New qemu technology used in virt-v2v

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virt-v2v *converts guests*
from VMware, Xen, and Hyper-V,
OVAs and physical machines,
so they run efficiently on KVM

virt-v2v *exports to OpenStack, RHEV,*
libvirt, plain KVM, and local disk

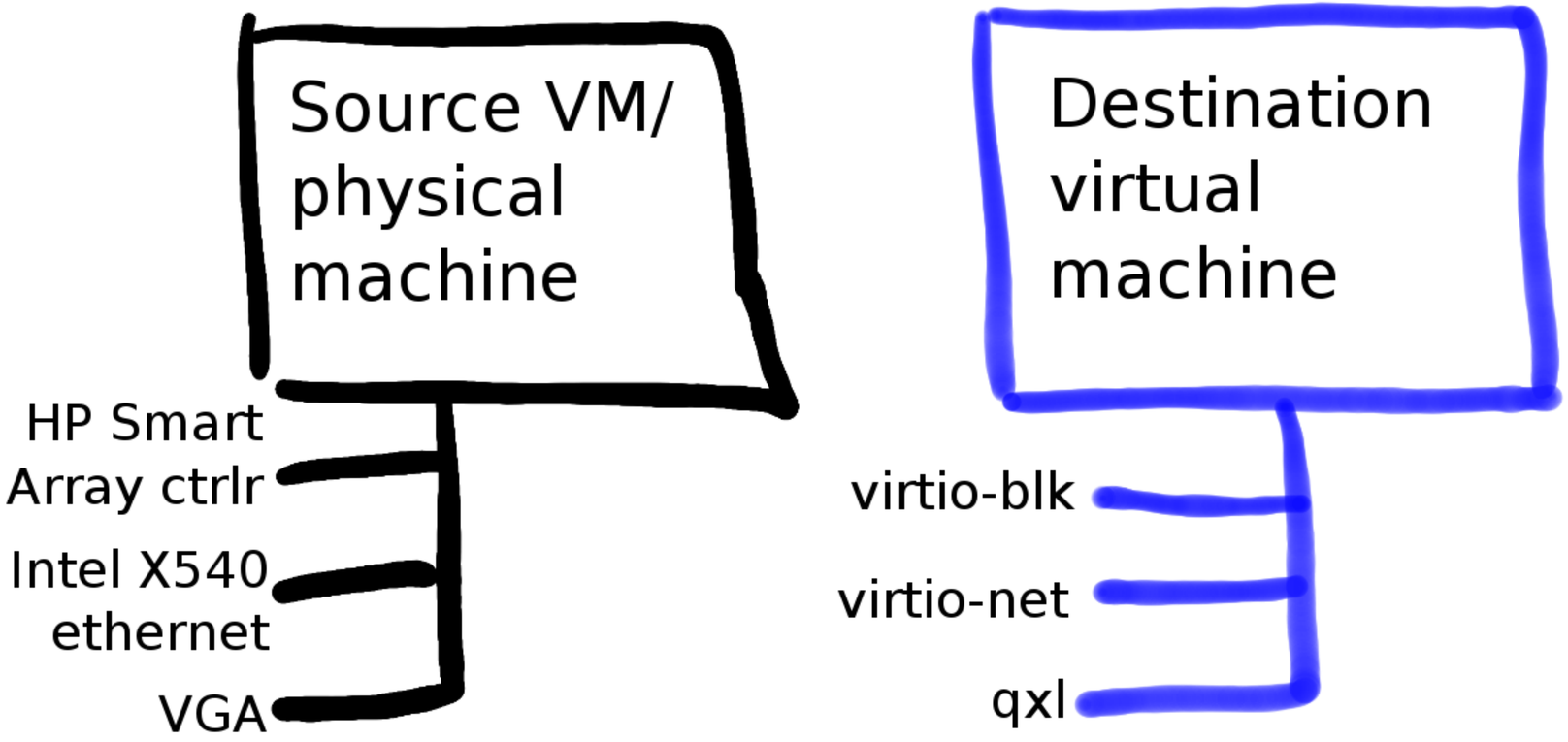
guests supported are: RHEL 3+,
Windows XP — 7, Fedora, OpenSUSE

