ELI-ALPS status

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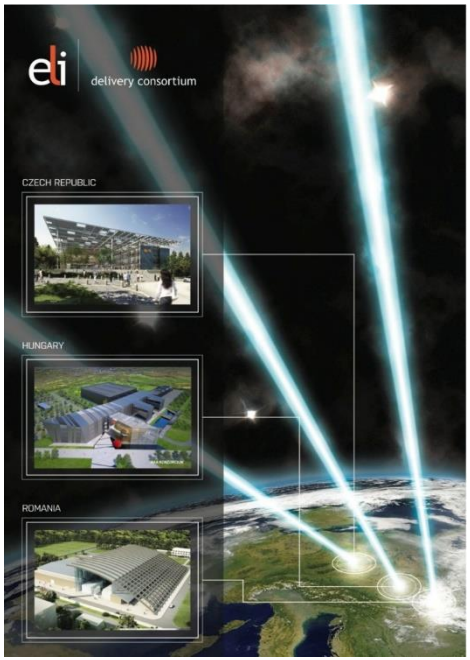
Data Acquisiton and Integration Group

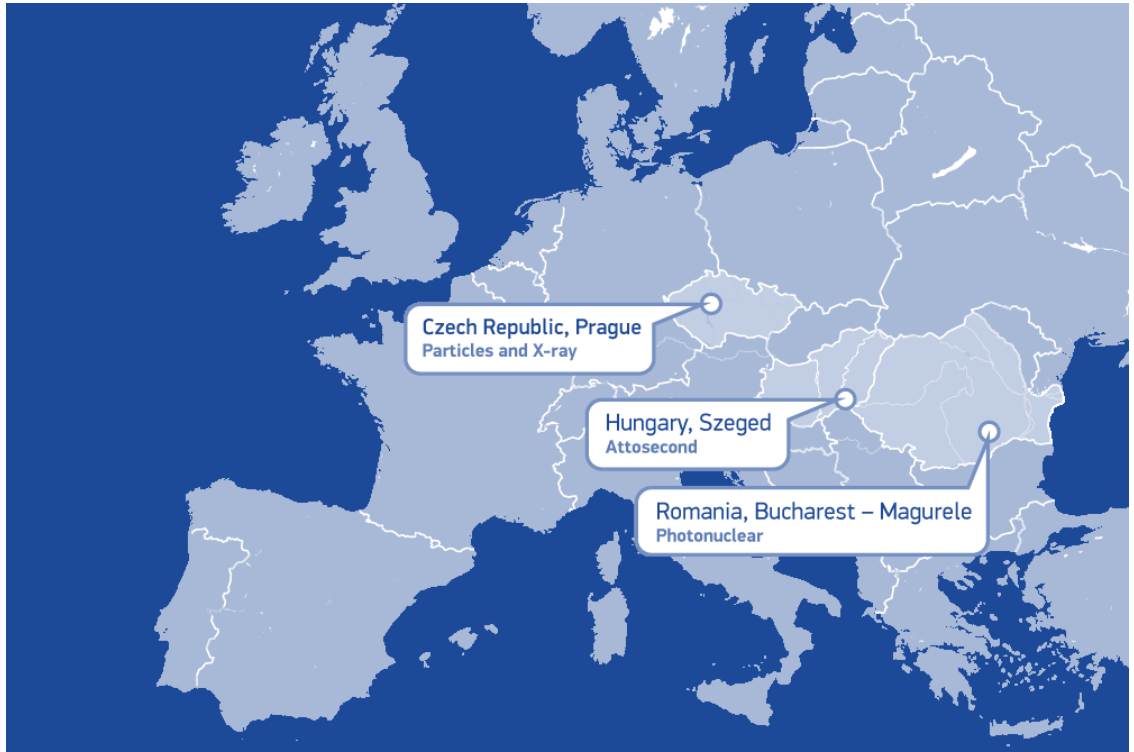
29th TANGO Collaboration Meeting
20.05.2015, Kraków, SOLARIS

SZÉCHENYI 2020
HUNGARIAN GOVERNMENT
European Union
European Regional Development Fund
INVESTING IN YOUR FUTURE

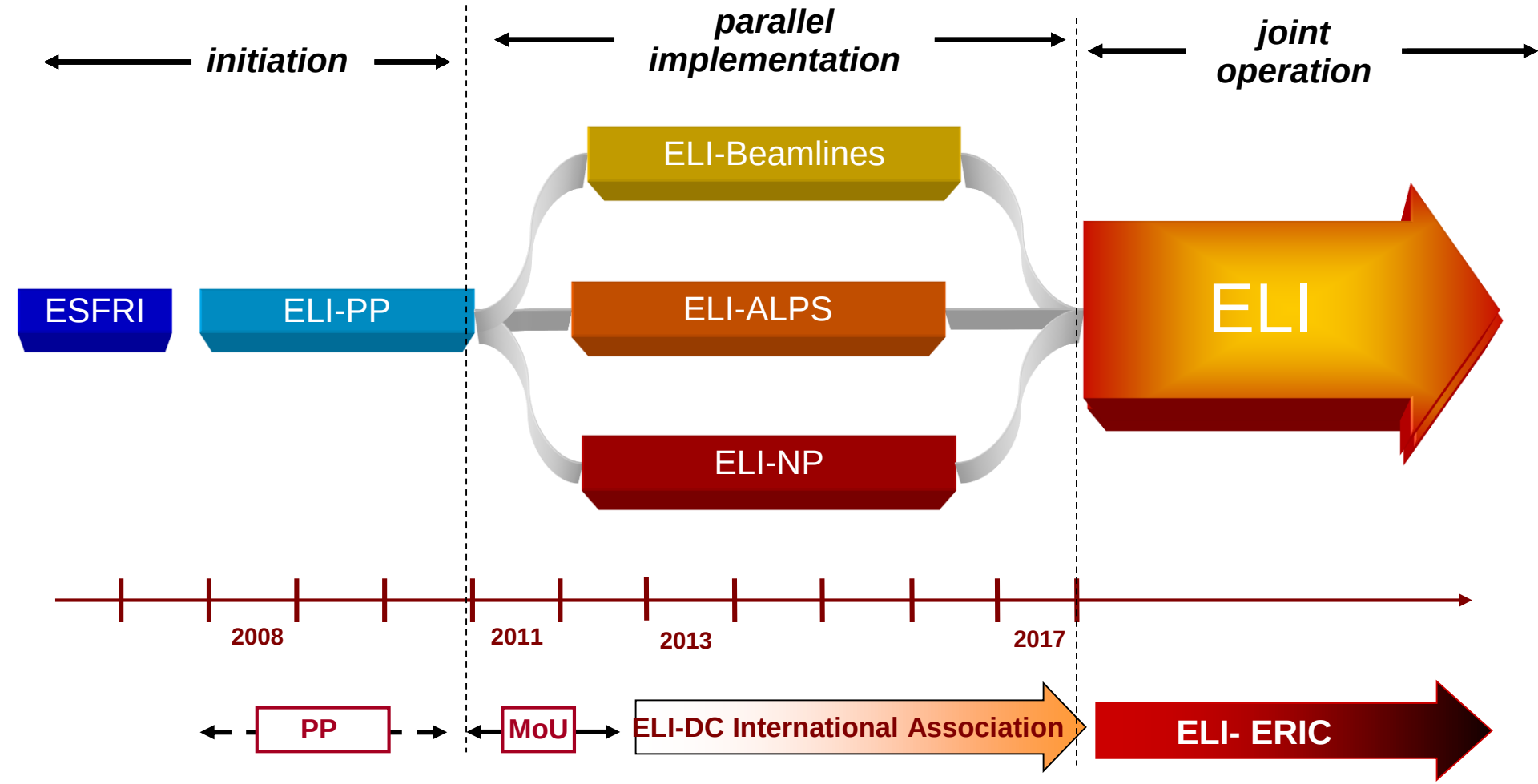
Extreme Light Infrastructure (ELI)

- the world's first international laser research infrastructure
- providing unique science and research "*The CERN of laser research*"
- distributed research infrastructure in CZ, HU and RO





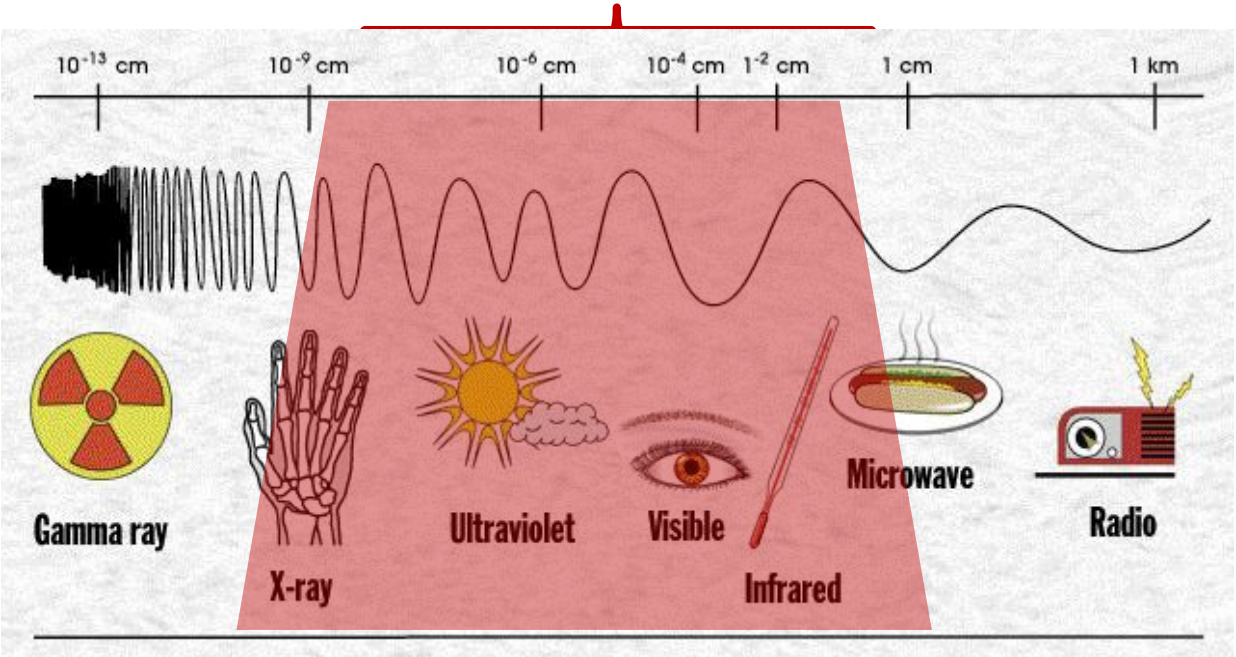
Roadmap and governance



By W.Sandner

ELI-ALPS LIGHT SOURCES

The shortest pulse durations at the widest spectral range …
… at the highest repetition rate.



