

Ondřej Caletka | 19 October 2023 | Engineering Social

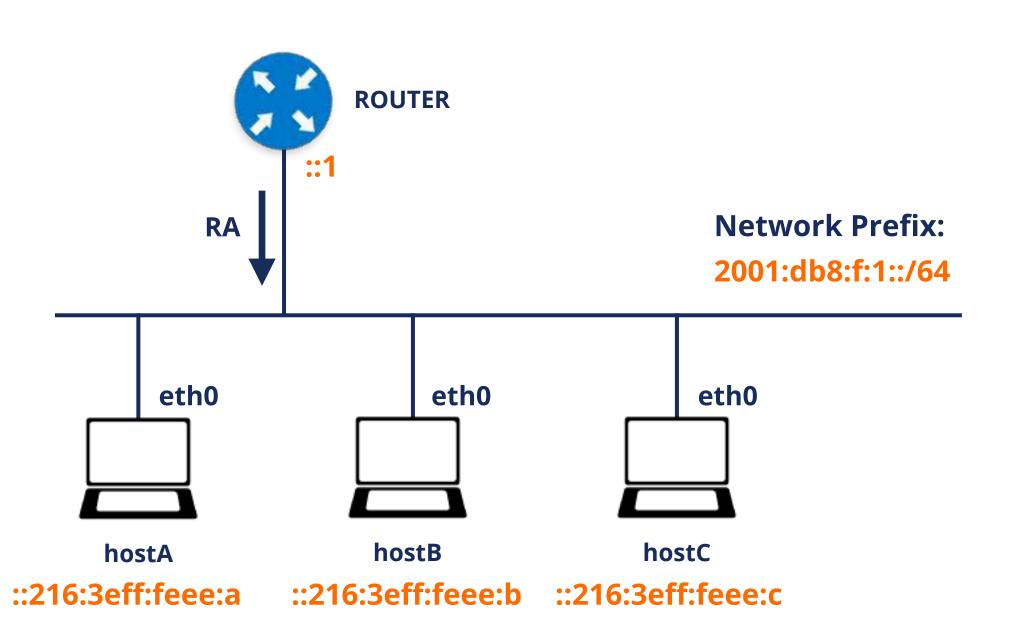
Ubuntu Automated Server Installation

Easy support for multiple architectures and hypervisors



E-learning Courses Labs

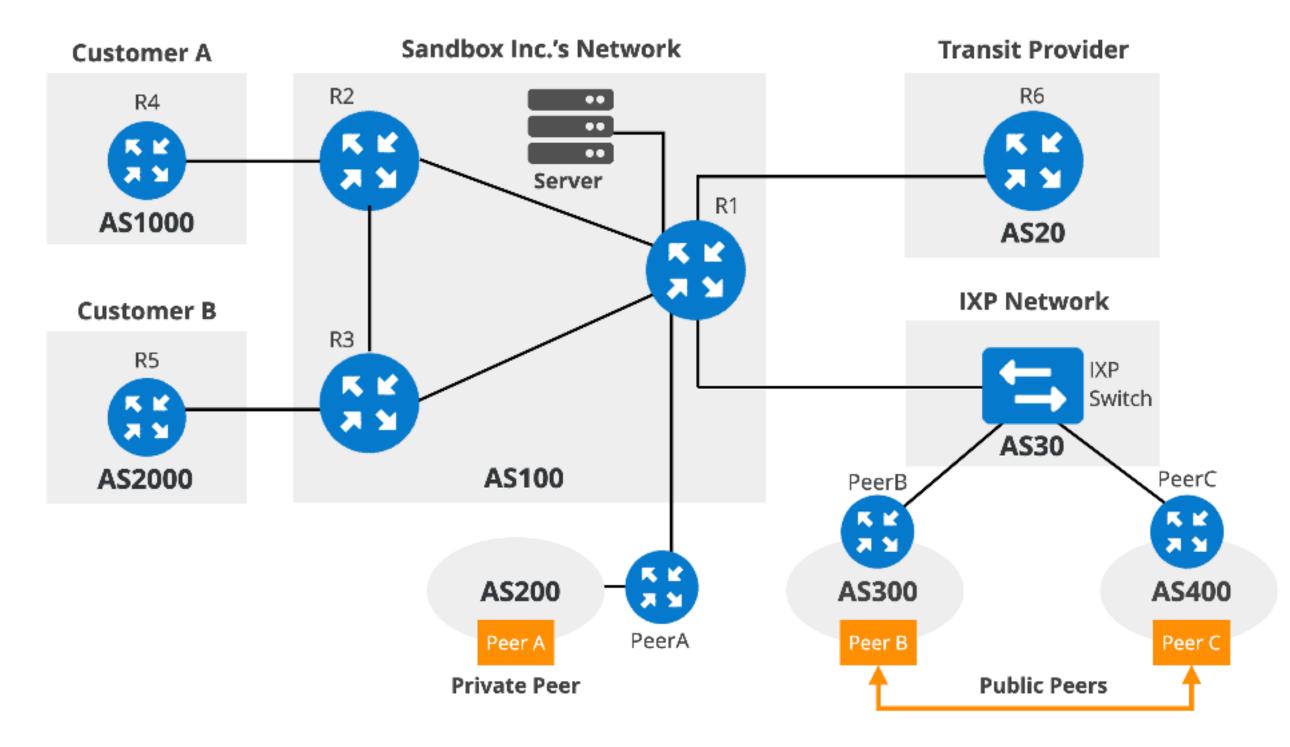
- IPv6 Security
- BGP Operations and Security



