Automating VMware-based VM migrating to KVM using V2V and Ansible

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Agenda

- Background and Why
  - Digital transformation: migrate to cloud infrastructure based on open standard
  - How virt-v2v fit in
- What’s the virt-v2v
  - Basic features
  - One short video demo showing how virt-v2v work
- IMS: Integrated with ansible + virt-v2v+more
  - IMS general overview
  - Short video demo

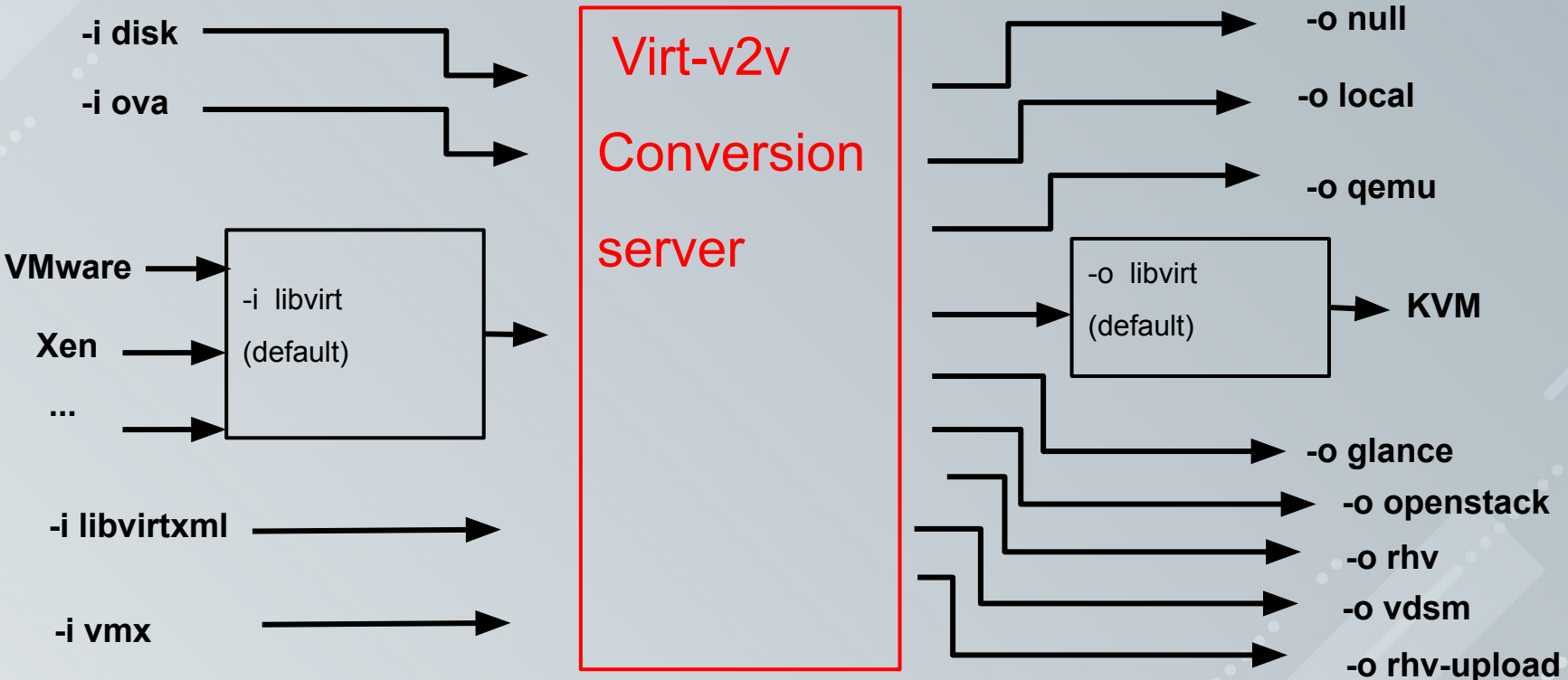
Background and why v2v

- Digital transformation produces better outcomes
- Cloud is integral to every enterprise digital transformation strategy
- Choose the right cloud model: open standards
- For those workloads on VM supported by proprietary hypervisor, need easily migrate to open standard:KVM
- Virt-v2v converts guests from a foreign hypervisor to KVM

