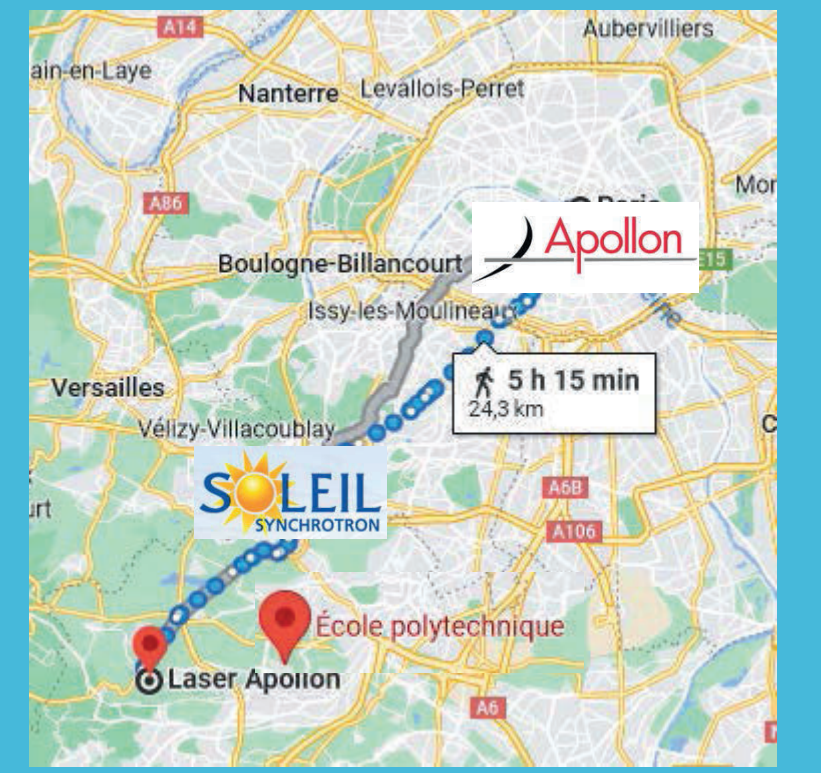




TANGO AT LULI



TUPDP012

Laurent Ennelin, Maguette Sow, Sonia Minolli, Stéphane Marchand, Jean-Luc Bruneau
Laboratoire pour l'Utilisation des Lasers Intenses (LULI), Palaiseau, France

ABSTRACT

Here is a synthetic view of the Apollon facility, from network to hardware and from virtual machines to software under **Tango** [1] architecture. We can here have an overview of the different types of devices which are running on the facility and some GUIs developed with the exploitation team to insure the best possible way of running the lasers.

PURPOSE

Remote control of 300+ **Tango Control Systems** devices including cameras, motors, gauges, calorimeters,... and experimental diagnostics.

