

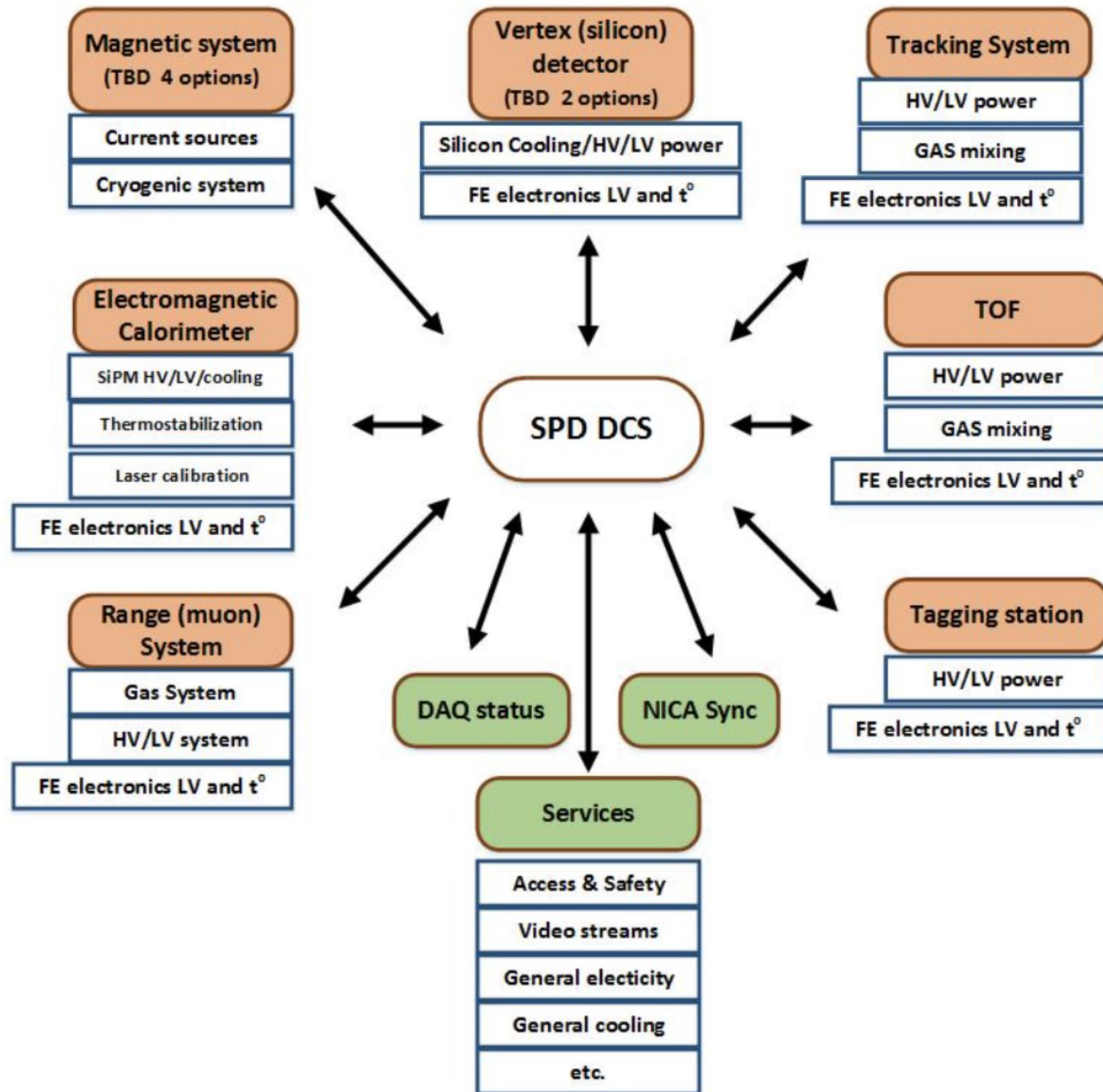


SPD detector control system

A. Chepurnov, D. Gribkov, A. Sabelnikov

SPD collaboration meeting 13-14.12.2021

SPD detector control system (DCS)



