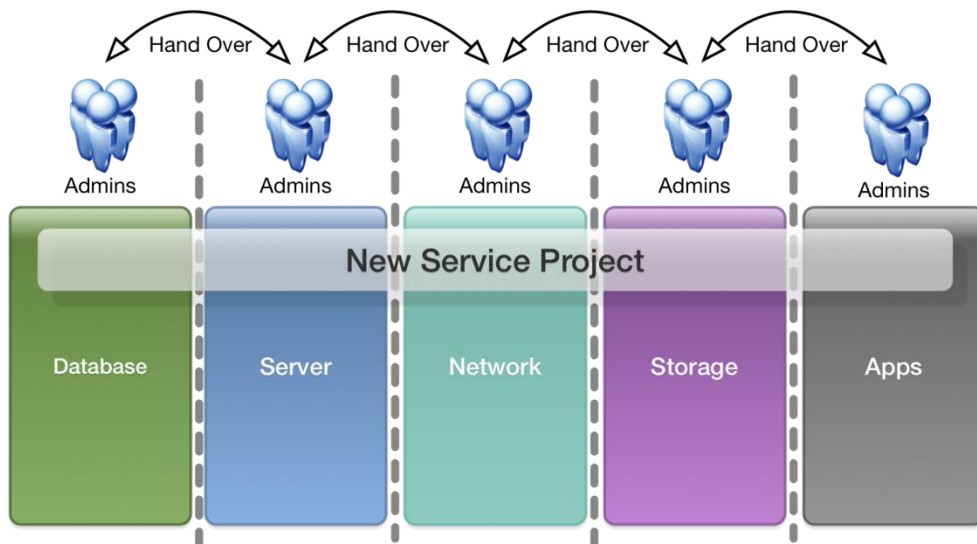
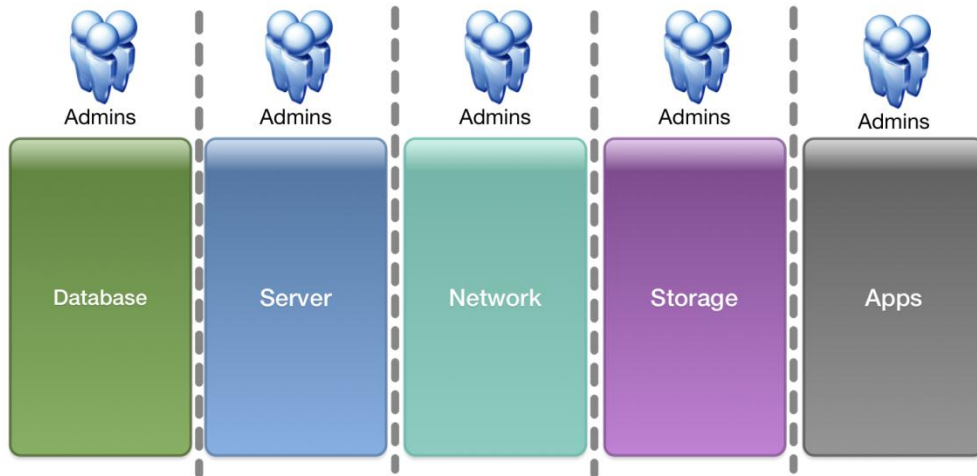