TANGO-CONTROL ADVANTAGES

Multi-languages, OS independent and tools for management and monitoring

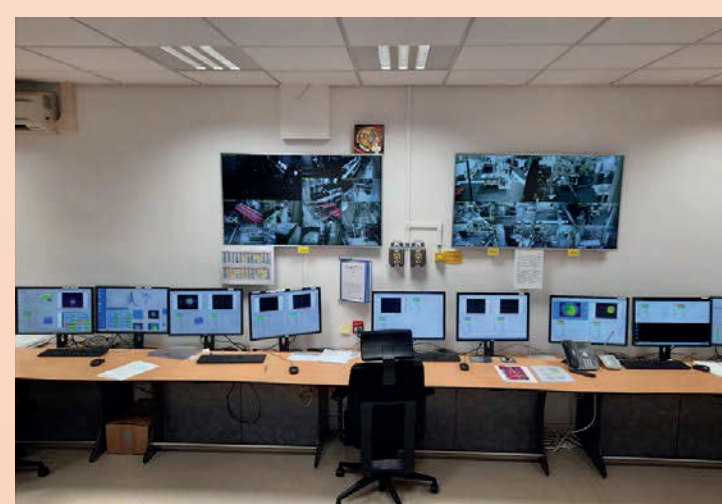
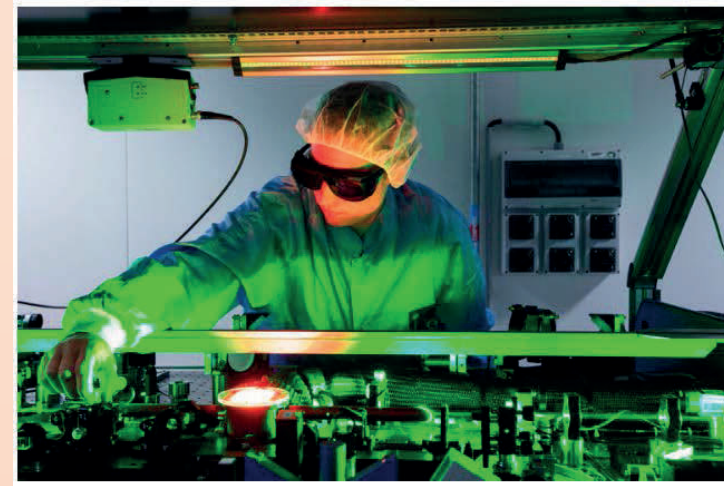
KEY FIGURES

Devices in operation	April 2019	April 2021	December 2022	Updated Estimation
Hypervisors	7	7	6	<8
Virtual Machines	33	49	54	60
Control stations	18	41	43	~50
CCD: laser beam	42	59	62	~80
CCD: plasma diag		12	12	12(*)
CCD: live exp. setup		8	8	8(*)
Calorimeters	16	18	19	>20
Motor channels: laser	66	93	100	120
Motor interaction chamber		25	~50(*)	~60(*)
Motor: diagnostics		~15	20	30
Delay generators	10	12	12	~14

* : Depending on campaigns

APOLLON FACILITY

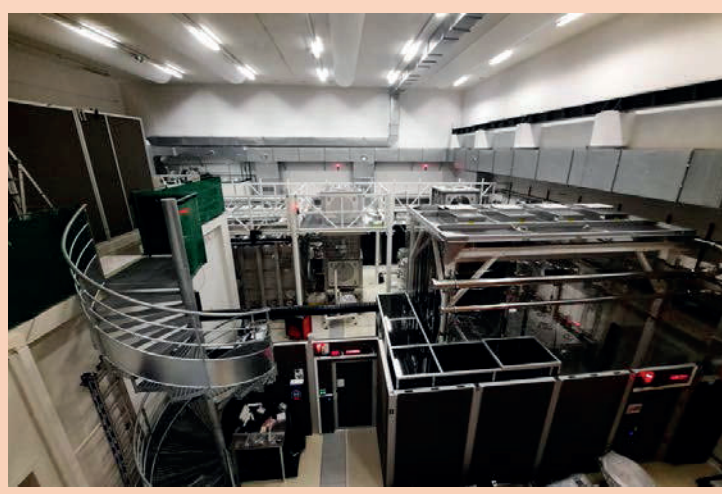
- The Facility covers about 4,500 m²
- LASER hall in an ISO8 cleanroom
- Experimental rooms cover surfaces of 280 m² and 490 m² (allowing focal lengths of several tens of meters).
- 5 m-thick concrete walls provide full radio protection.



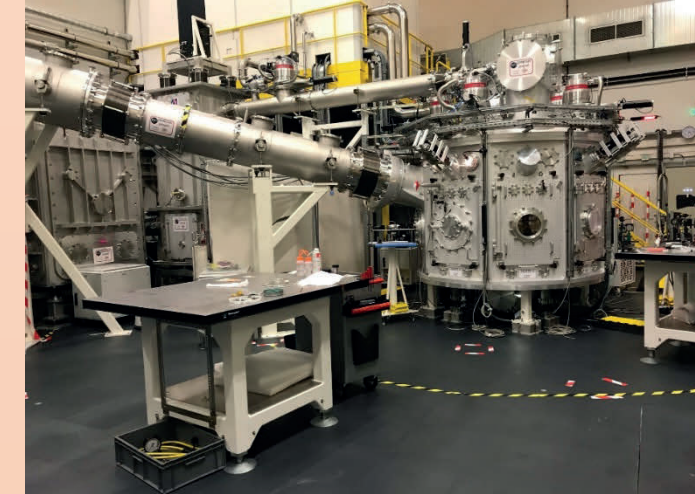
Control room



Long focal Area (420 m²)



