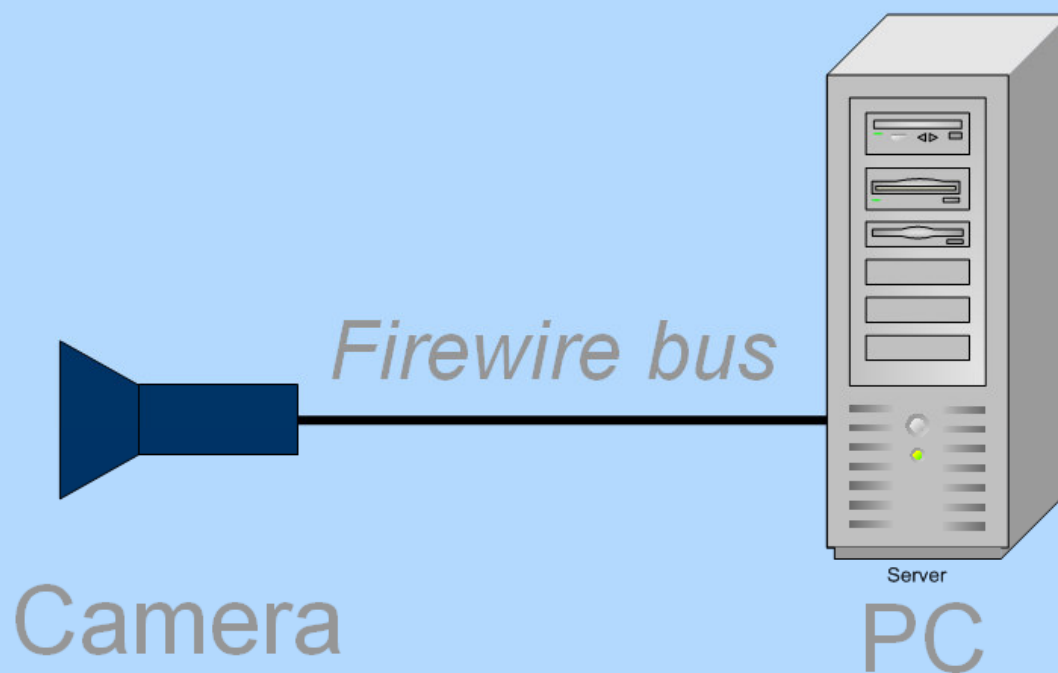


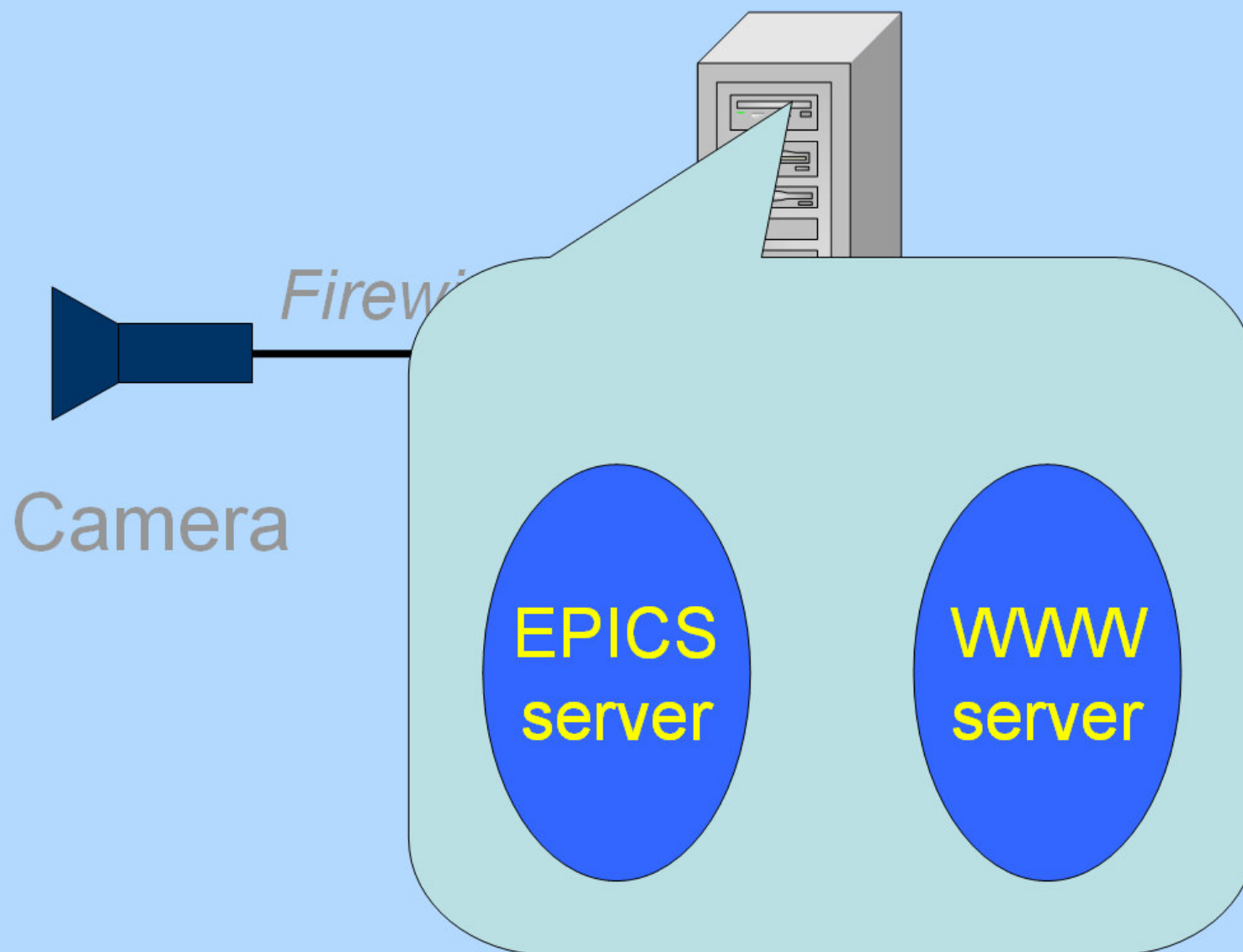
Integrating Firewire Cameras into the EPICS Control System

Mirosław Dach and Paweł Jalocho
Paul Scherrer Institut
Switzerland

Contents

- Preliminary approach
- Current approach
- Software and Hardware implementation details





Requirements:

- Provide the end user with raw images
- Provide the end user with beam profile and beam position