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How it started

- Install VirtualBox
- Install Vagrant
- Type into the Terminal:

vagrant init ripencc/ipv6seclab vagrant up

 Open web browser on http://localhost:8080/



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🛞 Dashboard | RIPE NCC Workbel 🗙 🛛 🕂

localhost:8080

RIPE NCC Academy

Dashboard Access to the servers' consoles	Dashboard	
Network diagram How are the machines connected	Host A	Host B
	<pre>reconnect pop cut reot@hastA:~# scapy INFO: Can't inport matplotlib. Wan't be able to plot. INFO: Can't inport matplotlib. Wan't be able to use psdump() or pdfdump(). .swpAcccSASYY P /SCS/CCS ACS Welcome to Scapy /A AC Version 2.4.5 A/PS /SPPS YP (SC https://github.com/secdev/scapy SPS/A. SC Y/PACC PP Have funi PY+AYC CAA YYCY//SCYP using IPython 7.26.0 >>> IPv6() <ipv6)<br="" dst="ff02::1">>>> send(IPv6dst="ff02::1") ; Sent 1 packets. >>> [IhostAl 0:1xc× "ubuntu-focal" 14:39 07-Oct-21</ipv6></pre>	reconnect pop out top = 14:39:38 up 2 min, 8 users, load average: 1.27, 1.24, 0.52 Tasks: 13 total, 1 running, 12 sleeping, 6 stopped, 0 zombie Acpuls): 8.0 us, 0.8 sy, 0.0 ni,2000 1d, 0.8 wa, 0.0 hi, 8.0 st, 0. M18 Nen : 981.0 total, 941.6 free, 26.7 used, 12.7 butf/cache M18 Swap: 0.0 total, 0.0 free, 0.8 used. 954.4 avail Men PID USFR PR NI VIRT PFS SHR 5 ACPU AMEN TIMED 1 root 20 0 169444 2632 400 5 0.8 0.3 0:80.32 66 root 20 0 51476 1156 236 5 0.8 0.1 0:80.19 97 root 20 0 2668 1820 272 5 0.8 0.1 0:80.11 183 systemd+ 20 0 2668 1322 0.5 0.8 0.1 0:80.01 113 systemd+ 20 0 23968 4136 0.5 0.8 0.8 0:80.40 117 13 root 20 0 31624 7952 340 5 0.8 0.8 0:80.40 117 root 20 0 31624 7952 340 5 0.8 0.8 0:80.40
	Host C	Availaible tools
	reconnect pop out termshark v2.2.0 eth0 Analysis Misc Filter: Analysis	 <u>Scapy</u> <u>THC-IPv6</u> SI6 IPv6 Toolkit <u>Termshark</u>
	No. Time Source - Destinati Protocol Lengt Info - 1 0.000 fe00::216 ff02::1 IPv6 54 IPv6 no next header	Hints
	[+] Frame 1: 54 bytes on wire (432 bits), 54 bytes captured (432 bits) on i nterface eth8, id 8 [+] Ethernet II, Src: Xensourc_ee:00:0a (00:16:3e:ee:00:0a), Dst: IPv6mcast [+] Internet Protocol Version 6, Src: fe80::216:3eff:feee:a, Dst: ff02::1 8000 33 33 00 80 00 81 08 16 3e ee 80 00 86 dd 60 88 38	 Feel free to resize terminal windows by dragging (does not work in Safari) To scroll inside the truex, use Ctr1-B and PageUp/PageDown (Pn + Up/Down on Mac) To open new truex window, use Ctr1-B c See truex cheatsheet Scratchpad Rere you can got some text you need to popy and paste.
Admin console Control the VM itself	8013 03 80 03 80 35 40 fc 80 80 03 80 03 80 03 80 88 02 16	



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How is is going

- Only VirtualBox supported, only amd64 architecture
- Using third-party VM image as a base
- VirtualBox does not work (well) on Apple M1/M2
- We run only open source software, which is available for Intel as well as ARM

