

## 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

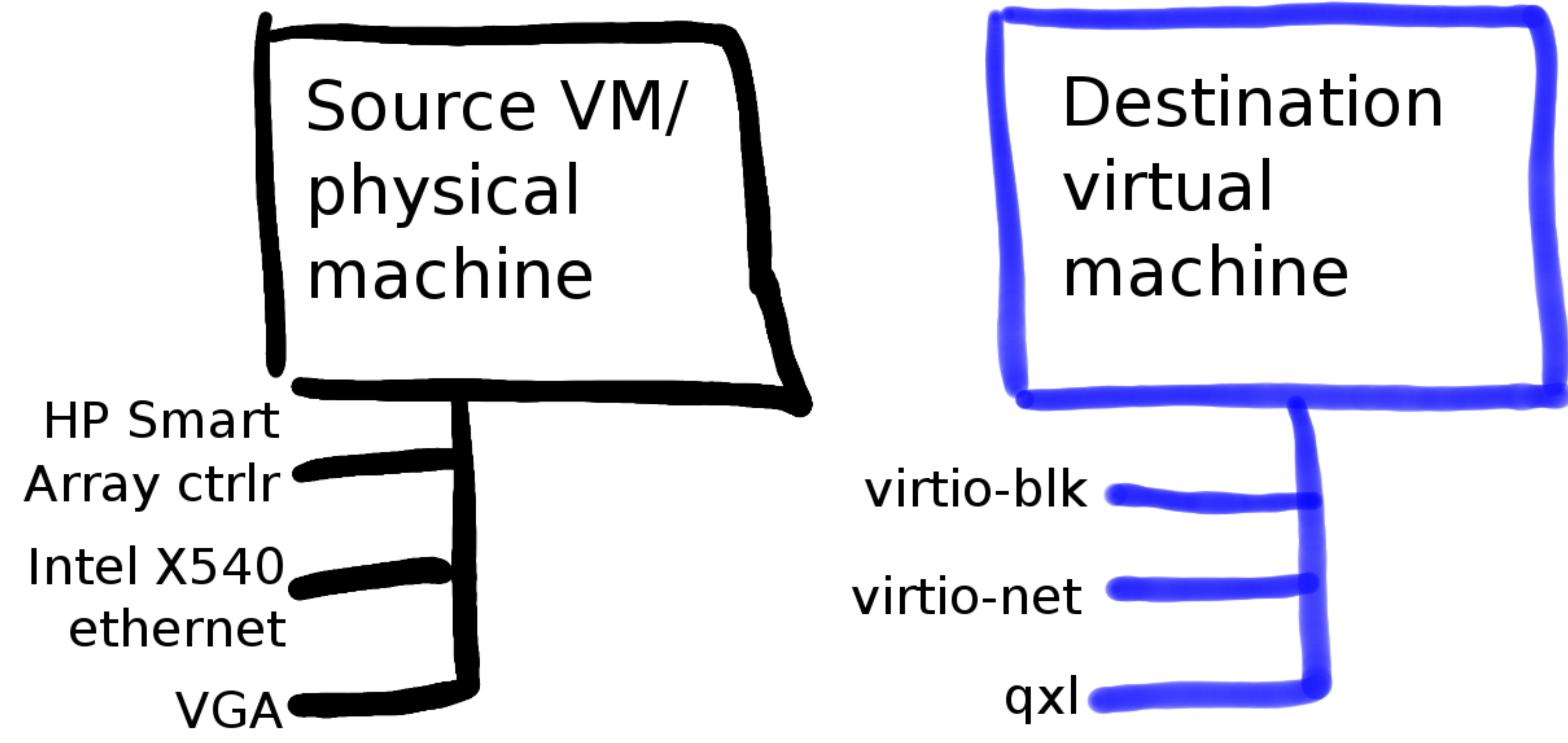
guests supported are: RHEL 3+,  
Windows XP — 7, Fedora, OpenSUSE

```
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

Connect to a virt-v2v conversion server over SSH:

Conversion server:

SSH port:

User name:

Password:

Use sudo when running virt-v2v