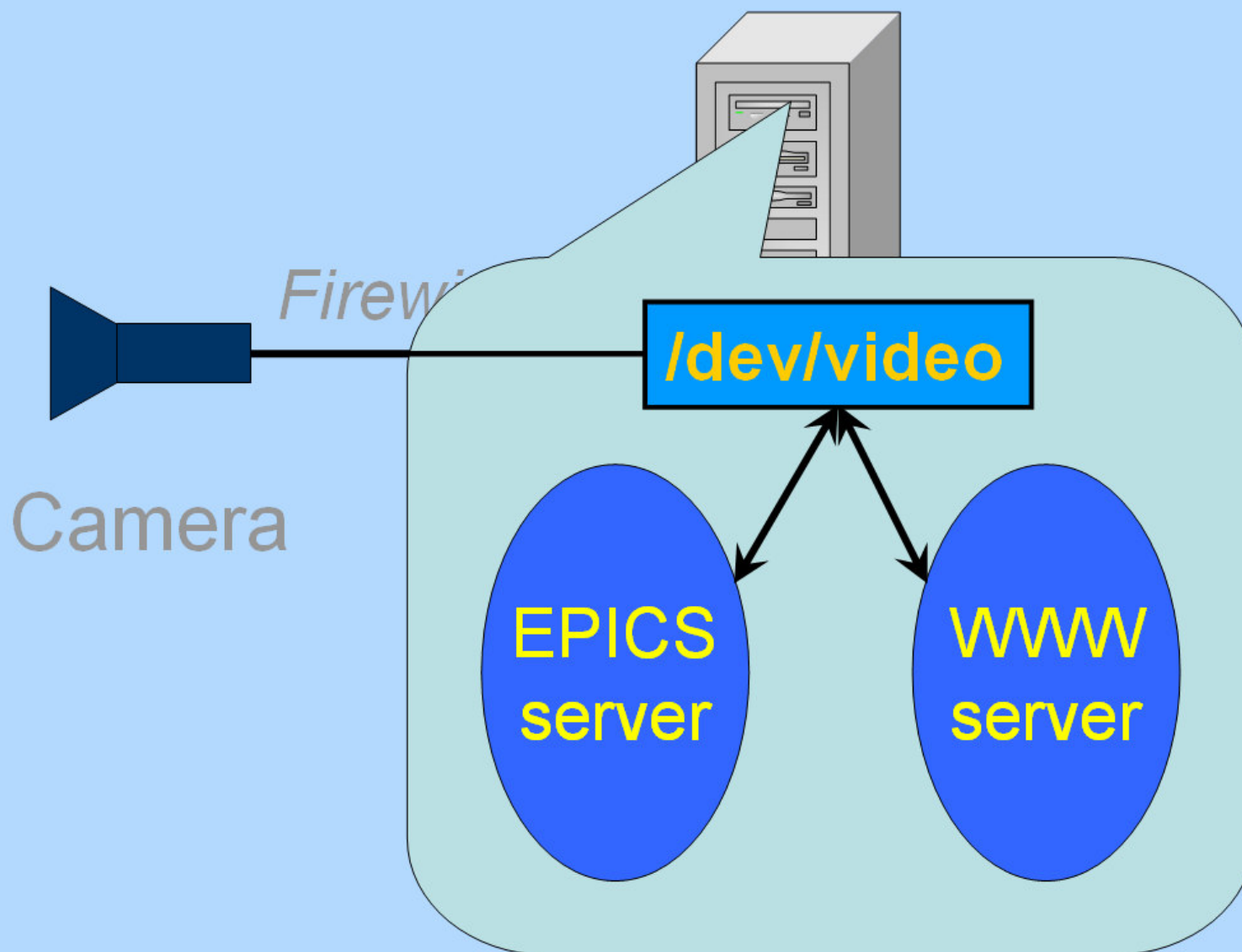
Camera

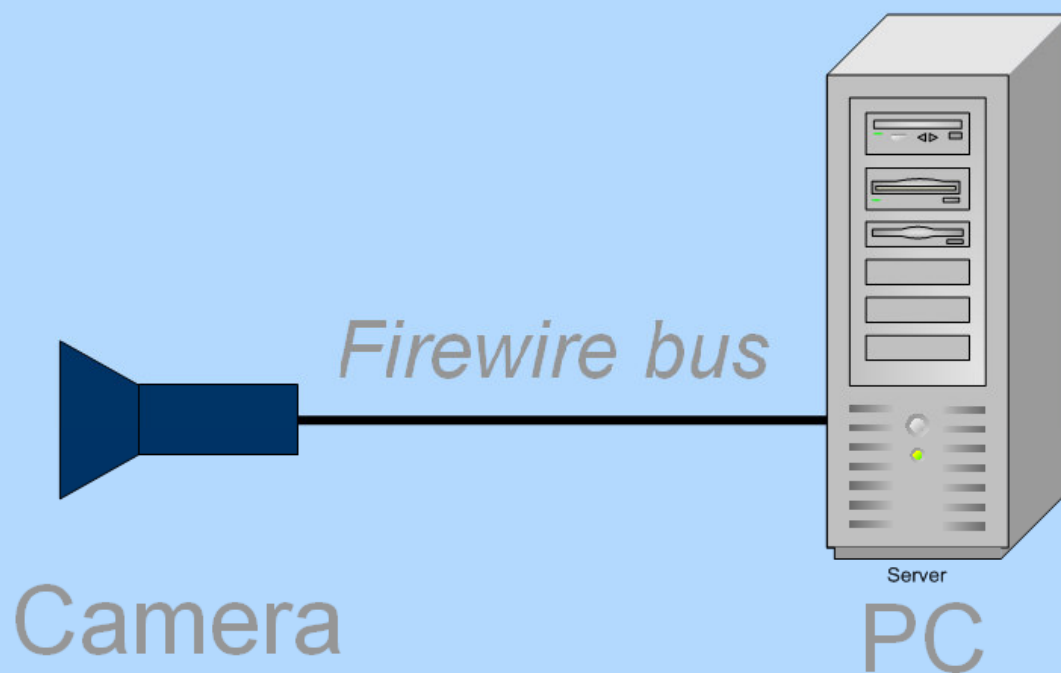
Requirements:

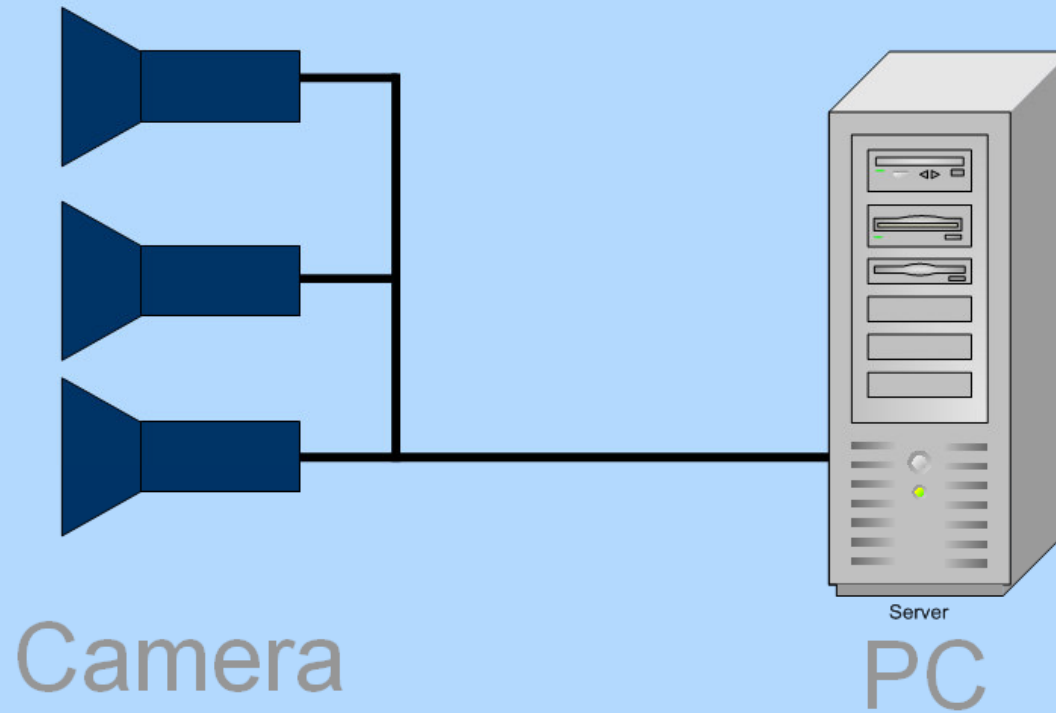
- Provide the end user with jpeg images

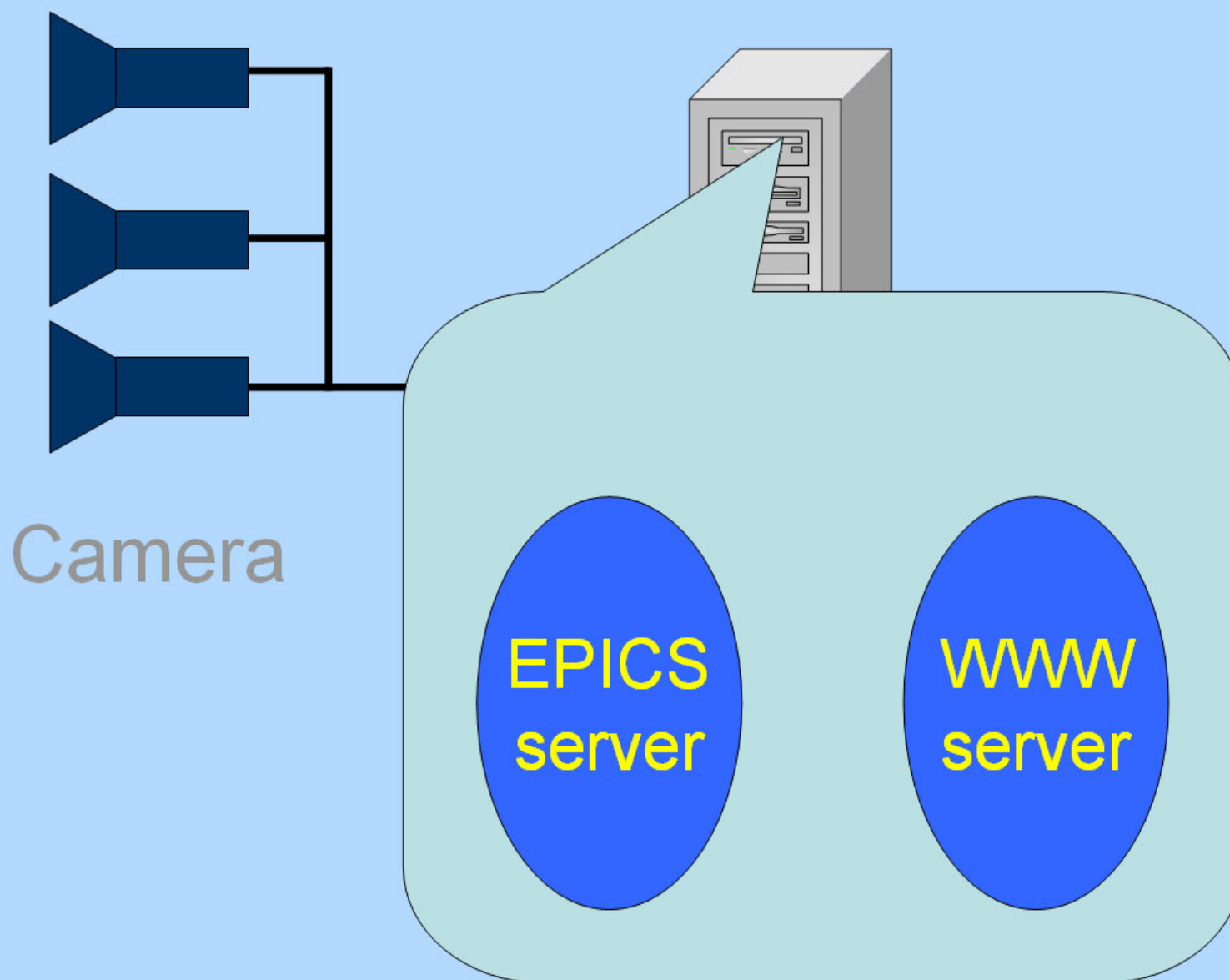
EPICS
server

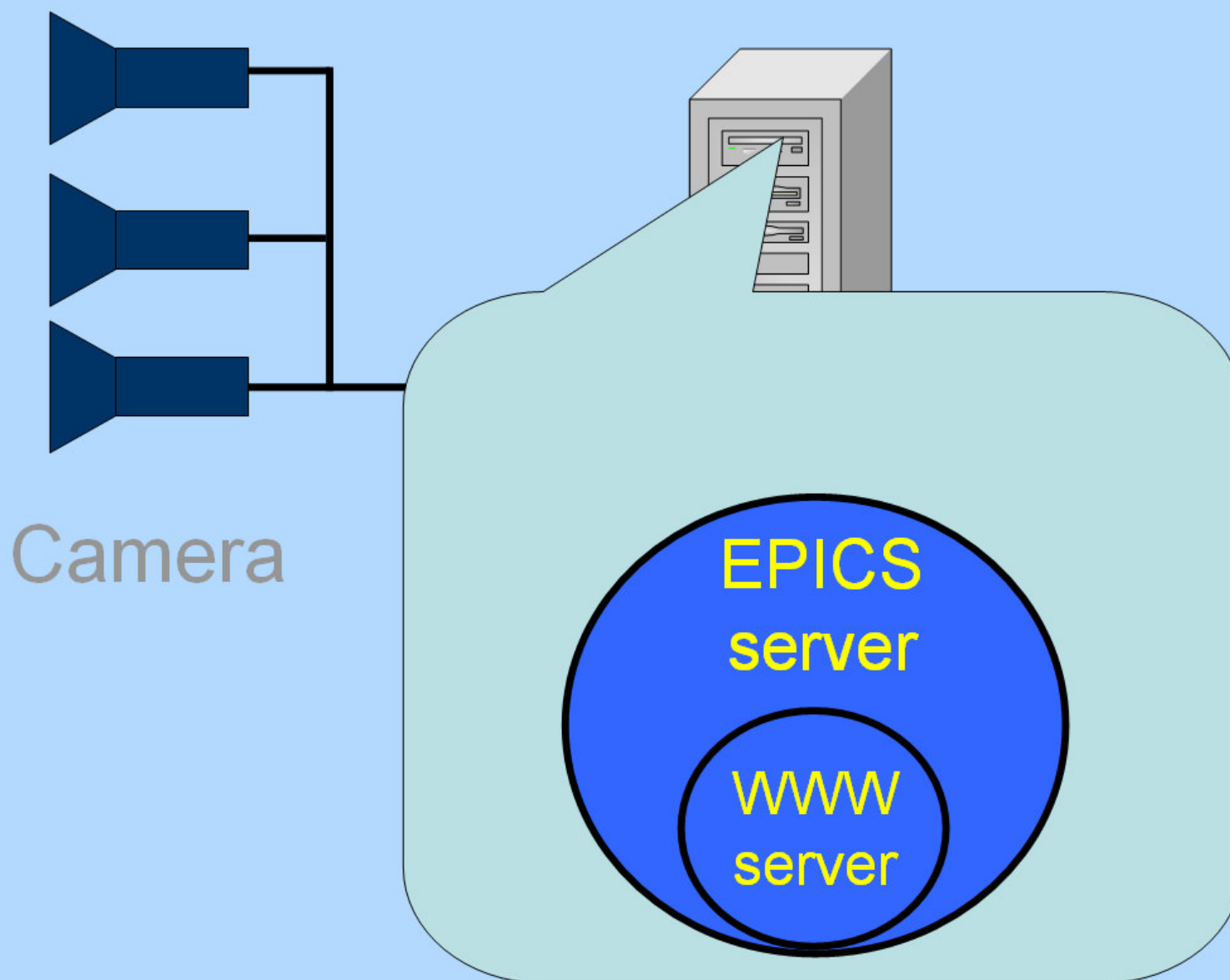
WWW
server

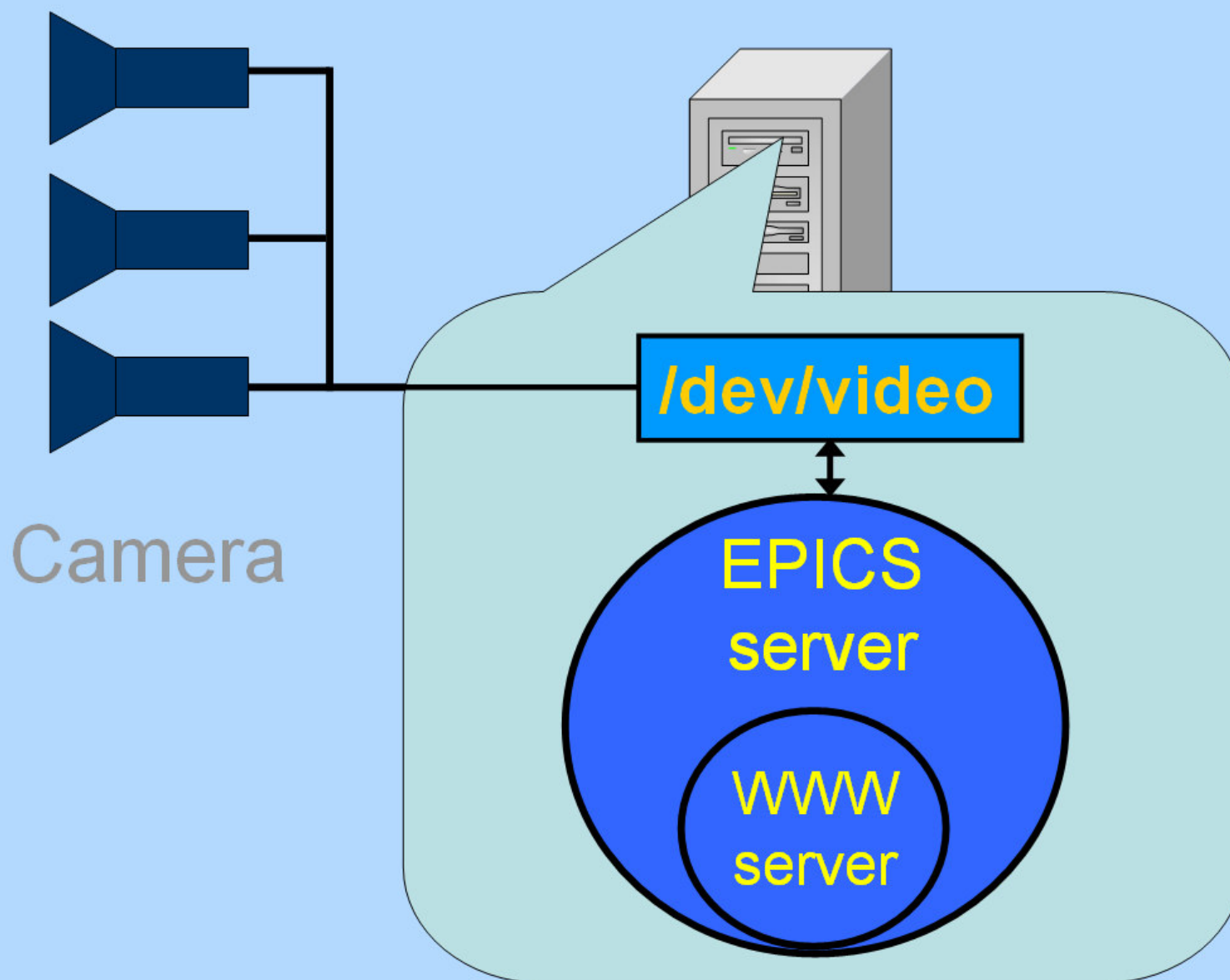


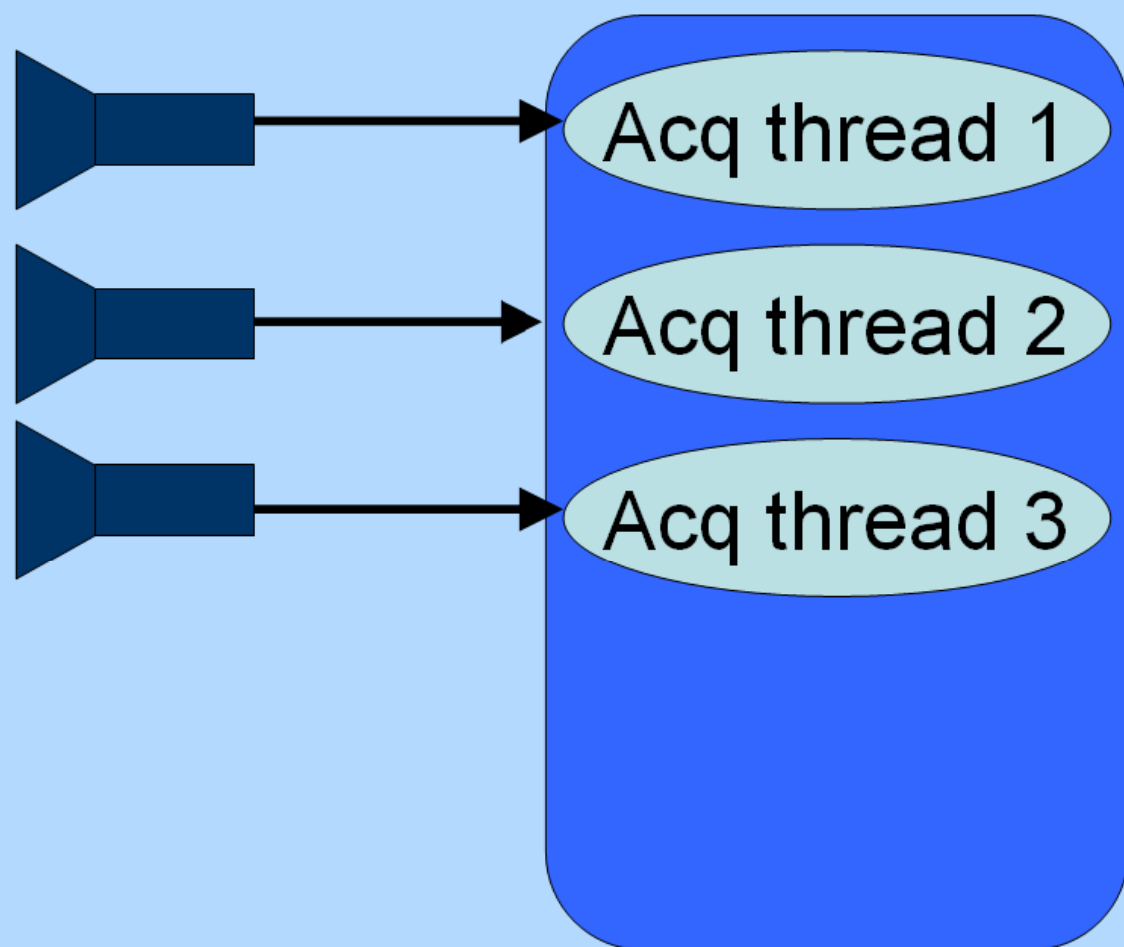




