Preserving Web servers

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University of Freiburg

https://gitlab.com/emulation-as-a-service/presentations/iipc-2019

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Albert-Ludwigs-Universität Freiburg

CiTAR

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"Virginia City - Red Dog Saloon" by silailo is licensed under CC BY 2.0
https://www.flickr.com/photos/146175850@N04/28484982487

"Daisy BB gun factory wall Plymouth Michigan" by Dwight Burdette is licensed under CC BY 3.0 https://commons.wikimedia.org/wiki/File:Daisy_BB_gun_factory_wall_Plymouth_Michigan.JPG

https://en.wikipedia.org/wiki/File:HanksHotelCalico.jpg

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https://en.wikipedia.org/wiki/File:HanksHotelCalico.jpg

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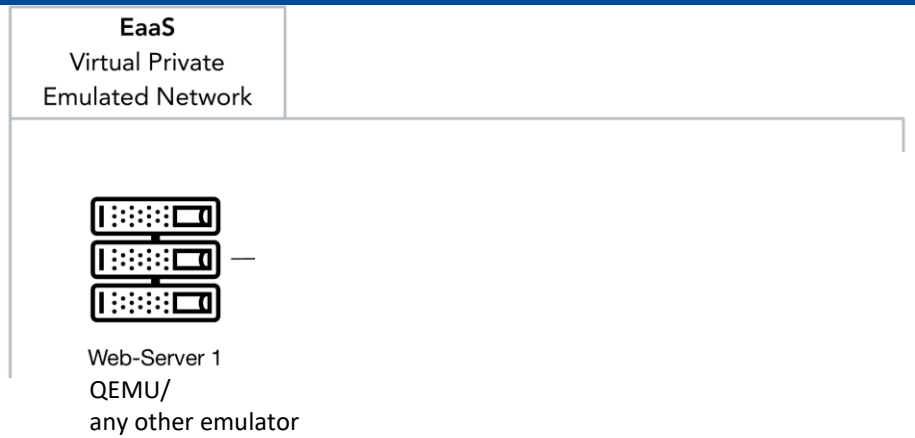

EaaS
Virtual Private
Emulated Network
Web-Server 1
QEMU/
any other emulator

EaaS Demo UI

https://demo.emulation.cloud/admin/#/admin/standard-envs-overview

Software

Objects

Networks

Import Environment

Create Environment

Import Container

OAI PMH

Settings

Emulators

Help

Private | Public | Remote

Number of Environments:

Page Size:

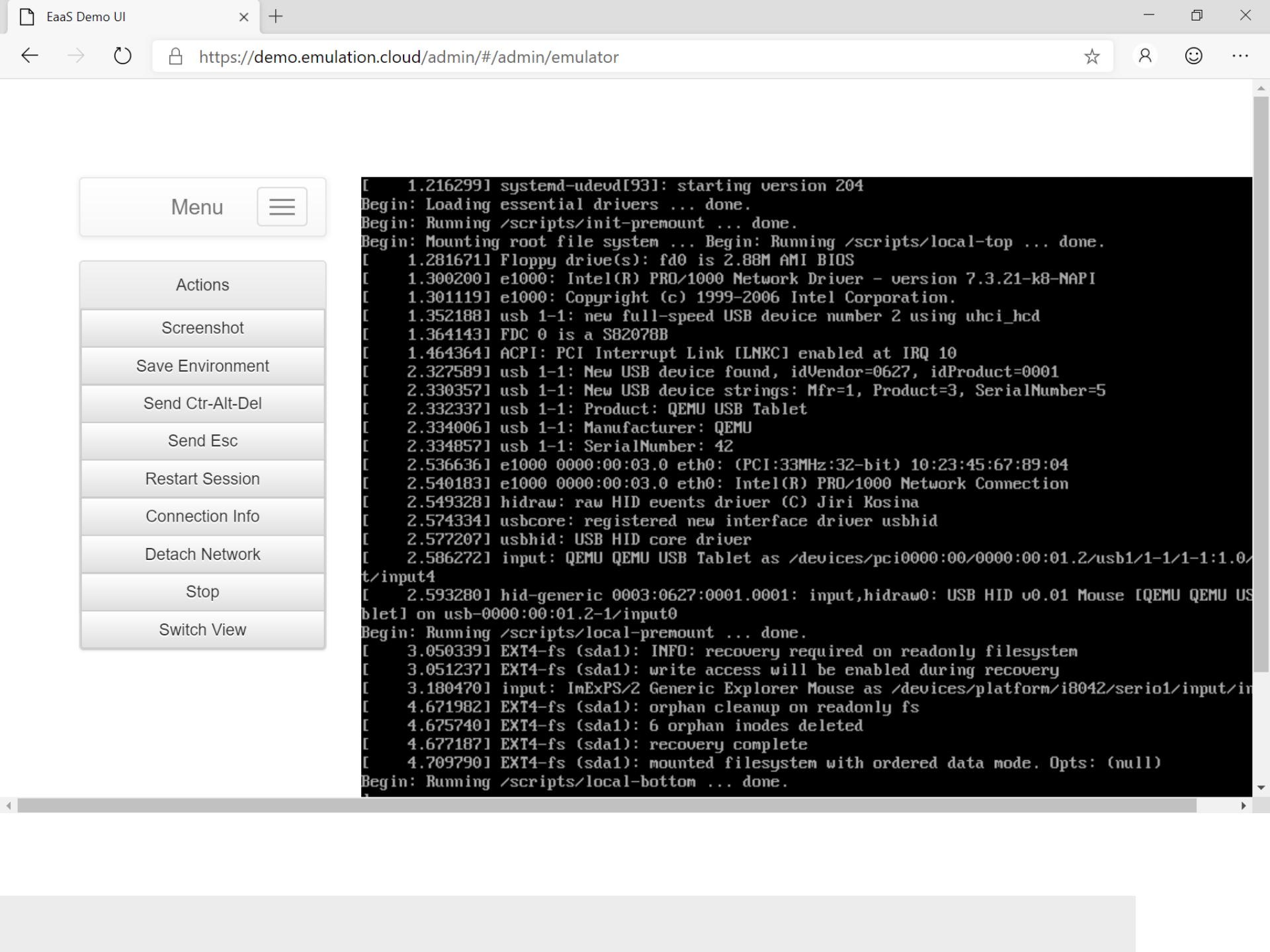
Search...

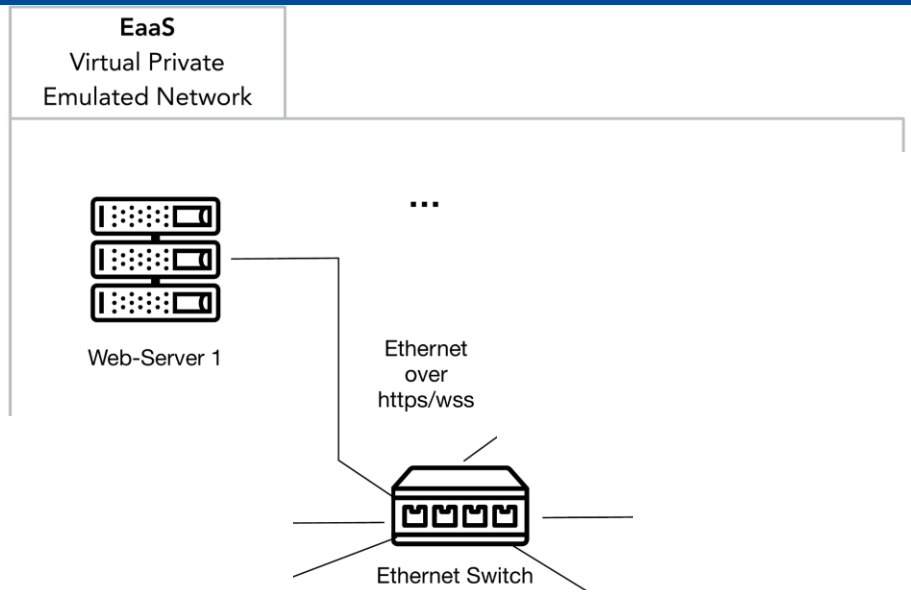
	Name	ID	Owner	Actions
☐	win98-bsb	ef9d64...	shared	Choose action
☐	Snapshot Win98	acc51f3...	shared	Choose action
☐	noizeTracer	b7378e...	shared	Choose action
☐	Webserver with big file	3aca30...	shared	Choose action
☐	TraceNoizer at 10.0.2.100	1eb291...	shared	Choose action
☐	Snapshot ef9d64d6-f076-4f07-b2ed-0bd35636c...	32076e...	shared	Choose action
☐	One Word Movie	8c5281...	shared	Choose action
☐	win2k	c92286...	shared	Choose action
☐	MacOS 9.2	4c5b30...	shared	Choose action
☐	Snapshot MacOS 9.2	fbe76ef...	shared	Choose action
☐	SlaVaComp	9f7376...	shared	Choose action
☐	Windows 98	cac5d4...	shared	
☐	SlavaComp Local Mode	53b8e4...	shared	

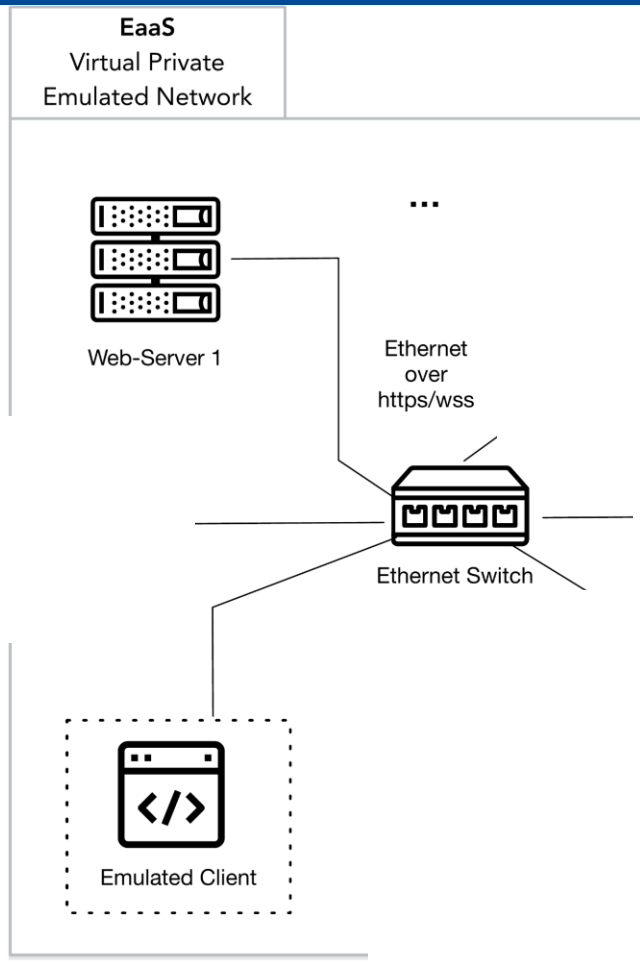
Run Environment
Details
Delete
Add Software

