



RIPE NCC

RIPE NETWORK COORDINATION CENTRE

Ubuntu Automated Server Installation

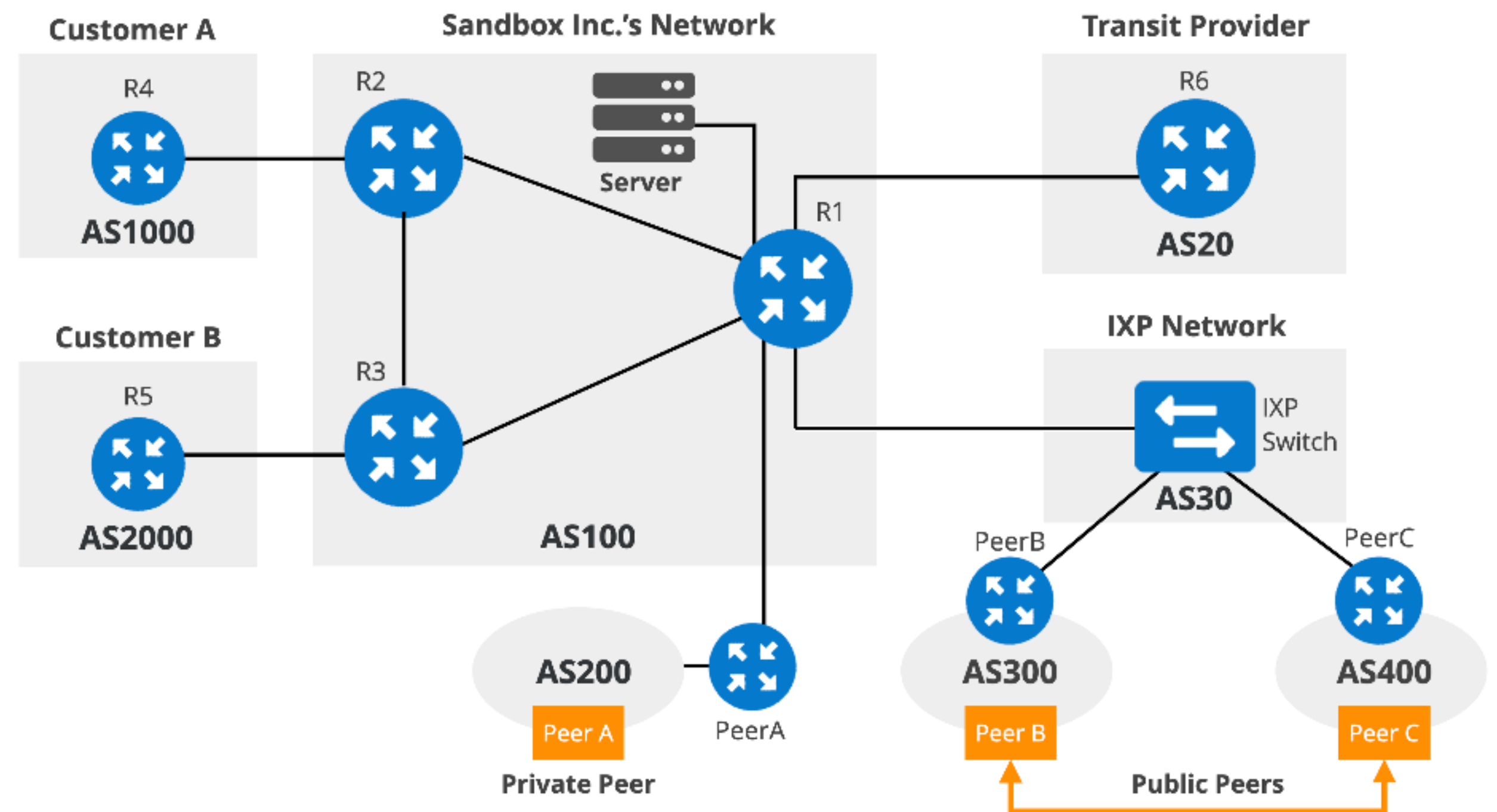
