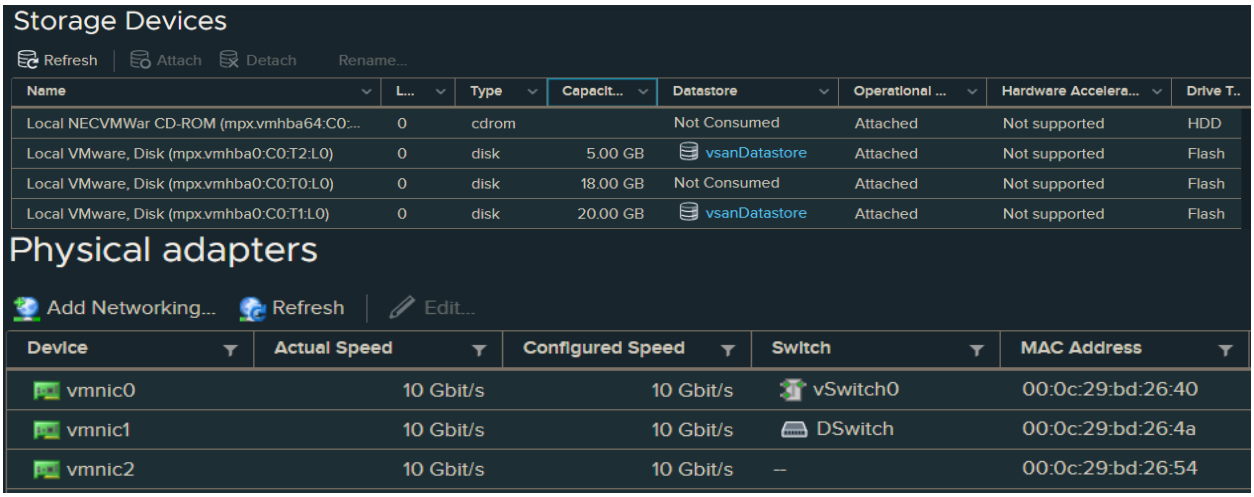
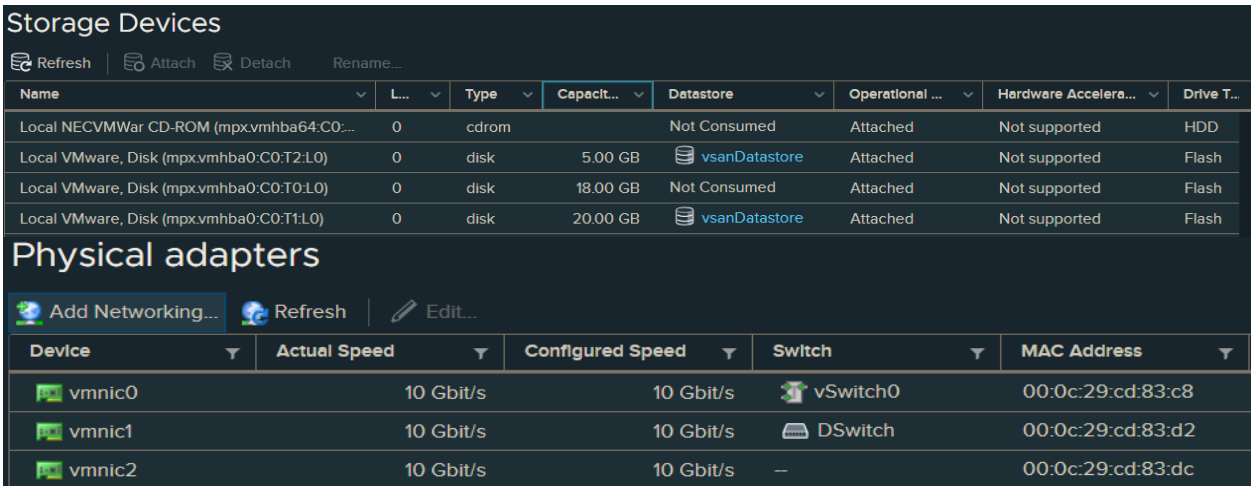
Configuring vSAN on vCenter Server 7 Appliance

In this post, I will show you the steps for configuring vSAN. Here is ESX host details (NIC & Storage). For each host there are 3 NIC and 3 Hard Disk. Hard Disk with 18GB has vSphere 7 OS and the rest 2 Hard Disk of 20GB and 5GB are used for vSAN Datastore to configure vSAN.