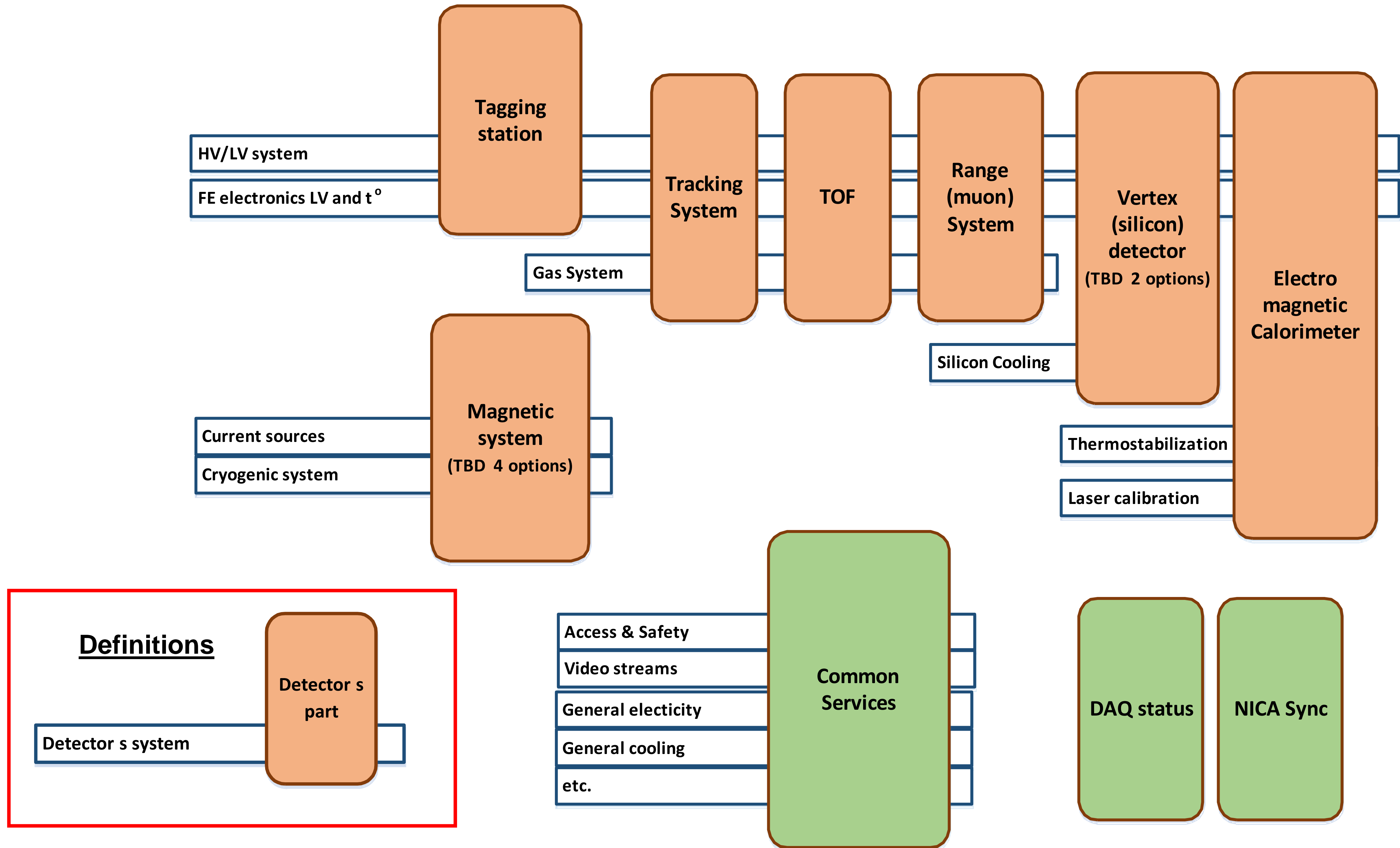
SPD DCS basic principles and rules

Current DCS layout on the base of the current status of the SPD subsystems and open for corrections .

