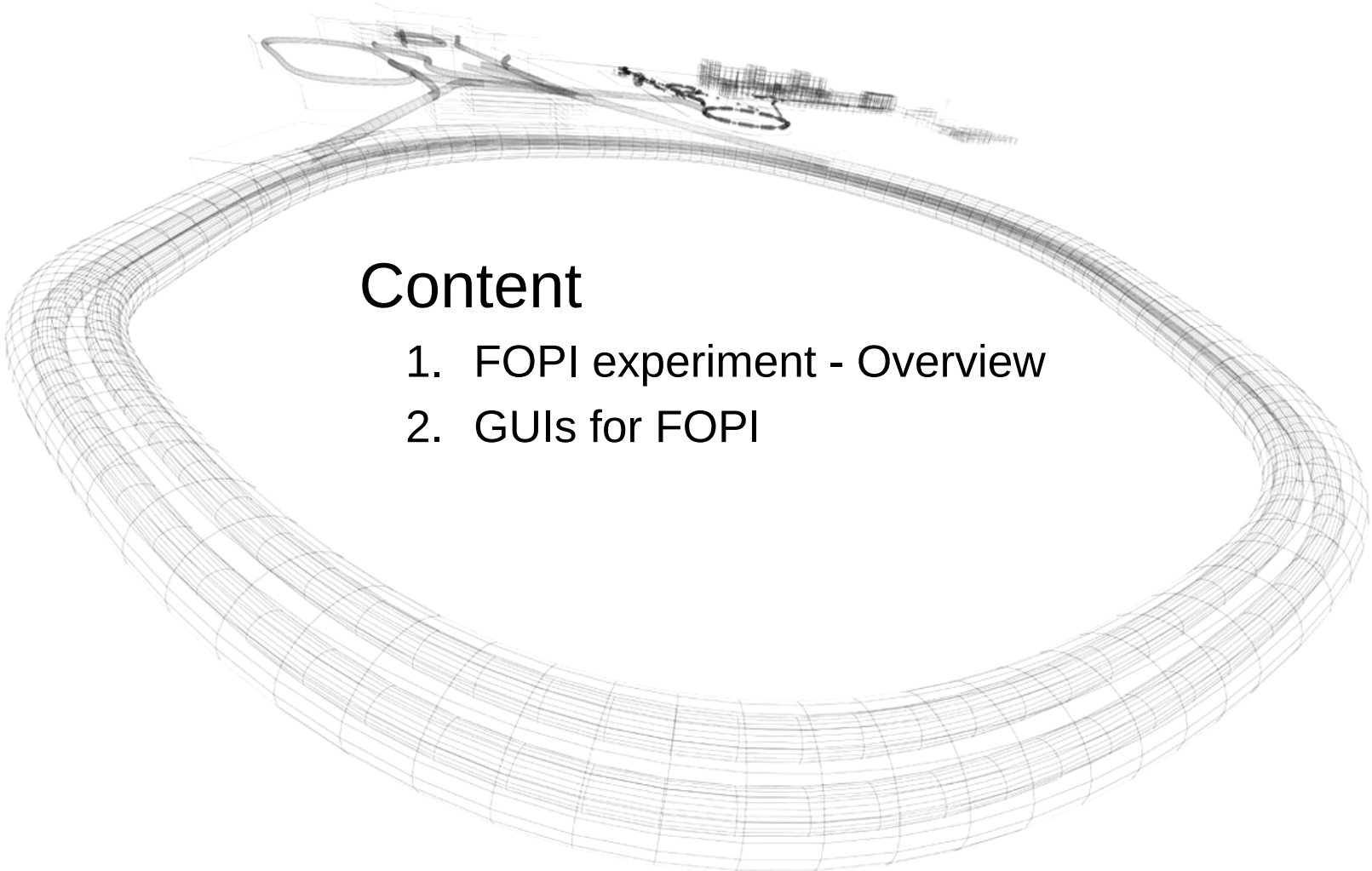
