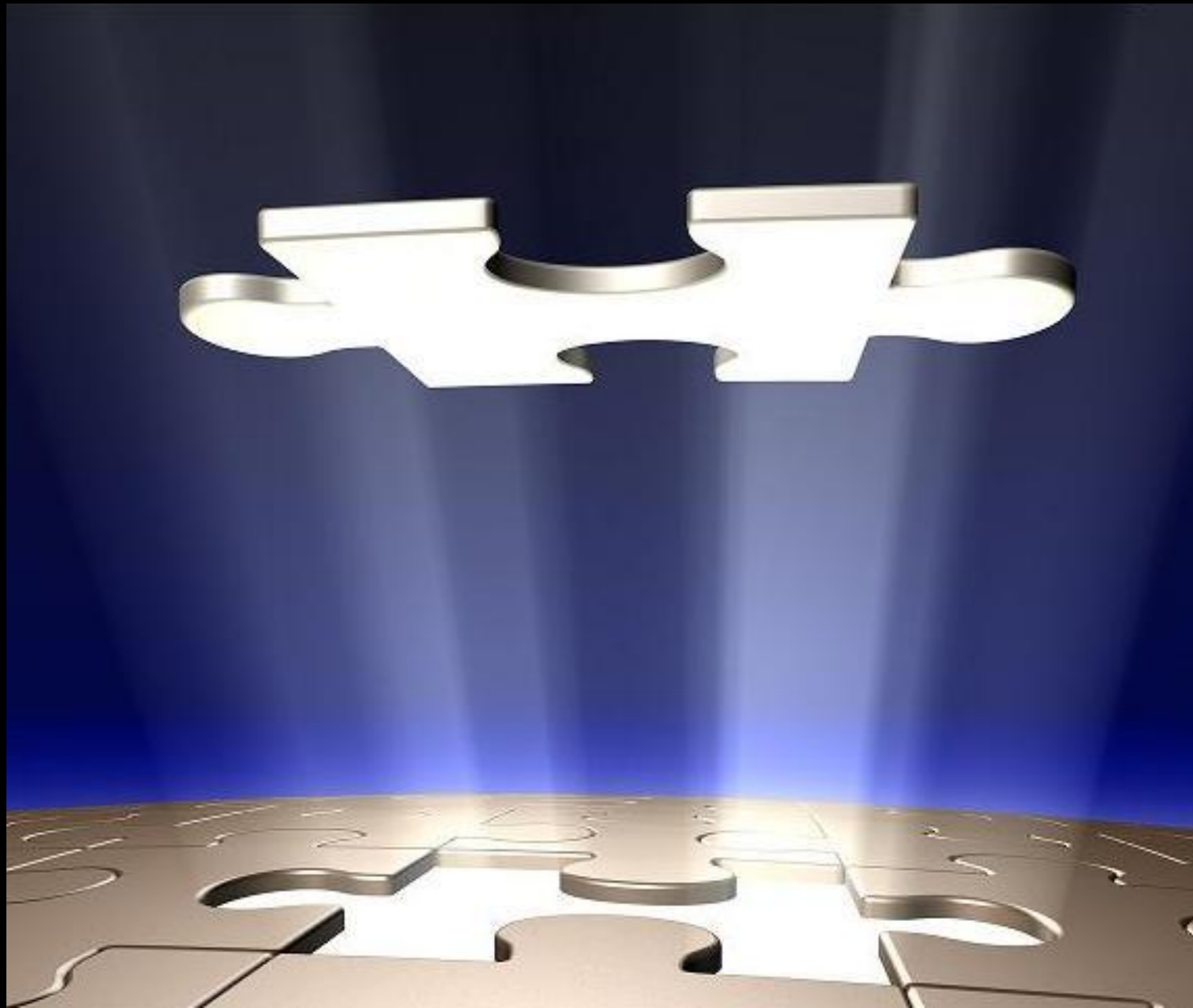
- Sleep support
- Wireless adapter support