Control system of each SPD system should be developed according to the predefined rules and principals described in SPD TDR

Used (or planned to use) technologies, software and hardware components should fulfilled predefined rules and agree with the SPD DCS responsible persons.

SPD control system architecture



1st Coordination meeting of the initiative group of the WinCC-OA @ NICA project



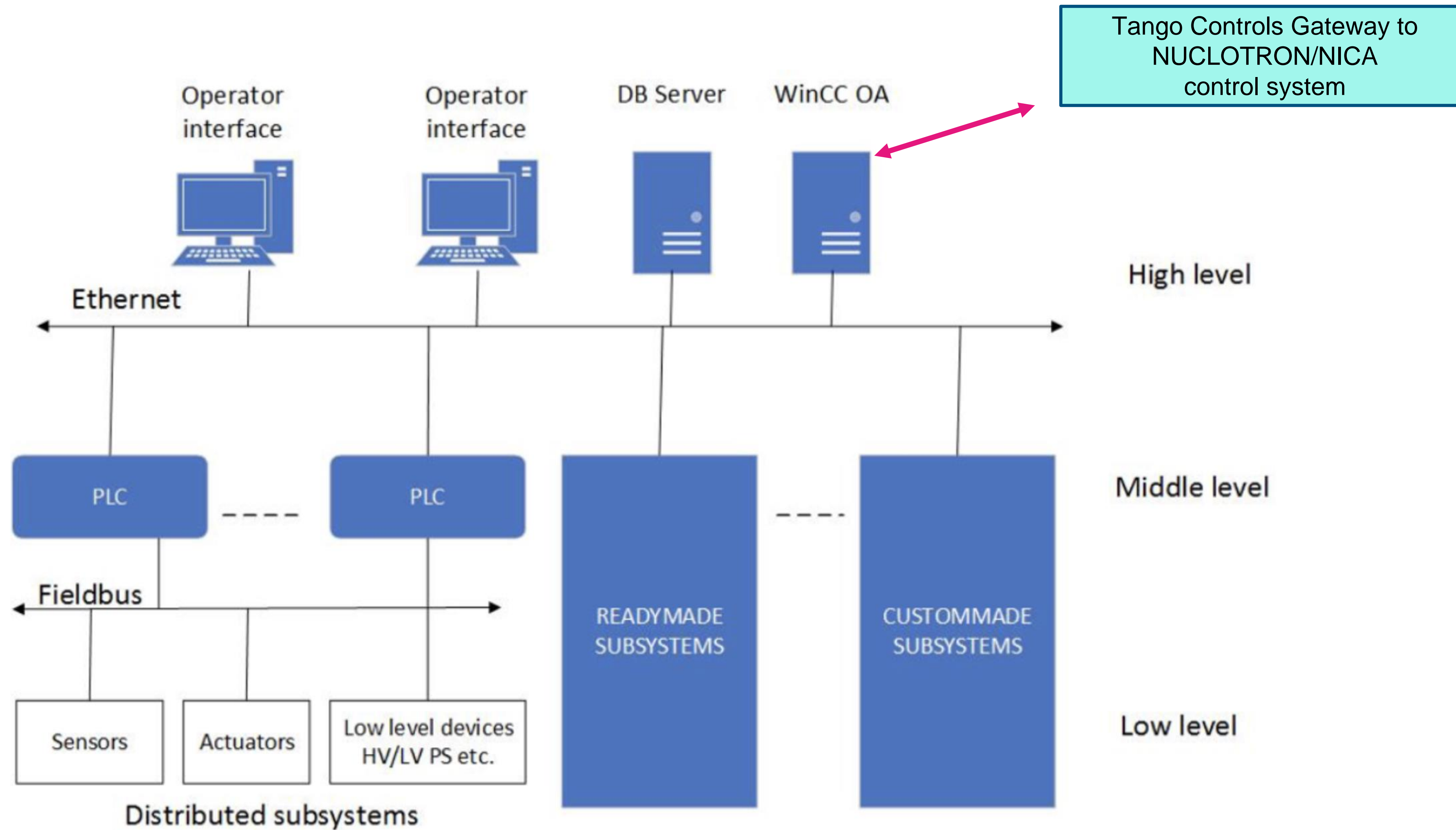
In October, a meeting was held between representatives of SPD, MPD, accelerator, cryogenics, other departments, as well as representatives of Siemens to discuss the joint use of WinCC OA at NICA.

