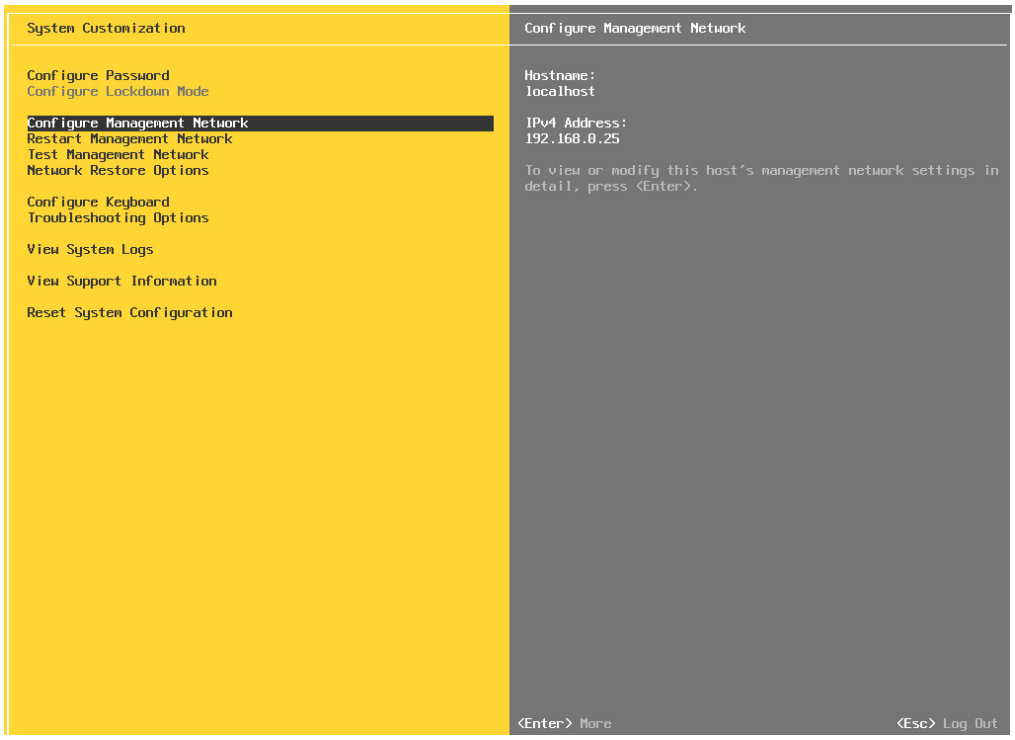
How to manage VLANs and virtual switches on ESXi/vSphere

Posted: April 14th, 2015 | **Author:** Davide Costantini | **Comments:** 0

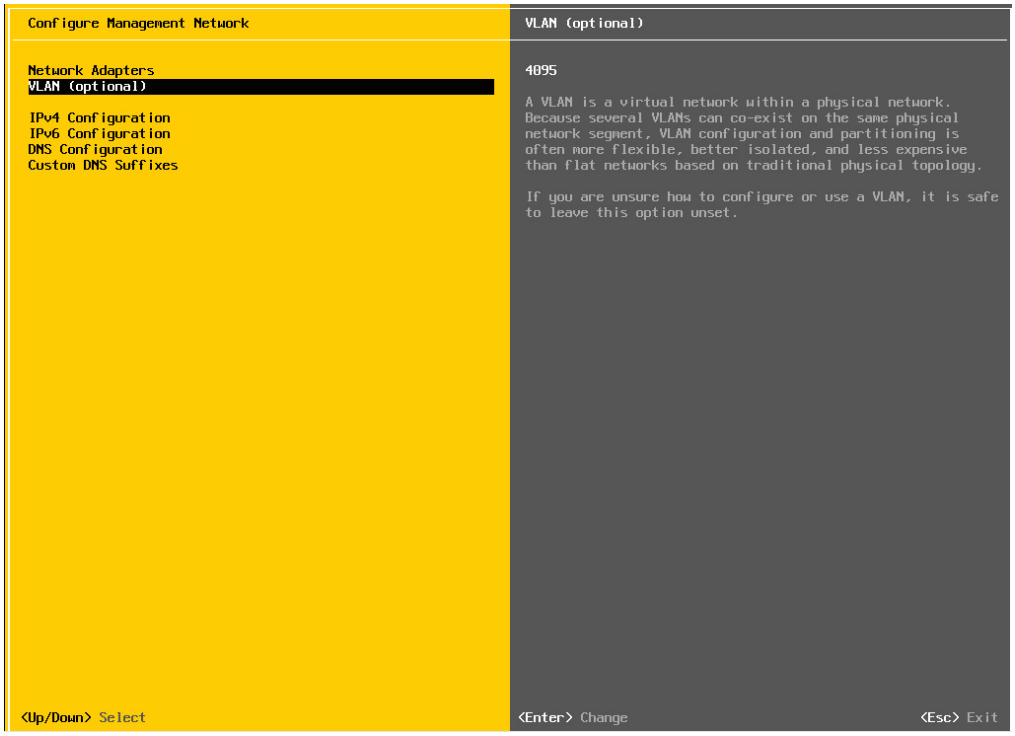
VLANs are a great tool to manage business networks and **VMware** knows that very well. We'll show you how you can configure **ESX(i)** to tag packets and how to create *virtual switches* for your **VLANs**.

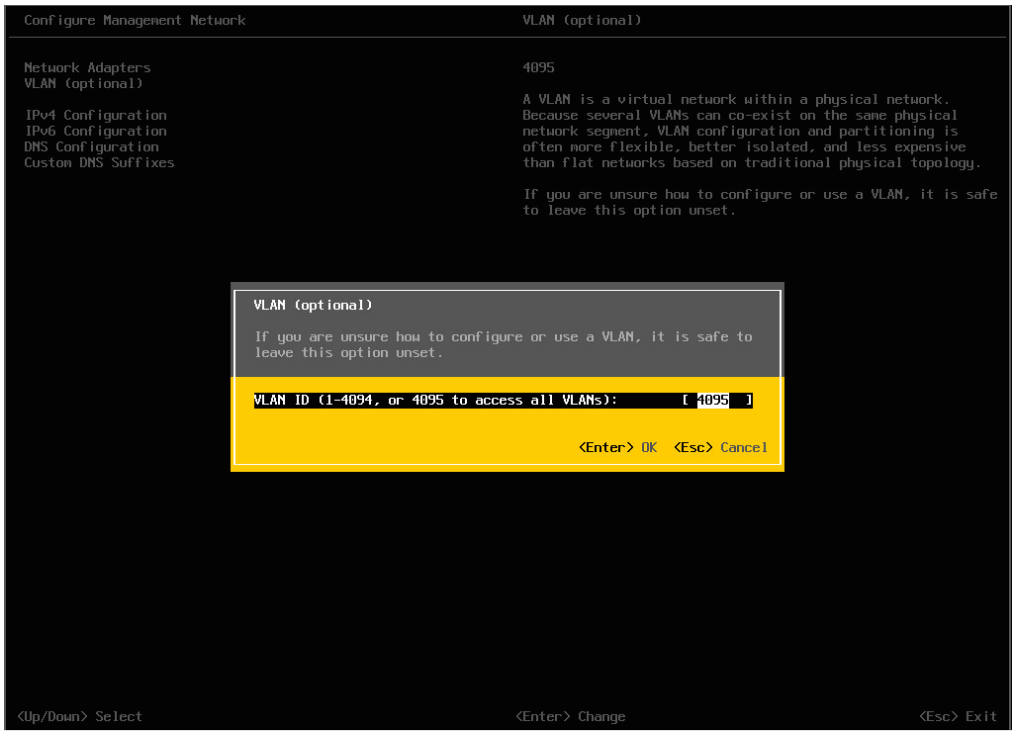
Before reading the guide, it's important to have **VLANs** configured in your network. More information on how to segment a **LAN** into **VLANs** here.

First of all, click *F2* and access the **ESX(i)** console to enable **VLAN** architecture awareness. Select *Configure Management Netowrk:*

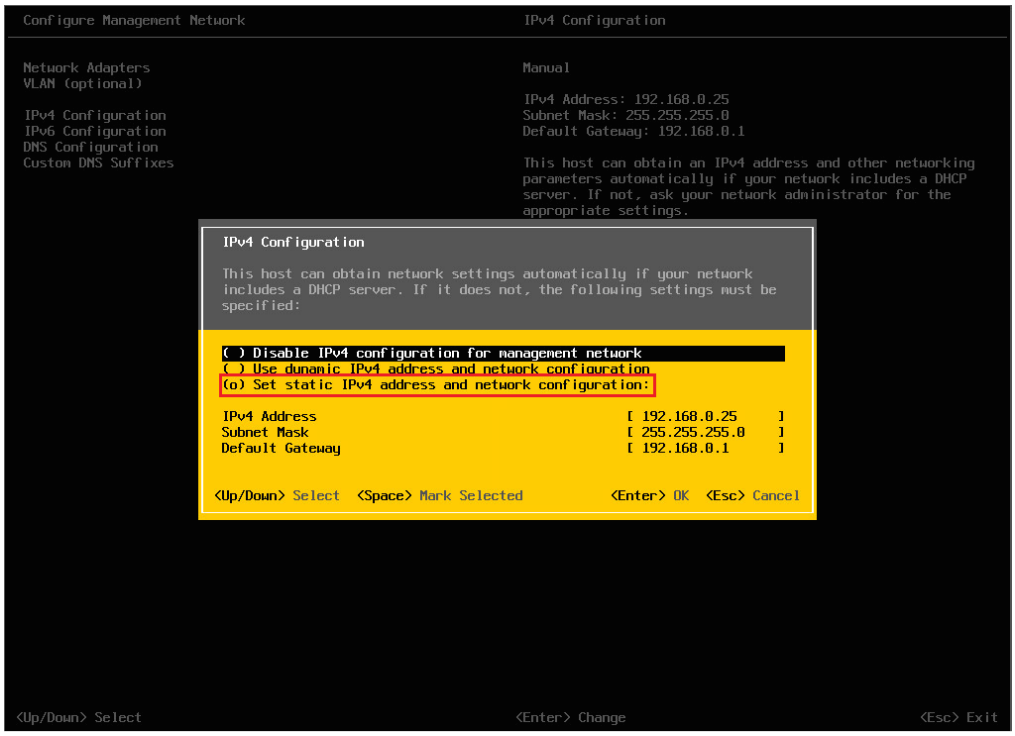


Enable *VLAN tagging* specifying 4095 as value:

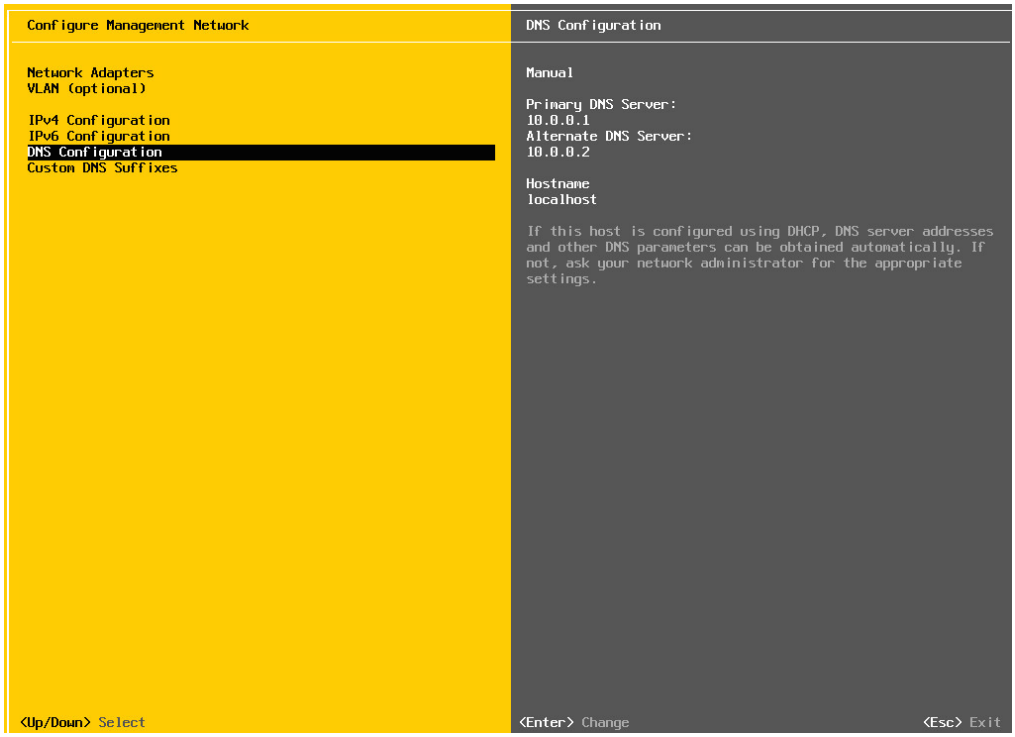


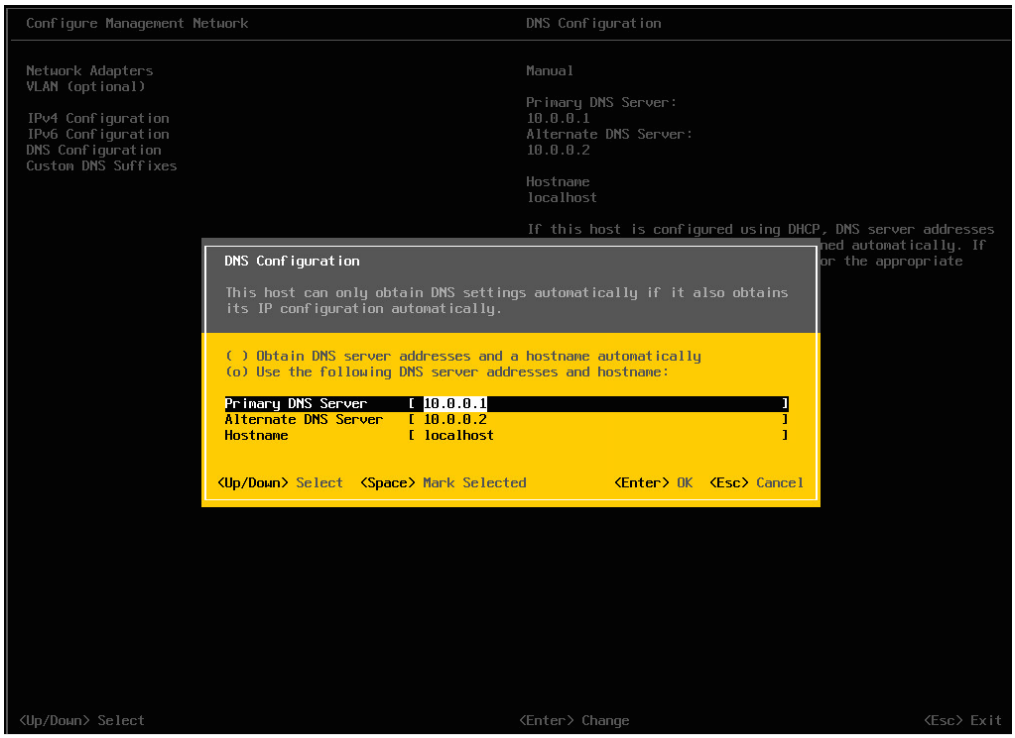


Specify an IP address for the management network adapter:

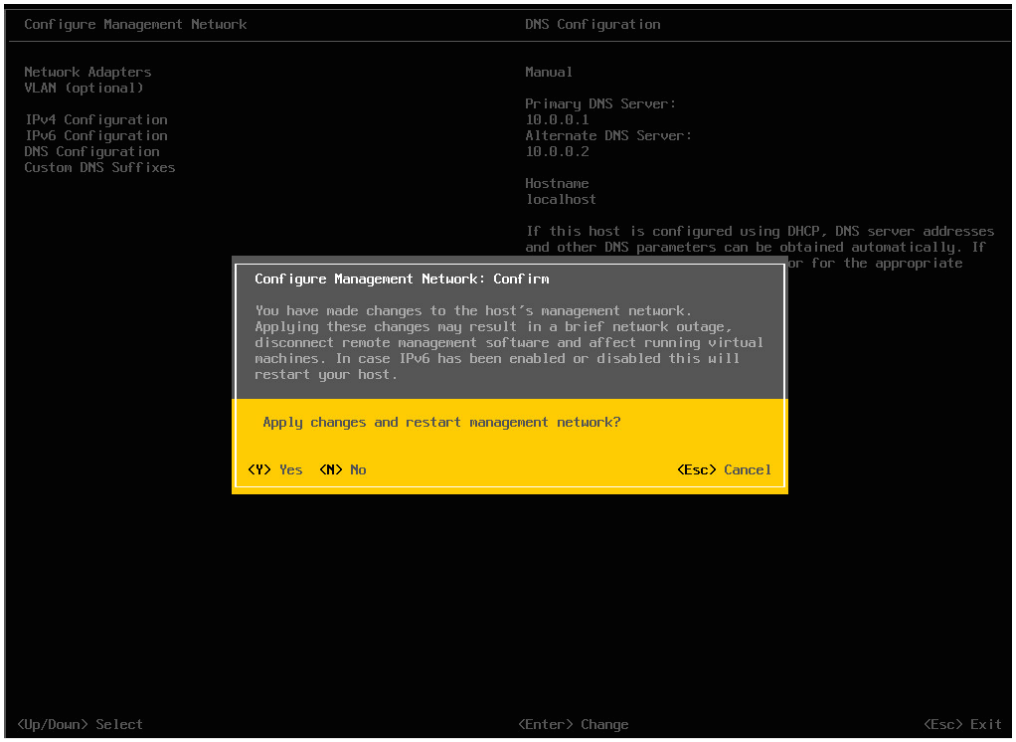


Define *DNS* servers:



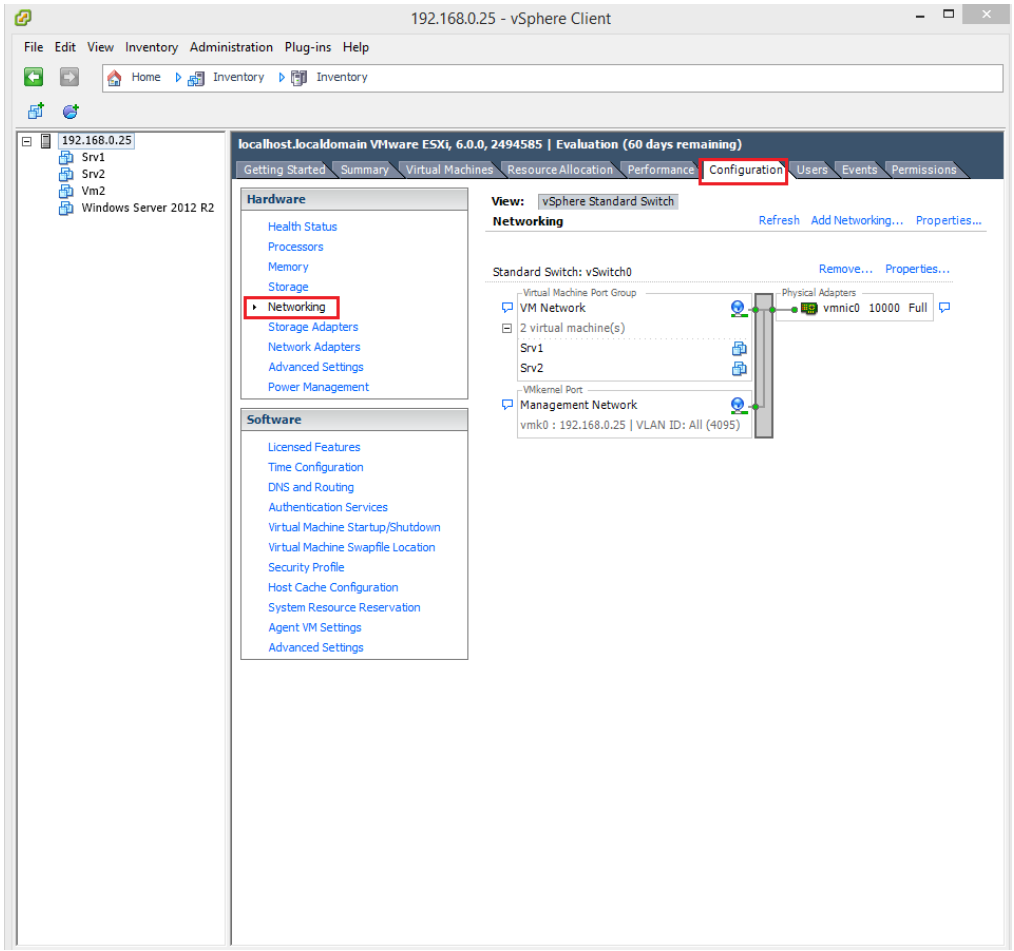


Press *Esc* and confirm:

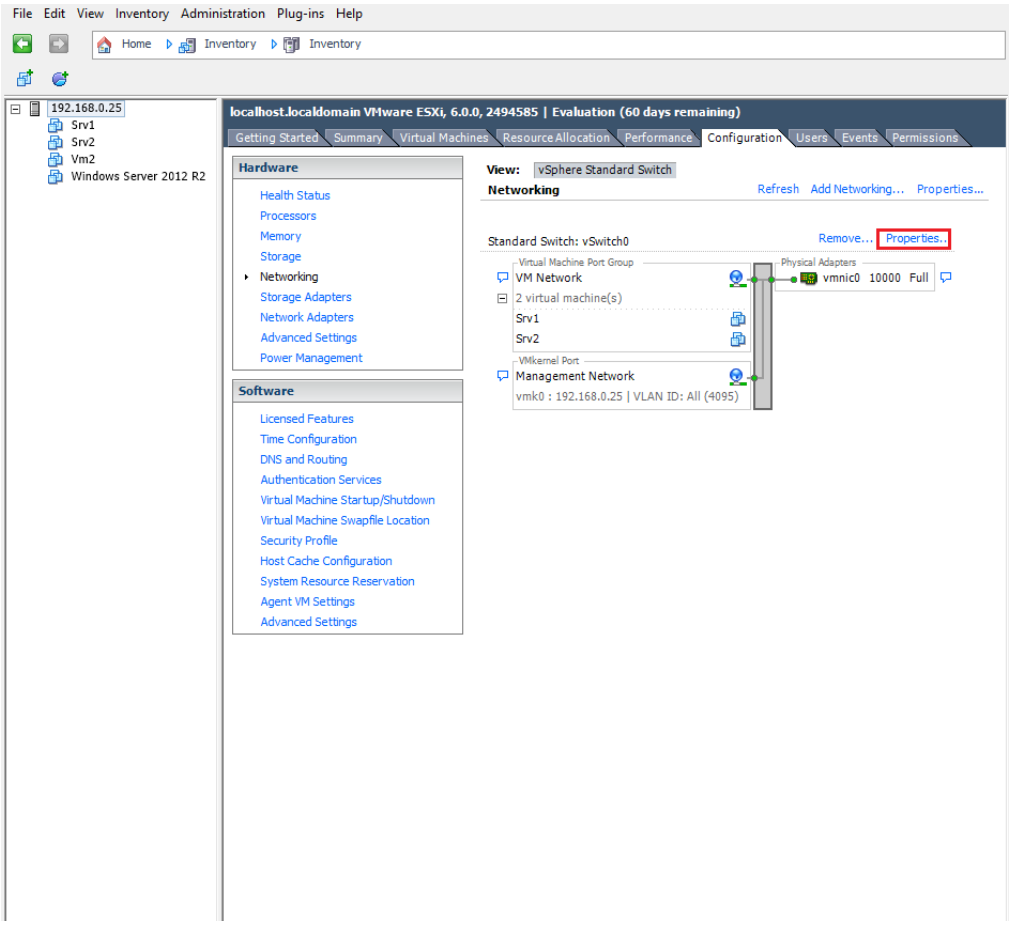


Now your ESX(i) is *VLAN* architecture aware.

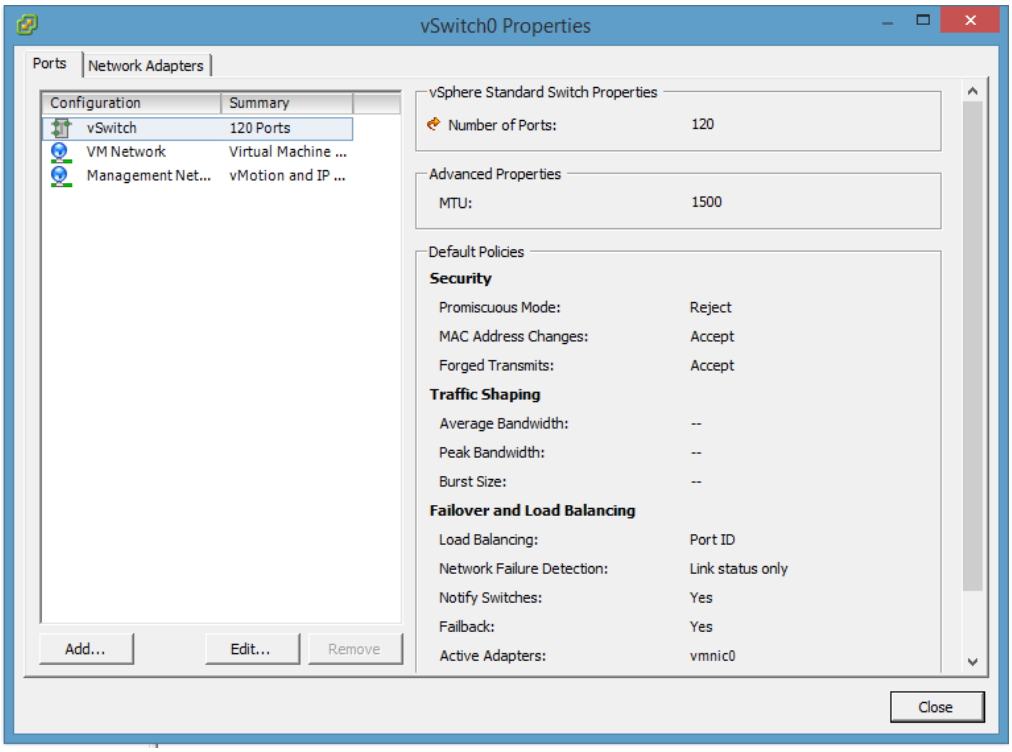
It's time to launch the *vSphere Client*. Go to the *Configuration* tab and click *Networking*, you can see the management network with the 4095 tag:

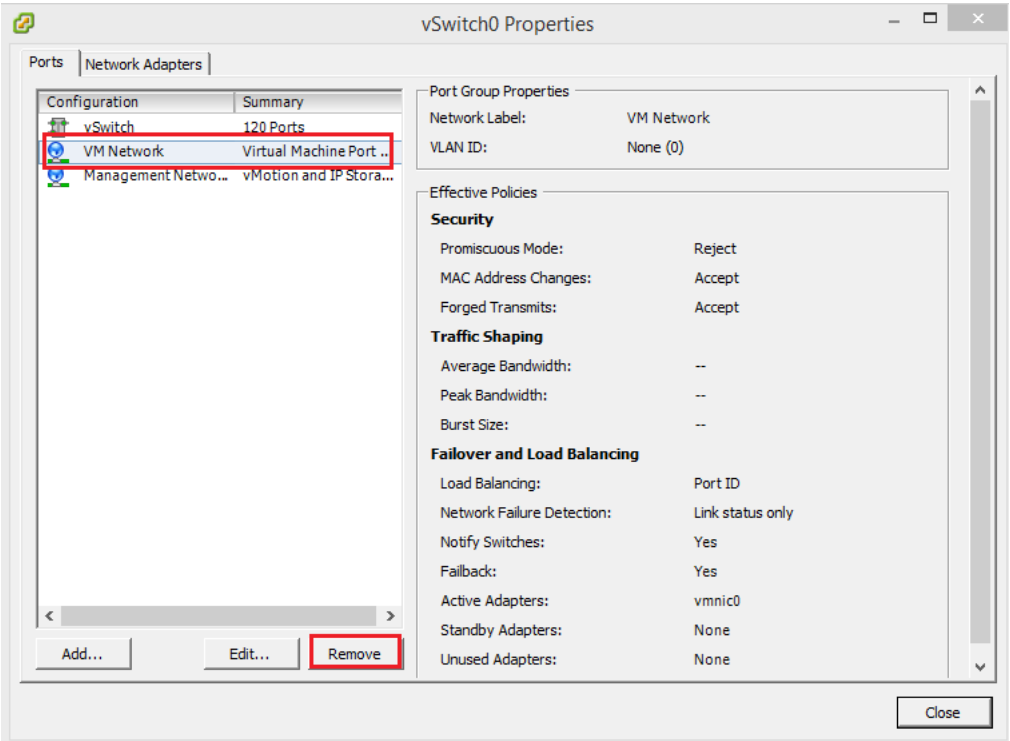


Click *Properties:*

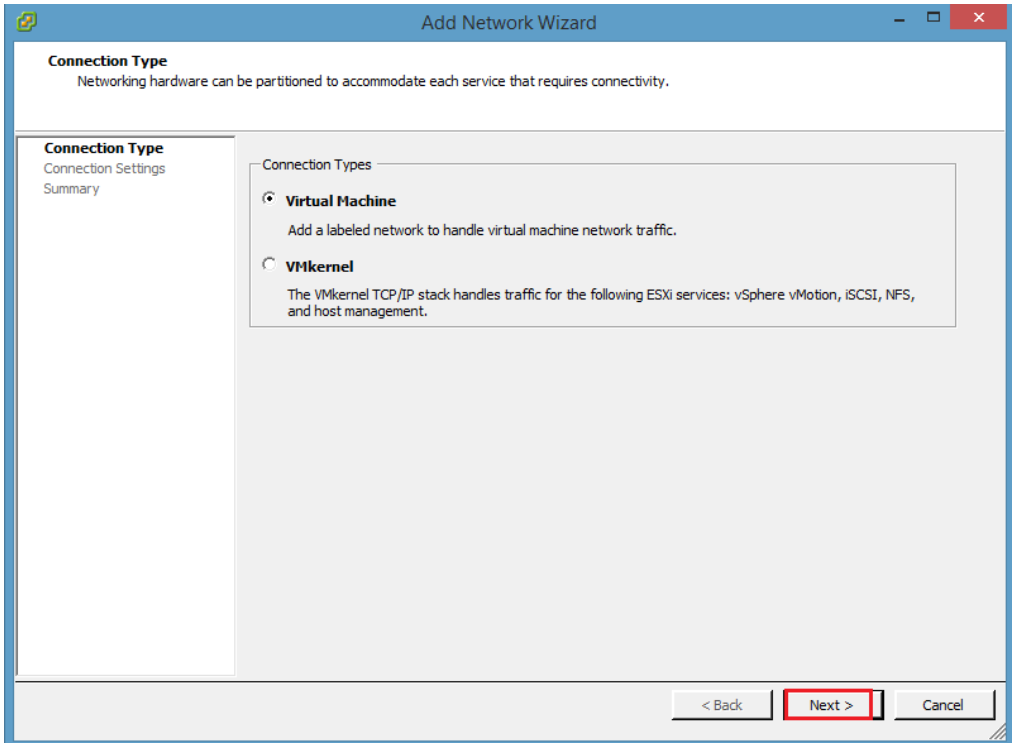


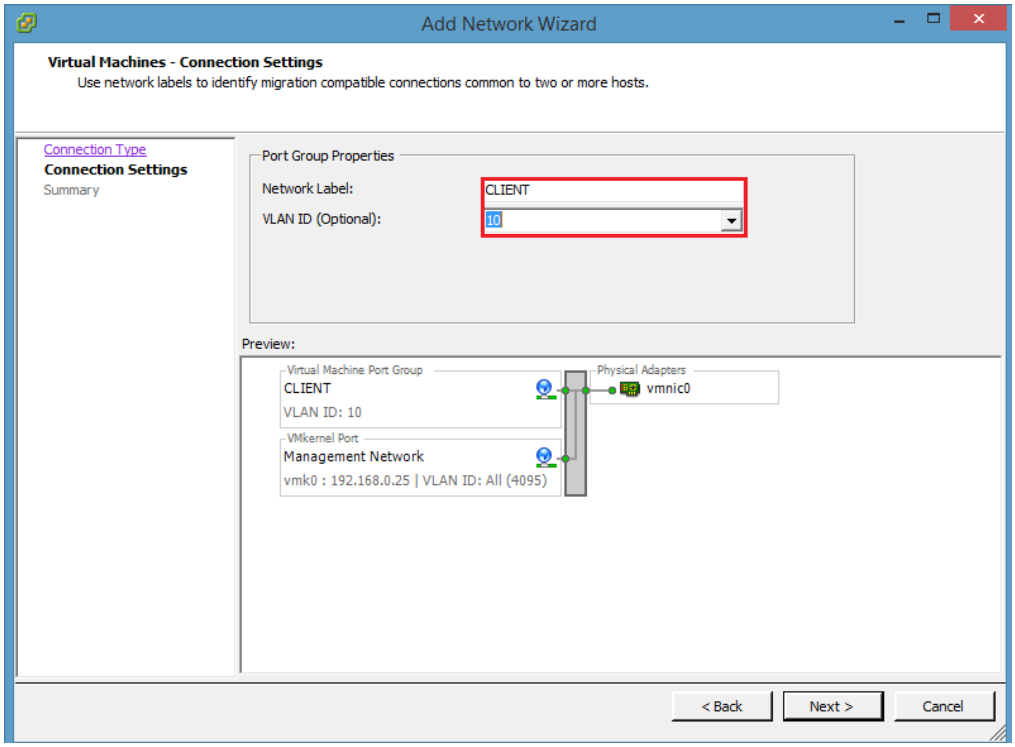
It's time to remove the *VM Network* that will be replaced by the *VLANs:*