INFRASTRUCTURE

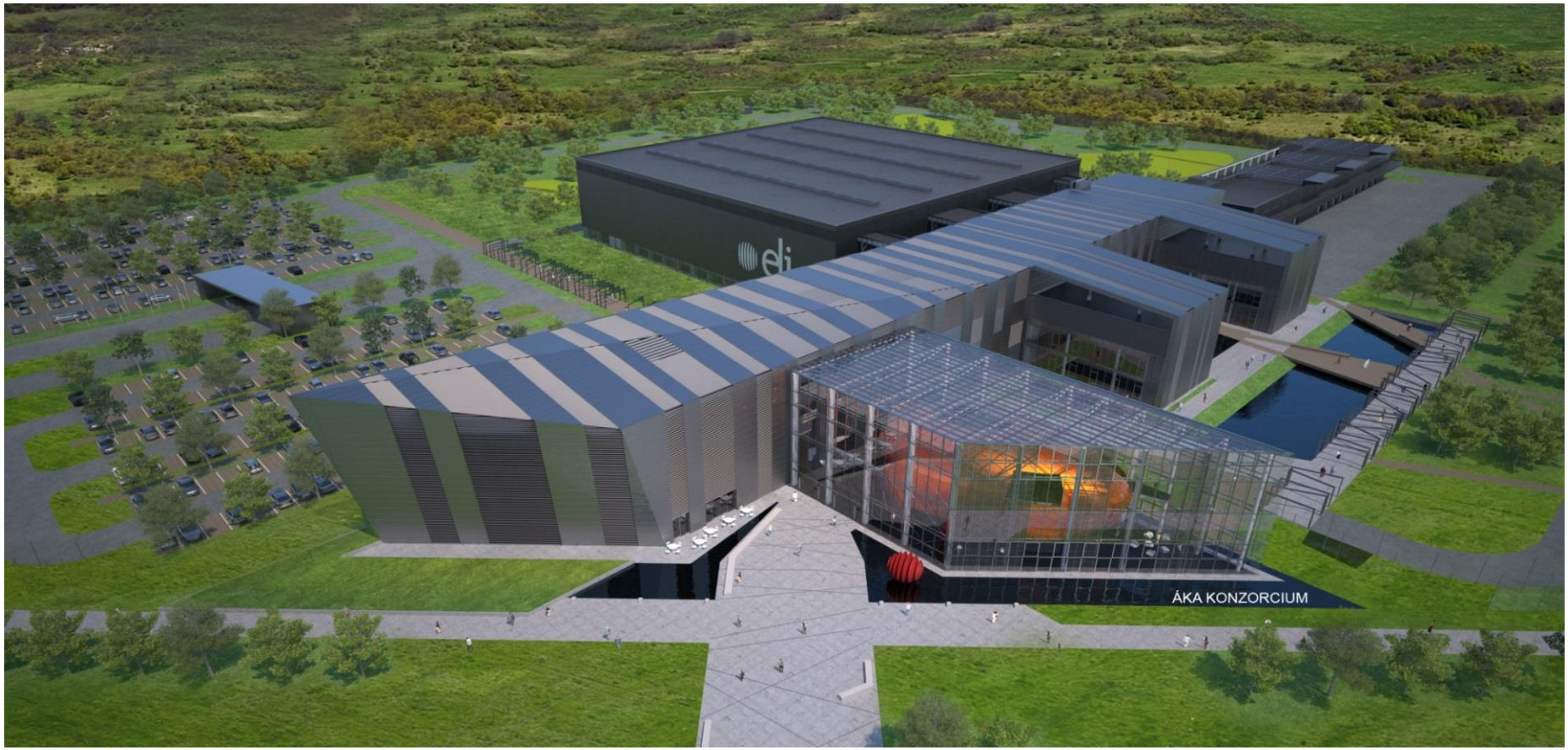
Building „A”
(lasers + target areas):
Net area - **6209 m²**

Building „B”
(scientific labs and machinery):
Net area - **7936 m²**

Building „C”
(Reception, auditorium):
Net area - **7391 m²**

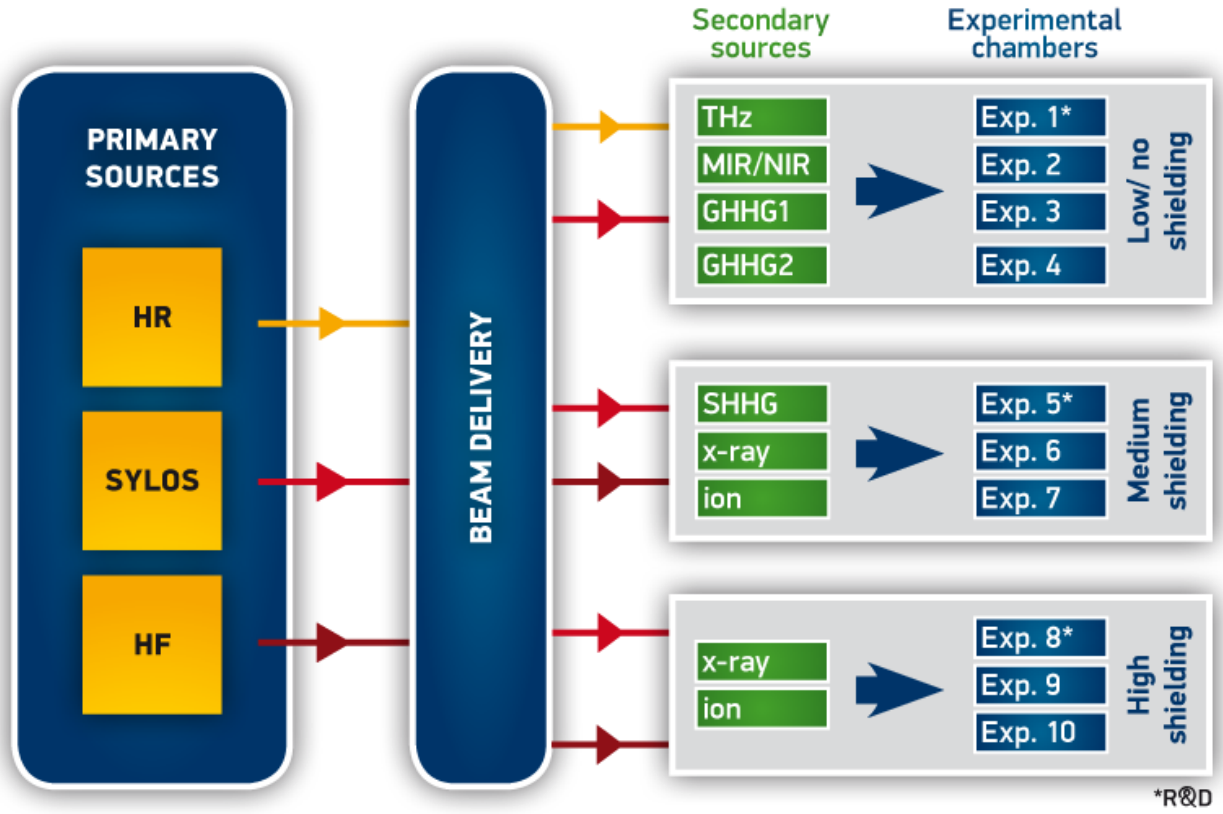
Building „D”
(maintenance, storage):
Net area - **2926 m²**
Total – 24 462 m²