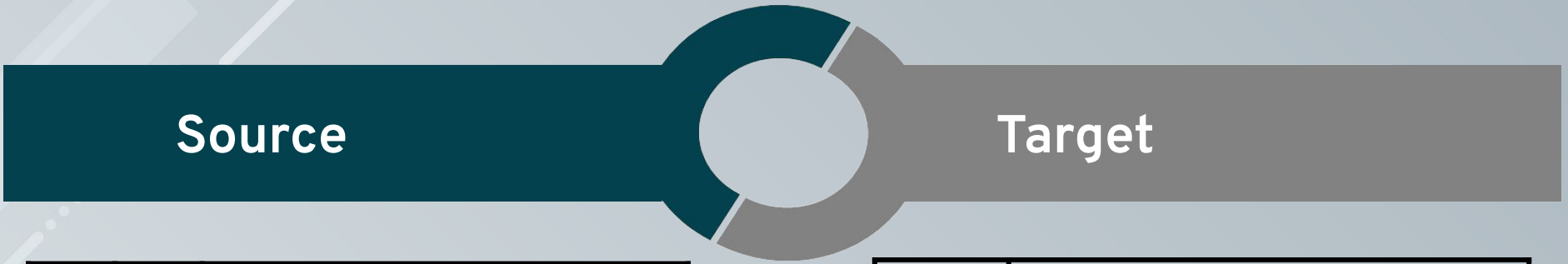
Virt-v2v: short overview

- Tool to automate VM migrations to KVM/RHV/OPENSTACK
- Migrate to KVM, RHV or OPENSTACK from
  - VMWare
  - XEN
- Installs virtio drivers and reconfigures machine
- Can be scripted for bulk operations
- It is open source tool, http://libguestfs.org/virt-v2v.1.html

What virt-v2v can do



Input and output modes



	Type	Usage
Vmware	Vcenter	-ic vpx://root@Vcenter/data/ESXi/?no_verify=1 VM
	OVA	-i ova
	VDDK	-ic vpx://root@vcenter/Data/esxi?no_verify=1' -it vddk
	ESXi	-ic esx://root@esxi.example.com?no_verify=1 guest
	VMX	-i vmx(An external NFS storage attach to ESXi) vm.vmx
	SSH	-i vmx -it ssh (ESXi storage is a local storage on ESXi server)
XEN	SSH	-ic xen+ssh://root@xen.example.com guest_name

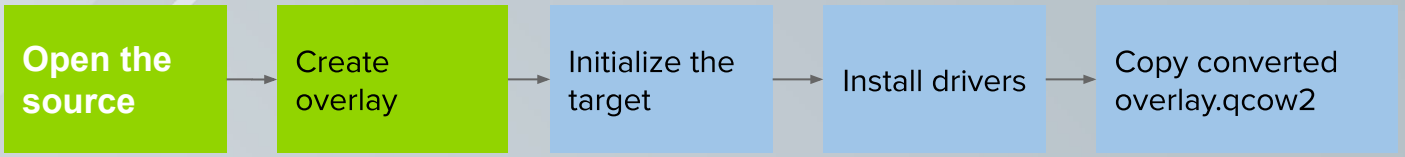
Target	Type
KVM	-o local / -o qemu / -o libvirt
RHV	-o rhv -os nfs:/export
	-o vdsm
	-o rhv-upload (in rhel8)
Openstack	-o glance
	-o openstack
Kubevirt	....

