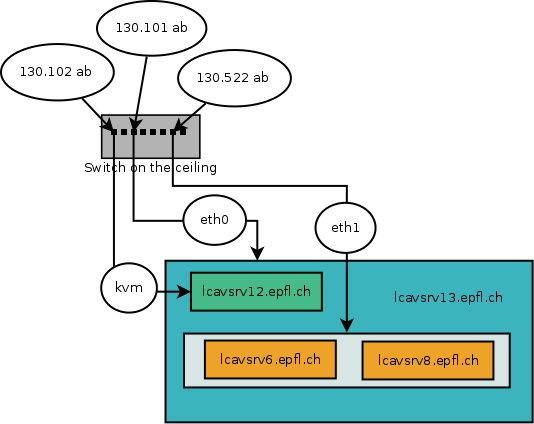
**IVRG Server overview**

First version: 26.01.2012, Dominic Rüfenacht.

The following document gives a detailed overview over the servers of the IVRG group which are maintained by Damir Laurenzi. It also contains helpful information regarding the camera setup in Vevey, which can serve as an entry point for troubleshooting.

There is just one physical machine, on which 4 independent operating systems (OS) are running. They are:   
1) IPMI interface for remote KVM/power management (lcavsrv12.epfl.ch)   
2) Host system (lcavsrv13.epfl.ch)   
3) Virtual Guest nr. 1 (lcavsrv6.epfl.ch)   
4) Virtual Guest nr. 2 (lcavsrv8.epfl.ch)



These systems are detailed in the following.

# Host System (lcavsrv13.epfl.ch)

## Summary

This server is configured to host 2 different virtual machines using Red Hat EL 6 as operating system for the host and the guests’ images, for a total of 3 different servers (1x bare metal, 2x virtual guests) that act independently.

## Detailed Summary

This server is configured to host 2 different virtual machines using Red Hat EL 6 as operating system for the host and the clients’ images.

The host system is not accessible from outside the local network, where the guest systems (two web servers) have access from internet when and if needed.

To manage the metal system there is a KVM interface that answers (at this moment) to the address *lcavsrv12.epfl.ch*. Accessing to the web server that responds to this address the administrators can have full access to the console of the server and manage the BIOS of the machine or the power alimentation switch, if necessary.

In the host system the operating system is installed with just the minimum packages to manage the bare metal and the virtualizations and it is accessible using the network at the address *lcavsrv13.epfl.ch*.

The two guest images are reachable at the addresses *lcavsrv6.epfl.ch* and *lcavsrv8.epfl.ch*. In both cases, the configurations are inherited from existing real servers which are now offline (still accessible on the local network using the addresses lcavsrv14 for lcavsrv6 and lcavsrv5 for lcavsrv8).

## Hardware

The real machine is located in the room server BC.333, in the 5th rack. It is the 2nd server from the top of the rack.

### Bare Metal

Transtec Server (Supermicro) with:

Motherboard: Supermicro X9SCL/X9SCM. S/N: ZM19S32099

CPU: 1x Xeon (R) CPU E31230 @ 3.20GHz (4 Core, 8 Thread)

RAM: 3x 4096 Mbyte DDR-3 (12 GByte)

Disks:

1x Controller RAID 3ware 9750-4i SATA/SAS + Battery module (512 MByte Cache)

4x Disk Seagate Constellation ES ST500NM0011 with SATA Interface: S/N: Z1M06778, Z1M067CS, Z1M066MX, Z1M066VV

LAN: 2x Intel Corporation 82574L Gigabit Network Connection

KVM: 1x Aten Winbond Electronics

PSU: redundant PSU for a maximum of 700 Watt

### Systems

Bare metal (IPMI interface):

OS: ATEN

IP: 128.178.8.21

MAC address : 00:25:90:54:9d:23

Accessible through IPMI Web Interface (on port 80)

User: ADMIN

Password: supermicr0

### Host OS

Bare metal (IPMI interface):