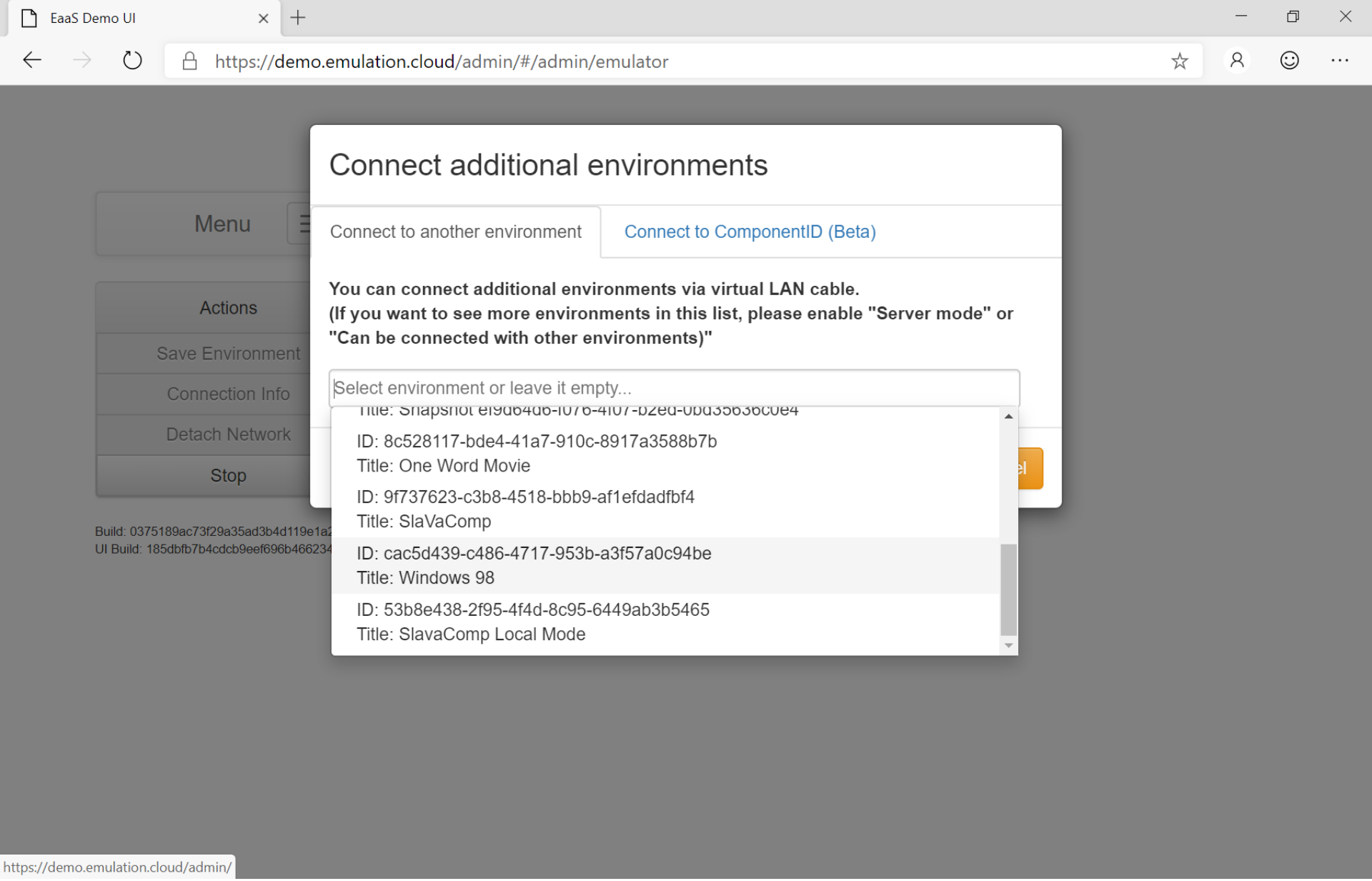
[1] to [13] of [13]

Build: 0375189ac73f29a35ad3b4d119e1a22234891c4b
UI Build: 185dbfb7b4cdcb9eef696b4662342d3e2dd12735


EaaS Demo UI
https://demo.emulation.cloud/admin/#/admin/emulator
Menu
Actions
Screenshot
Save Environment
Send Ctr-Alt-Del
Send Esc
Restart Session
Connection Info
Detach Network
Stop
Switch View
[1.216299] systemd-udevd[93]: starting version 204
Begin: Loading essential drivers ... done.
Begin: Running /scripts/init-premount ... done.
Begin: Mounting root file system ... Begin: Running /scripts/local-top ... done.
[1.281671] Floppy drive(s): fd0 is 2.88M AMI BIOS
[1.300200] e1000: Intel(R) PRO/1000 Network Driver - version 7.3.21-k8-NAPI
[1.301119] e1000: Copyright (c) 1999-2006 Intel Corporation.
[1.352188] usb 1-1: new full-speed USB device number 2 using uhci_hcd
[1.364143] FDC 0 is a S82078B
[1.464364] ACPI: PCI Interrupt Link [LNKC] enabled at IRQ 10
[2.327589] usb 1-1: New USB device found, idVendor=0627, idProduct=0001
[2.330357] usb 1-1: New USB device strings: Mfr=1, Product=3, SerialNumber=5
[2.332337] usb 1-1: Product: QEMU USB Tablet
[2.334006] usb 1-1: Manufacturer: QEMU
[2.334857] usb 1-1: SerialNumber: 42
[2.536636] e1000 0000:00:03.0 eth0: (PCI:33MHz:32-bit) 10:23:45:67:89:04
[2.540183] e1000 0000:00:03.0 eth0: Intel(R) PRO/1000 Network Connection
[2.549328] hidraw: raw HID events driver (C) Jiri Kosina
[2.574334] usbcore: registered new interface driver usbhid
[2.577207] usbhid: USB HID core driver
[2.586272] input: QEMU QEMU USB Tablet as /devices/pci0000:00/0000:00:01.2/usb1/1-1/1-1:1.0/
t/input4
[2.593280] hid-generic 0003:0627:0001.0001: input,hidraw0: USB HID v0.01 Mouse [QEMU QEMU US
blet] on usb-0000:00:01.2-1/input0
Begin: Running /scripts/local-premount ... done.
[3.050339] EXT4-fs (sda1): INFO: recovery required on readonly filesystem
[3.051237] EXT4-fs (sda1): write access will be enabled during recovery
[3.180470] input: ImExPS/2 Generic Explorer Mouse as /devices/platform/i8042/serio1/input/in
[4.671982] EXT4-fs (sda1): orphan cleanup on readonly fs
[4.675740] EXT4-fs (sda1): 6 orphan inodes deleted
[4.677187] EXT4-fs (sda1): recovery complete
[4.709790] EXT4-fs (sda1): mounted filesystem with ordered data mode. Opts: (null)
Begin: Running /scripts/local-bottom ... done.


EaaS
Virtual Private
Emulated Network
...
Web-Server 1
Ethernet
over
https/wss
Ethernet Switch


EaaS
Virtual Private
Emulated Network
...
Web-Server 1
Ethernet
over
https/wss
Ethernet Switch
Emulated Client


EaaS Demo UI
https://demo.emulation.cloud/admin/#/admin/emulator
Menu
Actions
Save Environment
Connection Info
Detach Network
Stop
Build: 0375189ac73f29a35ad3b4d119e1a2
UI Build: 185dbfb7b4cdcb9eef696b466234
Connect additional environments
Connect to another environment
Connect to ComponentID (Beta)
You can connect additional environments via virtual LAN cable.
(If you want to see more environments in this list, please enable "Server mode" or "Can be connected with other environments)"
Select environment or leave it empty...
ID: 8c528117-bde4-41a7-910c-8917a3588b7b
Title: One Word Movie
ID: 9f737623-c3b8-4518-bbb9-af1efdadfbf4
Title: SlaVaComp
ID: cac5d439-c486-4717-953b-a3f57a0c94be
Title: Windows 98
ID: 53b8e438-2f95-4f4d-8c95-6449ab3b5465
Title: SlavaComp Local Mode
https://demo.emulation.cloud/admin/

