Why EVE-NG | Why Virtual Labs

- Quickly Lab / Test a new Design

- GREAT for Certification ☺ → Combine with vLabs and AATP

- Get started for free with the Community Edition

- Vendor-Neutral! No Focus on a particular Vendor

- Extremely Flexible (Bare-Metal, VM | On-Prem | Colocation | Cloud)

EVE-NG Flavors

▶ Bare-Metal (best performance)

▶ VMware (best flexibility)

▶ Cloud (best „power-boost" option)

How to start?

▶ Fetch a Server (or VM)

▶ Install EVE-NG (Bare or Nested or Cloud)

▶ Fetch Vendors images

▶ Create a topology in eve-ng

▶ Connect your nodes

▶ Start your nodes and enjoy your lab ☺

Fetching images

- 3 „base" images: vMX (Router), vSRX (Firewall/Secure-Router), vQFX (Switch)

- **Rumors:** **vEX and vEvo are coming soon... Prepare your eve ;)**

- Need an active Juniper account → can be created for free

- vMX:
  https://www.juniper.net/us/en/dm/vmx-trial-download.html
  Convert:
  https://www.eve-ng.net/index.php/documentation/howtos/howto-add-juniper-vmx-16-x-17-x/

- vSRX:
  https://www.juniper.net/us/en/dm/download-next-gen-vsrx-firewall-trial.html
  Already qcow2 - upload and use :)

- vQFX:
  https://www.juniper.net/us/en/dm/free-vqfx10000-software.html
 Rename the PFE from qcow to qcow2 - that's it :)

Uploading to your Server

▶ /opt/unetlab/addons/qemu/ → Main Folder for images (nodes)

▶ Files / Filenames / Folders need to have a certain format:
vmxvcp-
vmxvfp-
vqfxre-
vqfxpfe-
vsrxng-

▶ virtioa.qcow2 or hda.qcow2 (depends on the image) → driver.kvmfile(qemu)

▶ https://www.eve-ng.net/index.php/documentation/howtos/
Explains in detail how to convert the images

▶ /opt/unetlab/wrappers/unl_wrapper -a fixpermissions
makes sure the linux host permissions are correct (internally)

Demo: Creating a small Lab and adding nodes

EVE-NG v5.0.1-79 PRO is out!

▶ **Smart Bridges and Internal Networks:**
Allows you to tag the native EVE bridge with VLAN ID's / trunk, also 801.2ad is supported

▶ Caching Optimization – WebUI is WAY faster

▶ No Refresh on node-add or link-add / delete

▶ Starting nodes are now „blinking", signaling to you that they are starting up

▶ Since last webinar: Usb nic support, Increase sat nodes up to 1024 per lab

▶ Full Changelog: https://www.eve-ng.net/index.php/documentation/release-notes/
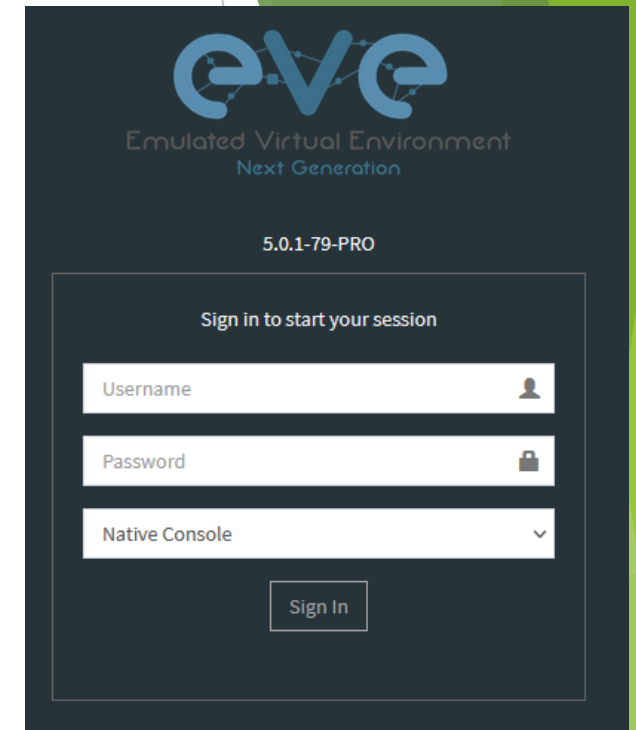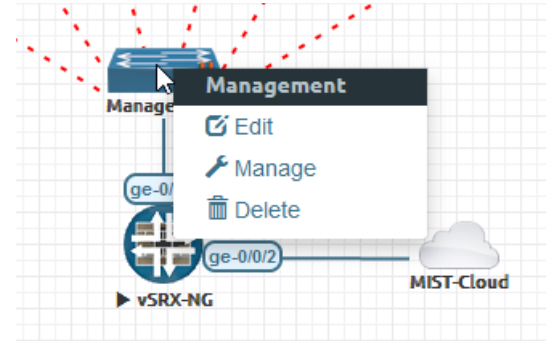
Smart Bridges

S-SW3

ID	6	
Smart Bridge (Experimental)	☑	
Enable 802.1ad (Experimental)	☐	

NODE ID	NODE NAME	INTERFACE ID	INTERFACE NAME	VLAN ID
9	SW-IOL1	0	e0/0	0
10	SW-IOL2	0	e0/0	0
11	R-IOL1	0	e0/0	101

Save   Cancel

VLAN ID 0 – untagged port with native VLAN 1, used for trunk assignment.

Smart Bridge, enables 802.1q option.

Enable 802.1ad option allows to use bridge for QinQ mode.

