

BLOX FEST

Infoblox 

Infoblox Cloud Solutions for VMware

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Main Agenda

Infoblox Cloud Strategy

Introduction to Infoblox IPAM plug-in for VMware

Automation

- Extensible Attributes
- Port Group support

Discovery

vDiscovery (of VMs)

Extensibility

- Workflow customization
- REST API

Symantec Corporation – A Case Study



Enabling the Next Gen Data Center

DDI Automation



Policy-based automation of
DNS, DHCP, IPAM services for
virtual servers

Open RESTful interfaces for
customization

Consistency



Single management interface
for multi-cloud solutions

Private Cloud: VMware,
OpenStack, Microsoft
Public Cloud: Amazon

Visibility



Discovery of VMs, networks
for multi-cloud platforms

Auditing, reporting across
clouds for DHCP leases,
DNS records, IP addresses

Infoblox Integration with VMware vRA

Cloud Provisioning
& Management

vRealize Automation (vRA)

Management &
Automation

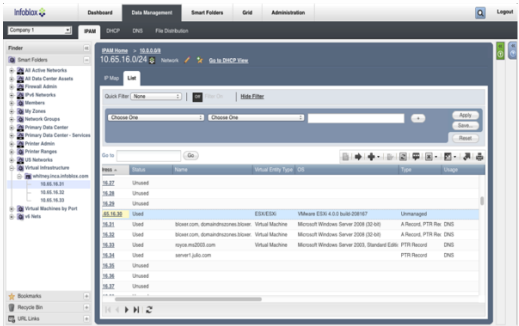
vRO

Infoblox
Plug-in

Virtualization
Platform

vCenter Server

vSphere ESXi



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Cloud
Consumer



Service
Blueprints

Request
VM

Approval

Provision

Manage

Retire

Archive

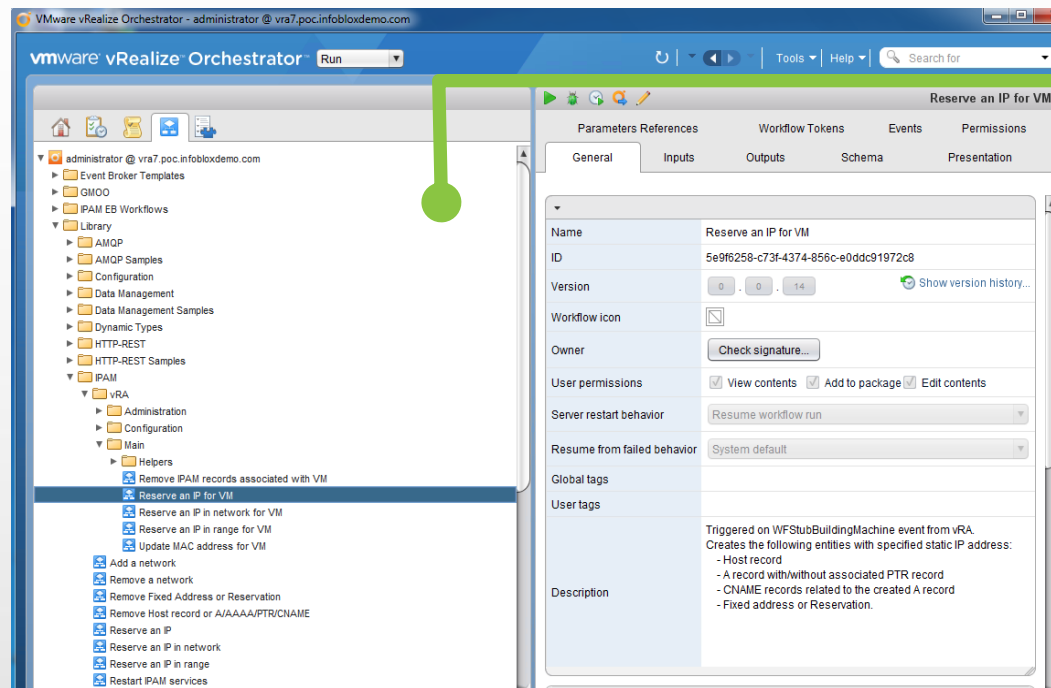
vCenter Orchestrator Plug-in

Infoblox
CONTROL YOUR NETWORK



Infoblox IPAM Plug-in for VMware vRO

Automatic allocation and de-allocation of IP addresses (both IPv4 and IPv6) to Virtual Machines as well as updates to DNS records in seconds instead of hours, days or weeks