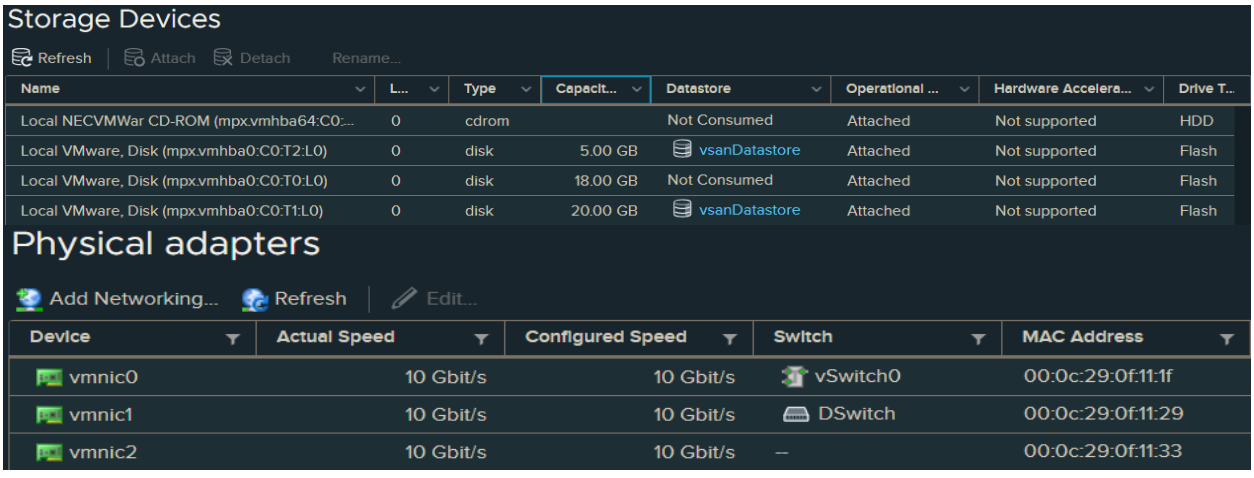
ESX1



ESX3

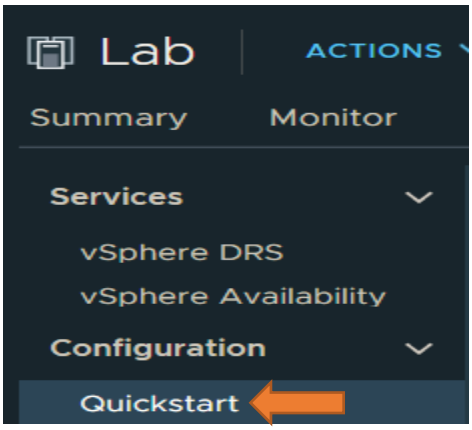


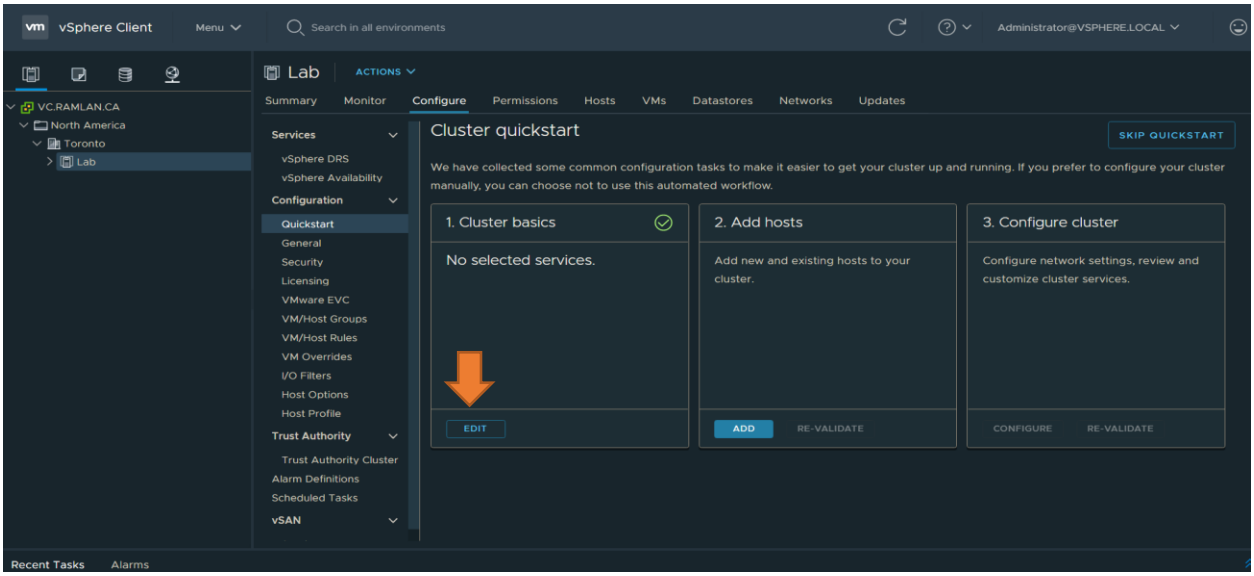
ESX4

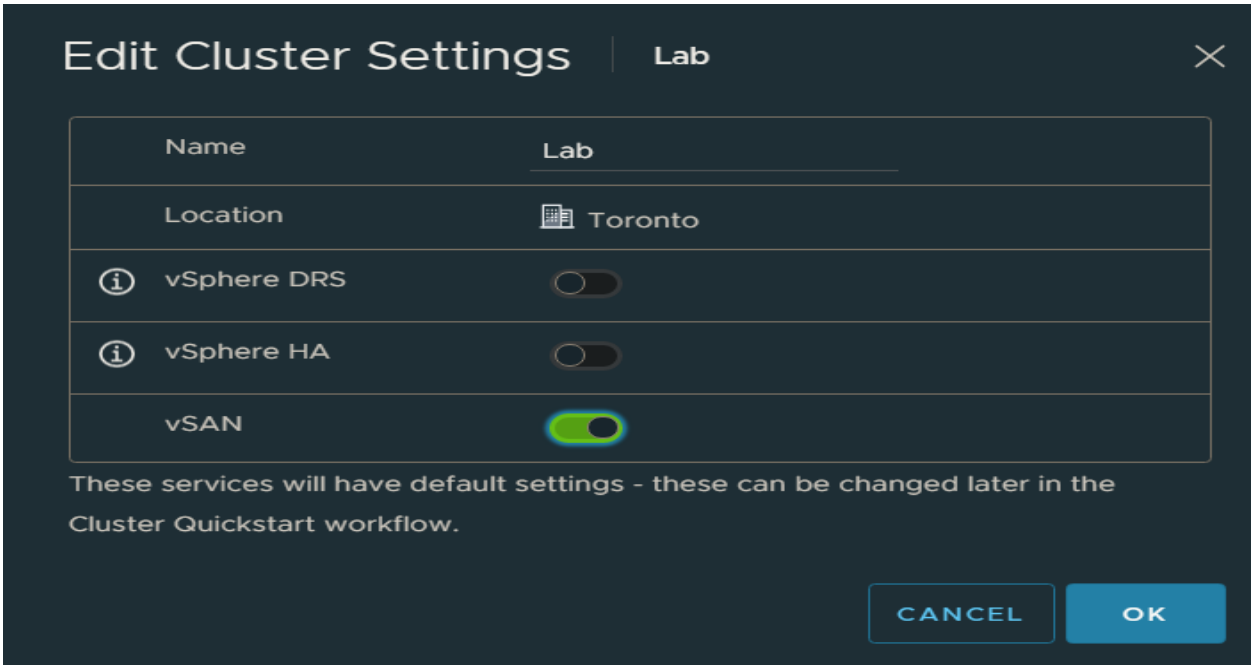


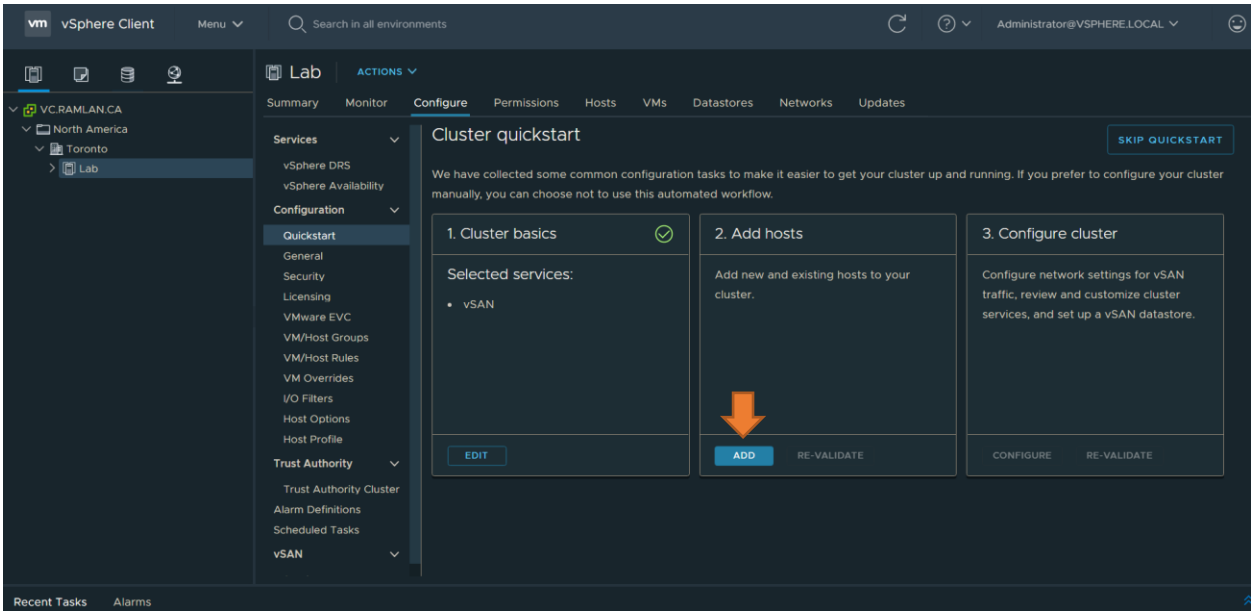
After finishing vCSA, I created a folder called **North America**. After that, I created a DataCenter called **Toronto**. After that, I created a Cluster called **Lab**. From the Cluster – I choose Actions – Quickstart to proceed with vSAN Configuration. Details below…