How virt-v2v work

Getting virt-v2v utility:

- Yum or dnf install virt-v2v:
  - libguestfs
  - libvirt
  - qemu-kvm
  - virtio-win
  - ...
- After that, launch it from command line like:
  - virt-v2v -ic \
    vpx://root@10.73.73.xx/data/10.73.75.xx/?no_verify=1 $guest \
    -o openstack -oo server-id=v2v-vm

Conversion process



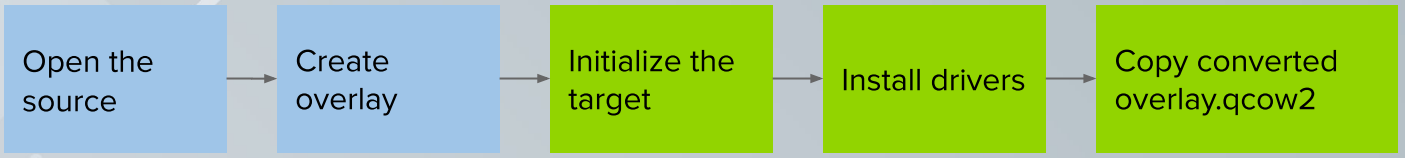
Open the source

- Use libvirt to get the guest's metadata
  - #virsh -c ‘vpx://root@10.73.73.xx/data/10.73.75.xx/?no_verify=1’ dumpxml $guest

Create overlay

- Creating an overlay to protect the source from being modified
  - #qemu-img 'create' '-q' '-f' 'qcow2' '-b' 'json: { "file.cookie": "vmware_soap_session=\"1669faeee540ea1383765385b06614035acd2ce9\"", "file.sslverify": "off", "file.driver": "https", "file.url": "https://10.73.73.xx/folder/esx6.7-win7-i386/esx6.7-win7-i386-flat.vmdk?dcPath=data&dsName=esx6.7", "file.timeout": 2000 }' '-o' 'compat=1.1,backing_fmt=raw' '/var/tmp/v2vovl0ee665.qcow2'

Conversion process(contd.)



Initialize the target

- Mount storage domain to conversion host server
  - #mount '10.66.144.xx:/home/nfs_export' '/tmp/v2v.Wzj4E8' on v2v conversion server

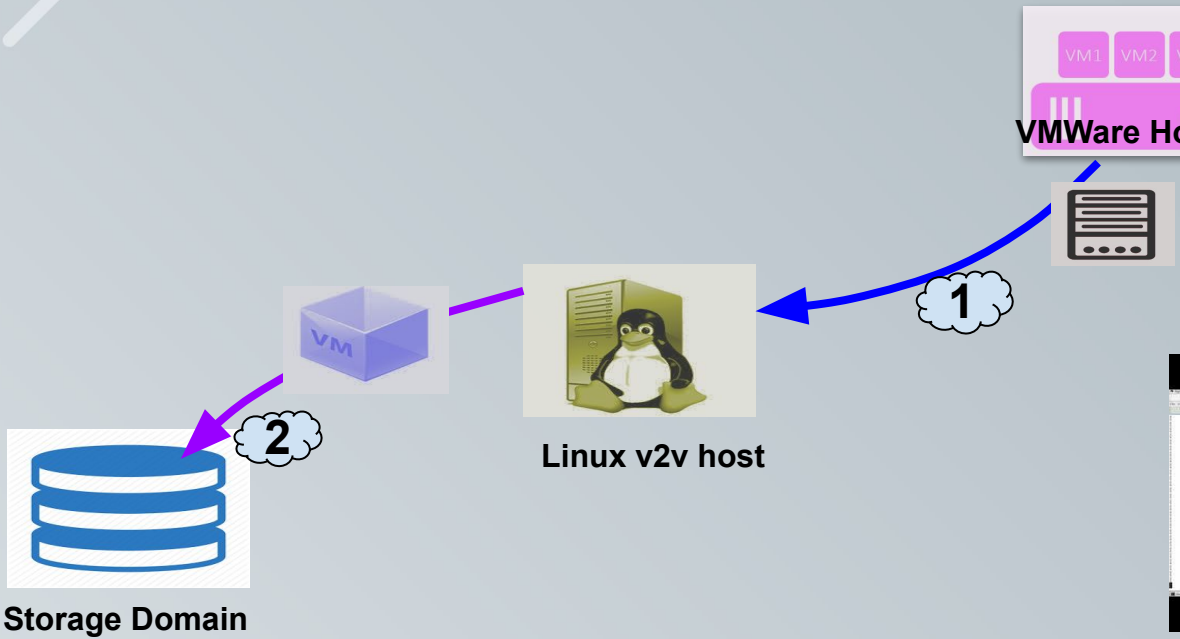
Install drivers

- Use libguestfs to modify overlay.qcow2 to update config files and copy drivers
  - # copy '/usr/share/virtio-win/virtio-win.iso:NetKVM/w7/x86/netkvm.cat' -> '/Windows/Drivers/VirtIO/netkvm.cat"