A sample vRealize Orchestrator workflow

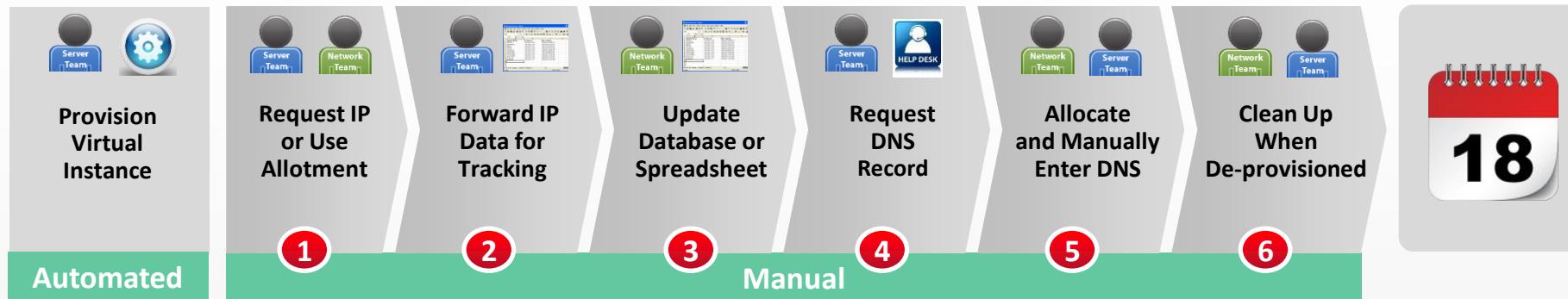
Plug-in benefits

- Save time
- Save money
- Automate tasks



Automation

Traditional Approach

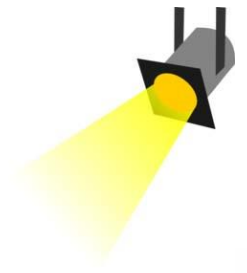


Infoblox DDI for Cloud and Virtualization



- ✓ Implement change anytime
Eg: DNS names, IP addresses
- ✓ No tickets between network, server teams for DNS, IP
- ✓ Automatic reclamation of resources upon spin down

Automation Feature Spotlight: Extensible Attributes



With support for Infoblox Extensible Attributes (EA), the IPAM plug-in can allocate an IP address and a DNS host record to a VM based on specific meta data associated with a network

+ New Edit Delete	
Name	Value
Infoblox.IPAM.vmName	
Infoblox.IPAM.createAddressAndPtrRecords	False
Infoblox.IPAM.Network0.dhcpOptions.primaryWins	
Infoblox.IPAM.Network0.searchEa1Name	Country
Infoblox.IPAM.Network0.searchEa1Value	USA
Infoblox.IPAM.Network0.searchEa1Comparison	
ExternalWFStubs.MachineProvisioned	394f8ea6-999c-448d-99e...
ExternalWFStubs.BuildingMachine	d7f6ebb1-3a34-4e02-ac4...
ExternalWFStubs.MachineDisposing	75480f46-937d-488c-852...
Infoblox.IPAM.Network0.searchByEa	True
Infoblox.IPAM.createHostRecord	True
Infoblox.IPAM.createFixedAddress	False
Infoblox.IPAM.Network0.dhcpOptions.secondaryDns	
Infoblox.IPAM.Network0.enableDhcp	False
Infoblox.IPAM.vNic Number	1

Set EA name = Country

Set EA value = USA

Enable search by EA

Infoblox DDI - EA Country = USA

Toggle Advanced Mode

Basic

General

Member Assignment

IPv4 DHCP Options

Extensible Attributes

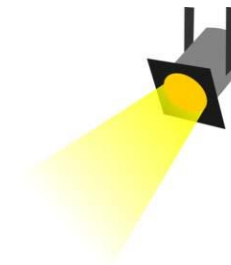
Permissions

Extensible Attributes

	Attribute Name	Value	Inheritance State	Required
<div></div>	Country	USA	Disabled	No