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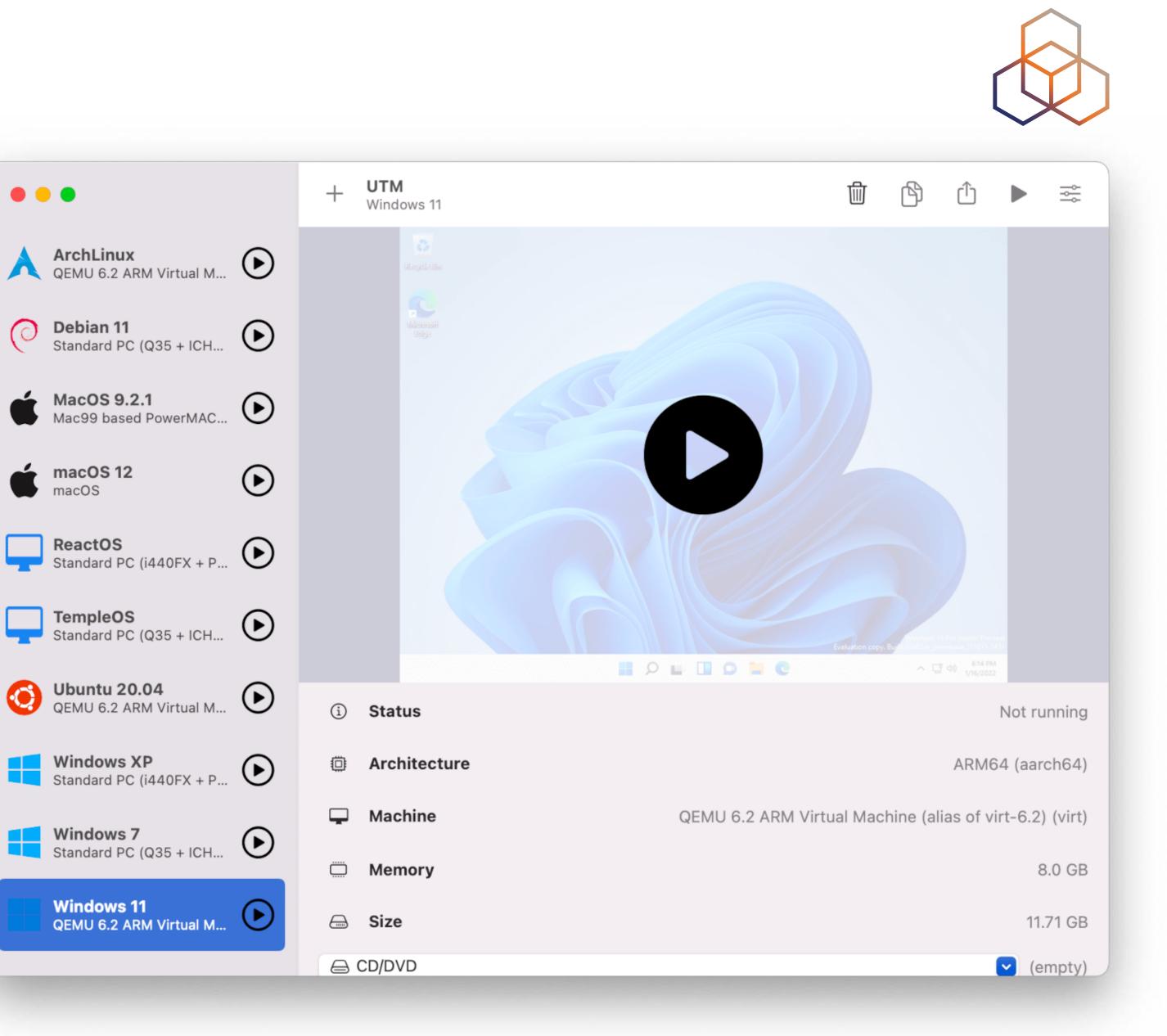
How to run VMs on ARM-based Apples

UTM

- A nice QEMU frontend for macOS (both Intel and M1)
- Virtualization and emulation supported
- Limited offer of base images
- Vanilla Ubuntu 22.04 LTS can be easily installed

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- A new way of automating OS installation
- Based on cloud-init YAML format
- Two stage installation:
 - generic OS installation
 - first run and finishing installation by cloud-init
- Works under all hypervisors
- Simple config

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version: 1 identity: hostname: hostname username: username password: \$crypted_pass

Kickstart file delivery

- Local volume named CIDATA
- Local file or nebo URL
 - on the kernel command line
 - in SMBIOS serial number
- QEMU example:

-smbios type=1,serial=ds=nocloudnet;s=https://raw.githubusercontent.com/ RIPE-NCC/bgp-security-lab/main/ubuntuauto-install/

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Finishing the installation after reboot

- By means of cloud-init tool
- Can among others clone a playbook repository and run Ansible
- cloud-init config part of user-data key:
 - user-data:
 - users:
 - name: ubuntu
 - runcmd:

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sudo: ALL=(ALL) NOPASSWD:ALL

- [passwd, -d, ubuntu]





Problems

- The ISO image will not get disconnected during the first reboot
- You cannot watch the progress of the provisioning
 - logs are available only after failure
- Not so easy access from the host to the VM
 - you have to implement vagrant ssh yourself

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Give it a look

https://github.com/RIPE-NCC/ipv6-security-lab https://github.com/RIPE-NCC/bgp-security-lab

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Questions

Ondřej Caletka https://ondřej.caletka.nl

