

OpenAMP App Services

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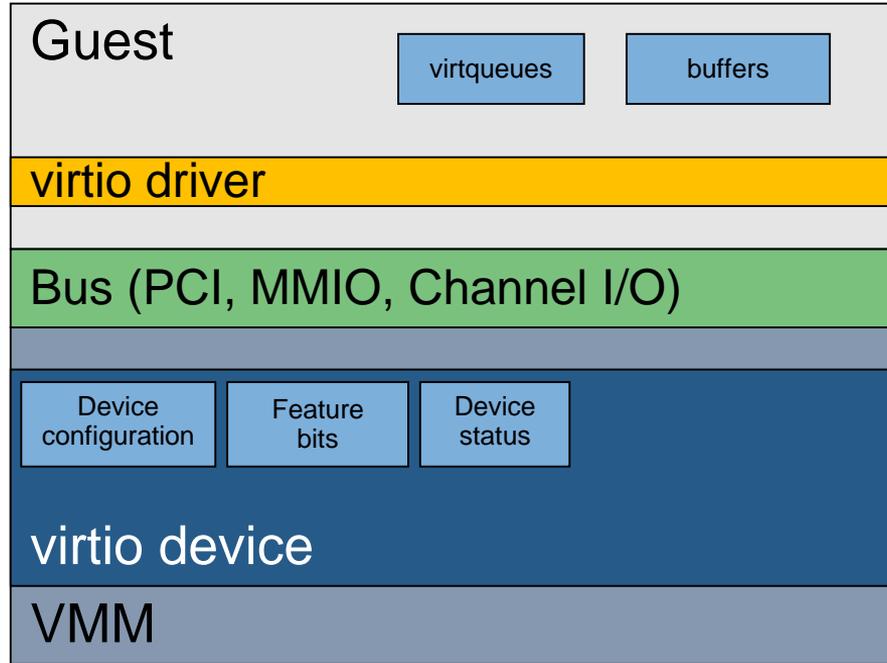
Why virtio?

- Advantages
 - IP reuse
 - File systems, IPC and console for resource constrained devices
 - Can scale from homogeneous to heterogeneous CPU clusters
- Disadvantages:
 - Increased code size
 - Increased shared memory requirements
 - [slight] deviation from virtio standard

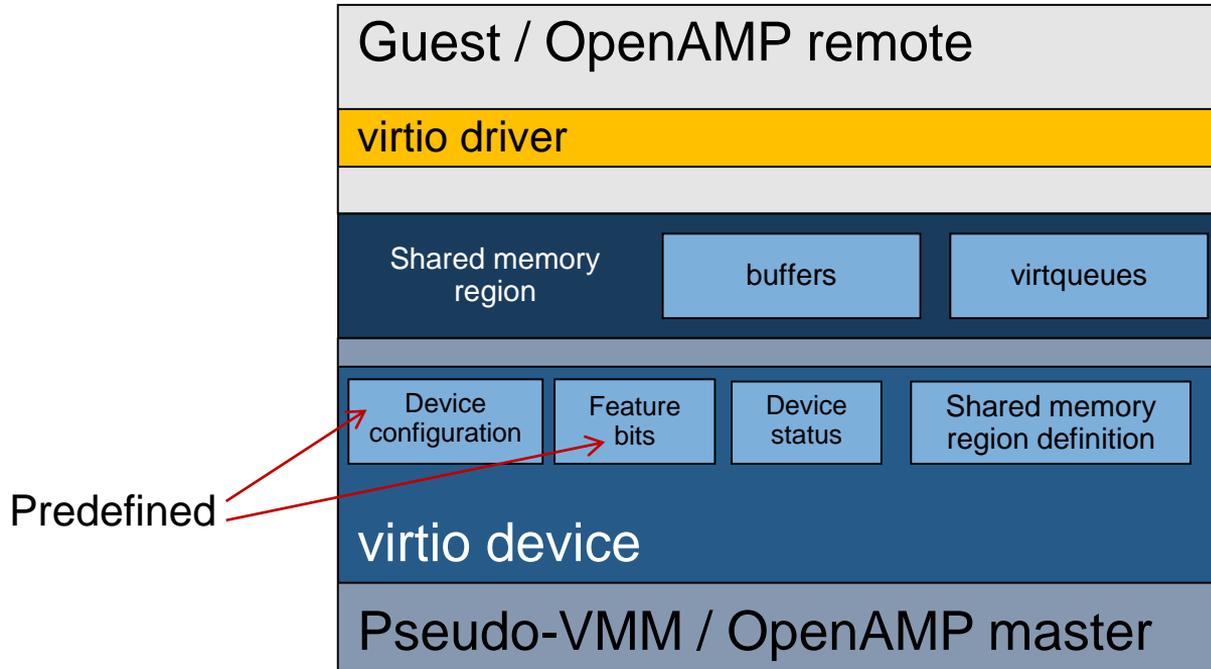
Hypervisor-less virtio

- MMIO transport over shared memory
- Unsupervised AMP support
- Static configuration (features, queues)
- Hardware notifications
- Linux KVM tool used as a PMM instead of VMM
- OpenAMP virtqueues in the same shared memory region
- Support virtio devices: console, 9p virtual file system, vsock, etc.

Virtio



Hypervisor-less virtio



Hypervisor-less VIRTIO PoC

- Linux KVM tool
 - <https://git.kernel.org/pub/scm/linux/kernel/git/will/kvmtool.git/>
 - used to bootstrap the guest
 - provides notification infrastructure (master → remote, remote → master)
- Legacy MMIO interface
- Virtual devices only
- Static virtio device configuration + shared memory region definition (virtio 1.x?)
 - Predefined virtqueue configuration, no feature negotiation
 - vrings and buffers in shared memory

Hypervisor-less VIRTIO PoC – next steps

- Hardware notifications
- Static virtio MMIO device configuration definitions
- Heterogeneous AMP
- Performance enhancements