Chapter 1: The Software-Defined Data Center

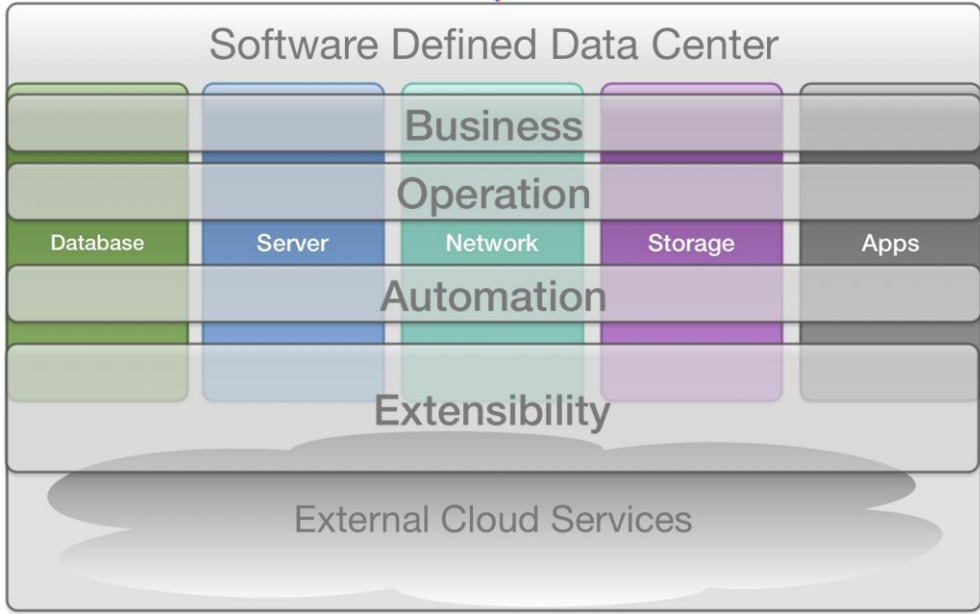


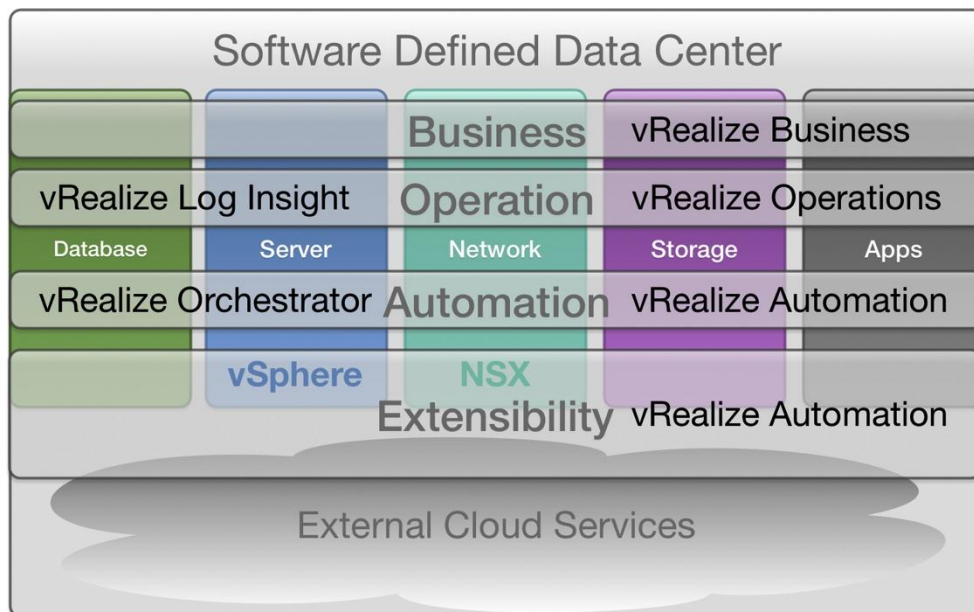


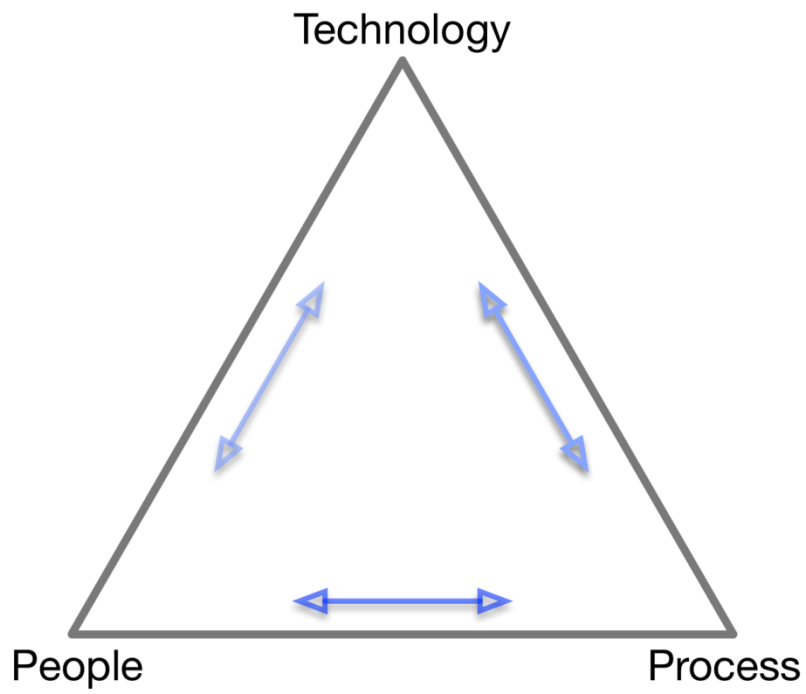
Admins

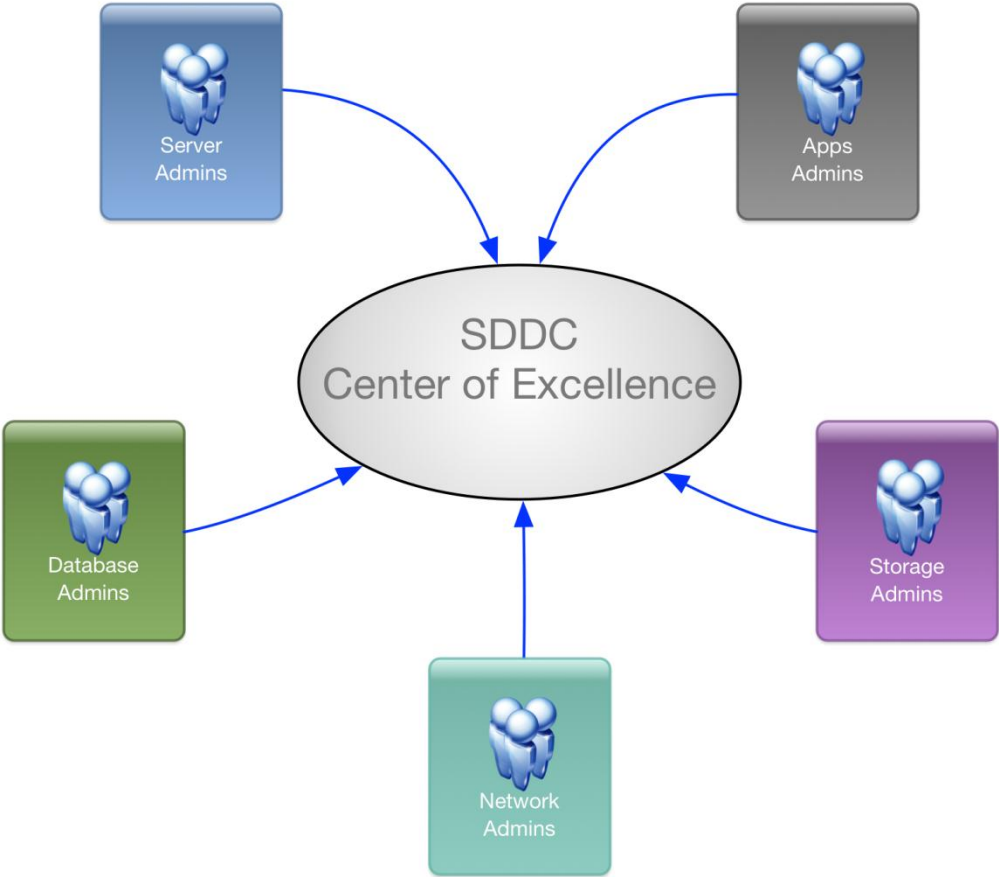


Users

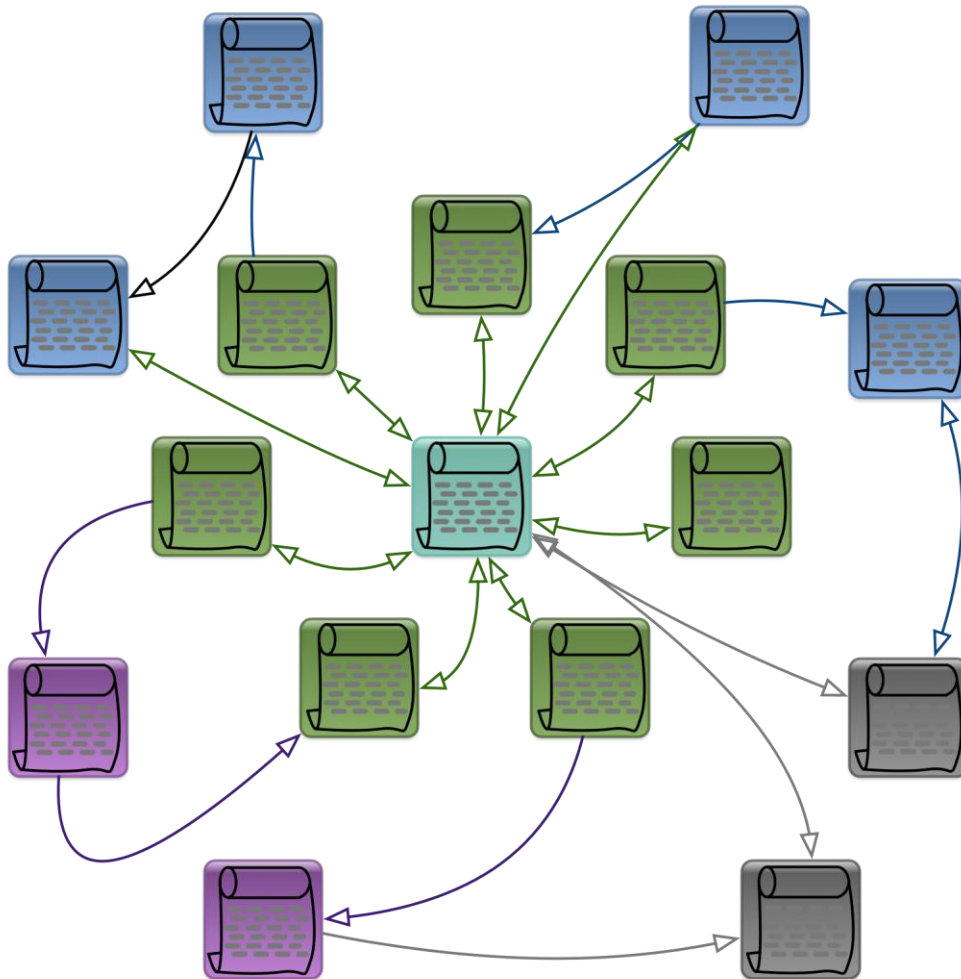


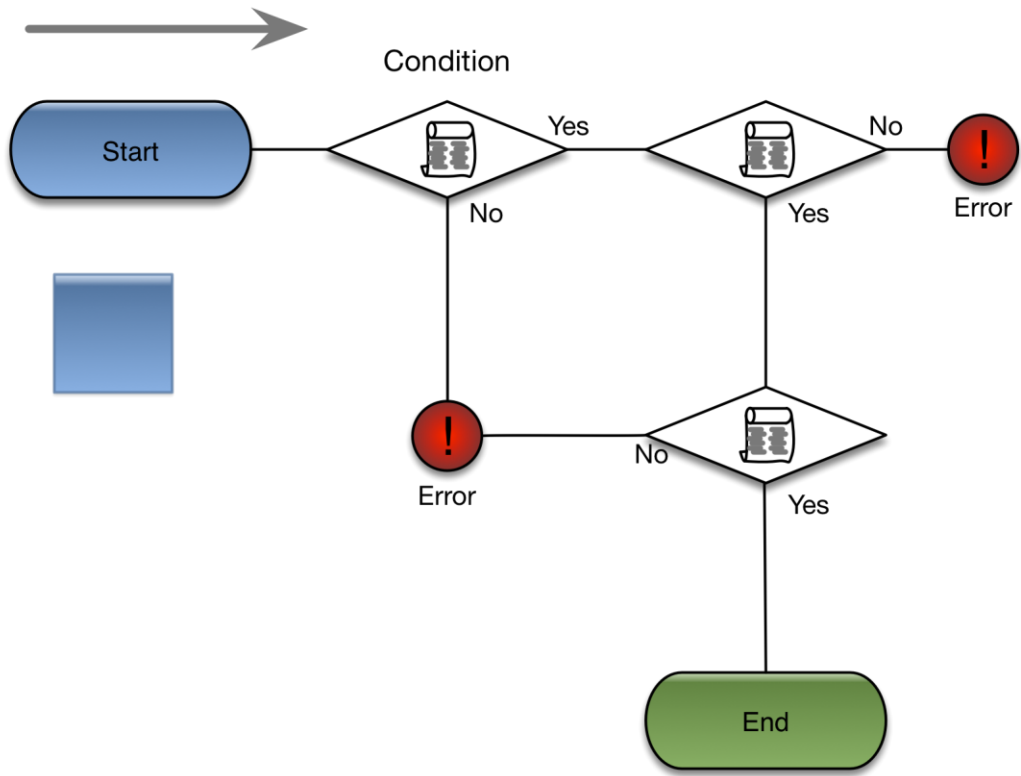




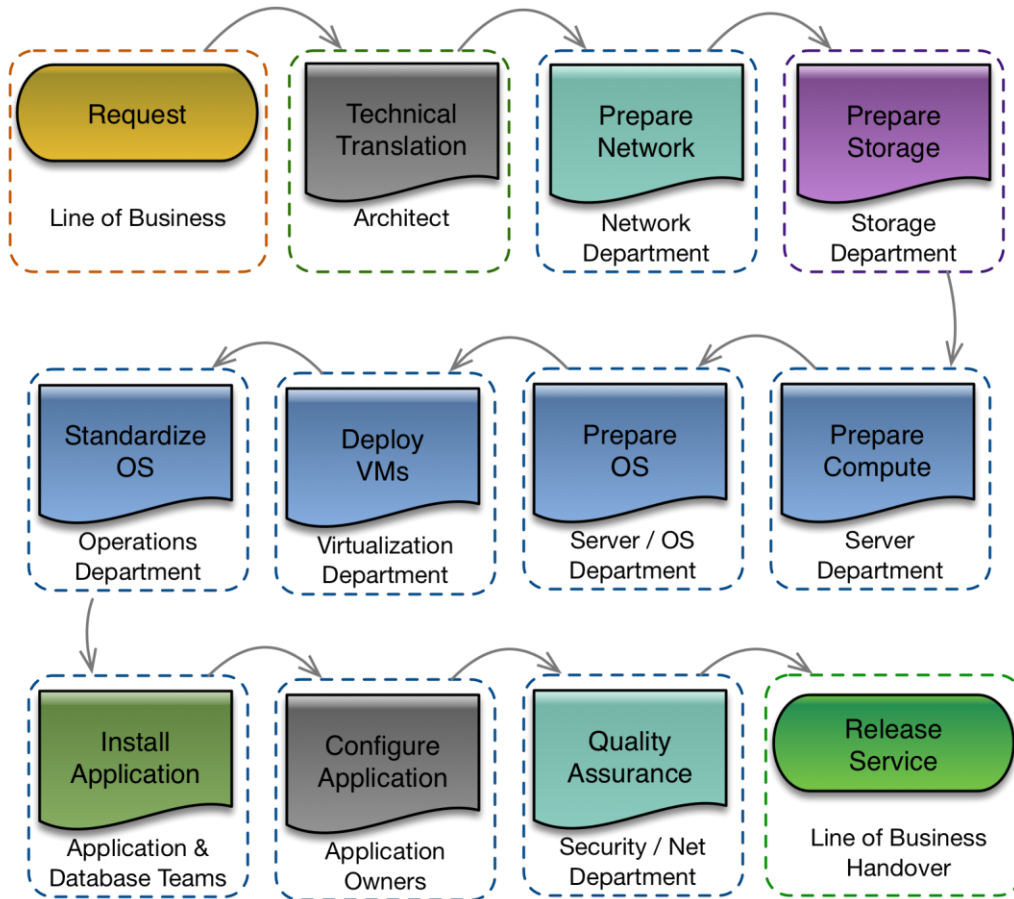


Chapter 2: Identify Automation and Standardization Opportunities

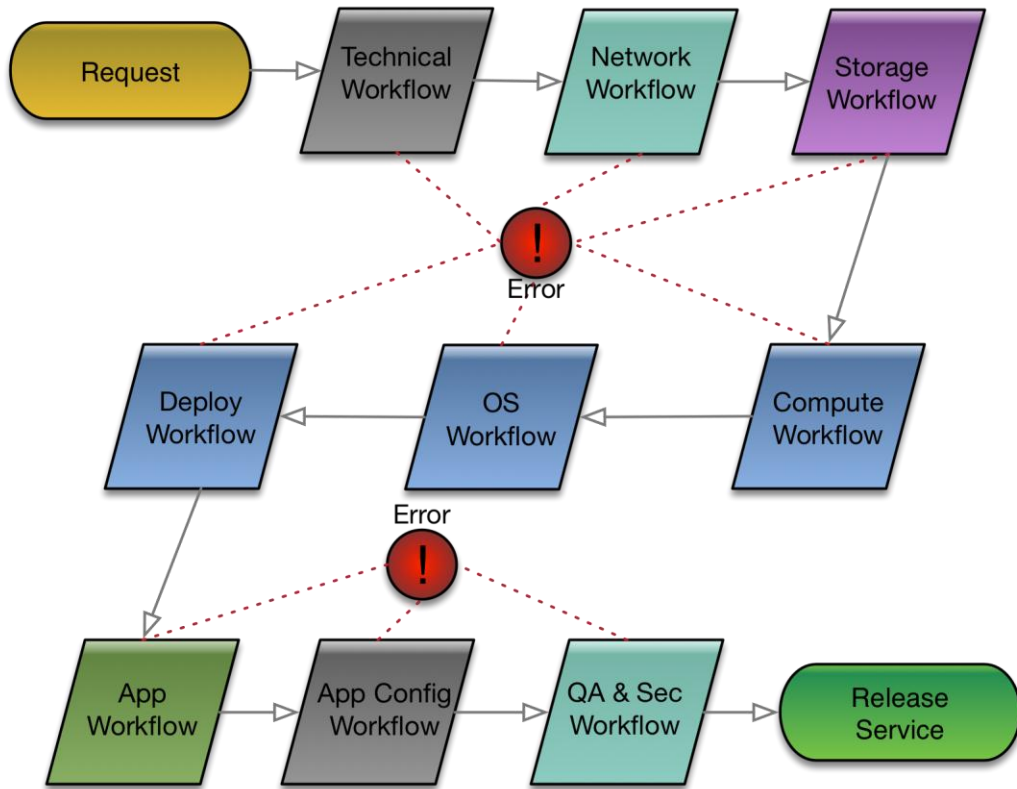


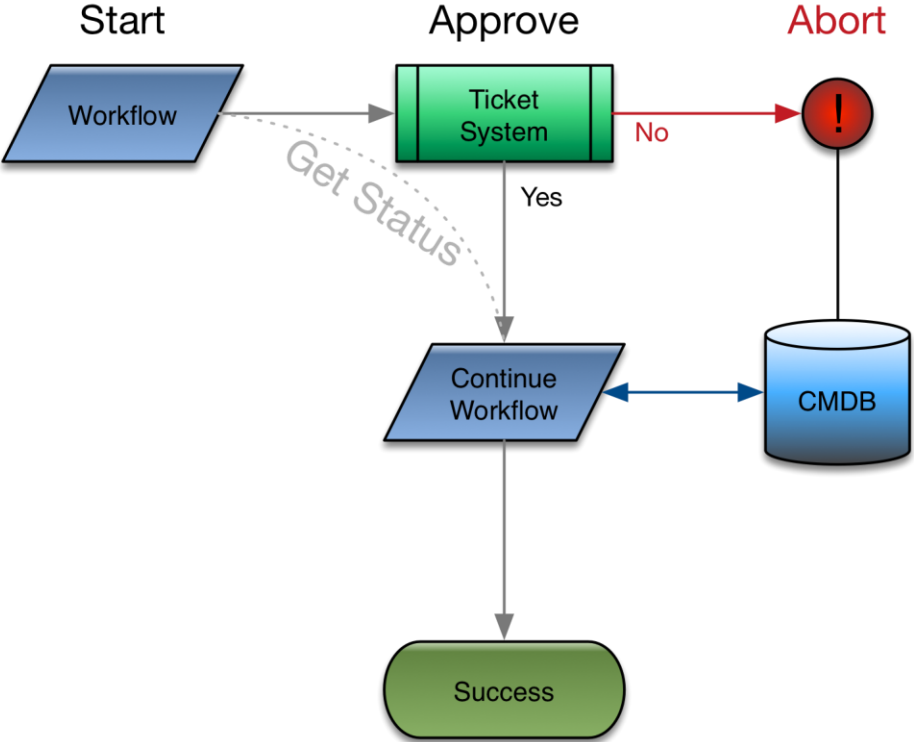


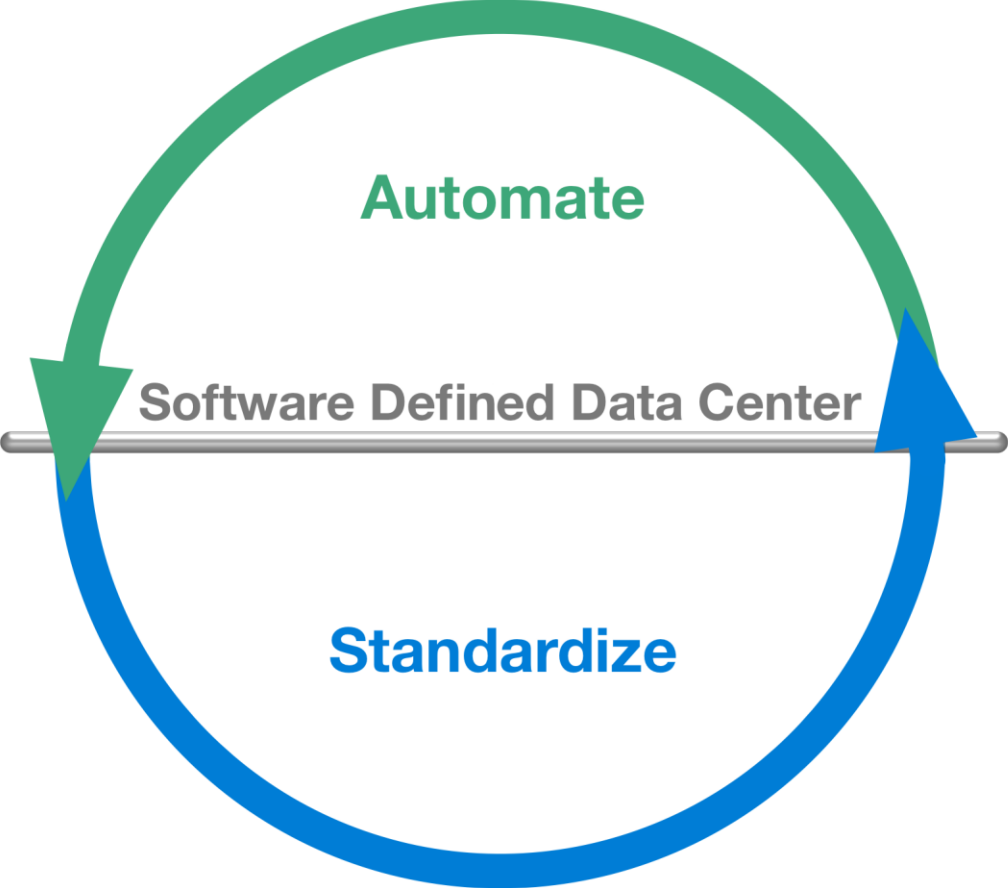
Sample Process



Sample Workflow











Chapter 3: VMware vSphere: The SDDC Foundation

VMHost Groups

Add... Edit... Delete

Name	Type
 Rack1	Host Group
 Rack2	Host Group
 VM Rack1	VM Group
 VM Rack2	VM Group

VM/Host Rules

[Add...](#) [Edit...](#) [Delete](#)

Name	Type	Enabled	Conflicts	Defined By
RunOnRack01	Run VMs on Hosts	Yes	0	User
RunOnRack02	Run VMs on Hosts	Yes	0	User

VM/Host Rule Details

Virtual Machines that are members of the VM Group should run on hosts that are members of the Host Group.

[Add...](#) [Remove](#)

VM Rack1 Group Members
UDVM001
UDVM000

[Add...](#) [Remove](#)

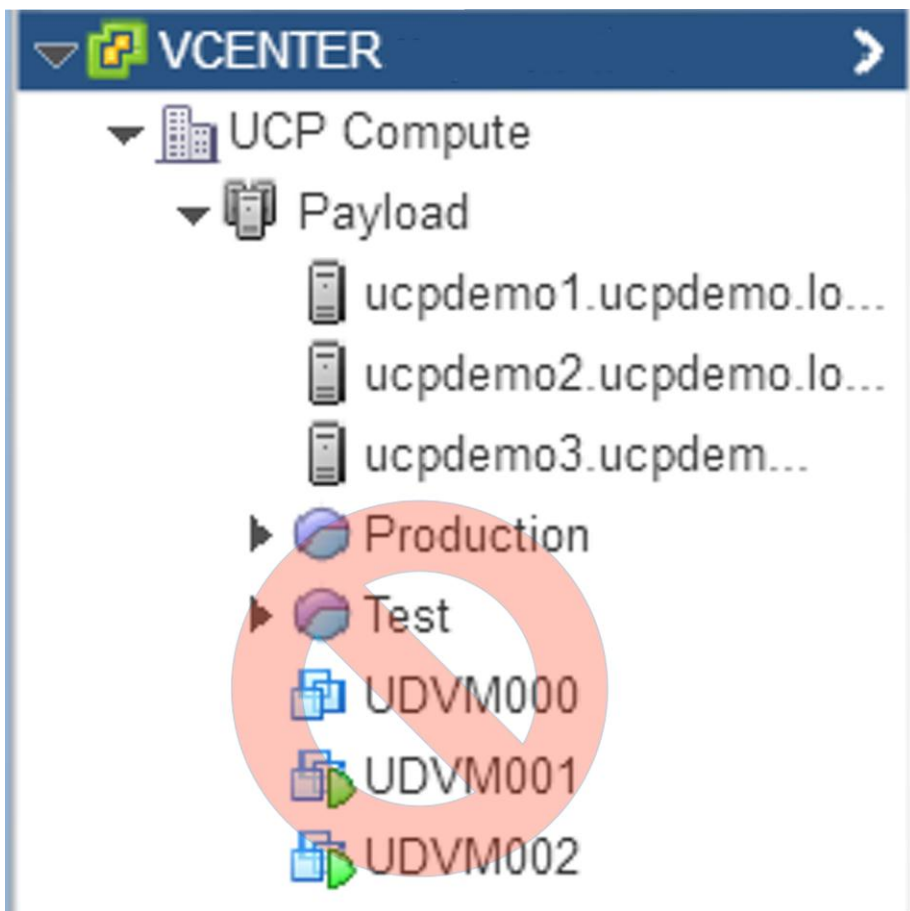
Rack1 Group Members
ucpdemo1.ucpdemo.local
ucpdemo2.ucpdemo.local

vSphere HA Rule Settings

[Edit...](#)

vSphere HA can enforce VM/Host rules when restarting virtual machines.

VM anti-affinity rules	Ignore rules
VM to Host affinity rules	Ignore rules



PayloadDs - Edit Storage DRS Settings

Turn ON vSphere Storage DRS

Storage DRS automation

Cluster automation level

No Automation (Manual Mode)
vCenter Server will make migration recommendations for virtual machine storage, but will not perform automatic migrations.

Fully Automated
Files will be migrated automatically to optimize resource usage.

Space balance automation level: Use cluster settings

I/O balance automation level: No Automation (Manual Mode)

Rule enforcement automation level: Use cluster settings

Policy enforcement automation level: Use cluster settings

VM evacuation automation level: Use cluster settings

Space threshold

Utilized space 50 % 100 % 80 %

Minimum free space 1 GB

I/O metrics

I/O metric inclusion Enable I/O metric for SDRS recommendations
Select this option if you want I/O metrics considered as a part of any SDRS recommendations or automated migrations in this data store cluster

I/O latency threshold 5 ms 100 ms 15 ms

Advanced options *Expand for advanced options*

OK Cancel

PayloadDs - Edit Storage DRS Settings [?] [▶▶]

Turn ON vSphere Storage DRS

▼ Storage DRS automation

Cluster automation level

No Automation (Manual Mode)
vCenter Server will make migration recommendations for virtual machine storage, but will not perform automatic migrations.

Fully Automated
Files will be migrated automatically to optimize resource usage.

Space balance automation level: Use cluster settings [i]

I/O balance automation level: No Automation (Manual Mode) [i]

Rule enforcement automation level: Use cluster settings [i]

Policy enforcement automation level: Use cluster settings [i]

VM evacuation automation level: Use cluster settings [i]

Space threshold

Utilized space 50 % 100 % 80 %

Minimum free space 1 GB

▼ I/O metrics

I/O metric inclusion

Enable I/O metric for SDRS recommendations [i]
Select this option if you want I/O metrics considered as a part of any SDRS recommendations or automated migrations in this data store cluster

I/O latency threshold: 5 ms 100 ms 15 ms

▶ Advanced options *Expand for advanced options*

OK Cancel

dvSwitch-Payload-56 Actions

Getting Started Summary Monitor **Manage** Related Objects

Settings Alarm Definitions Tags Permissions Network Protocol Profiles Ports **Resource Allocation**

System traffic

Network resource pools

0 Gbit/s 7.50 Gbit/s 10.00 Gbit/s

Network I/O Control: Enabled
Version: 3
Physical network adapters: 6
Minimum link speed: 10,000 Mbit/s

Total bandwidth capacity	10.00 Gbit/s
Maximum reservation allowed	7.50 Gbit/s
Configured reservation	0.00 Gbit/s
Available bandwidth	10.00 Gbit/s

Filter

Traffic Type	Shares	Shares Value	Reservation	Limit
iSCSI Traffic	Normal	50	0 Mbit/s	Unlimited
Fault Tolerance (FT) Traffic	Normal	50	0 Mbit/s	Unlimited
vMotion Traffic	Normal	50	0 Mbit/s	Unlimited
vSphere Replication (VR) Traffic	Normal	50	0 Mbit/s	Unlimited
Management Traffic	Normal	50	0 Mbit/s	Unlimited
NFS Traffic	Normal	50	0 Mbit/s	Unlimited
Virtual SAN Traffic	Normal	50	0 Mbit/s	Unlimited
vSphere Data Protection Backup Traffic	Normal	50	0 Mbit/s	Unlimited
Virtual Machine Traffic	High	100	0 Mbit/s	Unlimited

Summary Monitor **Manage** Related Objects

Settings Scheduled Tasks Alarm Definitions Tags Permissions

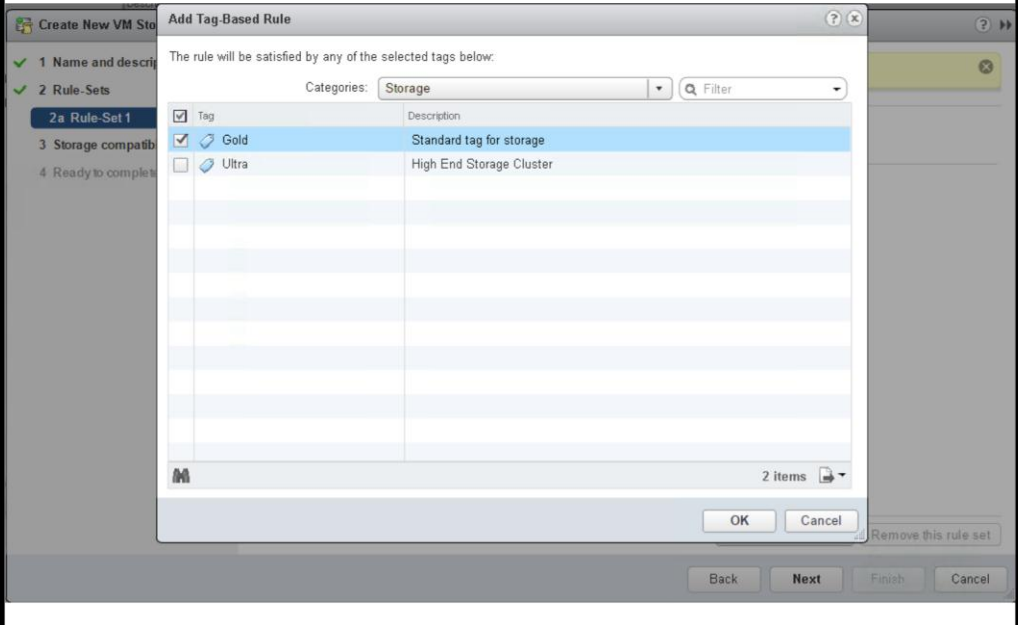
Services

- vSphere DRS
- vSphere HA
- Virtual SAN
- Configuration
 - General
 - Licensing
 - VMware EVC
 - VM/Host Groups
 - VM/Host Rules
 - VM Overrides
 - Host Options
 - Profiles