# virt-p2v CD/ISO/PXE



virt-p2v

Target properties

Name:

# vCPUs:

Memory (MB):

Fixed hard disks

Convert	Device	Size (GB)	Model
<input checked="" type="checkbox"/>	sda	0	QEMU HARDDISK

Removable media

Convert	Device
<input checked="" type="checkbox"/>	sr0

Virt-v2v output options

Output to (-o):

Output conn. (-oc):

Output storage (-os):

Output format (-of):

Output allocation (-oa):

Enable server-side debugging  
(This is saved in /tmp on the conversion server)

Information

virt-p2v (client) 1.28.1  
virt-v2v (conversion server) 1.30.0

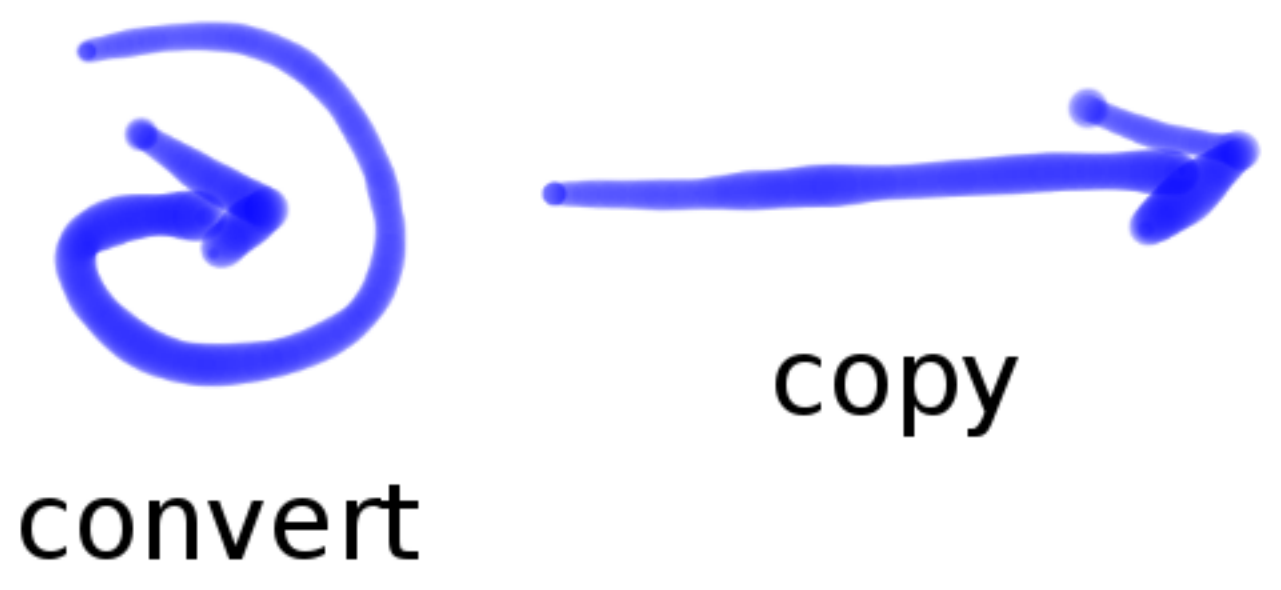
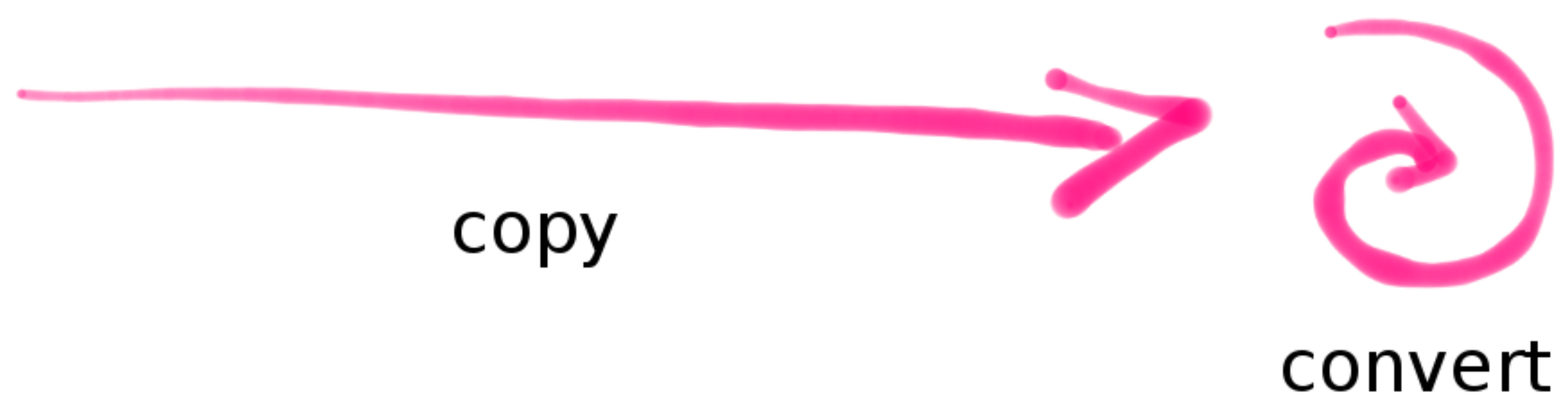
Network interfaces

Convert	Device	Connect to virtual network