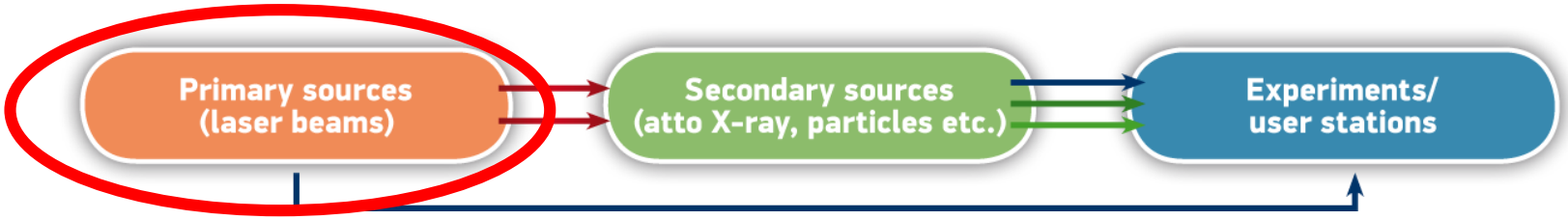
BUILDING MODEL



STATUS OF THE BUILDING

SCHEMATICS OF ELI-ALPS





Building A

Computer Network

Control Computers

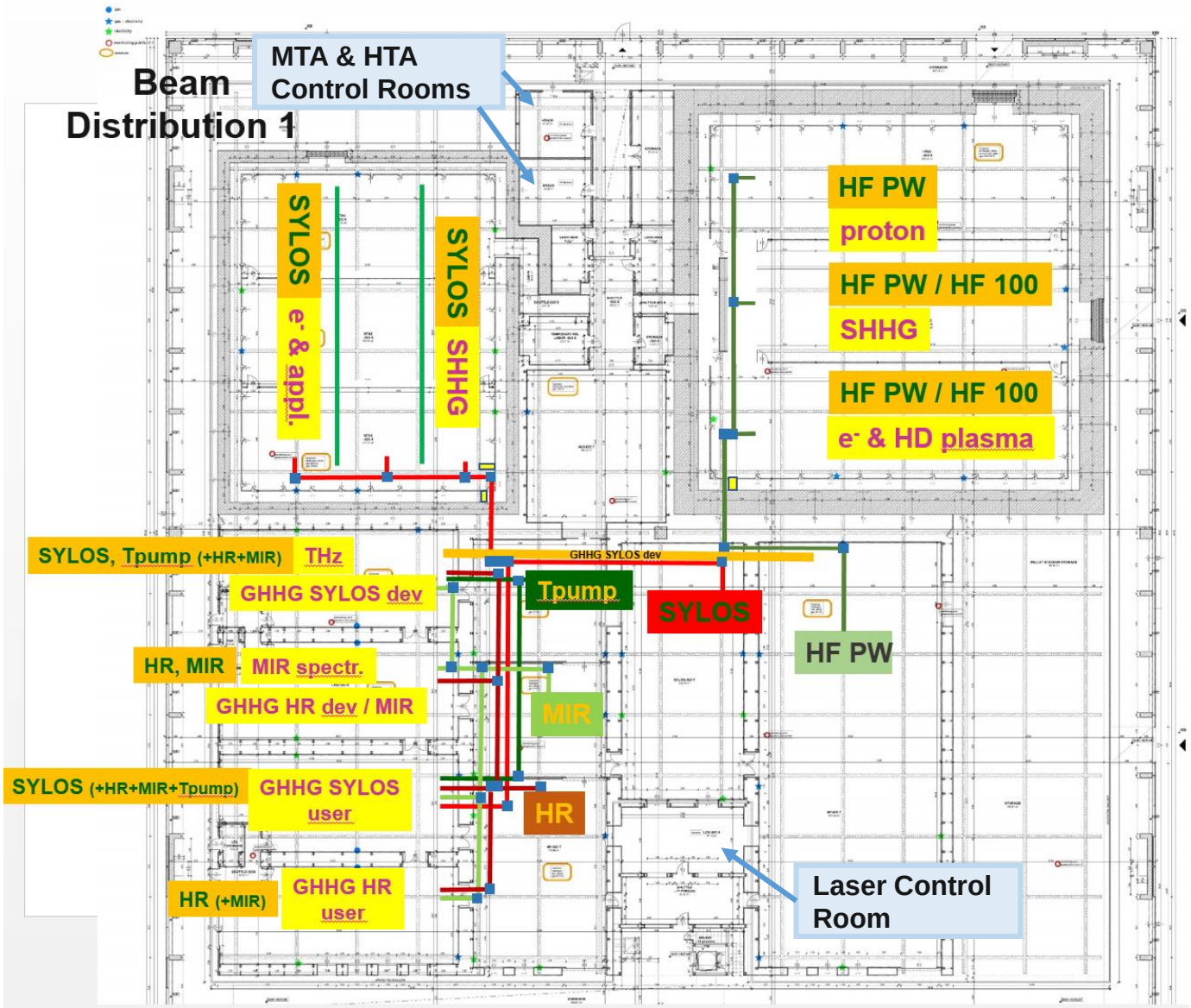
Personal Safety

Machine Protection

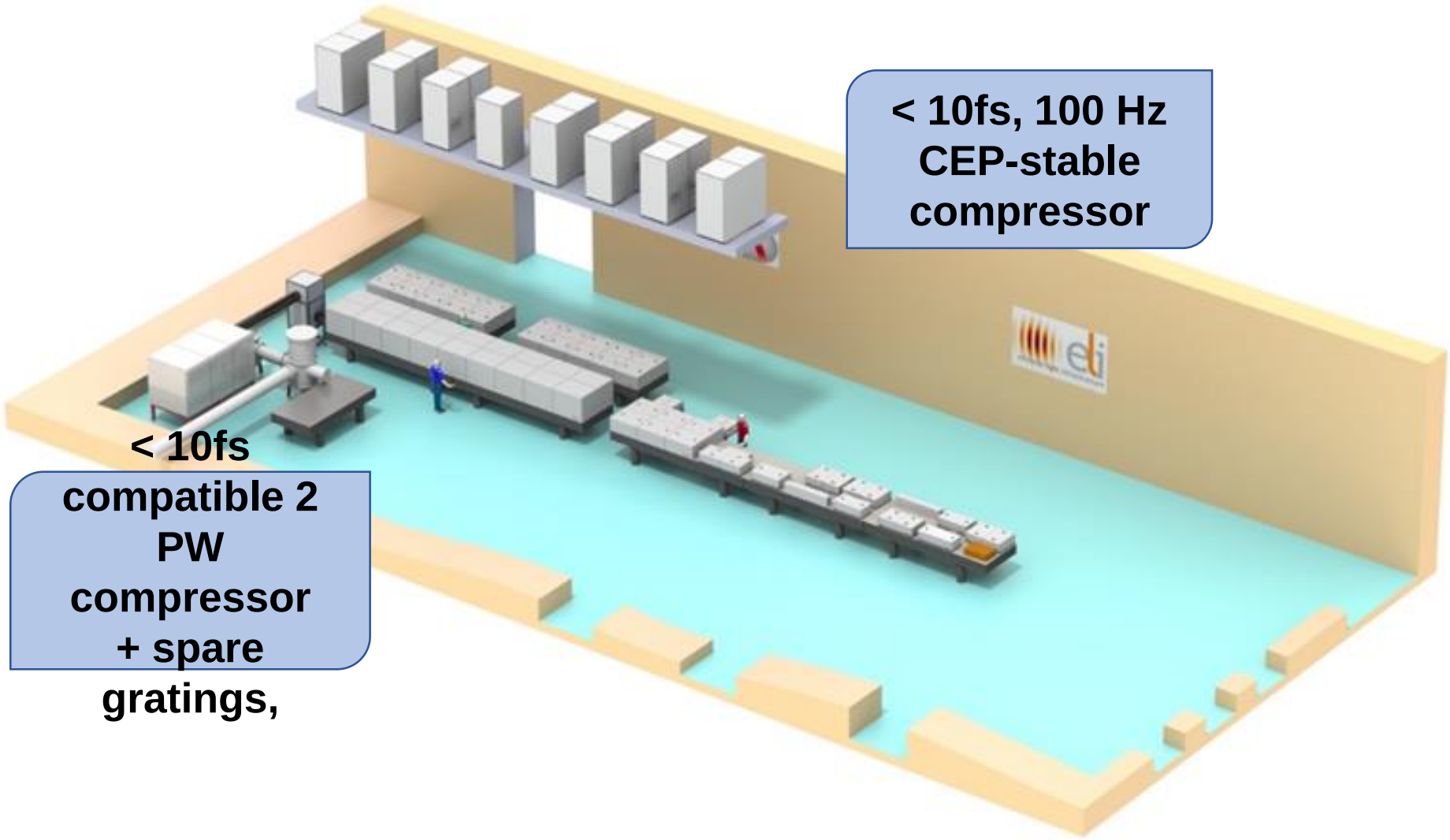
Vacuum System

Building Information System

Timing System



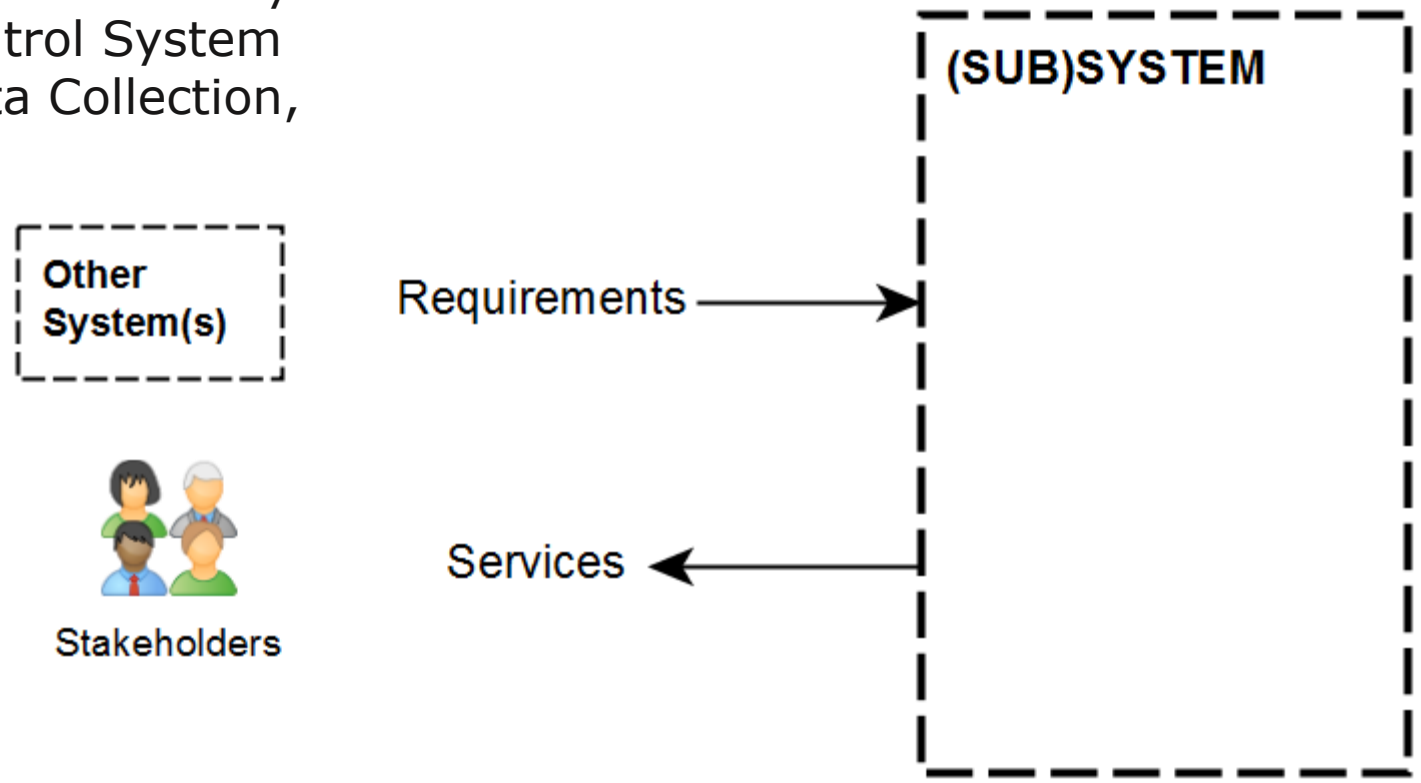