Automate VM assignment to networks using business data

Automation Feature Spotlight: Port Group



- Attaches a VM to a specific port group upon creation
- Can be done manually or automatically using extensible attributes

Infoblox.IPAM.Network0.netaddr	172.26.1.0
Infoblox.IPAM.Network0.dhcpOptions.dnsSuffix	poc.infobloxdemo.com
Infoblox.IPAM.Network0.cidr	24
Infoblox.IPAM.Network0.fixedAddressMsDhcpServer	False
Infoblox.IPAM.Network0.dhcpOptions.dnsSearchSuffixes	poc.infobloxdemo.com
Infoblox.IPAM.Network0.portGroup	VM Network <input type="checkbox"/>
Infoblox.IPAM.Network0.dnsView	
Infoblox.IPAM.restartIfNeeded	
Infoblox.IPAM.Network0.networkView	default
Infoblox.IPAM.Network0.dhcpOptions.secondaryWins	

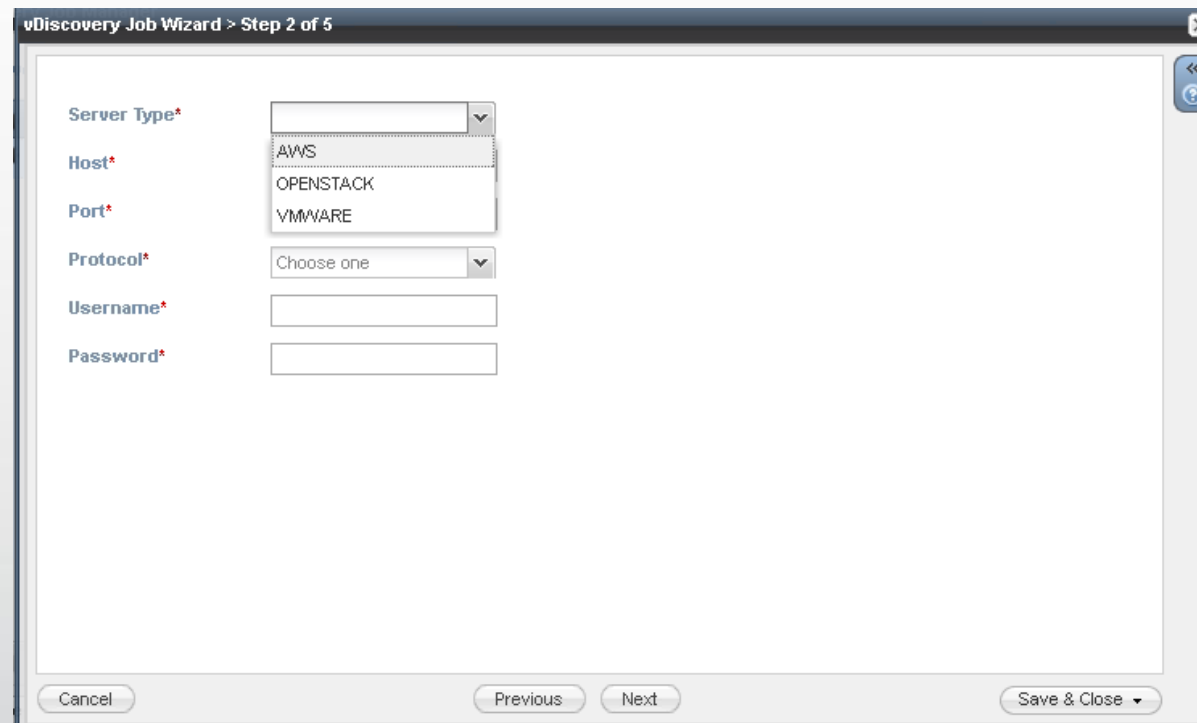
OK Cancel

Set Port Group = VM Network

Increased flexibility for VM deployments

VM Discovery (vDiscovery)

- vDiscovery provides automated detection of virtual entities and interfaces in private, public, and hybrid clouds that are managed through VMware vCenter servers and vSphere Hypervisor, OpenStack, or AWS.