**Client Hyper-V requires SLAT capable  
(or emulated) processors.**

**Server 2012 Hyper-V does NOT!**







# Enabling Client Hyper-V


- Professional or Enterprise
- 4GB RAM Minimum
- Check your CPU for SLAT – Use CoreInfo from Sysinternals – `coreinfo.exe -v`
  - “\*” = Good, “-” = Bad
  - Intel i3, i5, i7, i<next>
  - For AMD, look for article GPU-120 at [support.amd.com](http://support.amd.com)

```
Coreinfo v3.1 - Dump information on system CPU and memory topology
Copyright (C) 2008-2012 Mark Russinovich
Sysinternals - www.sysinternals.com
```


Note: Coreinfo must be executed on a system without a hypervisor running for accurate results.

```
Intel(R) Core(TM) i7 CPU           L 640  @ 2.13GHz
Intel64 Family 6 Model 37 Stepping 5, GenuineIntel
HYPERVISOR      *      Hypervisor is present
VMX             -      Supports Intel hardware-assisted virtualization
EPT             -      Supports Intel extended page tables (SLAT)
```

```
Intel(R) Core(TM) i7 CPU           930  @ 2.80GHz
Intel64 Family 6 Model 26 Stepping 5, GenuineIntel
HYPERVISOR      -      Hypervisor is present
VMX             *      Supports Intel hardware-assisted virtualization
EPT             *      Supports Intel extended page tables (SLAT)
```



```
AMD Athlon(tm) 64 X2 Dual Core Processor 5000+
x86 Family 15 Model 107 Stepping 2, AuthenticAMD
HYPERVISOR      -      Hypervisor is present
SUM             *      Supports AMD hardware-assisted virtualization
NP             -      Supports AMD nested page tables (SLAT)
```



# Enabling Client Hyper-V

- Check your CPU for SLAT – Use CoreInfo from Sysinternals – `coreinfo.exe -v`
  - “\*” = Good, “-” = Bad
  - Intel i3, i5, i7, i<next>
  - For AMD, look for article GPU-120 at [support.amd.com](http://support.amd.com)
- Some BIOS (i.e. some Lenovo) report CPU capabilities incorrectly in BIOS (Disable DEP)
- Make sure VT-X or Virtualization Mode is enabled in BIOS
- Even if the Role installs, try to start a VM
- Some have had success installing the Role via DISM –
  - `dism.exe /online /enable-feature:Microsoft-Hyper-V /all`

# So, What Happened?

Your Windows 8 OS just became a virtual machine running on the Client Hyper-V hypervisor

It is a “special” VM having direct access to local hardware and no visible VHDX

Check out the  
C:\Windows\Logs\DISM\DISM.Log file out after  
enabling the role





Your PC ran into a problem that it couldn't handle, and now it needs to restart.

You can search for the error online: HAL\_INITIALIZATION\_FAILED

# A Little Bit About Licensing

## VMware Workstation:

You buy it, you own it - 1:1 legally

## Windows 8 Client Hyper-V:

The “Role” is free with Windows 8 Pro & Enterprise

## VOSE Rights:

Windows 8 Enterprise allows for 4 VOSE's installed on a PC running Windows 8 Enterprise, not matter the hypervisor.

There is no limit to the amount of VM's you can create, just a limit on how many time you can install Windows 8 Enterprise in virtual machines that are running on a licensed physical PC.

Windows 8 Pro allows for NONE (as far as I can tell)