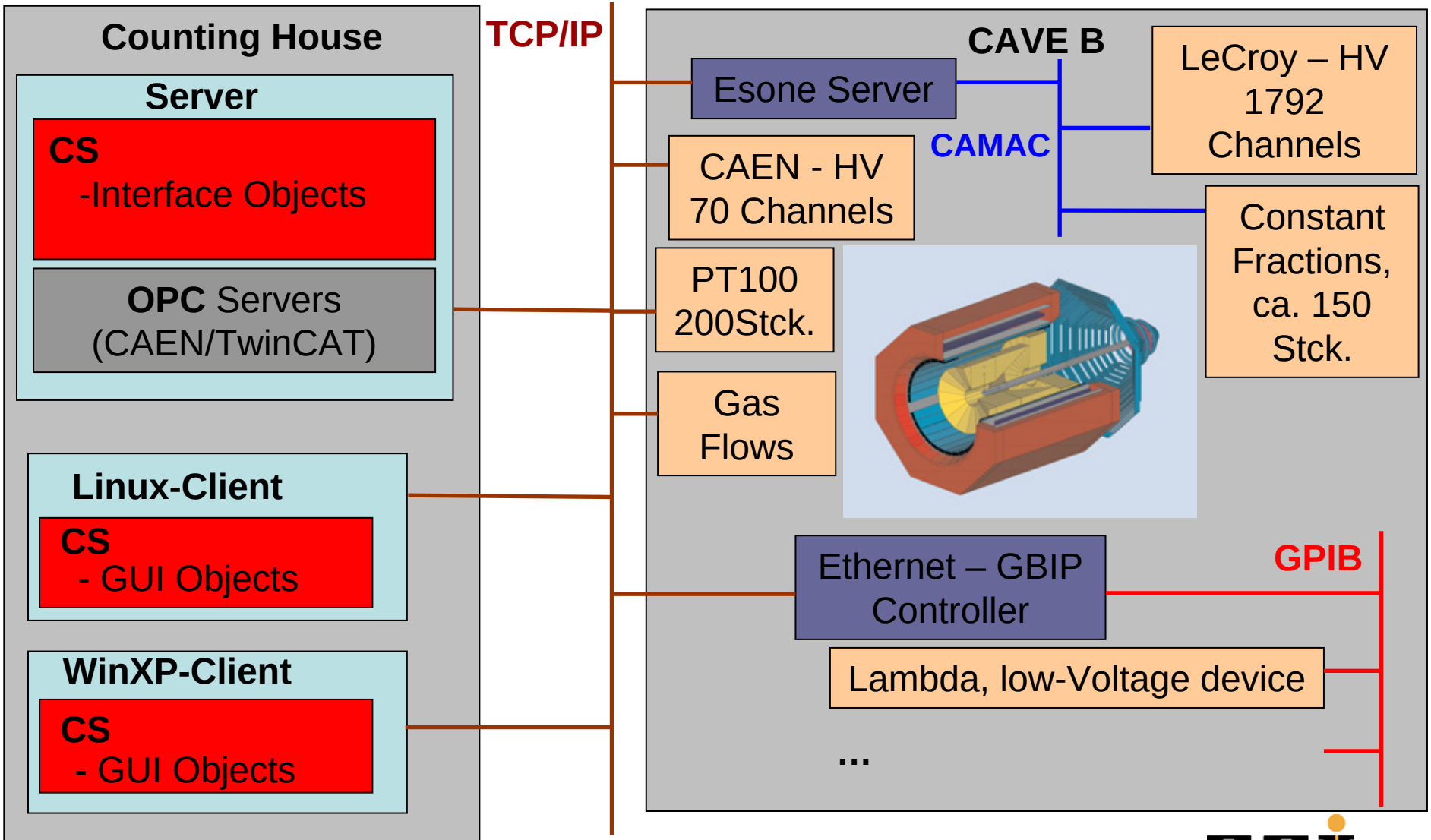
FOPI – Slow Control