OS: RedHat EL 6

IP: 128.178.8.22

Accessible through console or ssh client

User: root

Password: 499fk0j

### CPU

4x (8x if you count the threading)

processor : 0

vendor\_id : GenuineIntel

cpu family : 6

model : 42

model name : Intel(R) Xeon(R) CPU E31230 @ 3.20GHz

stepping : 7

cpu MHz : 1600.000

cache size : 8192 KB

physical id : 0

siblings : 8

core id : 0

cpu cores : 4

apicid : 0

initial apicid : 0

fpu : yes

fpu\_exception : yes

cpuid level : 13

wp : yes

flags : fpu vme de pse tsc msr pae mce cx8 apic mtrr pge mca cmov pat pse36 clflush dts acpi mmx fxsr sse sse2 ss ht tm pbe syscall nx rdtscp lm constant\_tsc arch\_perfmon pebs bts rep\_good xtopology nonstop\_tsc aperfmperf pni pclmulqdq dtes64 monitor ds\_cpl vmx smx est tm2 ssse3 cx16 xtpr pdcm sse4\_1 sse4\_2 x2apic popcnt xsave avx lahf\_lm ida arat epb xsaveopt pln pts dts tpr\_shadow vnmi flexpriority ept vpid

bogomips : 6385.98

clflush size : 64

cache\_alignment : 64

address sizes : 36 bits physical, 48 bits virtual

### RAM

free

total used free shared buffers cached

Mem: 12176032 11549296 626736 0 6564156 174732

-/+ buffers/cache: 4810408 7365624

Swap: 4193272 1312 4191960

2 Gbyte are reserved by the lcavsrv6.epfl.ch virtual system

2 Gbyte are reserved by the lcavsrv8.epfl.ch virtual system

### Disk subsystem

The disks are configured in RAID-10 mode directly in the configuration of the RAID controller.

The 3ware controller export 2 units:

/dev/sda used for the host operating system:

/dev/sda1 (60 Gbyte) O.S. installation

/dev/sda2 (4 Gbyte) Swap Partition

/dev/sdb is used for guests and the data (lvm partitioning).

pvdisplay

--- Physical volume ---

PV Name /dev/sdb

VG Name data

PV Size 867.30 GiB / not usable 2.00 MiB

Allocatable yes

PE Size 4.00 MiB

Total PE 222029

Free PE 103245

Allocated PE 118784

PV UUID ii31NP-K5GE-roCU-nh1U-TcvS-CGBx-LPVmdz

vgdisplay

--- Volume group ---

VG Name data

System ID

Format lvm2

Metadata Areas 1

Metadata Sequence No 5

VG Access read/write

VG Status resizable

MAX LV 0

Cur LV 4

Open LV 4

Max PV 0

Cur PV 1

Act PV 1

VG Size 867.30 GiB

PE Size 4.00 MiB

Total PE 222029

Alloc PE / Size 118784 / 464.00 GiB

Free PE / Size 103245 / 403.30 GiB

VG UUID 9mdnlu-4dYA-4nA9-KG3J-aZKv-tZVg-trInqf

lvdisplay

--- Logical volume ---

LV Name /dev/data/photographers-sys

VG Name data

LV UUID swrizK-duwe-I4XD-5Ac6-yvaq-bocS-O814bz

LV Write Access read/write

LV Status available

# open 1

LV Size 32.00 GiB

Current LE 8192

Segments 1

Allocation inherit

Read ahead sectors auto

- currently set to 256

Block device 253:0

--- Logical volume ---

LV Name /dev/data/photographer-data

VG Name data

LV UUID 4tyvnm-1p9a-IAfo-JIwY-3gyy-0Gnw-kg6Wk3

LV Write Access read/write

LV Status available

# open 1

LV Size 200.00 GiB

Current LE 51200

Segments 1

Allocation inherit

Read ahead sectors auto

- currently set to 256

Block device 253:1

--- Logical volume ---

LV Name /dev/data/photo-vevey-sys

VG Name data

LV UUID 4AqFAE-AnVY-zce3-MgUD-nUsD-ndVh-5wajwd

LV Write Access read/write

LV Status available

# open 1

LV Size 32.00 GiB

Current LE 8192

Segments 1

Allocation inherit

Read ahead sectors auto

- currently set to 256

Block device 253:2

--- Logical volume ---

LV Name /dev/data/photo-vevey-data

VG Name data

LV UUID t1vcBu-6AZo-nOwM-P9So-KfxT-IwN1-EmHzAv

LV Write Access read/write

LV Status available

# open 1

LV Size 200.00 GiB

Current LE 51200

Segments 1

Allocation inherit

Read ahead sectors auto

- currently set to 256

Block device 253:3

/dev/data/photographers-sys (32 GB): system disk for guest photographers (lcavsrv8.epfl.ch)

/dev/data/photographer-data (200 GB): data disk for guest photographers (lcavsrv8.epfl.ch)

/dev/data/photo-vevey-sys (32 GB): system disk for guest photo-vevey (lcavsrv6.epfl.ch)

/dev/data/photo-vevey-data (200): data disk for guest photo-vevey (lcavsrv6.epfl.ch)