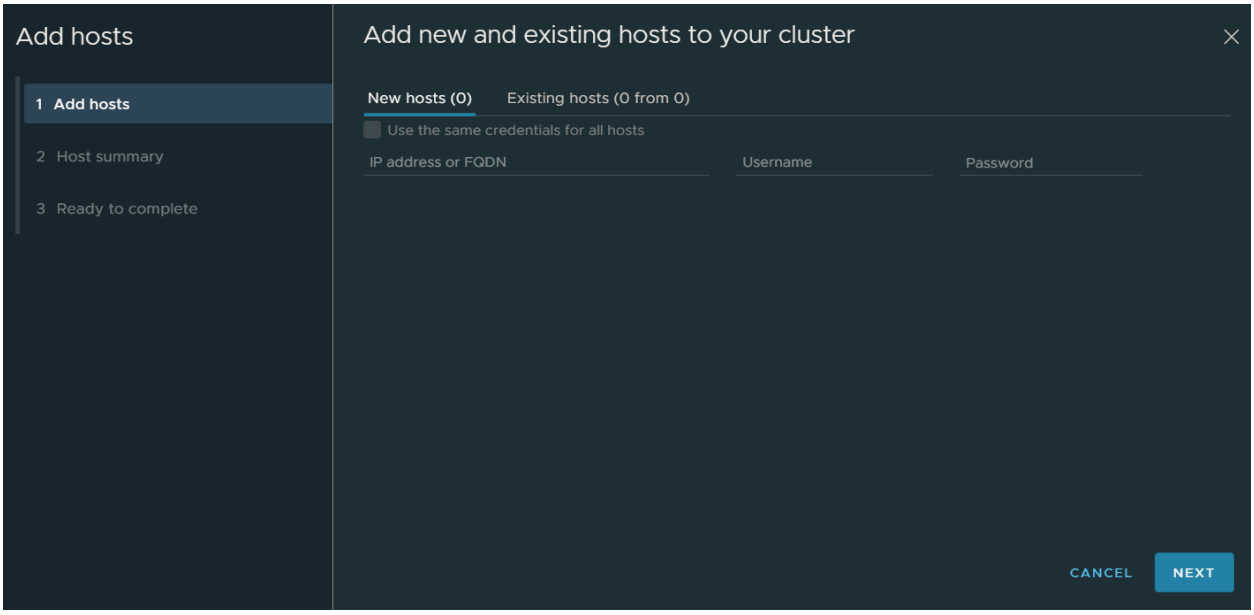
Go to Cluster – Click Actions

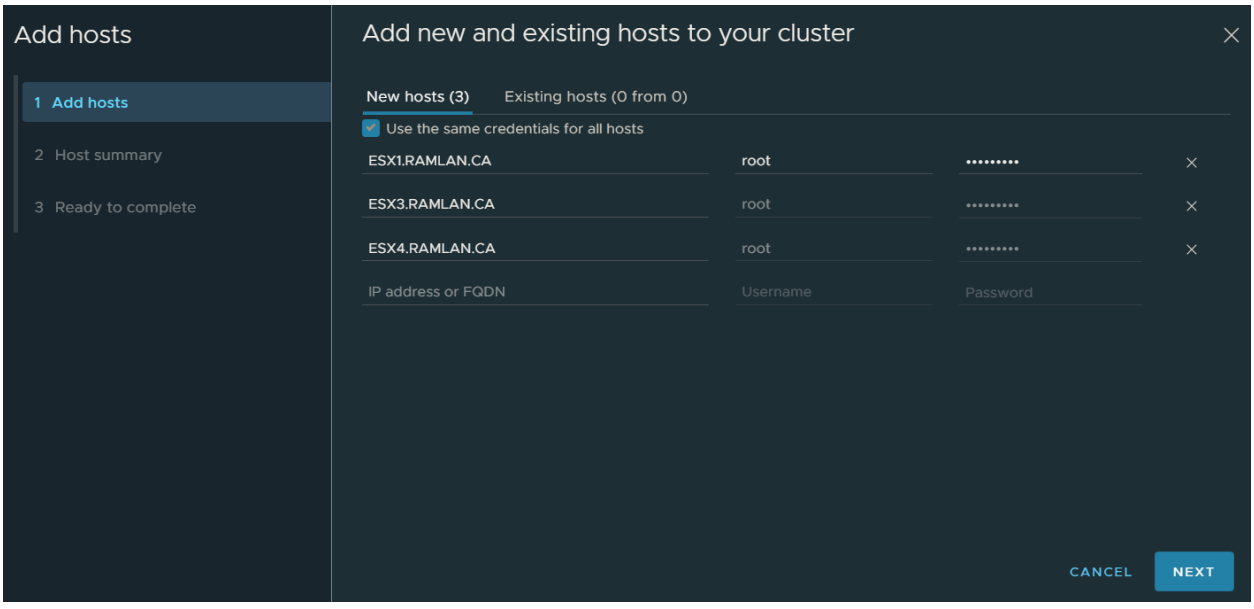


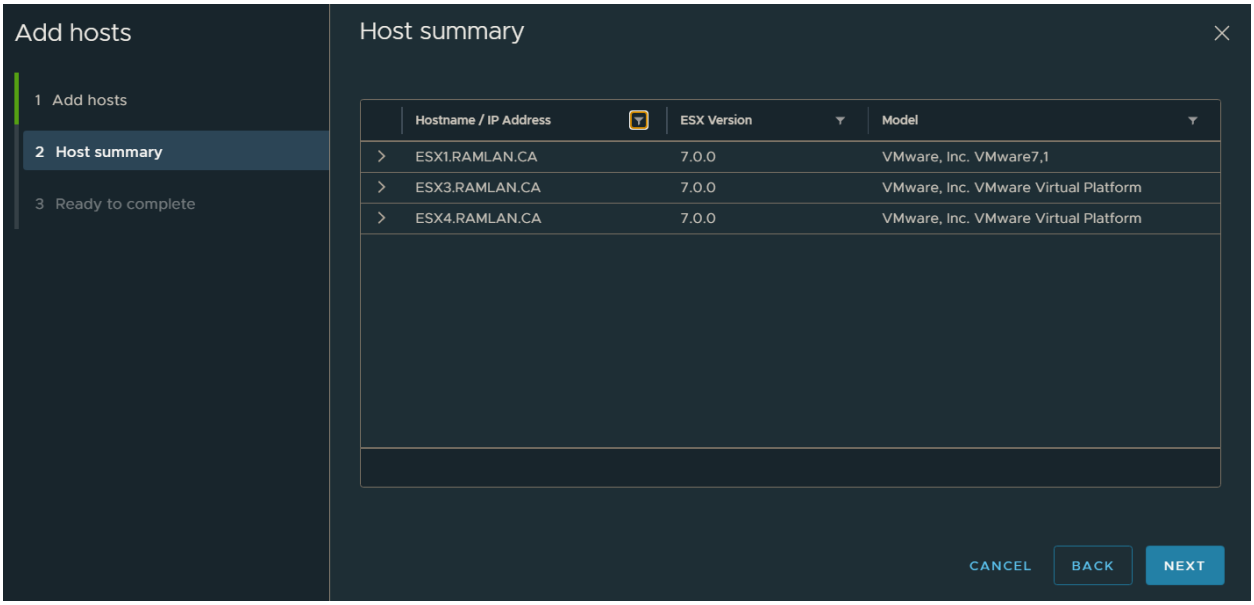


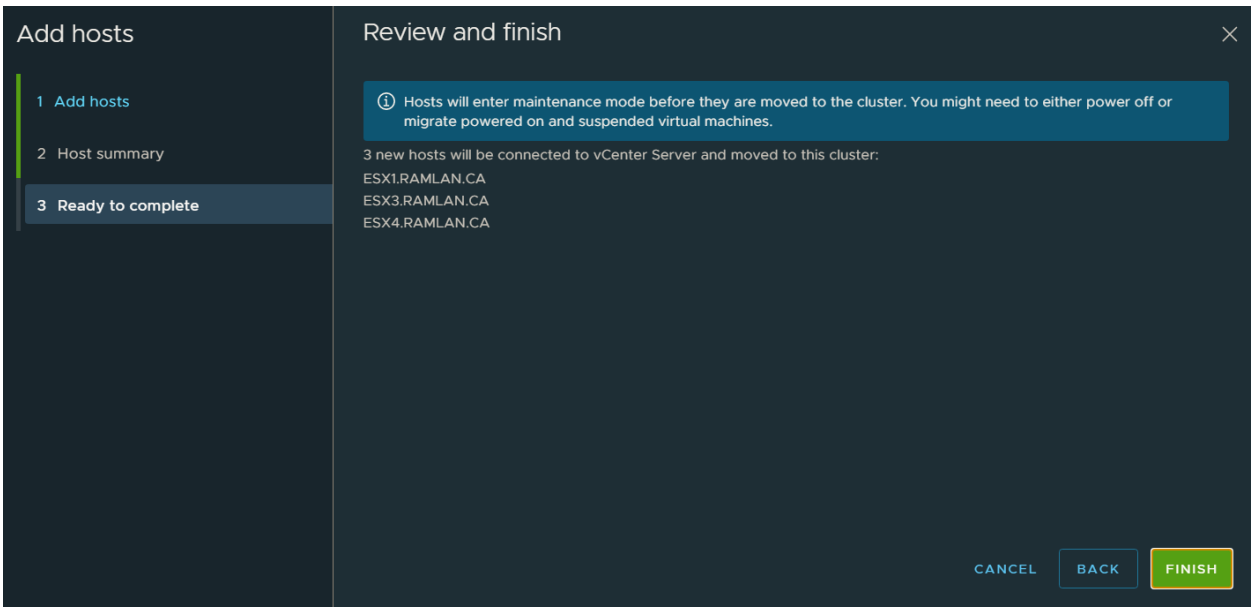


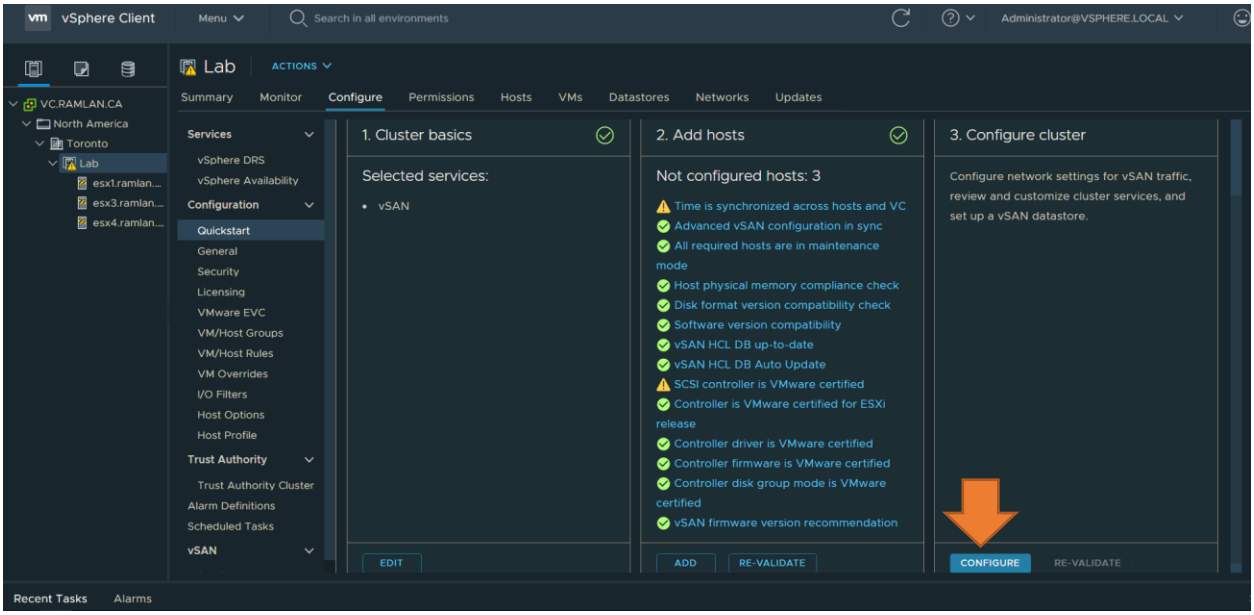

vSphere Client
Menu
Search in all environments
Administrator@VSPHERE.LOCAL
VC.RAMLAN.CA
North America
Toronto
Lab
Lab
ACTIONS
Summary
Monitor
Configure
Permissions
Hosts
VMs
Datastores
Networks
Updates
Services
vSphere DRS
vSphere Availability
Configuration
Quickstart
General
Security
Licensing
VMware EVC
VM/Host Groups
VM/Host Rules
VM Overrides
I/O Filters
Host Options
Host Profile
Trust Authority
Trust Authority Cluster
Alarm Definitions
Scheduled Tasks
vSAN
Cluster quickstart
SKIP QUICKSTART
We have collected some common configuration tasks to make it easier to get your cluster up and running. If you prefer to configure your cluster manually, you can choose not to use this automated workflow.
1. Cluster basics
Selected services:
vSAN
EDIT
2. Add hosts
Add new and existing hosts to your cluster.
ADD
RE-VALIDATE
3. Configure cluster
Configure network settings for vSAN traffic, review and customize cluster services, and set up a vSAN datastore.
CONFIGURE
RE-VALIDATE
Recent Tasks
Alarms


Add hosts
1 Add hosts
2 Host summary
3 Ready to complete
Add new and existing hosts to your cluster
New hosts (0)
Existing hosts (0 from 0)
Use the same credentials for all hosts
IP address or FQDN
Username
Password
CANCEL
NEXT


Add hosts
1 Add hosts
2 Host summary
3 Ready to complete
Add new and existing hosts to your cluster
New hosts (3)
Existing hosts (0 from 0)
Use the same credentials for all hosts
ESX1.RAMLAN.CA
root
ESX3.RAMLAN.CA
root
ESX4.RAMLAN.CA
root
IP address or FQDN
Username
Password
CANCEL
NEXT


Add hosts
1 Add hosts
2 Host summary
3 Ready to complete
Host summary
Hostname / IP Address
ESX Version
Model
ESX1.RAMLAN.CA
7.0.0
VMware, Inc. VMware7,1
ESX3.RAMLAN.CA
7.0.0
VMware, Inc. VMware Virtual Platform
ESX4.RAMLAN.CA
7.0.0
VMware, Inc. VMware Virtual Platform
CANCEL
BACK
NEXT