Running virt-v2v

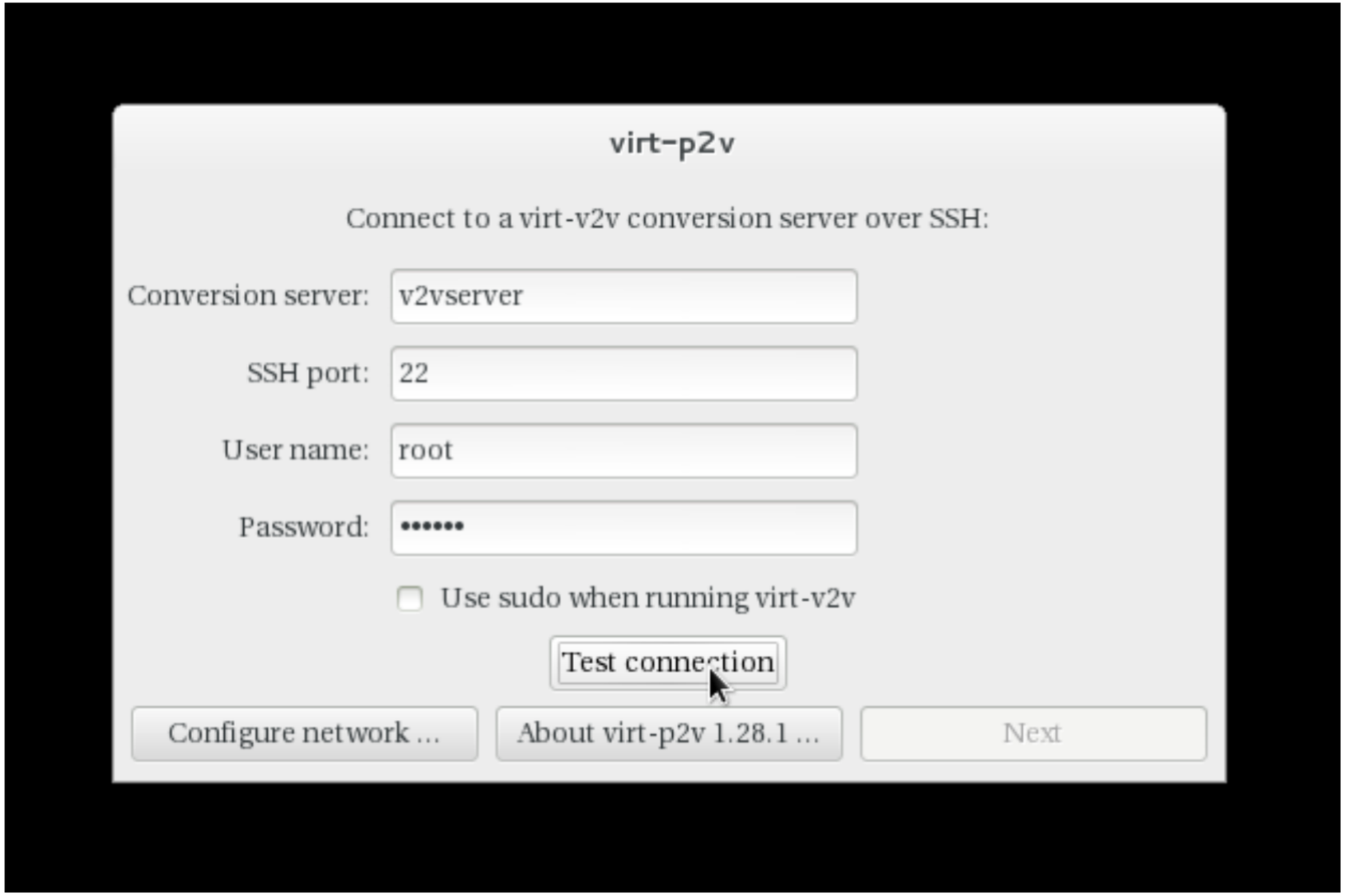
```
$ virt-v2v -i disk windows.qcow2 -o local -os .
[   0.0] Opening the source -i disk windows.qcow2
[   0.2] Creating an overlay to protect the source from being modified
[   0.6] Opening the overlay
[  15.0] Initializing the target -o local -os .
[  15.0] Inspecting the overlay
[  15.5] Checking for sufficient free disk space in the guest
[  15.5] Estimating space required on target for each disk
[  15.5] Converting Microsoft Windows 7 Phony Edition to run on KVM
virt-v2v: This guest has virtio drivers installed.
[  15.6] Mapping filesystem data to avoid copying unused and blank areas
[  15.7] Closing the overlay
[  15.9] Checking if the guest needs BIOS or UEFI to boot
[  15.9] Assigning disks to buses
[  15.9] Copying disk 1/1 to ./windows-sda (qcow2)
    (100.00/100%)
[  16.3] Creating output metadata
[  16.3] Finishing off

$
```