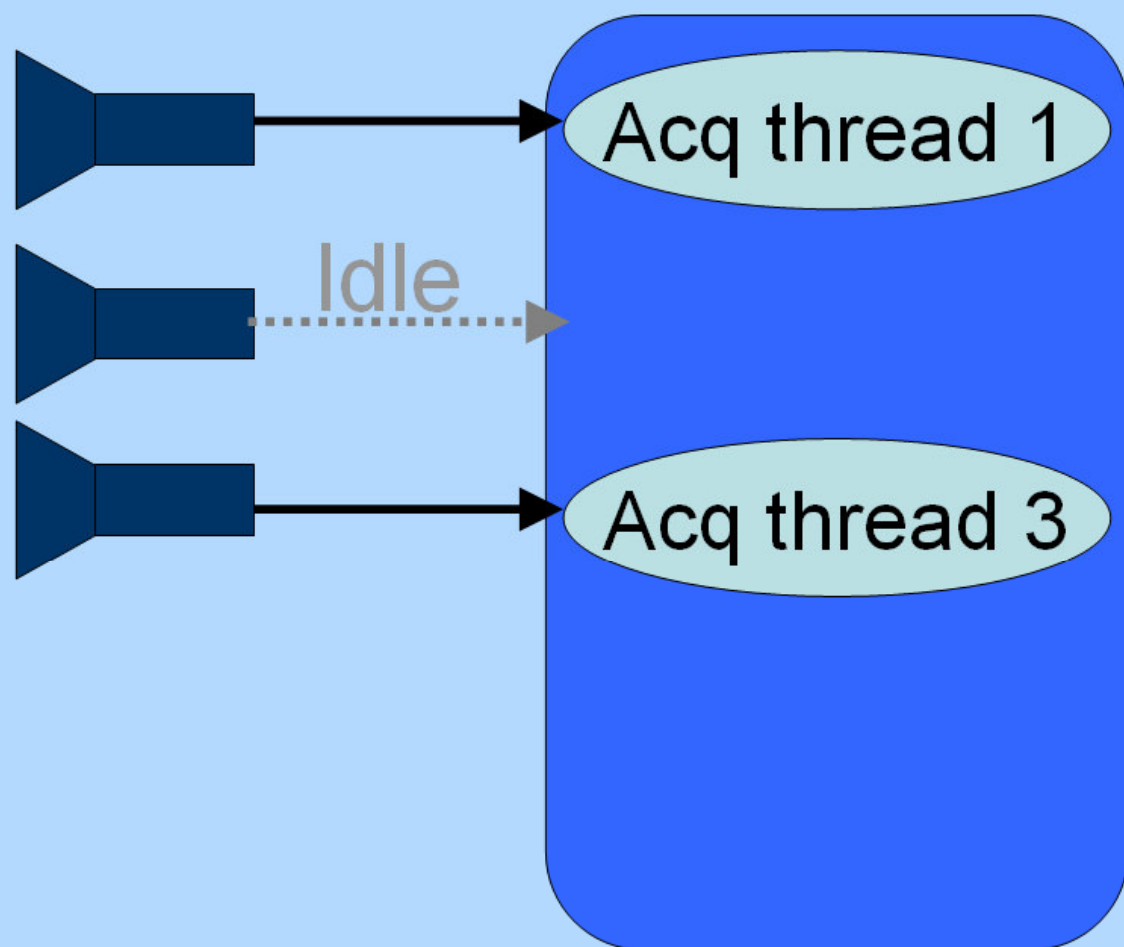




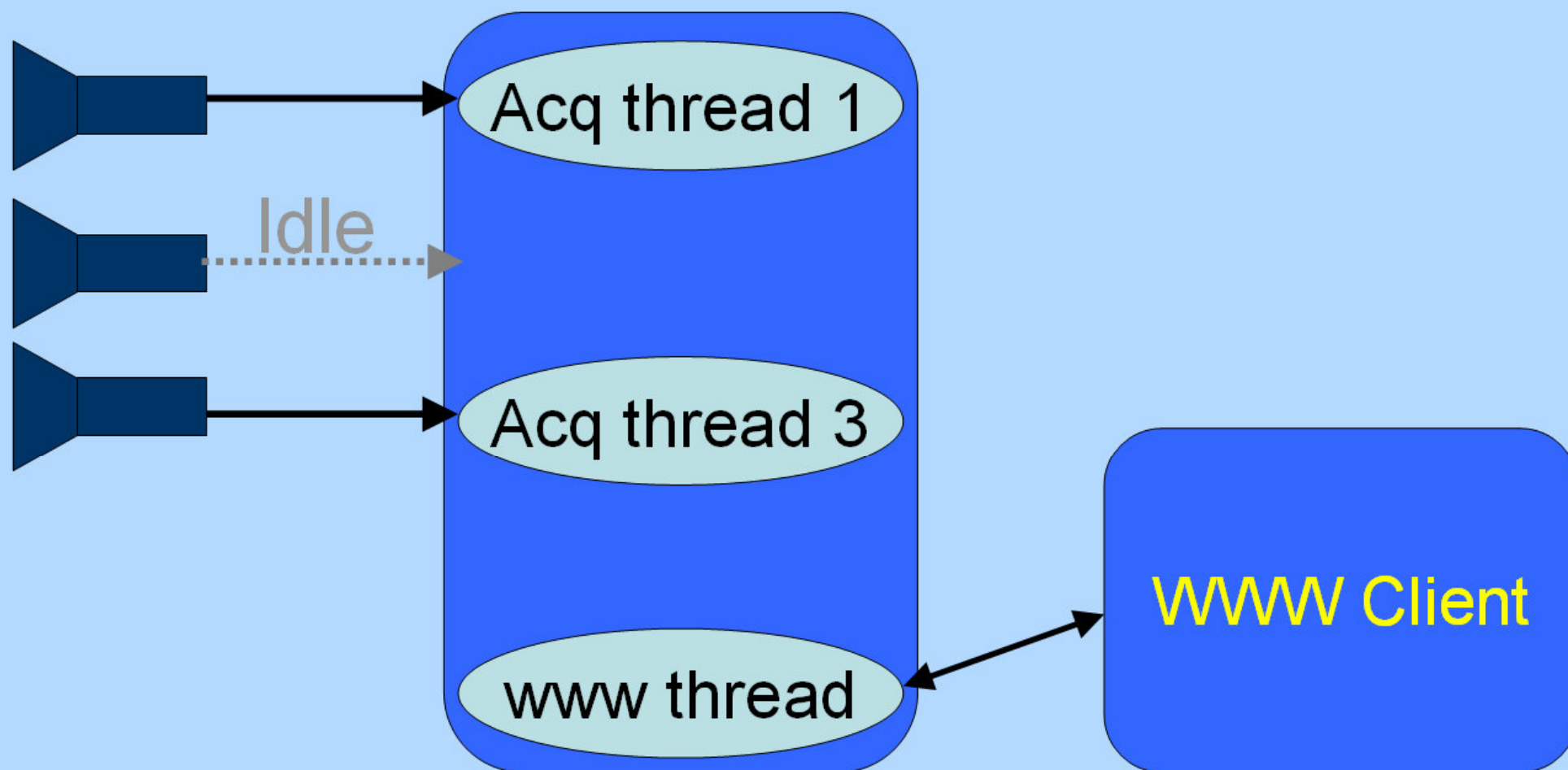




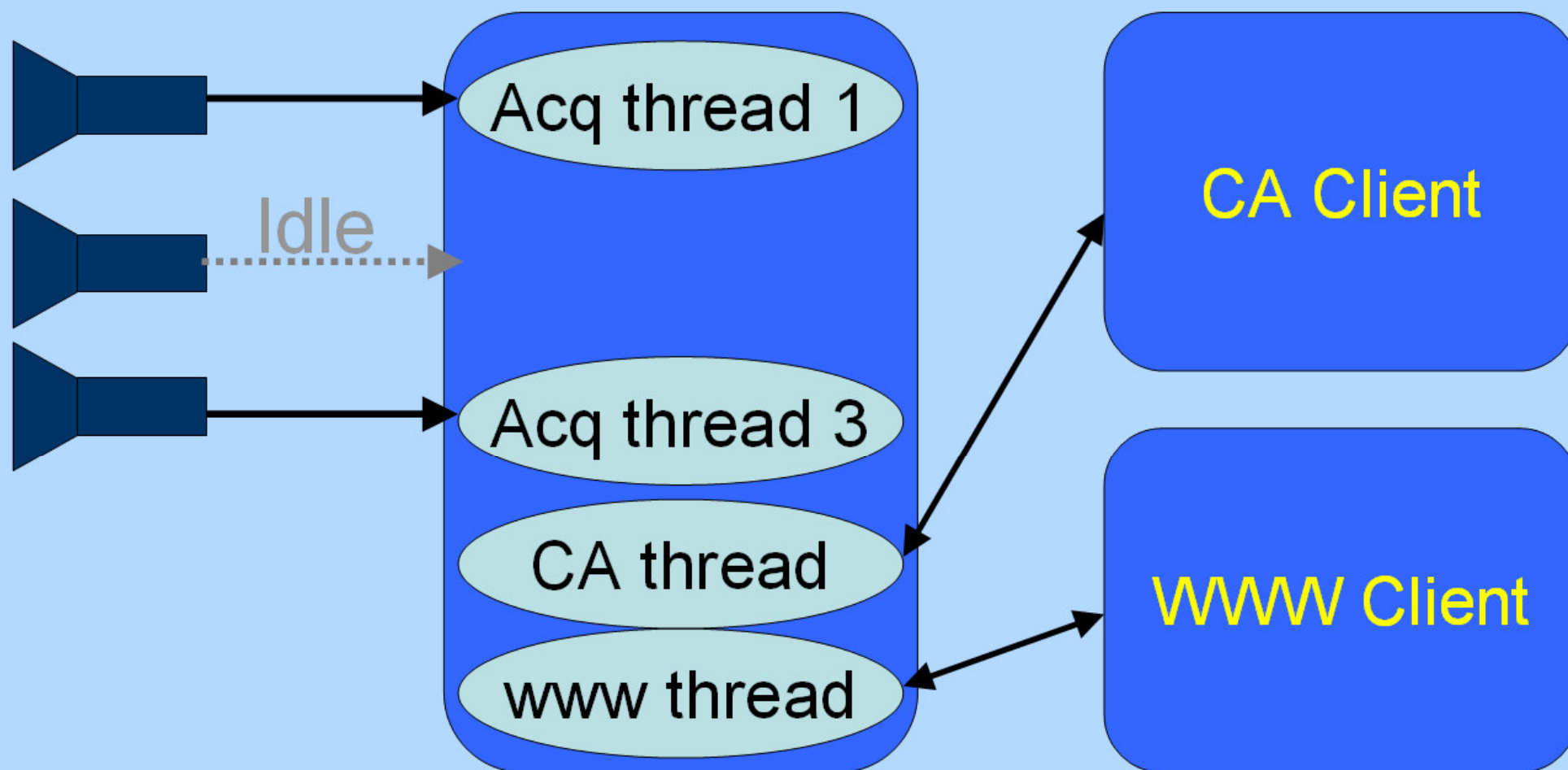
Firewire server



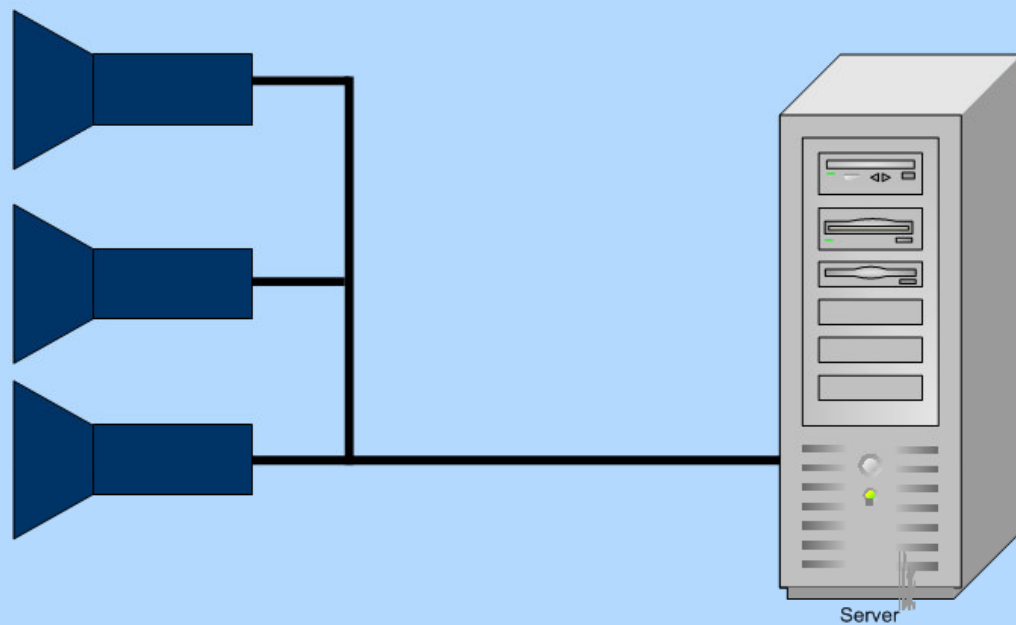
Firewire server

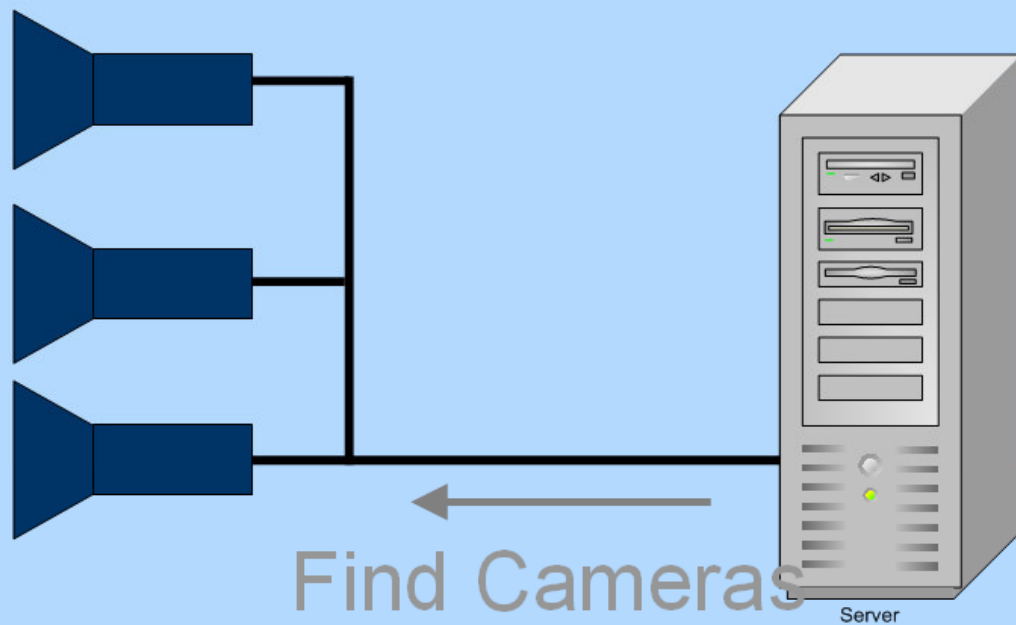