VM Overrides

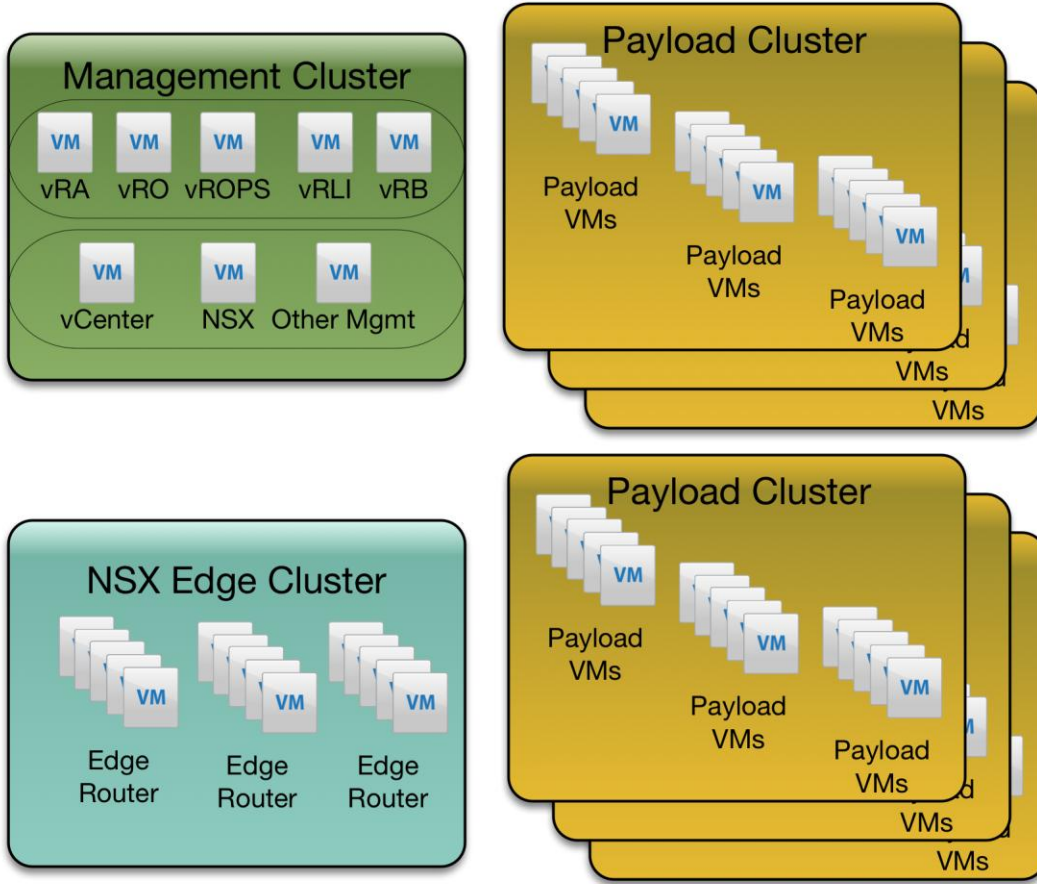
Add ... Edit ... Delete

Name	vSphere DRS Automation Level	vSphere HA Restart Priority
vRA_DEM	Default (Fully Automated)	High
VMware vRealize Log Insight	Default (Fully Automated)	High
VMware vRealize Appliance	Default (Fully Automated)	High
vRealize Business for Cloud	Default (Fully Automated)	Low
vRealize Operations Manager...	Default (Fully Automated)	Low
VMware vRealize Orchestrat...	Default (Fully Automated)	Medium

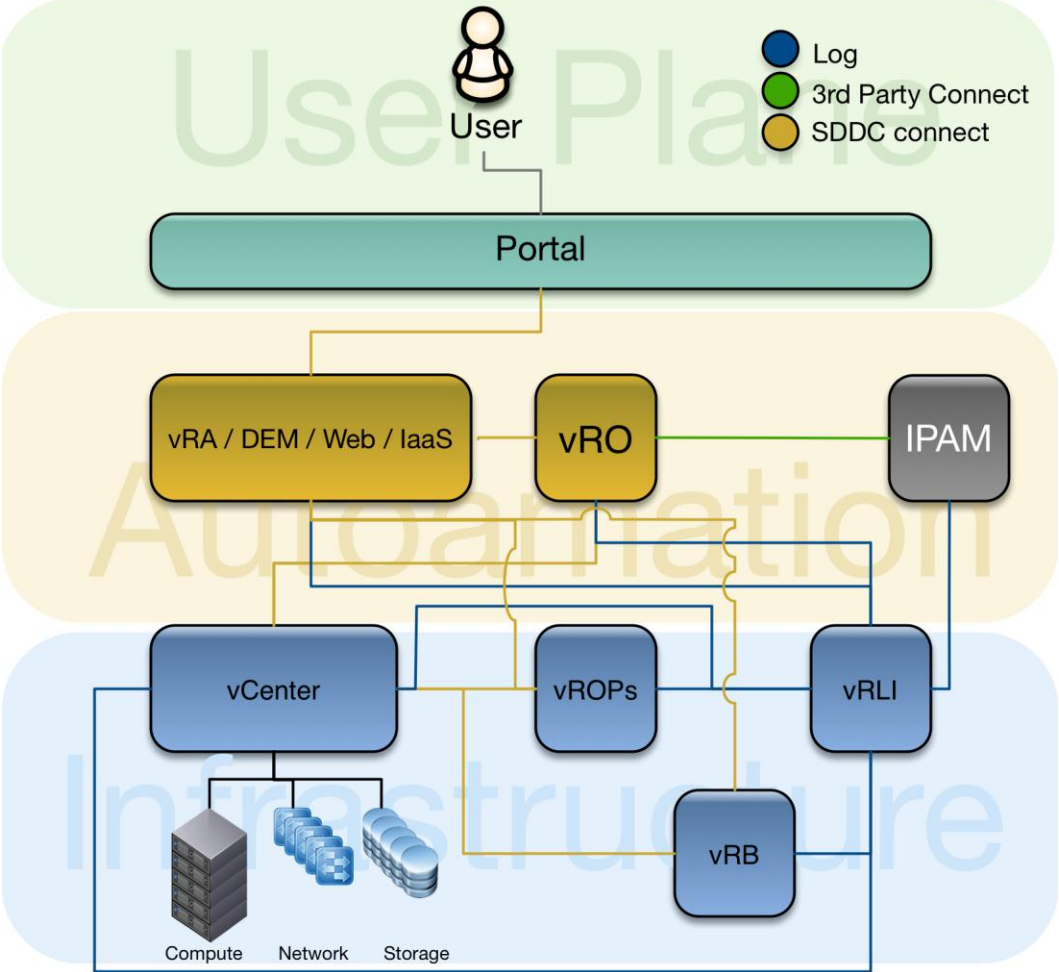


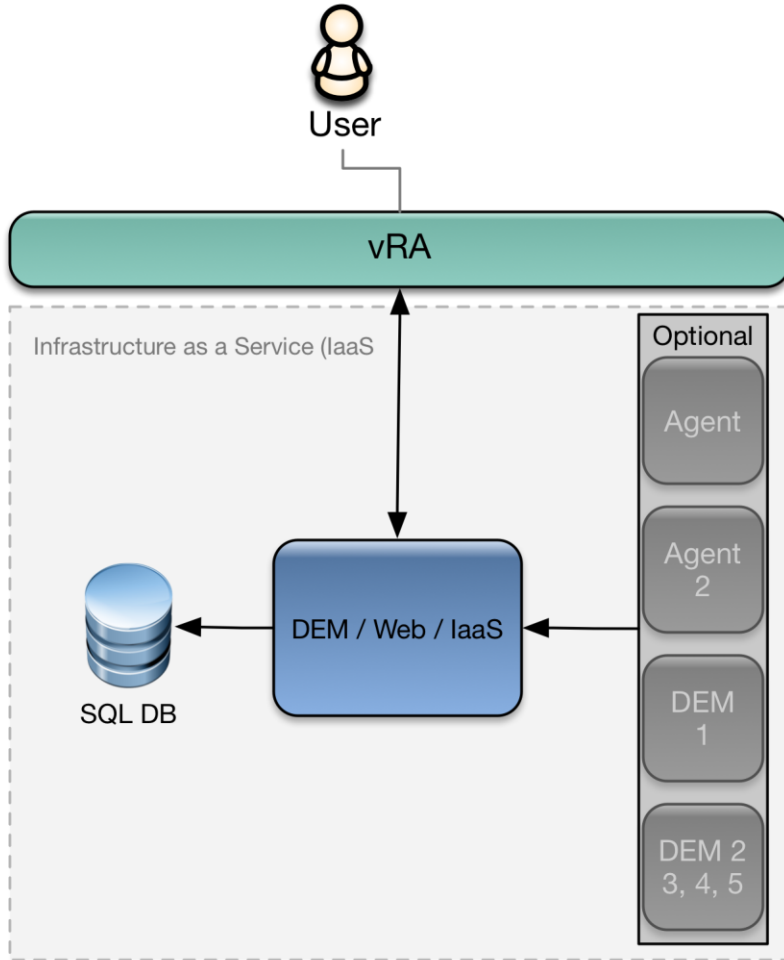
Chapter 4: SDDC Design Considerations

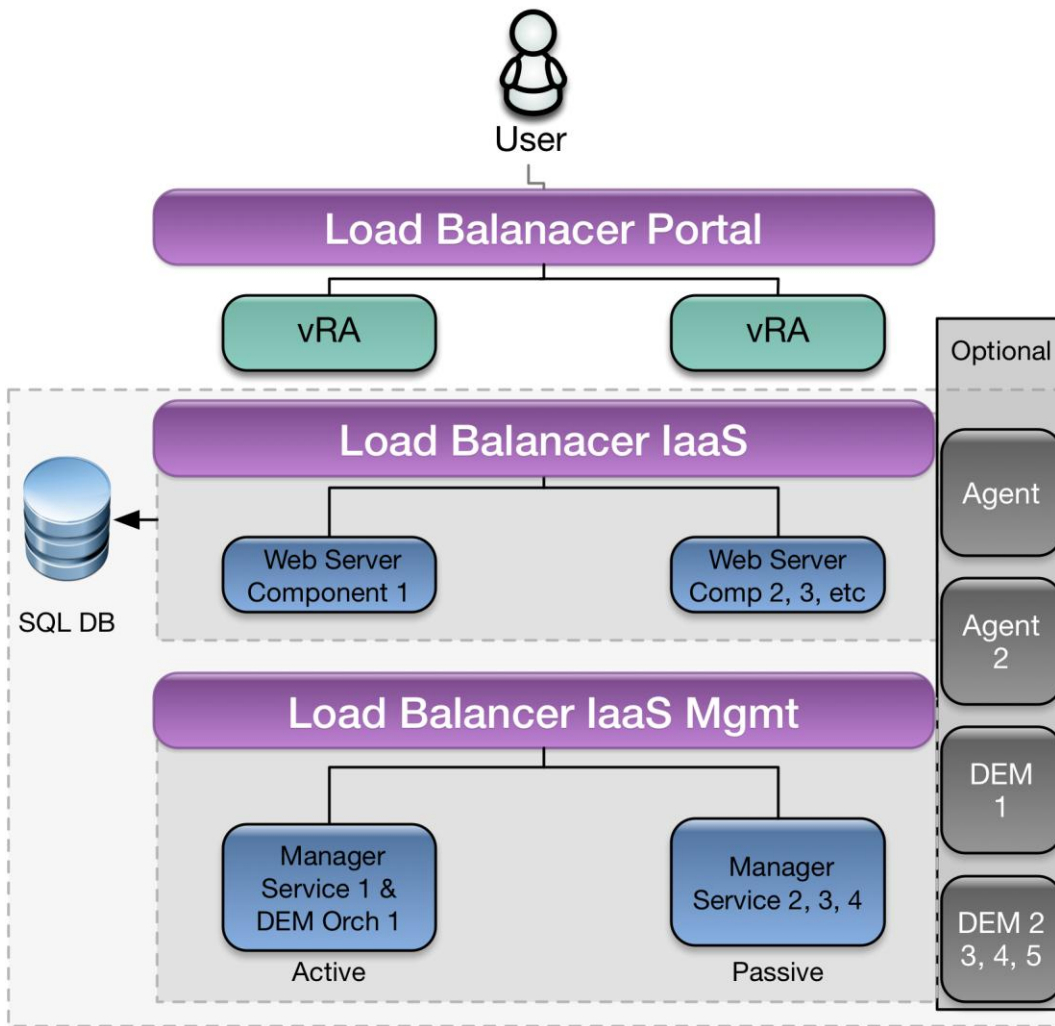
Sample Cluster Design



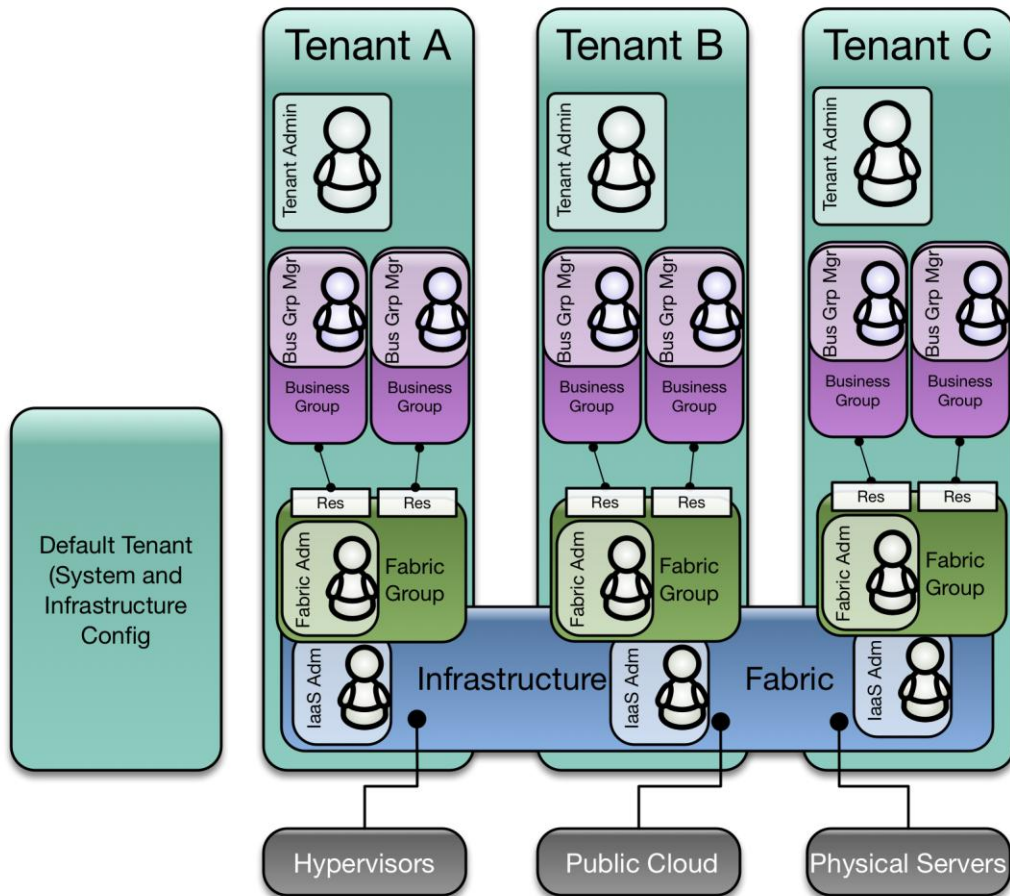
Sample Component Connect







Sample Tenant Design



vRealize Automation Installation Wizard [Logout](#)

- ✓ Deployment Type
- ✓ Installation Prerequisites
- ✓ Prerequisite Checker
- ✓ vRealize Automation Host
- ✓ Single Sign-On
- ✓ IaaS Host
- ✓ Microsoft® SQL Server
- ✓ Distributed Execution Managers
- ✓ Agents
- ✓ vRealize Appliance Certificate
- ✓ Web Certificate
- ✓ Manager Service Certificate
- Validation
- Create Snapshots
- Installation Details
- Licensing
- Minimal

Validation

100%

Validation completed.

Trigger the validation.

Host Name \ Instance	Role	Command Status
▶ vRA-a.example.local\Web Certificate		✓ Succeeded
▶ vRA-a.example.local (SQL Server: SQL.example.local)	Database	✓ Succeeded
▶ vRA-a.example.local\Web	Web	✓ Succeeded
▶ vRA-a.example.local\Manager Service	Manager Service	✓ Succeeded
▶ vRA-a.example.local\DEO	DEO/DEM	✓ Succeeded
▶ vRA-a.example.local\DEM	DEO/DEM	✓ Succeeded
▶ vRA-a.example.local\vCenter	Agent	✓ Succeeded

Validation has completed successfully.

Validate Previous Next Cancel

< Infrastructure

Compute Resources

EBS Volumes

Compute Resources

Manage compute resources, view or add reservation

Name	Data Collection

🔍
📄 Payload
✏️ Edit

- 📄 New Reservation
- 👤 View Proxy Agent
- 💻 View Machines
- 🔄 Data Collection

Edit Blueprint: Example ⚙️

Categories

- 📁 Machine Types 10
- 📁 Software Components 1
- 📁 Blueprints 2
- 📁 Network & Security 7
- 📁 XaaS 4

🔍 Search

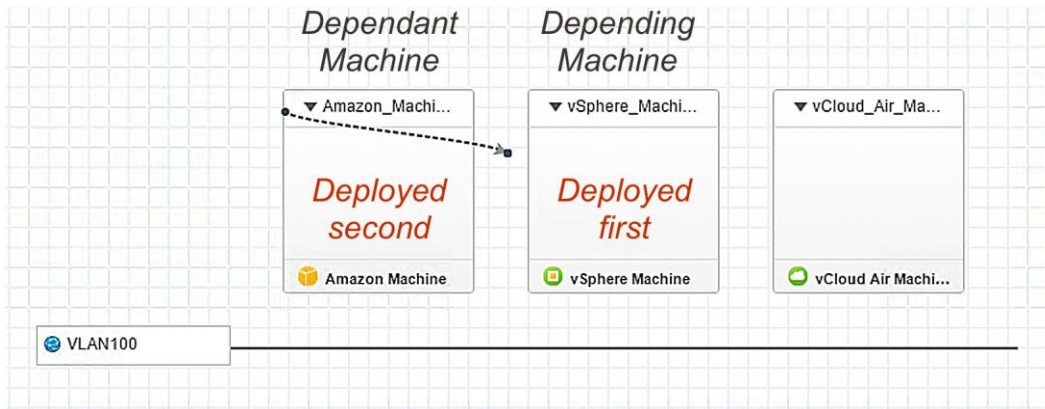
- 🌐 Existing Network
- 🛡️ Existing Security Group
- 🏷️ Existing Security Tag
- ⚖️ On-Demand Load Balancer
- 🌐 On-Demand NAT Network
- 🌐 On-Demand Routed Network
- 🛡️ On-Demand Security Group

Design Canvas 🔍

```

graph TD
    subgraph Machines
        direction TB
        AM[Amazon_Machi...]
        VM[vSphere_Machi...]
        VCM[vCloud_Air_Ma...]
    end
    subgraph Network
        direction TB
        VLAN[VLAN100]
    end
    AM --- VLAN
    VM --- VLAN
    VCM --- VLAN
            
```

Save Finish Cancel



New Network Profile - External

Create a network profile to manage ranges of static IPv4 network addresses.