HF system layout



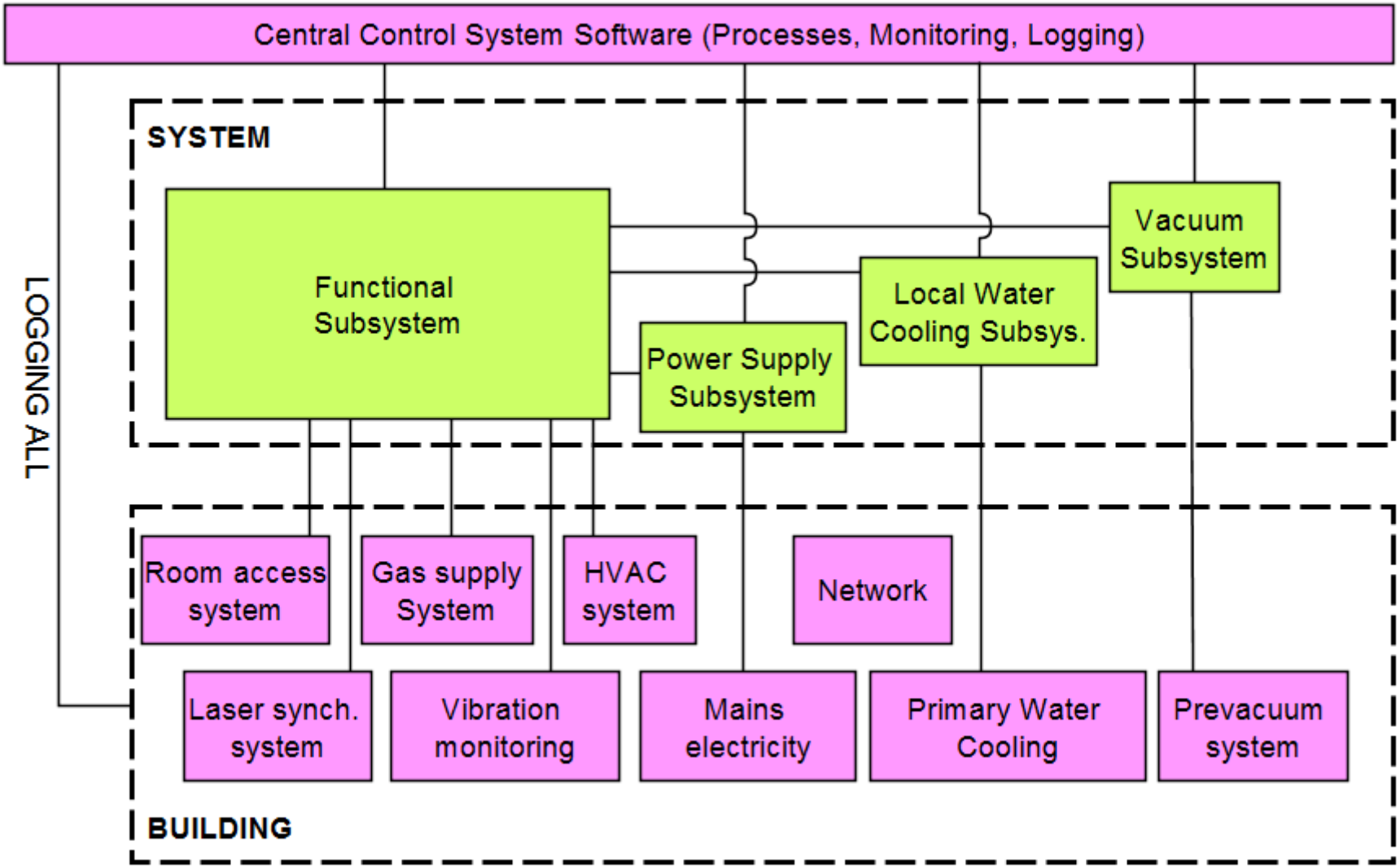
DESIGN MODELS

(Sub)Systems – Environment

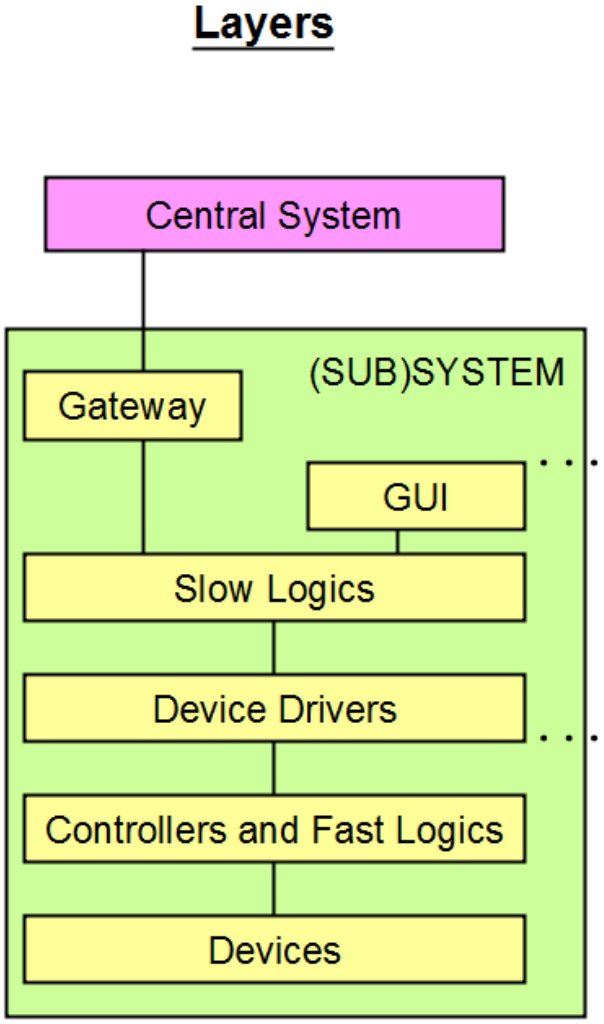
- (Sub)Systems are considered as autonomous units
  - Laser Sources (5)
  - Beam Transport (4)
  - Secondary Sources (10)
  - End Stations / Experiments
  - Building Information System
  - Central Control System
  - Timing, Data Collection,
  - …