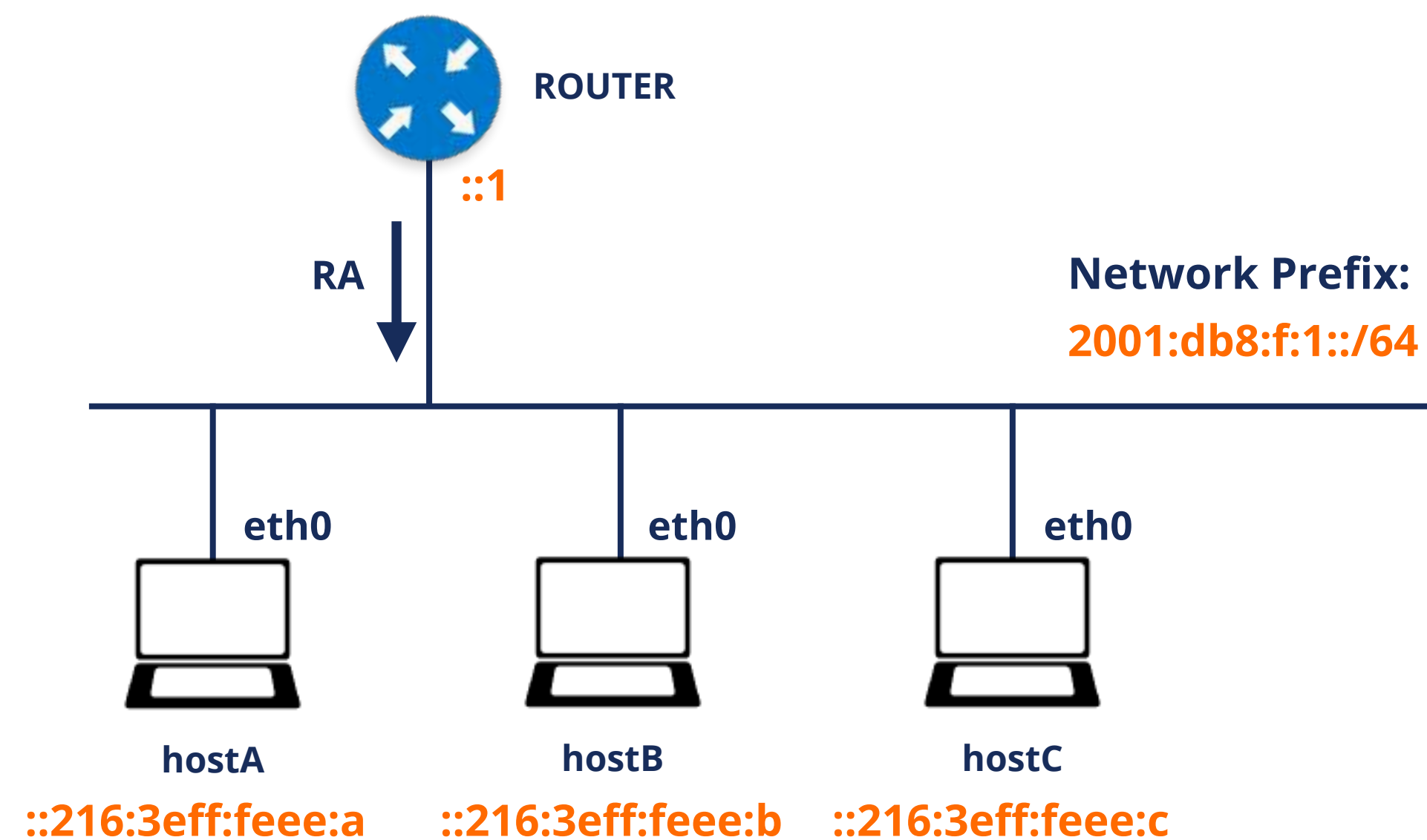
Easy support for multiple
architectures and hypervisors