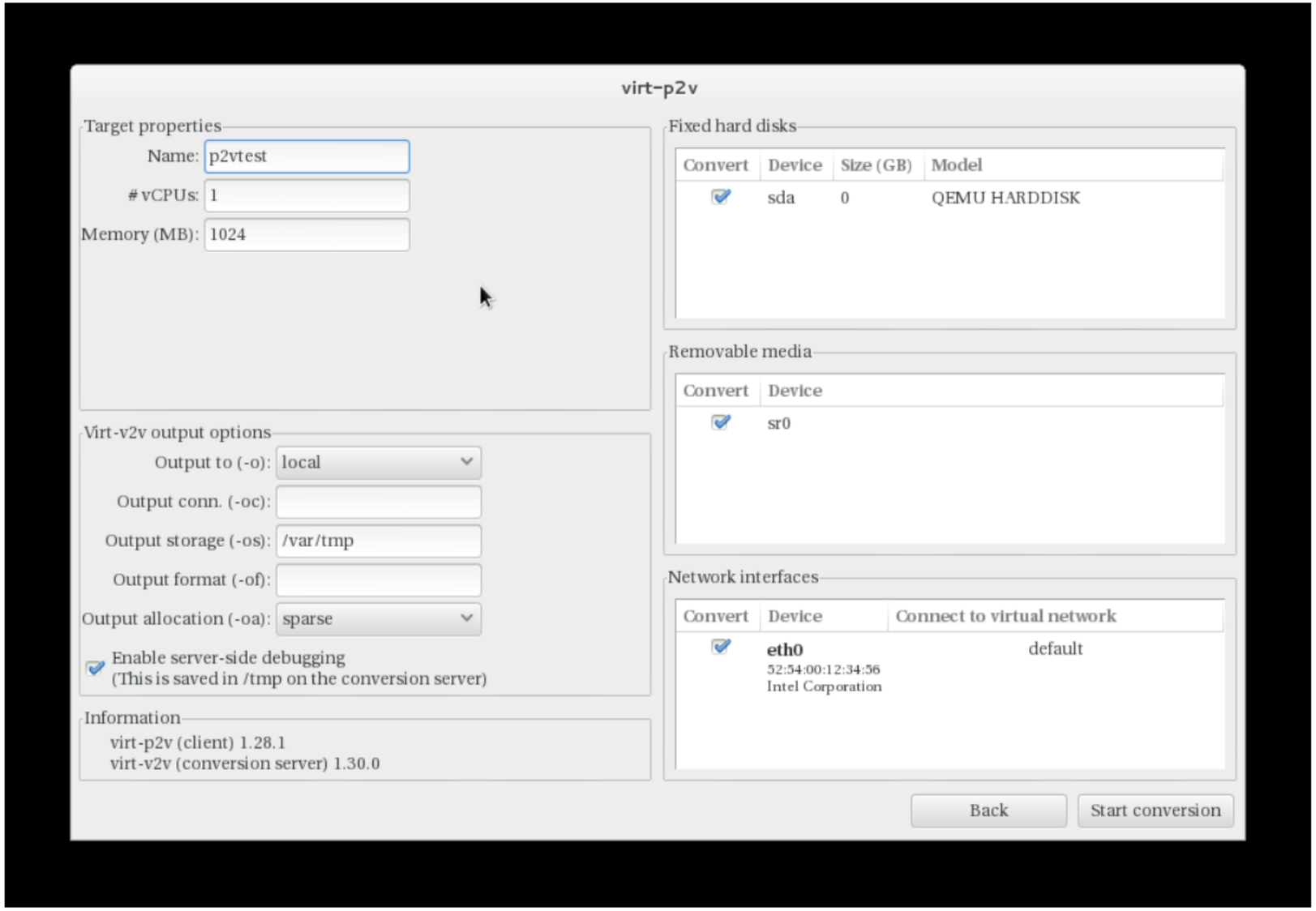
What's the difficult bit?