<input checked="" type="checkbox"/>	<b>eth0</b> 52:54:00:12:34:56 Intel Corporation	default

# virt-v2v 2009 vs 2014

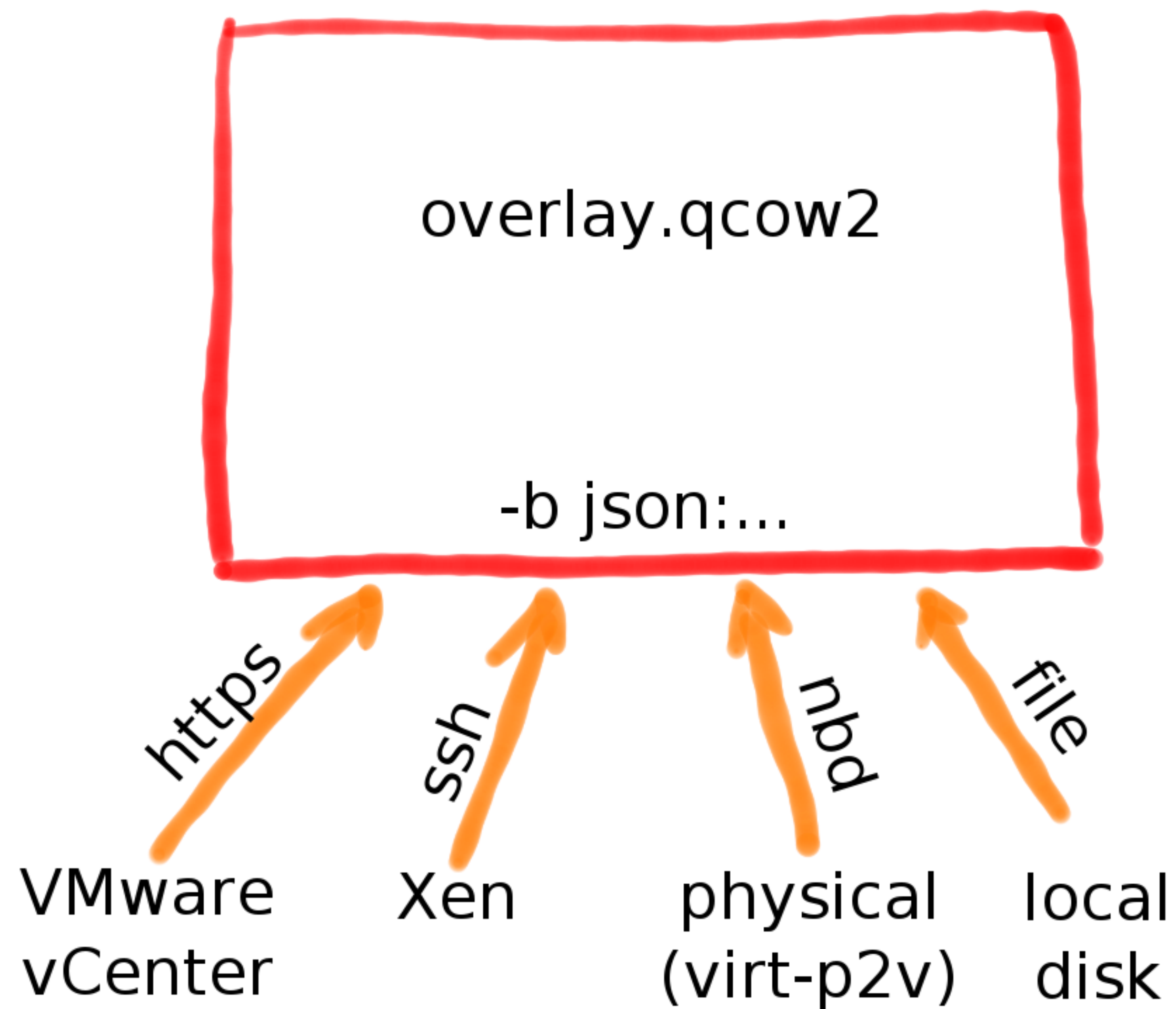
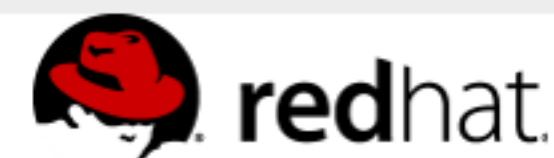


2009 virt-v2v

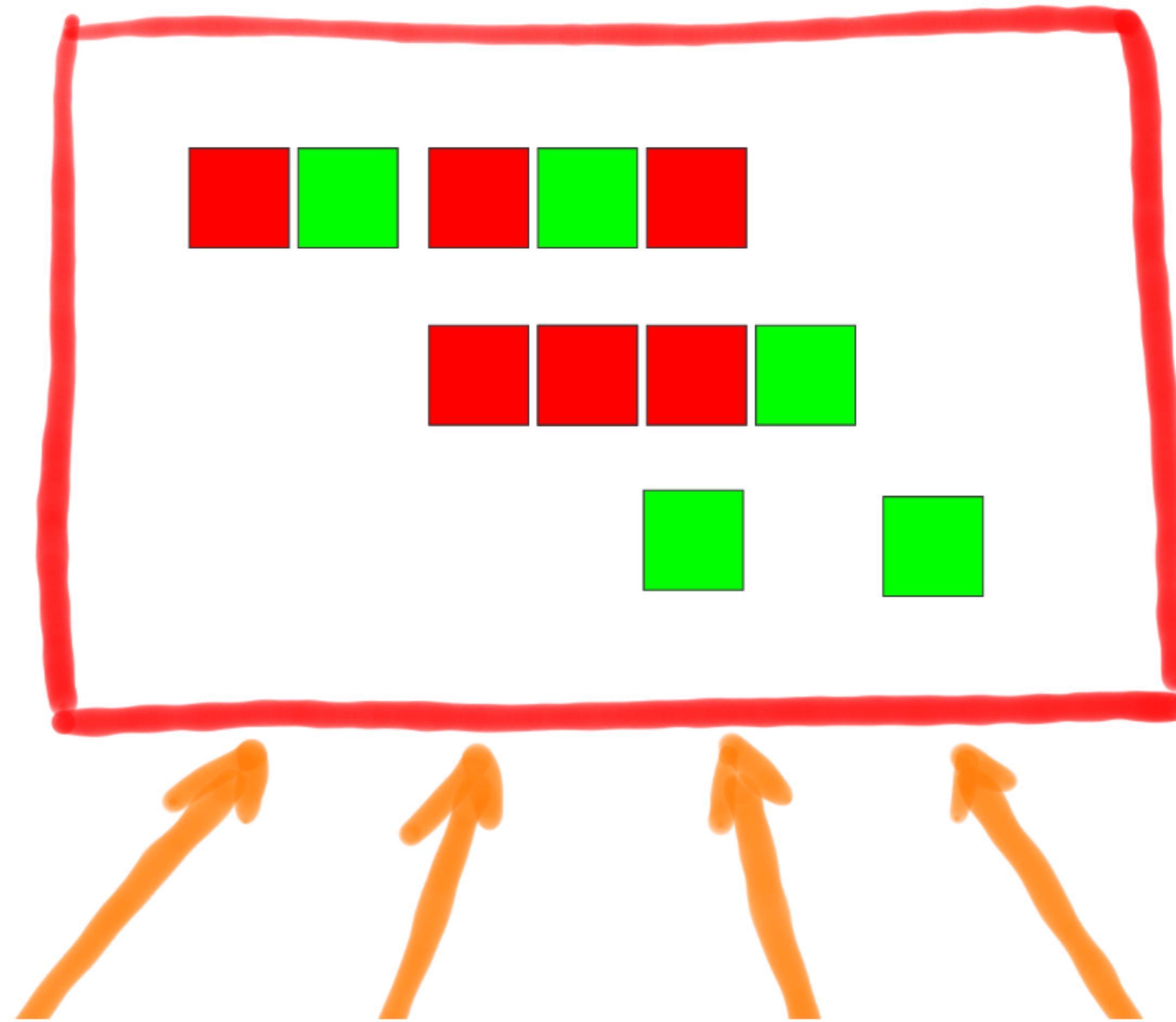


2014 virt-v2v

# Overlay with network backing disks

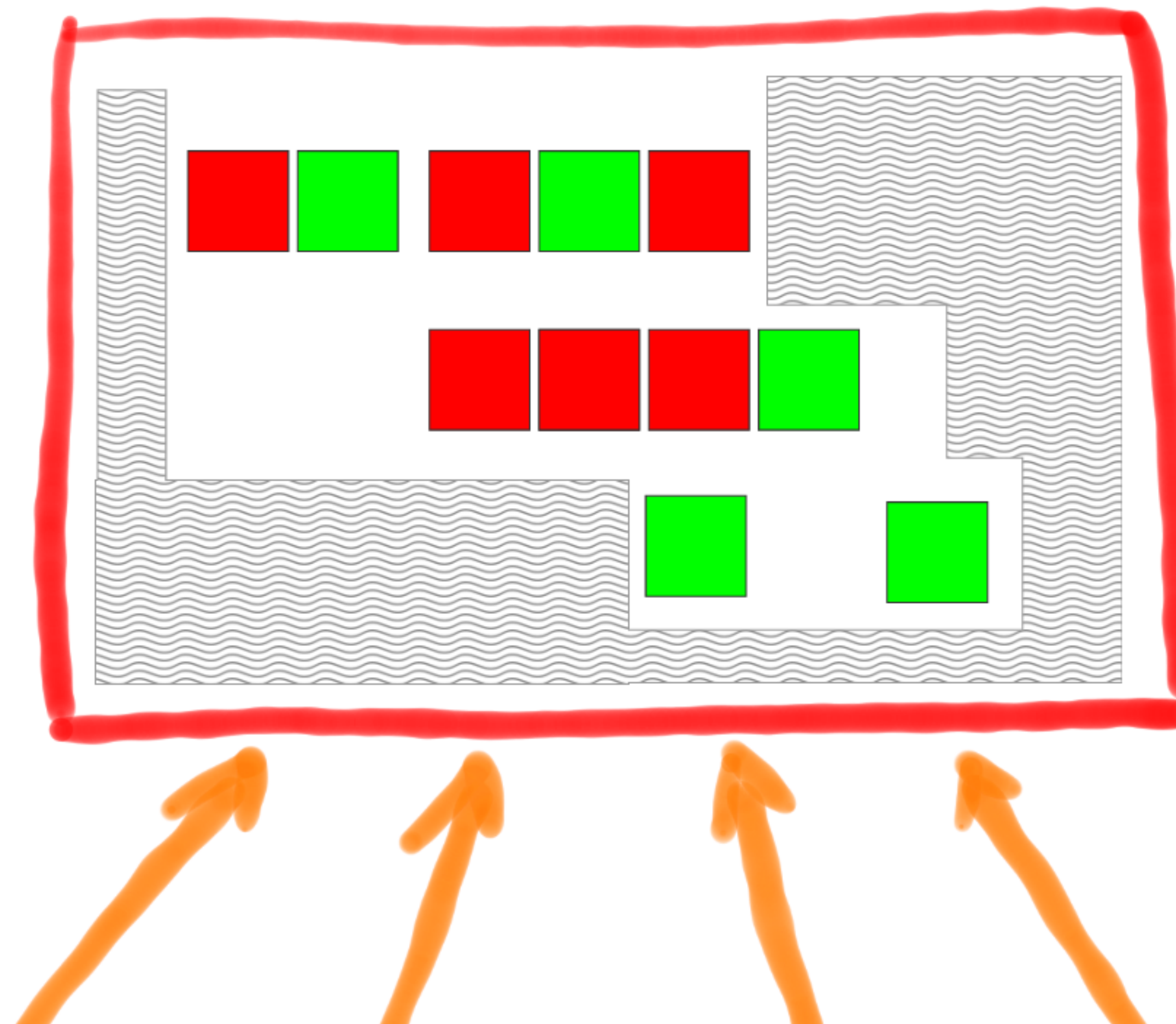