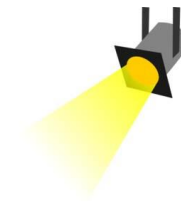


The screenshot shows the 'vDiscovery Job Wizard > Step 2 of 5' window. It contains the following fields and options:

- Server Type***: A dropdown menu with 'AWS' selected.
- Host***: A dropdown menu with 'OPENSTACK' selected.
- Port***: A dropdown menu with 'VMWARE' selected.
- Protocol***: A dropdown menu with 'Choose one' selected.
- Username***: A text input field.
- Password***: A text input field.

At the bottom of the window, there are four buttons: 'Cancel', 'Previous', 'Next', and 'Save & Close'.

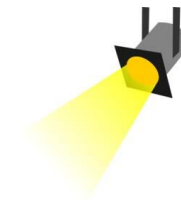
vDiscovery Feature Spotlight



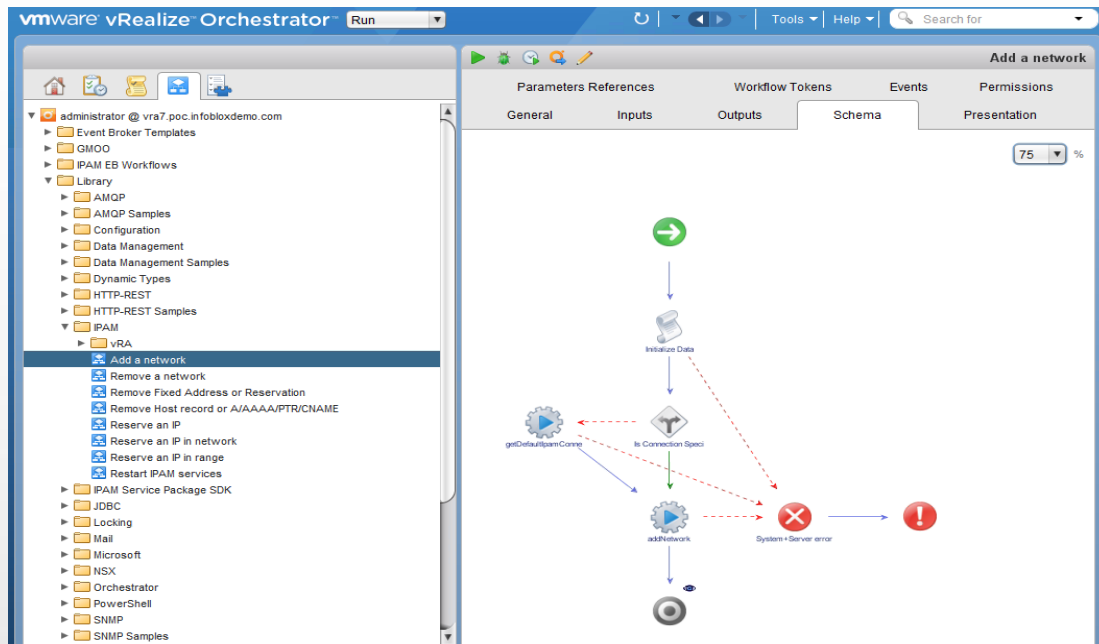
- Auto discovery of VMs for AWS, OpenStack and VMware
- Auto creation/deletion of DNS host records for VMs

The image shows a screenshot of the vDiscovery Job Properties dialog box. The dialog has a title bar with the text "vDiscovery Job Properties" and a close button. It features a sidebar on the left with five tabs: "General", "Endpoint", "Network View", "Data Consolidation", and "Schedule". The "Schedule" tab is currently selected. The main area of the dialog is divided into two sections. The top section, labeled "Basic", contains an "Enable" checkbox which is currently unchecked. Below this, there are radio buttons for scheduling frequency: "Once", "Hourly", "Daily", "Weekly", and "Monthly". The "Once" radio button is selected. To the right of these radio buttons, there is a "Schedule once" section with a "Start Date" field set to "2016-04-06", a "Start Time" field set to "09:40:26 AM", and a "Time Zone" dropdown menu set to "(UTC - 8:00) Pacific Time (US and Canada), Tijuana". At the bottom of the dialog, there are "Cancel" buttons for each of the five tabs and a "Save & Close" button on the right.