### Network

LAN0: ipmi management system (static IP configuration)

ipmitool lan print

Set in Progress : Set Complete

Auth Type Support : NONE MD2 MD5 PASSWORD

Auth Type Enable : Callback : MD2 MD5 PASSWORD

: User : MD2 MD5 PASSWORD

: Operator : MD2 MD5 PASSWORD

: Admin : MD2 MD5 PASSWORD

: OEM : MD2 MD5 PASSWORD

IP Address Source : Static Address

IP Address : 128.178.8.21

Subnet Mask : 255.255.255.0

MAC Address : 00:25:90:54:9d:23

SNMP Community String : public

IP Header : TTL=0x00 Flags=0x00 Precedence=0x00 TOS=0x00

BMC ARP Control : ARP Responses Enabled, Gratuitous ARP Disabled

Default Gateway IP : 128.178.8.1

Default Gateway MAC : 00:08:e3:ff:fc:50

Backup Gateway IP : 0.0.0.0

Backup Gateway MAC : 00:00:00:00:00:00

802.1q VLAN ID : Disabled

802.1q VLAN Priority : 0

RMCP+ Cipher Suites : 0,1,2,3,6,7,8,11,12

Cipher Suite Priv Max : aaaaXXaaaXXaaXX

: X=Cipher Suite Unused

: c=CALLBACK

: u=USER

: o=OPERATOR

: a=ADMIN

: O=OEM

LAN1: dedicated to host Operating System (static IP configuration)

ip ad show dev eth0

3: eth0: <BROADCAST,MULTICAST,UP,LOWER\_UP> mtu 1500 qdisc pfifo\_fast state UP qlen 1000

link/ether 00:25:90:54:9f:22 brd ff:ff:ff:ff:ff:ff

inet 128.178.8.22/24 brd 128.178.8.255 scope global eth0

inet6 fe80::225:90ff:fe54:9f22/64 scope link

valid\_lft forever preferred\_lft forever

LAN2: dedicated to guest operating system

brctl show

bridge name bridge id STP enabled interfaces

br0 8000.002590549f23 no eth1

vnet0

vnet1

brctl showstp br0

br0

bridge id 8000.002590549f23

designated root 8000.002590549f23

root port 0 path cost 0

max age 19.99 bridge max age 19.99

hello time 1.99 bridge hello time 1.99

forward delay 14.99 bridge forward delay 14.99

ageing time 299.95

hello timer 0.55 tcn timer 0.00

topology change timer 0.00 gc timer 5.55

hash elasticity 4 hash max 512

mc last member count 2 mc init query count 2

mc router 1 mc snooping 1

mc last member timer 0.99 mc membership timer 259.96

mc querier timer 254.96 mc query interval 124.98

mc response interval 9.99 mc init query interval 31.24

flags

eth1 (0)

port id 0000 state forwarding

designated root 8000.002590549f23 path cost 4

designated bridge 8000.002590549f23 message age timer 0.00

designated port 8001 forward delay timer 0.00

designated cost 0 hold timer 0.00

mc router 1

flags

vnet0 (0)

port id 0000 state forwarding

designated root 8000.002590549f23 path cost 100

designated bridge 8000.002590549f23 message age timer 0.00

designated port 8002 forward delay timer 0.00

designated cost 0 hold timer 0.00

mc router 1

flags

vnet1 (0)

port id 0000 state forwarding

designated root 8000.002590549f23 path cost 100

designated bridge 8000.002590549f23 message age timer 0.00

designated port 8003 forward delay timer 0.00

designated cost 0 hold timer 0.00

mc router 1

flags

vnet0: Guest Lan lcavsrv6.epfl.ch

vnet1: Guest Lan lcavsrv8.epfl.ch

Access using the IP network to the host or the guest operating system is regulated by the internal firewall of the host system and the guests systems. Please refer to the output of the command "iptables -nvL" for the details on every working system. No masquerading (NAT) is activated in the LAN systems.

The access to the virtual networks is regulated by the iptables command. The bridge traffic not authorized is by default blocked.

/etc/sysctl.conf (just the lines changed from the default)

# Controls IP packet forwarding

net.ipv4.ip\_forward = 1

net.bridge.bridge-nf-call-ip6tables = 1

net.bridge.bridge-nf-call-iptables = 1

### Host system

OS: RHEL 6

IP: 128.178.70.13

System repositories:

Configured for manual update using RHN (RedHat Network) resources and default software channels are configured to use epel repositories.