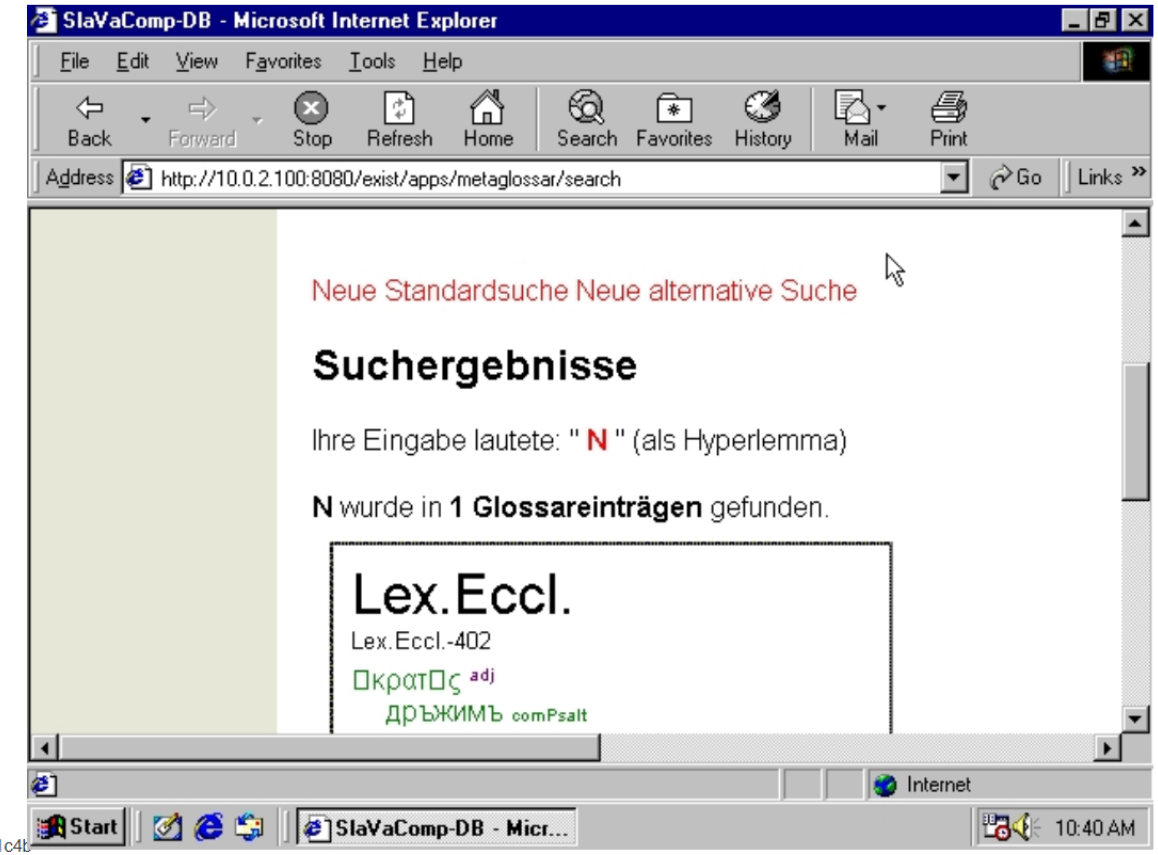
EaaS Demo UI

https://demo.emulation.cloud/admin/#/admin/emulator

Menu

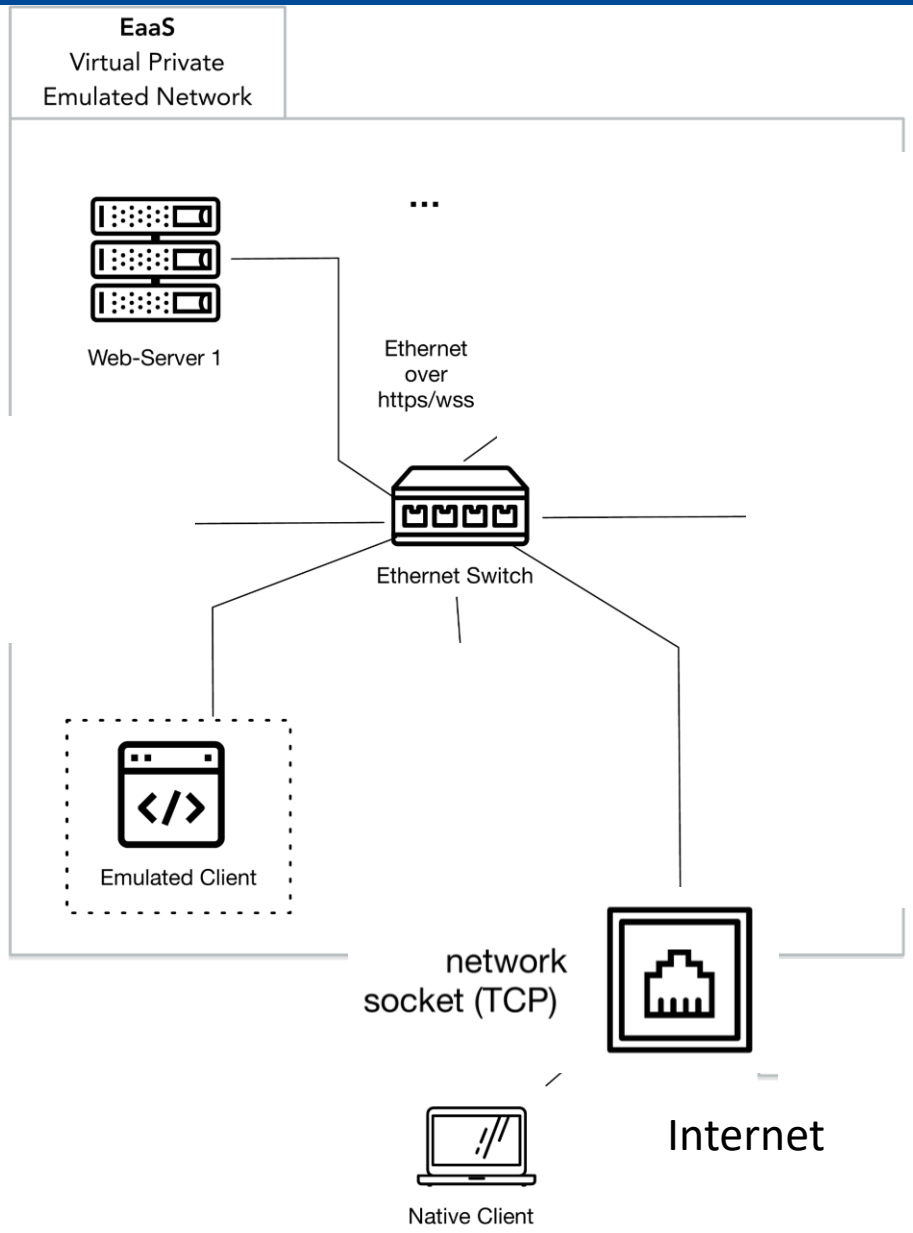
Actions

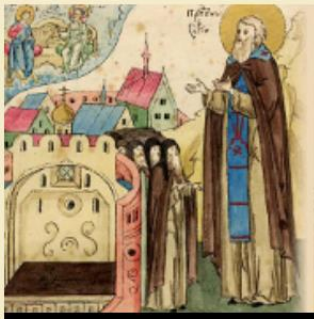
- Save Environment
- Connection Info
- Detach Network
- Stop
- Switch View



Build: 0375189ac73f29a35ad3b4d119e1a22234891c4b

UI Build: 185dbfb7b4cdcb9eef696b4662342d3e2dd12735


EaaS
Virtual Private
Emulated Network
...
Web-Server 1
Ethernet
over
https/wss
Ethernet Switch
Emulated Client
network
socket (TCP)
Internet
Native Client



SlaVaComp

COMPutergestützte Untersuchung von VAriabilität im KirchenSLAvischen

SlaVaComp-DB - kirchenslavisch-griechisches Meta-Glossar

Neue Standardsuche | Neue alternative Suche

Suchergebnisse

Ihre Eingabe lautete: " **и** " (als Hyperlemma)

и wurde in **86 Glossareinträgen** gefunden.

Euch.

Euch.-497

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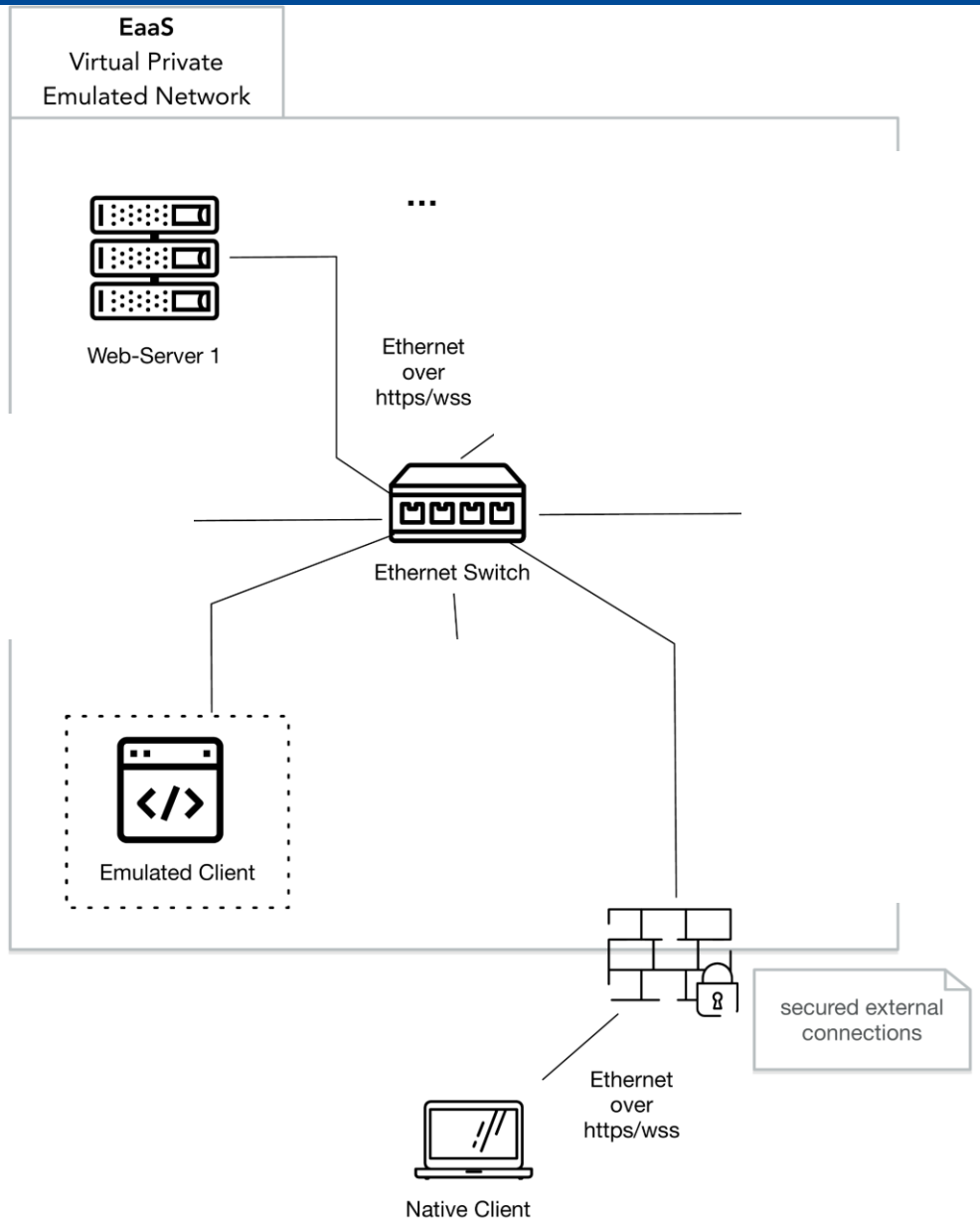
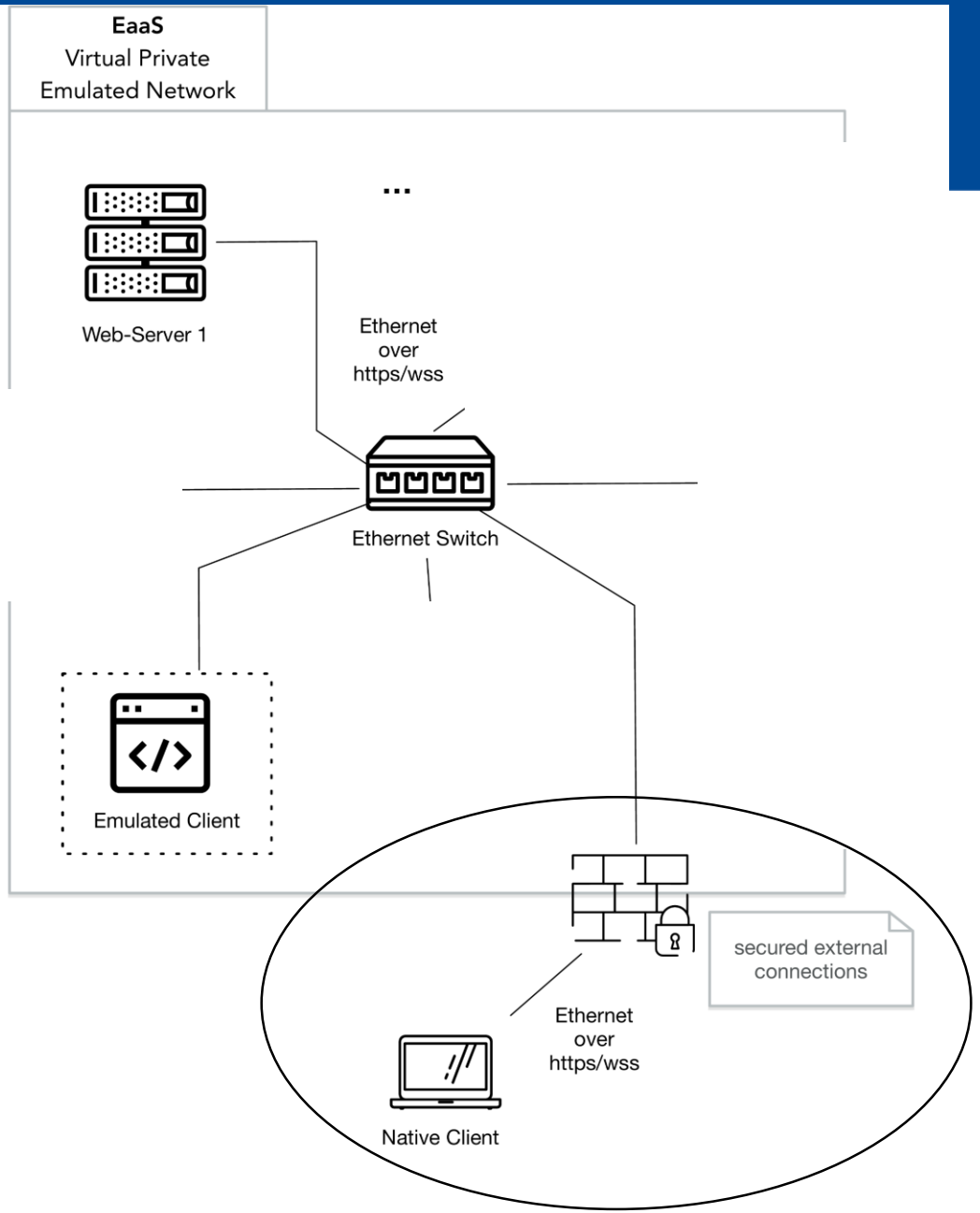