Add hosts
1 Add hosts
2 Host summary
3 Ready to complete
Review and finish
Hosts will enter maintenance mode before they are moved to the cluster. You might need to either power off or migrate powered on and suspended virtual machines.
3 new hosts will be connected to vCenter Server and moved to this cluster:
ESX1.RAMLAN.CA
ESX3.RAMLAN.CA
ESX4.RAMLAN.CA
CANCEL
BACK
FINISH


vSphere Client
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Search in all environments
Administrator@VSPHERE.LOCAL
Lab
ACTIONS
VC.RAMLAN.CA
North America
Toronto
Lab
esx1.ramlan...
esx3.ramlan...
esx4.ramlan...
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Datastores
Networks
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Services
vSphere DRS
vSphere Availability
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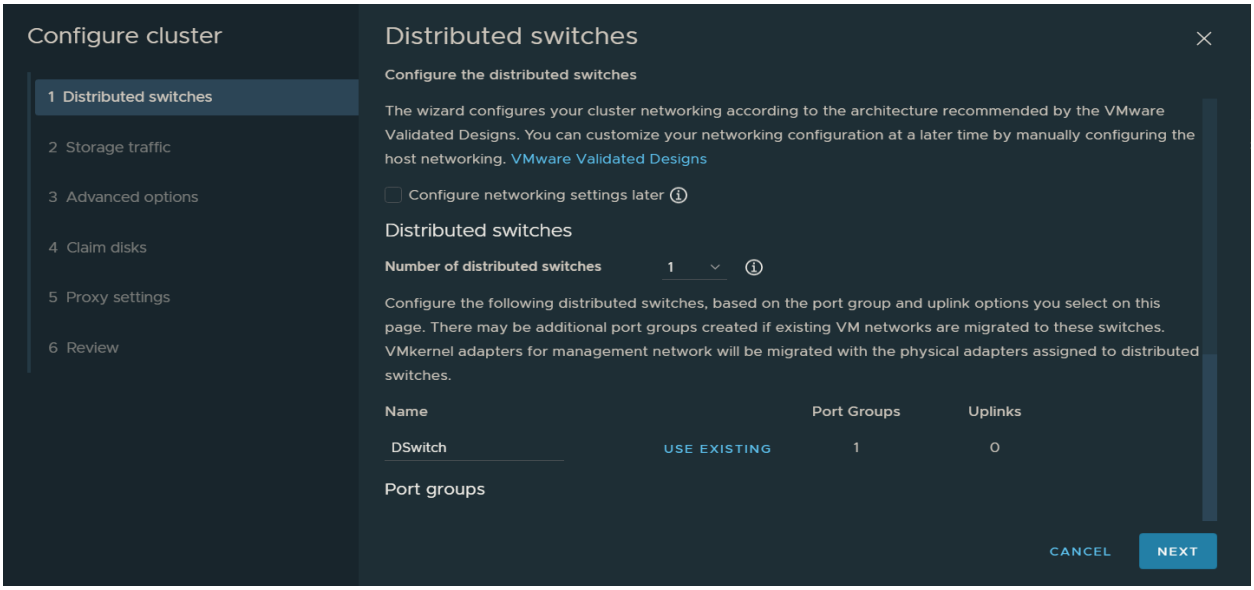
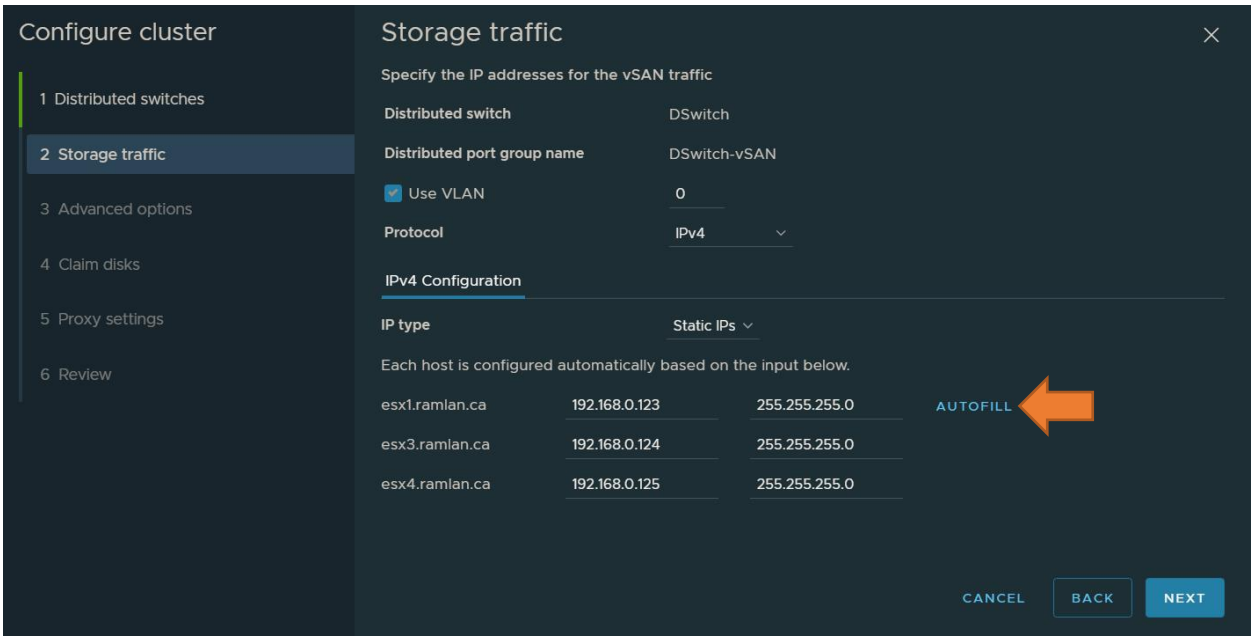
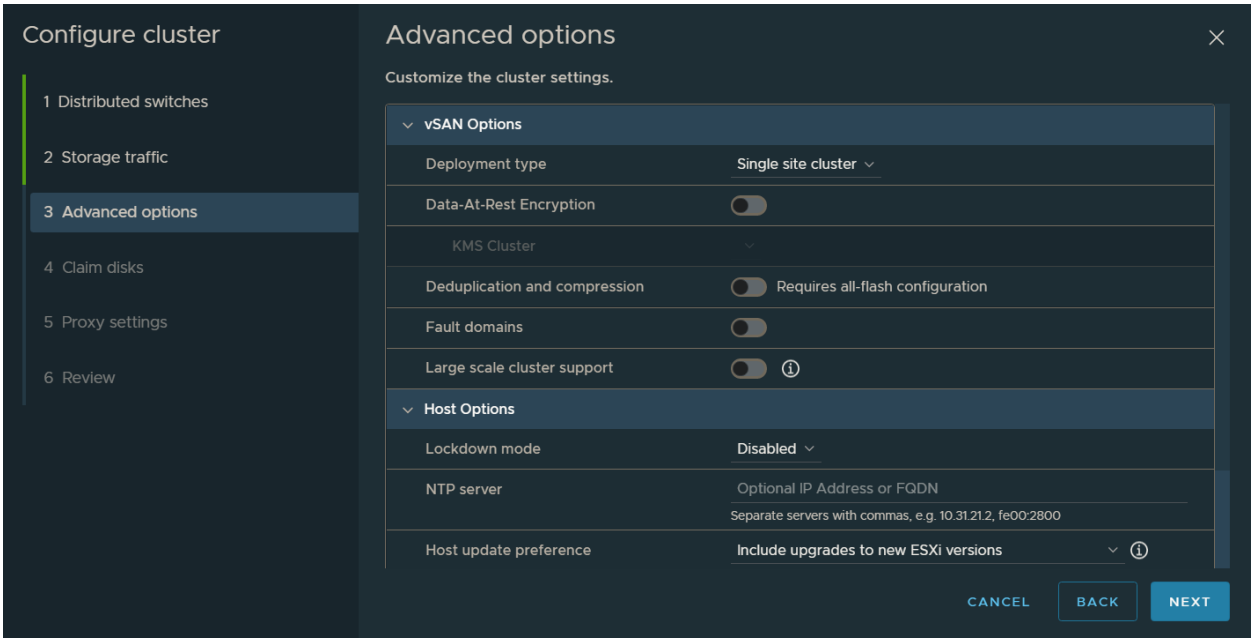
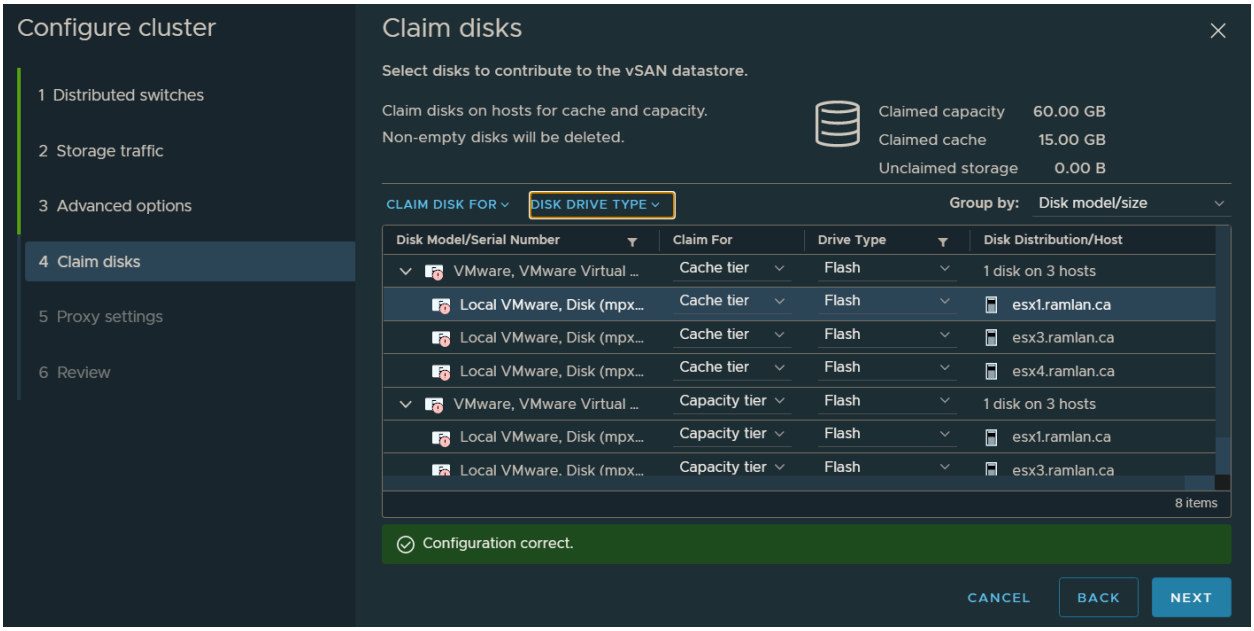
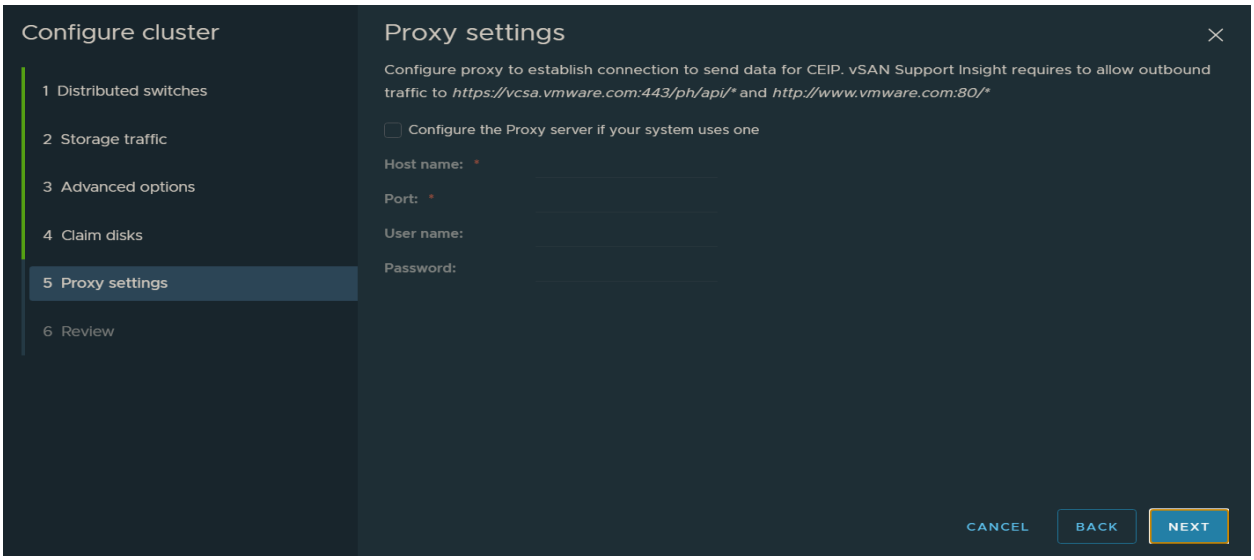
Licensing
VMware EVC
VM/Host Groups
VM/Host Rules
VM Overrides
I/O Filters
Host Options
Host Profile
Trust Authority
Trust Authority Cluster
Alarm Definitions
Scheduled Tasks
vSAN
1. Cluster basics
Selected services:
vSAN
EDIT
2. Add hosts
Not configured hosts: 3
Time is synchronized across hosts and VC
Advanced vSAN configuration in sync
All required hosts are in maintenance mode
Host physical memory compliance check
Disk format version compatibility check
Software version compatibility
vSAN HCL DB up-to-date
vSAN HCL DB Auto Update
SCSI controller is VMware certified
Controller is VMware certified for ESXi release
Controller driver is VMware certified
Controller firmware is VMware certified
Controller disk group mode is VMware certified
vSAN firmware version recommendation
ADD
RE-VALIDATE
3. Configure cluster
Configure network settings for vSAN traffic, review and customize cluster services, and set up a vSAN datastore.
CONFIGURE
RE-VALIDATE
Recent Tasks
Alarms