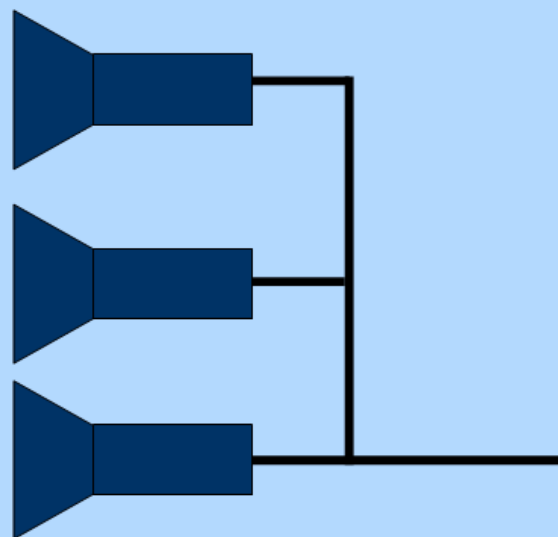
Firewire server



Firewire server



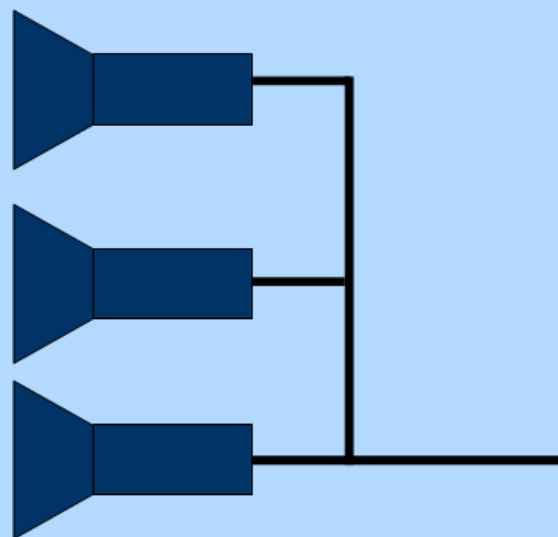




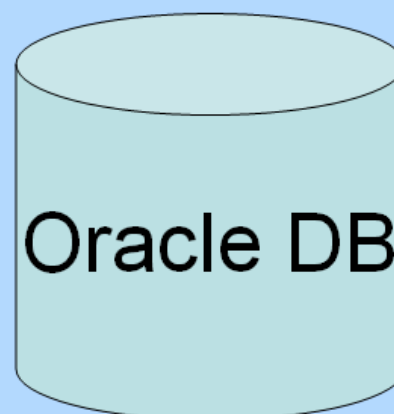
CAM1 SN= 753421

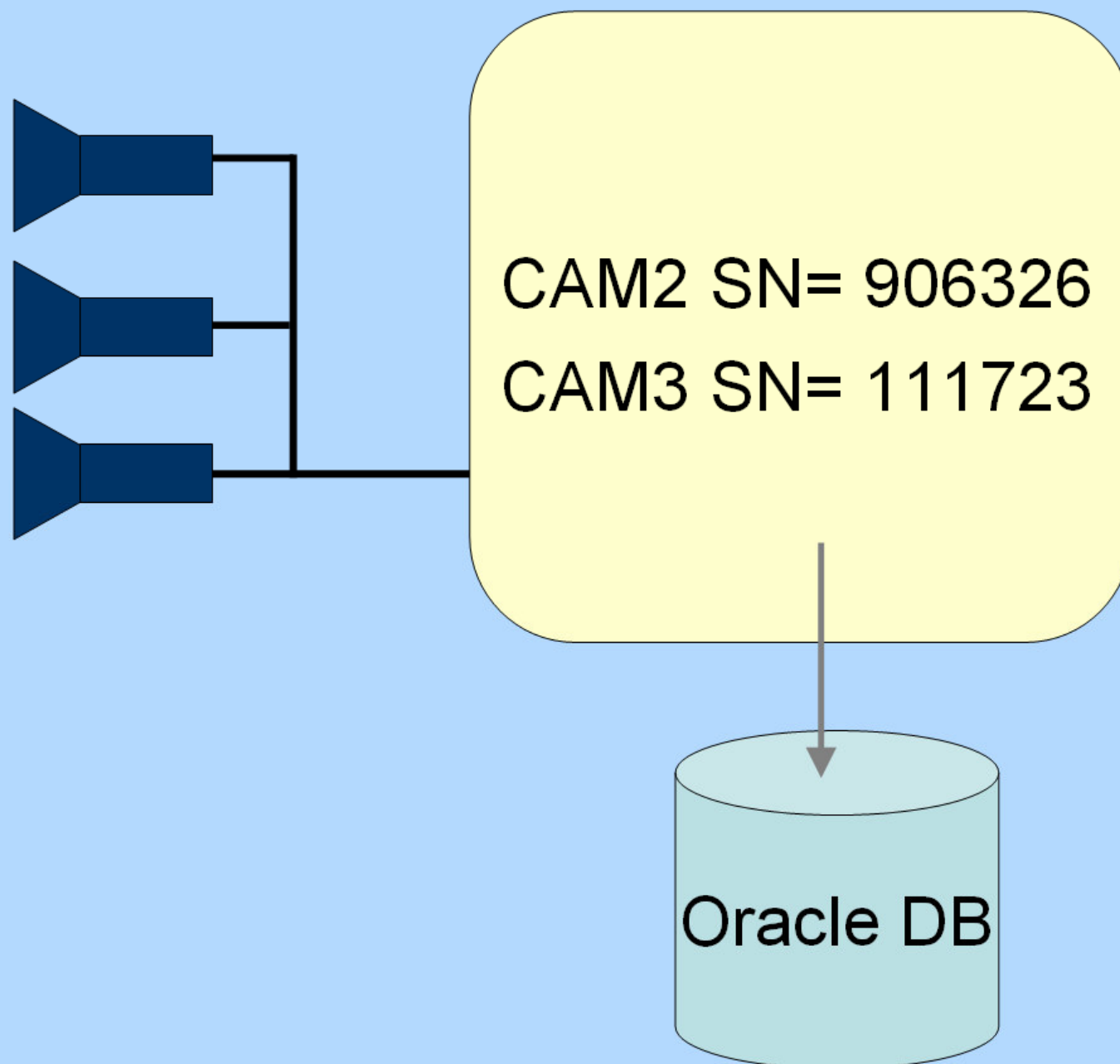
CAM2 SN= 906326

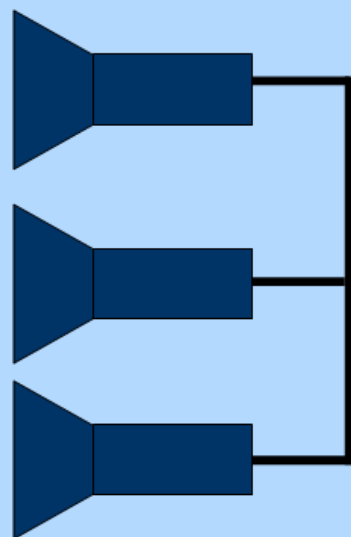