EaaS
Virtual Private
Emulated Network
...
Web-Server 1
Ethernet
over
https/wss
Ethernet Switch
Emulated Client
secured external
connections
Ethernet
over
https/wss
Native Client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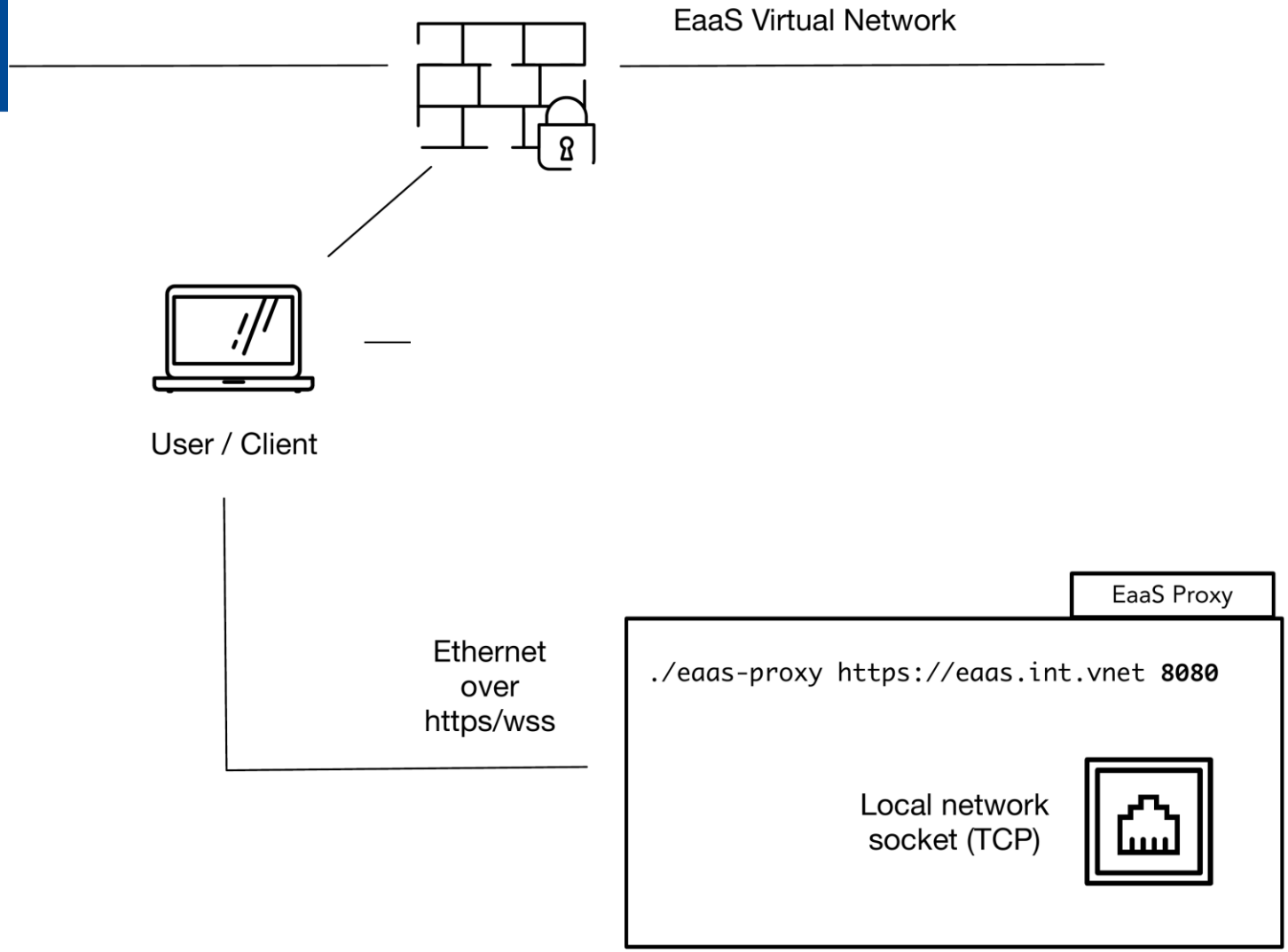
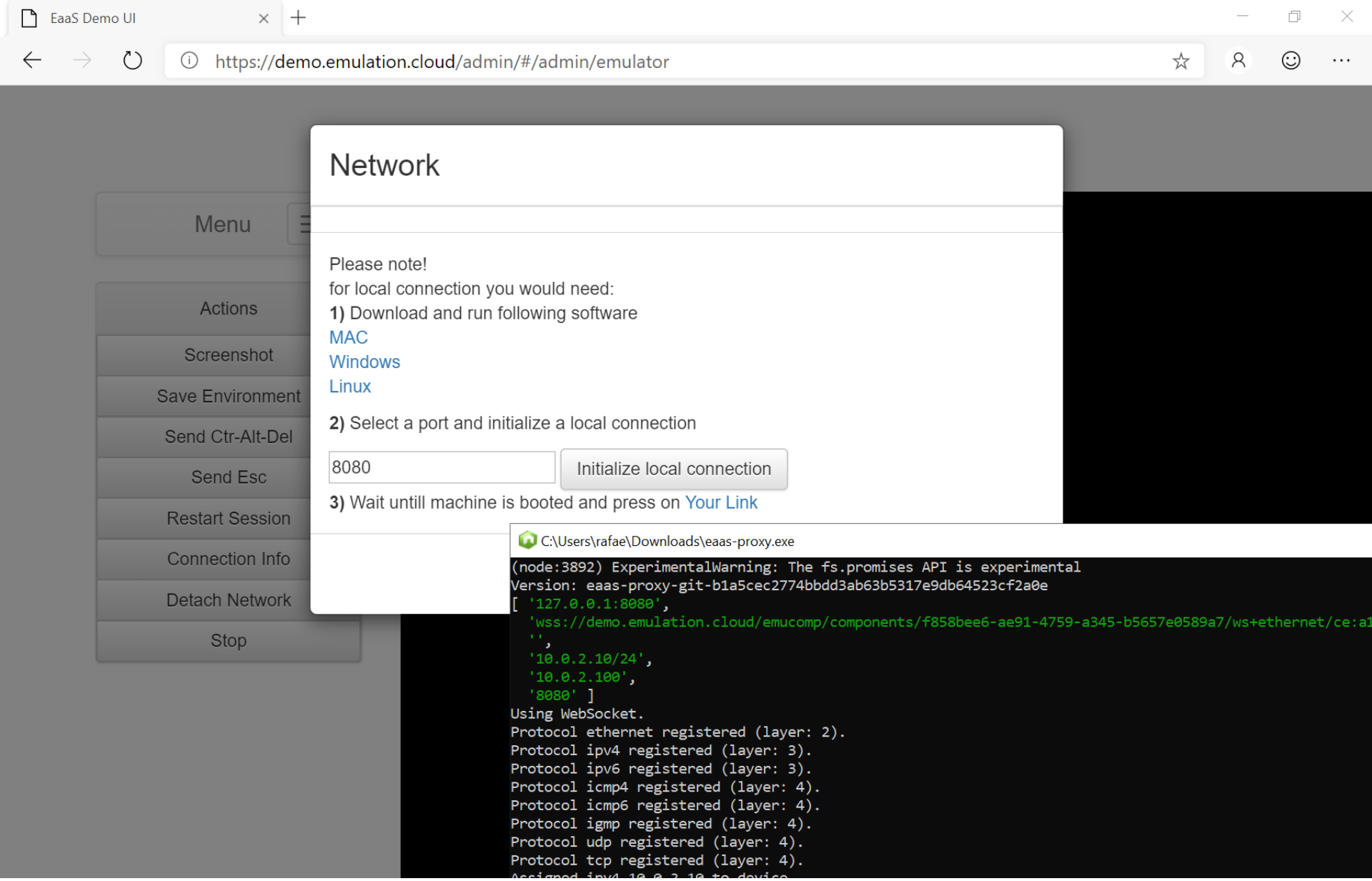
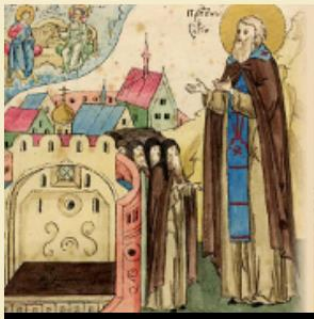

EaaS Virtual Network
User / Client
Ethernet
over
https/wss
EaaS Proxy
./eaas-proxy https://eaas.int.vnet 8080
Local network
socket (TCP)


EaaS Demo UI
https://demo.emulation.cloud/admin/#/admin/emulator
Menu
Actions
Screenshot
Save Environment
Send Ctr-Alt-Del
Send Esc
Restart Session
Connection Info
Detach Network
Stop
Network
Please note!
for local connection you would need:
1) Download and run following software
MAC
Windows
Linux
2) Select a port and initialize a local connection
8080
Initialize local connection
3) Wait untill machine is booted and press on Your Link
C:\Users\rafae\Downloads\eaas-proxy.exe
(node:3892) ExperimentalWarning: The fs.promises API is experimental
Version: eaas-proxy-git-b1a5cec2774bbdd3ab63b5317e9db64523cf2a0e
['127.0.0.1:8080',
'wss://demo.emulation.cloud/emucomp/components/f858bee6-ae91-4759-a345-b5657e0589a7/ws+ethernet/ce:a1
'',
'10.0.2.10/24',
'10.0.2.100',
'8080']
Using WebSocket.
Protocol ethernet registered (layer: 2).
Protocol ipv4 registered (layer: 3).
Protocol ipv6 registered (layer: 3).
Protocol icmp4 registered (layer: 4).
Protocol icmp6 registered (layer: 4).
Protocol igmp registered (layer: 4).
Protocol udp registered (layer: 4).
Protocol tcp registered (layer: 4).