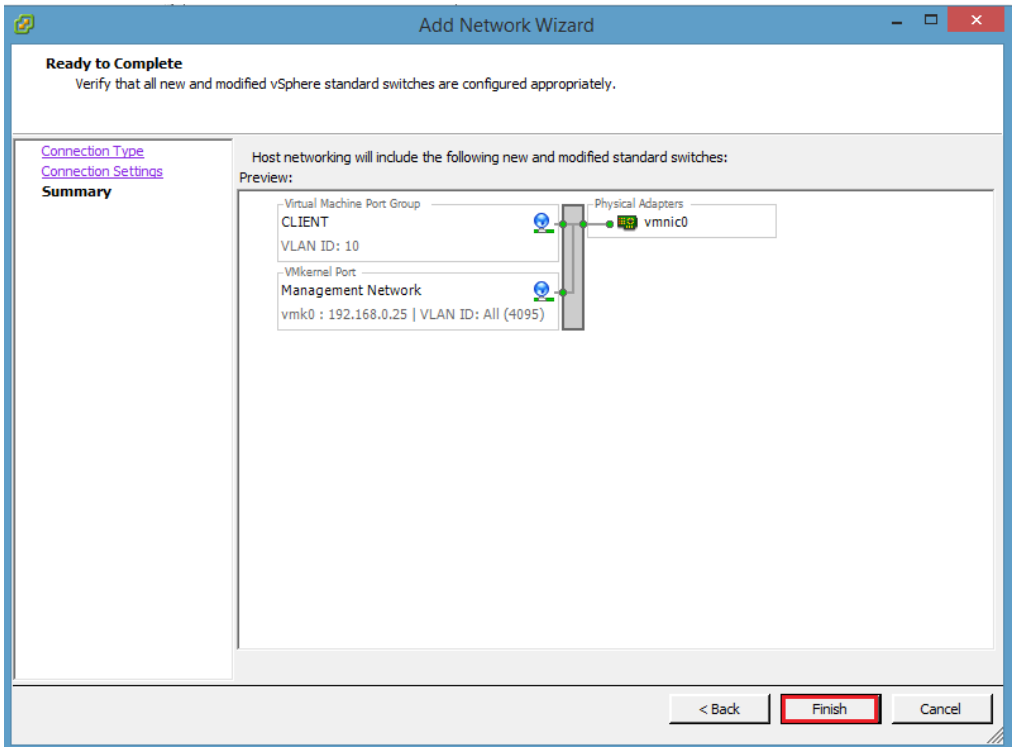


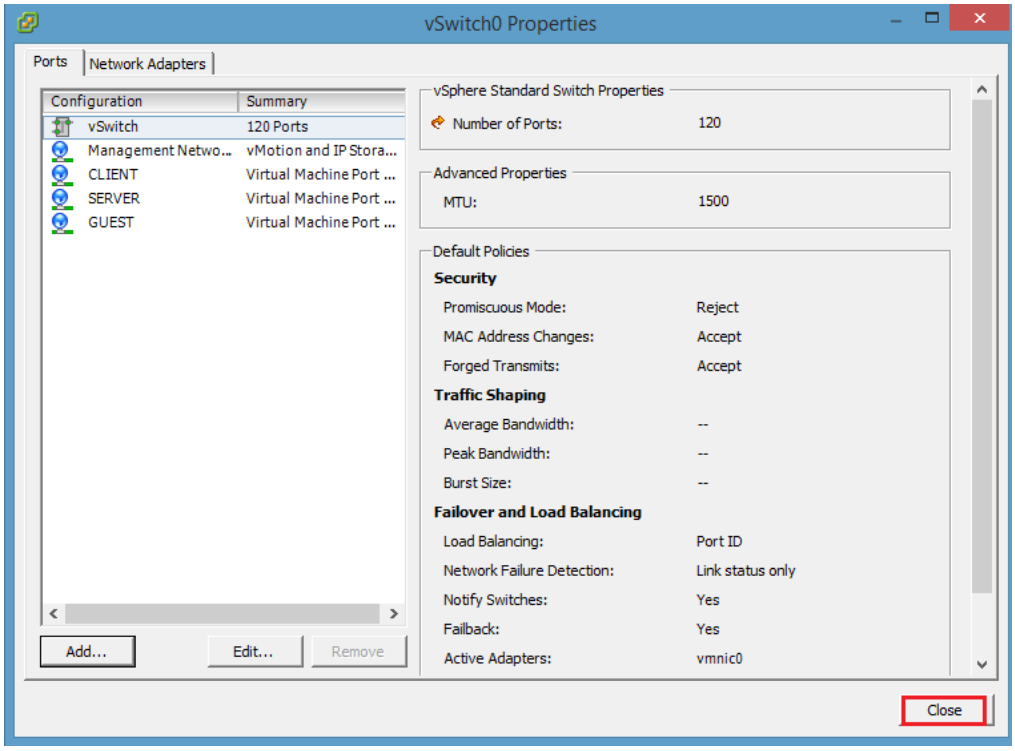


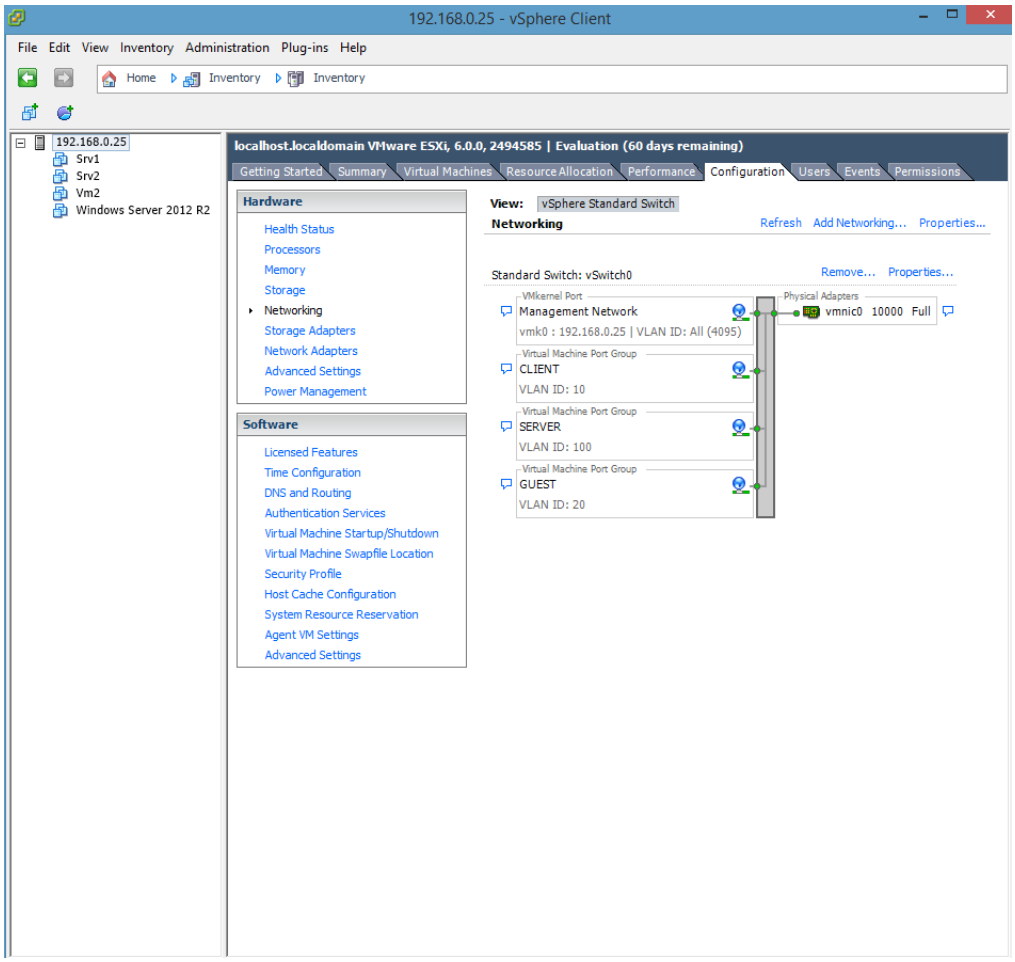
Create the *VLANs* with the *IDs* specified during the (physical) switch configuration clicking on *Add:*



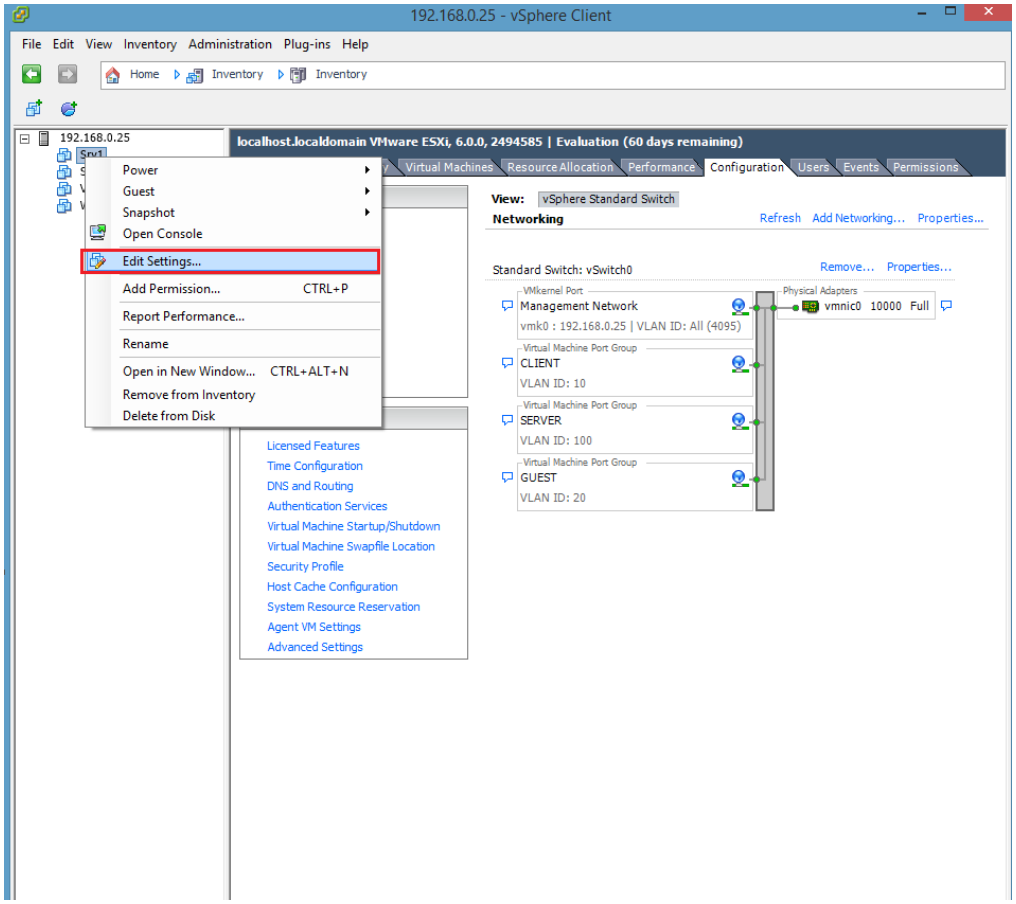

Add Network Wizard
Virtual Machines - Connection Settings
Use network labels to identify migration compatible connections common to two or more hosts.
Connection Type
Connection Settings
Summary
Port Group Properties
Network Label:
CLIENT
VLAN ID (Optional):
10
Preview:
Virtual Machine Port Group
CLIENT
VLAN ID: 10
VMkernel Port
Management Network
vmk0 : 192.168.0.25 | VLAN ID: All (4095)
Physical Adapters
vmnic0
< Back
Next >
Cancel