Content

1. FOPI experiment - Overview
2. GUIs for FOPI

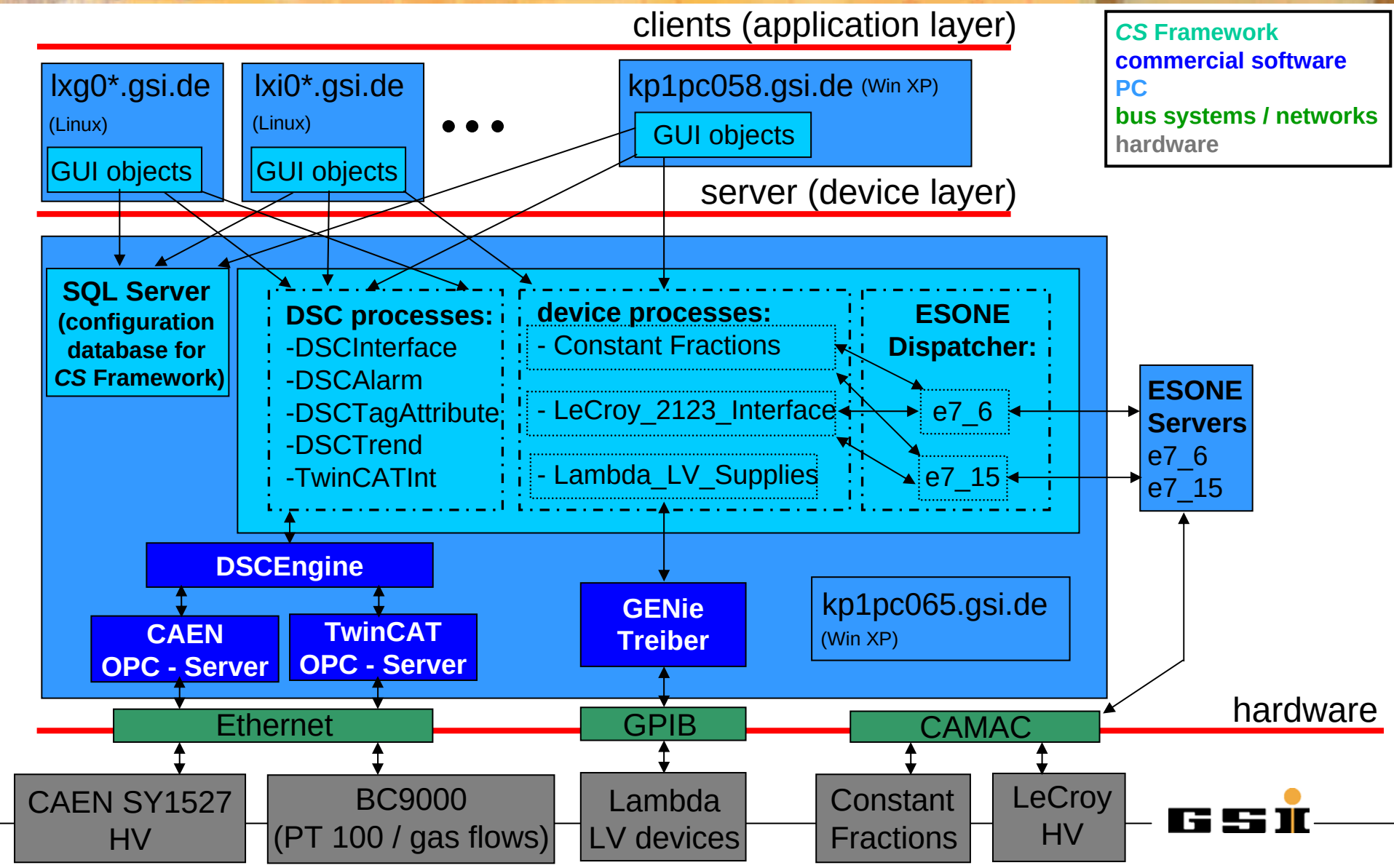
FOPI - overview



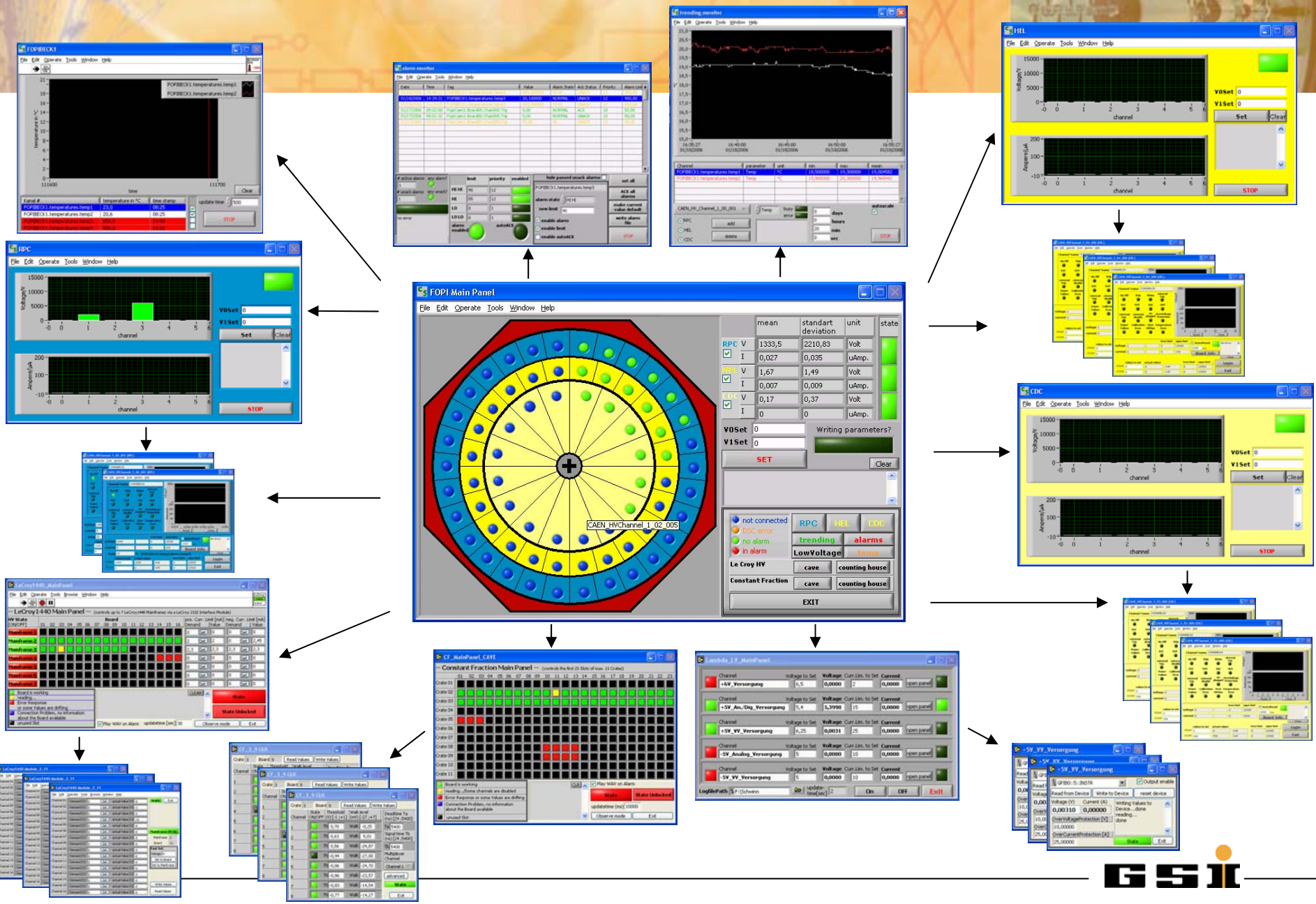
requirements for FOPI control system

- remote control and monitoring of power supplies (High/Low Voltage)
- archiving of measured values (voltage, currents, temperatures)
- archiving of hardware configuration/settings (ramp / trip time, set points)
- distributed control system (Front End / Operator)
  → independant Front End
  → Linux clients should be supported
- User Management: several profiles → access rights
- possibility to divide High Voltage channels into sectors (RPC/CDC/Helitron)
- internal errors should be displayed for the user
- controlled and variable boot sequence