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δέ

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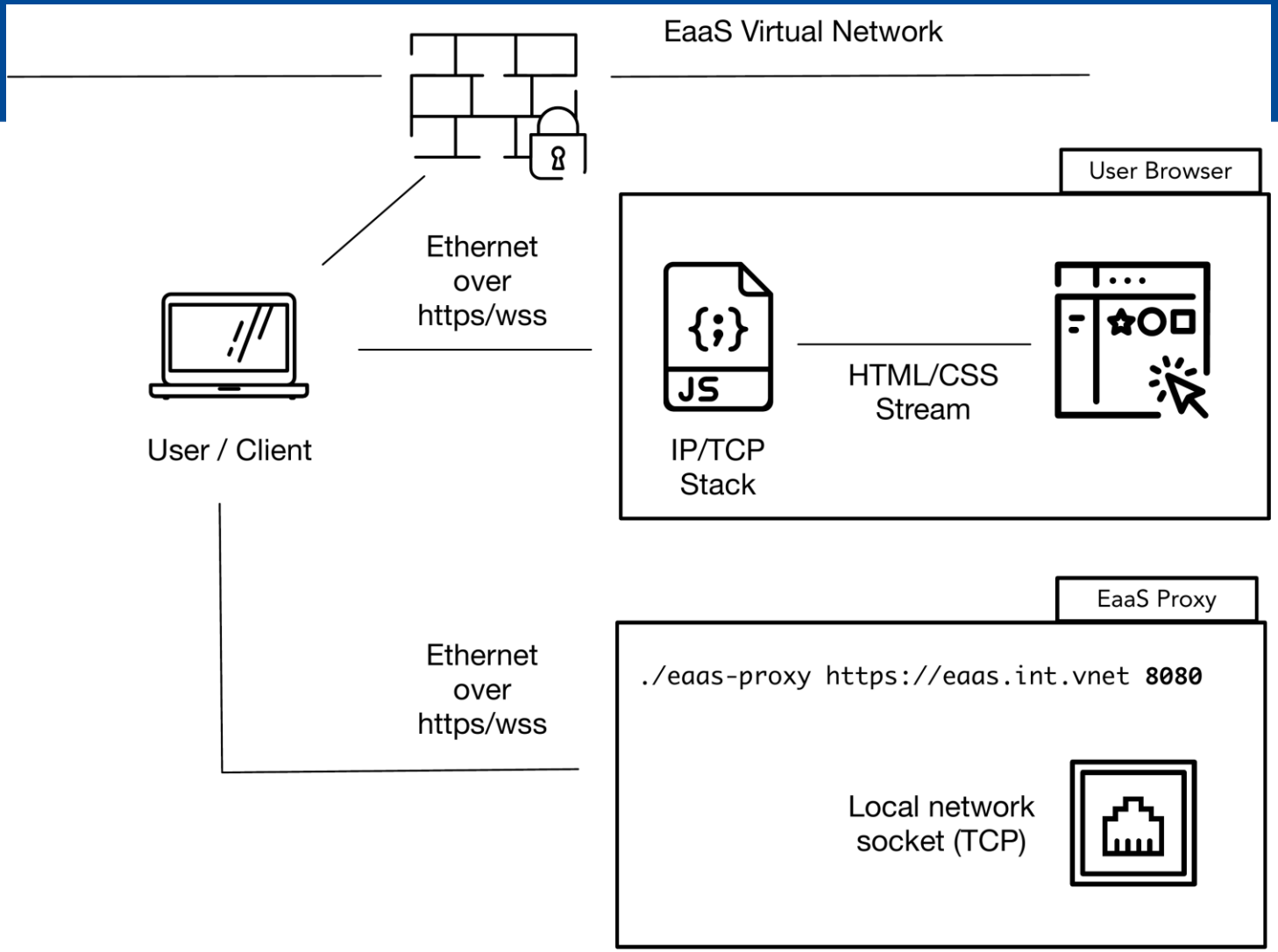
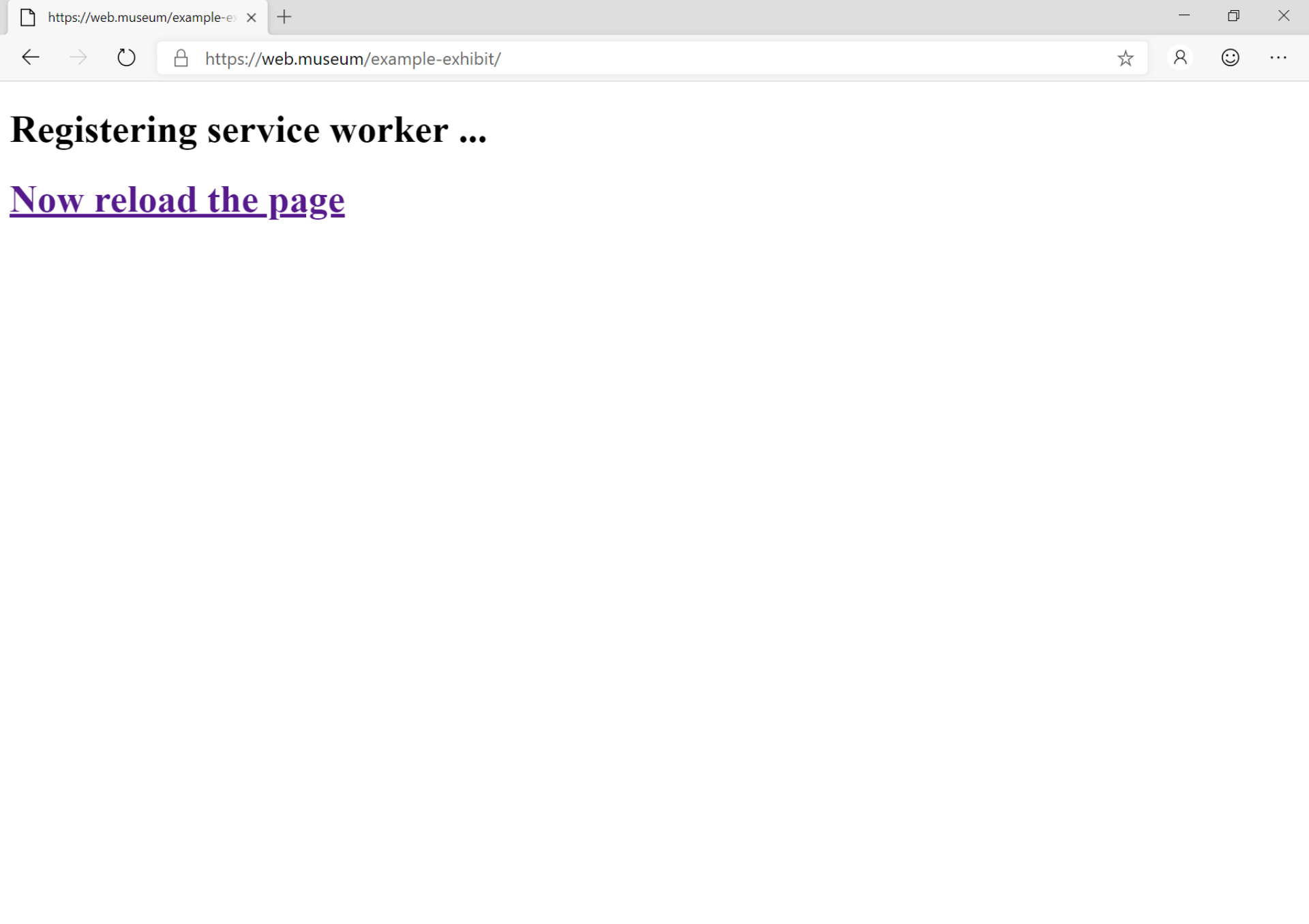
- же
- и
- нъıнѣ


EaaS Virtual Network
User Browser
Ethernet
over
https/wss
{;}
JS
HTML/CSS
Stream
User / Client
IP/TCP
Stack
EaaS Proxy
Ethernet
over
https/wss
./eaas-proxy https://eaas.int.vnet 8080
Local network
socket (TCP)

Welcome to our Web.Museum

Enjoy some pieces of Web art

- SlaVaComp


https://web.museum/example-ex
https://web.museum/example-exhibit/
Registering service worker ...
Now reload the page

SlaVaComp

https://web.museum/example-exhibit/

SlaVaComp

COMPutergestützte Untersuchung von

HOME PROJEKT TEAM KONTAKT

Startseite

Willkommen auf der Projekt-Homepage von SlaVaComp!

