

Warpstock 2024 presents: ArcaOS in a VM

Overview

Introduction

Virtual Machine Products Compared

- Oracle VirtualBox
- Microsoft Hyper-V
- VMware Workstation
- QEMU

Conclusion

Introduction

I did an exploration and deep dive into virtual machine usage scenarios with ArcaOS as a guest operating system. My objective was to measure key characteristics of compatibility with ArcaOS and see which product ends up at the top of the stack.

There are reasons why an enterprise may want to virtualize ArcaOS:

- Convenience
- Ease of deployment
- Consistent results



Set up parameters

When setting up and deploying ArcaOS to virtual machines, I followed these considerations:

- Attempt to install with defaults, and make adjustments to the installer only whenever necessary if issues arose.
- I only configured the VM to use 1 CPU for maximum compatibility.
- Whenever possible, I chose virtualized hardware that would deliver the best mix of features and stability (i.e. AC97 audio and NE2000 network hardware)



Contender 1: Oracle Virtualbox

- Oracle Virtualbox was originally developed by Innotek, prior to being acquired by Sun Microsystems, and then again by Oracle.
- Innotek was known as a very pro OS/2 shop, which shows in their VM guest additions for OS/2 and derivatives.
- Oracle offers both the base product licensed under GPL2, as well as an extensions pack licensed under the PUEL (personal use and ~~evaluation~~ education license)



If you are a business and install the extensions pack...

- Some scary lawyers from Oracle will descend upon your business and haunt you with legal notices and requests to pay them money.
- ***Avoid the extensions pack at all costs.***



Oracle Virtualbox Results

The good:

- The install went without a hitch, and defaults could be safely selected.
- Perhaps the most “user friendly” experience for a setup out of all the other VM products tested.
- VirtualBox extensions (provided with ArcaOS) make mouse integration and shared folders easy.
- Video/audio performance excellent.
- ArcaOS formally acknowledged as an option for configuration.

The issues:

- Mouse integration doesn't play nicely with WinOS/2 sessions, causing the mouse to move in an jerky way.
- Using more than one CPU causes weird behaviors and is not recommended.
- Oracle lawyers are scary.

Tips and Tricks for Oracle Virtualbox

- If the screen resolutions found in the screens control panel don't meet your expectations, you can add custom resolutions at the host level.

```
vboxmanage setextradata ArcaOS "CustomVideoMode1" "1920x1080x32"
```

- If you want your cursor to work correctly with WinOS/2, try turning off mouse integration.
- Likewise, if you want to use sound in WinOS/2, you can set your sound card to SoundBlaster 16 in the VM configuration, then supply SB16 drivers for WinOS/2.



Contender 2: Microsoft Hyper-V

- A hypervisor provided for free by Microsoft.
- Has been included in some form since Windows Vista, but properly came into its own in Windows 8.
- Offers Generation 1 VMs for greater compatibility with older OSes, and Generation 2 VMs for modern features.
- Can be turned on under Windows Features.



Microsoft Hyper-V Results

The good:

- Are you kidding me?

The issues:

- It didn't work. Don't bother.



Tips and Tricks for Microsoft Hyper-V

- Uninstall it using the Windows Features panel. It will save on disk space.



Contender 3: VMWare Workstation

- One of the earliest commercially available virtual machine software packages on the market (starting around 1997).
- VMWare was recently acquired by Broadcom, and all the desktop applications were made available free for personal use.
- It's server-hosted relation, ESXi, is quite popular among enterprises for hosting VMs over the network.



VMWare Workstation Results

The good:

- Once fully installed, seems to run stable.
- Usable enough in the ESXi hostable counterpart.

The issues:

- No working guest additions.
- Formal support of OS/2 and derivatives has been withdrawn several versions ago.
- Extremely slow boot from installation media.

Tips and Tricks for VMWare Workstation

- Consider using snapshots after the initial setup start begins if you wish to experiment with setup options. If an option you chose didn't work as you expected or you made a mistake, you can roll back to the snapshot instead of waiting ages for the initial startup phase to complete.
- Since OS/2 isn't an official option when configuring the VM, RAM amounts are expected to be too conservative. Don't forget to bump up to at least a gig or two of memory.



Contender 4: QEMU

- An incredibly flexible emulation solution that typically appeals to more advanced users on Linux, with community builds also available for Windows and macOS.
- It can allow for ArcaOS to be emulated on more exotic hosts that support QEMU's i386 core, like Apple Silicon.
- There is a vibrant community around this project, which shows its staying power and continued innovation.



QEMU Results

The good:

- Because of the flexibility of QEMU, I was able to fully emulate ArcaOS without many issues.
- Offers a very minimalist interface that stays out of your way.
- Performance is consistently solid.

The issues:

- Struggles with mouse cursor lock. Host cursor can break free from the VM.
- Using the emulator requires some command-line fu. Some assembly required.
- Again... no formal guest additions.

Tips and Tricks for QEMU

- If you are looking for a simplified experience using QEMU, you might consider using virt-manager or one of several community developed frontends that exist. Do note that quality can vary with them.
- If you prefer to stick to the command line, consider saving your QEMU startup parameters to a shell script (on Linux) or a batch/cmd file (on Windows) to help simplify your process.
- Mouse escape from the VM seemingly was mitigated when run in full screen mode.



Conclusion

The winner of this experiment is Oracle Virtualbox, hands down, namely in the following areas:

- Guest additions
- The remarkably smooth setup experience.
- VirtualBox without extensions pack is a fully featured experience.



Conclusion

- Other VM products from VMware (Broadcom) and Microsoft either have varying degrees of support or outright fail to work.
- VMware Workstation and ESXi still have a use case if your enterprise already has licenses and wishes to continue to utilize them, especially if you want a way to remotely connect to an ArcaOS instance over the network.
- Just don't expect the best user experience.



Thank you!