### Active programs

Virtualization (config are accessible on /etc/libvirt/qemu/{photographers.xml,photo-vevey.xml}):

virsh list --all

Id Name State

----------------------------------

3 photo-vevey running (Cpu: 1 core, Ram: 2 Gbyte) a.k.a.: lcavsrv6.epfl.ch

4 photographers running (Cpu: 1 core, Ram: 2 Gbyte) a.k.a.: lcavsrv8.epfl.ch

The console of both virtual systems is accessible using the "Virtual Machine Manager" Application and connecting to the IP address of the physical server (you need root access).

### RHN

RHN system is registered in the Red Hat Network update system as lcavsrv13.epfl.ch, but the automatic update is disabled. In order to update the system you must enter the following command in a terminal:

yum update

### NTP

Configured to use 128.178.8.1 as time source

### Mail

Installed the sendmail program (config: /etc/mail/sendmail.mc), configured to use mail.epfl.ch as smart host

/etc/aliases:

root: damir.laurenzi@epfl.ch

### Log

The daemon is rsyslog, configured to accept remote messages on the port 514/tcp and 514/udp .

The logwatch daemon sends the log report to root every night.

### Report

/var/HotSaNIC contains the HotSaNIC program for reporting on the activity of the system activity. The graphic reports are accessible on the address: lcavsrv13.epfl.ch/hot/

This program needs the packages rrdtool, rrdtool-perl, ImageMagick and ImageMagick-perl to function correctly.

# Virtual Guest Nr. 1 (lcavsrv6.epfl.ch) – Photo Museum Vevey

## Summary

This server is used for the photo experience from the photo museum in Vevey. It receives the images from a Windows workstation installed in the museum, collects them and sends back to the user the images he/her selected.

## Detailed Summary

The Windows workstation installed in the Photo Museum of Vevey sends to the server the images taken by a visitor of the museum using the infrared and the normal camera. The images are then sent to this server (using a ssh connection) that collects all the images and send back to the user the original and the enhanced (with infrared light) image.

In order to provide an automatic connection between the server and the Windows client, both an ssh-key that permits the connection using the "camera" user. This user is allowed to only connect to the rssh (/etc/rssh.conf) service.

The images stored on the server are useable for statistics and post elaborations.

## Detailed information about the project

This document collects information about the camera setup in Vevey. What follows is a general description how the system works:

### Workflow

- 2 versions of the images are saved to a directory on the Vevey machine with a unique name containing date and time, in the directory: C:\imagedb\

- A .txt file with the same name + \_db.txt extension is saved in the same directory and contains the email address and preferred image.

- The software does not send images or emails.

- There is a cron job on the vevey machine that does an rsync with a server at EPFL (128.178.8.7) every hour to transfer the images and \*db.txt files

- The file that executes the rsync is called “upload.cmd” and is located in C:\Windows\ . The relevant content of this file is the following line:

rsync -q --remove-source-files --protocol=29 -e "ssh -i /cygdrive/c/windows/camera\_server\_key" /cygdrive/c/imagedb/\* camera@128.178.8.7:upload

- Once the images are transferred, they are deleted from the Vevey machine. In other words, if the image has not been transferred, it will still be in the folder C:\imagedb\ .

- There is another script on the EPFL server that runs every hour to send the emails.

In case of a problem, there are three main sources:

a) The software which does the capturing has problems writing to the disk.

-> Check whether there are images and txt-files in the folder C:\imagedb\ .

b) rsync cannot connect to the EPFL server

-> Go to C:\Windows\ and double click on upload.cmd . If there is some text output in the console that the operation timed out, then there is no connection to the EPFL server. In that case, check that the computer is connected to the Freespot access point, and not to lcav-annotations.

c) EPFL server script sending emails

### Wifi-Setup

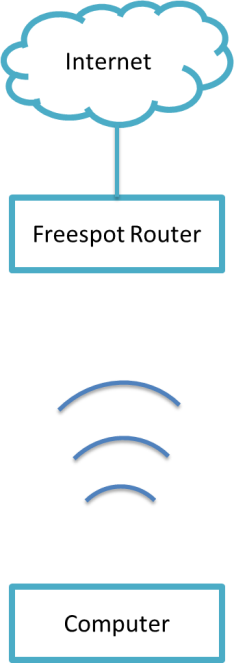
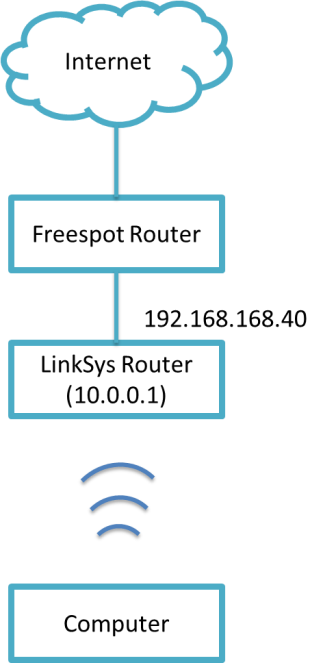
The network architecture is depicted in the following Figure. Initially, the computer was connected to

Figure 1: Current setup

Figure 2: Initial setup

the LinkSys router, as depicted in Figure 2: Initial setup. This router can be accessed by going to <http://10.0.0.1>.

