NETROPYVE 3.0 INSTALLATION GUIDE VMWARE WALK THROUGH

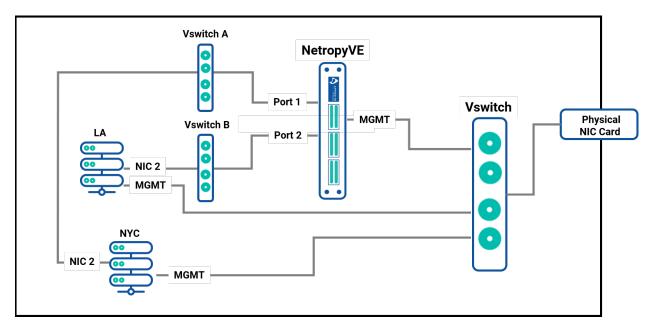


1 OVERVIEW

Objective: To install the NetropyVE product on ESXI 6.5 through an example with the steps to connect the NetropyVE to two virtual machines contained within a single ESXI server.

Assumptions: The reader of the document is familiar with ESXI environment and terminology. The reader already has two virtual machines built and ready to be integrated with the NetropyVE.

This Example: This document will show how to connect two virtual machines to the NetropyVE using the 2nd network cards configured to the virtual machines. The example virtual machines will be called "LA" and "NYC" and be running Ubuntu16 server.



Example Diagram:

2 STEPS

Step 1: Add Virtual Switches

NetropyVE will require 2 virtual switches to route TCP/IP traffic through the 2 emulation ports.

- Login to your ESXI server and choose "Networking" in the Navigation pane
- Choose the "Virtual Switches" tab
- Then "Add a standard virtual switch"
 - Give the switch a name (Vswitch A in this example)
 - Remove the uplink port
 - Click the security Arrow
 - Accept "Promiscuous mode" "Mac address changes" & "Forged Transmits" <u>***VERY IMPORTANT ***</u>
 - Click "Add"

Add standard virtual switch - Vswitch A				
🔜 Add uplink				
vSwitch Name	Vswitch A			
MTU	1500			
► Link discovery	Click to expand			
✓ Security				
Promiscuous mode	● Accept ○ Reject			
MAC address changes	● Accept ○ Reject			
Forged transmits	Accept Reject			
	Add Cancel			

Repeat the process for the 2nd switch that is required:

Name	~	Port groups	~	Uplinks	~
switch0		2		1	
🚐 Vlan Switch		15		1	
Switch A		0		0	
Switch B		0		0	

Step 2: Create Port Groups

Assign the port groups to the new Vswitches you just created.

- In the Navigator pane click on "Networking"
- Choose the "Port Group" tab
- Then "Add Port Group"
 - Name the port group ("Port Group A" in this example)
 - Assign to the Virtual switch" "Vswitch A"
 - o Click Add

Name	Port Group A	
VLAN ID		
	0	
Virtual switch	Vswitch A 🔻	
Security	Click to expand	

Repeat the steps and Create a "Port Group B" assigned to "Vswitch B"

💈 Add port group 🥒 Edit settings 🧲 Refresh 🍈 Actions					
Name ~	Active ports ~	VLAN ID ~	Туре ~	vSwitch ~	
👰 Port Group A	0	0	Standard port group	Switch A	
See Port Group B	0	0	Standard port group	Switch B	

Step 3: Add Network Cards

Add network cards to the virtual hosts and assign them to Vswitch A/B. You will need to shutdown your Virtual Machine and add a 2^{nd} network card.

- In the "Navigator" pane click "Virtual Machines"
- Click on the Virtual Machine you want to assign the VswitchA (This example VM LA)
 - o Click Shutdown
 - o Then Click "Edit"
 - Add Network Adapter
 - You will see "New Network Adapter" in the Settings window
 - Assign "New Network Adapter" to "Port Group A"
 - Click Save

Hardware Configuration	
▶ 🔲 CPU	2 vCPUs
🛲 Memory	3.95 GB
🕨 🔤 Hard disk 1	50 GB
🚭 USB controller	USB 2.0
Network adapter 1	VM Network (Connected)
Network adapter 2	Port Group A (Connected)
Video card	4 MB
▶ i CD/DVD drive 1	ISO [Charlie-Net] ubuntu-16.04.4-server-amd64.iso
▶ 📴 Others	Additional Hardware

Repeat the process for the 2nd Virtual Server (This example VM NYC) but assign the "New Network Adapter to "Port Group B."