Extensible Features Spotlight



IPAM plug-in workflows are fully customizable



IPAM plug-in supports the REST interface to NIOS

```
rdp@w732bit-PC ~  
$ curl -H "Content-Type: application/json" -k1 -u infobloxse:infobloxse -X POST  
https://172.26.1.11/wapi/v2.0/network -d '{ "network": "11.11.111.0/24", "networ  
k_view": "cpview11", "extattrs": { "Tenant ID": {"value": "QA"}, "CMP Type": {"va  
lue": "Openstack"}, "Cloud API Owned": {"value": "True" } } }'  
"network/ZG5zLm5ldHdvcm5kMTEuMTEuMTExLjAvMjQvcpview11"
```

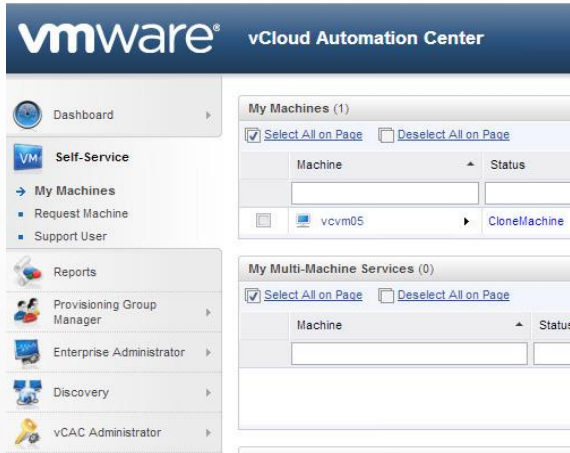

VMware Adapter Key Features

Key Feature	Description
Extensible Attributes	Ability to allocate an IP address and a DNS host record to a VM based on specific meta data associated with a network
Port groups	Attach a VM to a specific port group after creation
Microsoft integration	Support for A and PTR records for integration with Microsoft DNS
vRA 7.0 multi-tenancy	Support for vRA7 multi-tenancy with overlapping IP ranges when using Infoblox Network views and DNS views
VM multi-vNIC support	Support up to 4 vNICs per VM
vDiscovery	Discover VMs located on ESXi/vCenter Server as well as auto-creation of DNS host records if needed

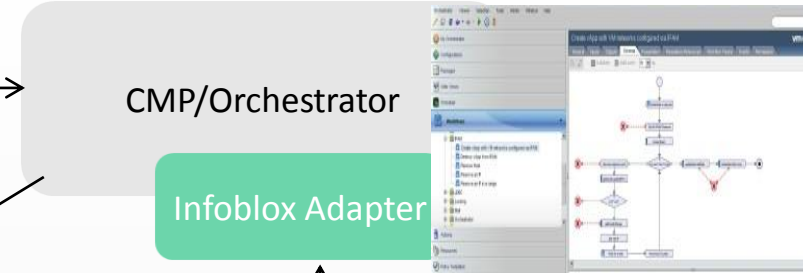


Provisioning a VM with Infoblox

1 - A cloud admin/user requests a VM to be created through self service portal



2 - CMP/Orchestrator calls the Infoblox Adapter



3 - Infoblox Adapter contacts NIOS via WAPI for Next Available IP and creates DNS Records for VM



Hypervisor



5 - CMP/Orchestrator Spins up VM on Hypervisor



6 - VM starts up either with injected static IP or IP allocated via DHCP Request to Member (Fixed Address)



4 - GM synchronizes Host record or Fixed Address/ + A/AAAA/PTR with Grid Member



End User



7 - End User accesses VM using DNS FQDN



Symantec Provisioning Time Comparison

Tasks w/o Infoblox	Duration (Days)	Effort (Hours)	Team	Priority (1-5) 1=Low, 5=High	Notes
Fill out IPAM form for DNS		0.5	Hosting	5	Fill out IPAM form to submit DNS request
DNS Registration – Submit ad-hoc request to IPAM registrar team (Requires IPAM form)	1	0	Hosting	5	Takes 24 hours to complete if no issues (48 hours with issues)
Insert IPAM into DNS	1	0	IPAM Team		IPAM team adds DNS entry
DNS Error	1		IPAM Team		Takes 24 hours to complete if no issues (48 hours with issues)
Hosting team email communication if Error or wrong domain		0.5	Hosting		
Total	3	1			4