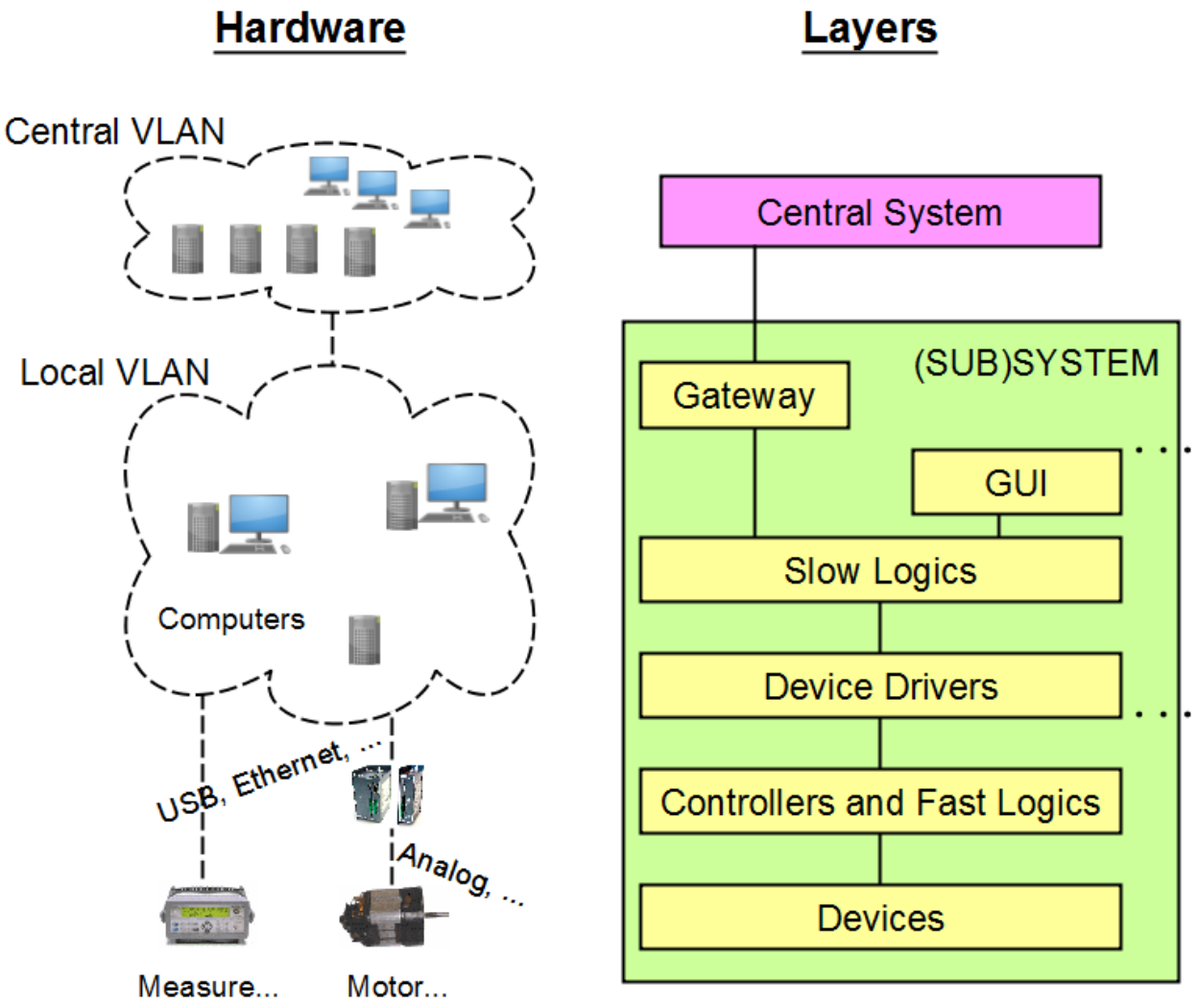
System Level Model



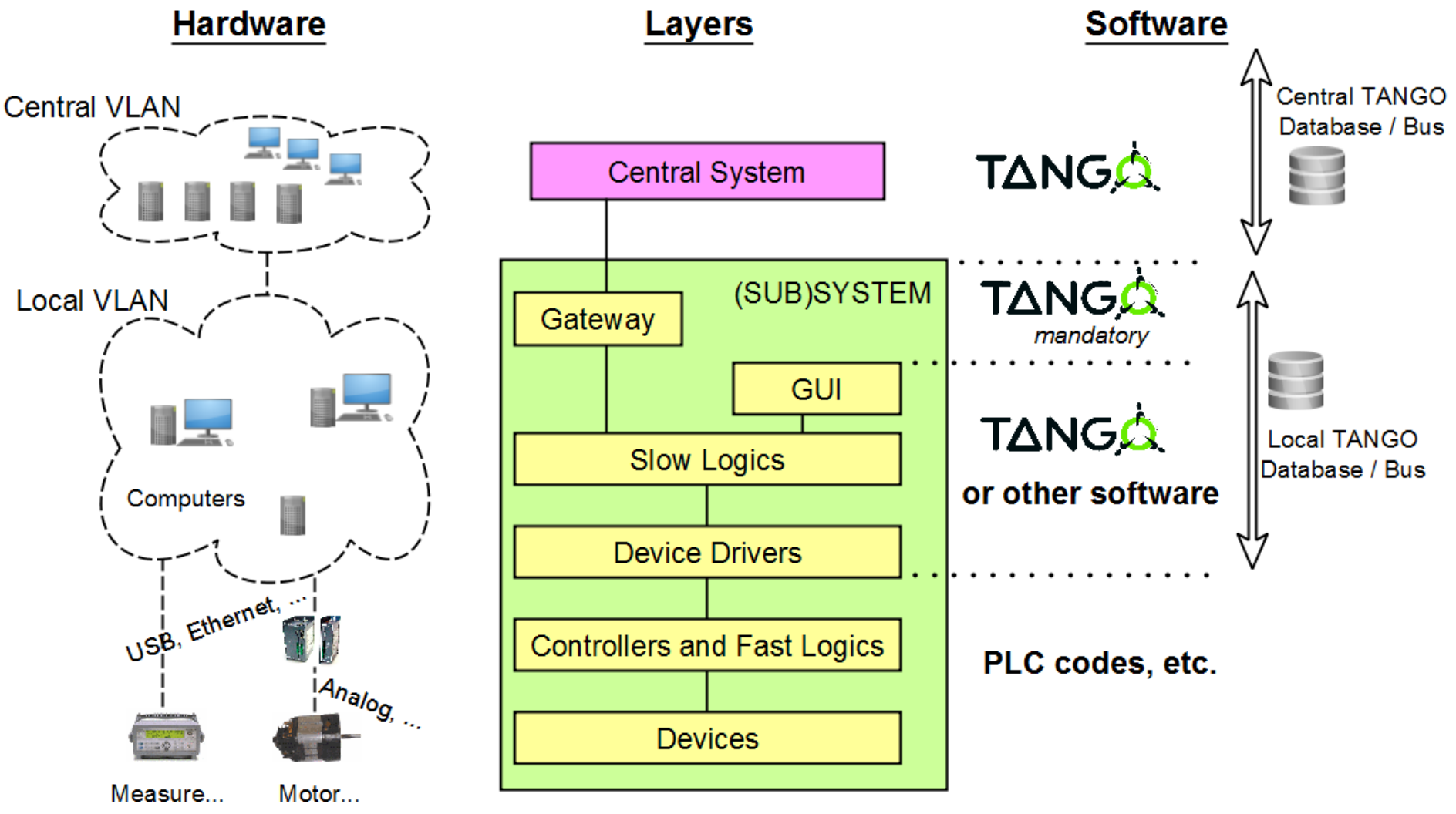
(Sub)System model - Layers



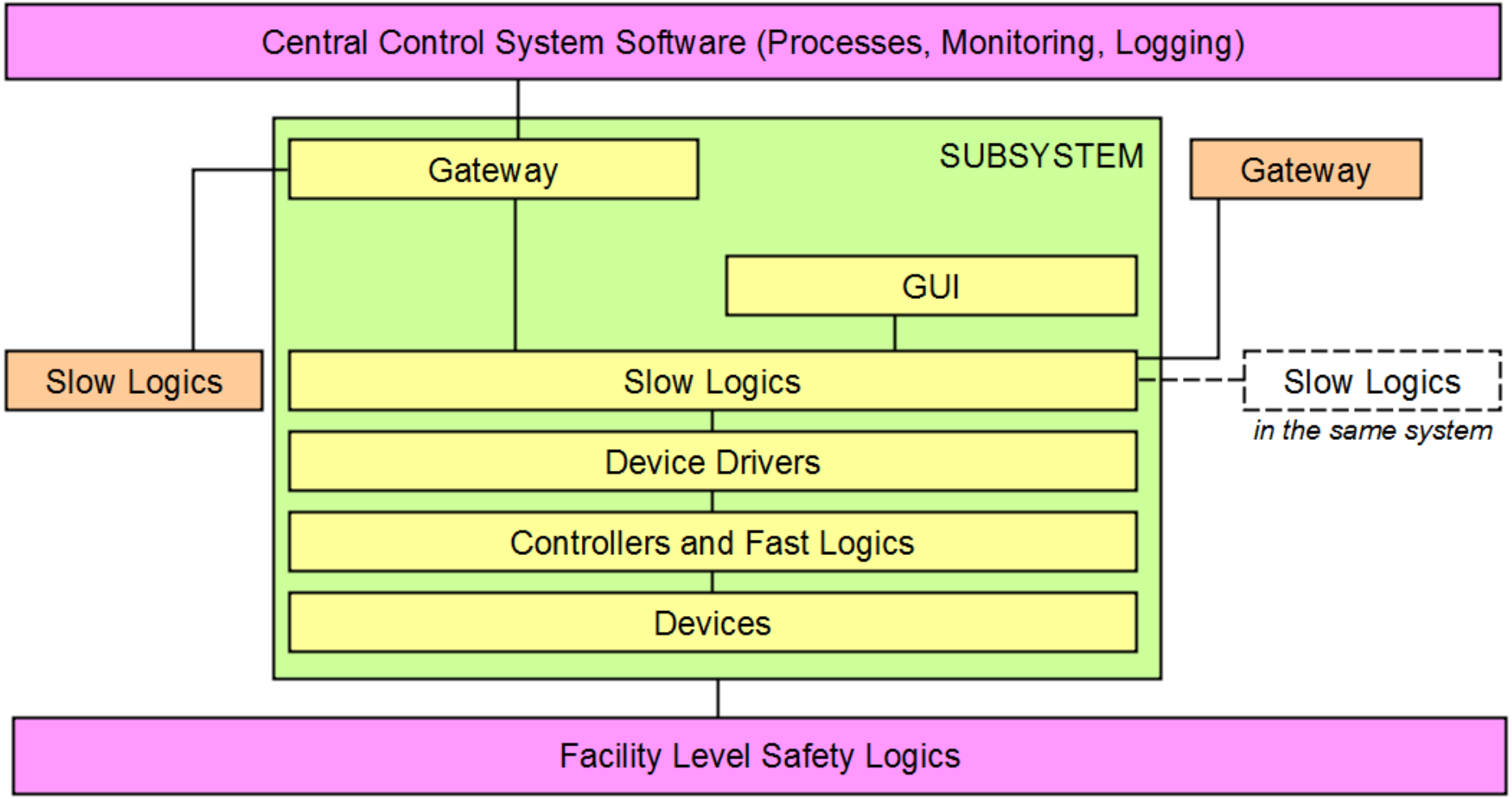
(Sub)System model - Hardware



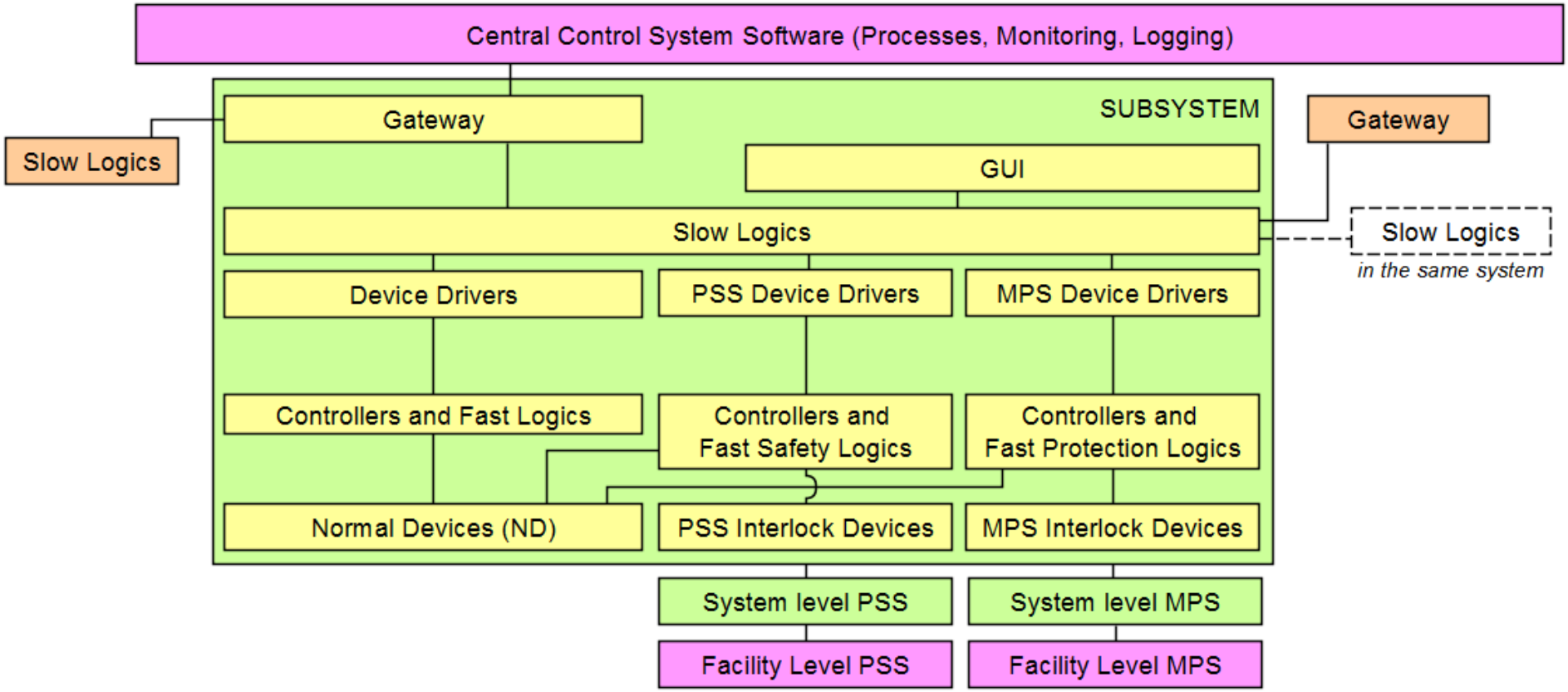
(Sub)System model - Software



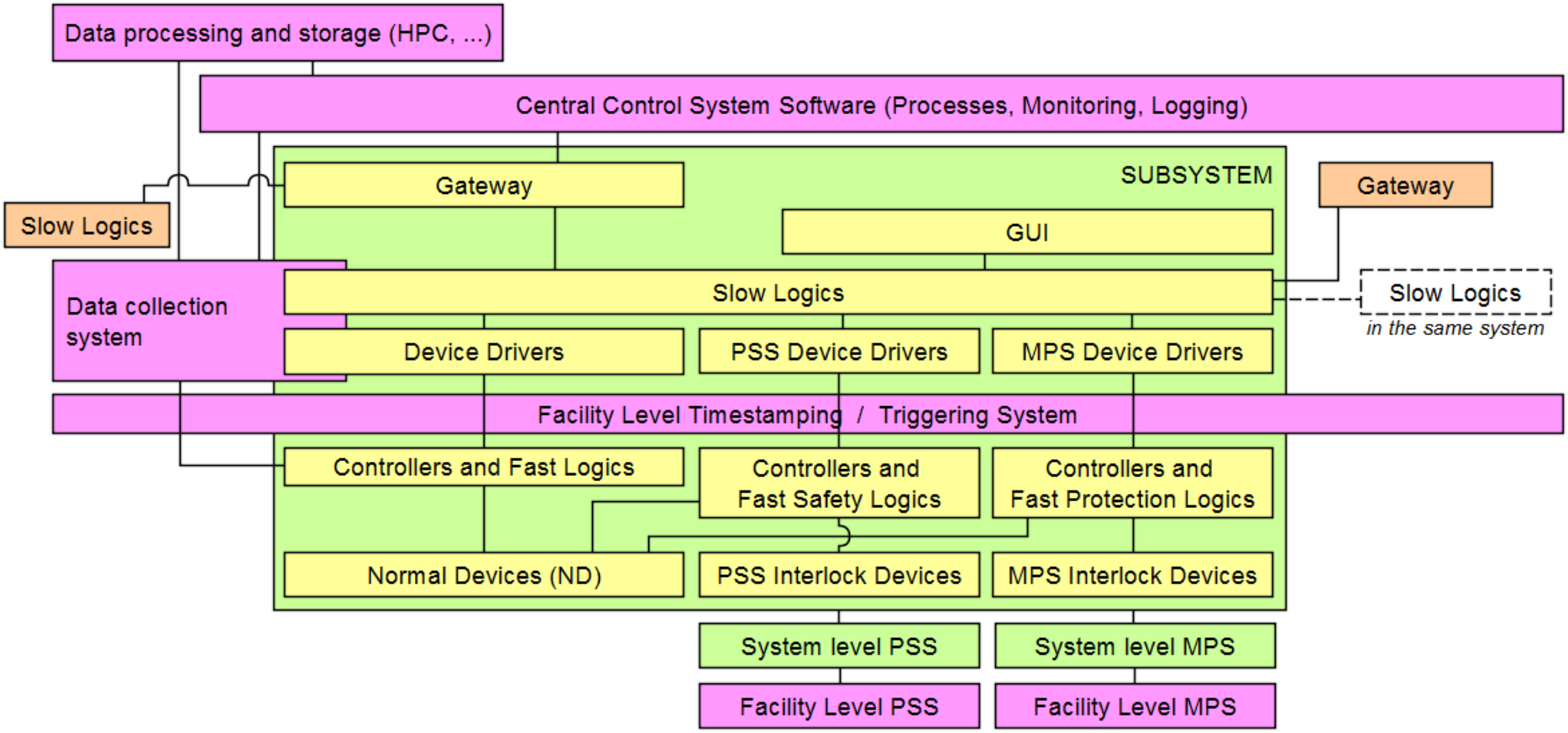
Subsystem model - Integration



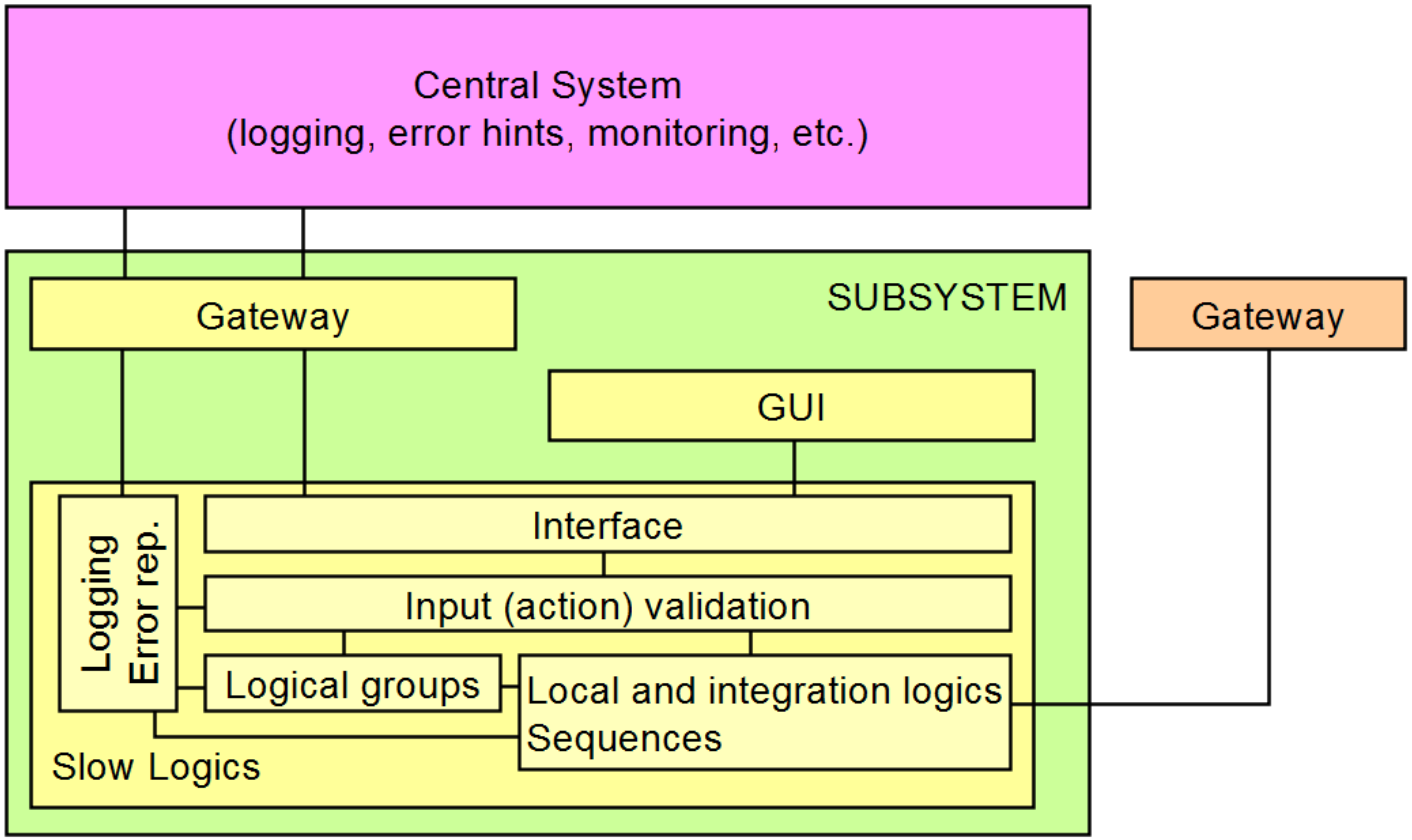
Normal / PSS / MPS stacks



Complete model

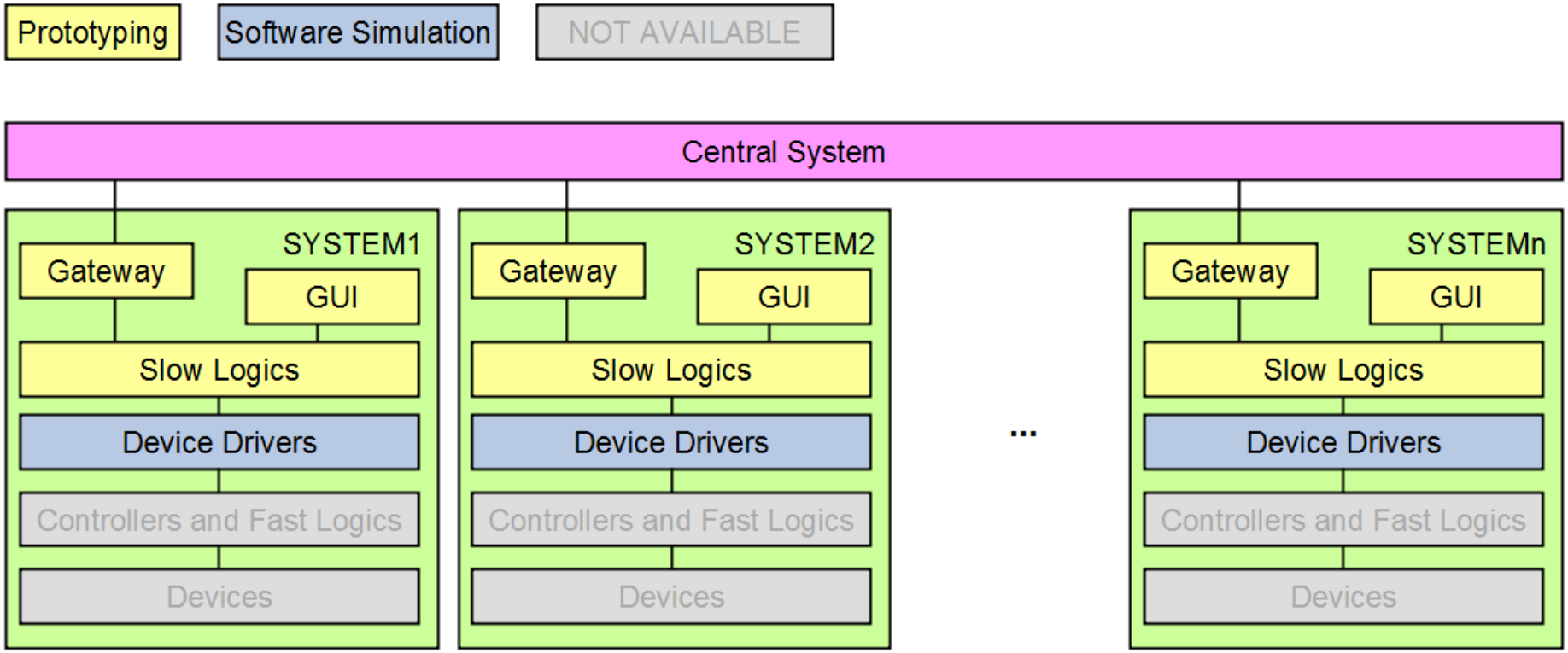


Slow logics vs. Gateway/GUI

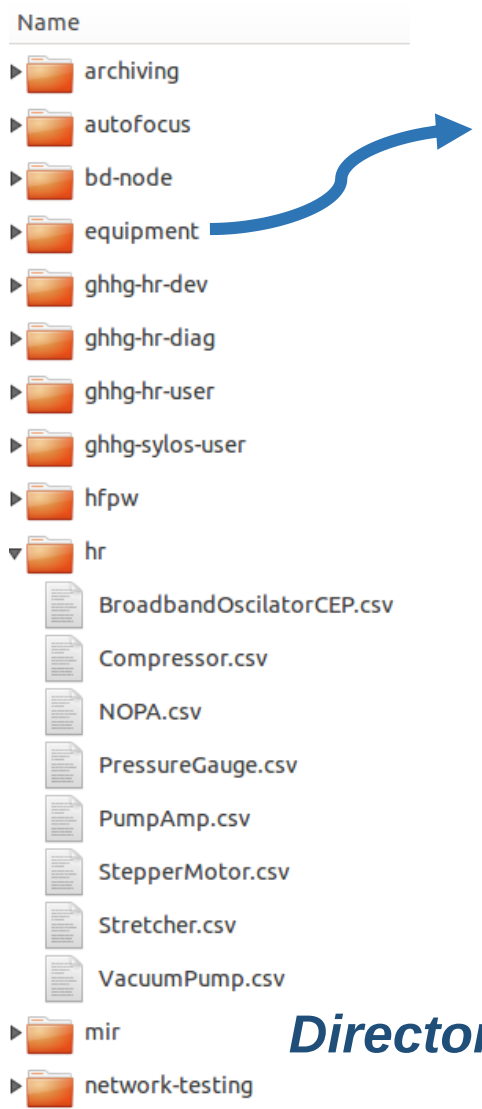


PROTOTYPES:
TESTING THE DESIGN MODELS

Horizontal prototype: System skeleton