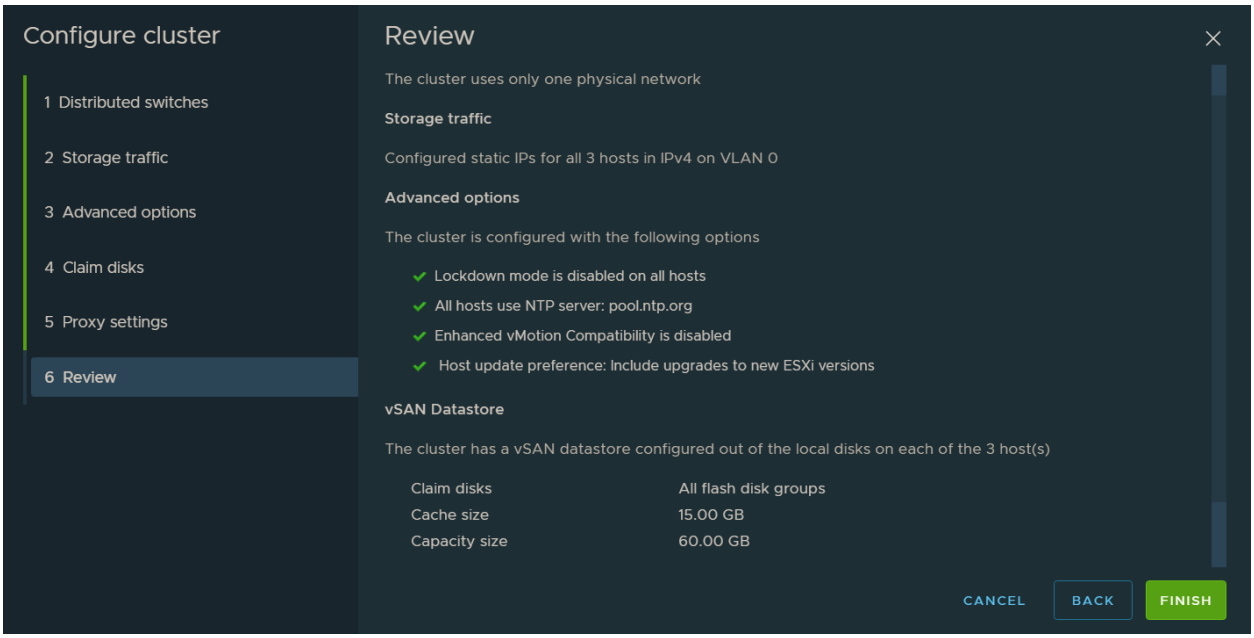

Configure cluster
1 Distributed switches
2 Storage traffic
3 Advanced options
4 Claim disks
5 Proxy settings
6 Review
Distributed switches
Configure the distributed switches
The wizard configures your cluster networking according to the architecture recommended by the VMware Validated Designs. You can customize your networking configuration at a later time by manually configuring the host networking. VMware Validated Designs
Configure networking settings later
Distributed switches
Number of distributed switches
1
Configure the following distributed switches, based on the port group and uplink options you select on this page. There may be additional port groups created if existing VM networks are migrated to these switches. VMkernel adapters for management network will be migrated with the physical adapters assigned to distributed switches.
Name
Port Groups
Uplinks
DSwitch
USE EXISTING
1
0
Port groups
CANCEL
NEXT

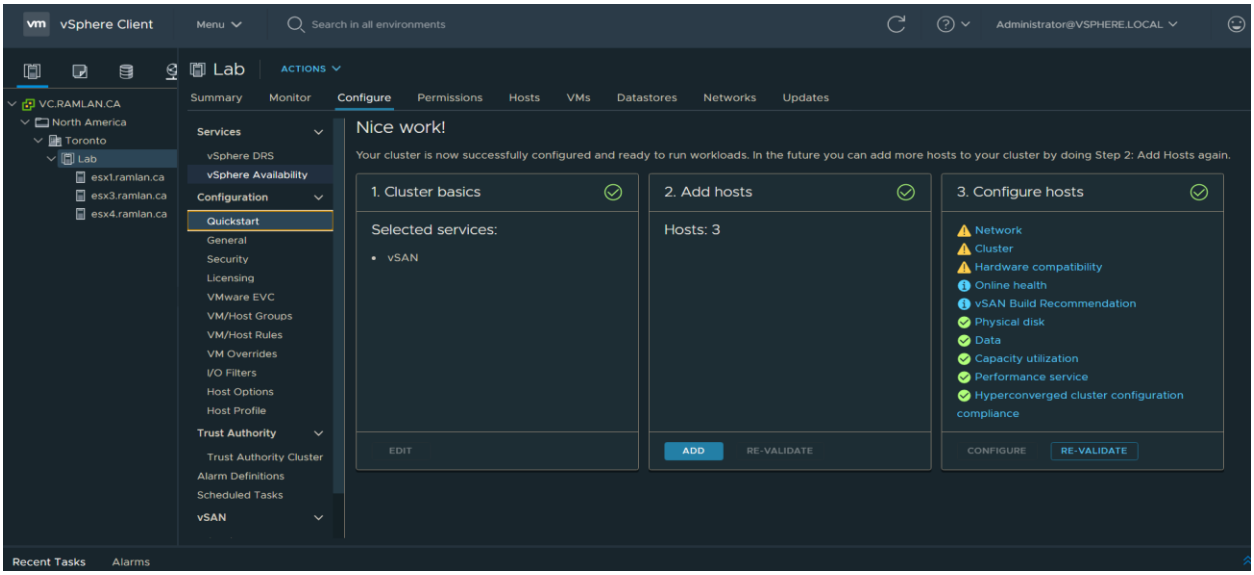

Configure cluster
1 Distributed switches
2 Storage traffic
3 Advanced options
4 Claim disks
5 Proxy settings
6 Review
Storage traffic
Specify the IP addresses for the vSAN traffic
Distributed switch
DSwitch
Distributed port group name
DSwitch-vSAN
Use VLAN
0
Protocol
IPv4
IPv4 Configuration
IP type
Static IPs
Each host is configured automatically based on the input below.
esx1.ramlan.ca
192.168.0.123
255.255.255.0
AUTOFILL
esx3.ramlan.ca
192.168.0.124
255.255.255.0
esx4.ramlan.ca
192.168.0.125
255.255.255.0
CANCEL
BACK
NEXT


Configure cluster
1 Distributed switches
2 Storage traffic
3 Advanced options
4 Claim disks
5 Proxy settings
6 Review
Advanced options
Customize the cluster settings.
vSAN Options
Deployment type
Single site cluster
Data-At-Rest Encryption
KMS Cluster
Deduplication and compression
Requires all-flash configuration
Fault domains
Large scale cluster support
Host Options
Lockdown mode
Disabled
NTP server
Optional IP Address or FQDN
Separate servers with commas, e.g. 10.31.21.2, fe00:2800
Host update preference
Include upgrades to new ESXi versions
CANCEL
BACK
NEXT