Ondřej Caletka | 19 October 2023 | Engineering Social

E-learning Courses Labs



- IPv6 Security
- BGP Operations and Security



How it started



- Install **VirtualBox**
- Install **Vagrant**
- Type into the Terminal:
vagrant init ripencc/ipv6seclab
vagrant up
- Open web browser on
<http://localhost:8080/>

The screenshot shows the RIPE NCC Academy dashboard in a web browser. The dashboard is divided into several sections:

- Host A:** A terminal window showing the Scapy shell interface. The user has entered commands to send an IPv6 packet to ff02::1.
- Host B:** A terminal window showing the output of the 'top' command, displaying system statistics and a list of running processes.
- Host C:** A terminal window showing the output of the 'tcpdump' command, displaying a captured IPv6 packet.
- Available tools:** A list of tools including Scapy, THC-IPv6, SIB IPv6 Toolkit, and Termshark.
- Hints:** A list of hints for using the dashboard, including instructions on how to resize terminal windows and scroll through the traffic monitor.
- Scratchpad:** A text area for taking notes.



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



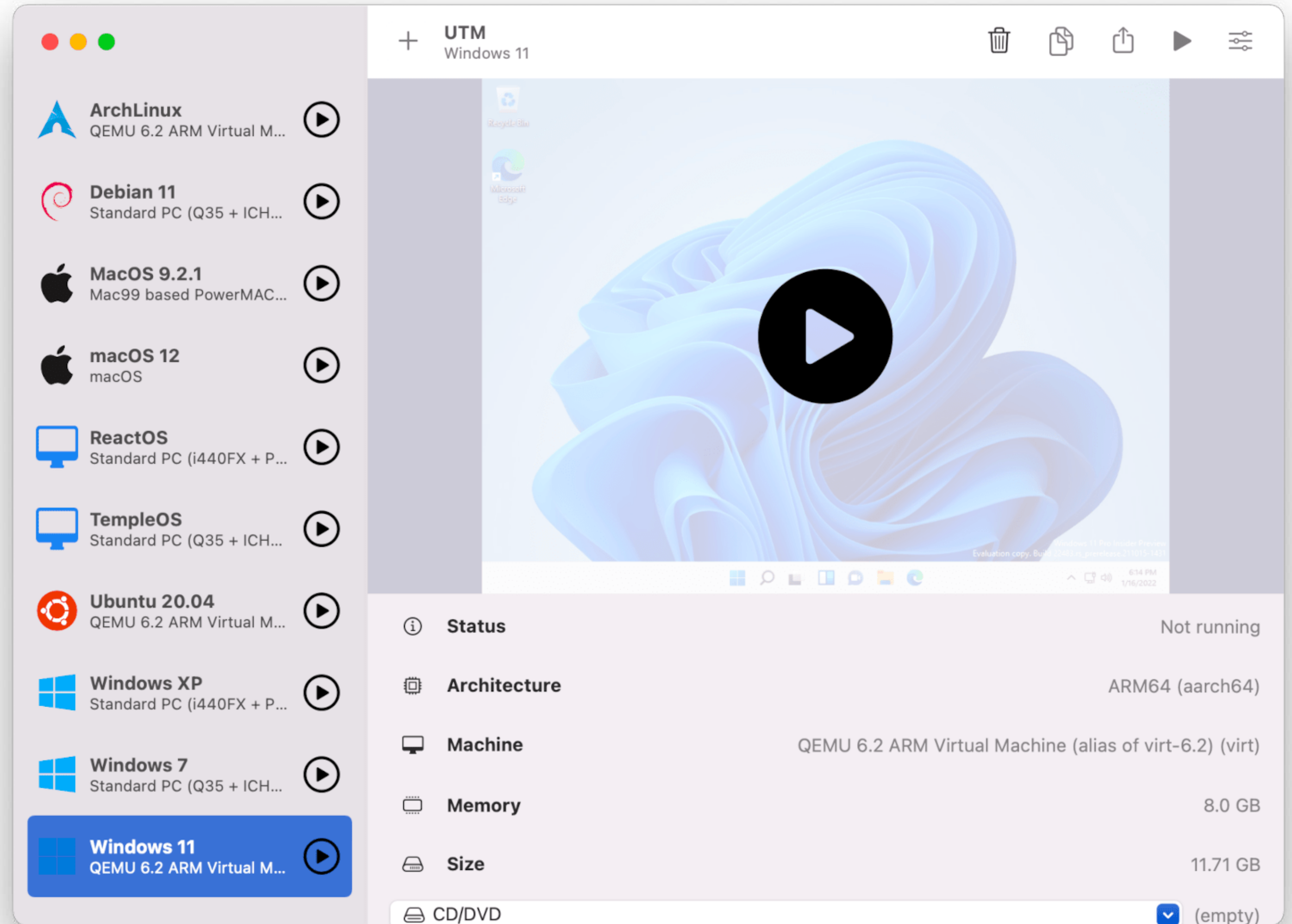


How to run VMs on ARM-based Apples

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



Ubuntu Automated Server Installation



- 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

```
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=nocloud-  
net;s=https://raw.githubusercontent.com/  
RIPE-NCC/bgp-security-lab/main/ubuntu-  
auto-install/
```


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  
      sudo: ALL=(ALL) NOPASSWD:ALL  
  runcmd:  
    - [ 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`

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



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