KEEP  
CALM  
AND  
MOVE  
ALONG

*CollegeHumor*

Mike Nelson - Briforum London 2013



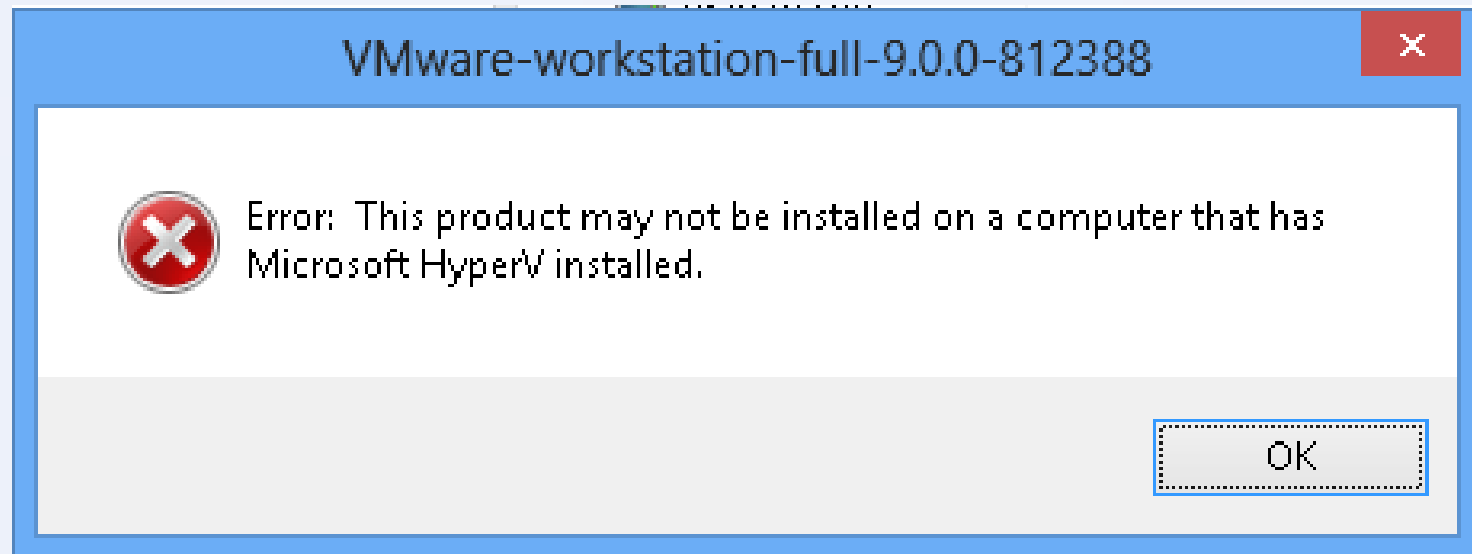
**I Want Both and I Want Them Now!**

Mike Nelson - Briforum London 2013



# Both Worlds in Win8

Attempting to install VMware Workstation on Windows 8 with the Hyper-V role enabled will get you this:



# Both Worlds in Win8

## Option 1:

- Install VMware Workstation first

## Option 2:

- Turn Hyper-V on & off in Boot Manager

- Using BCDEDIT for Boot Option

```
BCDEDIT /COPY {DEFAULT} /D "No Hyper-V"
```

```
BCDEDIT /SET {<GUID>} HYPERVISORLAUNCHTYPE  
OFF
```

- Using BCDEDIT Command Line

```
BCDEDIT /SET HYPERVISORLAUNCHTYPE AUTO  
RESTART
```

```
BCDEDIT /SET HYPERVISORLAUNCHTYPE OFF  
RESTART
```

# Choose an operating system

Windows 8 will run automatically in 12 seconds.



Windows 8



Windows 8 (No  
Hyper-V)

[Change defaults or choose other options](#)

# Both Worlds in Win8

## Option 3:

### ➤ Use DISM to enable / disable the Role

```
dism.exe /online /enable-feature  
/featurename:Microsoft-Hyper-V /all  
dism.exe /online /disable-feature  
/featurename:Microsoft-Hyper-V /all
```