General **IP Ranges**

* Name:

Description:

* Subnet mask:

Gateway:

DNS / WINS

Primary DNS:

Secondary DNS:

DNS suffix:

DNS search suffix:

Preferred WINS:

Alternate WINS:

New Network Profile - External

Create a network profile to manage ranges of static IPv4 network addresses.

General **IP Ranges**

IPv4 ranges: + New

Name	Description	Start IP	End IP
✗ IPRange-Example		192.168.0.2	192.168.0.250

IP addresses:

IP Address	Machine	Last Modified	Status
			All
192.168.0.2		7/11/2016 10:44 AM UTC+02:00	Unallocated
192.168.0.3		7/11/2016 10:44 AM UTC+02:00	Unallocated
192.168.0.4		7/11/2016 10:44 AM UTC+02:00	Unallocated
192.168.0.5		7/11/2016 10:44 AM UTC+02:00	Unallocated
192.168.0.6		7/11/2016 10:44 AM UTC+02:00	Unallocated
192.168.0.7		7/11/2016 10:44 AM UTC+02:00	Unallocated
192.168.0.8		7/11/2016 10:44 AM UTC+02:00	Unallocated
192.168.0.9		7/11/2016 10:44 AM UTC+02:00	Unallocated
192.168.0.10		7/11/2016 10:44 AM UTC+02:00	Unallocated
192.168.0.11		7/11/2016 10:44 AM UTC+02:00	Unallocated
192.168.0.12		7/11/2016 10:44 AM UTC+02:00	Unallocated
192.168.0.13		7/11/2016 10:44 AM UTC+02:00	Unallocated
192.168.0.14		7/11/2016 10:44 AM UTC+02:00	Unallocated
192.168.0.15		7/11/2016 10:44 AM UTC+02:00	Unallocated
192.168.0.16		7/11/2016 10:44 AM UTC+02:00	Unallocated
192.168.0.17		7/11/2016 10:44 AM UTC+02:00	Unallocated
192.168.0.18		7/11/2016 10:44 AM UTC+02:00	Unallocated
192.168.0.19		7/11/2016 10:44 AM UTC+02:00	Unallocated
192.168.0.20		7/11/2016 10:44 AM UTC+02:00	Unallocated
192.168.0.21		7/11/2016 10:44 AM UTC+02:00	Unallocated
192.168.0.22		7/11/2016 10:44 AM UTC+02:00	Unallocated
192.168.0.23		7/11/2016 10:44 AM UTC+02:00	Unallocated
192.168.0.24		7/11/2016 10:44 AM UTC+02:00	Unallocated
192.168.0.25		7/11/2016 10:44 AM UTC+02:00	Unallocated
192.168.0.26		7/11/2016 10:44 AM UTC+02:00	Unallocated

Page 1 of 10 | Displaying 1 - 25 of 249

Upload CSV:

Edit Reservation - vSphere

Change settings in a listed reservation.

General **Resources** **Network** Properties Alerts

* Network: Map a network path to a network profile i

Network Path	Network Profile
<input checked="" type="checkbox"/> dvpg-Payload-56-Compute-VLAN100	VLAN100

* Name:

To avoid conflict with vRealize Automation properties, use a prefix such as a company or feature name followed by a dot for all custom property names.

* Label:

Visibility: All tenants This tenant

Description:

Order index:

* Data type:

* Required:

* Display advice:

* Values: Predefined values

External values

Enable custom values:

Predefined values:

+ New ✎ Edit ✖ Delete	
Name	Value
1 Month	1month
3 Month	3month
1 Year	1year

New Blueprint

General | NSX Settings | Properties

*** Name:**

*** ID:** ⓘ
Assign a permanent, unique ID to this blueprint.

Description:

*** Archive (days):** ⓘ

Lease (days):

	Minimum	Maximum
Lease (days):	<input type="text" value="1"/>	<input type="text" value="7"/>

OK Cancel

New Blueprint: Windows 2012

Categories

- Machine Types 10
- Software Components 5
- Blueprints 2
- Network & Security 7**
- XaaS 4

Search

- Existing Network
- Existing Security Group
- Existing Security Tag
- On-Demand Load Balancer
- On-Demand NAT Network
- On-Demand Routed Network
- On-Demand Security Group

Design Canvas

The Design Canvas shows a vSphere Machine component connected to a VLAN100 network element. The vSphere Machine component is labeled 'Windows2k12' and has a red 'X' icon. The VLAN100 element is a blue circle with the text 'VLAN100'.

Windows2k12

General | Build Information | **Machine Resources** | Storage | Network | Security | Properties

	Minimum	Maximum
* CPUs:	<input type="text" value="1"/>	<input type="text" value="1"/>
* Memory (MB):	<input type="text" value="4096"/>	<input type="text" value="4096"/>
Storage (GB):	<input type="text" value="40"/>	<input type="text" value="40"/>

Save Finish Cancel

Configure Catalog Item

General

Entitlements

Name: Windows 2012

Source: Blueprint Service

Resource type: Deployment

Description: Windows 2012 Machine deployment

Icon: windows-serve

Recommended size: 100 x 100 pixels

Preview

List view

Catalog view

Detail view



Status: Active

Quota: Unlimited

Service: IaaS

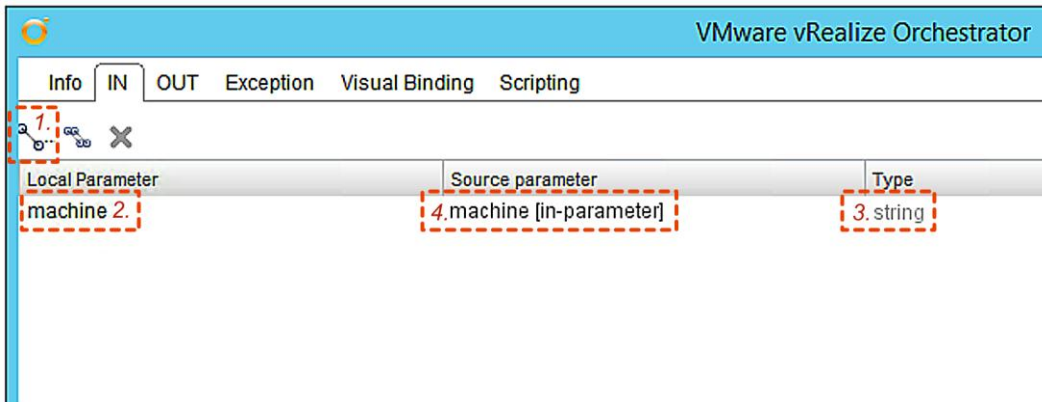
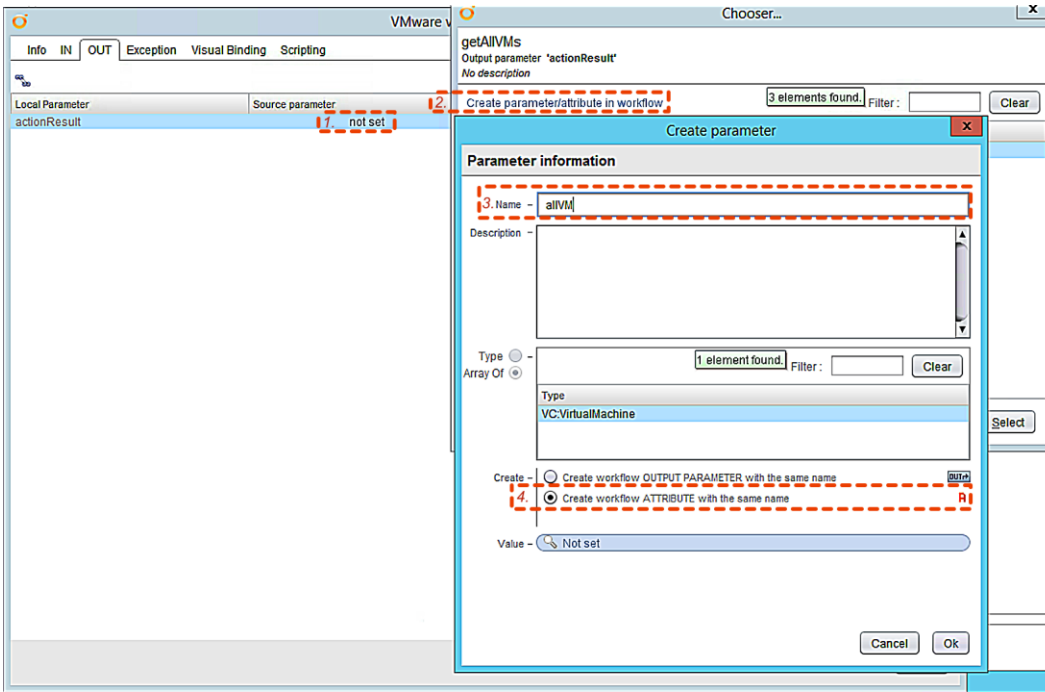
New and noteworthy

Chapter 6: vRealize Orchestrator

The screenshot displays the vRealize Orchestrator interface, specifically the Schema tab. The top navigation bar includes tabs for General, Inputs, Outputs, Schema (selected), Presentation, Parameters, References, and Workflow Tokens. Below the navigation bar is a search field labeled "Type your filter text here..." and a search button. To the right of the search field are buttons for Run, Debug, and Validate (checked), along with a progress indicator showing 100%.

The main area is divided into two panels:

- Workflow elements:** A list of various workflow components, including Scriptable task, Decision, Custom decision, Decision activity, User interaction, Waiting timer, Waiting event, End workflow, Throw exception, Workflow note, Action element, Workflow elem..., Foreach element, Asynchronous..., Schedule work..., Nested workflows, Handle error, Default error ha..., and Switch. The "End workflow" element is highlighted with a blue border.
- Workflow canvas / construction:** A workspace for building the workflow. It shows a green circular icon with a white arrow pointing right, connected by a blue arrow to a grey circular icon with a white center, representing a workflow step.



Name: Backup
 1. *Label: Backup retention
 Visibility: This tenant
 Description: Define the backup retention policy
 Order index: 1
 2. *Data type: String
 *Required: No
 3. *Display advice: Dropdown
 *Values: Predefined values
 External values
 Enable custom values:
 Predefined values:

Name	Value
1 Month	1month
3 Month	3month
1 Year	1year

4.

OK Cancel

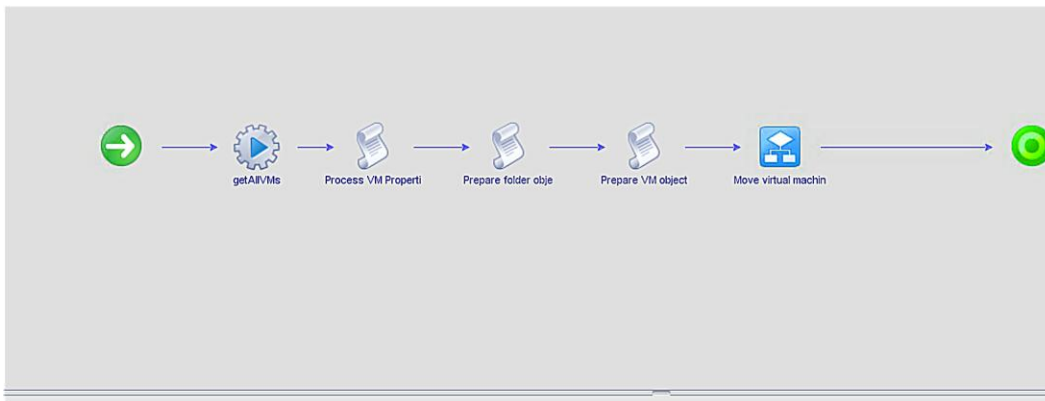
Design Canvas

Windows2012R2

General Build Information Machine Resources Storage Network Security **Properties**

Property Groups Custom Properties

Name	Value	Encrypted	Overridable
Extensibility.Lifecycle.Properties.VMPSMaster/Workflow32.MachineProvisioned	backup*	No	Yes



General Variables Logs

Info

Messages

[2016-07-21 09:40:44.124] [I] Found backup property: 3month VM name UDVM043

[2016-07-21 09:40:44.209] [I] Found folder: DynamicWrapper (Instance) : [VcFolder]-[class com.vmware.vmo.plugin.v4.model.VimFolder] -- VALUE : Folder<group-v285>'3month'

[2016-07-21 09:40:44.226] [I] Found VM: UDVM043

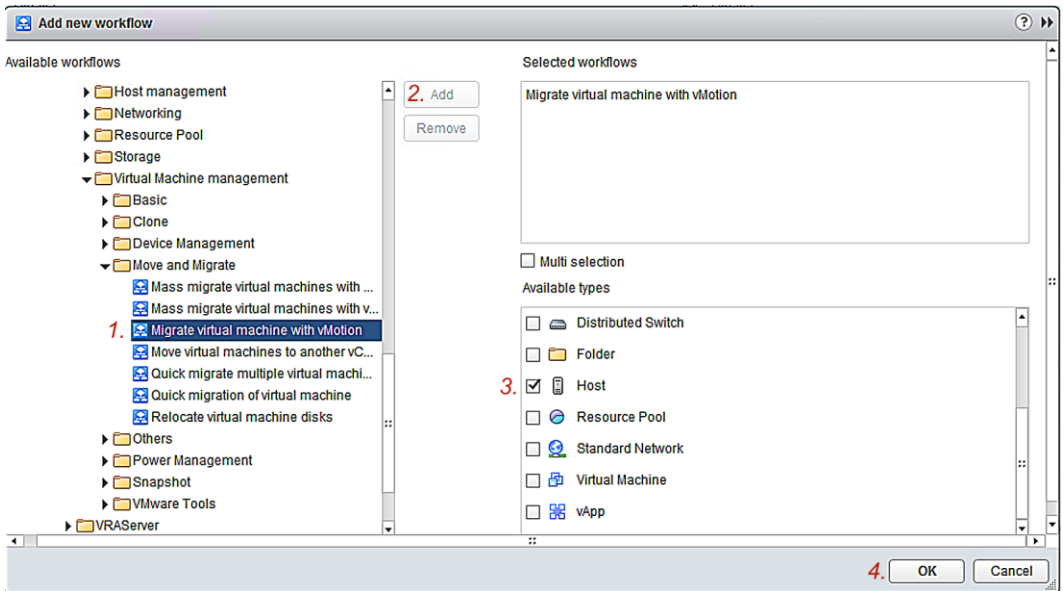
- ▼ vCenter
 - ▶ Batch
 - ▶ Cluster and Compute resource
 - ▼ Configuration
 - 1. ▶ Add a vCenter Server instance
 - ▶ List the vCenter Orchestrator extensions of vCenter Server
 - 2. ▶ Register vCenter Orchestrator as a vCenter Server extension
 - ▶ Remove a vCenter Server instance
 - ▶ Unregister a vCenter Server extension
 - ▶ Update a vCenter Server instance

Home

Managed Object Type: **ManagedObjectReference:ExtensionManager**
Managed Object ID: **ExtensionManager**

Properties

NAME	TYPE	VALUE
extensionList	Extension[]	extensionList["com.vmware.vim.inventoryservice"] Extension
		extensionList["com.vmware.vim.ls"] Extension
		extensionList["com.vmware.vim.sms"] Extension
		extensionList["com.vmware.vim.sps"] Extension
		extensionList["com.vmware.vim.stats.report"] Extension
		extensionList["com.vmware.vim.vsm"] Extension
		extensionList["hostdiag"] Extension
		extensionList["VirtualCenter"] Extension
		extensionList["com.hds.ucp"] Extension
		extensionList["com.vmware.d"] Extension
		extensionList["com.vmware.rbd"] Extension
		extensionList["com.vmware.syslog"] Extension
		extensionList["com.vmware.vco"] Extension
		extensionList["com.vmware.vcops"] Extension
		extensionList["com.vmware.vdc"] Extension
		extensionList["com.vmware.vim.eam"] Extension
		extensionList["com.vmware.vsan.health"] Extension
extensionList["com.vmware.vsan.mgmt"] Extension		
extensionList["com.vmware.vShieldManager"] Extension		
(less...)		



ucp Actions - ucpdemo1.ucpdemo.local

- New Virtual Machine
- New vApp
- New Resource Pool...
- Deploy OVF Template...
- Connection
- Maintenance Mode
- Power
- Certificates
- Storage
- Add Networking...
- Add Diagnostic Partition...
- Host Profiles
- Edit Default VM Compatibility...
- Export System Logs...
- Reconfigure for vSphere HA
- Assign License...
- Settings
- Move To...
- Tags & Custom Attributes
- Add Permission...
- Alarms
- Remove from Inventory
- Disassociate Host
- All Hitachi Unified Compute Platform Directo...
- All vRealize Orchestrator Actions
 - Mass migrate virtual machines with vMotion

NICs: 4
Virtual Machines: 0

State: Connected
Uptime: 34 days

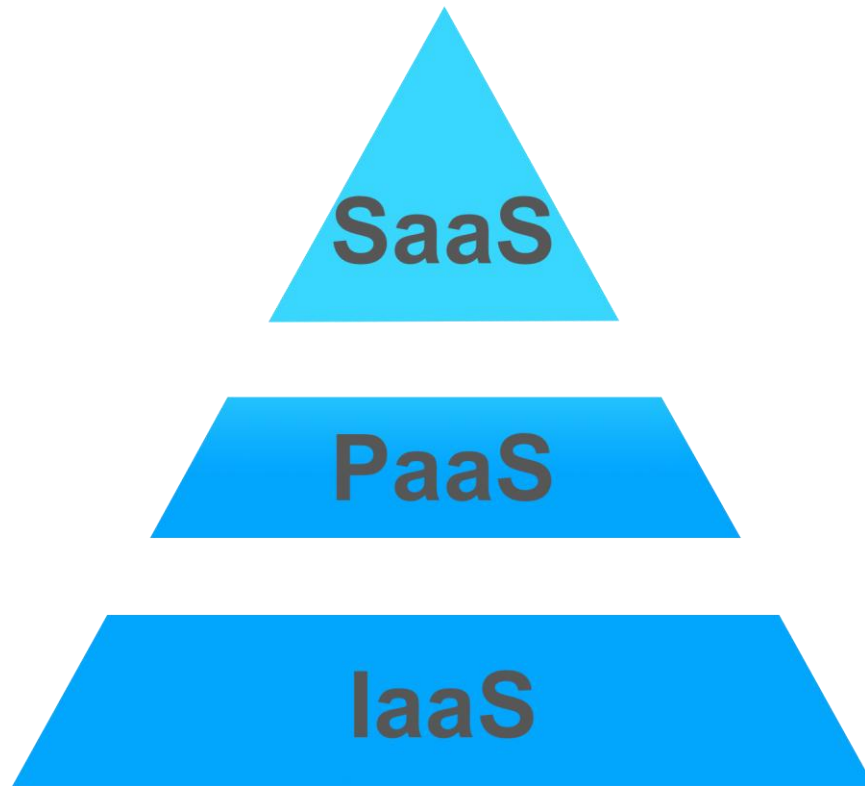
Tag	Category	Description
This list is empty.		