Login: admin

Password: lcavmuseum1985

WLAN connection details:

SSID: lcav-annotations

Password: annotations2010

Due to problems with this connection, the decision has been made to directly connect to the Freespot Access Point (Figure 1: Current setup). The connection details are:

SSID: ((o)) FREESPOT

Password: - (no password needed)

Access to the internet over this access point is provided free of charge by the municipality of Vevey. It can happen that this access point is not working. If this is the case, Windows will try to connect to another access point. Right now, if it connects to the lcav-annotations, there will be no connection to the internet anymore, and hence no images will be transferred! So in case of problems with the connection, always check that the computer is connected to the Freespot access point.

### Important contacts related to the project:

Responsible person at the Vevey camera museum:

David Schenker

Phone: 021’925’34’83

Mail: [david.schenker@vevey.ch](mailto:david.schenker@vevey.ch)

Responsible for capturing related problems:

Dominic Rüfenacht

Mail: [dominic.ruefenacht@epfl.ch](mailto:dominic.ruefenacht@epfl.ch)

Responsible for networking related issues:

Damir Laurenzi

Mail: [damir.laurenzi@epfl.ch](mailto:damir.laurenzi@epfl.ch)

### Accounts on the Vevey machine:

Normal operation (of the camera setup):

Username: Camera

Password: camera

Administrator rights (only use this for debugging):

Username: LCAV Admin

Password: coHukued

## Hardware

Root password: 499fk0j

Currently this server is hosted as a virtual system on lcavsrv13.epfl.ch.

cat /proc/cpuinfo

processor : 0

vendor\_id : GenuineIntel

cpu family : 6

model : 13

model name : QEMU Virtual CPU version (cpu64-rhel6)

stepping : 3

cpu MHz : 3192.992

cache size : 4096 KB

fpu : yes

fpu\_exception : yes

cpuid level : 4

wp : yes

flags : fpu de pse tsc msr pae mce cx8 apic mtrr pge mca cmov pse36 clflush mmx fxsr sse sse2 syscall nx lm up unfair\_spinlock pni cx16 hypervisor lahf\_lm

bogomips : 6385.98

clflush size : 64

cache\_alignment : 64

address sizes : 36 bits physical, 48 bits virtual

### Memory

free

total used free shared buffers cached

Mem: 2055076 1960184 94892 0 506728 440860

-/+ buffers/cache: 1012596 1042480

Swap: 1049320 0 1049320

### Network

ip ad show dev eth0

2: eth0: <BROADCAST,MULTICAST,UP,LOWER\_UP> mtu 1500 qdisc pfifo\_fast state UP qlen 1000

link/ether 52:54:00:86:98:51 brd ff:ff:ff:ff:ff:ff

inet 128.178.8.7/24 brd 128.178.8.255 scope global eth0

inet6 fe80::5054:ff:fe86:9851/64 scope link

valid\_lft forever preferred\_lft forever

/etc/sysconfig/network-scripts/ifcfg-eth0

DEVICE="eth0"

BOOTPROTO="static"

HWADDR="52:54:00:86:98:51"

NM\_CONTROLLED="no"

ONBOOT="yes"

IPADDR=128.178.8.7

NETMASK=255.255.255.0

GATEWAY=128.178.8.1

cat /etc/sysconfig/iptables

# Generated by iptables-save v1.4.7 on Tue Jan 10 19:33:28 2012

\*filter

:INPUT DROP [0:0]

:FORWARD DROP [0:0]

:OUTPUT DROP [0:0]

-A INPUT -i lo -j ACCEPT

-A INPUT -s 128.178.70.0/24 -i eth0 -j ACCEPT

-A INPUT -s 128.178.8.0/24 -i eth0 -j ACCEPT

-A INPUT -s 128.178.0.0/15 -i eth0 -j ACCEPT

-A INPUT -i eth0 -p tcp -m tcp --dport 22 -m state --state NEW -j ACCEPT

-A INPUT -i eth0 -p tcp -m tcp --dport 22 -m state --state ESTABLISHED -j ACCEPT

-A INPUT -i eth0 -m state --state ESTABLISHED -j ACCEPT

-A OUTPUT -o lo -j ACCEPT

-A OUTPUT -d 128.178.70.0/24 -o eth0 -j ACCEPT

-A OUTPUT -d 128.178.8.0/24 -o eth0 -j ACCEPT

-A OUTPUT -d 128.178.0.0/15 -o eth0 -j ACCEPT

-A OUTPUT -o eth0 -p tcp -m tcp --sport 22 -m state --state ESTABLISHED -j ACCEPT