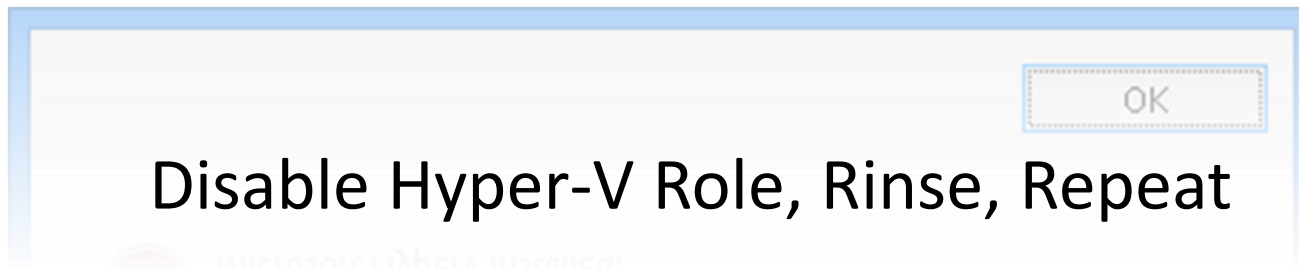
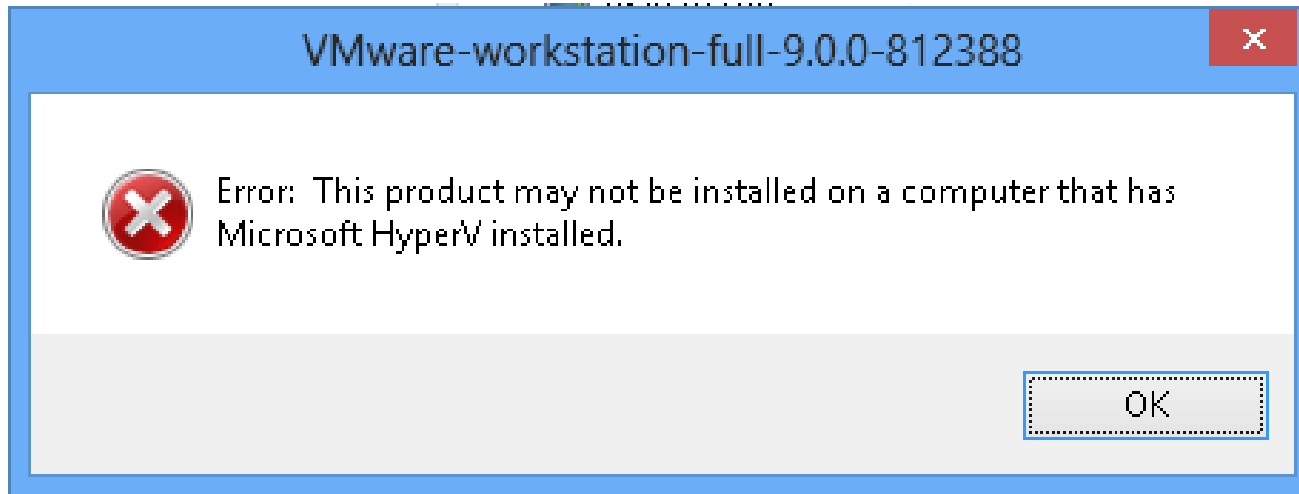
## Option 4:

### ➤ Use PowerShell

```
Enable-WindowsOptionalFeature -Online -FeatureName  
Micro  
Disable-WindowsOptionalFeature -Online -FeatureName  
Microsoft-Hyper-V
```



# Updates to VMware Workstation....





# Both Worlds in VMware Workstation

From the Release Notes for Workstation 9:

- Nested Virtualization of ESXi is enabled, allowing virtual Intel VT-x/EPT or AMD-V/RVI Extensions.
- Hyper-V is included as an OS selection, but....

Hyper-V has been added to the Workstation 9 guest operating system list. This enables customers to run Windows 8 with Hyper-V enabled, or install Hyper-V Server.

... This feature is **NOT SUPPORTED** and probably never will be. Microsoft does not support nesting of their hypervisor which makes it extremely difficult - if not impossible for VMware to fix issues that may occur in this configuration. For this reason, this capability has been implemented purely to see if we could do it!

**CAUTION:** DO NOT ATTEMPT TO RUN HYPER-V ON A VIRTUAL MACHINE IN PRODUCTION.

# Nesting

Wireless Adapters  
Keyboard Functions  
Display Issues





# DEMO

**Thank You!**  
**Don't forget the**  
**Surveys**