CAM3 SN= 111723



CAM1 SN= 753421
CAM2 SN= 906326
CAM3 SN= 111723



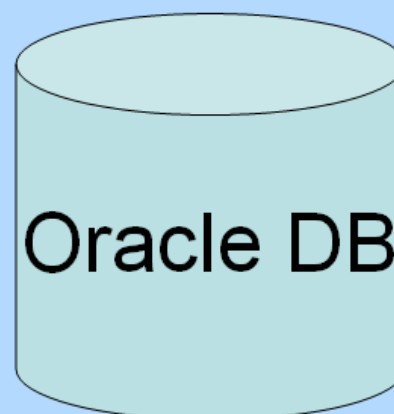


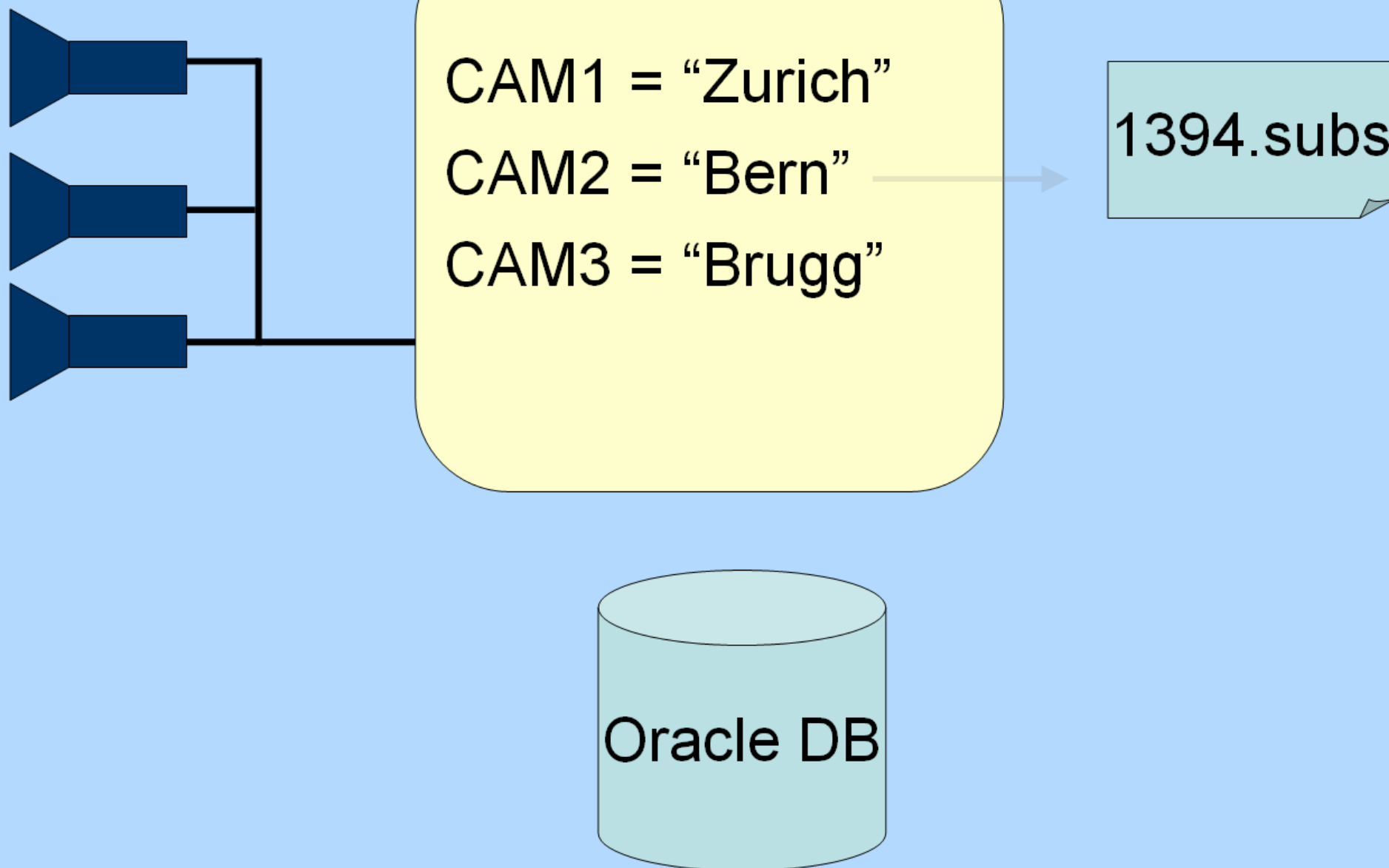


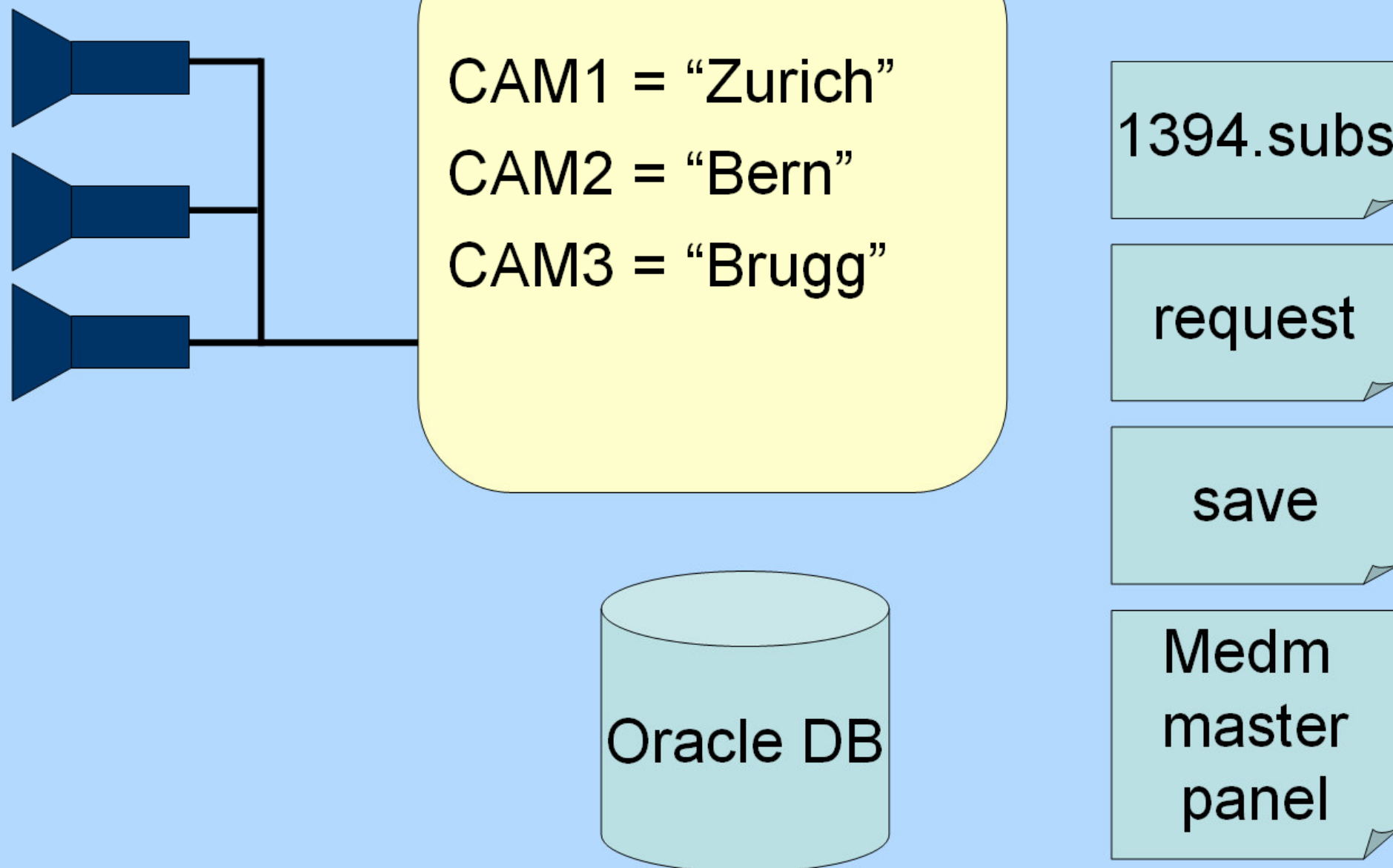
CAM1 = "Zurich"

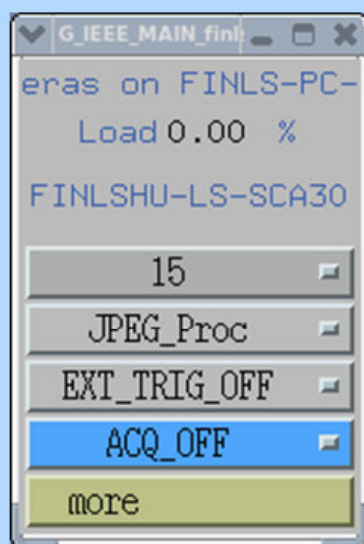
CAM2 = "Bern"