▼ Hardware Configuration	
► 🔲 CPU	2 vCPUs
🛲 Memory	3.95 GB
🕨 🔜 Hard disk 1	50 GB
😤 USB controller	USB 2.0
Network adapter 1	VM Network (Connected)
Network adapter 2	Port Group B (Connected)
Video card	4 MB
▶ ⊚ CD/DVD drive 1	ISO [Charlie-Net] ubuntu-16.04.4-server-amd64.iso
Others	Additional Hardware

Step 4: Assign IPs to "New Network Adapters"

In step 3. We added a second network adapters to VM LA and VM NYC. Now assign IP Addresses to these network cards. In this example we assigned the following

Virtual Machine "LA"

- IP Address: 10.10.10.213
- Subnet Netmask: 255.255.255.0

Virtual Machine "NYC"

- IP Address: 10.10.10.212
- Subnet Mask: 255.255.255.0

Step 5: Install NetropyVE

You must have a valid .ova file provided by Apposite Technologies with a license key or a demo license to proceed to this step.

- In the "Navigator" pane choose "Virtual Machines"
- The "Create / Register VM"
 - Choose "Deploy a virtual machine from a OVF or OVA file"
 - Then click "Next"
 - Enter a name (In this example we use "NetropyVE")
 - Click or "Drag/Drop" the .ova supplied by Netropy
 - Then click "Next"
 - Select the storage/disk you wish to run the NetropyVE from
 - Then click "Next"
 - Under Network mapping *****VERY IMPORTANT *****
 - VM Network Choose the Network for management IPS
 - Test Network A Choose "Port Group A"
 - Test Network B Choose "Port Group B"
 - Click Next
 - Now click Finish

Deployment options

Select deployment options

Network mappings	VM Network	M Network	¥	
	Test Network A	Port Group A	•	
	Test Network B	Port Group B	•	
Disk provisioning	Thin O Thick			

Step6: Set the IP on the NetropyVE

By default, the NetropyVE IP address is: 10.0.0.10. You can set the NetropyVE to DHCP or static route. You will need console access to configure the TCP/IP settings

- In the "Navigator" pane choose "Virtual Machines"
- Choose the "NetropyVE" virtual machine
- Click on console
 - Login as "admin"

To set DHCP type in:

mgmt set addr dhcp

To set Static route type in:

mgmt set addr 192.168.170.33 netmask 255.255.255.0

mgmt set gw 192.168.170.1

To see that the settings have taken effect type

mgmt show

[admin@netropy]> mgmt	set addr dhcp
[admin@netropy]> mgmt	show
Hostname:	netropy
Domain:	int.apposite-tech.com (DHCP)
Ethernet address:	00:0c:29:6b:1b:0b
IP address:	192.168.144.86/255.255.255.0 (DHCP)
Default route:	192.168.144.1 (DHCP)
Name Servers:	(DHCP)
NTP Servers:	
[admin@netropy]> mgmt	set addr 192.168.170.33 netmask 255.255.255.0
[admin@netropy]> mgmt	
[admin@netropy]> mgmt	show
Hostname:	netropy
Domain:	
Ethernet address:	
	192.168.170.33/255.255.255.0
Default route:	172.16.170.1
[admin@netropy]>	

You should now be able access the NetropyVE GUI interface by typing the IP address into a browser.

Type "logout" to log out of the console.

Step 7: NetropyVE Licensing

Open a web browser in the navigation window enter the IP address from the "mgmt show" command above.

You will be prompted to accept a license agreement:

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😈 Netropy - n61-demo 🛛 linktropy-8510 (Lin	ktr 🤯 linktropy-mini-g (Link 🕲 Traffic.Jam			
	Netropy End User License Agreement			
	Netropy End User License Agreement			
	Please read the terms of use for the Netropy hardware, software, and documentation.			
	THIS END LISEN LICENSE AGREEMENT FARGESMENT IS A LICEN, AGREEMENT BETWEEN YOU AND APPOSIT TECHNOLOGIS LLC PAPOSITY I A DOWNLAANDE, NOTALINIS, COMMA, ACCESSING ON LISEN THIS SOTTWAFE. YOU ARE TO THE TERMS OF THIS AGREEMENT. THOU ARE ACCEPTING THESE TERMS ON BEHAU OF ANOTHER RESON OR COMMANY OF OTHER LICEN, ETVID ON ADARET TO THE SERVICE AND WHIS FOLL UNFORT TO BID TO THE PROBLEM COMMANY OF AGREEMENT TO THE MEM, ETVID OTHER LICENSE, AFENOD ON HIS SOTTWAFE, AND PROMPTLY RETURN THIS SOTTWAFE YOU ARE TO THE SERVICE AND AND THE THIS TO SOTTWAFE, AND PROMPTLY RETURN THIS SOTTWAFE AND PROOF OF BITTLEMENT TO THE PARTY FROM WHOM YOU ACQUIRED THEM. 1. DEFINITIONS: a. "Commentation" means published user manuals and other explanatory materials provided by Apposite relating to the Software of the D. "Software" means the compact particular dance terms that the Software is designed to run, on the Hardware, - "Software" means the compact particular dance and the terms of the software is designed to run on the Hardware,			
	d. "Modification" mean any applicable upgrades, modified versions, updates, bug fires, particles, or other modifications to the Software made generally available by Apposite to its customers. e. "Product" means the Apposite handed product comprised of the Hardware, the Software, and the Documentation. I."Legacy Product" means any Product that is not a Legacy Product. The License Period identified on the relevant order form or receipt upon your purchase of the Product or the Software in the Apposite Product. The License Period" means for any Product that is not a Legacy Product. The License Period identified on the relevant order form or receipt upon your purchases. or of the Product or the Software individing any purchased extension therets. h. "Varranty Period" means to fir any Legacy Product. The License Period identified on the relevant order form or receipt maintenance services. or of the any Product that is not a Legacy Product. The License Period. Intellicense Period. h. "Warranty Period" means to fir any Legacy Product. The License Period. h. "Warranty Period" means to fir any Legacy Product. The License Period. The License Period. The License Period. The License Period. h. "Warranty Period" means to the Instructure Service. h. "Warranty Period" means to the Instructure Service. h. "Warranty Period" means the Marchaet that is not Legacy Product. The License Period. h. "Barrants" Service.			
	2. LICENSE GRANT.			
	IACCEPT			