Compression and switchyard laser subsystem

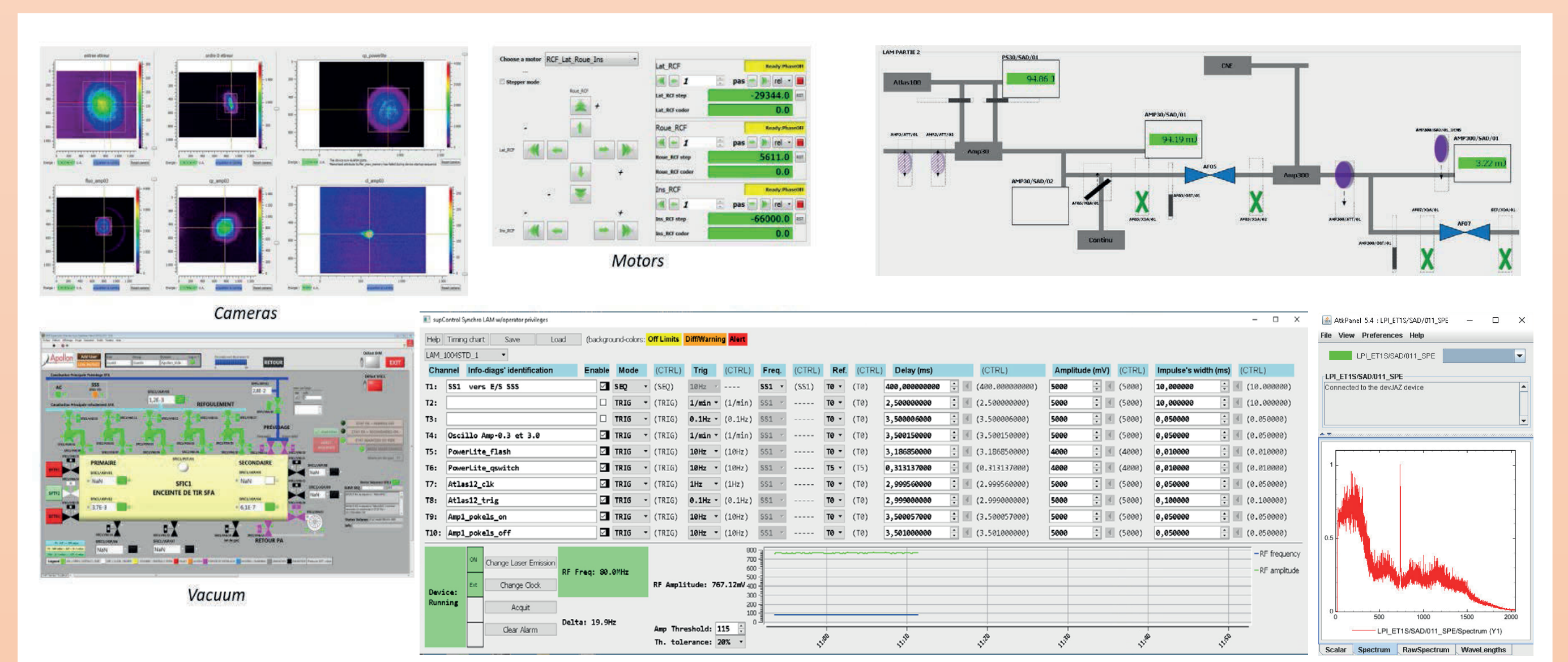


Short Focal Area (210 m²)

