Automating vSphere Internals with PowerCLI & Orchestrator

Who Is Mike?

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Topics

- Questions
- PowerCLI
- Orchestrator
- Demos

PowerCLI Team

PowerCLI

- PowerShell with VMware cmdlets & VIX
- Long version history from 4.0 – Previously called ?
- Still has Cmdlet "Collision"
- Strong community support, thousands of scripts
- Use 5.1R2 at minimum - PoSH v3 support
    - 5.5 R2 has PoSH v4 support
- New "Tenant" module available

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PowerCLI

- Can do almost everything across most products & platforms
- Scripting automation
- Easy to learn for non-dev types
- Reporting / process creation / prototyping / simple deploy / quick fix
- Fire Control
- Backwards compat to 4.1 U3 (remember the U2 fiasco?)
- Free!

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PowerCLI Tools

- Get the Book!
  - www.powerclibook.com (grab the module!)
- Editors
  - ISE (Get the add-ons!)
  - PowerGUI (brought back to life!)(Free)
  - PowerShell Plus (Free)
  - PowerShell Studio ($$$)
  - Sublime Text / NotePad++

PowerCLI Resources

- Snippets / Code Repo's
  - GitHub
  - PoshCode
  - CodePlex
  - VMware.com Community
  - Evernote / OneNote
- Flings
  - WebCommander
  - Integration (coming soon)

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PowerCLI Resources

- Blogs
  - Allen Renouf – virtu-al.net -- Check the Script List!
  - Glenn Sizemore – get-admin.com
  - Luc Dekens – lucd.info
  - Duncan Eppings – Yellow-Bricks.com
  - Cody Bunch – professionalvmware.com
  - Hal Rottenberg – halr9000.com

PowerCLI 5.5 R2

- PoSH v4 support!
- 64bit support! (only for 5.x hosts with some cmdlets)
- IPV6 support
- Security policy info from vSwitches & port groups
- EVC enable cmdlet for making automated builds easier
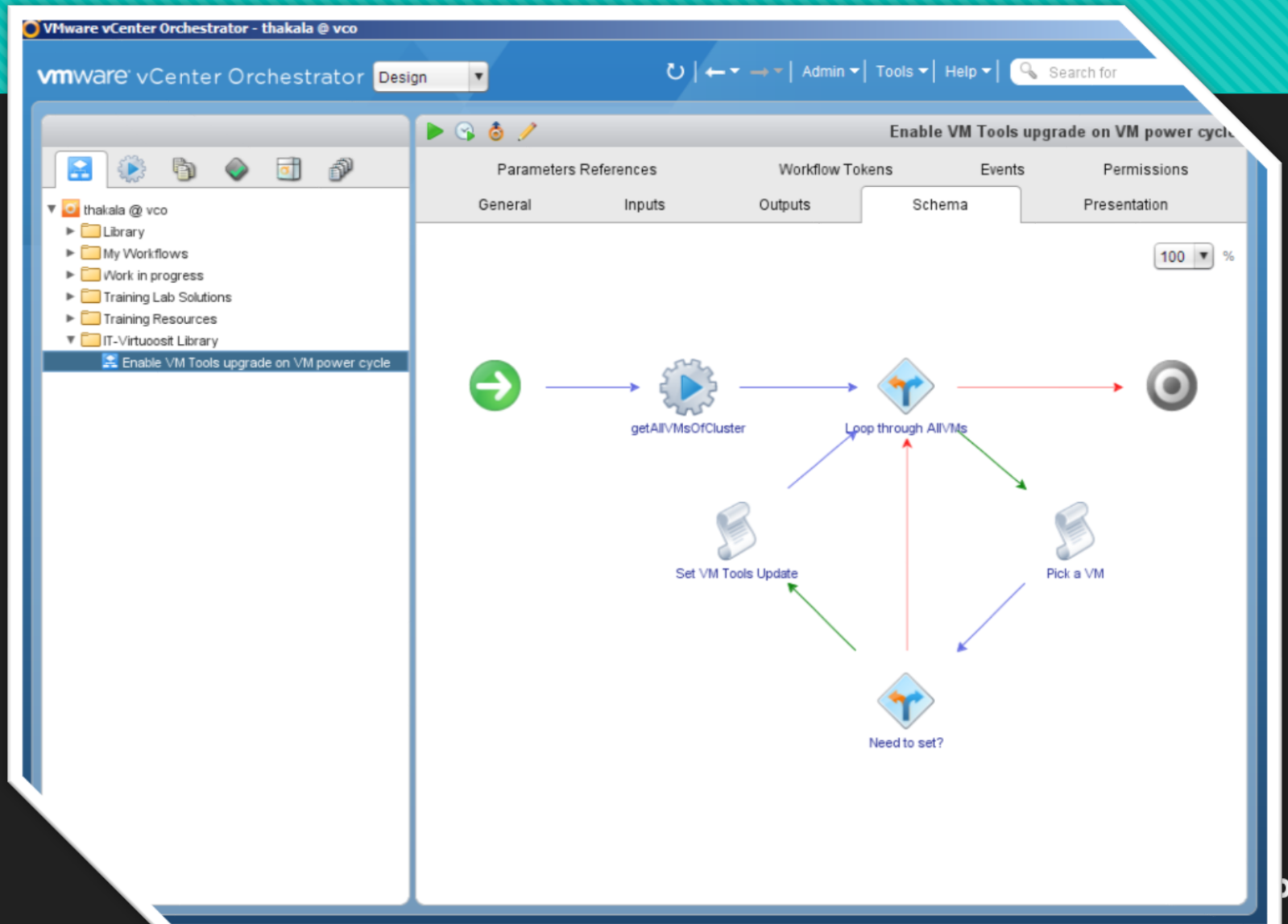- Much more – get the release notes