We learned that there are many of us, the exchange of experience and best practices will allow us to achieve highly effective work with WinCC OA, as well as, regardless of the NICA system, to ensure the uniformity of different control systems

**1st WinCC OA coordination meeting, 11 October 2021
(Offline at JINR & Online)**

- Siemens office in Russia recognized a development of WinCC OA application for NICA and promised the support**
- “WinCC OA application c initiative group” was established to synconize the process of WinCC OA implementation within the NICA project (SPD representative person is Danil Gribkov)**
- A centralized purchasing of WinCC OA developer licenses for the entire NICA was launched. This week we should receive it for the needs of SPD DCS at BTZ**

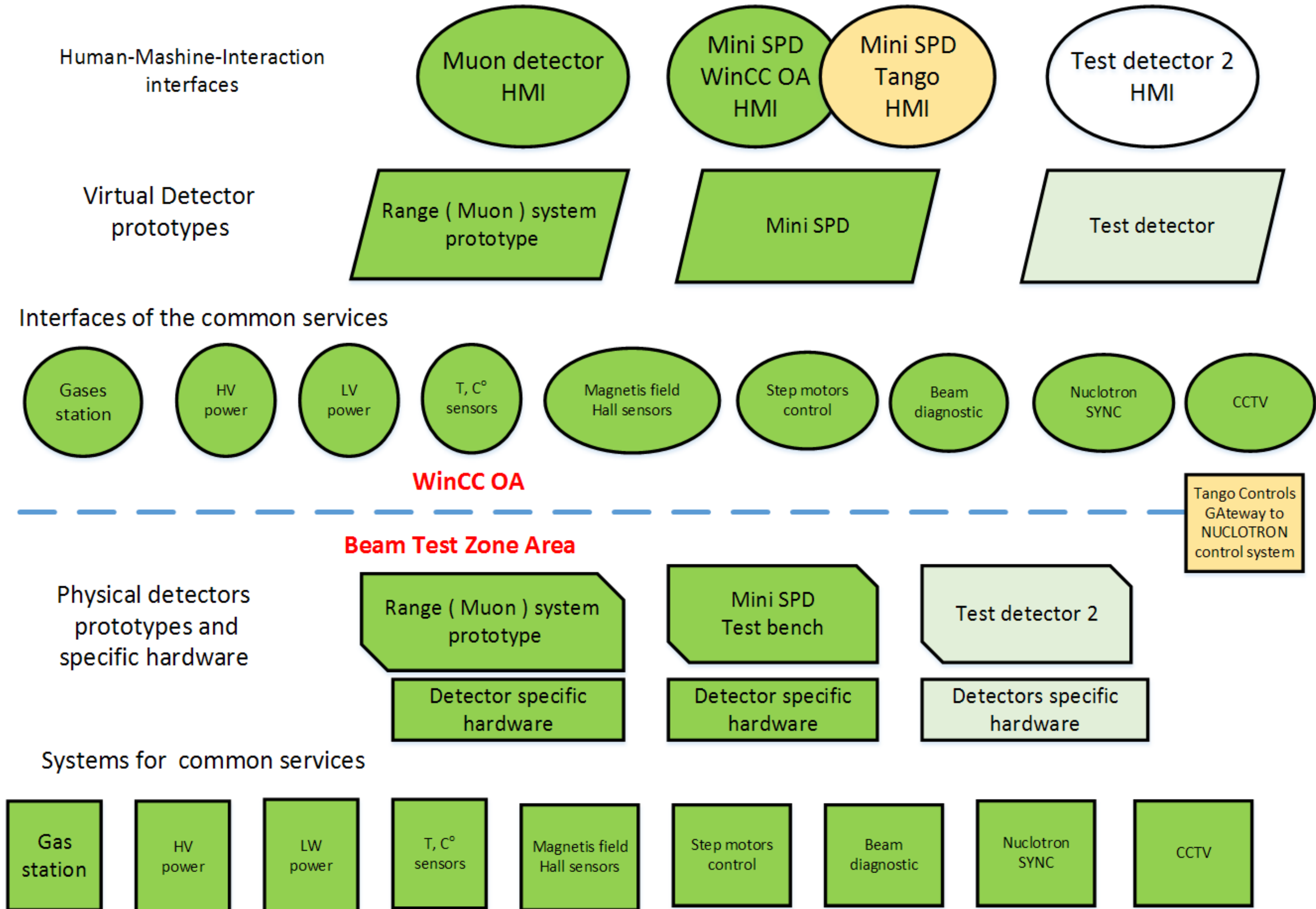
SPD DCS architecture based on **WinCC OA**