Assign... Remove...

Profile Compliance

is	Initiator
Completed	UCPDEMO\ucpad...
Completed	UCPDEMO\ucpad...
Completed	ucpadmin@ucpde...

Chapter 7: Service Catalog Creation



< Administration

Services

Catalog Items

Actions

Entitlements

Services

Create, edit, publish, and manage services.

New
 View Details
 Copy
 Delete
 Activate
 Manage Catalog Items

Name ▲	Status
Applications	Active
Directory Services	Active
IaaS	Active
vRA Configuration	Inactive

< Administration

Services

Catalog Items

Actions

Entitlements

New Service

Name:

Description:

Icon:

Preview:

Status:

Hours: to ⓘ

Owner: ⓘ

Support Team: ⓘ

Change Window: GMT+02:00 to GMT+02:00 ⓘ

- < Administration
- Services
- Catalog Items**
- Actions
- Entitlements

Configure Catalog Item

General Entitlements

Name: Windows 2012

Source: Blueprint Service




Resource type: Deployment

Description: Windows 2012 Machine deployment

Icon:

Recommended size: 100 x 100 pixels

Preview List view Catalog view Detail view

Status: Active

Quota: Unlimited

Service: Business Applications

New and noteworthy

- < Administration
- Services
- Catalog Items
- Actions
- Entitlements**

New Entitlement

General Items & Approvals

*** Name:** Business Entitlement

Description: Entitlement for the business users

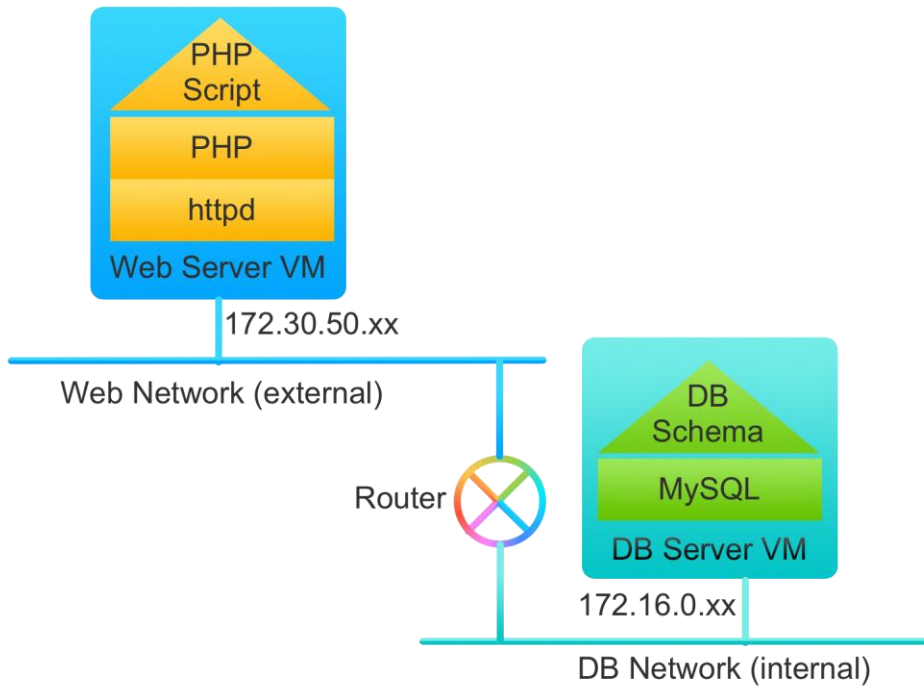
Expiration Date:

*** Status:** Active

*** Business Group:** Business Users

*** Users & Groups:** Business

Name



Blueprints
Software Components
XaaS >

Software Components

Create and manage software components. You publish so

+ New
Edit
Copy
Publish
Unpublish

Name ^

Apache

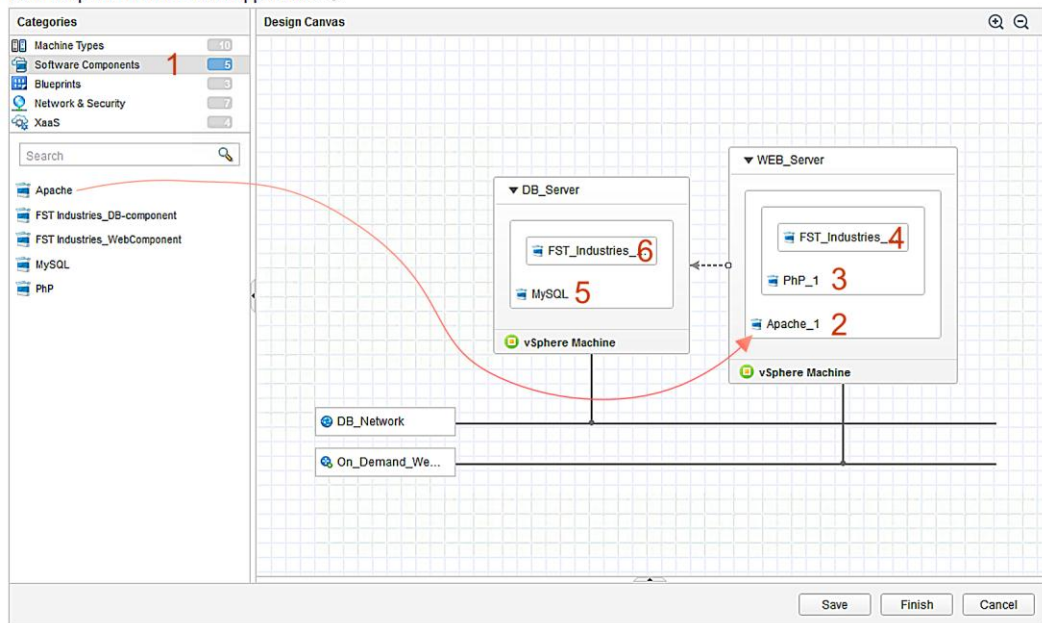
FST Industries_DB-component

FST Industries_WebComponent

MySQL

PHP

Edit Blueprint: Multi-tier Web Application



Design Canvas

FST_Industries_WebComponent_1

General Properties

Edit

Name	Description	Type	Binding	Enter property to bind to. Use down arrow to see possible values. Use ~ as separator.	Computed
DB_User...	The User ...	String	<input checked="" type="checkbox"/>	FST_Industries_DB-compor	No
DB_Adr...	The IP ad...	String	Yes	DB_Username	No
DB_Pass...	The pass...	Secure String	No		No
DB_Name	The name...	String	Yes	FST_Industries_DB-com...	No

Multi-tier Web Application

- WEB_Server
 - Apache_1
 - PHP_1
 - FST_Industrie...
- DB_Server
 - MySQL
 - FST_Industries_D...

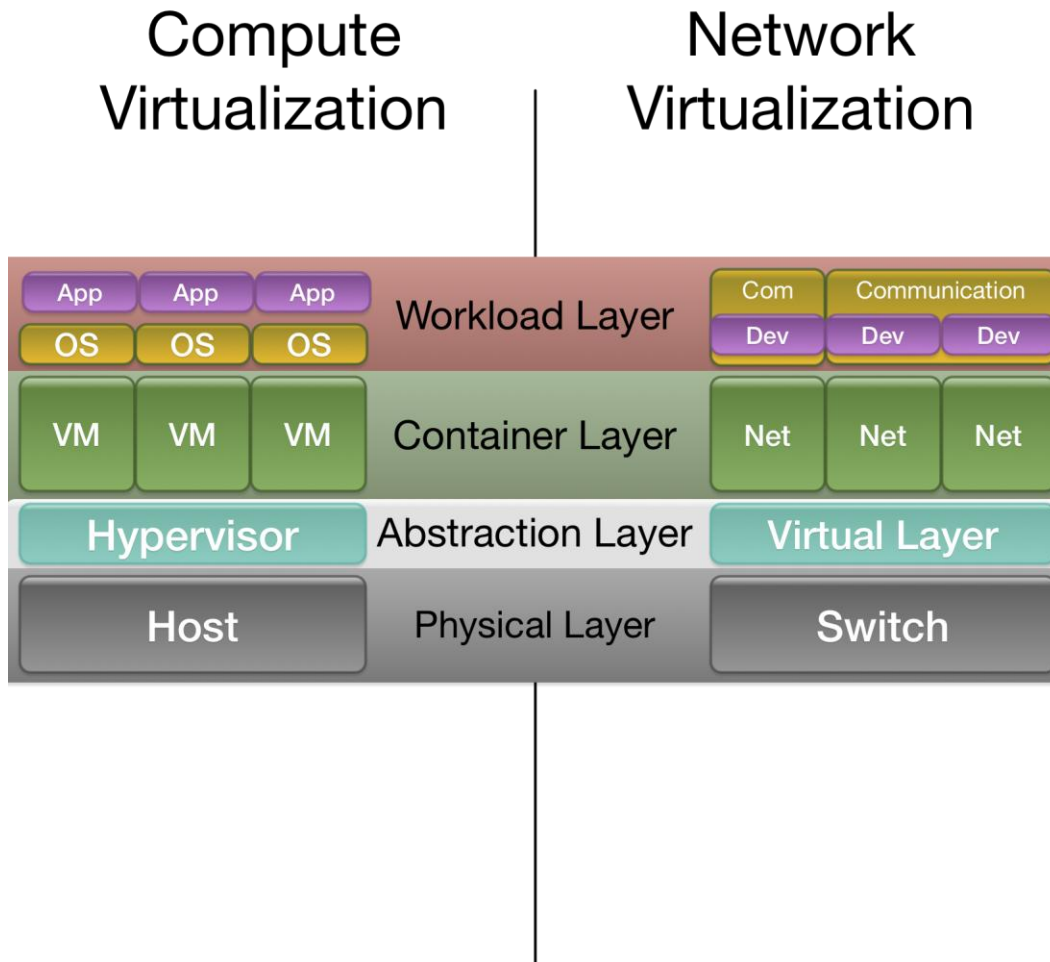
Software: FST_Industries_DB-component

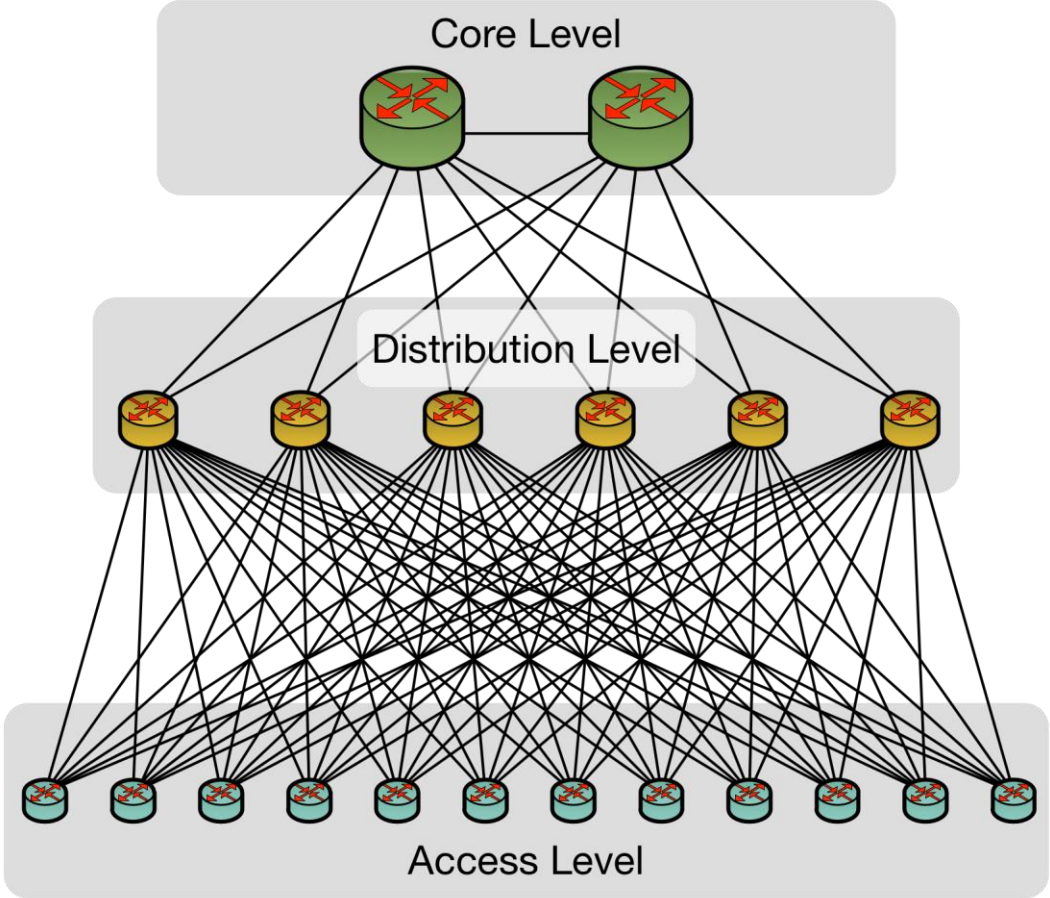
DB_Username:

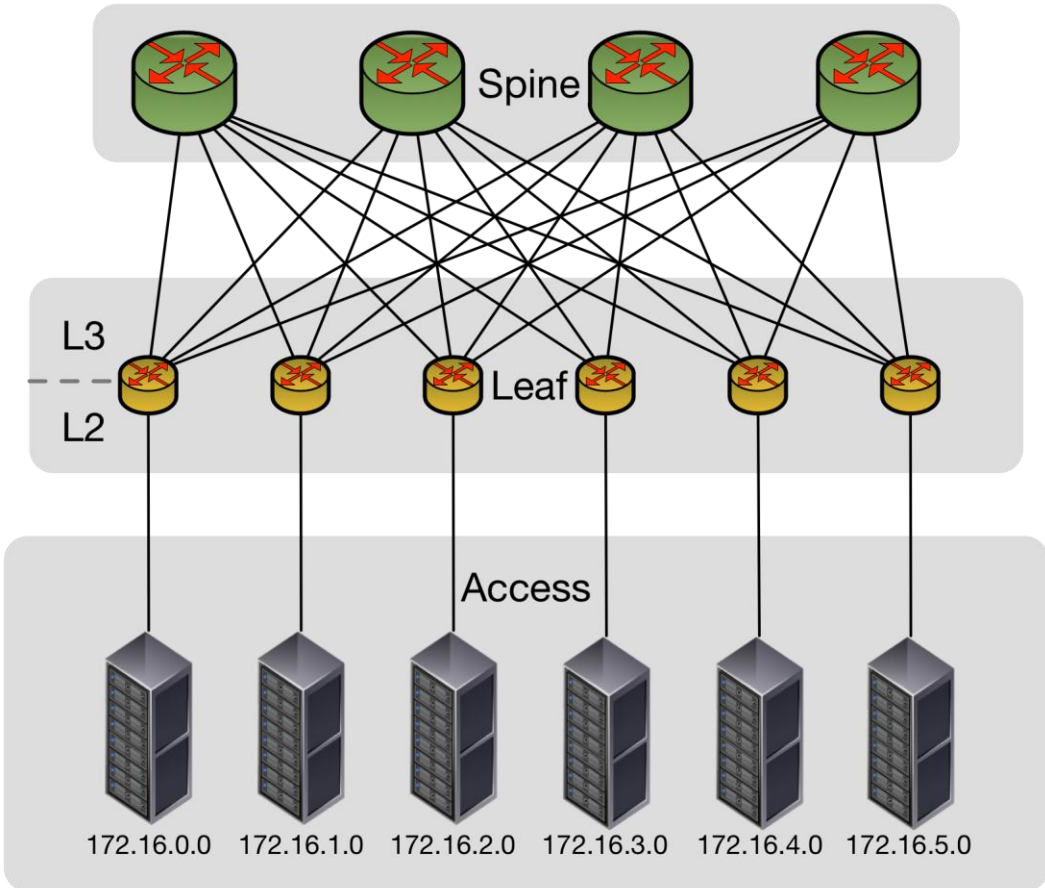
DB_Password:

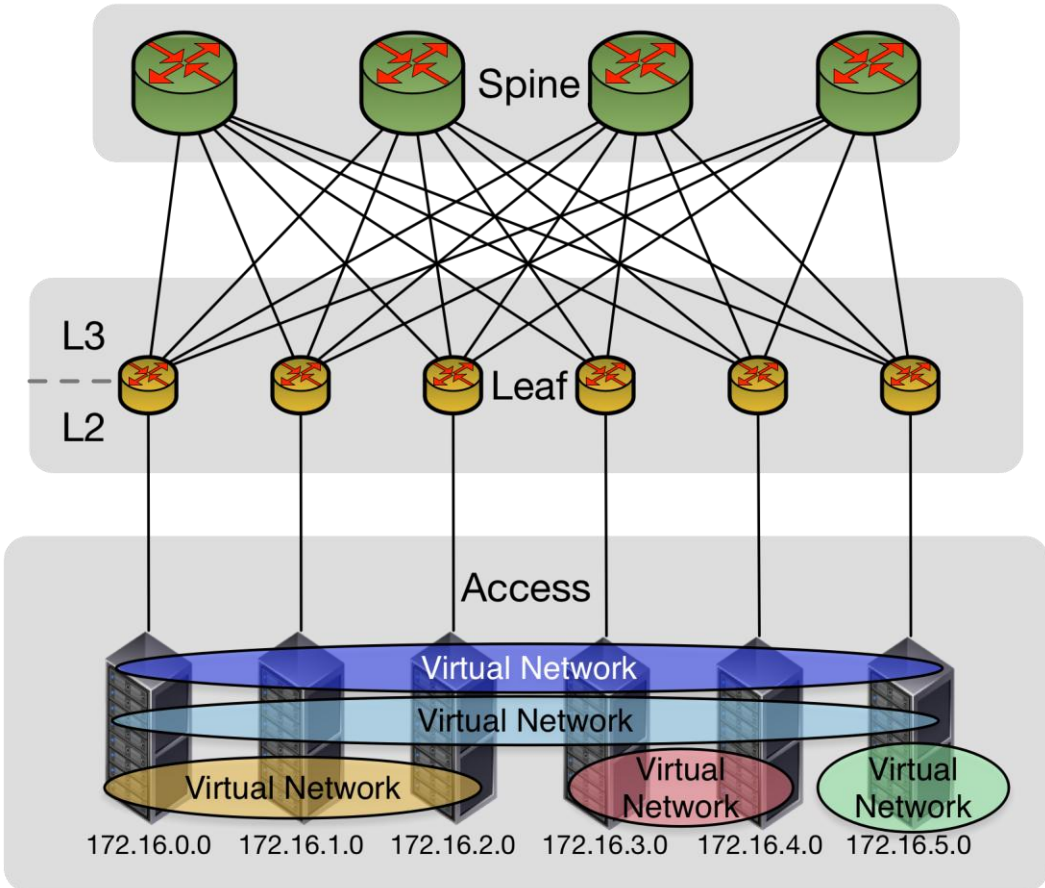
DB_Name:

Chapter 8: Network Virtualization using NSX





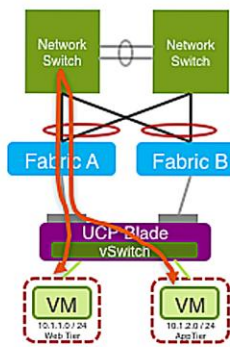




NSX traffic example

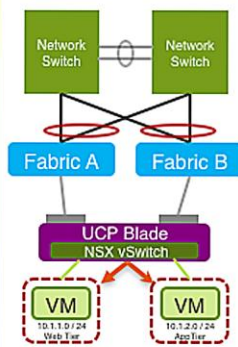
East-West Layer 3 / Same host

Before NSX



4 wire hops

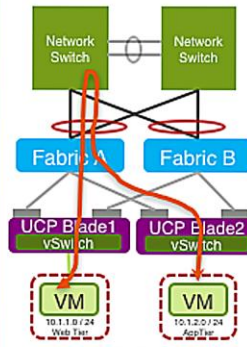
With NSX



0 wire hops

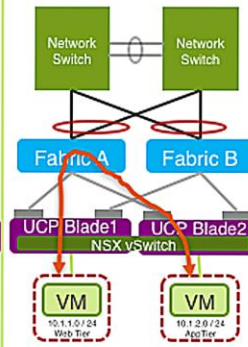
East-West Layer 3 / Host to Host

Before NSX



4 wire hops

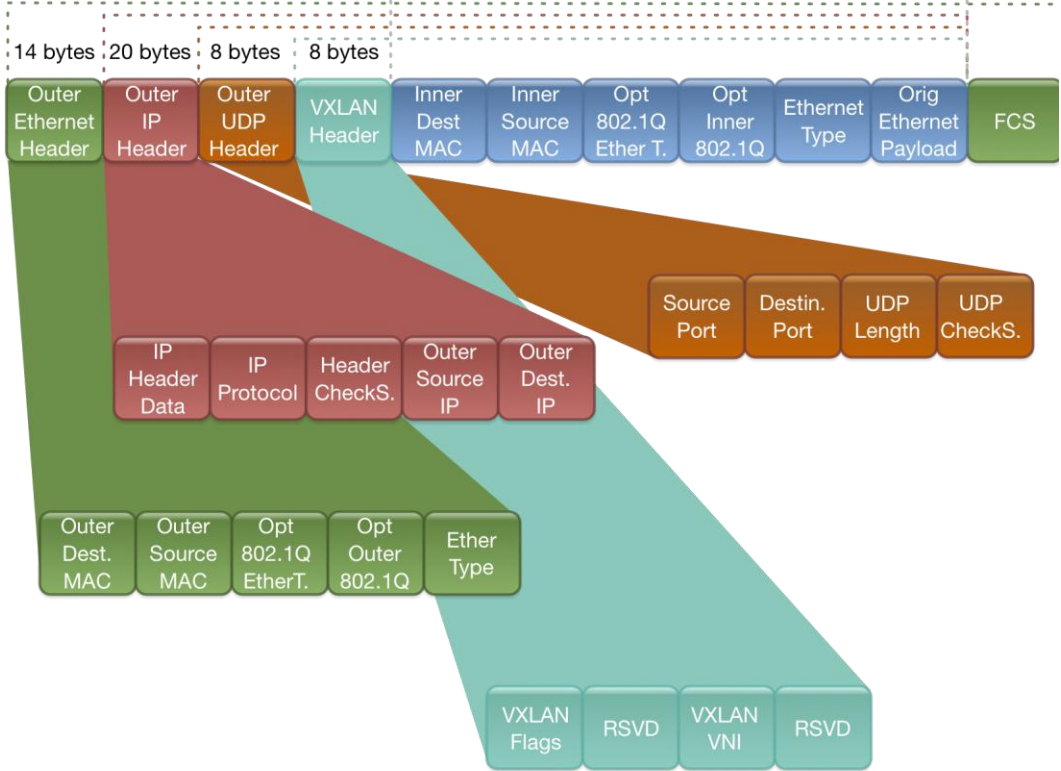
With NSX



2 wire hops

← VXLAN Encapsulated Frame →

← Original Ethernet Frame →



Home

Home

Inventories

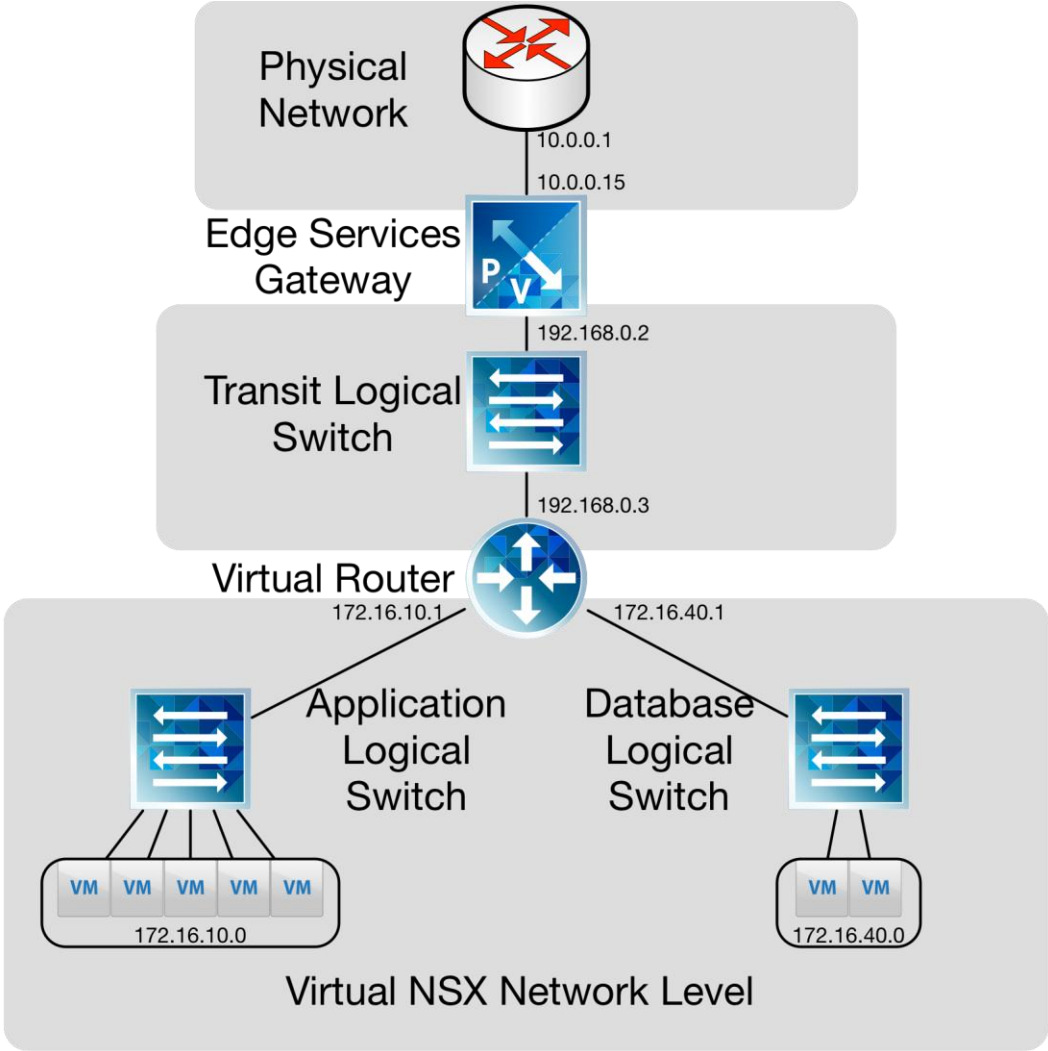
- vCenter Inventory Lists
- Hosts and Clusters
- VMs and Templates
- Storage
- Networking
- Content Libraries
- Hybrid Cloud Manager
- vRealize Orchestrator
- Networking & Security

Monitoring

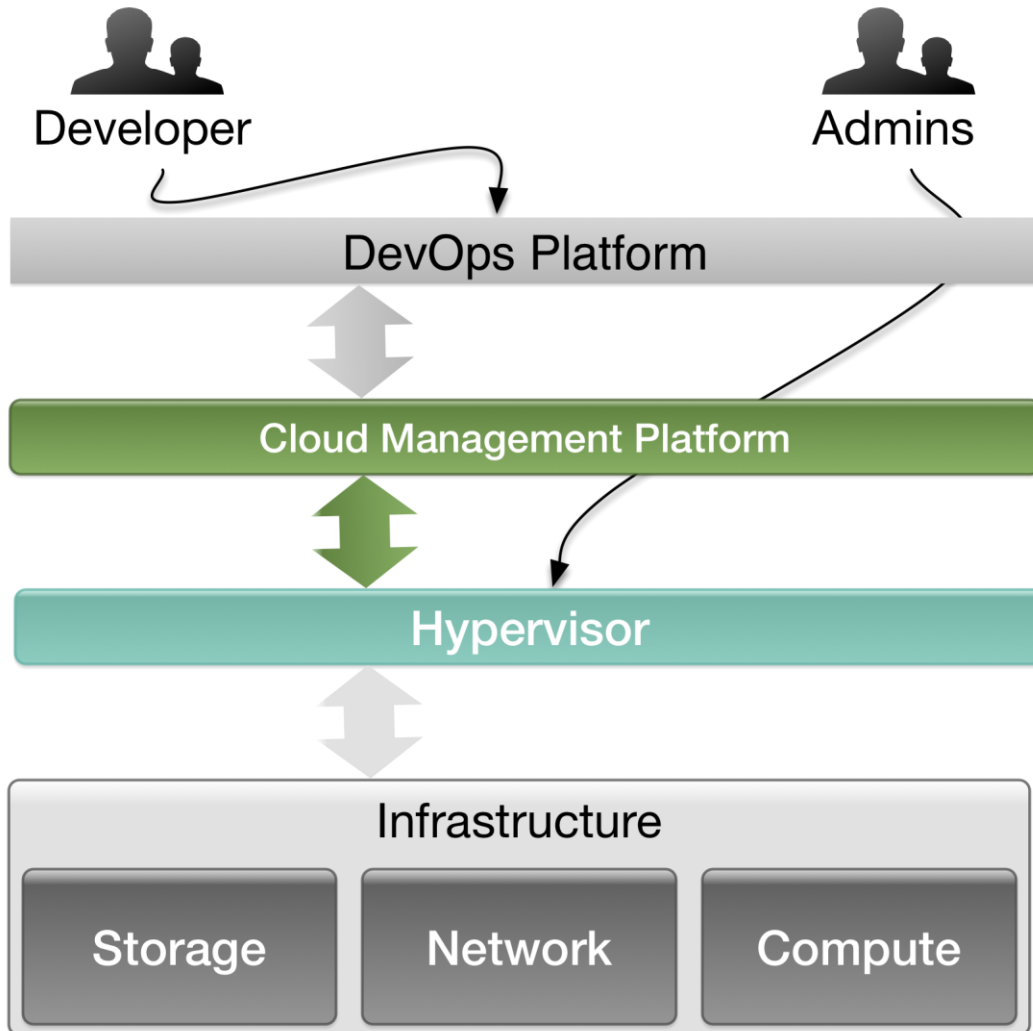
- Task Console
- Event Console
- vCenter Operations Manager
- Host Profiles
- VM Storage Policies
- Customization Specification Manager

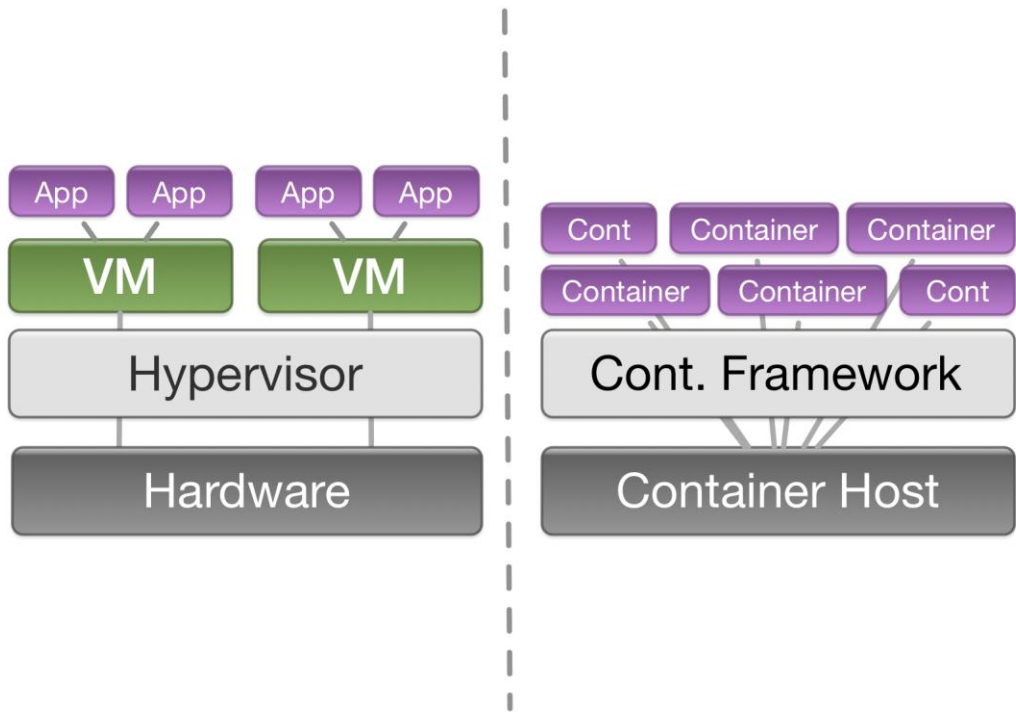
Administration

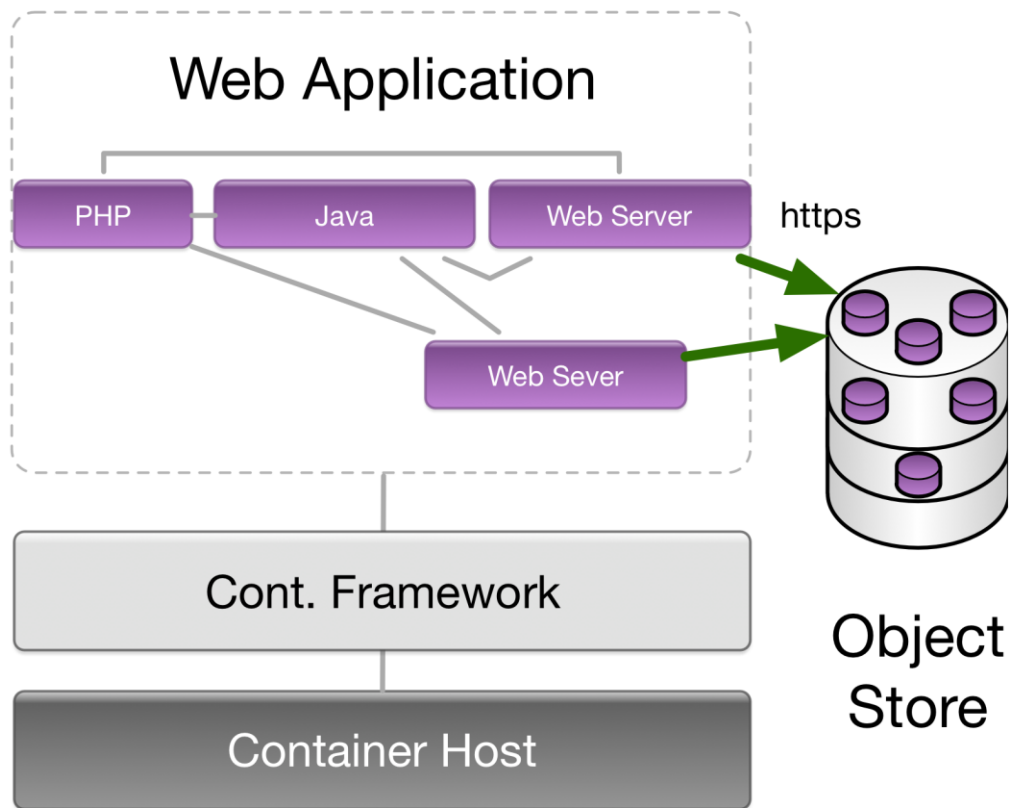
- Roles
- System Configuration
- Licensing
- Customer Experience Improvement ...