System Design - overview

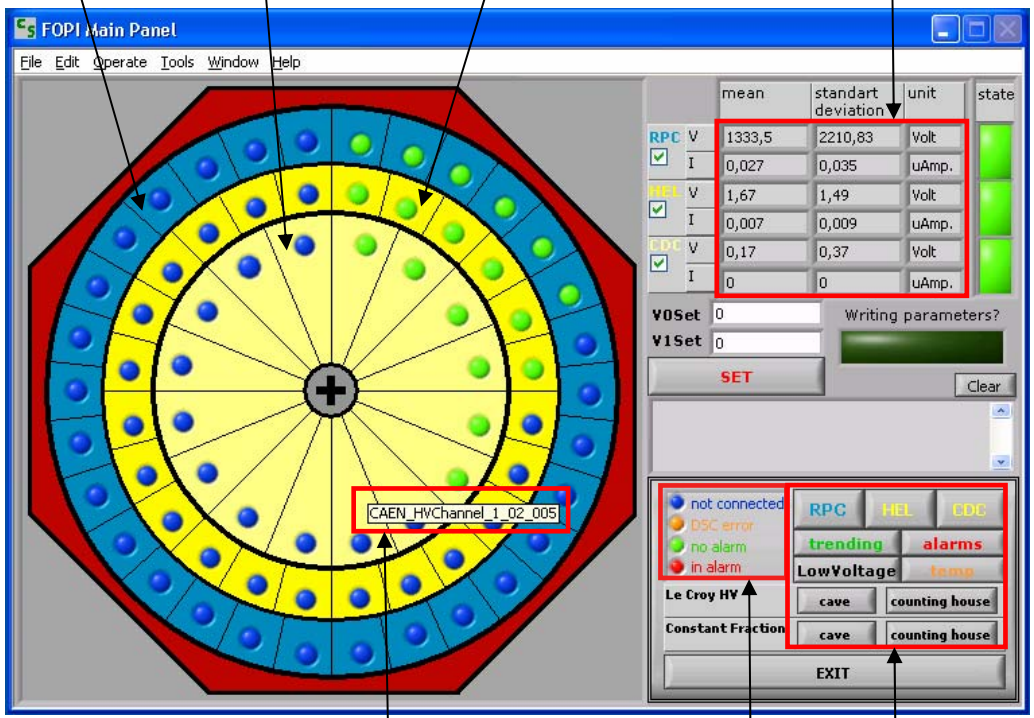


GUIs for FOPI



FOPI Main Panel

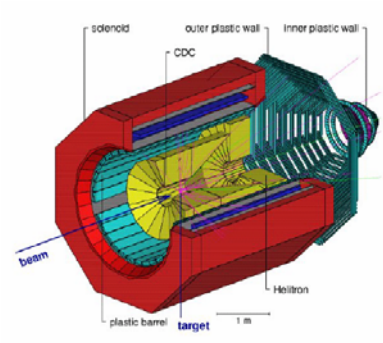
RPC CDC Helitron statistic values



channel address of LED shown by tip

colour coding of LED

panel selection

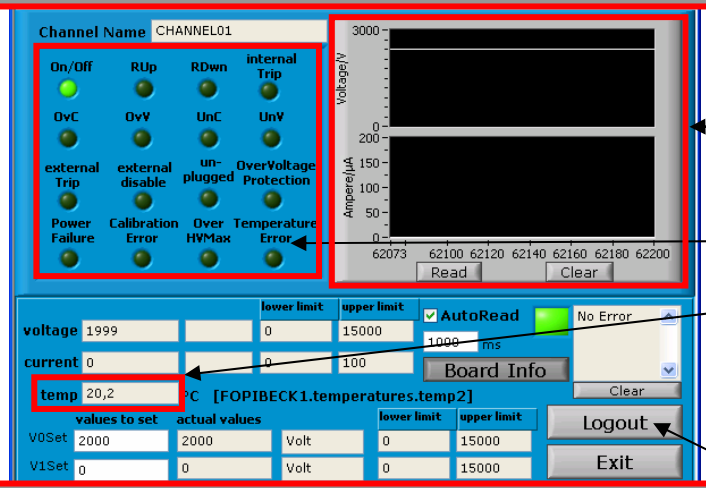


- cross – section of the detector's drift chambers (CDC/RPC/Helitron)
- mapping of CAEN HV channels
  - → allocation between channels and sectors
- statistic values for each sector
- panel selection allows user to open other panels
- colour coding of LED informs user about channel's state
- set all CAEN HV channels
- display error history

CAEN Power Supplies SY1527 & PT 100 sensors

area only visible after pushing Board Info Button

Board Information



channel output

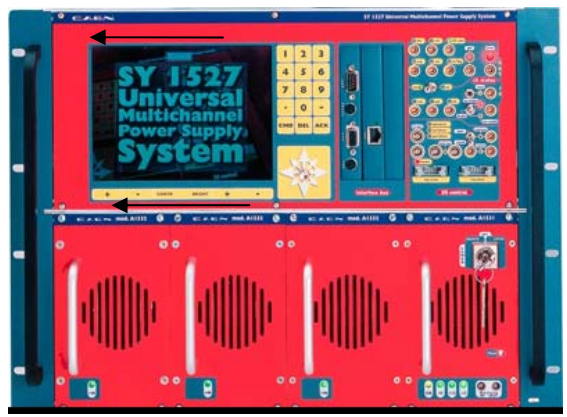
channel state
temperature of PT 100 sensor