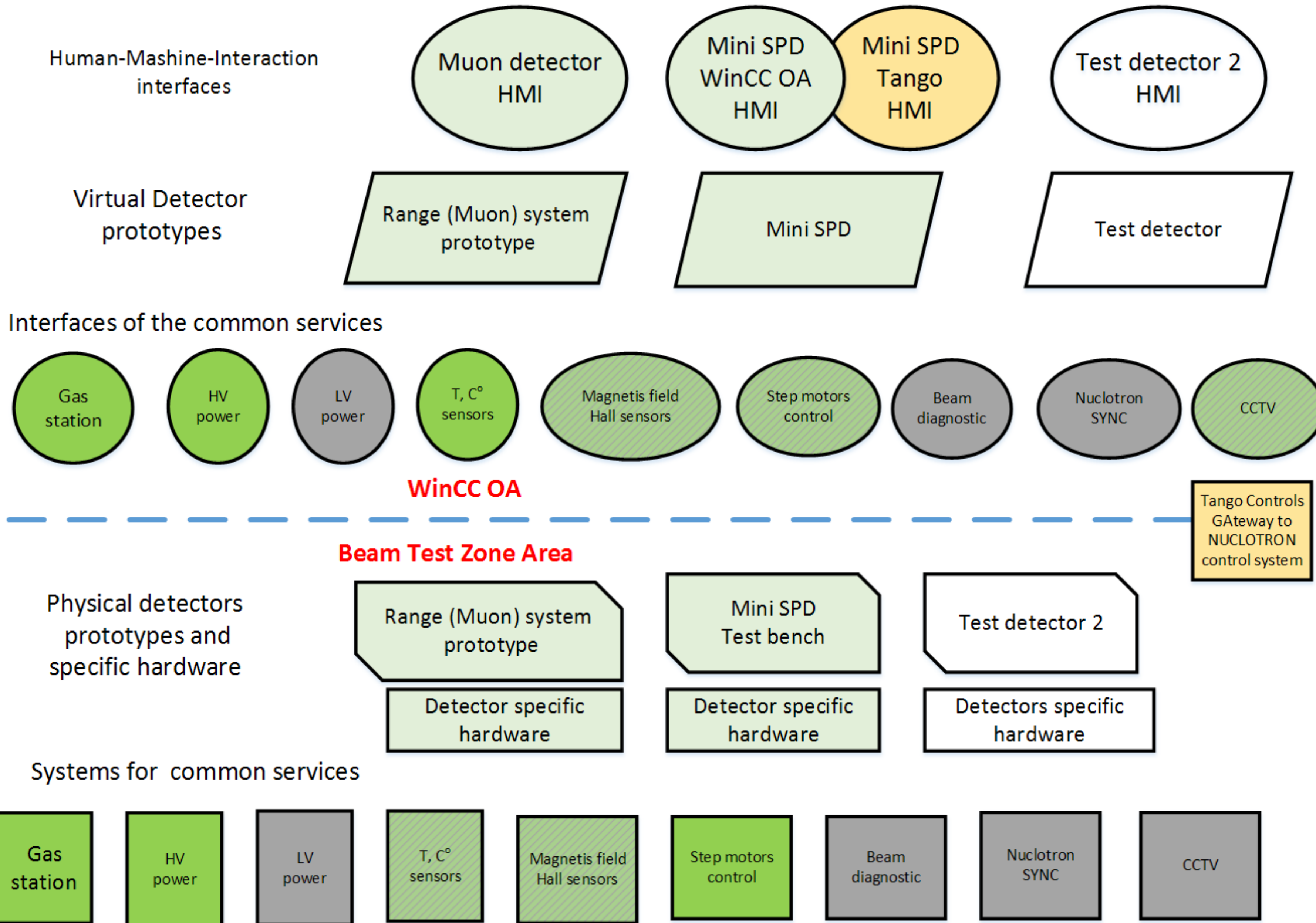
Beam Test Zone (BTZ) as a place to test SPD DCS concepts