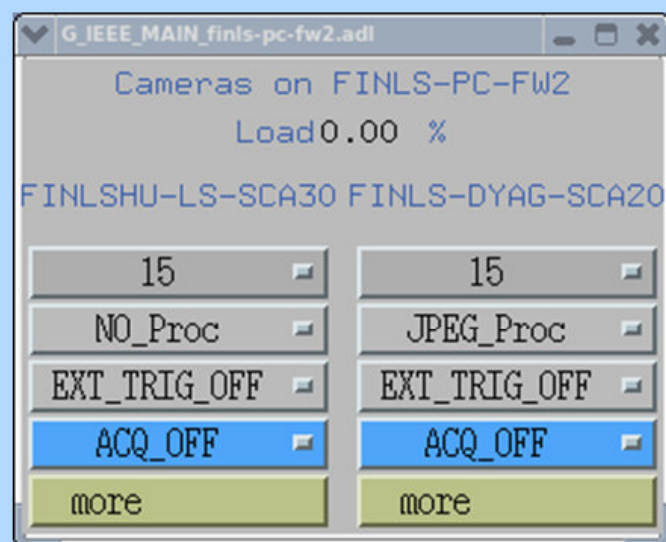
CAM3 = "Brugg"

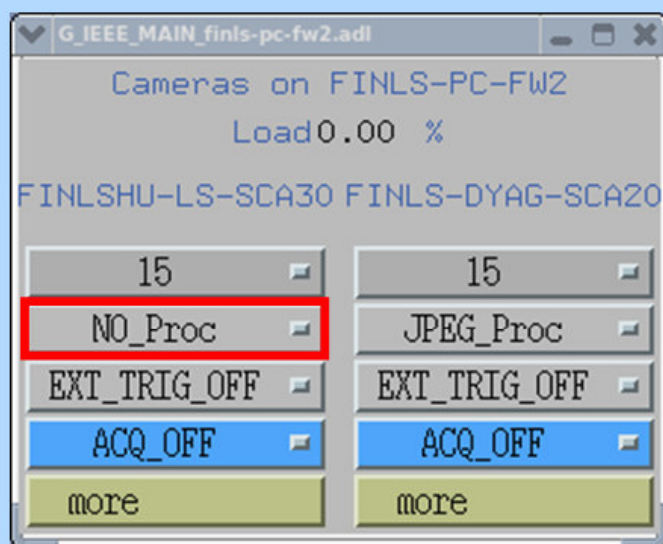


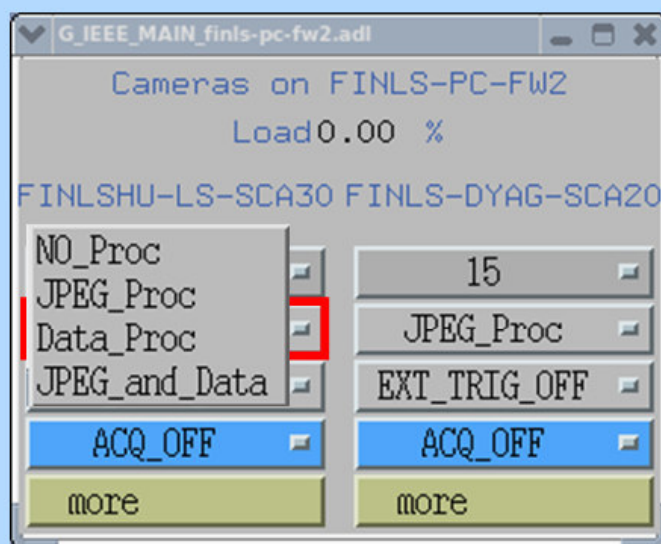


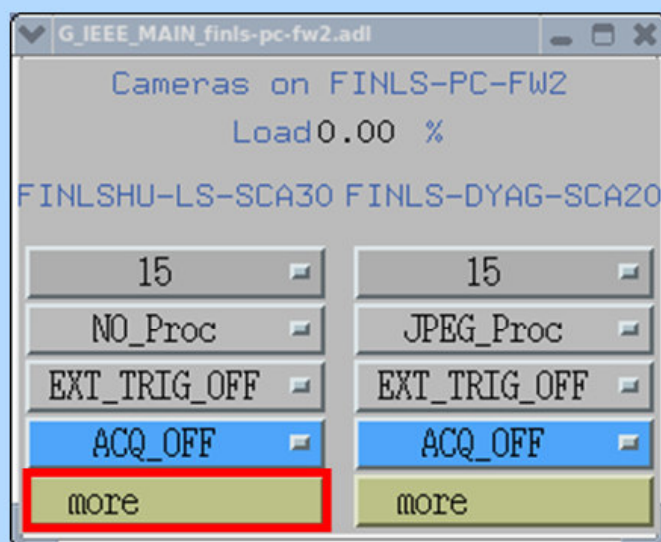


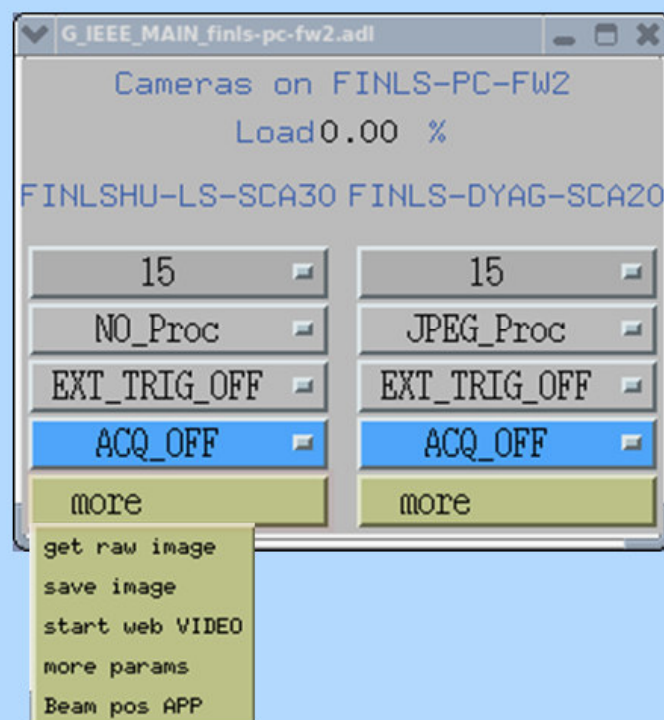


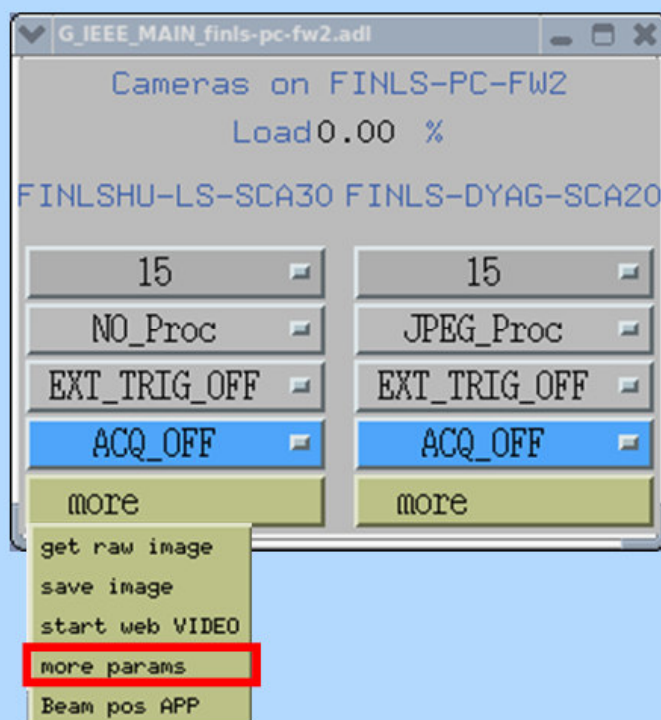












G_IEEE_setParam1_0.adl

Set Firewire Parameter

Camera Name:
FINLSHU-LS-SCA30

ACQ_OFF
! reboot
Settings

trigger polarity:
positive

positive
negative

external trigger:
off

EXT_TRIG_OFF
EXT_TRIG_ON

trigger mode:
TRIGGER_MODE_0

TRIGGER_MODE_0

framerate:
15
EPICS 0.0000

15
[Hz]

mode:
1024x768_MONO8

Error

width:
1024

height:
768

woffset:
0

hoffset:
0

threshold:
0.00

low threshold:
1

gain:
0.000000

500.0000
mode: AUTO

exposure:
1.000000

0.000000
mode: AUTO

brightness:
0.000000

0.000000
mode: MANUAL

shutter:
256.000000

500.0000
mode: AUTO

White Balance
Blue 0
Red 0

mode: UNUSED

MANUAL

MANUAL

MANUAL

MANUAL

Trigger status:
Internal camera trigger

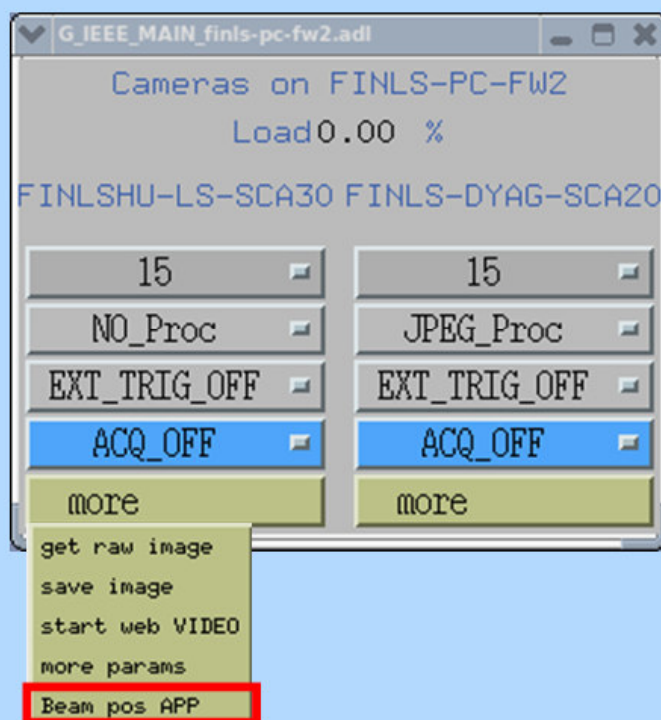
EVR EPICS channel:

EVR trigger panel

encoding:
1
numNodes:
0
model:
Flea2 FL2-08S2M

iso status:
off
numCameras:
2
vendor:
Point Grey Rese

software ver:
258
bytes per pixel:
1

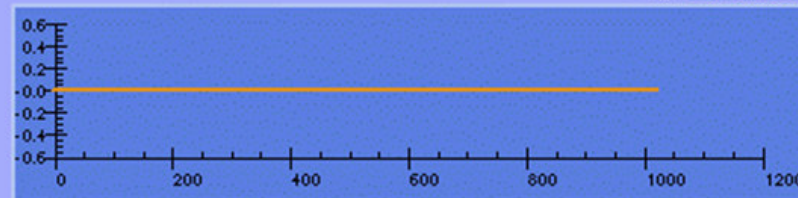


Generic Client App



G_IEEE1394_CCD.adl

FINLSHU-LS-SCA30

 Max Sum Col Sigma X
 -avg


Window size

Col Line

Max Pixel Intensity

Col

Line

All Pixels Intensity

Sum

Sum (Avg)

Settings

Gain(dB) Max Shutter(s) Threshold Window size

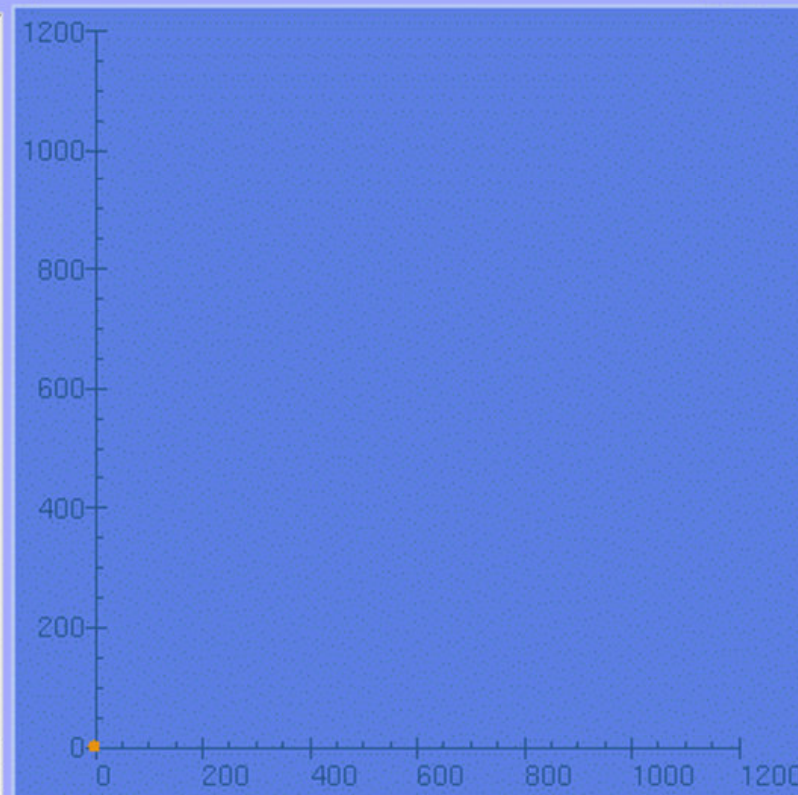
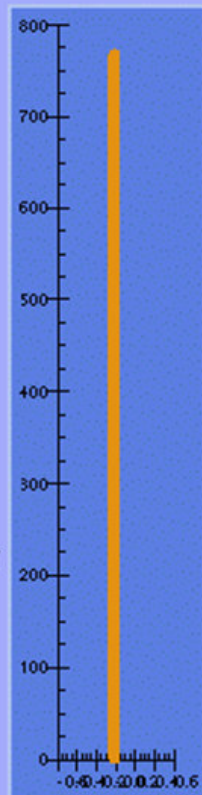
Background Substraction

Max Sum

Line

Sigma Y

Sigma Y-avg

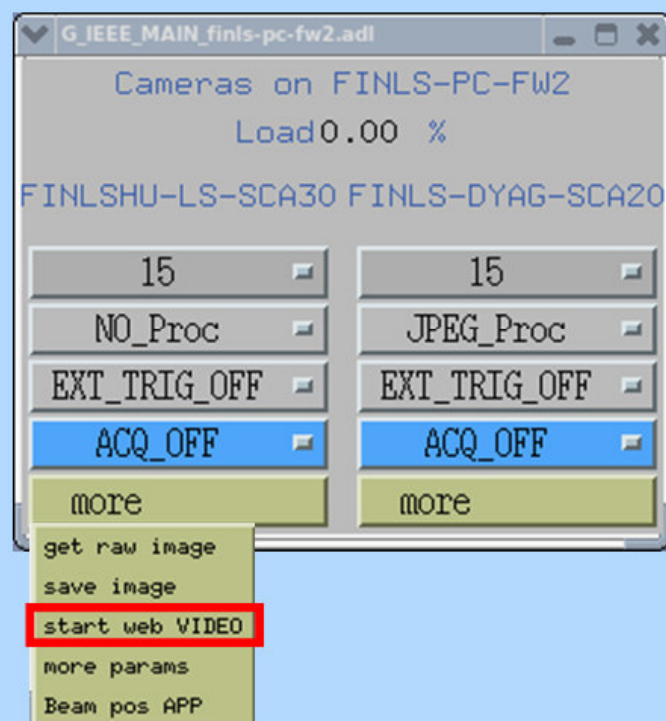


Beam Width(FWHM) Position

Avg

Avg

No. of Averaged values /sec = horizontal (X): in Pixels



DC1394 camera server - Mozilla Firefox

File Edit View History Bookmarks Tools Help

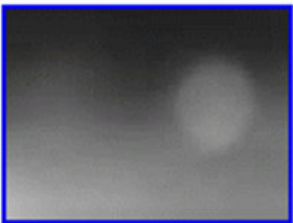
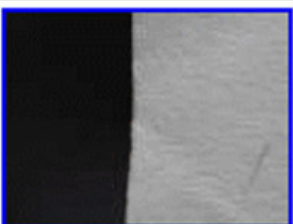
http://finls-pc-fw2.psi.ch:8090/ Google

Most Visited Scientific Linux Distros

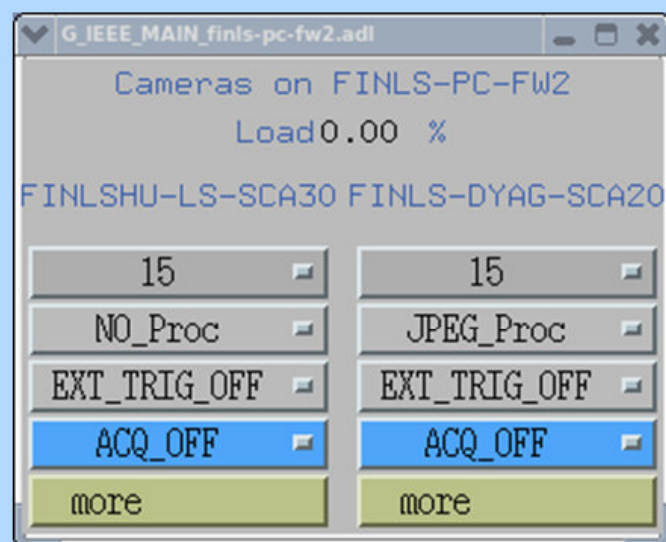
Welcome x DC1394 camera server x

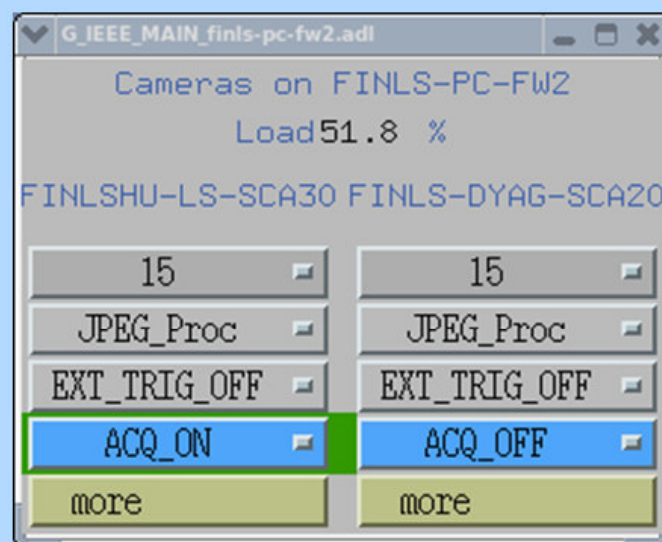
DC1394 Camera Server

Camera list

Name / Loc / Descr.	JPEG	Vendor / Model / Serial
FINLSHU-LS-SCA30 Ti:Sa Diagnostic OBLA/Laser Hutch	 Stream	Flea2 FL2-08S2M Point Grey Research 7420337
FINLS-DYAG-SCA20 Laser room in OBLA Looks at the YAG screen	 Stream	Flea2 FL2-08S2M Point Grey Research 7420372

Done





	Preliminary Server	Current Server
Linux	SL3	SL4, SL5
Libraw	1.2.0	1.3.0
libdc	1.1.0	2.0.0-rc5 (rc7)
Epics	3.14.8.2	3.14.8.2
AutoSR	4.1	4.2.1
Oracle	-	9.2

Cameras:

Flea, Flea2: 1032x776 B&W and Color

Flea2: 1624x1224 B&W



PC servers:

Pundit 2.8 GHz (single core) 1 GB RAM

Ahed Al Adwan and Steven Hunt

Anton Mezger, Colin Higgs, Martin Heiniger,
Jan Chrin, Renate Krempaska, Alain Bertrand,
Urs Beyerle and many others.

The End