password request

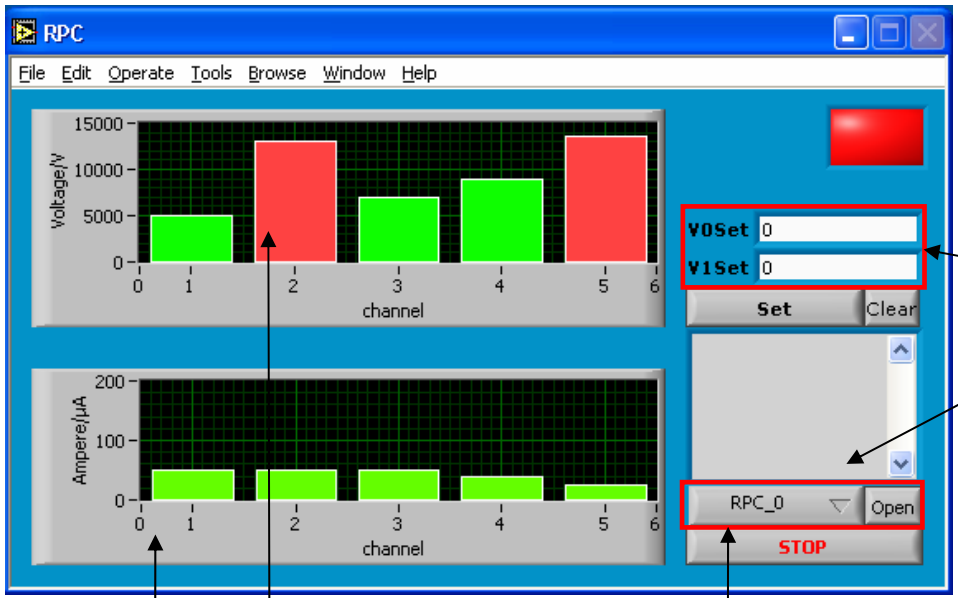
detailled configuration

area only visible after successful Log - In

- supplies RPC, CDC and Helitron
- access via CAEN OPC server and LabVIEW DSC Module
- structure: crates/boards/channels
- one PT 100 for each HV channel
- user management by password request (2 user profiles: admin/user)