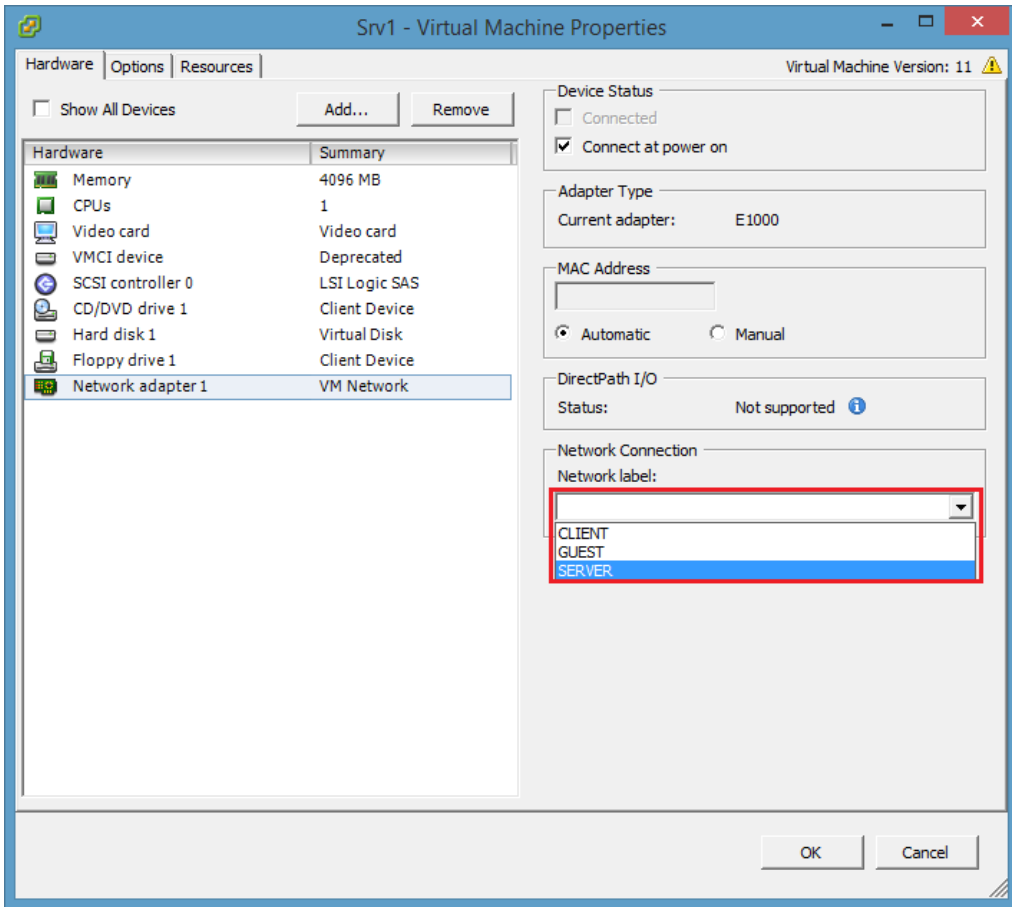

Add Network Wizard
Ready to Complete
Verify that all new and modified vSphere standard switches are configured appropriately.
Connection Type
Connection Settings
Summary
Host networking will include the following new and modified standard switches:
Preview:
Virtual Machine Port Group
CLIENT
VLAN ID: 10
VMkernel Port
Management Network
vmk0 : 192.168.0.25 | VLAN ID: All (4095)
Physical Adapters
vmnic0
< Back
Finish
Cancel

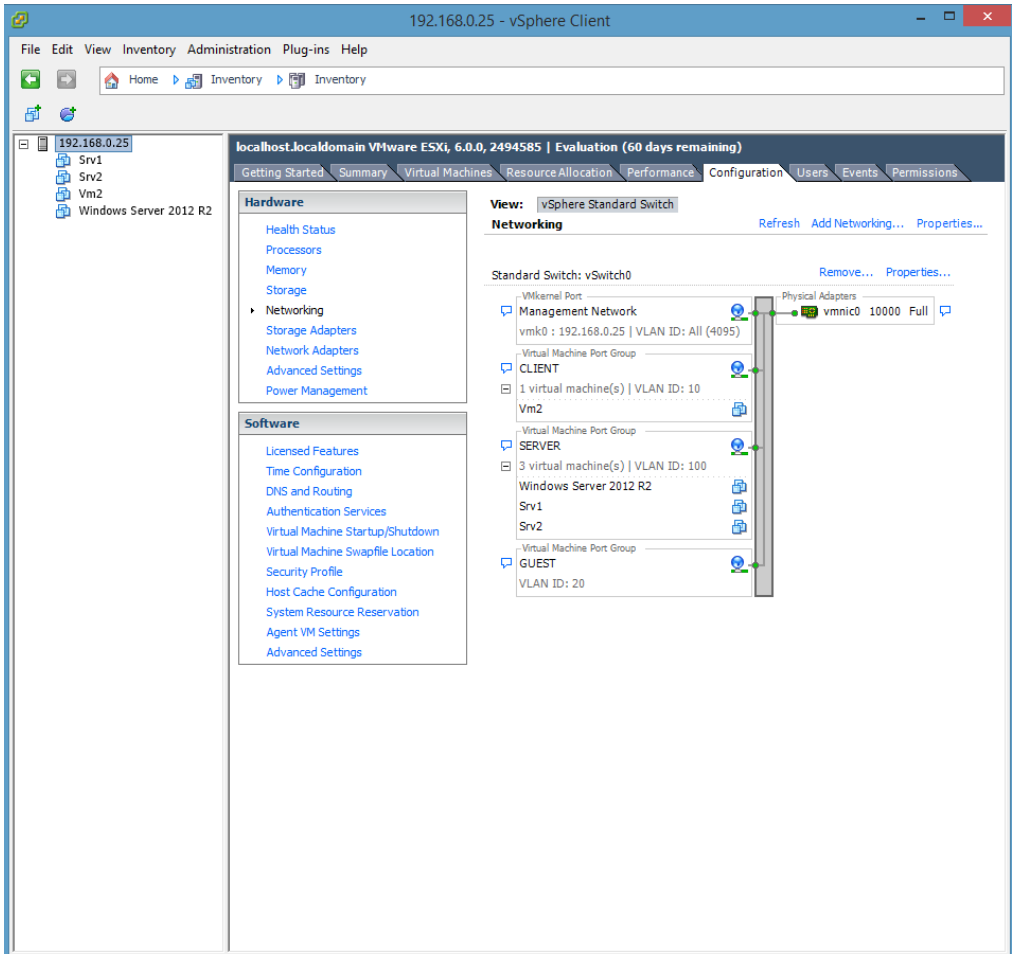




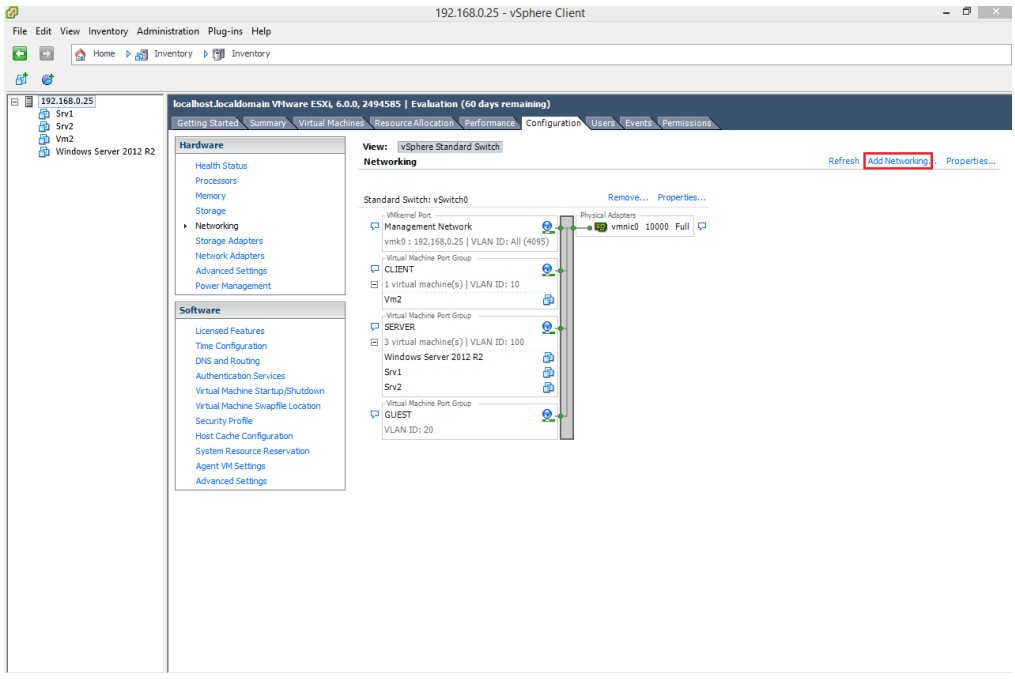
Let's assign the *VLANs* to the virtual machines:

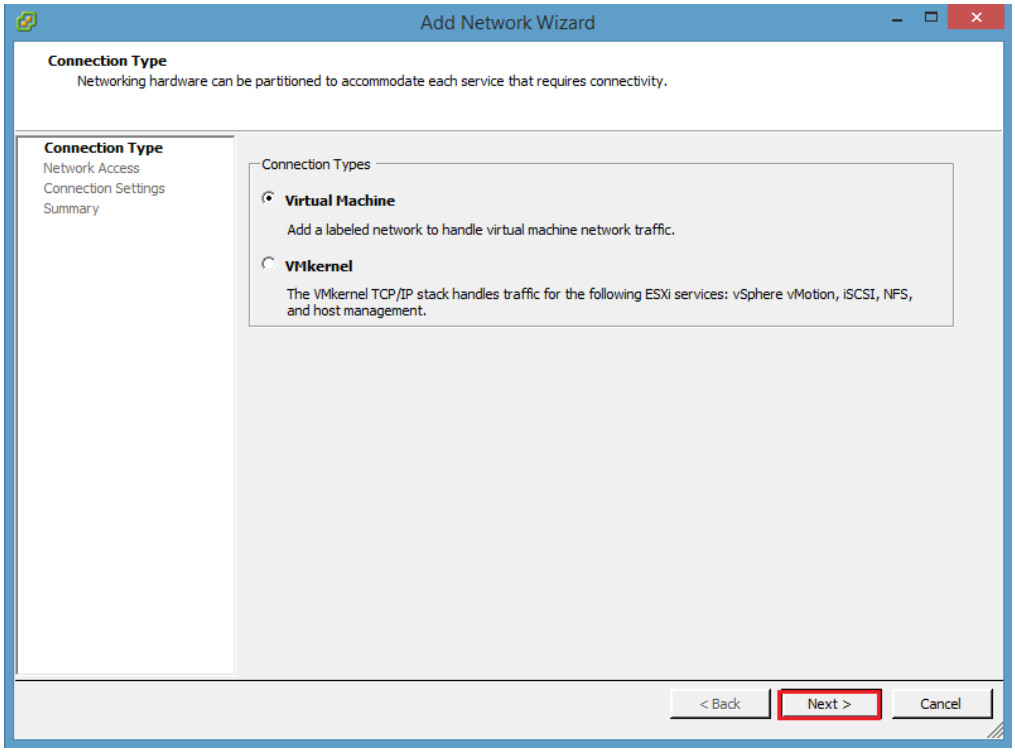

192.168.0.25 - vSphere Client
File Edit View Inventory Administration Plug-ins Help
Home Inventory Inventory
192.168.0.25
Srv1
localhost.localdomain VMware ESXi, 6.0.0, 2494585 | Evaluation (60 days remaining)
Virtual Machines Resource Allocation Performance Configuration Users Events Permissions
Power
Guest
Snapshot
Open Console
Edit Settings...
Add Permission... CTRL+P
Report Performance...
Rename
Open in New Window... CTRL+ALT+N
Remove from Inventory
Delete from Disk
Licensed Features
Time Configuration
DNS and Routing
Authentication Services
Virtual Machine Startup/Shutdown
Virtual Machine Swapfile Location
Security Profile
Host Cache Configuration
System Resource Reservation
Agent VM Settings
Advanced Settings
View: vSphere Standard Switch
Networking
Refresh Add Networking... Properties...
Standard Switch: vSwitch0
Remove... Properties...
VMkernel Port
Management Network
vmk0 : 192.168.0.25 | VLAN ID: All (4095)
Physical Adapters
vmnic0 10000 Full
Virtual Machine Port Group
CLIENT
VLAN ID: 10
Virtual Machine Port Group
SERVER
VLAN ID: 100
Virtual Machine Port Group
GUEST
VLAN ID: 20

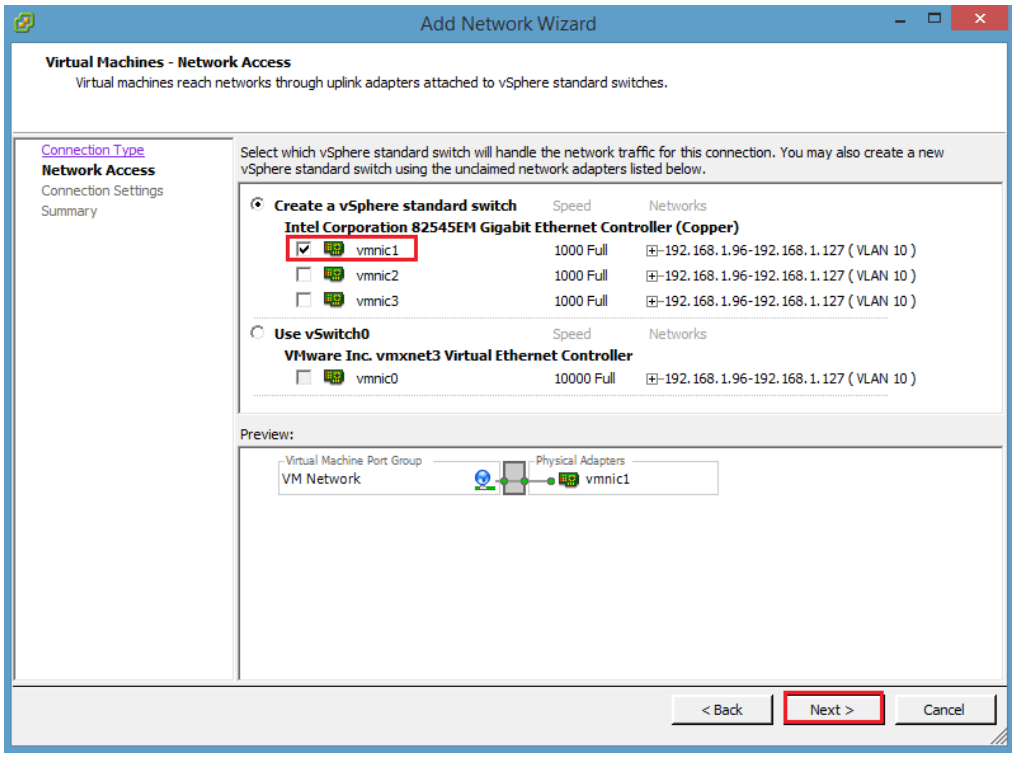

Srv1 - Virtual Machine Properties
Hardware Options Resources
Virtual Machine Version: 11
Show All Devices
Add... Remove
Hardware Summary
Memory 4096 MB
CPUs 1
Video card Video card
VMCI device Deprecated
SCSI controller 0 LSI Logic SAS
CD/DVD drive 1 Client Device
Hard disk 1 Virtual Disk
Floppy drive 1 Client Device
Network adapter 1 VM Network
Device Status
Connected
Connect at power on
Adapter Type
Current adapter: E1000
MAC Address
Automatic Manual
DirectPath I/O
Status: Not supported
Network Connection
Network label:
CLIENT
GUEST
SERVER
OK Cancel