System skeleton prototype:
CSV to TANGO DB

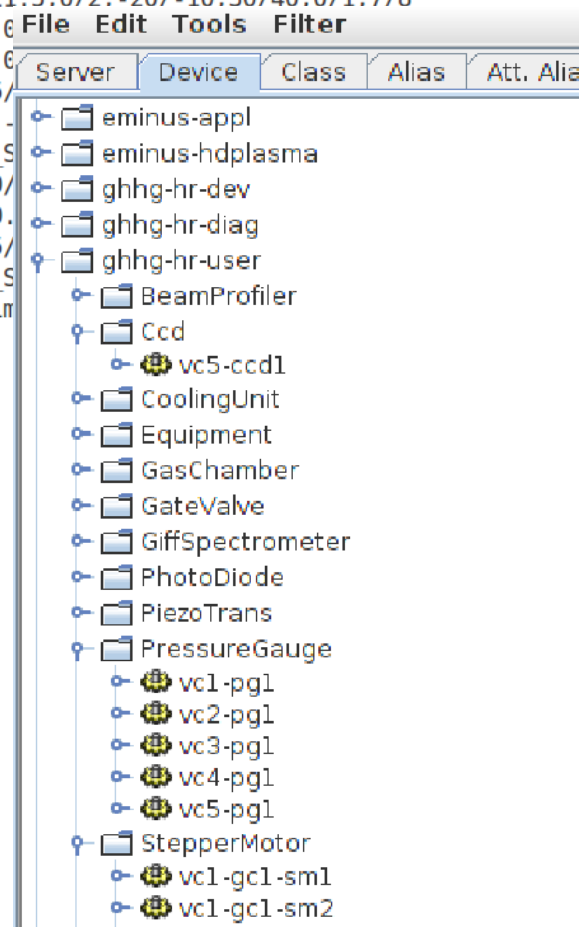


Directories – CSV files

```
domain;family;member;serverName;className;instanceName;att_temp;attr_nop;att_press;att_rh;att_wctemp;
tpump;Equipment;eq;bl;Equipment;tpump_Sim;20.5/21.5;0/2;40/50;30/40;7/8;6/7
mir;Equipment;eq;bl;Equipment;mir_Sim;20.5/21.5;0/2;40/50;30/40;6/7;6/7
sylos;Equipment;eq;bl;Equipment;sylos_Sim;20.5/21.5;0/3;25/35;30/40;8/9;6/7
hfpw;Equipment;eq;bl;Equipment;hfpw_Sim;20.5/21.5;0/4;25/35;30/40;9/10;6/7
hf100;Equipment;eq;bl;Equipment;hf100_Sim;20.5/21.5;0/4;25/35;30/40;10/11;6/7
mir-spectr;Equipment;eq;bl;Equipment;mir-spectr_Sim;20.5/21.5:0/2:-20/-10:30/40:0/1:7/8
shhg-hta;Equipment;eq;bl;Equipment;shhg-hta_Sim;20.5/21.5;0
shhg-mta;Equipment;eq;bl;Equipment;shhg-mta_Sim;20.5/21.5;0
eminus-appl;Equipment;eq;bl;Equipment;eminus-appl_Sim;20.5/
proton;Equipment;eq;bl;Equipment;proton_Sim;20.5/21.5;0/5;-
eminus-hdplasma;Equipment;eq;bl;Equipment;eminus-hdplasma_S
hr;Equipment;eq;bl;Equipment;hr_Sim;20.5/21.5;0/2;40/50;30/
ghhg-hr-user;Equipment;eq;bl;Equipment;ghhg-hr-user_Sim;20.
ghhg-hr-dev;Equipment;eq;bl;Equipment;ghhg-hr-dev_Sim;20.5/
ghhg-sylos-user;Equipment;eq;bl;Equipment;ghhg-sylos-user_S
ghhg-sylos-dev;Equipment;eq;bl;Equipment;ghhg-sylos-dev_Sim
```