Bundesministerium für Bildung und Forschung

Slavisches Seminar Universität Freiburg

rz Rechenzentrum der Universität Freiburg

UNI FREIBURG

SlaVaComp

COMPutergestützte Untersuchung von

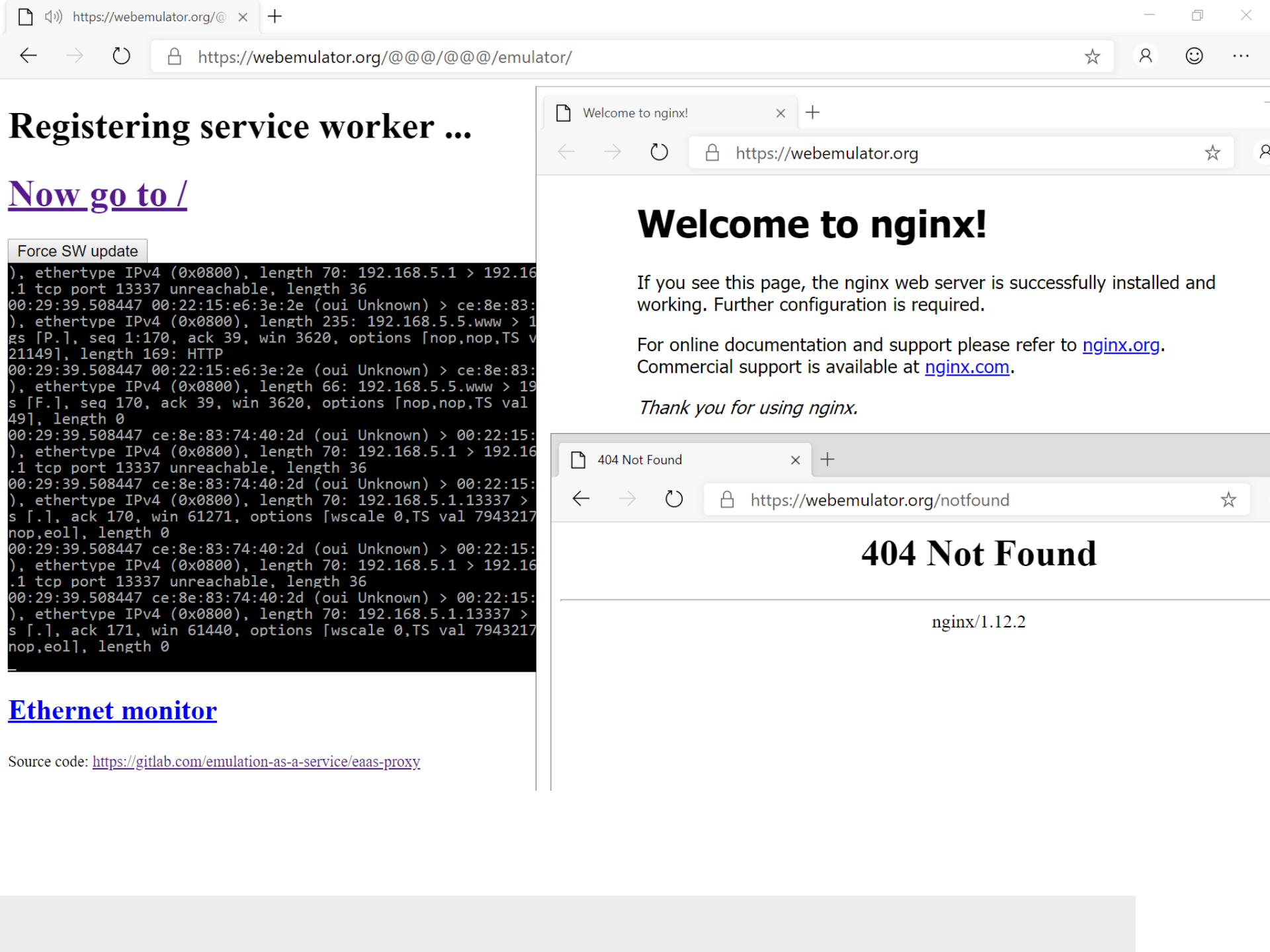
Team

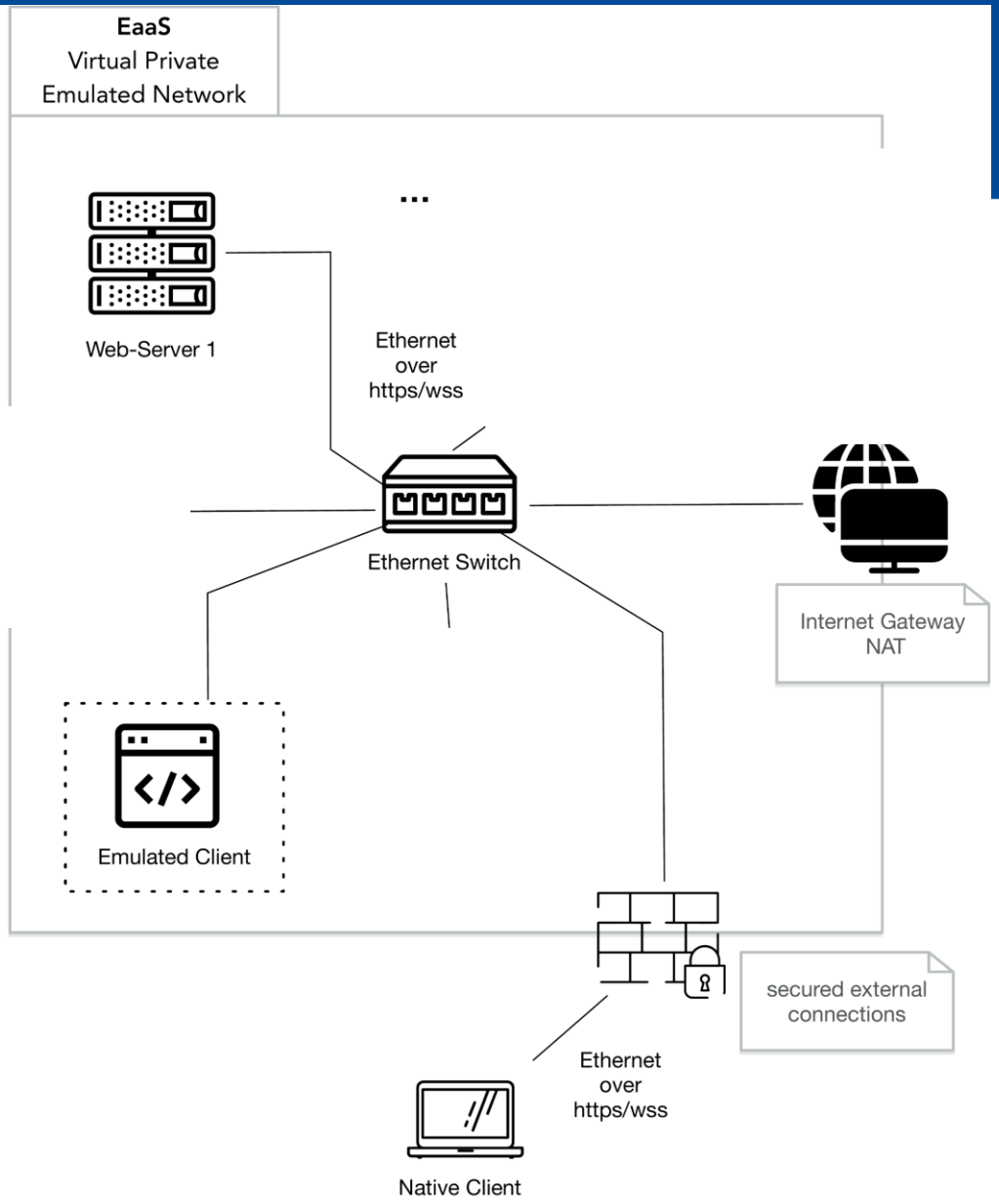
Prof. Dr. Gerhard Schneider (Rechenzentrum)
Dr. Susanne Mocken (Rechenzentrum)
Simon Skilevic (Rechenzentrum)

Prof. Dr. Juliane Besters-Dilger (Slavisches Seminar)
Dr. Evgenij Filimonov (Slavisches Seminar; ab 01.02.2014)
Dr. Irina Podtergera (Slavisches Seminar)
Viktoria Halapats (Slavisches Seminar)

Ehemalige

Dr. Roman Krivko (Slavisches Seminar; bis 31.01.2014)
Pino Marco Pizzo (Slavisches Seminar, bis 30.09.2014)
Dr. Achim Rabus (Slavisches Seminar; bis 30.09.2013)


https://webemulator.org/@
https://webemulator.org/@@@/@@@/emulator/
Registering service worker ...
Now go to /
Force SW update
), ethertype IPv4 (0x0800), length 70: 192.168.5.1 > 192.16
.1 tcp port 13337 unreachable, length 36
00:29:39.508447 00:22:15:e6:3e:2e (oui Unknown) > ce:8e:83:
), ethertype IPv4 (0x0800), length 235: 192.168.5.5.www > 1
gs [P.], seq 1:170, ack 39, win 3620, options [nop,nop,TS v
21149], length 169: HTTP
00:29:39.508447 00:22:15:e6:3e:2e (oui Unknown) > ce:8e:83:
), ethertype IPv4 (0x0800), length 66: 192.168.5.5.www > 19
s [F.], seq 170, ack 39, win 3620, options [nop,nop,TS val
49], length 0
00:29:39.508447 ce:8e:83:74:40:2d (oui Unknown) > 00:22:15:
), ethertype IPv4 (0x0800), length 70: 192.168.5.1 > 192.16
.1 tcp port 13337 unreachable, length 36
00:29:39.508447 ce:8e:83:74:40:2d (oui Unknown) > 00:22:15:
), ethertype IPv4 (0x0800), length 70: 192.168.5.1.13337 >
s [.], ack 170, win 61271, options [wscale 0,TS val 7943217
nop,eol], length 0
00:29:39.508447 ce:8e:83:74:40:2d (oui Unknown) > 00:22:15:
), ethertype IPv4 (0x0800), length 70: 192.168.5.1 > 192.16
.1 tcp port 13337 unreachable, length 36
00:29:39.508447 ce:8e:83:74:40:2d (oui Unknown) > 00:22:15:
), ethertype IPv4 (0x0800), length 70: 192.168.5.1.13337 >
s [.], ack 171, win 61440, options [wscale 0,TS val 7943217
nop,eol], length 0
Ethernet monitor
Source code: https://gitlab.com/emulation-as-a-service/eaas-proxy
Welcome to nginx!
https://webemulator.org
Welcome to nginx!
If you see this page, the nginx web server is successfully installed and working. Further configuration is required.
For online documentation and support please refer to nginx.org.
Commercial support is available at nginx.com.
Thank you for using nginx.
404 Not Found
https://webemulator.org/notfound
404 Not Found
nginx/1.12.2


EaaS
Virtual Private
Emulated Network
...
Web-Server 1
Ethernet
over
https/wss
Ethernet Switch
Internet Gateway
NAT
Emulated Client
secured external
connections
Ethernet
over
https/wss
Native Client