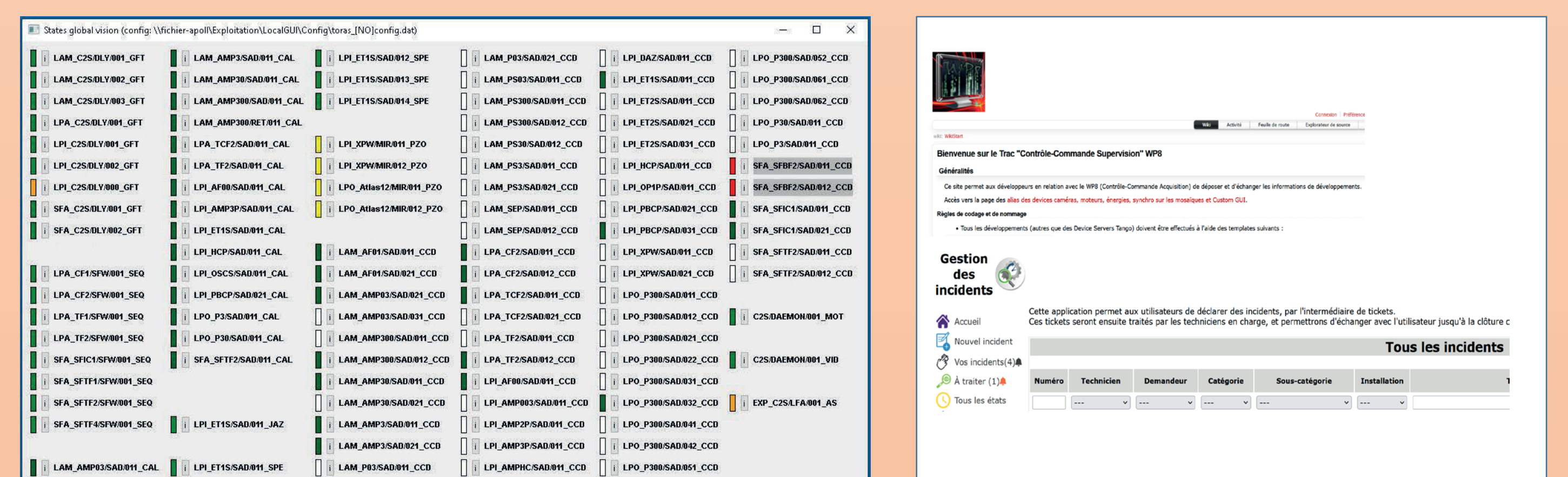
VERSIONS CURRENTLY USED

C2S Devices	Vacuum Devices (Soleil)
64-bit Windows 10	64-bit Linux Ubuntu 14.04 LTS 6
Python 3.8	Tango 9
Tango 9	NI LabView 2016
PyTango 9	
NI LabView 2022	
Currently updating to 64-bit Windows Server 2022	
Datacenter on vSphere web client	
Archiving	GUI
Linux Ubuntu 20.04 LTS	Windows 10 64-bit
Tango 9.3.4	Python 3.8
HDB++: Devices version 2.0.0, GUI	Tango 9.3
Configurator version 3.1.1	PyTango 9.3
BDD: MySQL	PyQt5