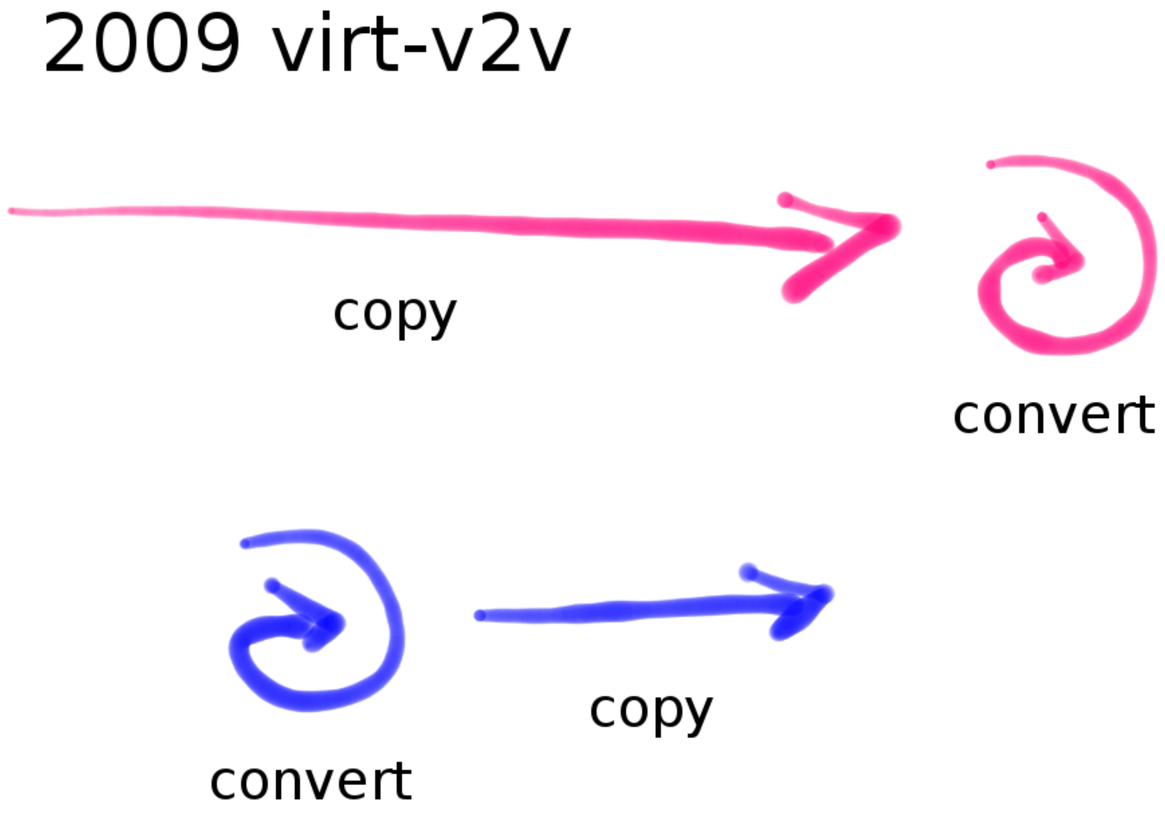
virt-p2v CD/ISO/PXE



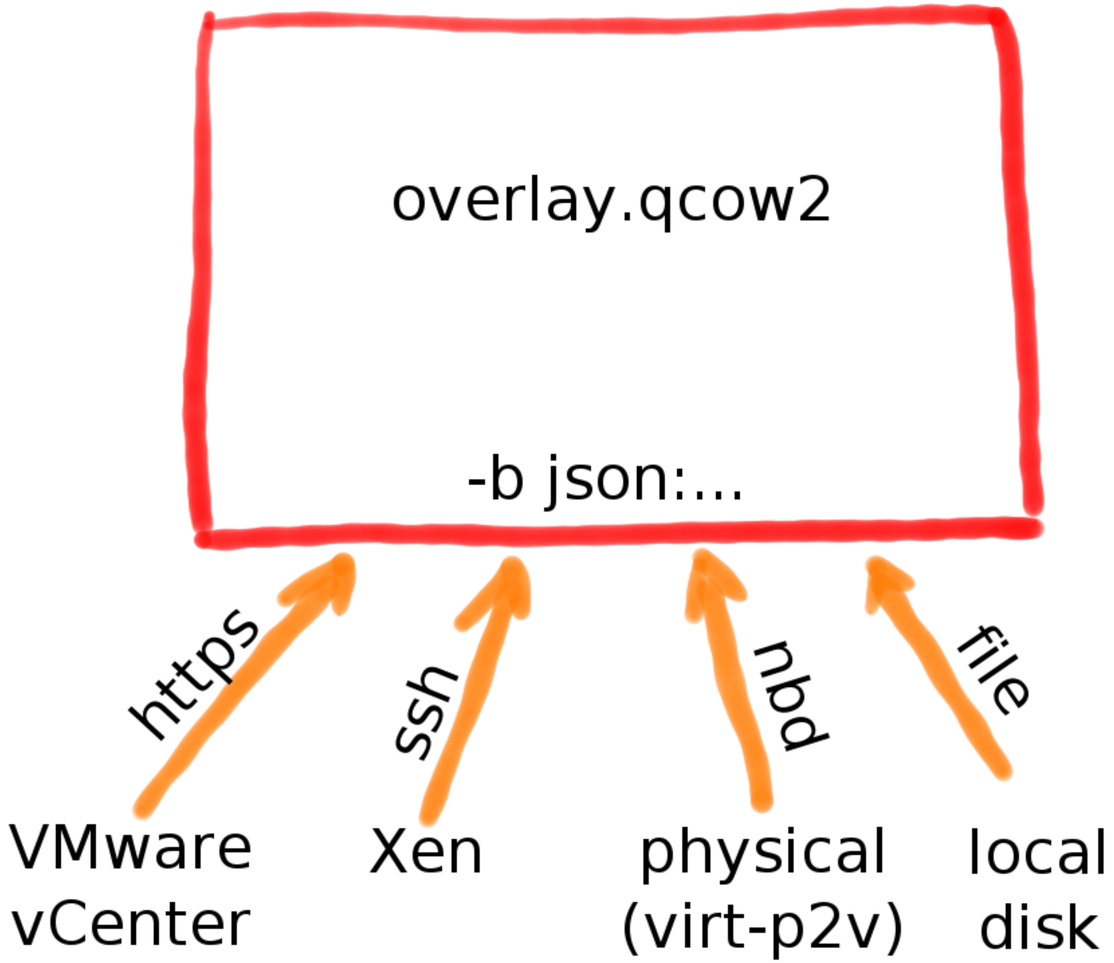
virt-p2v CD/ISO/PXE



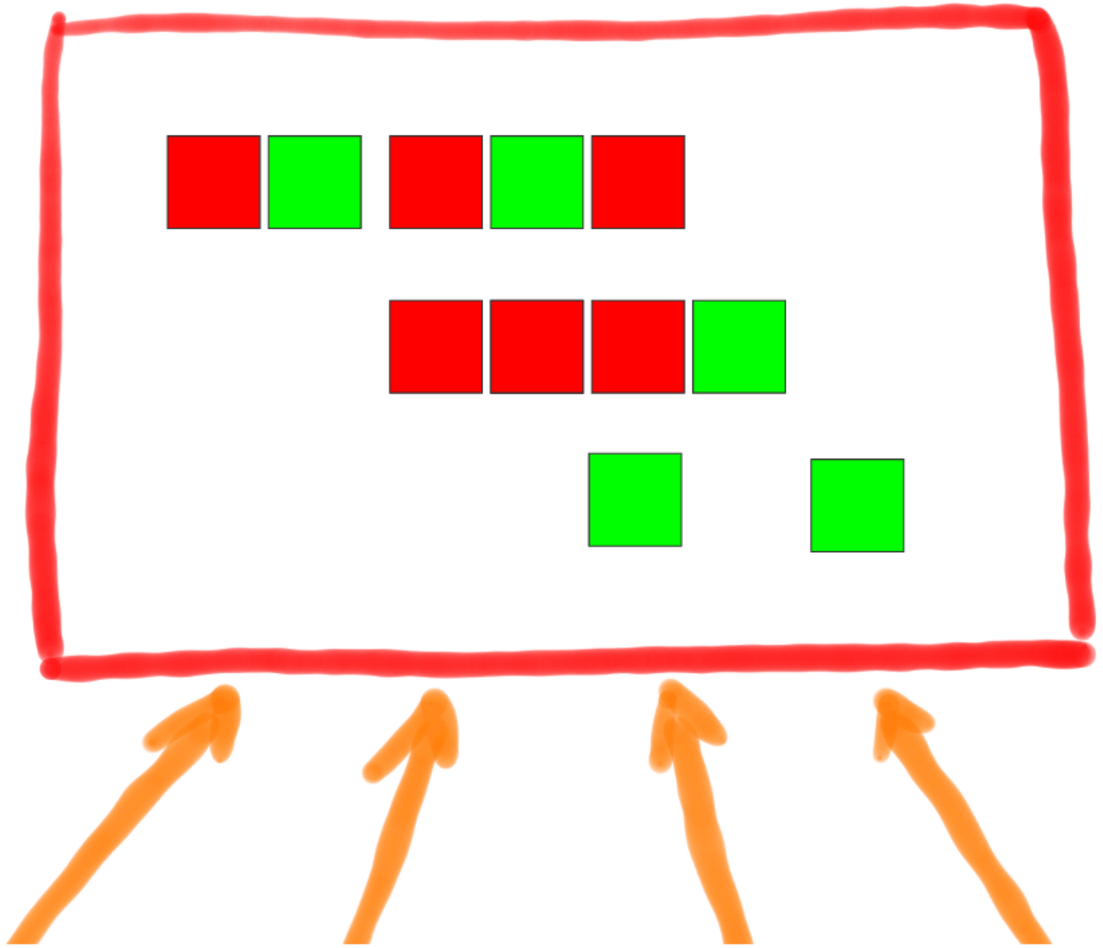
virt-v2v 2009 vs 2014



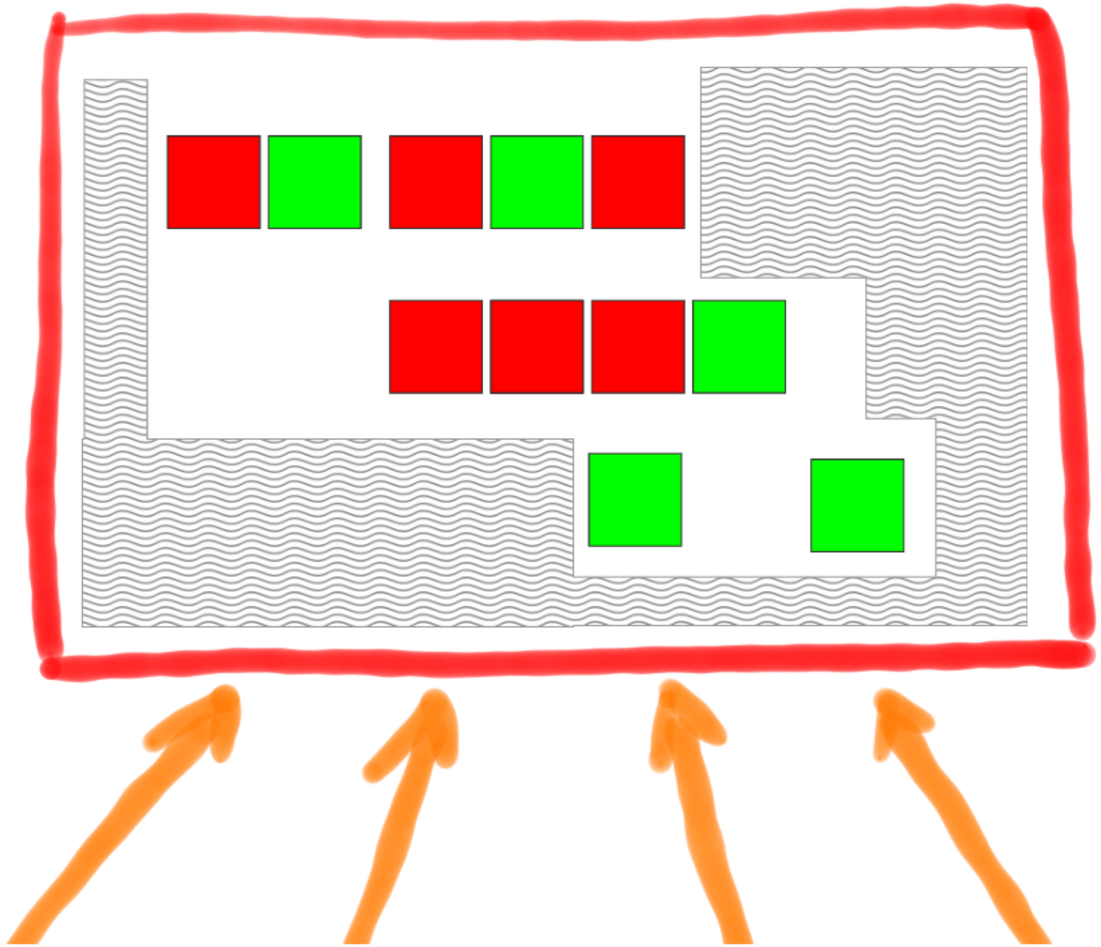
Overlay with network backing disks



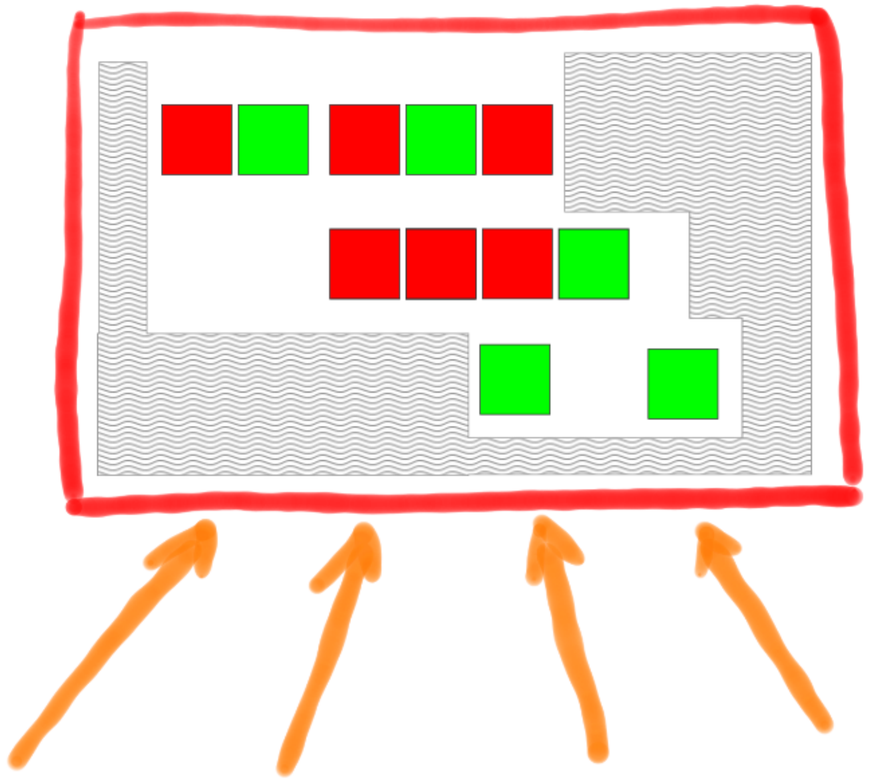
Caching reads and writes



fstrim & discard



copy & convert



qemu-img convert
overlay.qcow2
destination

New features

block/curl
- Matthew Booth fixed a few bugs affecting modern curl, and now it works reliably
- Daniel Barboza added **timeouts**
- I added **cookie** support (for VMware vCenter)

block/ssh
- I added this driver (for Xen)
- It needs a bit of work still

copy-on-read

discard & fstrim
- qemu has had excellent discard support for a few years
- I added support for fstrim to **ntfs-3g**
- Massively reduces the time taken to copy guests

"json:" paths
- Less error-prone than ordinary qemu block paths

qcow2 v3
- Several enhancements, but the most important is support for zero clusters

Competitors

virt-v2v & virt-p2v

- Project page and sources:
  lib guest fs.org
- http://libguestfs.org/virt-v2v.1.html
- http://libguestfs.org/virt-p2v.1.html
- Fedora ≥ 21, RHEL ≥ 7.1, Debian/experimental, Ubuntu 15.x
- Used widely by Red Hat customers