

bhyve Update

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Topics

- Review of Last Year
- Works in Progress
- Debug Server

Last Year (or so...)

- Peter Grehan (grehan@) handed off mentorship in June
 - Last of the original bhyve authors who was active
 - Transition took a little while to firm up
- Meetings Resumed in September
 - Public notes at <https://github.com/freebsd/meetings/tree/master/bhyve>

Commits in Last Year (or so...)

- Security Bugs (L1TF)
- virtio-scsi
- NVMe
- Debug Server

Works in Progress

- Save and Restore
 - Work done by Darius Mihai and Mihai Carabas
 - Paper at AsiaBSDCon / Talk at BSDCan
 - Group is currently discussing how to best save and restore device model state
- Live Migration
 - Builds on Save and Restore
 - Work done by Elena Mihailescu

Works in Progress

- EDK2 (UEFI Firmware) Update
 - Scott Phillips (Intel)
- VM_MAXCPUs
 - Rod Grimes
- Various bug fixes from Joyent
 - Patrick Mooney
- Configuration Management
 - Store config in a tree (nvlist?)
 - Can support config files and command line args

Debug Server

- Shipped in FreeBSD 12.0
- Exports each vCPU as a thread to debugger
- Debugger can read memory and general-purpose registers
- Control
 - Interrupt running guest via Ctrl-C
 - Continue paused guest
 - Single step on Intel CPUs via MTRAP
 - Pause on startup

Debug Server Caveats

- Without a file, gdb needs explicit architecture:
`set architecture i386:x86-64`
 - Probably doesn't handle 32-bit kernel correctly
 - Supporting XML register descriptions would fix
- No breakpoint support
- Can't examine floating point or system registers
- Can't write to memory or registers

Debug Server Demo