PowerCLI SnapIns

- Vmware.V~~~~~~~~Core
- Vmware~~~~on~~~~(get e~~sens~~~~~ well!)
- Vmware~~~~tomatio~~~~
- Vmware~~~tomation.I~~~~er
- Vmware~~~~omation~~~~tion
- Vmware.~~~m~~~~~oud
- Vmware.Vir~~~~~~n.Tenant (new~~~~
- Vmware.Vum~~~~

vCenter Orchestrator (vCO)

vCO

- Workflow & Action based
- Server deploy & automation / service desk, CMDB, hardware, storage integrations and more
- Literally thousands of workflows & actions
- Can be complex & get complicated as workflows are refined
- Has own TCO – definitely not *free*
- Has PowerCLI plugin
- Multi-Site
- Originated with 5.x ("Most powerful product VMware ever made…")
- Installs as a separate server or VA
- Many workflows require javascript knowledge

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vCenter Orchestrator Overview

Platform

Ecosystem

vSphere

Plug-ins
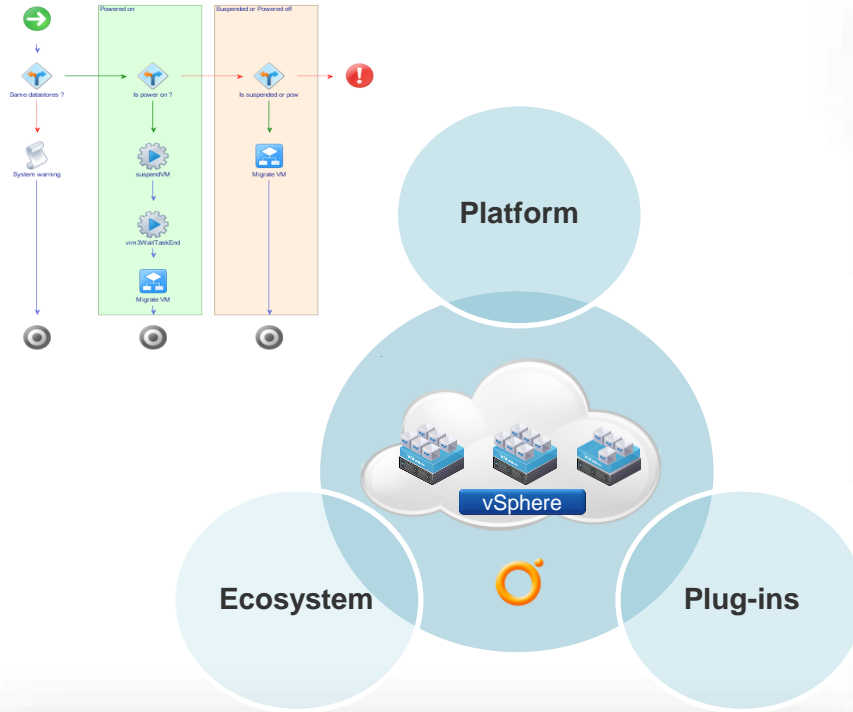
Features

- Integrate VMware solutions into your IT environment and processes

- Reduce IT OpEx and total cost of ownership of VMware solutions

- Automate your cloud and accelerate transition to "IT as a Service" model

Features

| Drag-&-drop design	• Create powerful workflows easily by drop-&-dragging pre-built actions
Cloud scalability	• Execute hundreds of workflows in parallel to meet Cloud scale
Flexible triggers	• Launch workflows from the vSphere Web Client, vCAC, web browser, schedule, event, and API
Automate VMware	• 100% coverage of vSphere and vCloud Director APIs • Unmatched VMware content
Included with vCenter Server	• Included with vSphere at no extra cost • Installed with vCenter