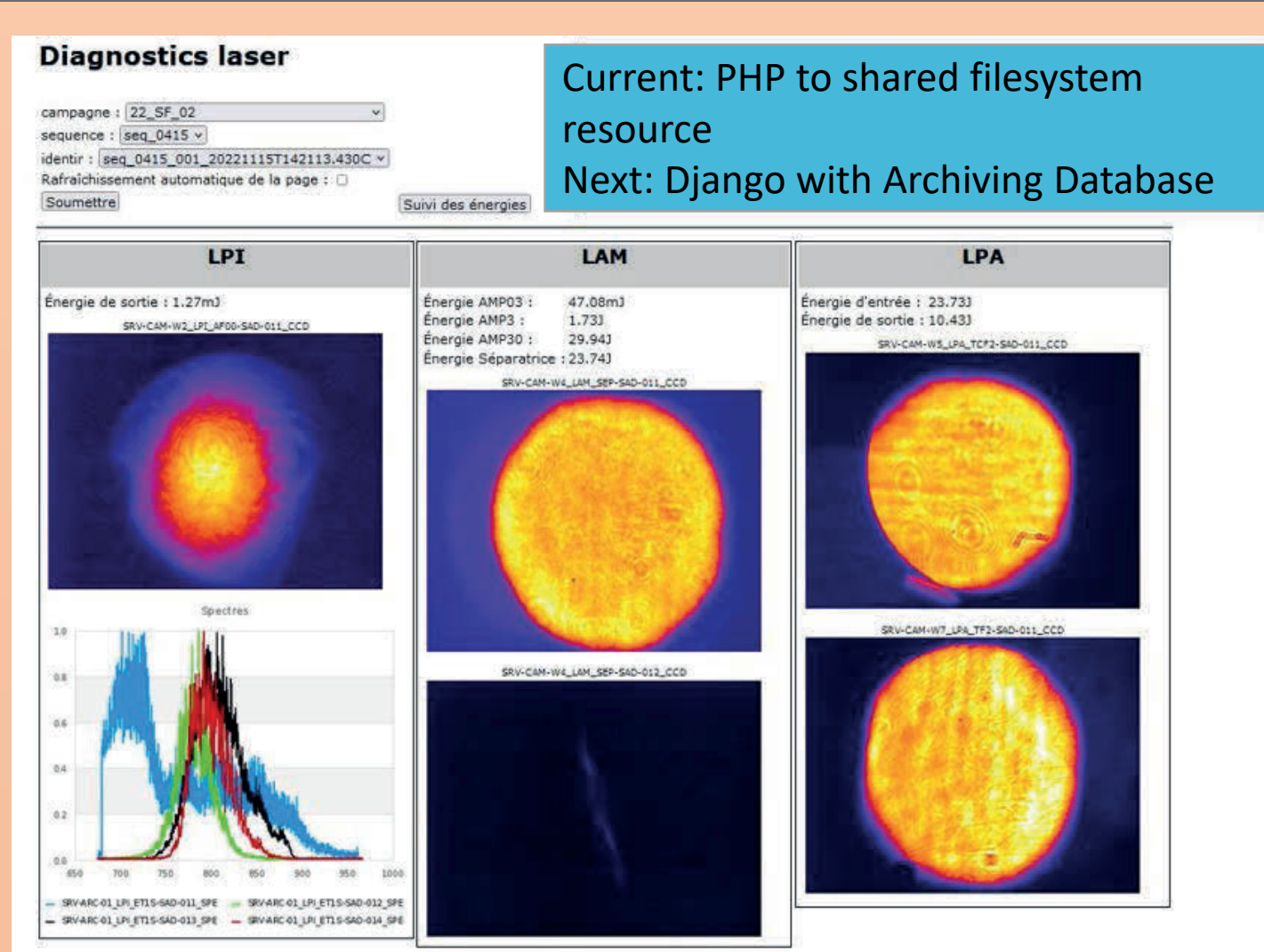
GUIs



MONITORING & ISSUES TRACKING



DEDICATED WEBSITE FOR FINAL USERS



NEXT

Interested? Come and join us for an internship or contract!