# Caching reads and writes

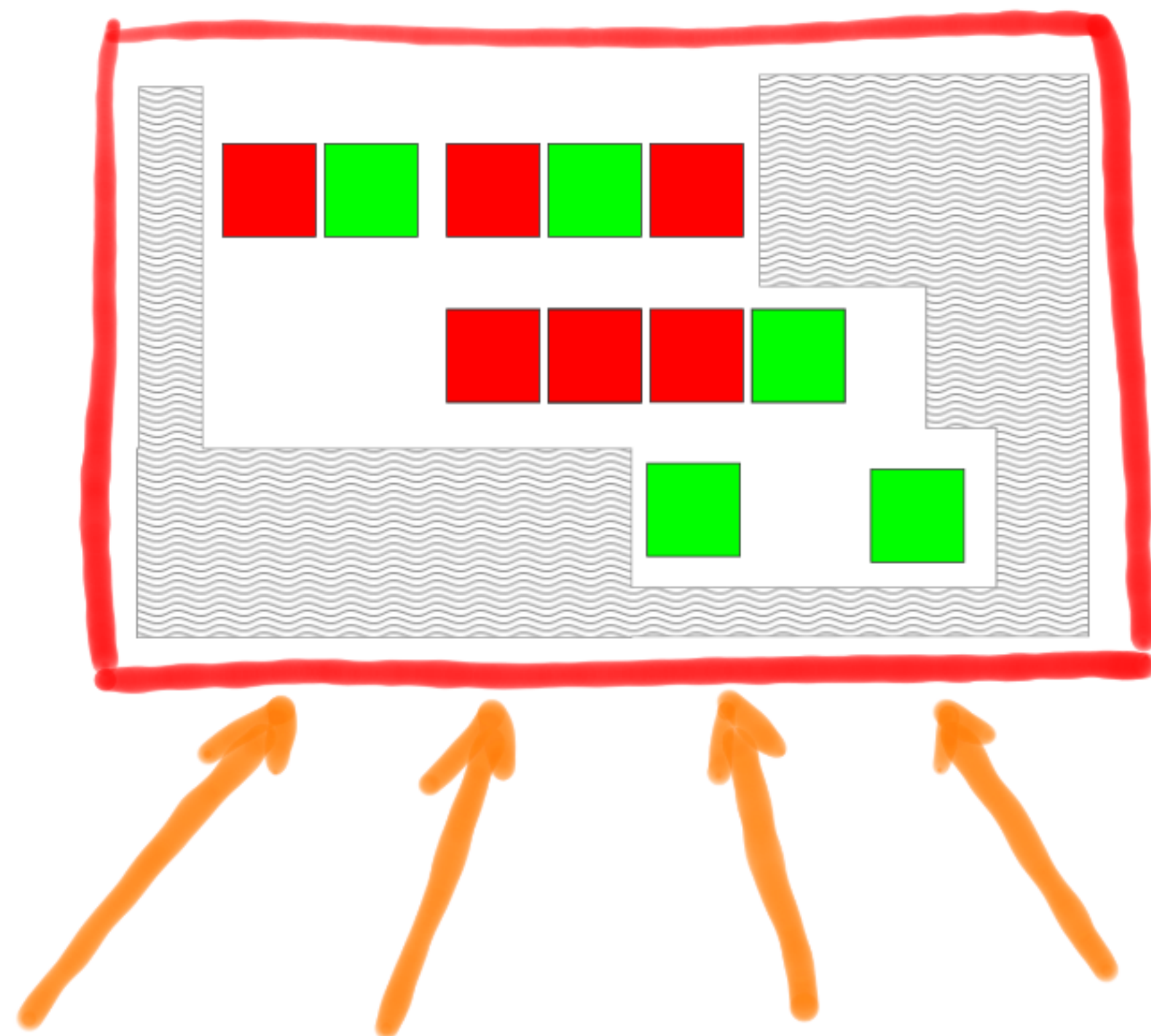




# fstrim & discard



# copy & convert



→  
qemu-img convert  
overlay.qcow2  
destination



# New features

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## **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

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# virt-v2v & virt-p2v

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- Project page and sources:  
**[lib guest fs.org](http://libguestfs.org)**
- <http://libguestfs.org/virt-v2v.1.html>
- <http://libguestfs.org/virt-p2v.1.html>
- Fedora  $\geq$  21, RHEL  $\geq$  7.1, Debian/experimental, Ubuntu 15.x
- Used widely by Red Hat customers