vCO Workflow Designer
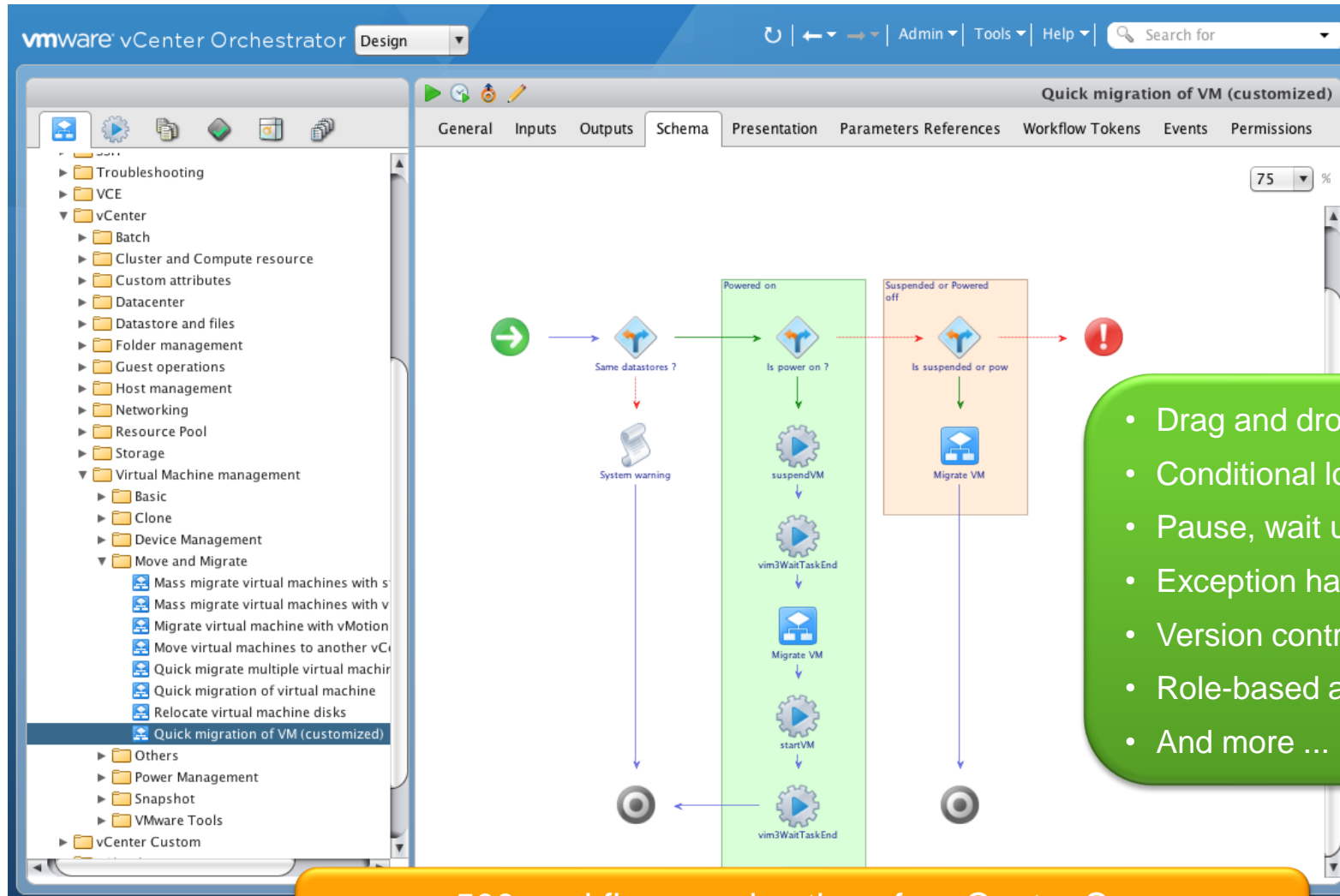
- Drag and drop actions
- Conditional logic
- Pause, wait until, counters, etc.
- Exception handling
- Version control
- Role-based access control
- And more ...

~500 workflows and actions for vCenter Server and vCloud Director

vCO Setup

- Use the VA if feasible
- Setup the infrastructure
- Install & Config
- Connect the environment
- Create some workflows & actions (re-use the OOB ones!)
- Validate the workflows
- Schedule the jobs
- Integrate with 3rd party plugins and apps

Murphy's Law

- Export the configuration
- Export & package Workflows
- Backup the DB
- Cluster?