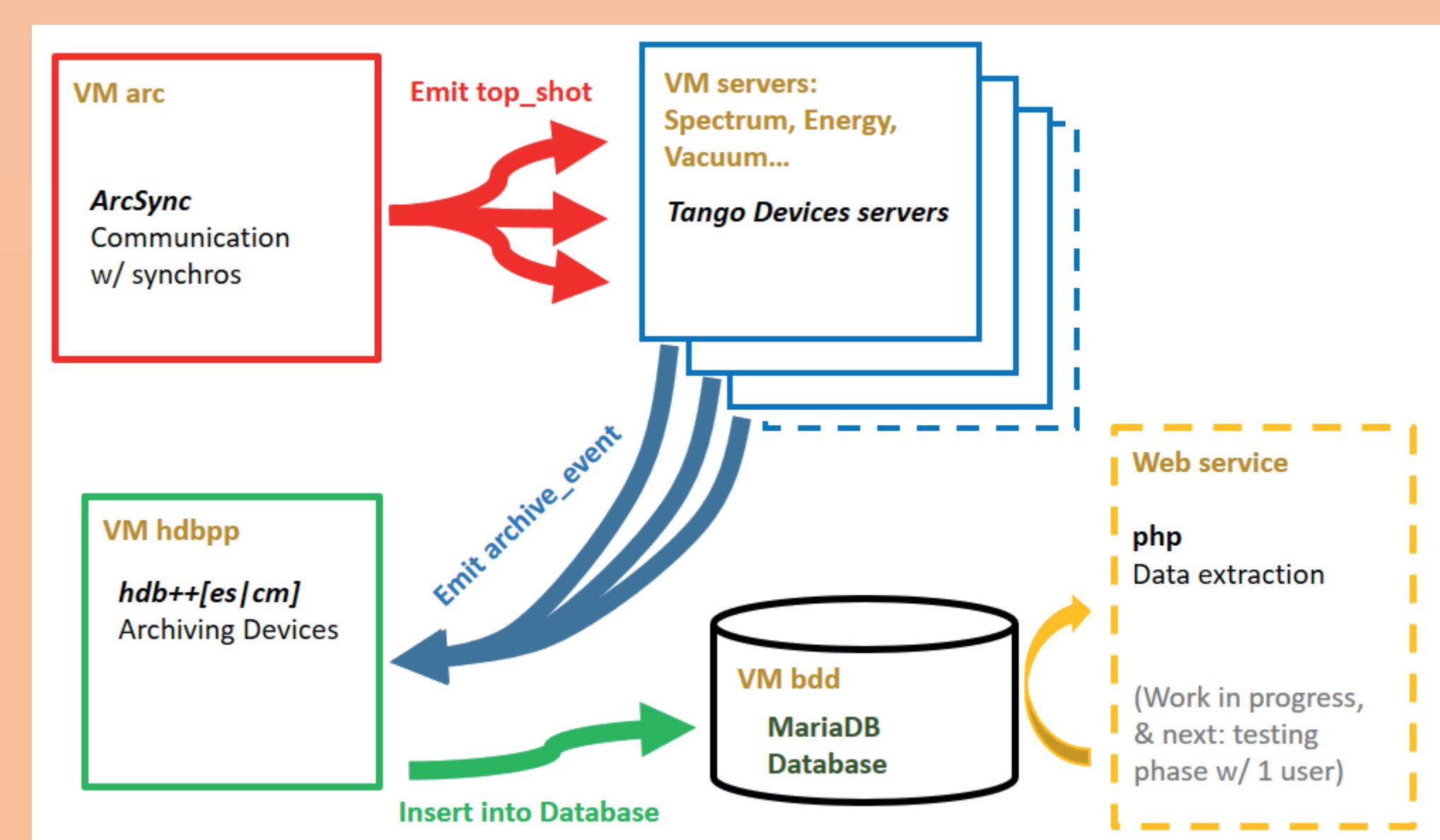
ACKNOWLEDGMENT & REFERENCES

Special thanks to Tango community colleagues who shared experience and helped construct and develop Apollon Control System
[1] Tango Controls website: <http://www.tango-controls.org>
[2] POGO is a Tango Controls class generator

CONTACT

c2s@bureau.luli.polytechnique.fr

ARCHIVING



CONFERENCE LINK

See our other poster TUMBCMO32 in the session on DevPylon and DevVimba Tango devices.



Keywords: Facility installation, upgrade, TANGO, Network, GUI



LULI/Apollon

Apollon 3D