Symantec Provisioning Time Comparison

Tasks with Infoblox	Duration (Days)	Effort (hours)	Team	Priority (1-5) 1=Low, 5=High	Notes
Fill out IPAM form for DNS		0	Hosting	5	Fill out IPAM form to submit DNS request
DNS Registration – Submit ad-hoc request to IPAM registrar team (Requires IPAM form)	0	0	Hosting	5	Takes 24 hours to complete if no issues (48 hours with issues)
Insert IPAM into DNS	0	0	IPAM Team		IPAM team adds DNS entry
DNS Error	0		IPAM Team		Takes 24 hours to complete if no issues (48 hours with issues)
Hosting team email communication if Error or wrong domain		0	Hosting		
Total	0	0			0



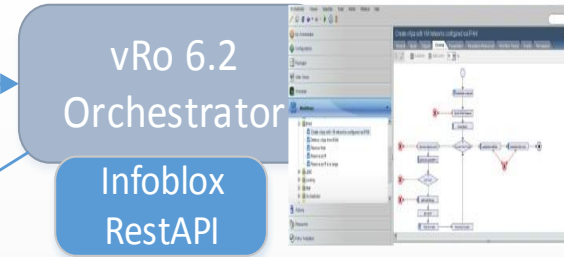
Symantec Provisioning Workflow

1. vRA requests a VM to be created through self service portal (CMP)



vRA 6.2

2. Orchestrator/CMP call the Infoblox Rest API



Infoblox Grid Master

3. Reserve and create an "A" and "PTR" Record w/Tag in infoblox

Note: Configured extensible attributes before creating the record with API:

Extensible attributes eg:

- Owner
- Tag Reservation (owner)
- Location

Infoblox Grid Member DNS/DHCP

4. Grid Master Synchronizes Host Record with Grid Member

vCenter 5.5

5. CMP/Orchestration spins up VM on Hypervisor



VMware ESX and ESXi

6. VM Starts up with injected static IP and pointed to the correct DNS nameserver



7. End User access VM using FQDN.




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BACKUP SLIDES

BLOX FEST

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Infoblox Hands On Labs



HOL-SDC-1632 vRealize Automation Advanced: Integration and Extensibility

★★★★★
en

[Expired](#)


This advanced lab will teach you how to integrate vRealize Automation with other VMware products. You will learn all about extending the provisioning life-cycle for many common use cases. Using vRealize Orchestrator and its plugins, you will learn how to implement custom host naming and integration with Infoblox and Puppet. You will explore the vRealize Automation API.

[Read more](#)

▼ LAB DETAILS

TIME LIMIT: 1 hour 30 min
VALID PERIOD: 2 hours
EXIT ALLOWED: No
END ALLOWED: Yes

Authors: [Grant Orchard](#), [Jon Schulte](#)
VMs: Microsoft Windows Server 2012 R2



HOL-SDC-1632 vRealize Automation Advanced: Integration and Extensibility

★★★★★
en

PROGRESS:
TIME REMAINING: 1 hour 30 minutes

[INVITE A FRIEND](#)

[START THIS LAB](#)

▼ LAB DETAILS


This advanced lab will explore out-of-the-box integrations with other vRealize Suite products, and you will learn all about extending the provisioning life-cycle for many common use cases. Using vRealize Orchestrator and its plugins, you will learn how to implement custom host naming and integration with Infoblox and Puppet. You will explore the vRealize Automation API.

This lab is available in **English**.

Lab Modules

#	Title	Time	Level	Type
1	You Need More Integration	15	B	U
2	An Introduction to Extensibility	45	A	U
3	Integrating vRealize Automation with the VMware Cloud Management Platform	60	B	U
4	Integrating vRealize Automation with Infoblox IPAM	60	A	U
5	Integrating vRealize Automation with Puppet Enterprise	45	A	U
6	Integrating vRealize Automation with NSX	45	A	U
7	XaaS Services with Advanced Service Designer and vRealize Orchestrator	60	A	F
8	Working with the vRealize Automation API	45	A	U

A **Module Time** can be either 15, 30, 45 or 60 Minutes in Length.
A **Module Level** can be either Beginning or Advanced.
A **Module Type** can be either Use Case or Feature.
[Close](#)



