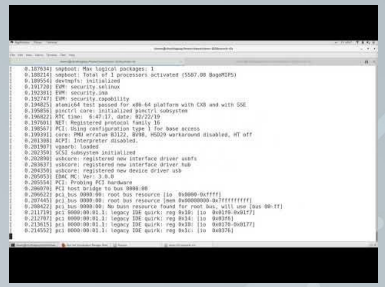
Copy converted overlay.qcow2

- Use qemu-img convert to copy overlay.qcow2 to target storage
  - qemu-img 'convert' '-p' '-n' '-f' 'qcow2' '-O' 'raw' '/var/tmp/v2vovl0ee665.qcow2' '/tmp/v2v.Wzj4E8/c1198a52-cfac-46e0-9972-e13417dec3d3/xx'

Example usage: migrate from Vmware to RHV



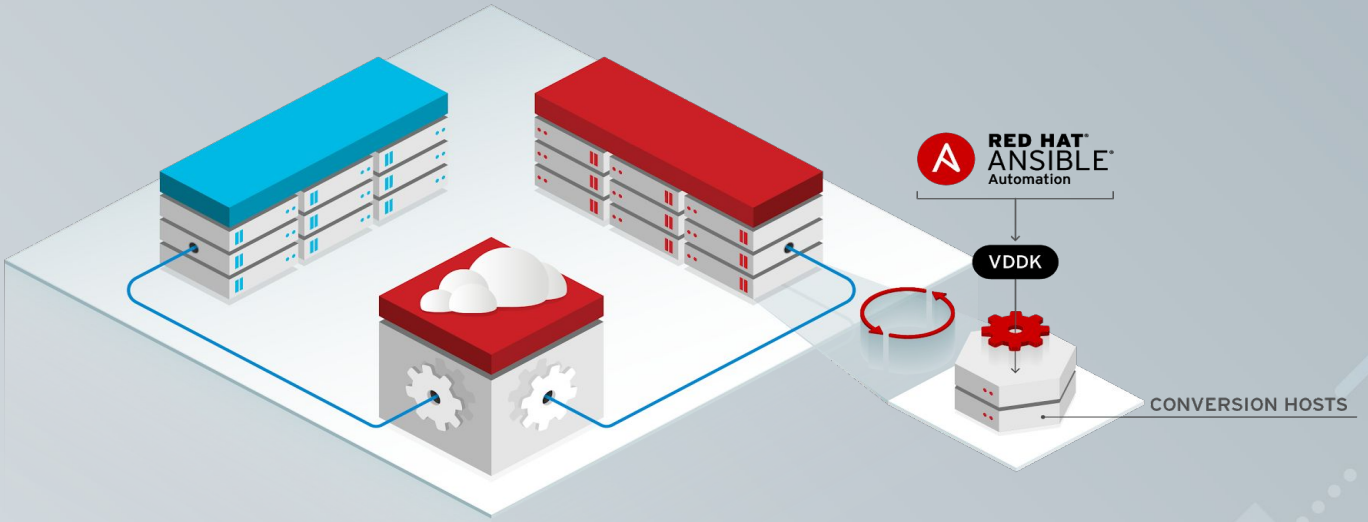
Demo video



```
virt-v2v -ic vpx://vcenter.example.com/Datacenter/esxi vmware_guest \
  -o rhv-upload -oc https://ovirt-engine.example.com/ovirt-engine/api \
  -os ovirt-data -op /tmp/ovirt-admin-password -of raw \
  -oo rhv-cafile=/tmp/ca.pem -oo rhv-direct --bridge ovirtmgmt
```