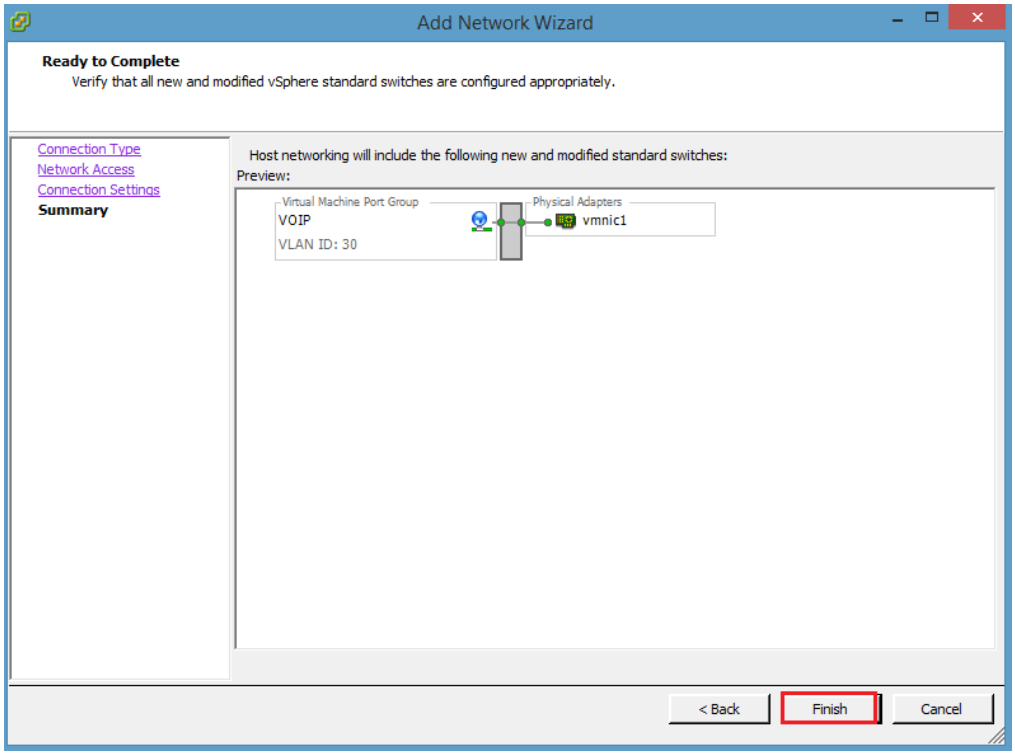


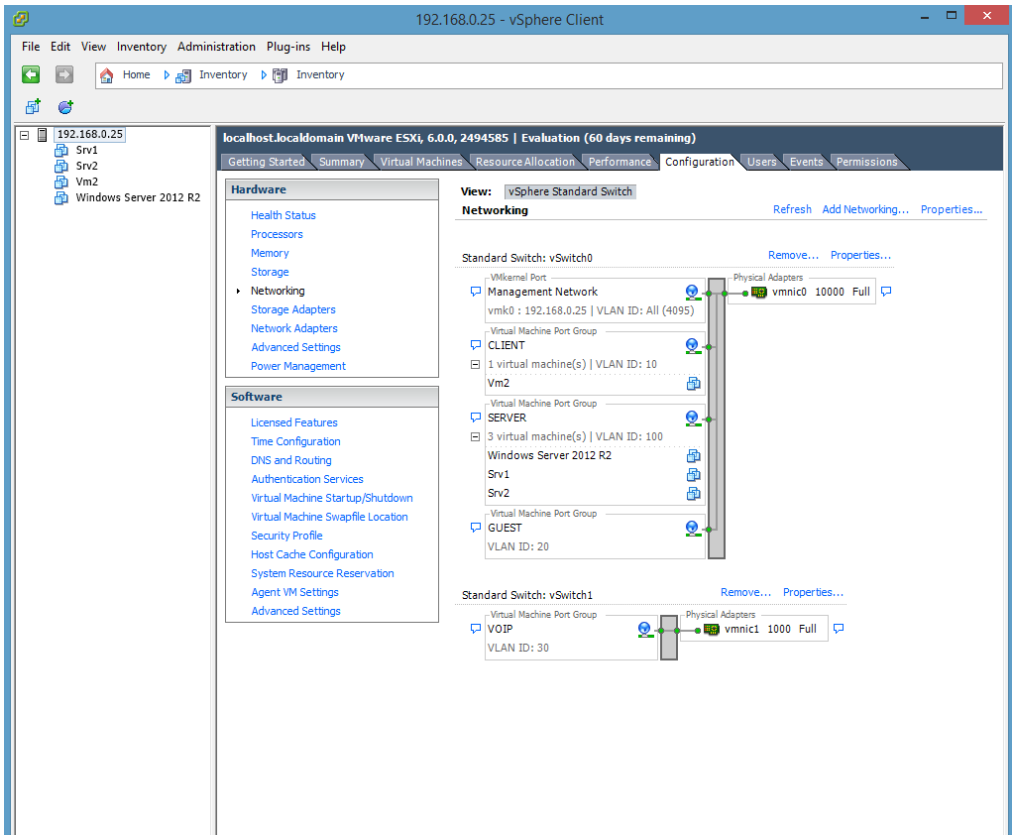
The final step is to add a second virtual switch using another network adapter. You must specify the *VLAN ID* of the desired network:



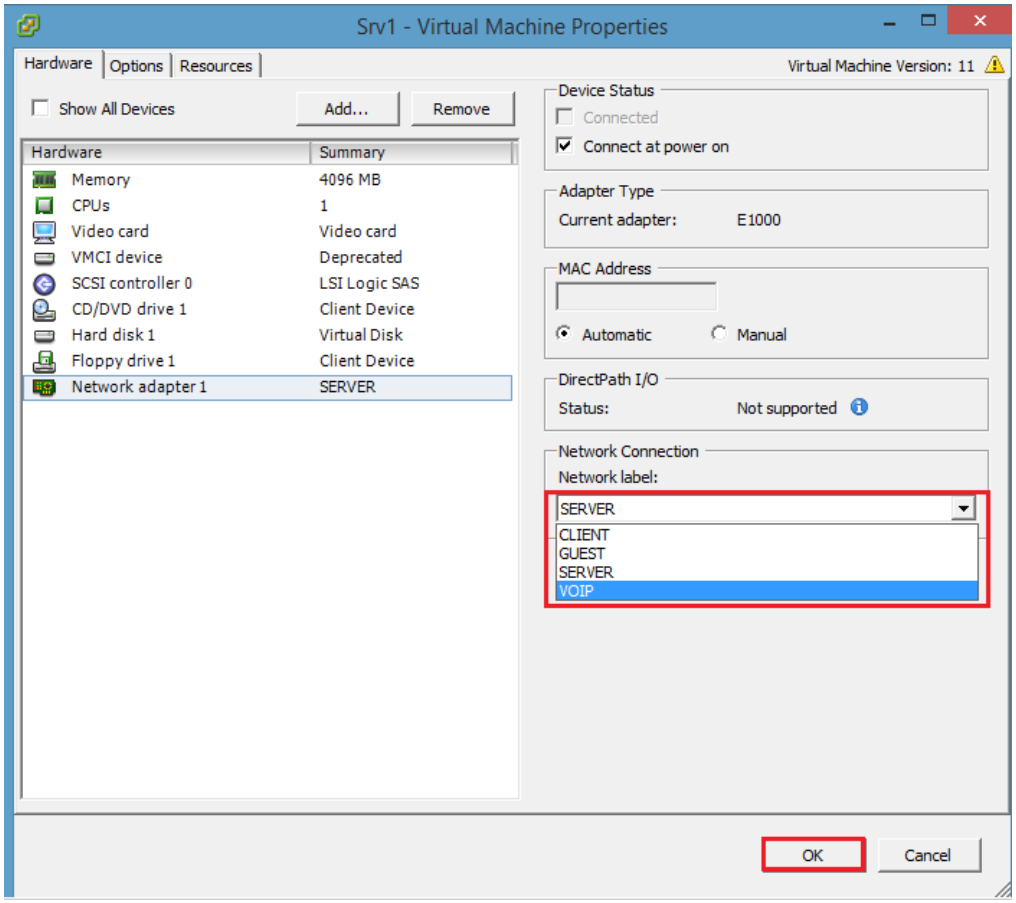

Add Network Wizard
Connection Type
Networking hardware can be partitioned to accommodate each service that requires connectivity.
Connection Type
Network Access
Connection Settings
Summary
Connection Types
Virtual Machine
Add a labeled network to handle virtual machine network traffic.
VMkernel
The VMkernel TCP/IP stack handles traffic for the following ESXi services: vSphere vMotion, iSCSI, NFS, and host management.
< Back
Next >
Cancel

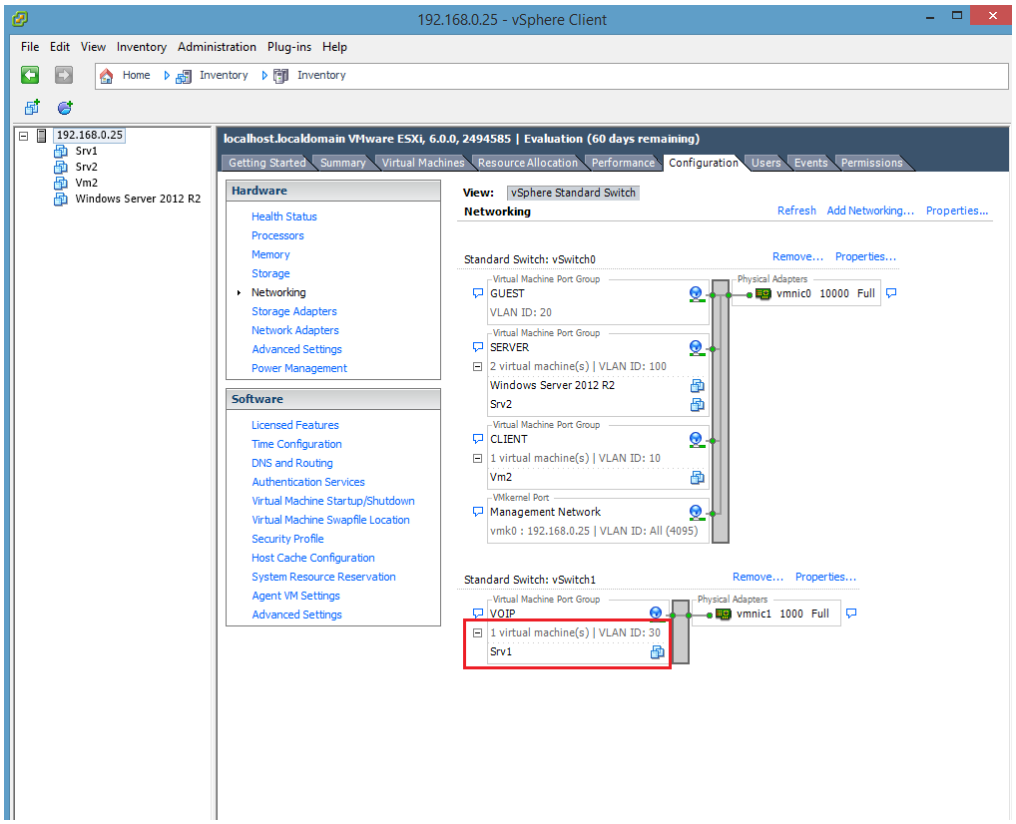

Add Network Wizard
Virtual Machines - Network Access
Virtual machines reach networks through uplink adapters attached to vSphere standard switches.
Connection Type
Network Access
Connection Settings
Summary
Select which vSphere standard switch will handle the network traffic for this connection. You may also create a new vSphere standard switch using the unclaimed network adapters listed below.
Create a vSphere standard switch
Speed
Networks
Intel Corporation 82545EM Gigabit Ethernet Controller (Copper)
vmnic1 1000 Full 192.168.1.96-192.168.1.127 (VLAN 10)
vmnic2 1000 Full 192.168.1.96-192.168.1.127 (VLAN 10)
vmnic3 1000 Full 192.168.1.96-192.168.1.127 (VLAN 10)
Use vSwitch0
Speed
Networks
VMware Inc. vmxnet3 Virtual Ethernet Controller
vmnic0 10000 Full 192.168.1.96-192.168.1.127 (VLAN 10)
Preview:
Virtual Machine Port Group
VM Network
Physical Adapters
vmnic1
< Back
Next >
Cancel





If we try to change the network of the Srv1 virtual machine from SERVER ID 100 to VoIP ID 30, we will see the VM automatically assigned to the second vSwitch:





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