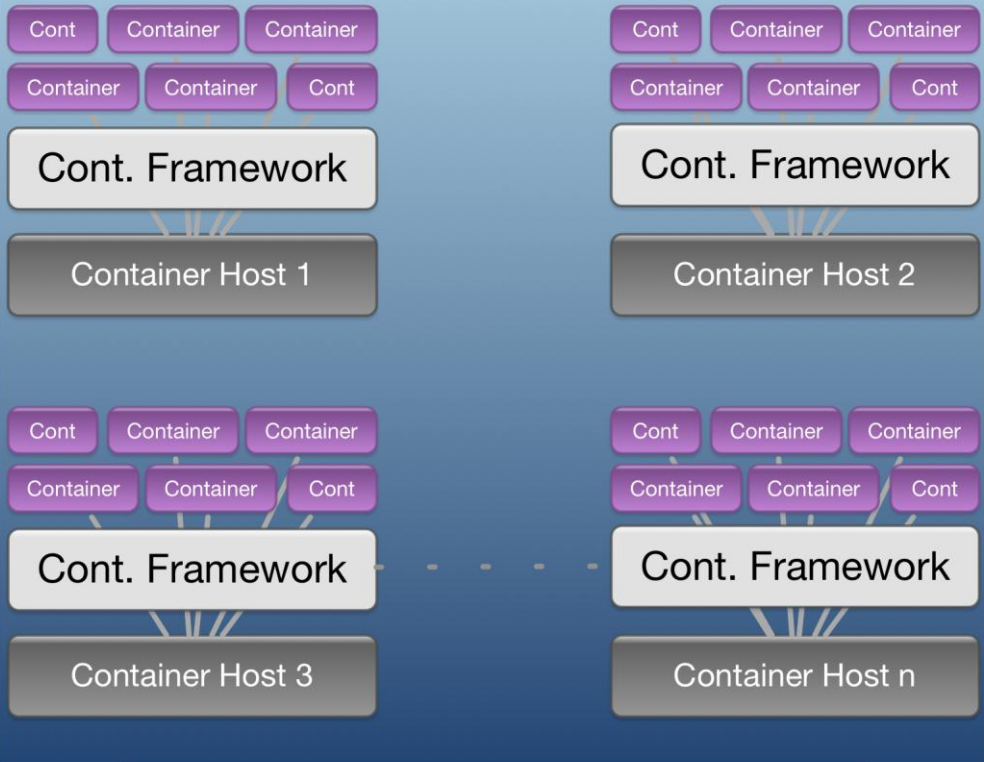
Chapter 9: DevOps Considerations







Docker Swarm



Cloud Foundry

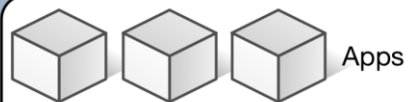
Router

User Authentication & Authorization

Cloud Controller

Health Manager

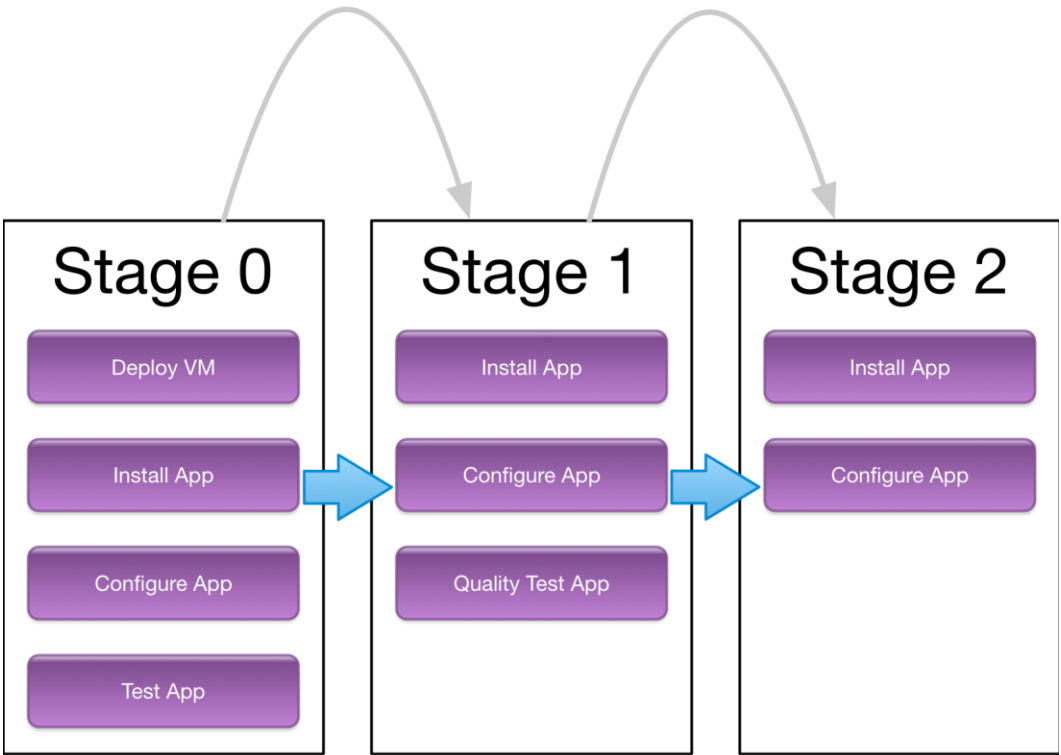
Service Broker



DEA Pool



Messaging



Chapter 10: Capacity Management with vRealize Operations

Manage Solution - VMware vSphere

Adapter Type	Description	Instances	Version	Provided by
vCenter Adapter	Provides the connection information and credent...	1	2.0.3774211	VMware Inc.
vCenter Python Actions Adapter	Provides actions for vCenter objects using Pytho...	0	1.0.3774212	VMware Inc.

Instance Settings

Instance Name: vCenter

Display Name: vCenter

Description: vROPs monitored vCenter

Basic Settings

vCenter Server: vcenter.ucpdemo.local

Credential: vCenter

Test Connection

Advanced Settings

Page 1 of 1

Manage Registrations Save Settings Close

VMTware vRealize Operations Manager

Environment | Home | Dashboard List | Actions | About | Help | admin | Search

Home | Recommendations | Diagnose | Self Health | vSphere Hosts Overview | vSphere VMs Memory | vSphere VMs CPU | vSphere VMs Disk and Network | vSphere Datastores | vSphere Clusters | vSphere

Alerts | Environment | Content | Administration

Environment Health

Health
Immediate issues

Health Weather Map
All objects | Hourly

Why is Health Good?
Health is based on the alert definitions you configure to impact the health score. Check the triggered alerts for the configured widget object to understand the displayed state, including child objects.

Environment Health Alerts
No Health Issues

Top Health Alerts For Descendants
 One or more virtual machine guest file systems are running out of disk space
 3 objects impacted | 1 Recommendation(s)
 Add a new virtual hard disk or expand the existing disk of the virtual machine. You must first remove all snapshots before expanding an existing disk. After completing this, use a guest OS specific procedure to expand the file system on the new or expanded disk.
 Notification event
 0 objects impacted | 0 Recommendation(s)
 No Recommendation Available

Environment Risk

Risk
Future issues

Population critically over time
7 days ago | Time | Now

Why is Risk Good?
Risk is based on the alert definitions you configure to impact the risk score. Check the triggered alerts for the configured widget object to understand the displayed state, including child objects.

Environment Risk Alerts
No Risk Issues

Top Risk Alerts For Descendants
No Risk Issues

Environment Efficiency

Efficiency
Optimization opportunities

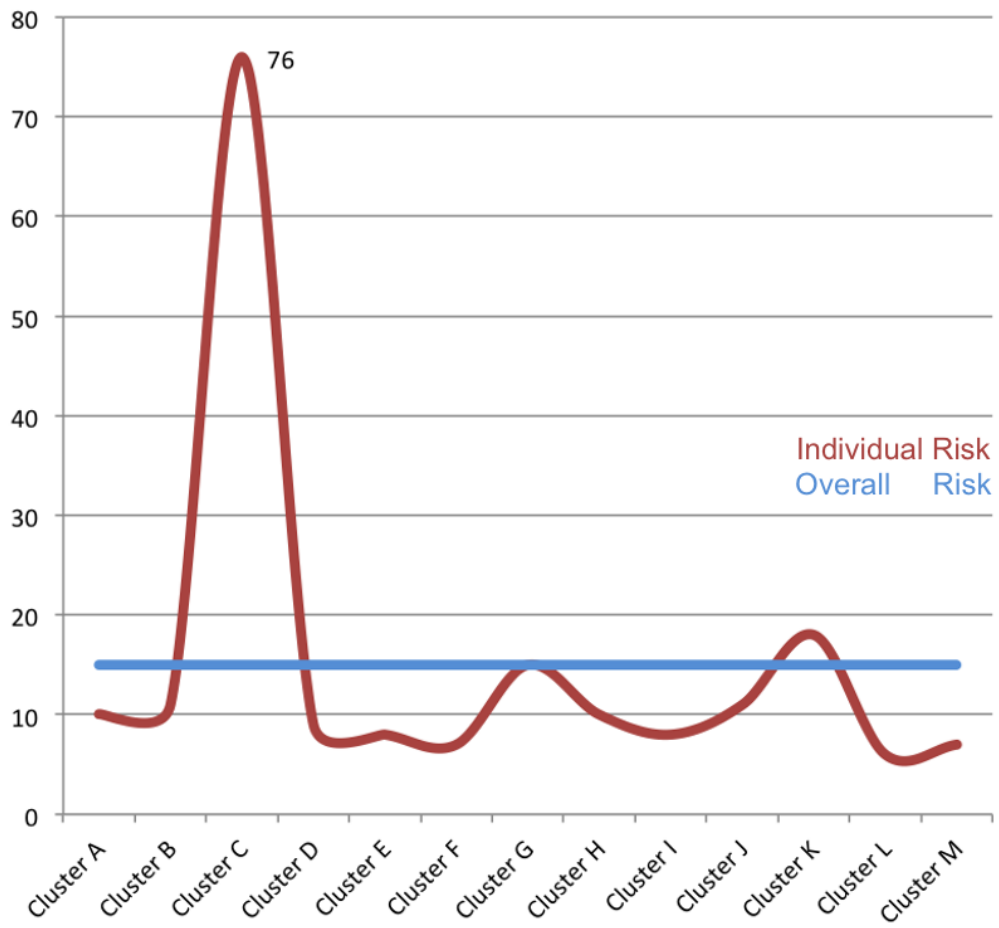
Population critically over time
7 days ago | Time | Now

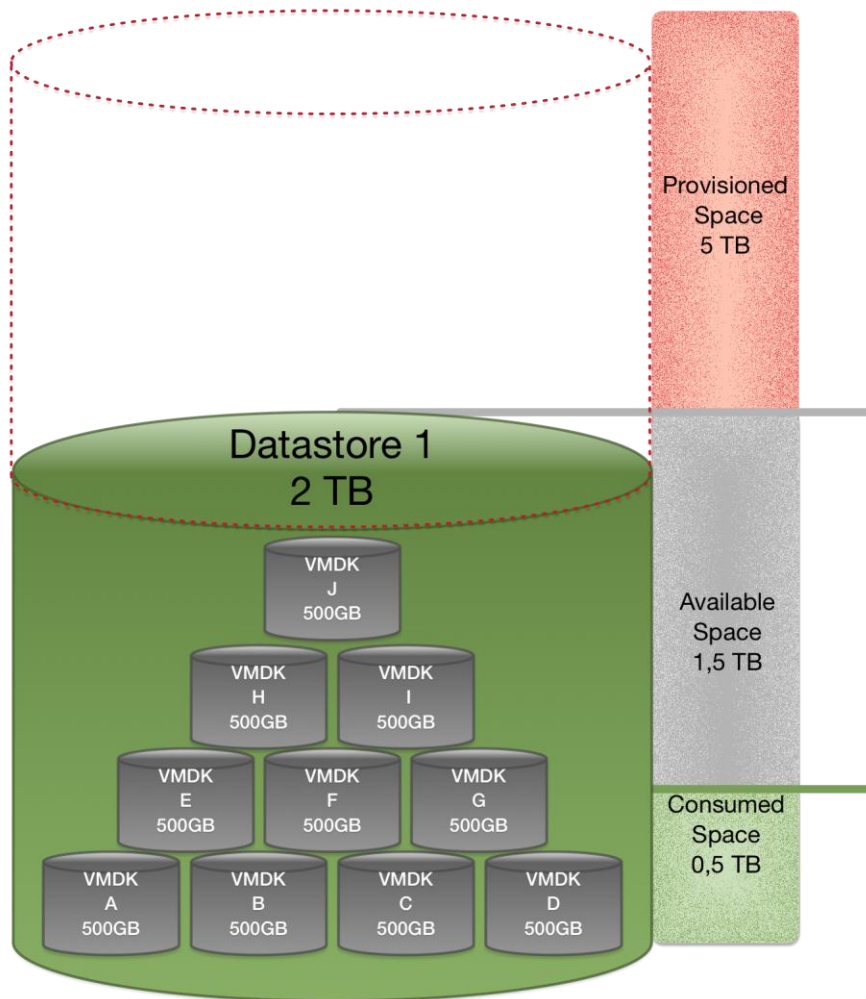
Why is Efficiency Good?
Efficiency is based on the alert definitions you configure to impact the efficiency score. Check the triggered alerts for the configured widget object to understand the displayed state, including child objects.

Environment Efficiency Alerts
No Efficiency Issues

Top Efficiency Alerts For Descendants
No Efficiency Issues

Risk in Datacenter 1







97 % Used of Usable Capacity
10.35 % HA / Buffers

	Total Capacity	Buffers	Usable Capacity	Peak Value	Recommended Size	Remaining
▼ CPU	124.8 GHz Configured	HA (0%) +10%	112.32 GHz 90% of Total	19.17% 21.53 GHz Demand	9 Cores	80.01% 89.86 GHz
▶ Demand	124.8 GHz Configured	HA (0%) +10%	112.32 GHz 90% of Total	19.17% 21.53 GHz Demand	9 Cores	80.01% 89.86 GHz
▶ Memory	1,023.75 GB Configured	HA (0%) +10%	921.38 GB 90% of Total	16.91% 155.79 GB Demand	223.13 GB	78.21% 720.57 GB
▼ Disk Space	6.41 TB Configured (Includes overcommit) Overcommit 70.0%	-- +10%	5.75 TB 89.65% of Total	96.89% 5.57 TB Allocation	6.19 TB	3.14% 185.07 GB
▼ Demand	3.91 TB Configured	-- +10%	3.51 TB 90% of Total	44.46% 1.56 TB Demand	1.73 TB	55.62% 1.95 TB
<p>Actual Demand and calculated Recommended Size ■ HA + Buffer</p> <p>30 days ago</p> <div style="border: 1px solid red; padding: 5px; width: fit-content; margin-left: auto;"> <p>Total Capacity 3.91 TB Usable Capacity 3.51 TB Capacity Remaining 1.95 TB Recommended Size 1.73 TB Average Demand 1.56 TB</p> </div>						
▶ Allocation	6.41 TB Configured (Includes overcommit) Overcommit 70.0%	-- +10%	5.75 TB 89.65% of Total	96.89% 5.57 TB Allocation	6.19 TB	3.14% 185.07 GB

Summary Alerts Analysis Troubleshooting Details Environment Projects Reports

Workload Anomalies Faults Capacity Remaining Time Remaining Stress Reclaimable Capacity Density Compliance

79 Good: No Issues
[What is Capacity Remaining?](#)

Capacity Remaining Breakdown

What Will Fit

183 Virtual Machine
Average Profile

175 Virtual Machine
Large Profile

196 Virtual Machine
Medium Profile

160 Virtual Machine
SDDC VM

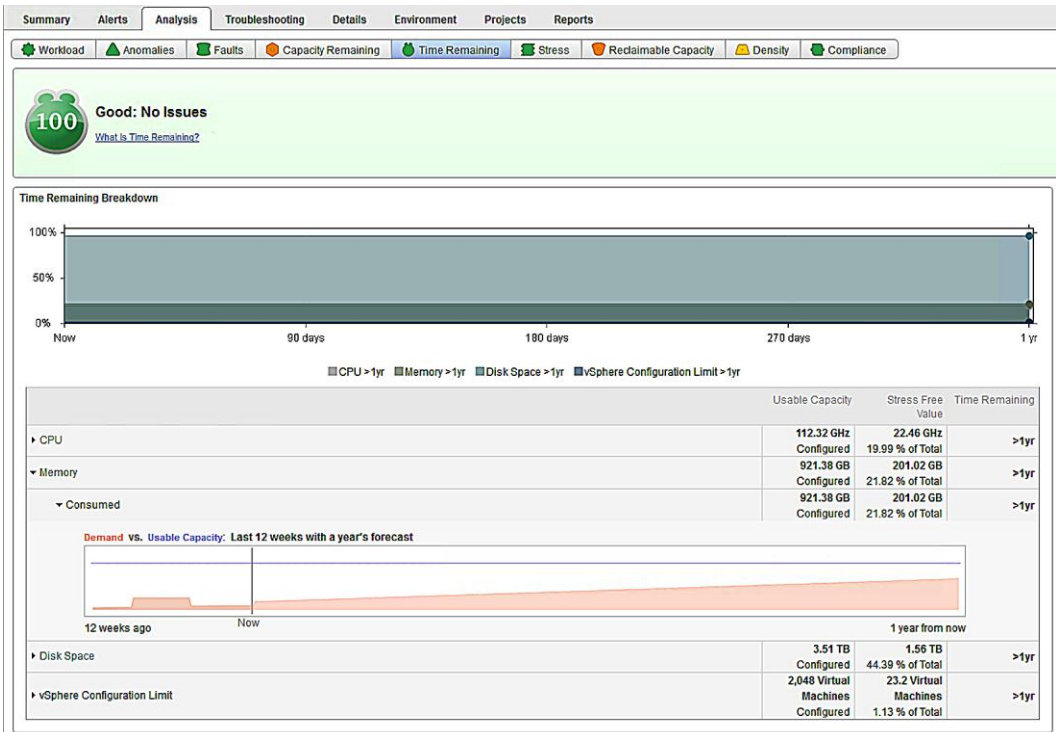
196 Virtual Machine
Small profile

+

79% Remaining Capacity Usable Capacity: 126.36 GHz (67.5%) Total: 187.2 GHz

■ 79% Remaining Capacity
 ■ 21% Used of Usable Capacity
 ■ 32.5% HA / Buffers

	Total Capacity	Buffers	Usable Capacity	Peak Value	Recommended Size	Remaining
▶ CPU	187.2 GHz Configured	HA (25%) +10%	126.36 GHz 67.5% of Total	16.43% 20.76 GHz Demand	30 Cores	79.33 % 100.25 GHz
▶ Memory	1.5 TB Configured	HA (25%) +10%	1.01 TB 67.5% of Total	5.44% 56.4 GB Demand	464.7 GB	92.99 % 983.84 GB
▶ Disk Space	7.81 TB Configured (includes overcommit) Overcommit 0.0%	-- +10%	7.03 TB 90% of Total	11.3% 813.48 GB Allocation	251.12 GB	96.86 % 6.81 TB
▶ vSphere Configuration Limit	3,072 Virtual Machines Configured	-- +0%	3,072 Virtual Machines 100% of Total	0.28% 9 Virtual Machines Demand	11.6 Virtual Machines	99.62 % 3,060.4 Virtual Machines



QA Development - Edit Project for Payload

1. Name and Description
 2. Scenarios

Object: Payload

Capacity Container: Most Constrained

Disk Space Demand

Scenarios

#	Scenario	Implementation Date	
1.1	Database VMs	10/14/16 12:00 AM	X
1.2	Application Server VMs	10/14/16 12:00 AM	X
1.3	Web Server VMs	10/14/16 12:00 AM	X

Configuration

General

Scenario Name: Web Server VMs

Scenario Description:

Implementation Date: 10/14/16 12:00 AM

Object: Payload

Changes

Add 100 Virtual Machine based on: Populate metrics from...