Beam Test Zone control system is intended for the following purposes:

1. To test prototypes of control systems for different SPD systems;
2. To test separate components of SPD DCS with WinCC OA;
3. To develop and test software prototypes for common SPD DCS services such as HMI, DB etc;
4. To test interoperability between SPD DCS of different systems;
5. To test interoperability between SPD DCS of different systems and NICA accelerator.



BTZ control system actual status



BTZ high level of control system actual status

All the necessary for BTZ components of WinCC OA are deployed and working.

Managers intended for programming (PARA & GEDI) are deployed at SINP.

Server for WinCC OA at BTZ



User Interface

PARA

GEDI

Developer tools installed at SINP

DB Server

DB Storage

DataBase

Event Manager

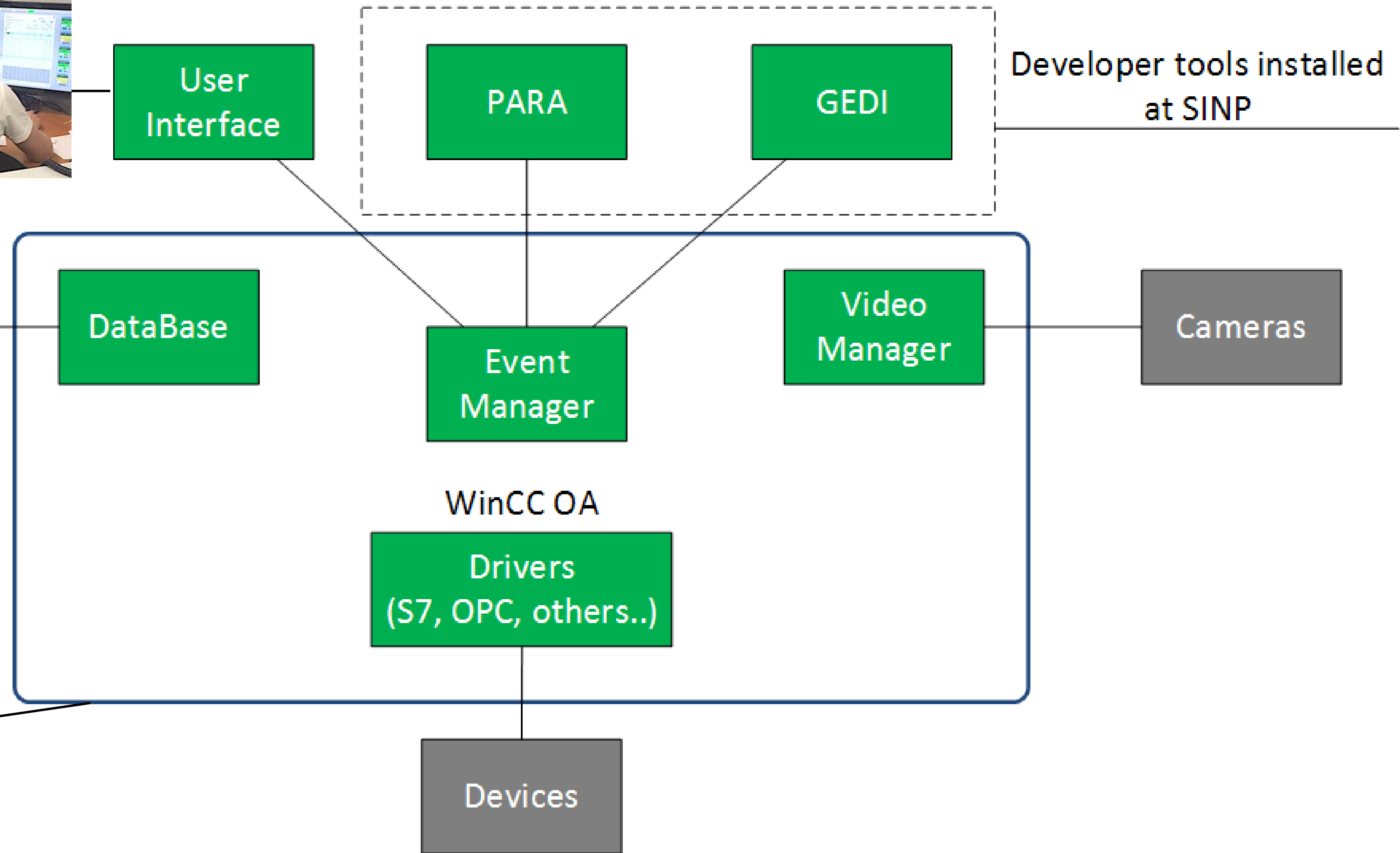
Video Manager

Cameras

WinCC OA

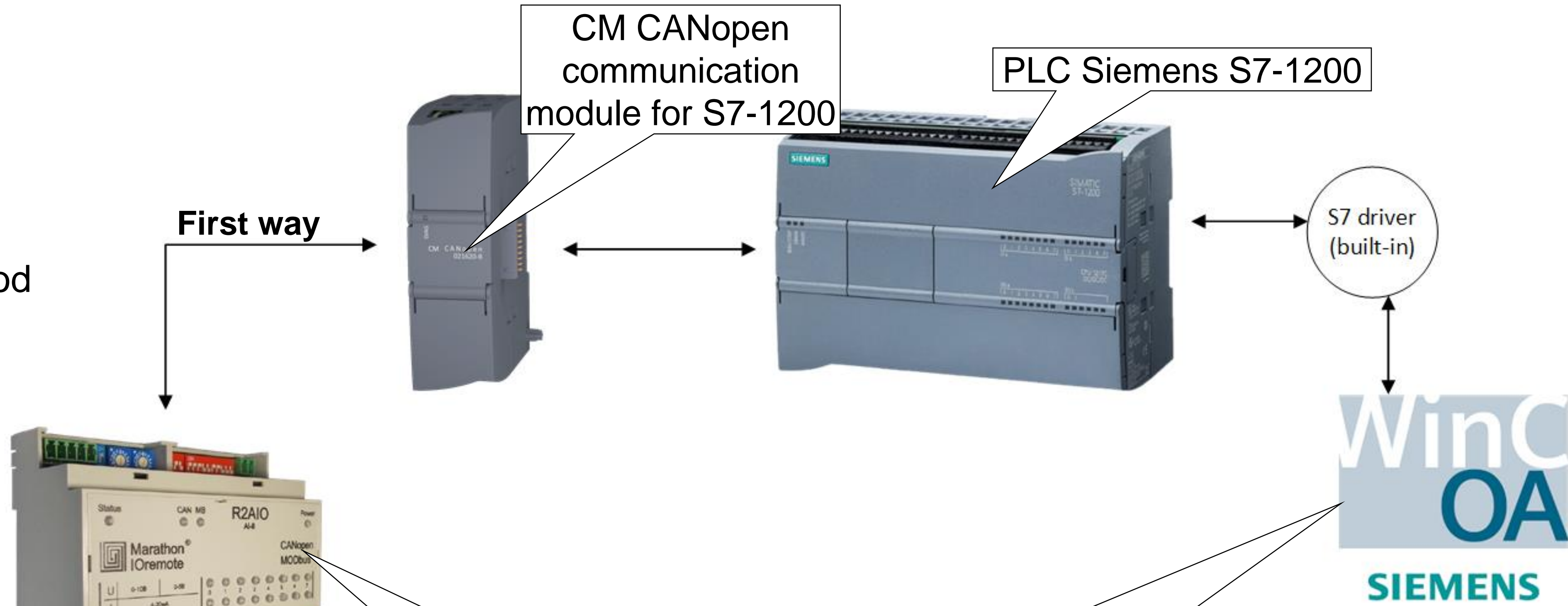
Drivers (S7, OPC, others..)