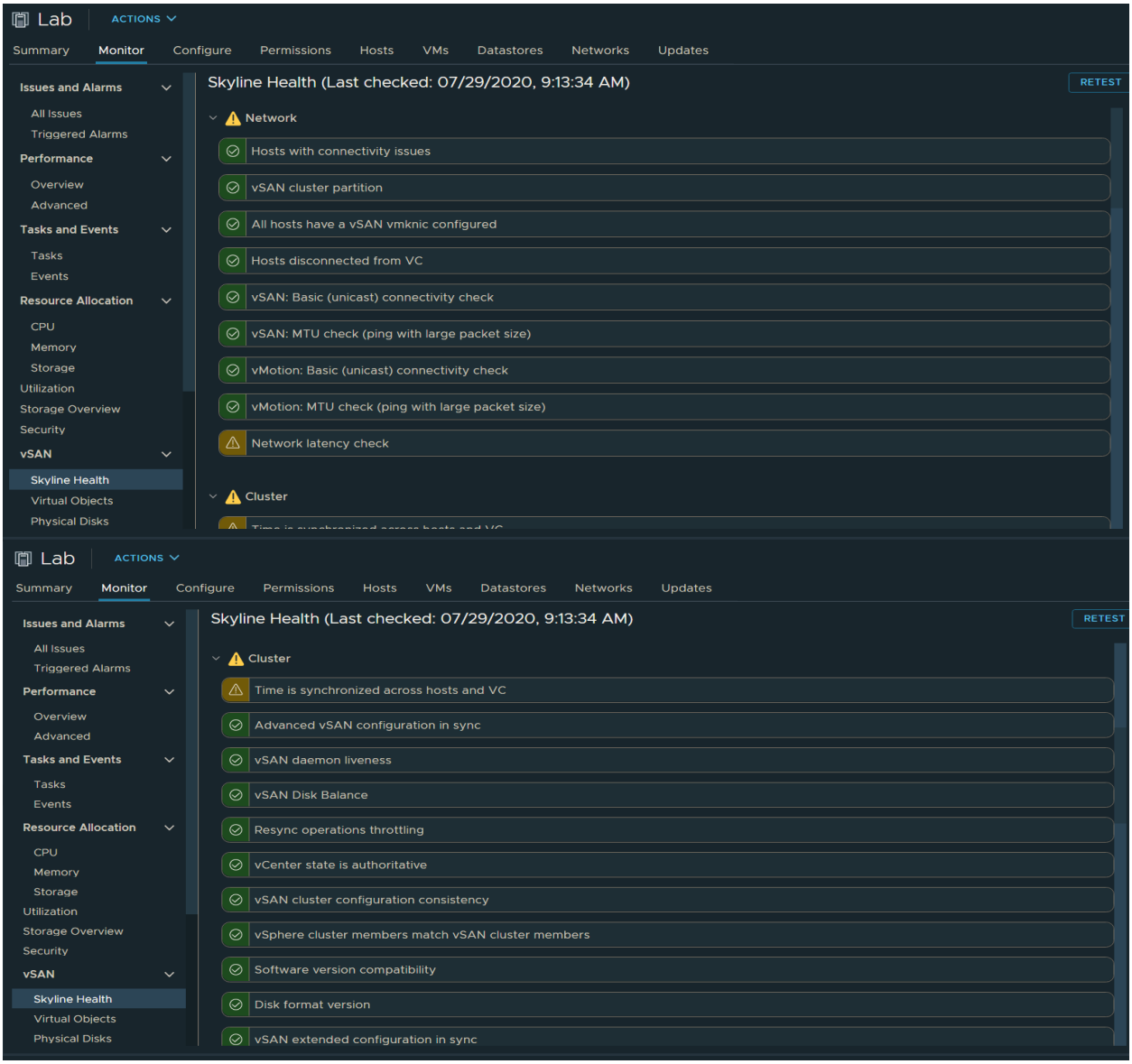

Configure cluster
1 Distributed switches
2 Storage traffic
3 Advanced options
4 Claim disks
5 Proxy settings
6 Review
Claim disks
Select disks to contribute to the vSAN datastore.
Claim disks on hosts for cache and capacity.
Non-empty disks will be deleted.
Claimed capacity 60.00 GB
Claimed cache 15.00 GB
Unclaimed storage 0.00 B
CLAIM DISK FOR
DISK DRIVE TYPE
Group by: Disk model/size
Disk Model/Serial Number
Claim For
Drive Type
Disk Distribution/Host
VMware, VMware Virtual ... Cache tier Flash 1 disk on 3 hosts
Local VMware, Disk (mpx... Cache tier Flash esx1.ramlan.ca
Local VMware, Disk (mpx... Cache tier Flash esx3.ramlan.ca
Local VMware, Disk (mpx... Cache tier Flash esx4.ramlan.ca
VMware, VMware Virtual ... Capacity tier Flash 1 disk on 3 hosts
Local VMware, Disk (mpx... Capacity tier Flash esx1.ramlan.ca
Local VMware, Disk (mpx... Capacity tier Flash esx3.ramlan.ca
8 items
Configuration correct.
CANCEL
BACK
NEXT

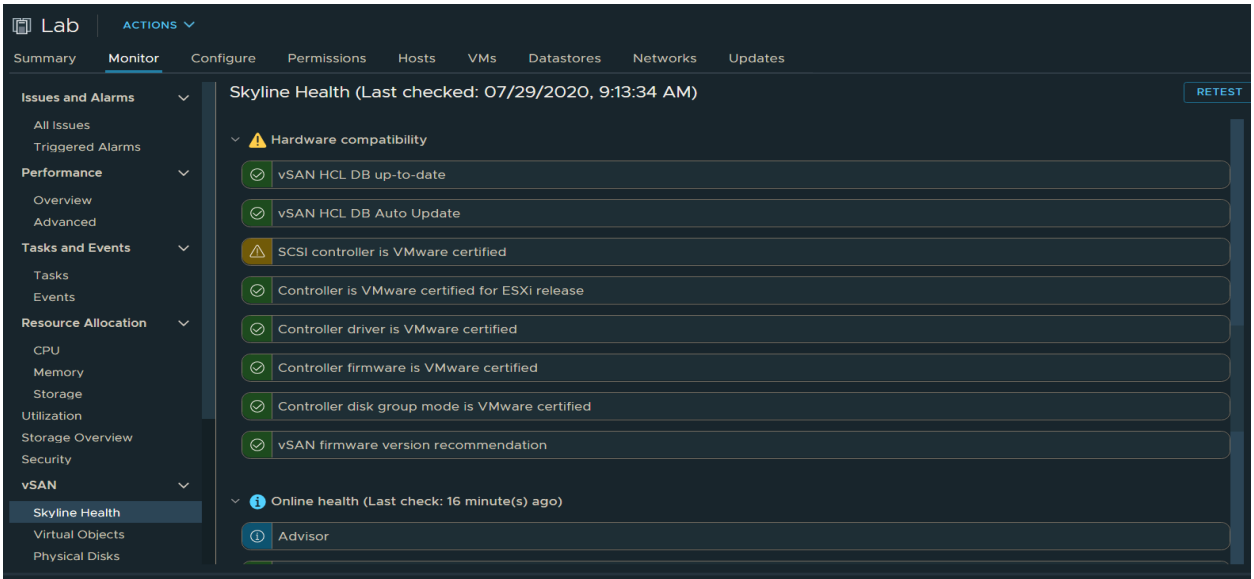

Configure cluster
1 Distributed switches
2 Storage traffic
3 Advanced options
4 Claim disks
5 Proxy settings
6 Review
Proxy settings
Configure proxy to establish connection to send data for CEIP. vSAN Support Insight requires to allow outbound traffic to https://vcsa.vmware.com:443/ph/api/* and http://www.vmware.com:80/*
Configure the Proxy server if your system uses one
Host name: *
Port: *
User name:
Password:
CANCEL
BACK
NEXT

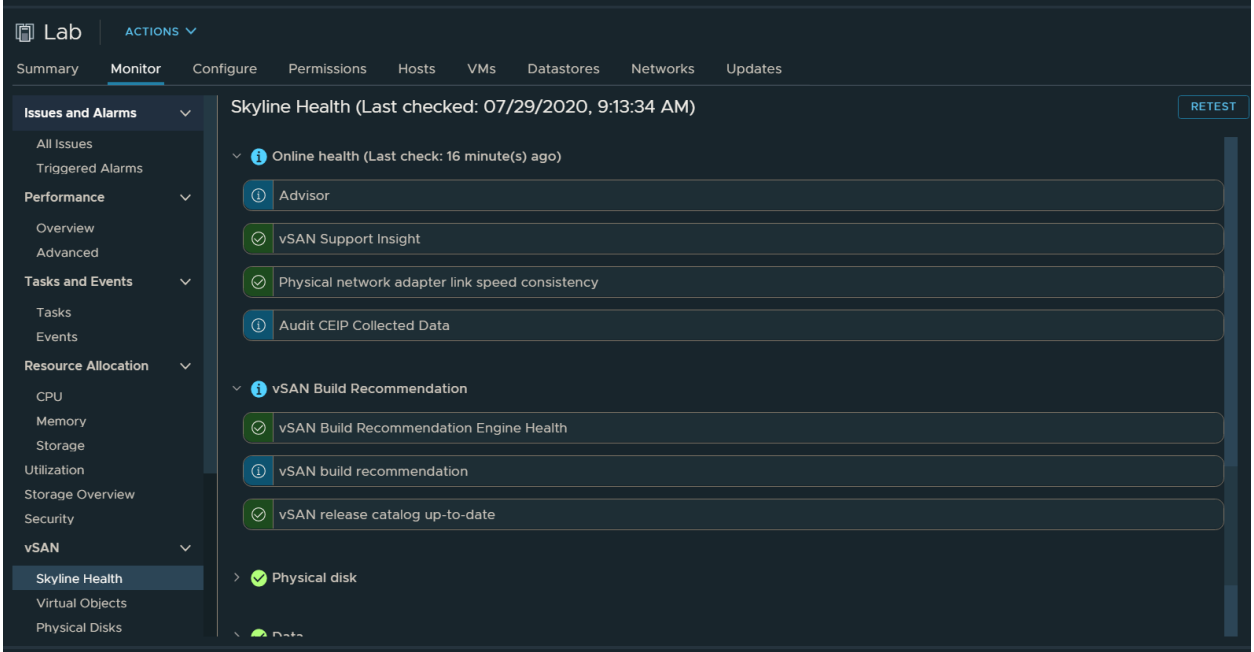

Configure cluster
1 Distributed switches
2 Storage traffic
3 Advanced options
4 Claim disks
5 Proxy settings
6 Review
Review
The cluster uses only one physical network
Storage traffic
Configured static IPs for all 3 hosts in IPv4 on VLAN 0
Advanced options
The cluster is configured with the following options
Lockdown mode is disabled on all hosts
All hosts use NTP server: pool.ntp.org
Enhanced vMotion Compatibility is disabled
Host update preference: Include upgrades to new ESXi versions
vSAN Datastore
The cluster has a vSAN datastore configured out of the local disks on each of the 3 host(s)
Claim disks All flash disk groups
Cache size 15.00 GB
Capacity size 60.00 GB
CANCEL
BACK
FINISH



There are few Alarms for Network, Cluster & Hardware compatibility. I looked at those Alarms – nothing to worry as they are just information only.