-A OUTPUT -o eth0 -m state --state NEW -j ACCEPT

-A OUTPUT -o eth0 -m state --state ESTABLISHED -j ACCEPT

COMMIT

# Completed on Tue Jan 10 19:33:28 2012

### Disks

The disks are lvm partitions on the host system.

fdisk -l

Disk /dev/vda: 34.4 GB, 34359738368 bytes

16 heads, 63 sectors/track, 66576 cylinders

Units = cylinders of 1008 \* 512 = 516096 bytes

Sector size (logical/physical): 512 bytes / 512 bytes

I/O size (minimum/optimal): 512 bytes / 512 bytes

Disk identifier: 0x0003ef58

Device Boot Start End Blocks Id System

/dev/vda1 \* 1 16645 8389048+ 83 Linux

/dev/vda2 16646 18727 1049328 82 Linux swap / Solaris

/dev/vda3 18728 66576 24115896 83 Linux

Disk /dev/vdb: 214.7 GB, 214748364800 bytes

16 heads, 63 sectors/track, 416101 cylinders

Units = cylinders of 1008 \* 512 = 516096 bytes

Sector size (logical/physical): 512 bytes / 512 bytes

I/O size (minimum/optimal): 512 bytes / 512 bytes

Disk identifier: 0x00000000

Disk /dev/vdb doesn't contain a valid partition table

df -h

Filesystem Size Used Avail Use% Mounted on

/dev/vda1 7.9G 1.6G 6.0G 21% /

tmpfs 1004M 0 1004M 0% /dev/shm

/dev/vda3 23G 18G 4.1G 82% /var

/dev/vdb 197G 85G 103G 46% /data

cat /etc/fstab

#

# /etc/fstab

# Created by anaconda on Fri Nov 25 20:50:28 2011

#

# Accessible filesystems, by reference, are maintained under '/dev/disk'

# See man pages fstab(5), findfs(8), mount(8) and/or blkid(8) for more info

#

UUID=1f24e825-7aba-4cd7-ba41-43fd19bdb374 / ext3 defaults 1 1

UUID=0d0d9e03-f140-447c-8120-dd4a0e30e26f /var ext3 defaults 1 2

UUID=fc7ae350-ad5c-4add-9c0c-cae57495c290 swap swap defaults 0 0

tmpfs /dev/shm tmpfs defaults 0 0

devpts /dev/pts devpts gid=5,mode=620 0 0

sysfs /sys sysfs defaults 0 0

proc /proc proc defaults 0 0

UUID=7de514b5-eca8-4c22-8ff9-9a6eb1bf1b6b /data ext4 defaults 0 0

### Active programs

fail2ban: to prevent attacks on port 22. the port 22 must be accessible from internet as it's the port used from the clients (currently only the museum of Vevey) to send the images collected.

### RHN

The system is registered in the Red Hat Network update system as lcavsrv6.epfl.ch, but the automatic update is disabled. In order to update the system you must enter the following command in a terminal:

yum update

### Mail

Uses the sendmail program (/etc/mail/sendmail.mc) and configured to use mail.epfl.ch as smart\_host

/etc/aliases:

Root: damir.laurenzi@epfl.ch

### Log

The daemon is rsyslog, configured to send the messages to the remote server lcavsrv13.epfl.ch that act as collector.

### Cron

crontab -l

#every hour check if there're new photos that need processing

50 \* \* \* \* /root/bin/msap\_service.py -v /home/camera/upload/ /home/archive/ 2>&1 >> /var/log/camera\_script\_output.log

#backup whole system on iscsrv14.epfl.ch

0 3 \* \* sun /root/bin/backup.sh

### Users

damir:x:500:501::/home/damir:/bin/bash

sysadmin:x:116:116:System Administrator,,,:/home/sysadmin:/bin/bash

camera:x:1001:1001::/home/camera:/usr/bin/rssh

daniel:x:1002:1002:Daniel Tamburrino,,,:/home/daniel:/bin/bash

laurenzi:x:74563:11240::/home/laurenzi:/bin/bash

### Old system

All files except the data are under:

/var/old-lcavsrv8/

# Virtual Guest Nr. 2 (lcavsrv8.epfl.ch) - AllPhotographersNow

## Summary

This server is used to collect and manage the photos for the project “AllPhotographersNow”.