Devices

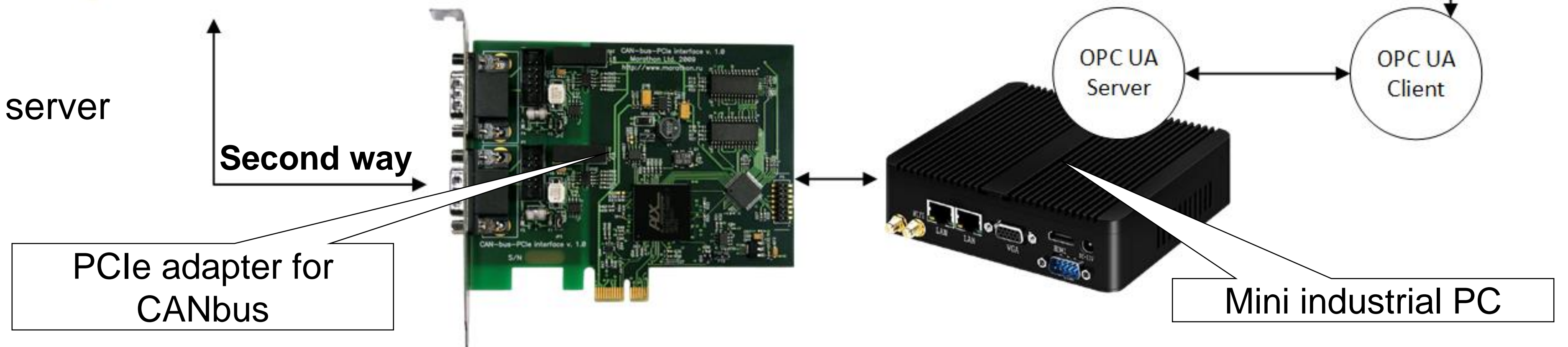


CANopen – WinCC OA connection

1. «Siemens-friendly» method



2. Atlas CANopen OPC server



Intergroup interaction proposal

DCS Dashboard

TANGO

+



Grafana

=



Grafana tool on Tango is used in miniSPD control system for charts and trends.

This tool is actively used also at CERN together with WinCC OA.

Due to the fact that the miniSPD will be installed in the BTZ in the future, we propose to start intergroup interaction already now, and the first goal of this interaction is to designate the introduction of all developments with the Grafana tool in the WinCC OA.

Presentation slide DCS of the SPD stand (miniSPD) from
FE, DAQ and DCS meeting (29 April 2021)
Kirill Salamatin, Temur Enik

Conclusion

- We continue to work on the development and implementation of a control system for SPD prototypes at BTZ
- The first meeting of the WinCC OA initiative group was held, where a council for NICA inter-group interaction was created, and a list of developer licenses for ordering from Siemens was created
- We propose to start interaction with the miniSPD group on the issue of porting their developments to WinCC OA