Metrics

- Memory (Consumed): 2.5 GB
- Memory (Host): 0 KB
- Memory - Allocation model: 4 GB
- CPU: 0 MHz
- CPU - Allocation model: 2 vCPUs
- Disk Space - Allocation model: 100 GB
- DiskSpace - Total usage: 80 GB

Save project and continue editing

Save Close

Cluster CPU_Memory_Disk_Trend in% - Edit Report Template
✕

1. Name and Description ✓

2. Views and Dashboards ✓

Data type: Views

All Filters Search views

- Alerts that are currently active
- Cluster Average Latency (ms) Trend View
- Cluster Badge Analysis History Trend
- Cluster Badge Analysis Summary
- Cluster Capacity Risk Forecast
- Cluster Configuration Summary
- Cluster CPU Configuration Distribution
- Cluster CPU Demand (%) Trend View
- Cluster CPU Demand Distribution
- Cluster CPU Demand Forecast Trend
- Cluster CPU Diagnose
- Cluster CPU Diagnose List
- Cluster Disk I/O Demand Forecast Trend
- Cluster Disk I/O Diagnose List
- Cluster Disk I/O IOPS Diagnose
- Cluster Disk I/O KBps Diagnose
- Cluster Disk I/O Latency Diagnose
- Cluster Disk I/O Outstanding I/O Diagnose
- Cluster Disk Read I/O Capacity Requirements Distrib...

14 | Page 1 of 4

3. Formats ✓

4. Layout Options ✓

Cover Page ✕

Table of contents ✕

Views and Dashboards in the report (sample data)

Cluster CPU Demand Forecast Trend ✕

- Cluster CPU Demand Forecast Trend - Configured Capacity
- Cluster CPU Demand Forecast Trend - Configured Capacity (30 days forecast)
- Cluster CPU Demand Forecast Trend - Usable Capacity
- Cluster CPU Demand Forecast Trend - Usable Capacity (30 days forecast)
- Cluster CPU Demand Forecast Trend - Stress-free Demand
- Cluster CPU Demand Forecast Trend - Stress-free Demand (30 days forecast)
- Cluster CPU Demand Forecast Trend - Raw Demand

Cluster Memory Usage and Demand (%) Trend View ✕

- Cluster Memory Usage and Demand (%) Trend View - Usage
- Cluster Memory Usage and Demand (%) Trend View - Usage (Trend)
- Cluster Memory Usage and Demand (%) Trend View - Usage (30 days forecast)
- Cluster Memory Usage and Demand (%) Trend View - Stress-free Demand
- Cluster Memory Usage and Demand (%) Trend View - Stress-free Demand (Trend)
- Cluster Memory Usage and Demand (%) Trend View - Stress-free Demand (30 days forecast)

Cluster Capacity Risk Forecast ✕

	Summary	Number of Running	Summary	Number of Running	Summary	Capacity Remai
Cluster Compute Res...	Value 1		Value 1		Value 1	

Footer ✕

Select Views and Dashboards Collapse >>

The report template contains views that present collected information for an object and dashboards that present a visual overview of the performance and state of objects in your virtual infrastructure. You can combine different views and dashboards and order them to suit your needs.

[? Get More Information](#)

Save Cancel

Schedule Test

1 Select an Object
2 Define Schedule

Define Schedule
Set the recurrence and publishing criteria for this report

Recurrence

Time zone: (GMT +01:00) Amsterdam, Berlin, Bern, R

Start hour: 8:00 AM

Start date: 10/07/16

Recurrence: Weekly

Every 1 weeks on:

Sunday Monday Tuesday Wednesday
 Thursday Friday Saturday

Publishing

Email report

Email addresses: Separate multiple email addresses with a comma or a semicolon.

Select an outbound rule: webmail

⚠ There are no external locations defined, [click here](#) to configure a new external location.

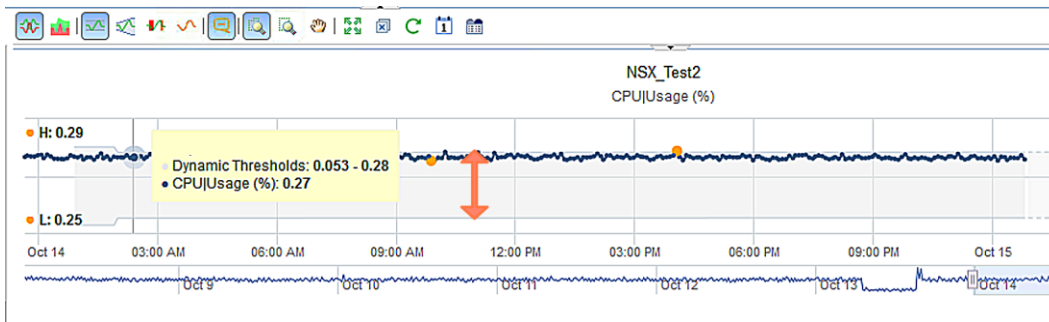
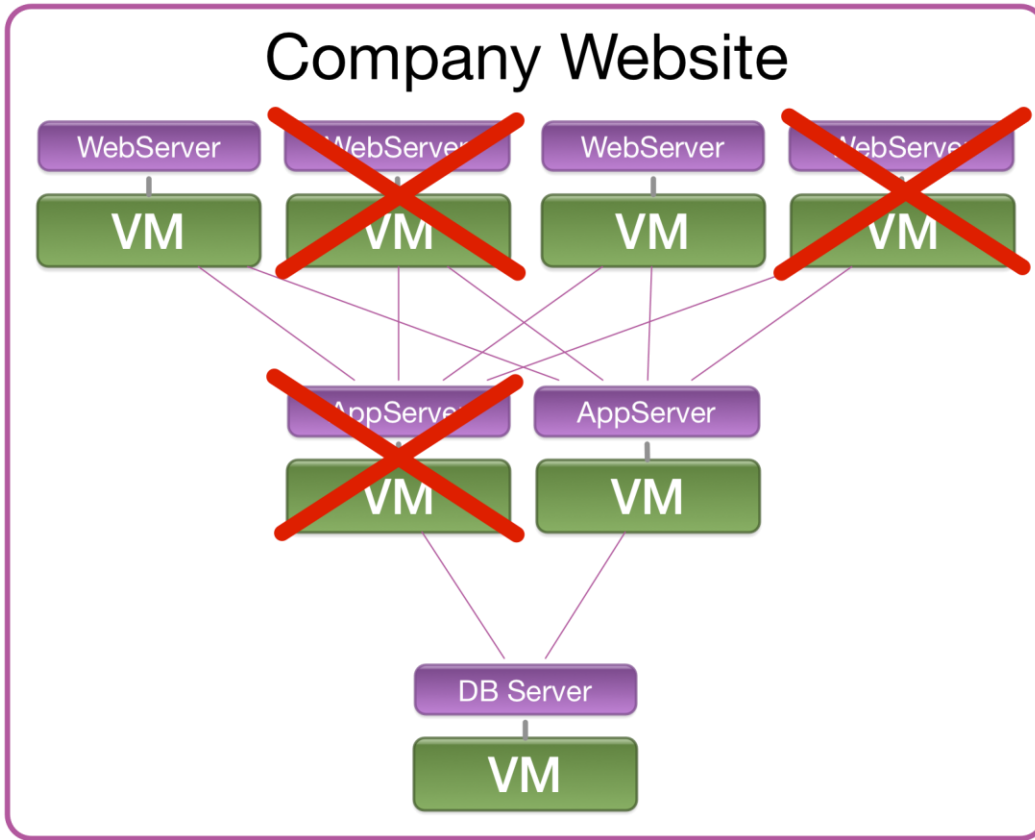
Save to external location

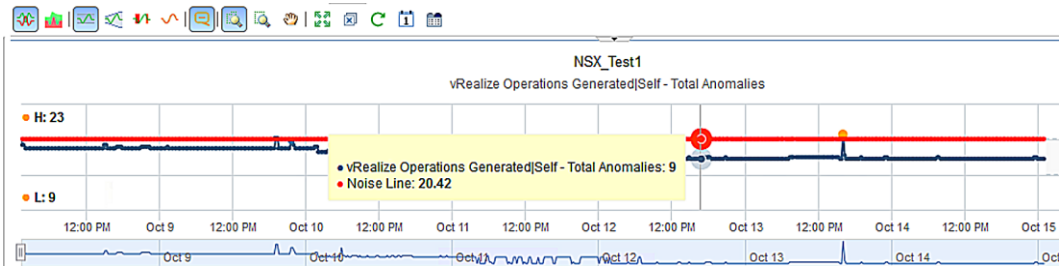
Select a location: --Select--

Relative Path: Import relative path to upload.

Back Next Finish Cancel

Chapter 11: Troubleshooting and Monitoring





General | Storage | Network | Properties | Snapshots

Name: UDVM173
Component: Windows2012R2
Status: On
CPUs:
Memory (MB):
Storage (GB):
Description:

Owner: configurationadmin@vsphere.local
Blueprint: Virtual Machine - Windows

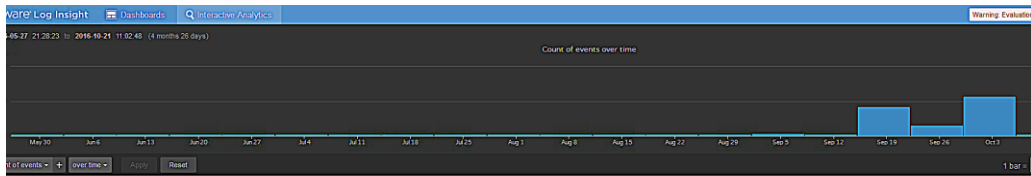
Compute resource: Payload
Business group: UcpDemo

Actions:

- Connect to Remote Co...
- Connect using RDP
- Connect using VMRC
- Create Snapshot
- Destroy
- Get Expiration Reminder
- Install Tools
- Power Cycle
- Power Off
- Reboot
- Reconfigure
- Reprovision
- Shutdown
- Suspend

Current Health
Good

The health of this item is normal. No attention required.



35 Filter: Clear All Filters

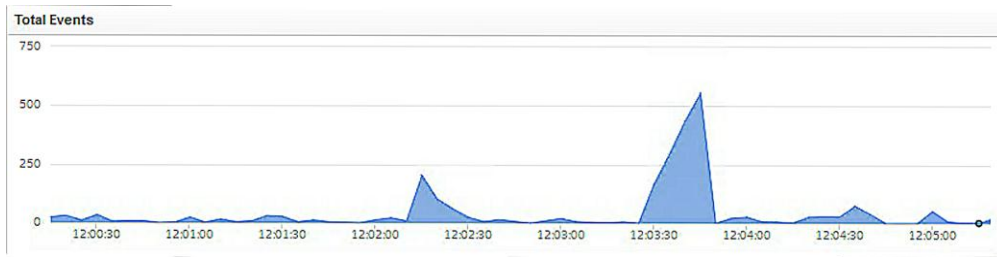
2016-08-27 21:28:23 to 2016-10-21 11:02:48 (4 months 26 days)

ts	Field Table	Event Types	Event Trends
116-10-21 02:38:11	Oct 21 11:02:21 VRA vco: c416a88-1b18-4aaa-a559-3ebac27ac5f0	vmw_vra_priority vmw_vra_vrfcal vmw_vra_component vmw_vra_msg	thread:http-nio-0.0.0-0-8281-exec-3 context: token: anctoken: wf: wfid: user: cat:ServiceLinux msg:Starting: (/usr/bin/wdso, /etc/init.d/vco-server, status)
116-10-21 02:38:10	Oct 21 11:02:21 VRA vco: c416a88-1b18-4aaa-a559-3ebac27ac5f0	vmw_vra_priority vmw_vra_vrfcal vmw_vra_component vmw_vra_msg	thread:http-nio-0.0.0-0-8281-exec-4 context: token: anctoken: wf: wfid: user: cat:ServiceLinux msg:Starting: (/usr/bin/wdso, /etc/init.d/vco-server, status)
116-10-21 02:38:425	Oct 21 11:02:21 VRA vco: c416a88-1b18-4aaa-a559-3ebac27ac5f0	vmw_vra_priority vmw_vra_vrfcal vmw_vra_component vmw_vra_msg	thread:http-nio-0.0.0-0-8281-exec-4 context: token: anctoken: wf: wfid: user: cat:SanTokenImpl msg:SAN token for SubjectNameId [value=ugadmin@hpdemo.local, format=http://schemas.xmlsoap.org/claims/UPN] successfully parsed from Element
116-10-21 02:38:414	Oct 21 11:02:21 VRA vco: c416a88-1b18-4aaa-a559-3ebac27ac5f0	vmw_vra_priority vmw_vra_vrfcal vmw_vra_component vmw_vra_msg	thread:http-nio-0.0.0-0-8281-exec-4 context: token: anctoken: wf: wfid: user: cat:SanTokenImpl msg:SAN token for SubjectNameId [value=ugadmin@hpdemo.local, format=http://schemas.xmlsoap.org/claims/UPN] successfully parsed from Element
116-10-21 02:38:323	Oct 21 11:02:21 VRA vco: c416a88-1b18-4aaa-a559-3ebac27ac5f0	vmw_vra_priority vmw_vra_vrfcal vmw_vra_component vmw_vra_msg	thread:http-nio-0.0.0-0-8281-exec-4 context: token: anctoken: wf: wfid: user: cat:SanTokenImpl msg:SAN token for SubjectNameId [value=ugadmin@hpdemo.local, format=http://schemas.xmlsoap.org/claims/UPN] successfully parsed from Element
116-10-21 01:52:794	Oct 21 11:00:10 VRA vco: c416a88-1b18-4aaa-a559-3ebac27ac5f0	vmw_vra_priority vmw_vra_vrfcal vmw_vra_component vmw_vra_msg	thread:tokenLifecycleMonitorScheduler-1 context: token: anctoken: wf: wfid: user: cat:SanTokenLifecycleService msg:Renewing of security tokens activated for 0 tokens expiring between 2016-10-21 10:36:15.211 and 2016-10-21 11:21:15.211.
116-10-21 00:17:584	Oct 21 11:00:00 VRA vco: c416a88-1b18-4aaa-a559-3ebac27ac5f0	vmw_vra_priority vmw_vra_vrfcal vmw_vra_component vmw_vra_msg	thread:voSystemTaskScheduler-3 context: token: anctoken: wf: wfid: user: cat:PurgedEventManager msg:

+ Add Filter

Show all hidden lines

2016-10-21 11:44:24.857	[UTC:2016-10-21 09:44:20 Local:2016-10-21 11:44] [Debug]: [sub-thread-Id="14" context
2016-10-21 11:44:25.578	Oct 21 09:44:25 nsx 2016-10-21 09:44:25.577 GMT INFO edgeVseMonitoringThread EdgeVseI
2016-10-21 11:44:27.173	2016-10-21T09:44:23.654Z VRA-DEM vcac: [component="iaas:DynamicOps.DEM.exe" priority="4 ApplicationID="c4e64999-0fd7-4721-b199-47a3252c3d20" StartTime="Fri, 21 Oct 2016 09:44:23.654Z EndTime="Fri, 21 Oct 2016 09:44:23.654Z"]
2016-10-21 11:44:27.173	2016-10-21T09:44:26.186Z VRA-DEM vcac: [component="iaas:DynamicOps.DEM.exe" priority="4 ApplicationID="c4e64999-0fd7-4721-b199-47a3252c3d20" EndTime="Fri, 21 Oct 2016 09:44:26.186Z"]
2016-10-21 11:44:27.751	[UTC:2016-10-21 09:44:26 Local:2016-10-21 11:44:26] [Trace]: [sub-thread-Id="14" cont
2016-10-21 11:44:27.751	[UTC:2016-10-21 09:44:26 Local:2016-10-21 11:44:26] [Trace]: [sub-thread-Id="10" cont
2016-10-21 11:44:27.751	[UTC:2016-10-21 09:44:26 Local:2016-10-21 11:44:26] [VMware.Cafe]: [sub-thread-Id="14" cont
2016-10-21 11:44:27.751	[UTC:2016-10-21 09:44:27 Local:2016-10-21 11:44:27] [VMware.Cafe]: [sub-thread-Id="10" cont
2016-10-21 11:44:27.751	[UTC:2016-10-21 09:44:27 Local:2016-10-21 11:44:27] [VMware.Cafe]: [sub-thread-Id="9" cont
2016-10-21 11:44:27.751	source component context event_type filepath hostname product token vmw_cluster v
2016-10-21 11:44:27.751	[UTC:2016-10-21 09:44:27 Local:2016-10-21 11:44:27] [Trace]: [sub-thread-Id="9" conte
2016-10-21 11:44:27.751	[UTC:2016-10-21 09:44:27 Local:2016-10-21 11:44:27] [VMware.Cafe]: [sub-thread-Id="9" conte
2016-10-21 11:44:28.686	[UTC:2016-10-21 09:44:24 Local:2016-10-21 11:44:24] [Trace]: [sub-thread-Id="6" conte
2016-10-21 11:44:28.686	[UTC:2016-10-21 09:44:24 Local:2016-10-21 11:44:24] [Trace]: [sub-thread-Id="6" conte
2016-10-21 11:44:32.402	Oct 21 11:44:31 UTILITY dhcpd: DHCPDISCOVER from 0c:c4:7a:74:b6:64 via eth0: network 1
2016-10-21 11:44:32.402	Oct 21 11:44:31 UTILITY dhcpd: DHCPDISCOVER from 0c:c4:7a:74:b6:64 via eth0: network 1
2016-10-21 11:44:33.407	Oct 21 11:44:32 UTILITY dhcpd: DHCPDISCOVER from 0c:c4:7a:71:5c:a0 via eth0: network 1
2016-10-21 11:44:33.407	Oct 21 11:44:32 UTILITY dhcpd: DHCPDISCOVER from 0c:c4:7a:71:5c:a0 via eth0: network 1
2016-10-21 11:44:35.492	Oct 21 11:44:34 UTILITY dhcpd: DHCPDISCOVER from 0c:c4:7a:74:b6:64 via eth0: network 1
2016-10-21 11:44:35.492	Oct 21 11:44:34 UTILITY dhcpd: DHCPDISCOVER from 0c:c4:7a:74:b6:64 via eth0: network 1
2016-10-21 11:44:36.488	Oct 21 11:44:35 UTILITY dhcpd: DHCPDISCOVER from 0c:c4:7a:71:5c:a0 via eth0: network 1
2016-10-21 11:44:36.488	Oct 21 11:44:35 UTILITY dhcpd: DHCPDISCOVER from 0c:c4:7a:71:5c:a0 via eth0: network 1
2016-10-21 11:44:37.483	Oct 21 11:44:35 UTILITY dhcpd: DHCPDISCOVER from 0c:c4:7a:71:5c:a0 via eth0: network 1
2016-10-21 11:44:37.483	Oct 21 11:44:35 UTILITY dhcpd: DHCPDISCOVER from 0c:c4:7a:71:5c:a0 via eth0: network 1



New Alert

Name:

Notes: **B I U**
 Optional. These notes are included in the notification message when the alert is fired.

Notify:

Email:

Webhook:

Send to vRealize Operations Manager

Raise an alert:

On any match

When matches are found in the last

Modify the chart to enable group-by and/or aggregation-based alerts.

The query will run every 5 minutes and will only alert once for the defined threshold above.

Count of events over time

Chapter 12: Continuous Improvement