Why Backup?

vCO Tips

- Back it up!
- vCO config port is 8282, HTTP 8280, HTTPS 8281
- VMOConfiguration Service started?
- Just because it's Green doesn't mean it's not broken (config website)
- DB port 1433 has to be set manually for SQLExpress
- LDAP & SSO can be brutal
- Log files & locations – KB 1010956

vCO Workflow Tips

- Create reusable workflows

- Use what's given to you OOB

- Use the comments & shading

- Can automate ESX 3.x – need special plugin

- K.I.S.S.

vCO Plug-ins

Driver / Tool	Release Date	
> Driver CDs		
∨ **vCenter Orchestrator Plug-ins**		
VMware vCenter Orchestrator vCAC Plug-in 6.0.1	2014-04-25	Go to Downloads
VMware vCenter Orchestrator AMQP Plug-in 1.0.3	2014-04-22	Go to Downloads
VMware vCenter Orchestrator Auto-Deploy Plug-in 5.5.1	2014-04-22	Go to Downloads
VMware vCenter Orchestrator Multi-Node Plug-in 5.5.1	2014-04-22	Go to Downloads
VMware vCenter Orchestrator PowerShell Plug-in 1.0.4	2014-04-22	Go to Downloads
VMware vCenter Orchestrator AWS Plug-in 1.0.0	2014-04-22	Go to Downloads
VMware vCenter Orchestrator HTTP-REST Plug-in 1.0.3	2013-12-13	Go to Downloads
VMware vCenter Orchestrator PowerShell Plug-in 1.0.3	2013-12-13	Go to Downloads
VMware vCenter Orchestrator SOAP Plug-in 1.0.3	2013-12-13	Go to Downloads
VMware vCenter Orchestrator Plug-in for Active Directory 1.0.4	2013-12-13	Go to Downloads
VMware vCenter Orchestrator Plug-in for vCloud Director 5.5	2013-11-14	Go to Downloads
> Automation Tools and SDKs		

vCO Resources

- VMware HOL (Hands On Labs) labs.hol.vmware.com HOL-SDC-1307
- VMwareLearning.com – Free instructional videos – 15 for vCO!
- VMware Communities site for vCO
- Blogs
  - http://blogs.vmware.com/orchestrator/
  - http://professionalvmware.com/ ← vBrownbag webinars!
  - http://www.vcoteam.info/
  - http://www.vcoportal.de/
  - V-reality.info

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What VMware Products *COULD* you Use?

Provisioning

Datacenter Infrastructure
 vCAC/VCO/PowerCLI

Virtual Datacenter
 vCD/VCNS

VMs
 AppD/vCAC/vCO/PowerCLI/vCenter

Applications
 AppD/vCAC/vCO/PowerCLI

Workloads
 vCAC/vCO/PowerCLI

Desktops
 vCAC/View

Operations

Detection of failures
 vCOps Mgr/PowerCLI

Availability
 vCOps

Health
 vCOps Mgr/PowerCLI

Scaling/Rightsizing
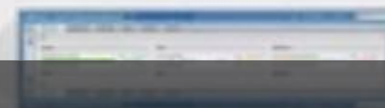 vCOps/vCO/PowerCLI/vCAC/AppD

Capacity
 vCOps Mgr/PowerCLI

Remediation
 vCO/PowerCLI

Resource Allocation
 vSphere DRS/SDRS

Failover
 vSphere HA/SRM

Maintenance

Administrative tasks
 vCO/PowerCLI

Updates / Upgrades
 VUM/VCM/VCO/PowerCLI

Reporting
 PowerCLI/vCOps Mgr

Ongoing Configuration
 VCM/AppD/vCAC

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What VMware Products *ARE* Recommended?