EaaS Demo UI

https://demo.emulation.cloud/admin/#/admin/emulator

Menu

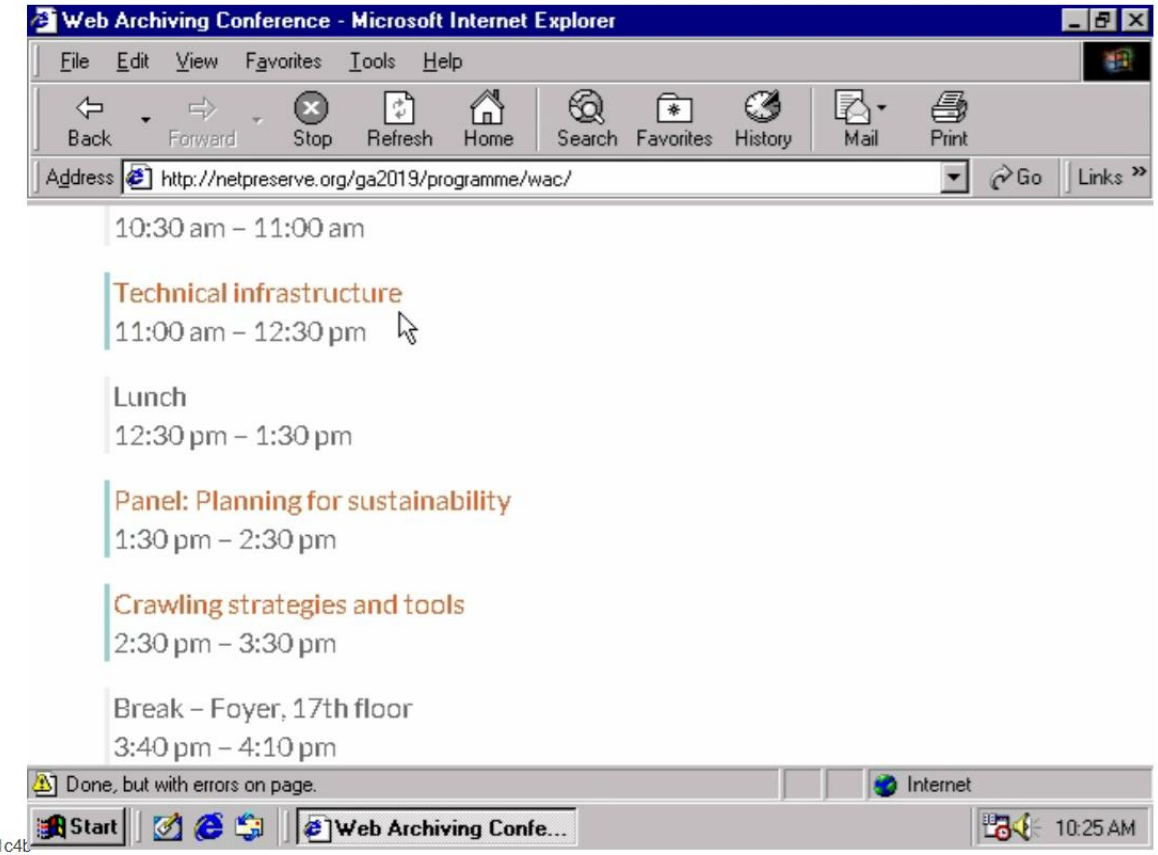
Actions

Save Environment

Snapshot

Detach Network

Stop



Build: 0375189ac73f29a35ad3b4d119e1a22234891c4b

UI Build: 185dbfb7b4cdcb9eef696b4662342d3e2dd12735

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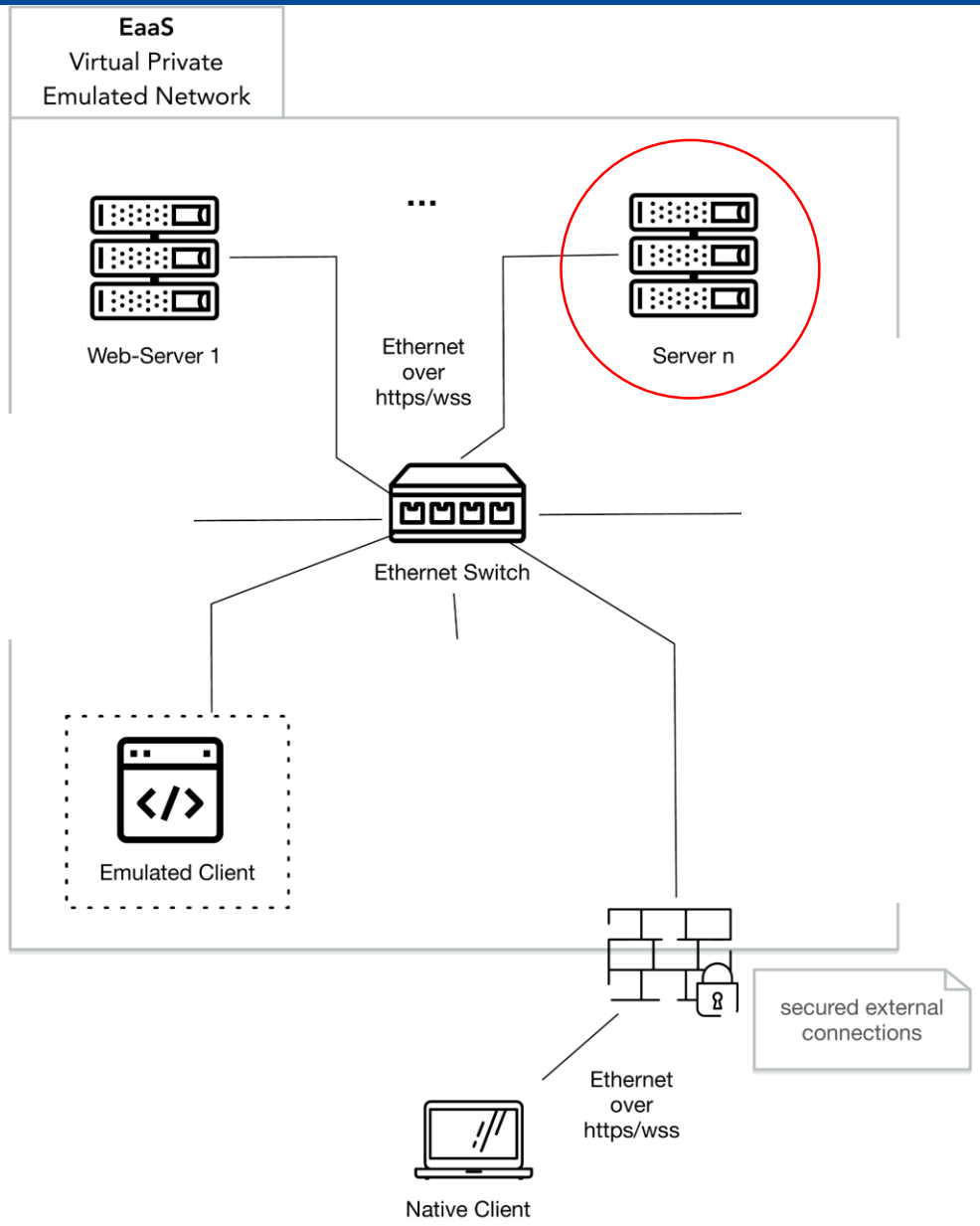
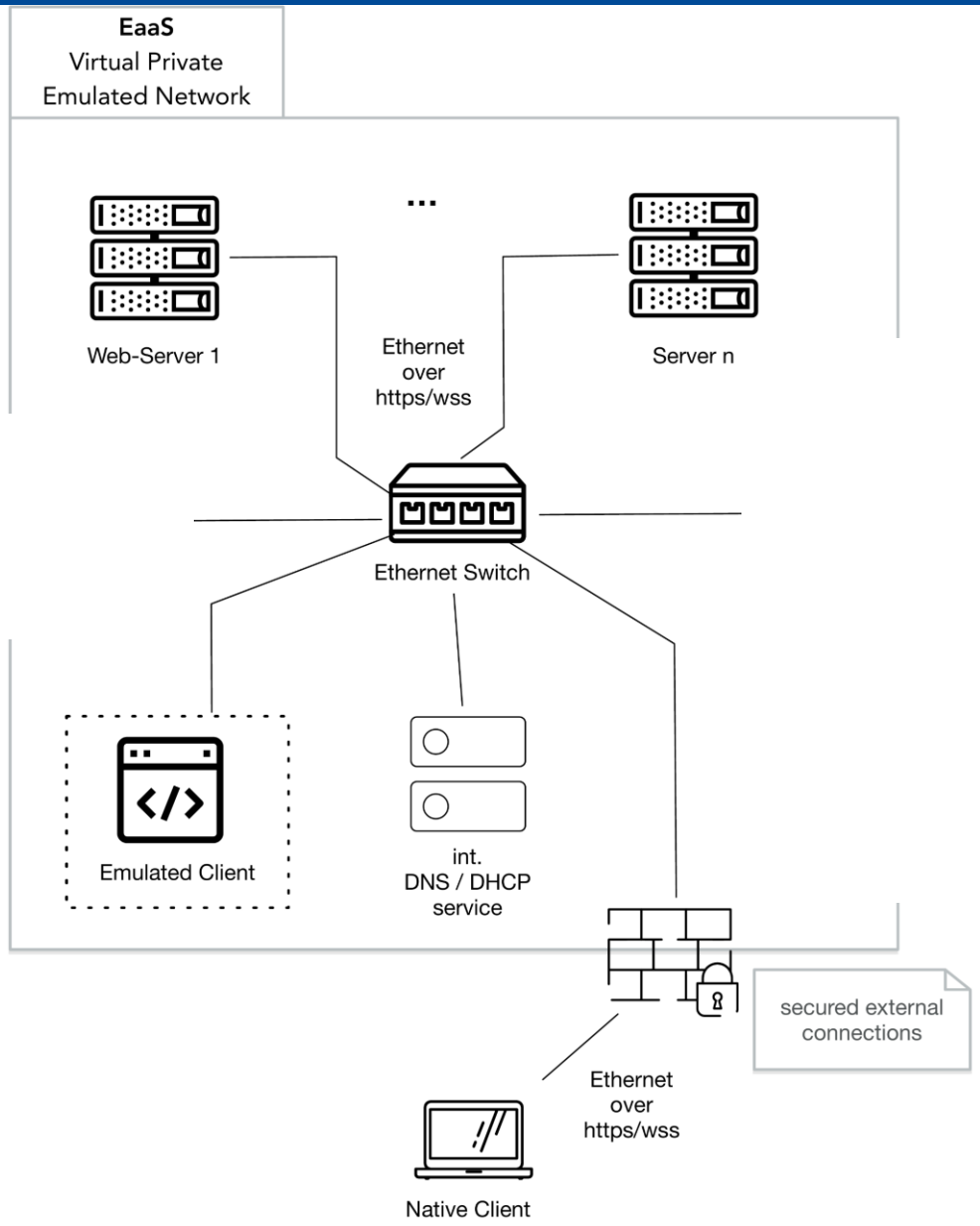
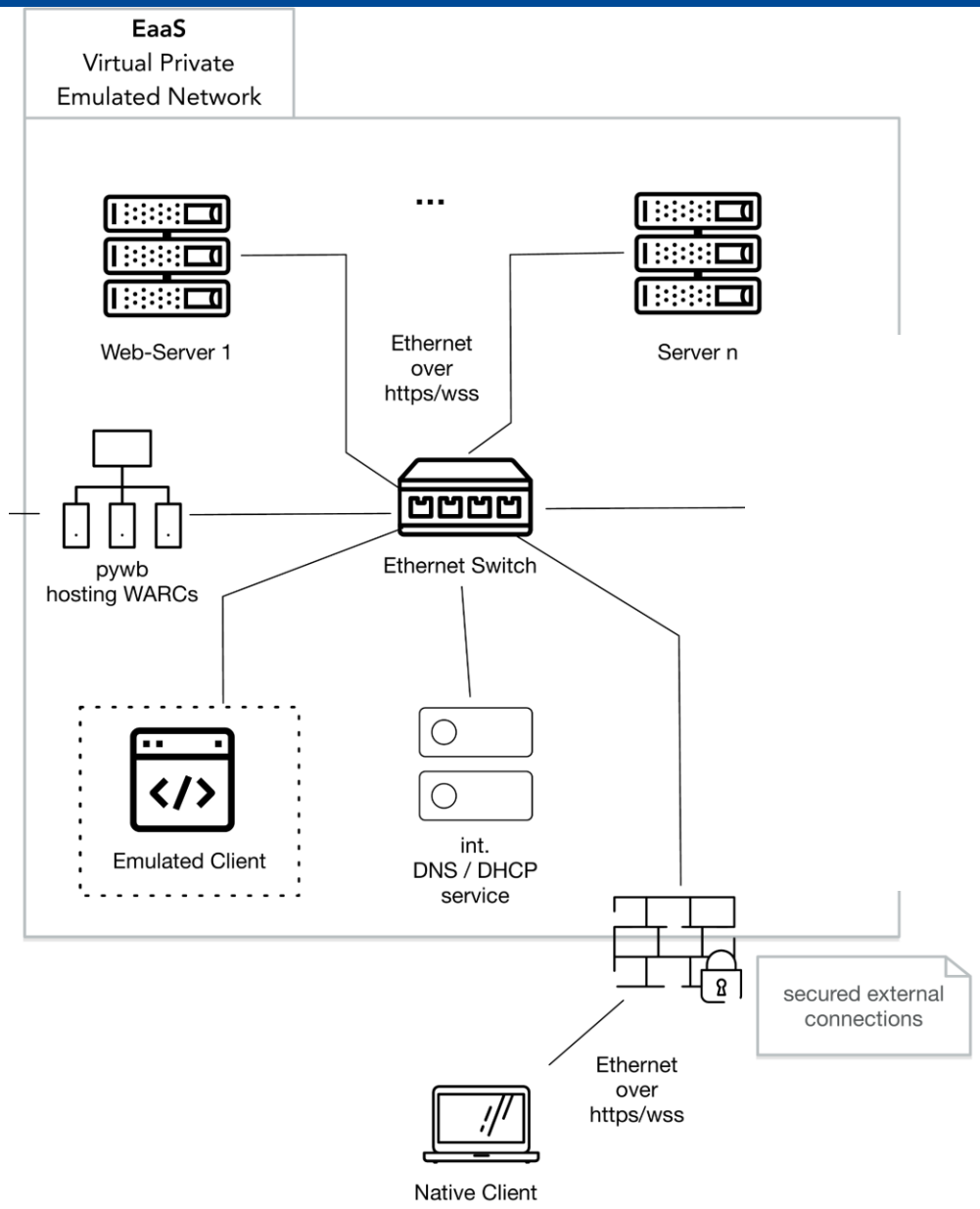
Future Work