Lab
ACTIONS
Summary
Monitor
Configure
Permissions
Hosts
VMs
Datastores
Networks
Updates
Issues and Alarms
All Issues
Triggered Alarms
Performance
Overview
Advanced
Tasks and Events
Tasks
Events
Resource Allocation
CPU
Memory
Storage
Utilization
Storage Overview
Security
vSAN
Skyline Health
Virtual Objects
Physical Disks
Skyline Health (Last checked: 07/29/2020, 9:13:34 AM)
RETEST
Hardware compatibility
vSAN HCL DB up-to-date
vSAN HCL DB Auto Update
SCSI controller is VMware certified
Controller is VMware certified for ESXi release
Controller driver is VMware certified
Controller firmware is VMware certified
Controller disk group mode is VMware certified
vSAN firmware version recommendation
Online health (Last check: 16 minute(s) ago)
Advisor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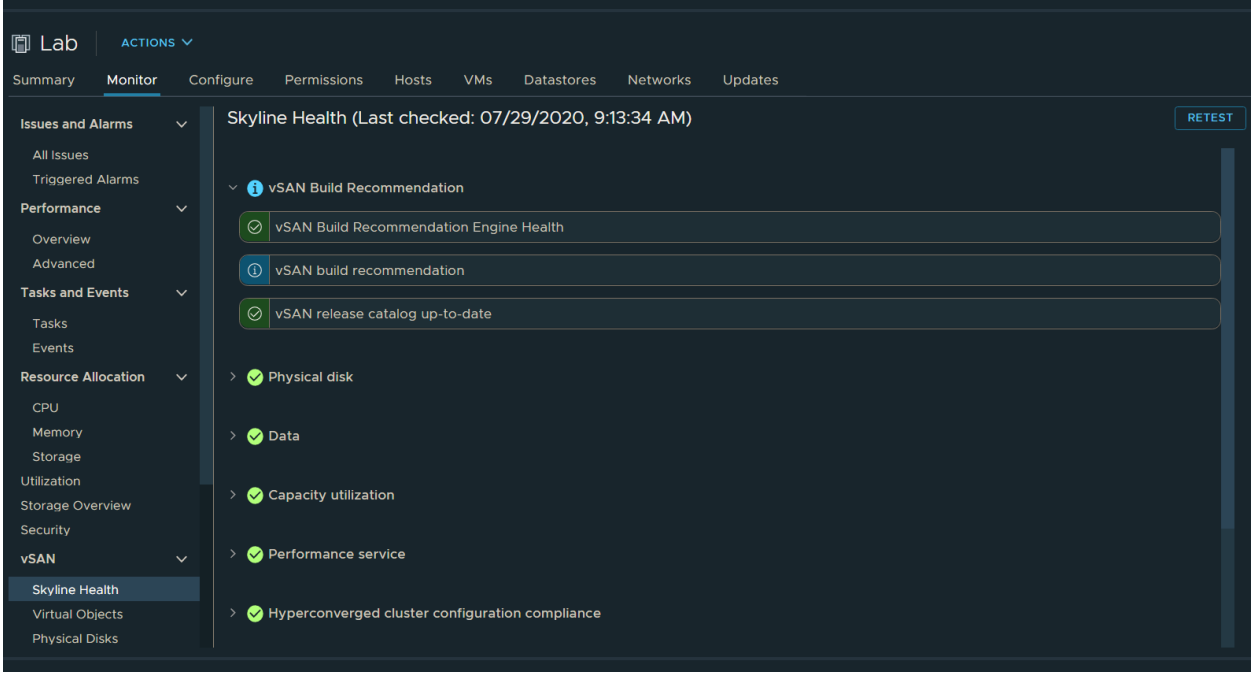
Virtual Objects
Physical Disks
Skyline Health (Last checked: 07/29/2020, 9:13:34 AM)
RETEST
Online health (Last check: 16 minute(s) ago)
Advisor
vSAN Support Insight
Physical network adapter link speed consistency
Audit CEIP Collected Data
vSAN Build Recommendation
vSAN Build Recommendation Engine Health
vSAN build recommendation
vSAN release catalog up-to-date
Physical disk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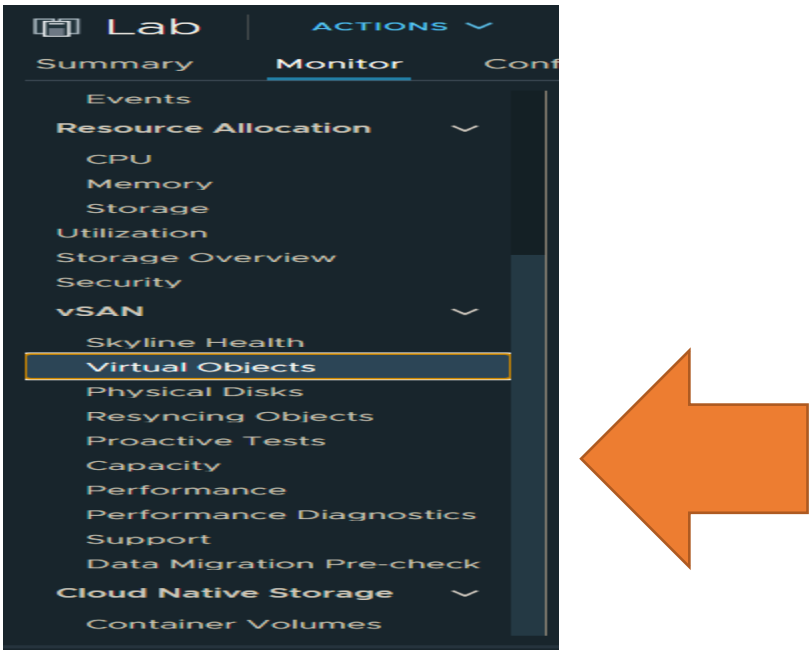
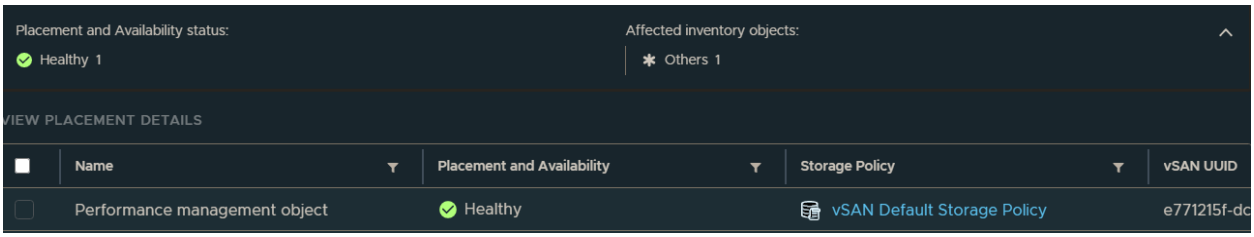
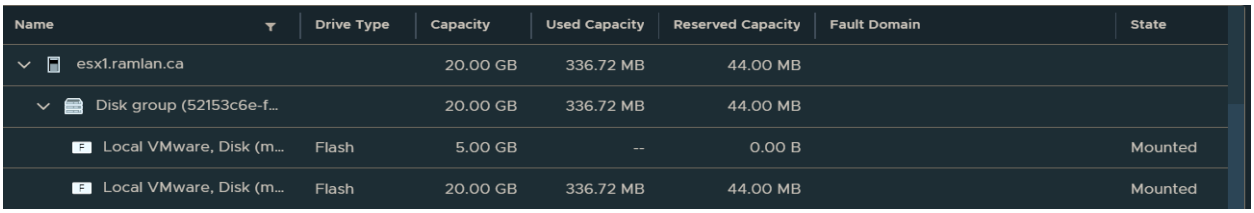
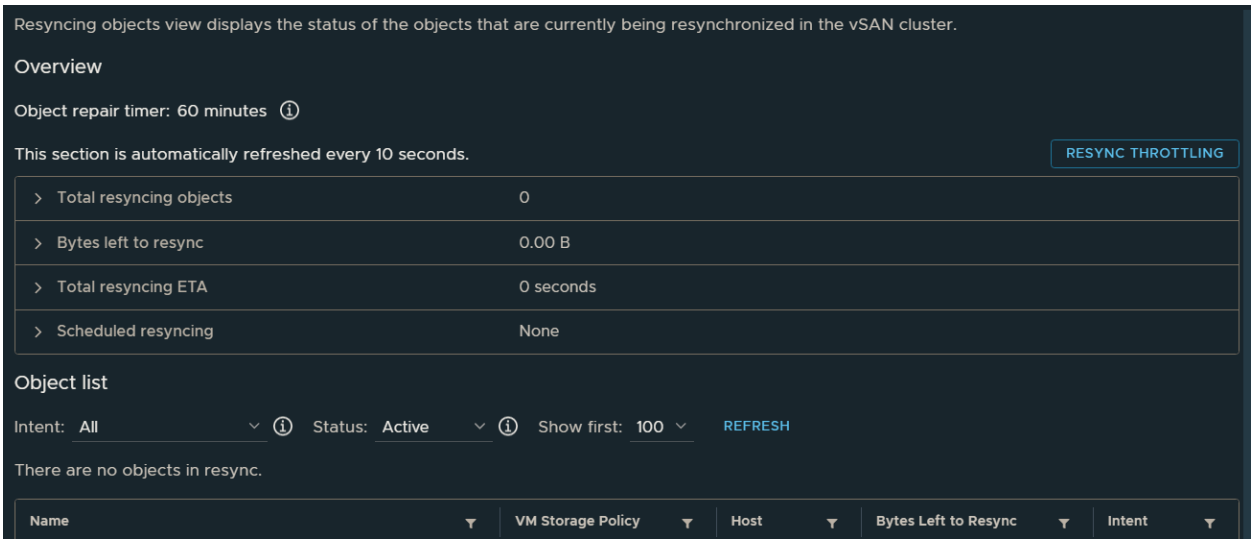
Storage
Utilization
Storage Overview
Security
vSAN
Skyline Health
Virtual Objects
Physical Disks
Skyline Health (Last checked: 07/29/2020, 9:13:34 AM)
RETEST
vSAN Build Recommendation
vSAN Build Recommendation Engine Health
vSAN build recommendation
vSAN release catalog up-to-date
Physical disk
Data
Capacity utilization
Performance service
Hyperconverged cluster configuration compliance

Under Cluster Lab – Monitor – You can see a lot of details about vSAN Health and others.