## Detailed Summary

The server uses a web interface as way of interaction for the end users that can submit their photos to increase the collection of samples for the project. Access to the server, after the initial launch, is blocked and is reopened only in occasion of photographic events around the globe.

The images submitted through the web interface are inserted in a SQL database and subject to any process of post processing that is necessary to the responsible of the project.

## Hardware

Currently, this server is hosted as virtual system on lcavsrv13.epfl.ch.

Root password: 499fk0j

cat /proc/cpuinfo

processor : 0

vendor\_id : GenuineIntel

cpu family : 6

model : 13

model name : QEMU Virtual CPU version (cpu64-rhel6)

stepping : 3

cpu MHz : 3192.992

cache size : 4096 KB

fpu : yes

fpu\_exception : yes

cpuid level : 4

wp : yes

flags : fpu de pse tsc msr pae mce cx8 apic mtrr pge mca cmov pse36 clflush mmx fxsr sse sse2 syscall nx lm up unfair\_spinlock pni cx16 hypervisor lahf\_lm

bogomips : 6385.98

clflush size : 64

cache\_alignment : 64

address sizes : 36 bits physical, 48 bits virtual

### Memory

free

total used free shared buffers cached

Mem: 2055076 1968188 86888 0 364296 1341168

-/+ buffers/cache: 262724 1792352

Swap: 1049320 0 1049320

### Network

ip ad show dev eth0

2: eth0: <BROADCAST,MULTICAST,UP,LOWER\_UP> mtu 1500 qdisc pfifo\_fast state UP qlen 1000

link/ether 52:54:00:c8:ae:e2 brd ff:ff:ff:ff:ff:ff

inet 128.178.8.9/24 brd 128.178.8.255 scope global eth0

inet6 fe80::5054:ff:fec8:aee2/64 scope link

valid\_lft forever preferred\_lft forever

cat /etc/sysconfig/network-scripts/ifcfg-eth0

DEVICE="eth0"

BOOTPROTO="static"

HWADDR="52:54:00:C8:AE:E2"

NM\_CONTROLLED="no"

ONBOOT="yes"

IPADDR=128.178.8.9

NETMASK=255.255.255.0

GATEWAY=128.178.8.1

/etc/sysconfig/iptables:

It is too long, please refer to the original file.

In a nutshell: the system is configured to accept connections to the ports 22, 80, 443, 7978 used during the performances.

### Disks

fdisk -l

Disk /dev/vda: 34.4 GB, 34359738368 bytes

16 heads, 63 sectors/track, 66576 cylinders

Units = cylinders of 1008 \* 512 = 516096 bytes

Sector size (logical/physical): 512 bytes / 512 bytes

I/O size (minimum/optimal): 512 bytes / 512 bytes

Disk identifier: 0x0002d7fb

Device Boot Start End Blocks Id System

/dev/vda1 \* 1 16645 8389048+ 83 Linux

/dev/vda2 16646 18727 1049328 82 Linux swap / Solaris

/dev/vda3 18728 66576 24115896 83 Linux

Disk /dev/vdb: 214.7 GB, 214748364800 bytes

16 heads, 63 sectors/track, 416101 cylinders

Units = cylinders of 1008 \* 512 = 516096 bytes

Sector size (logical/physical): 512 bytes / 512 bytes

I/O size (minimum/optimal): 512 bytes / 512 bytes

Disk identifier: 0x00000000

Disk /dev/vdb does not contain a valid partition table

df -h

Filesystem Size Used Avail Use% Mounted on

/dev/vda1 7.9G 4.4G 3.1G 59% /

tmpfs 1004M 0 1004M 0% /dev/shm

/dev/vda3 23G 3.8G 18G 18% /var

/dev/vdb 197G 89G 99G 48% /data

cat /etc/fstab

#

# /etc/fstab

# Created by anaconda on Fri Nov 25 20:11:37 2011

#

# Accessible filesystems, by reference, are maintained under '/dev/disk'

# See man pages fstab(5), findfs(8), mount(8) and/or blkid(8) for more info

#

UUID=fac59808-0836-43d3-a261-f82965ad06ed / ext3 defaults 1 1

UUID=a4ca4e50-e326-4bf1-8d6b-c263a704ac99 /var ext3 defaults 1 2

UUID=c9dc4660-c829-421c-bcec-bfb16c642cc4 swap swap defaults 0 0

tmpfs /dev/shm tmpfs defaults 0 0

devpts /dev/pts devpts gid=5,mode=620 0 0

sysfs /sys sysfs defaults 0 0

proc /proc proc defaults 0 0

UUID=d1c9929c-160b-457a-8e2a-441e4aac78f9 /data ext4 defaults 0 0

### Programs

fail2ban: to protect the system when it's online

apache: web interface

mysql: DB photos

### RHN

The system is registered in the Red Hat Network update system as lcavsrv8.epfl.ch, but the automatic update is disabled. In order to update the system you must enter the following command in a terminal:

yum update

### Report

/var/HotSaNIC: used to collect and report in graphical format the activity of the server. the graphs are accessible using the address http://lcavsrv8.epfl.ch/hot/