EVE-NG and Juniper – Lab Ideas

▶ Run vSRX, vRR, vMX and vQFX Standalone in EVE-NG (Trial-License)

▶ Run multiple vSRX in EVE and connect them to MIST

▶ Run APSTRA in EVE and do a DC-Demo with the vQFX

▶ Run vJATP in EVE and combine it with the SRX / vSRX

▶ Run the virtual MIST-Edge in EVE-NG and connect it to MIST

▶ Run JunOS-Space-SD and manage your vSRX'es

▶ Run the 128T Conductor and Routers in EVE-NG for SD-WAN Demos

▶ Run 128T Routers in EVE and connect it to MIST

▶ Run vQFX in EVE and use it in MIST WA → NOPE!

▶ Create a Virtual-Chassis in EVE-NG with the vQFX → BIG NOPE!
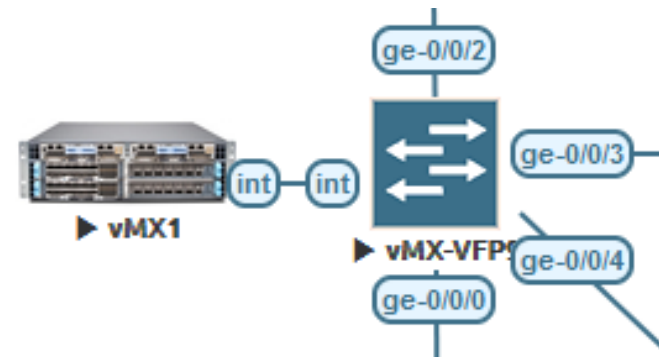
What to do in case something goes wrong?

Pitfall 1: forgot to connect the „int" Link

▶ Symptom:

▶ ge- and xe- and et- interfaces do not come up ever

▶ „show chassis fpc" never shows any fpc „online"

▶ Cause:

▶ „int"-Link between vCP and vFP is missing vMX and vQFX

▶ Solution:

▶ Connect the VCP and VFP interfaces named „int" back-to-back

Pitfall 2: deleted the em1 config

- Symptom:
- ge- and xe- and et- interfaces do not come up ever

- Cause:
- „Delete interfaces" is often used when „staging" the vQFX

```
set interfaces xe-0/0/70:2 unit 0 family inet dhcp vendor-id Juniper-qfx5100-48s-6q
set interfaces xe-0/0/70:3 unit 0 family inet dhcp vendor-id Juniper-qfx5100-48s-6q
set interfaces et-0/0/71 unit 0 family inet dhcp vendor-id Juniper-qfx10002-72q
set interfaces xe-0/0/71:0 unit 0 family inet dhcp vendor-id Juniper-qfx5100-48s-6q
set interfaces xe-0/0/71:1 unit 0 family inet dhcp vendor-id Juniper-qfx5100-48s-6q
set interfaces xe-0/0/71:2 unit 0 family inet dhcp vendor-id Juniper-qfx5100-48s-6q
set interfaces xe-0/0/71:3 unit 0 family inet dhcp vendor-id Juniper-qfx5100-48s-6q
set interfaces em0 unit 0 family inet dhcp
set interfaces em1 unit 0 family inet address 169.254.0.2/24
set forwarding-options storm-control-profiles default all
set protocols igmp-snooping vlan default
set vlans default vlan-id 1
```

- Solution:
- Copy em1 config and apply it after „delete interfaces"
- Better use „wildcard delete interface xe-* and et-*" – keeps em1 link alive ☺

Pitfall 3: not enough resources (CPU / RAM)

▶ Symptom:

▶ Multiple unexplainable errors / strange behavior in multiple ways

▶ Cause:

▶ Device has not enough CPU / RAM to perform basic tasks

▶ Solution:

▶ NEVER go below the recommendation from the template – save yourself the hassle

Pitfall 4: booting up everything at once

► Symptom:

► Lab takes literally forever to start

► Cause:

► Device takes WAY more resources during bootup and CPU is overwhelmed

► Solution:

► Use the „delay"-option to start the devices one after another

Startup configuration

| None ▼ |

Satellite

| master ▼ |

Delay (s)

| 0 |

Pitfall 5: eve-ception

▶ Symptom:

▶ Running EVE-NG on your Laptop in vmware Workstation and starting a lab is not working

▶ Cause:

Hardware → OS (Windows) → Hypervisor (Workstation) → Hypervisor (KVM nested) [EVE] → Juniper vDevice

▶ Solution:

▶ Don't use EVE-NG on your Laptop
Use a proper Server (Vmware, Cloud or Bare-Metal) and access it via your Webbrowser
Usually cheap to fetch on eBay

Pitfall 6: vQFX takes LC-Role

▶ Symptom:

▶ All of a sudden your vQFX thinks it's a VirtualChassis (not working) and takes the LC-Role

▶ Cause:

▶ Nasty bug in vQFX when connected to a shared network with other vQFX'es

▶ All your vQFX have the same S/N – therefore the RE's try to connect to remote PFE's

▶ Solution:

▶ Change Serial-Numbers of vQFX and don't connect them before

▶ How-To: https://jncie.eu/ending-the-vqfx-shenanigans-changing-the-serial-number/

Kahoot-Time ☺

More Infos

- Youtube Video Series covering EVE-NG and Juniper:
  https://www.youtube.com/netchron

- EVE-NG Youtube Channel:
  https://www.youtube.com/@eve-ng-emulatedvirtualenvi9759

- EVE-NG Website:
  https://www.eve-ng.net/

- EVE-NG Forum:
  https://www.eve-ng.net/forum/

- EVE-NG Helpdesk (Live-Chat):
  https://www.eve-ng.net/index.php/live-helpdesk/

Q&A

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