<http://labs.hol.vmware.com>



Support for overlapping IP and DNS name spaces

- Infoblox DNS views provide the ability to serve one version of DNS data to one set of clients and another version to another set of clients
- Infoblox Network views support overlapping address spaces enabling the use of duplicate IP addresses without impacting network integrity

Properties (52)				New Property
	* Name	Value	Encrypted	
 	ExternalMFStubs.BuildingMachine	1	No	
 	ExternalMFStubs.MachineDisposing	1	No	
 	Infoblox.IPAM.comment		No	
 	Infoblox.IPAM.createAddressAndPtrRecords	false	No	
 	Infoblox.IPAM.createAddressRecord	false	No	
 	Infoblox.IPAM.createHostRecord	true	No	
 	Infoblox.IPAM.createReservation	false	No	
 	Infoblox.IPAM.dnsView	External	No	
 	Infoblox.IPAM.networkAddress		No	
 	Infoblox.IPAM.networkCidr		No	
 	Infoblox.IPAM.networkView	NetView3	<input type="checkbox"/>	
 	Infoblox.IPAM.searchByFa	false	No	

DNS View = External
Network View = NetView3

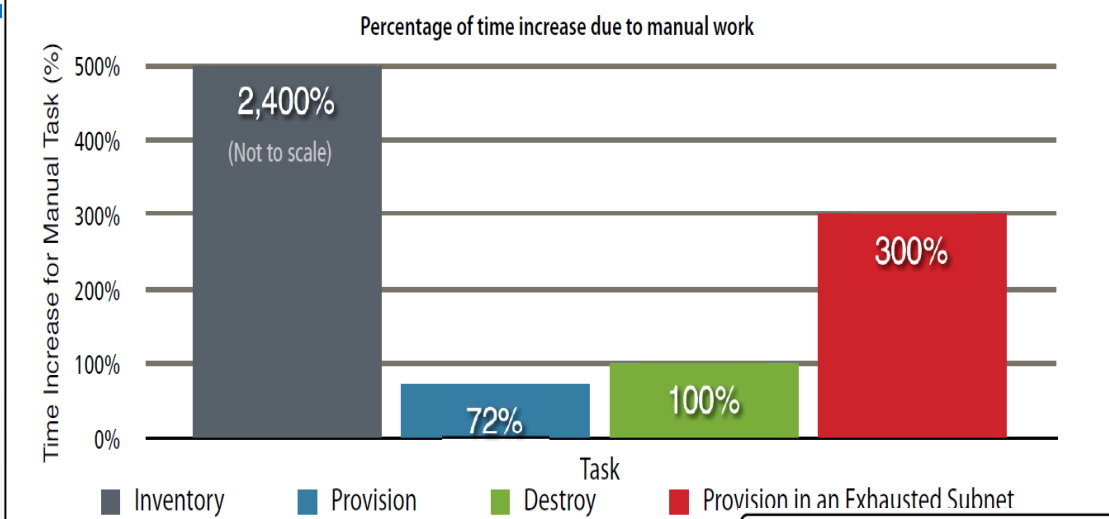
Infoblox DDI Network View = NetView3

Network Views		
Quick Filter	None	Filter On Show Filter
Go to		Go
<input type="checkbox"/> Name	Comment	Site
<input type="checkbox"/> NetView2		
<input type="checkbox"/> NetView3		
<input type="checkbox"/> default		

Increased flexibility for network deployments

Time and Cost Savings for Cloud Automation

VM Task Execution: Manual vs. Automated with Infoblox Cloud Network Automation for VMware



Source: Tolly, March 2015

Total Cost of Ownership (TCO) Analysis: Select VM Management Tasks

Infoblox Cloud Network Automation (CNA) vs. Manual Configuration

	500 VMs	1,000 VMs	2,500 VMs	5,000 VMs
Estimated Staff Hours/Week (without Infoblox CNA)	41.67	83.34	208.35	416.70
Estimated Staff Hours/Week (with Infoblox CNA)	15.91	31.83	79.56	159.13
Annual TCO Savings From Labor	\$71,497	\$142,993	\$357,483	\$714,966

Source: Tolly, March 2015

Table 1