Click "I ACCEPT"

You will then get a Netropy Warning for network performance dependent on hardware:

Netropy Warning
Netropy Warning
Please read the section on Netropy performance
The performance of the NetropyVE WAN Emulator is dependent on the underlying VM infrastructure.
Virtual network performance may vary dependent on hypervisor hardware and settings.
IACCEPT

Click "I ACCEPT"

The next popup will be for licensing:

ropyVE Licens	e Installation
	NetropyVE License Installation
	r your purchase of the NetropyVE WAN emulator. Your license key for this unit will be emailed to you. If you have yet to receive , you may request one at sales@apposite-tech.com.
Please enter	the key below and click 'Apply Key'.
The license k	ey can also be installed in the License Key tab on the Administration panel.
Serial numbe	2r: VN-42A7A21C9A
License Key:	4604-b209-8eee-479e-a618-fde7-3818-8b19 Apply Key Skip

Enter your license key and click "Apply Key" If you do not have a Key please contact your Apposite Sales rep or <u>sales@apposite-tech.com</u>.

The NetropyVE needs access to the internet to validate your license. If you do not have internet access you will get a 'License Invalid" error.

It can take 10-30 seconds for the license to validate. Once Validated you will get a pop-up that's says "Key loaded successfully."

Key loaded successfully.
ОК

Step 8: Configuring and Testing NetropyVE

The easiest way to test the NetropyVE is with a simple ping from Virtual Machine LA to the Virtual Machine NYC.

- Login to the NetropyVE via http
- Click on "Unnamed Path"
 - At the top change the name of the path (this example "VM LA to VM NYC")
 - Set the "Bandwidth" of "WAN Access Port 1" (this example is 1Gbps)
 - Under WAN set the Delay to constant on both "PORT 1 to PORT 2" and "PORT 2 to PORT 1" (in this example 40ms each)
 - Set the "Bandwidth" of "WAN Access Port 2" (this example is 1Gbps)
 - o Apply Changes

Path Configuration		×		
$\overrightarrow{\leftarrow}$ \rightarrow $\mathbf{\Box}$ Playback \mathbf{X} Delete	VM LA to VM NYC			
WAN Access - Port 1	WAN	WAN Access - Port 2		
OUTBOUND to WAN	PORT 1 to PORT 2	INBOUND from WAN		
Link Type - Single Link 🔻	Delay - Constant 🔹	ENABLE		
Bandwidth - Fixed	Delay 40 ms			
Rate 1 Gbps 🔻	Loss - Off			
Background Utilization - Off	Network Outage - Off 🔹 🔻			
Queue Limit - Default 🔹	Corruption - Off			
Queuing Strategy - Default (FIFO)	Reordering - Off 🔹			
MTU Limit - Off	Duplication - Off			
Frame Overhead - 18 - Ethernet HDR+FCS 🛛 🔻				
INBOUND from WAN	PORT 2 to PORT 1	CUTBOUND to WAN		
ENABLE	Delay - Constant 🔻	Link Type - Single Link		
	Delay 40 ms	Bandwidth - Fixed		
	Loss - Off	Rate 1 Gbps -		
	Network Outage - Off	Background Utilization - Off		
	Corruption - Off	Queue Limit - Default		
	Reordering - Off 🔹	Queuing Strategy - Default (FIFO)		
	Duplication - Off	MTU Limit - Off		
		Frame Overhead - 18 - Ethernet HDR+FCS 🔻		
		·		
		Apply Changes Clear Changes		

• Close the window and turn emulation to "on"

EMULATION			
OFF			

Emulation should now be on. When you ping from LA to NYC using the 2nd Ethernet cards you should see latency:

				10.10.212			
ΡI	NG 10.1	10.10.	212 (10.10.10.	212) 56(84) bytes	of data.
							time=80.1 ms
64	bytes	from	10.10	.10.212:	<pre>icmp_seq=2</pre>	ttl=64	time=80.1 ms
64	bytes	from	10.10	.10.212:	<pre>icmp_seq=3</pre>	ttl=64	time=80.1 ms

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