New qemu technology used in virt-v2v

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**virt-v2v** converts guests from VMware, Xen, and Hyper-V, OVs 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
$ virt-v2v -i disk windows.qcow2 -o local -os .
[ 0.8] Opening the source -i disk windows.qcow2
[ 0.2] Creating an overlay to protect the source from being modified
[ 0.6] Opening the overlay
[ 15.8] Initializing the target -o local -os .
[ 15.8] 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?

Source VM/physical machine:
- HP Smart Array ctrlr
- Intel X540 ethernet
- VGA

Destination virtual machine:
- virtio-blk
- virtio-net
- qxl
virt-p2v CD/ISO/PXE

**virt-p2v**

Connect to a virt-v2v conversion server over SSH:

Conversion server: v2vserver

SSH port: 22

User name: root

Password: ******

☐ Use sudo when running virt-v2v

Test connection

Configure network ...  About virt-p2v 1.28.1 ...  Next
virt-v2v 2009 vs 2014

2009 virt-v2v

convert  

2014 virt-v2v

convert  

copy  

convert  

copy
Overlay with network backing disks

overlay.qcow2

-b json:...

https
ssh
nbd
file

VMware
vCenter

Xen

physical (virt-p2v)

local disk
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
Project page and sources:

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