- additional board information
- online trending for output values
- background colour indicates sector



Sector Panel for CAEN HV channels



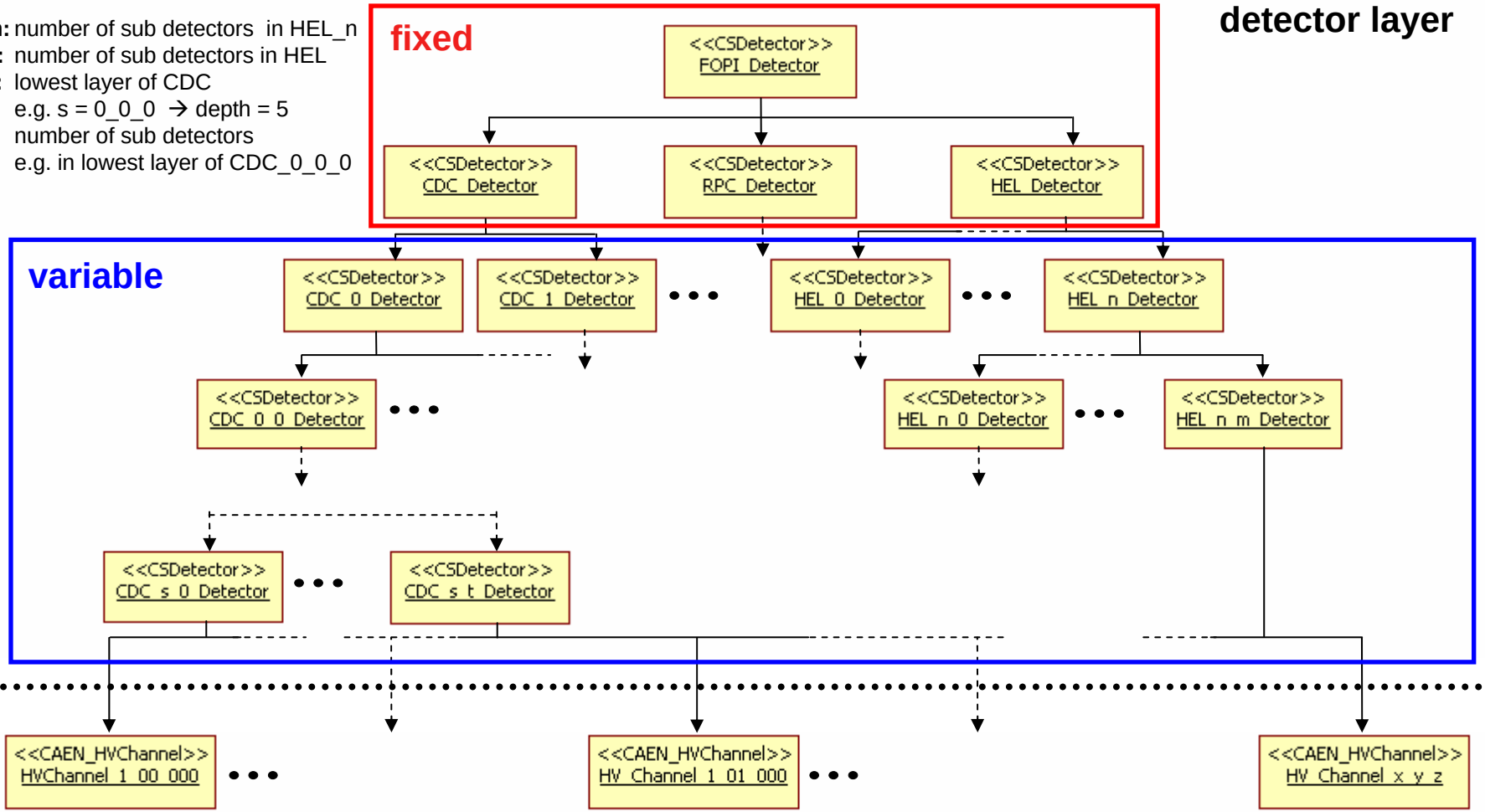
- background colour indicates sector membership
- allows user to open sub sector panels
- set all channels mapped to sector
- error history
- colour of plot indicates alarm state