### Mail

Uses the sendmail program (/etc/mail/sendmail.mc) and configured to use mail.epfl.ch as smart\_host.

/etc/aliases:

root: damir.laurenzi@epfl.ch

### Log

The daemon is rsyslog, configured to send the messages to the remote server lcavsrv13.epfl.ch that act as collector.

### Cron

crontab -l

#\* \* \* \* \* /root/bin/log-camera.sh >> /tmp/log-camera 2>&1

#\* \* \* \* \* /root/bin/log-museum.sh >> /tmp/log-museum 2>&1

# backup on iscsrv14.epfl.ch

0 3 \* \* sun /root/bin/backup.sh

### Web server:

/var/www/html/elysee.epfl.ch: web site used at the time of the launch

/var/www/html/lcavsrv8.epfl.ch: base web site to access the basic function of the server (mainly to manage the MySql DB)

/var/www/html/lcavsrv8.epfl.ch/hot: status of the server, graphical interface

/var/www/html/lcavsrv8.epfl.ch/phpMyAdmin: management interface for the MySql DB

/var/www/html/www.allphotographersnow.ch: web site accessible for the project experience, english version

/var/www/html/www.tousphotographes.ch: web site accessible for the project experience, french version

### MySQL Server:

all\_photographers\_now: database for collecting the photos

apn\_nowebcam: database used for post processing

apn\_search\_db: database used for post processing

mysql passwd:

root: lcavroot

GRANT ALL PRIVILEGES ON apn\_nowebcam.\* to apn\_nowebcam\_user@localhost IDENTIFIED BY 'q\*a3Se]Jw';

GRANT ALL PRIVILEGES ON apn\_nowebcam.\* to apn\_noweb\_user@localhost IDENTIFIED BY 'q\*a3Se]Jw';

GRANT ALL PRIVILEGES ON apn\_nowebcam.\* to apn\_readonly@localhost IDENTIFIED BY 'ySH<ENH7Ro';

GRANT ALL PRIVILEGES ON apn\_nowebcam.\* to apn\_noweb\_user@localhost IDENTIFIED BY 'ySH<ENH7Ro';

GRANT ALL PRIVILEGES ON all\_photographers\_now.\* to apn\_readonly@localhost IDENTIFIED BY 'ySH<ENH7Ro';

GRANT SELECT PRIVILEGES ON all\_photographers\_now.\* to apn\_readonly@localhost IDENTIFIED BY 'ySH<ENH7Ro';

GRANT SELECT ON all\_photographers\_now.\* to apn\_readonly@localhost IDENTIFIED BY 'ySH<ENH7Ro';

GRANT SELECT ON all\_photographers\_now.\* to apn\_readonly@localhost IDENTIFIED BY 'ySH<ENH7Ro';

GRANT ALL PRIVILEGES ON all\_photographers\_now.\* to benoit@localhost IDENTIFIED BY 'rhyqs2XR';

### Nagios:

Configured to answer to server iscsrv35.epfl.ch (damir) for some services (disks, load, users, procs)

### Users:

sabine:x:504:100:Sabine Susstrunk:/home/sabine:/bin/bash

lmeylan:x:505:100:Laurence Meylan:/home/lmeylan:/bin/bash

patricks:x:506:100:Patrick Schonmann:/home/patricks:/bin/bash

patrickv:x:507:100:Patrick Vandewalle:/home/patrickv:/bin/bash

adrienc:x:508:100:Adrien Carter:/home/adrienc:/bin/bash

apn:x:509:509::/home/apn:/bin/bash

benoit:x:510:510:Benoit Rat:/home/benoit:/bin/false

simon:x:511:511::/home/simon:/bin/bash

alindner:x:512:512:Albrecht Lindner:/home/alindner:/bin/bash

tamburri:x:513:100:Daniel Tamburrino:/home/tamburri:/bin/bash

gschaefe:x:501:100:Gunnar Schaefer:/home/gschaefe:/bin/bash

### Old system

All files from previous system, but the data, are under:

/var/old-lcavsrv8/