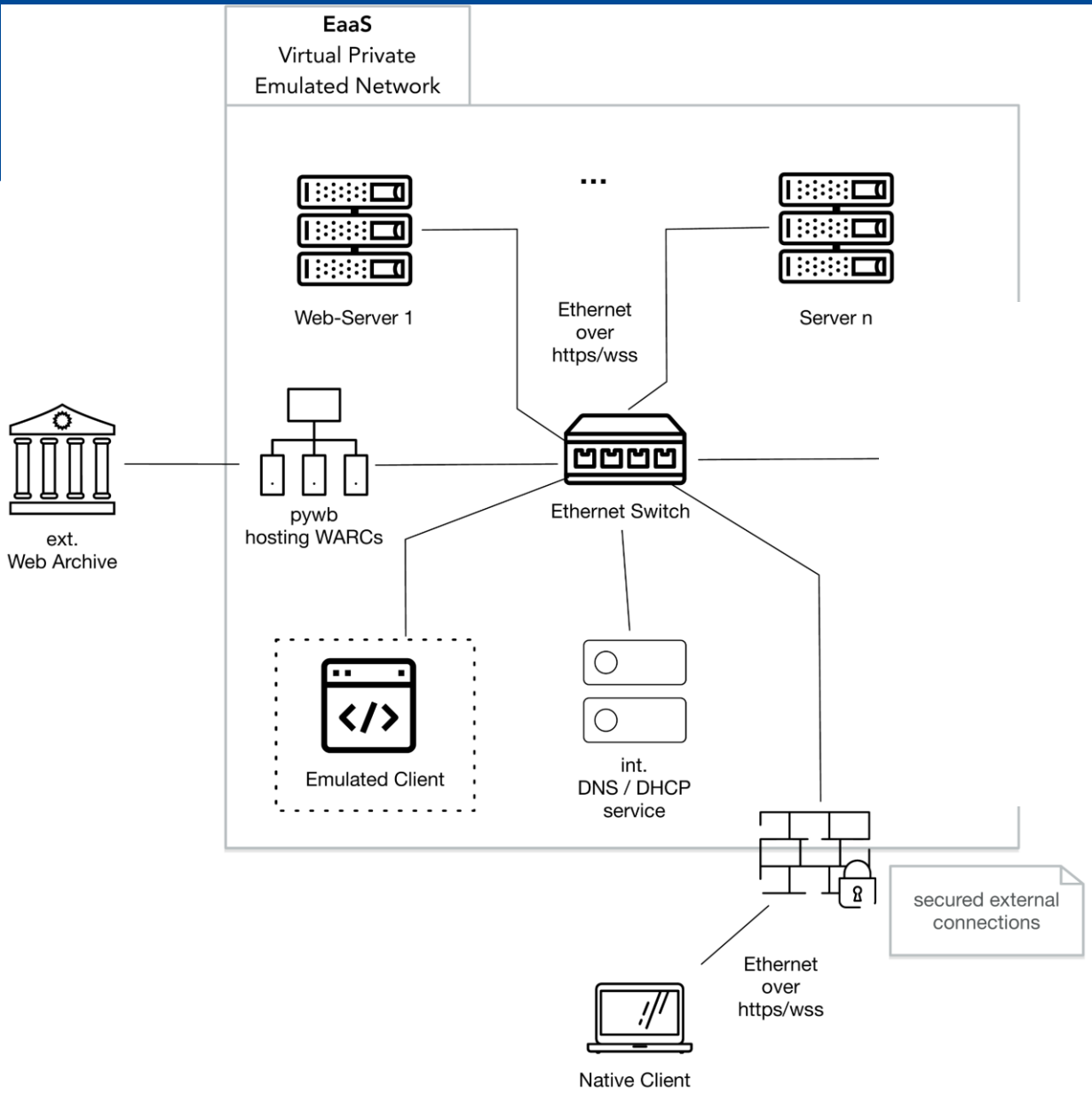
"Old West" by JiahuiH is licensed under CC BY-SA 2.0
https://www.flickr.com/photos/27237408@N03/2892282661

https://en.wikipedia.org/wiki/File:CalicoGhostTownMarch2010.JPG


EaaS
Virtual Private
Emulated Network
...
Web-Server 1
Ethernet
over
https/wss
Server n
Ethernet Switch
Emulated Client
secured external
connections
Ethernet
over
https/wss
Native Client


EaaS
Virtual Private
Emulated Network
...
Web-Server 1
Ethernet
over
https/wss
Server n
Ethernet Switch
Emulated Client
int.
DNS / DHCP
service
secured external
connections
Ethernet
over
https/wss
Native Client


EaaS
Virtual Private
Emulated Network
...
Web-Server 1
Ethernet
over
https/wss
Server n
pywb
hosting WARCs
Ethernet Switch
Emulated Client
int.
DNS / DHCP
service
secured external
connections
Ethernet
over
https/wss
Native Client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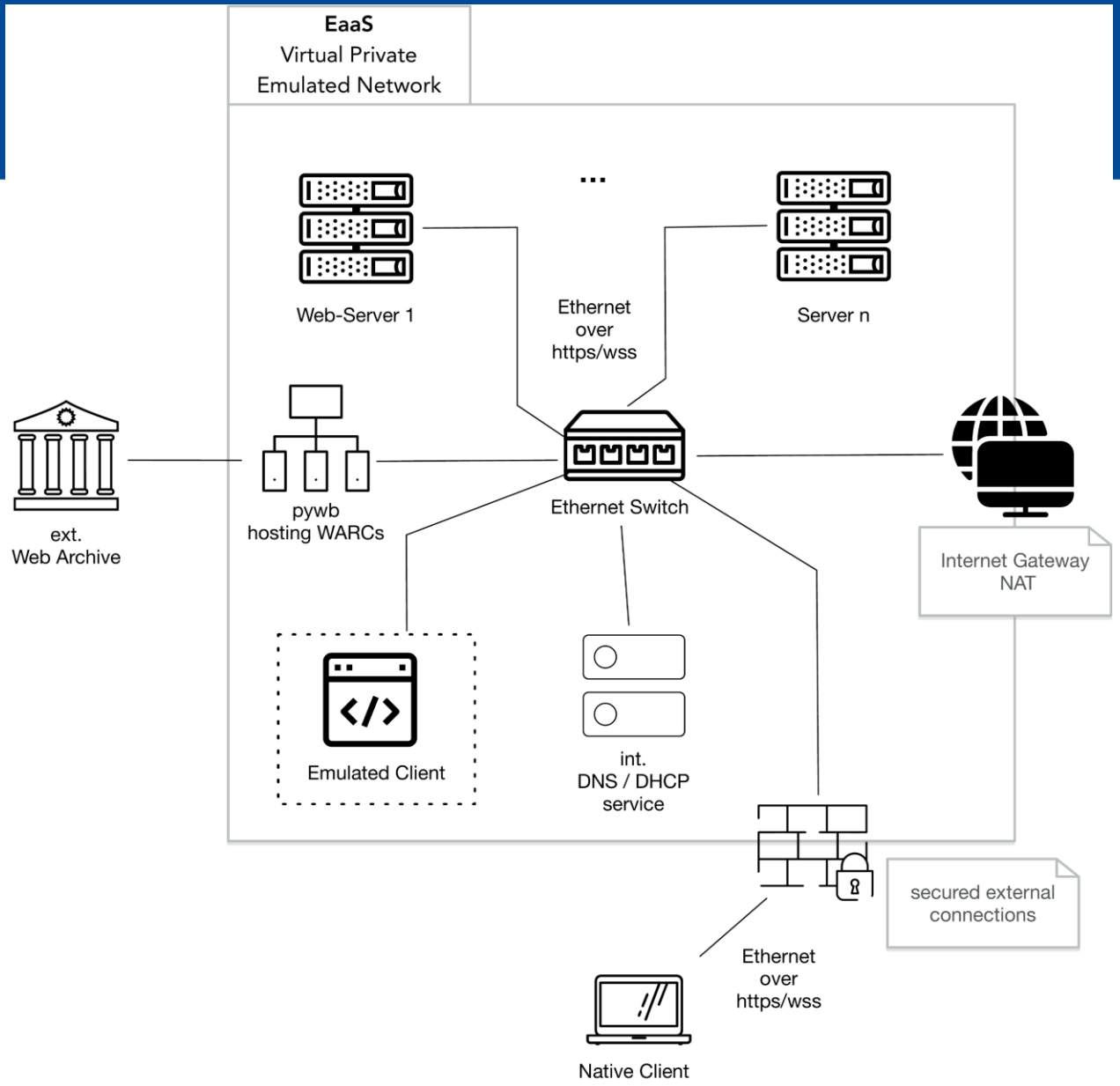
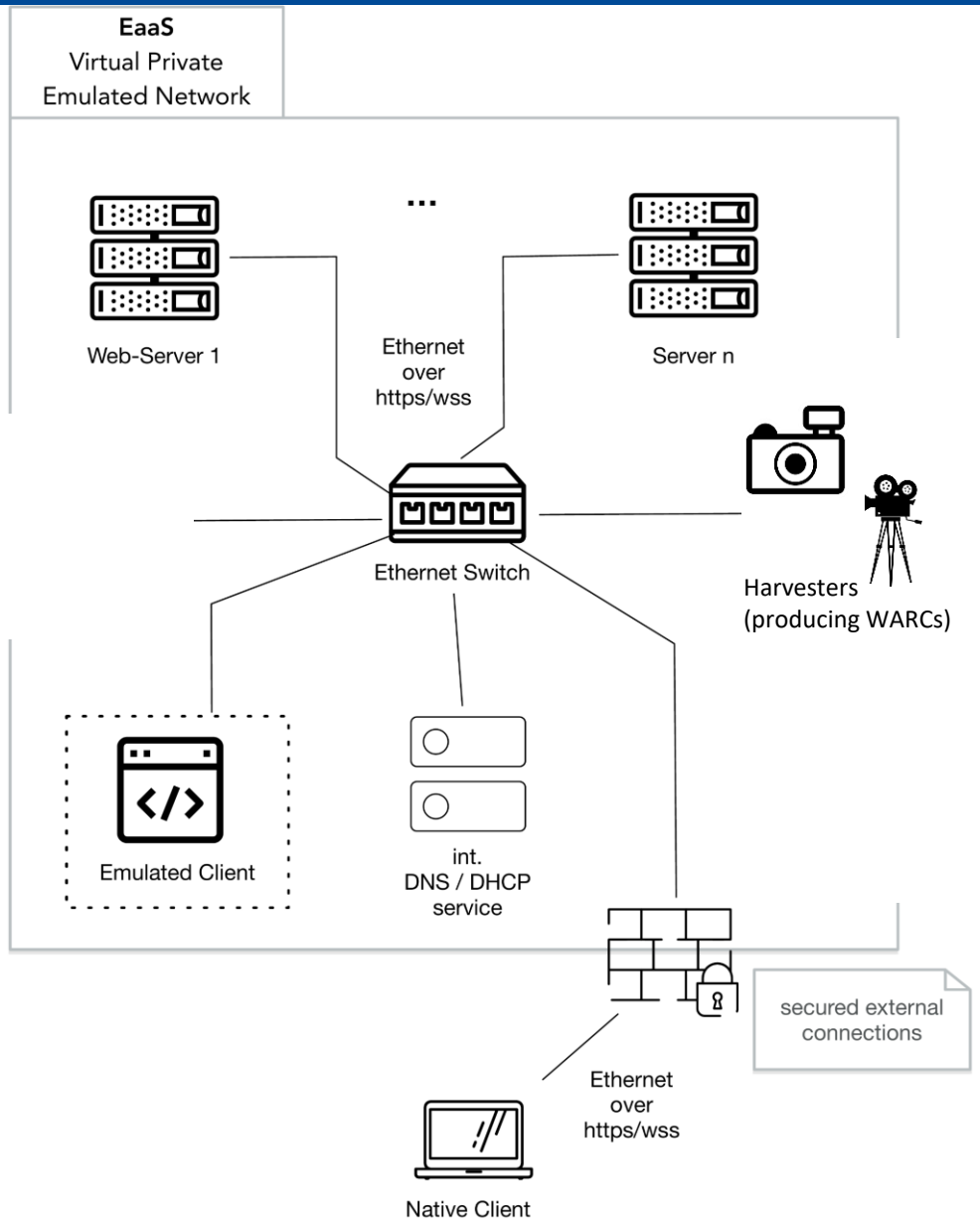
Web-Server 1
Server n
Ethernet
over
https/wss
ext.
Web Archive
pywb
hosting WARCs
Ethernet Switch
Emulated Client
int.
DNS / DHCP
service
secured external
connections
Ethernet
over
https/wss
Native Client


EaaS
Virtual Private
Emulated Network
...
Web-Server 1
Server n
Ethernet
over
https/wss
ext.
Web Archive
pywb
hosting WARCs
Ethernet Switch
Internet Gateway
NAT
Emulated Client
int.
DNS / DHCP
service
secured external
connections
Ethernet
over
https/wss
Native Client


EaaS
Virtual Private
Emulated Network
...
Web-Server 1
Ethernet
over
https/wss
Server n
Ethernet Switch
Harvesters
(producing WARCs)
Emulated Client
int.
DNS / DHCP
service
secured external
connections
Ethernet
over
https/wss
Native Client

Thank You!

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- http://eaas.uni-freiburg.de/
- http://citar.eaas.uni-freiburg.de/
- https://gitlab.com/emulation-as-a-service/
- https://web.museum/
- https://webemulator.org/@@@/emulator/