selection for sub detectors

double click plot to open channel panel

Detector Hierarchy

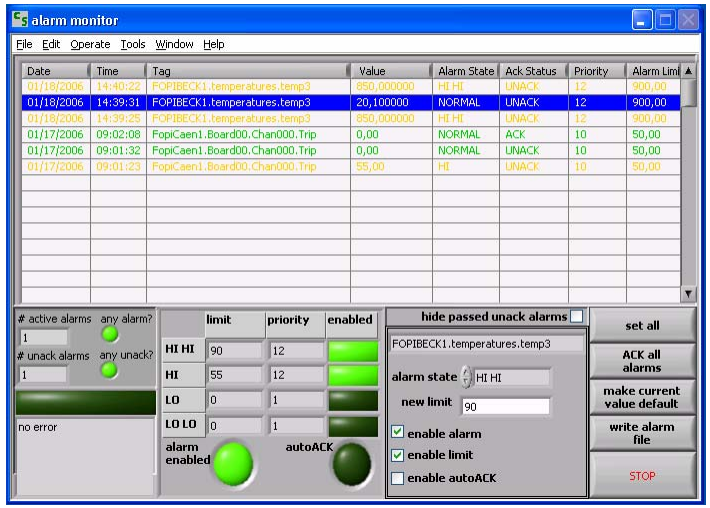
m: number of sub detectors in HEL_n
n: number of sub detectors in HEL
s: lowest layer of CDC
e.g. s = 0_0_0 → depth = 5
t: number of sub detectors
e.g. in lowest layer of CDC_0_0_0



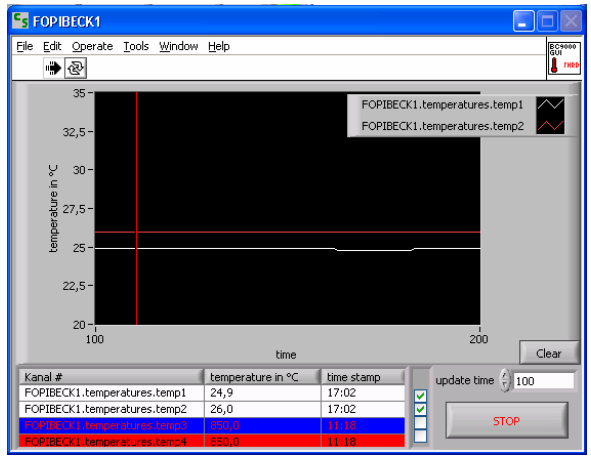
x/y/z: any crate/board/channel number, depending on how many HV channels are used

Trend, Alarm & Temperature Monitors

- displays trendings of measured and configuration values → access to log data of DSC database via *DSCTrend* class
- editable time interval for trendings
- error display
- divides High Voltage channels by sectors



- displays all occured alarms → access to alarm data of DSC database via *DSCAlarm* class
- displays alarm settings
- edit alarm settings
- generates alarm documentation file



- Online - Trending of temperature values measured by PT 100
- displays alarm state
- variable update rate