IMS:infrastructure migration solution

- Integrate virt-v2v, ansible and more



Ansible : unify provisioning, configuration,deployment

Simple

Human readable automation

No special coding skills need

Tasks executed in order

Usable by every team

Get productive quickly

Powerful

App deployment

Configuration management

Workflow orchestration

Network automation

Orchestrate the app lifecycle

Agentless

Agentless architecture

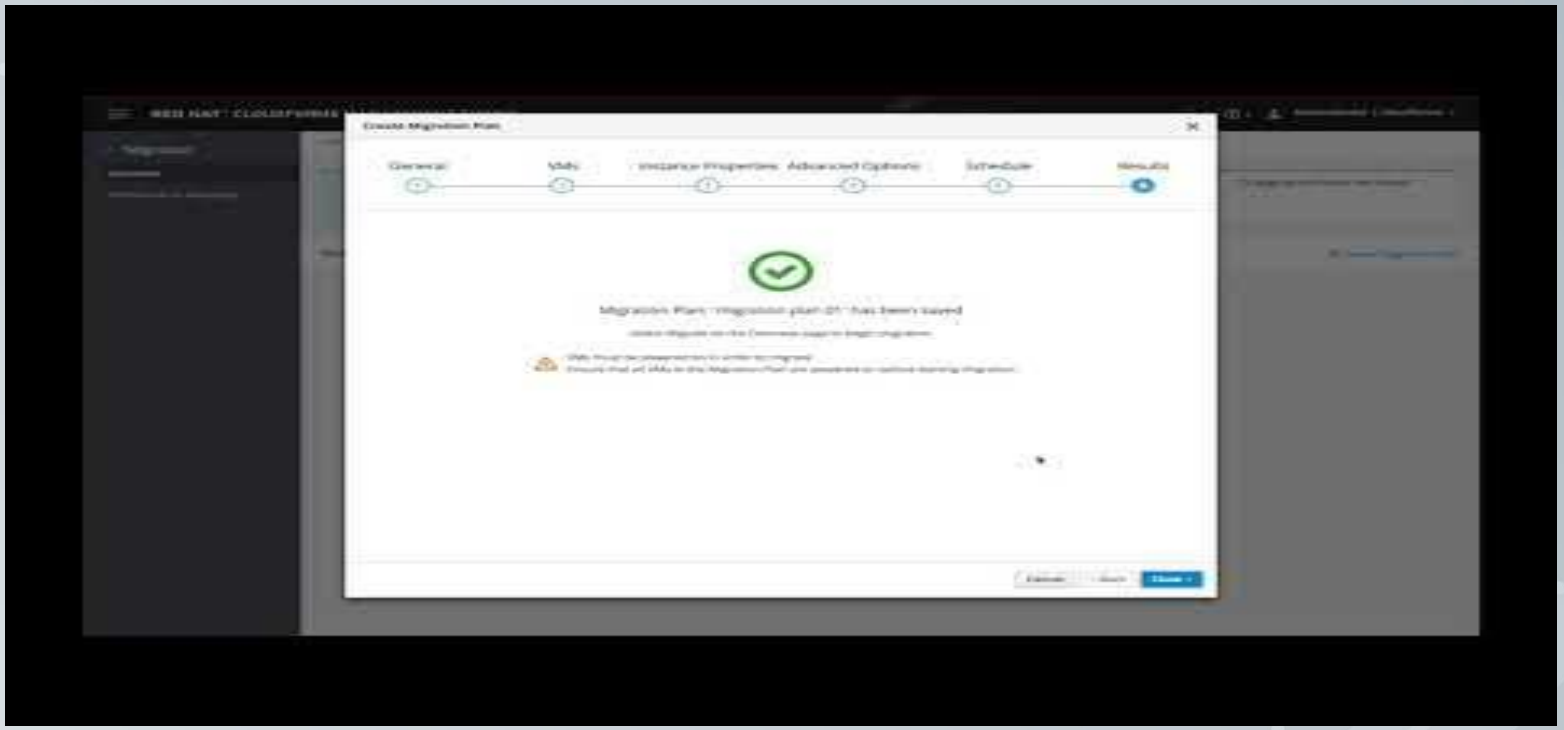
Uses OpenSSH & WinRM

No agents to exploit or upgrade

Get started immediately

More efficient & more secure

Demo


Create Migration Plan
General
VMs
Instance Properties
Advanced Options
Schedule
Results

THANK YOU

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