Provisioning

Datacenter Infrastructure
vCAC/**vCO/PowerCLI**

Virtual Datacenter
vCD/VCNS

VMs
AppD/**vCAC**/VCO/PowerCLI/**vCenter**

Applications
AppD/vCAC/vCO/PowerCLI

Workloads
vCAC/vCO/PowerCLI

Desktops
vCAC/View

Operations

Detection of failures
vCOps Mgr/PowerCLI

Availability
vCOps Mgr

Health
vCOps Mgr/PowerCLI

Scaling/Rightsizing
vCOps/vCO/PowerCLI/vCAC/AppD

Capacity
vCOps Mgr/PowerCLI

Remediation
vCO/PowerCLI

Resource Allocation
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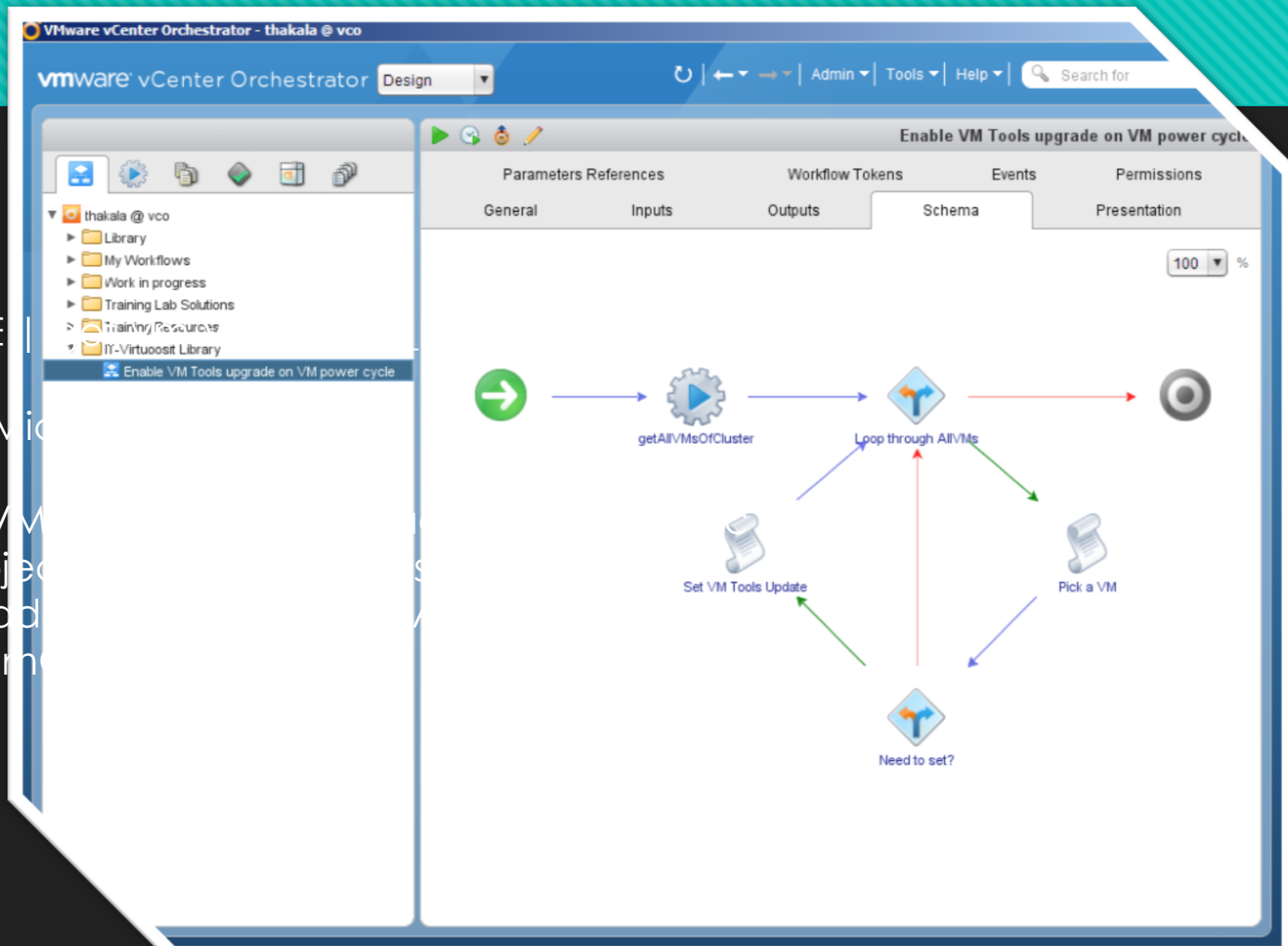**VUM/VCM**/vCO/PowerCLI

Reporting
PowerCLI/vCOpsMgr

Ongoing Configuration
VCM/AppD/vCAC

Which one?

get-cluster CLUSTER_NAME_HERE |
object {
$_.guest.OSFullname -match "^Mic
} | foreach-object {
$vmConfigSpec = New-Object VM
$vmConfigSpec.Tools = New-Obje
$vmConfigSpec.Tools.ToolsUpgrad
(Get-View $_.ID).ReconfigVM($vm
}

Which one?

30 minutes on workflow & actions

10 lines of PowerCLI code

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Demos

- WebCommander
- Onyx
- RVTools
- PowerCLI
- PowerGUI & PowerPacks
- Orchestrator

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Thanks!

○ Don't forget the survey!

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