Proactive Tests

For storage performance test, use HCIBench . HCIBench is a storage performance testing automation tool that simplifies and accelerates customer Proof of Concept (POC) performance testing in a consistent and controlled way. VMware vSAN Community Forum provides support for HCIBench.

RUN ASK VMWARE

	Name	Last Run Result	Last Run Time
◉	VM Creation Test ⓘ	--	--
○	Network Performance Test ⓘ	--	--

2 items

CAPACITY USAGE | CAPACITY HISTORY

Capacity Overview

Used 1.68 GB/59.98 GB (2.8%) Free space on disks 58.30 GB ⓘ

Actually written 1.68 GB (2.8%)

Usable capacity analysis

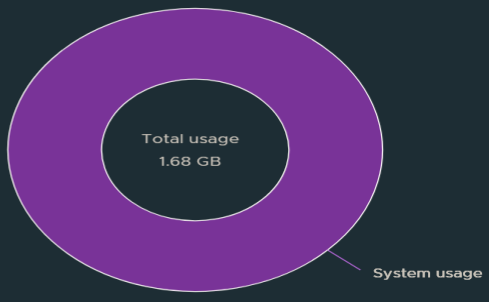
Use this panel to estimate the effective free space available if you deploy a new workload with the selected storage policy, assuming dedup ratio is 1. ⓘ

Change policy to vSAN Default Storage Policy Effective free space with the policy: 29.15 GB

Usage breakdown before dedup and compression

Usage by categories EXPAND ALL

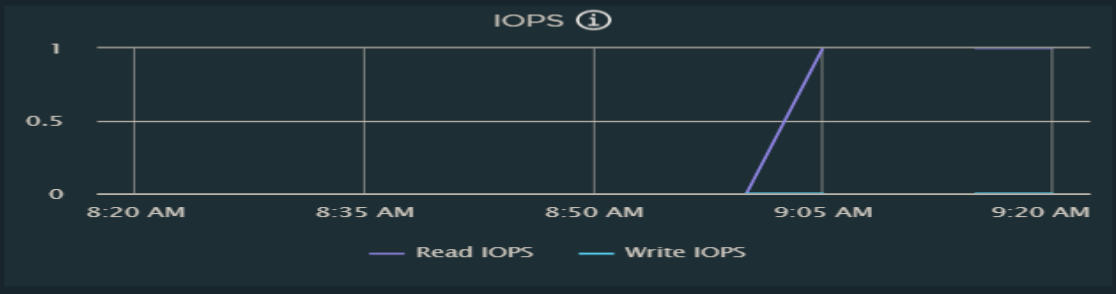
> System usage 1.68 GB (100%)

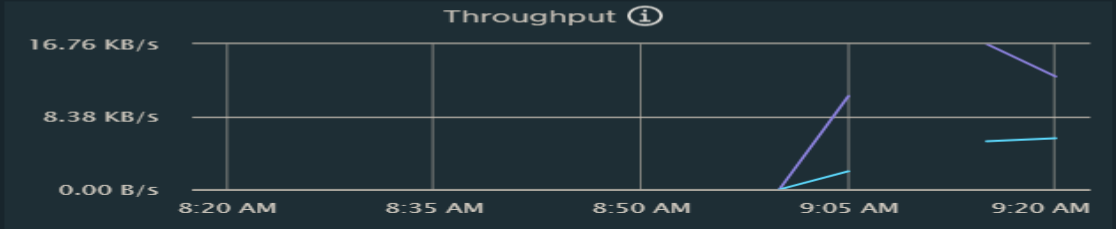


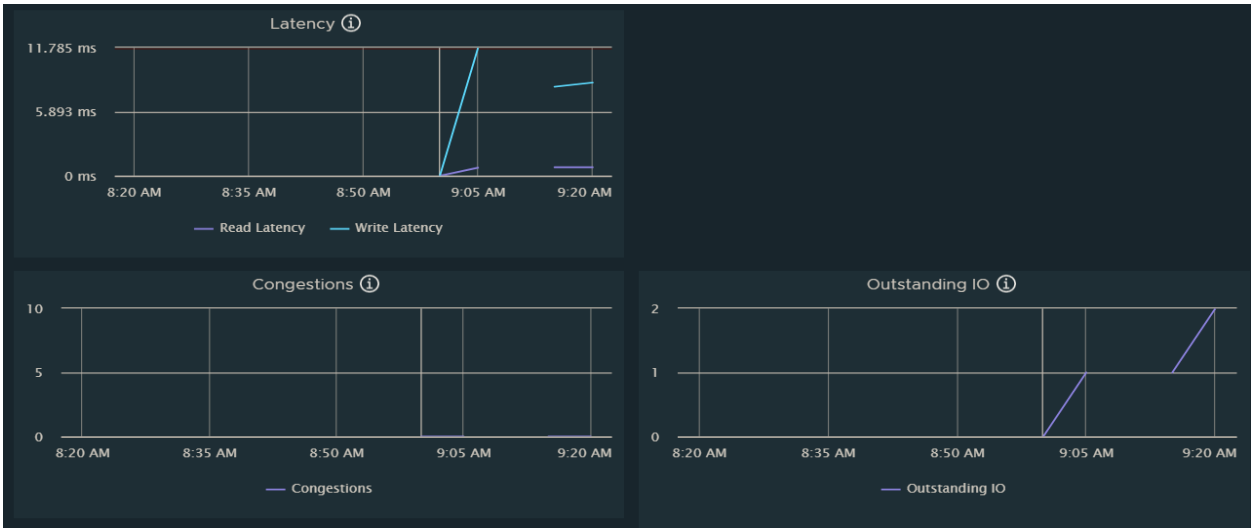
VM | BACKEND

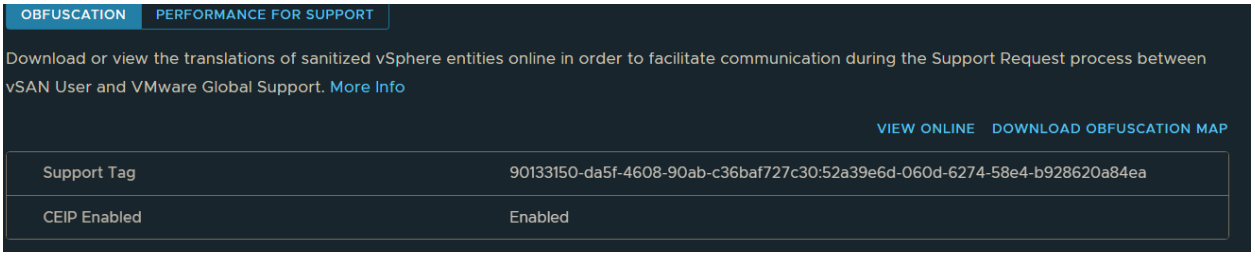
Time Range: LAST 1 Hour(s) SHOW RESULTS

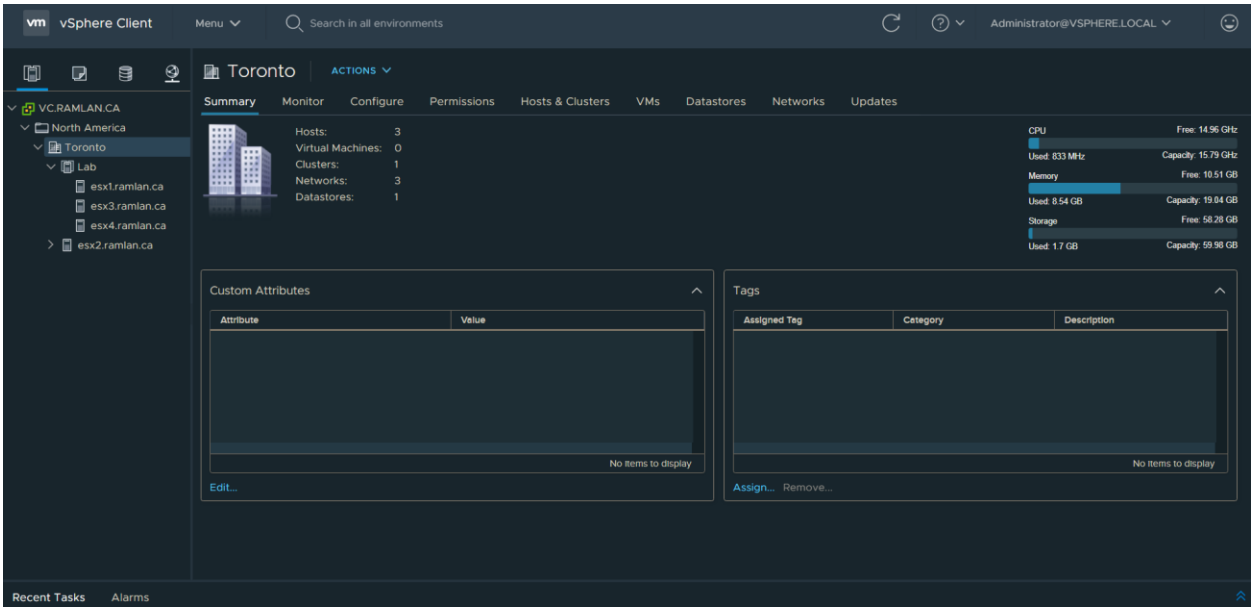
Metrics about clusters in the perspective of VM consumption.











With this we have configured vSAN within the lab.

Thanks

Ram Lan
29th July 2020