

# Qemu/Xen integration

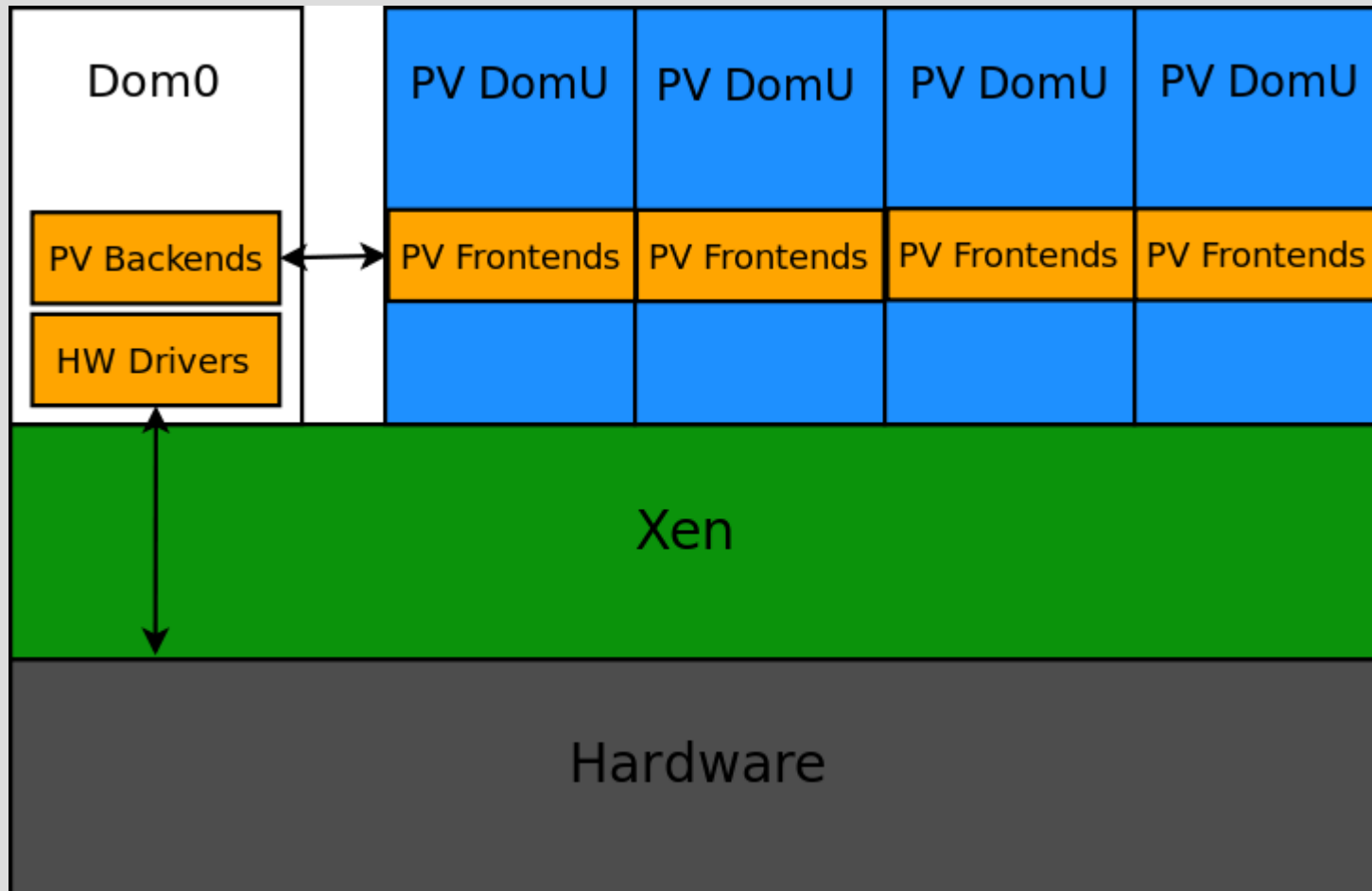
Stefano Stabellini  
Anthony Perard

# Xen Device Model: what is it?

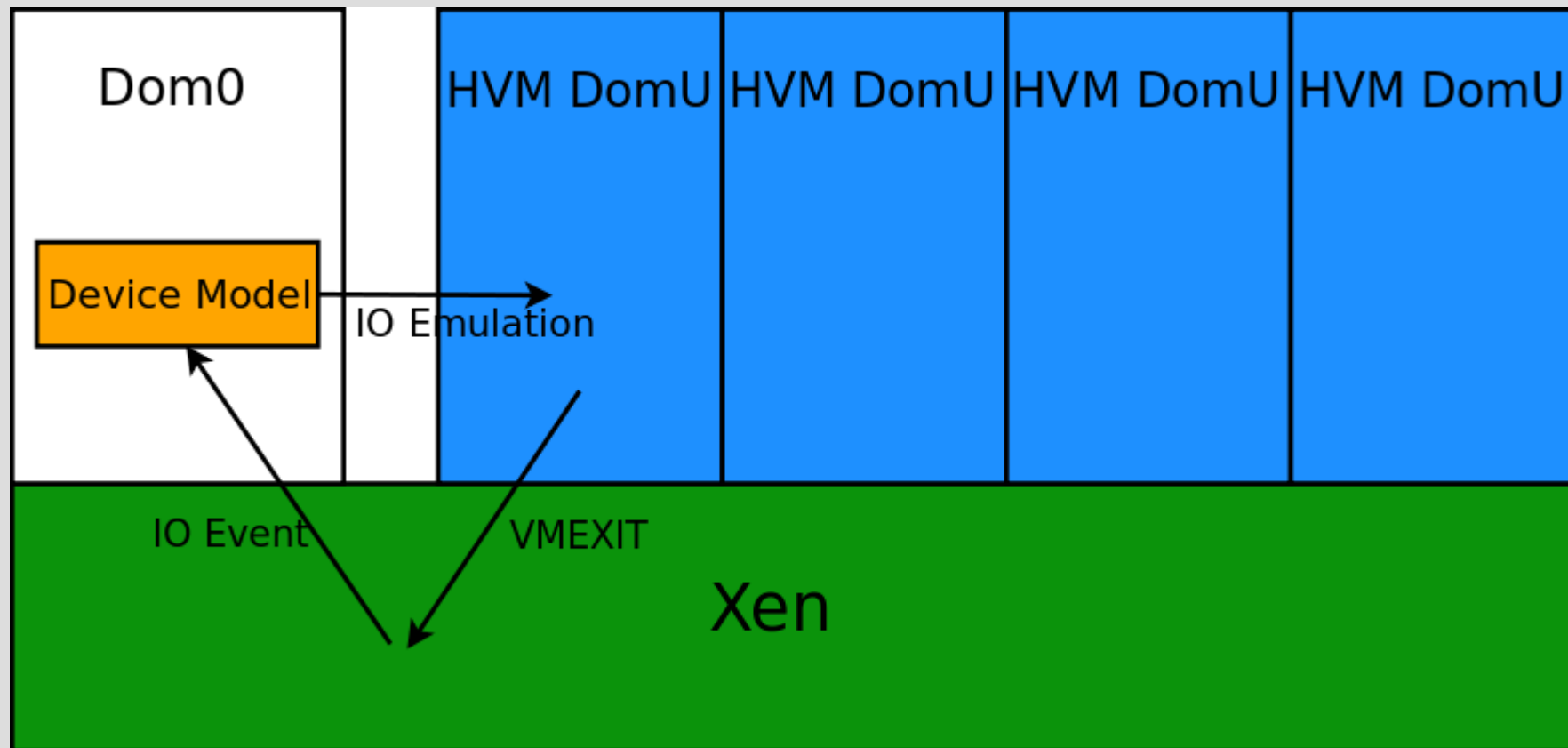
the Xen architecture:

- Xen: an hypervisor designed to run PV domains
- HW assisted virtualization: introducing HVM domains
- the role of the device model

# Xen Architecture: PV domains



# Xen Architecture: HVM domains



# IO Emulation: Xen vs Qemu

Xen:

interrupt injection: pic, apic, ioapic  
timers: hpet, pit, acpi pm timer, rtc

Qemu: everything else

piix3, piix4, e1000, cirrus vga, ...

# Mapcache: why?

- 32 bit PV guests are faster than 64 bit PV guests
- Dom0 is just a management domain, we don't want it to be big



Run Xen 64bit and Dom0 32bit

# Stubdoms: why?

Dom0 is just one VM with limited resources

Qemu running in Dom0:

- the cpu and memory usage issue

- the multiple schedulers issue



run Qemu in kernel mode in a separate PV guest

# Qemu/Xen integration: v1

The first version of series:

- introduced a new qemu target
- the mapcache was separate from the qemu memory interface
- no ACPI support
- maaany code style issues



# Qemu/Xen integration: v6

The latest version of the series:

- adds an “accelerator” to the i386 target
- the mapcache is integrated with the qemu memory API
- qemu piix4 ACPI implementation is supported
- fewer code style issues :-)

# Qemu/Xen integration: what is missing?

- Stubdoms: target OS = MiniOS
- QMP support in XL/Libxenlight
- VGA dirty bitmap
- PCI passthrough

# Xen, Qemu and KVM: designing common interfaces

Common problems should have a common solution:

- `cpu_physical_memory_read/write`  
`cpu_physical_memory_(un)map`
- `vga_dirty_log_start/stop`  
`cpu_physical_memory_get_dirty`
- PCI passthrough

# Xen, Qemu and KVM: cross-Community collaboration

- Xen Community: fix mistakes of the past (forks)
- bring the Communities closer together:  
cross-posting, collaboration, sharing ideas, ...
- Qemu Community should be directly involved  
in Xen development
- Xen should be a first class citizen within the  
Qemu Community

**Questions?**