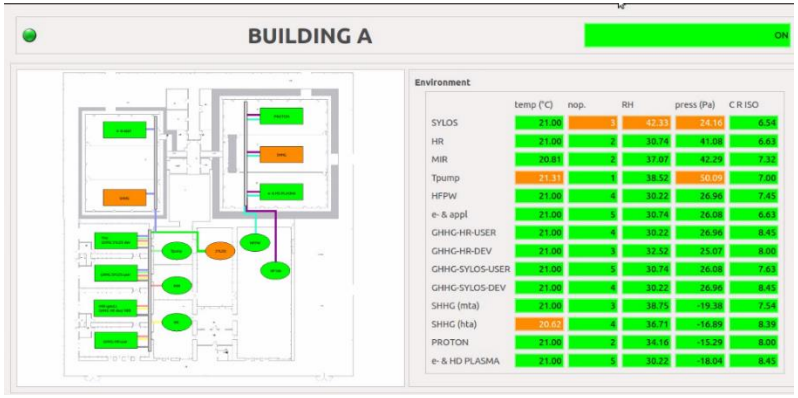
CSV file

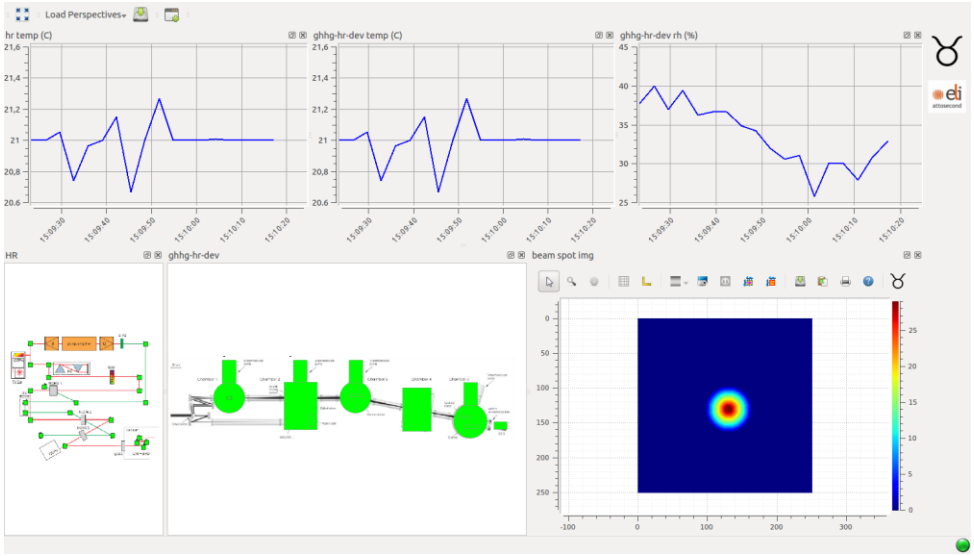
Jive



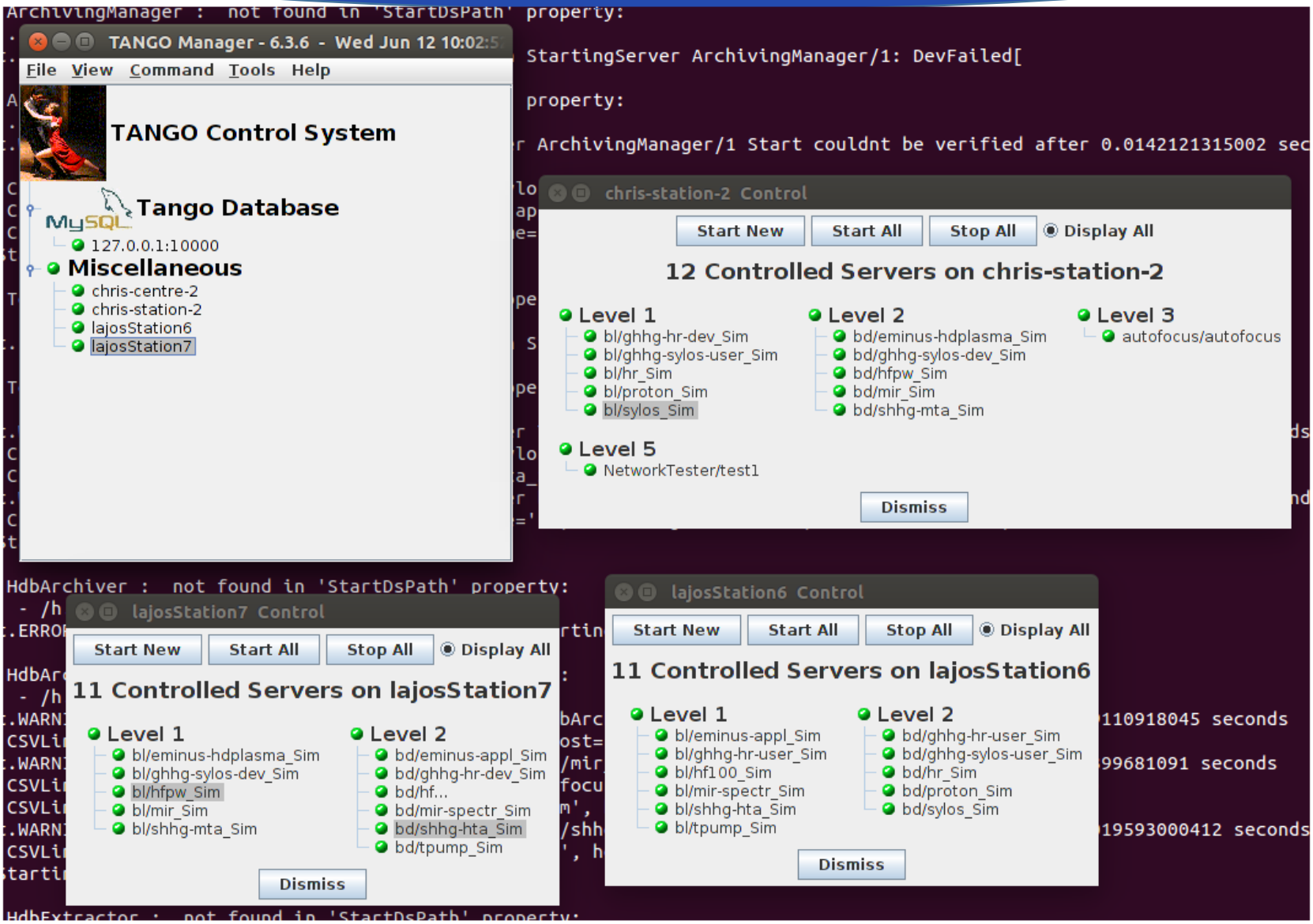
System skeleton prototype:

5 lasers, 10 secondaries, 700 simulated devices

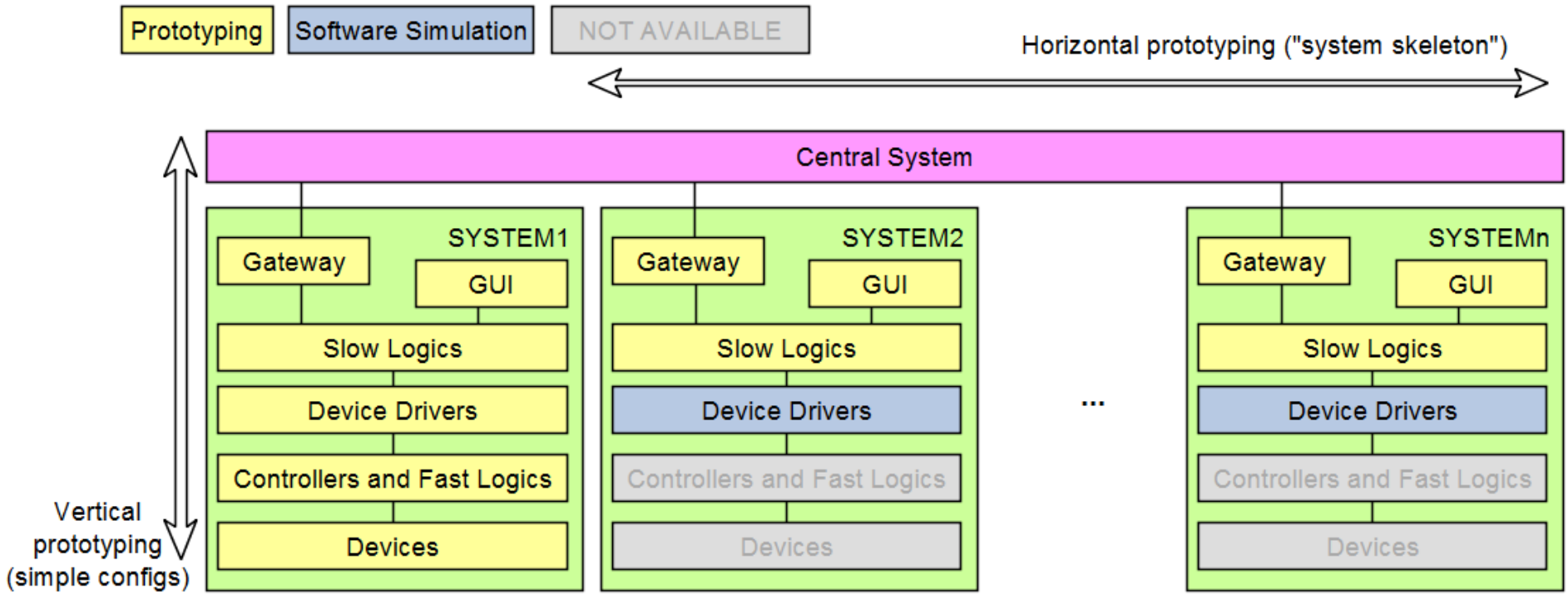




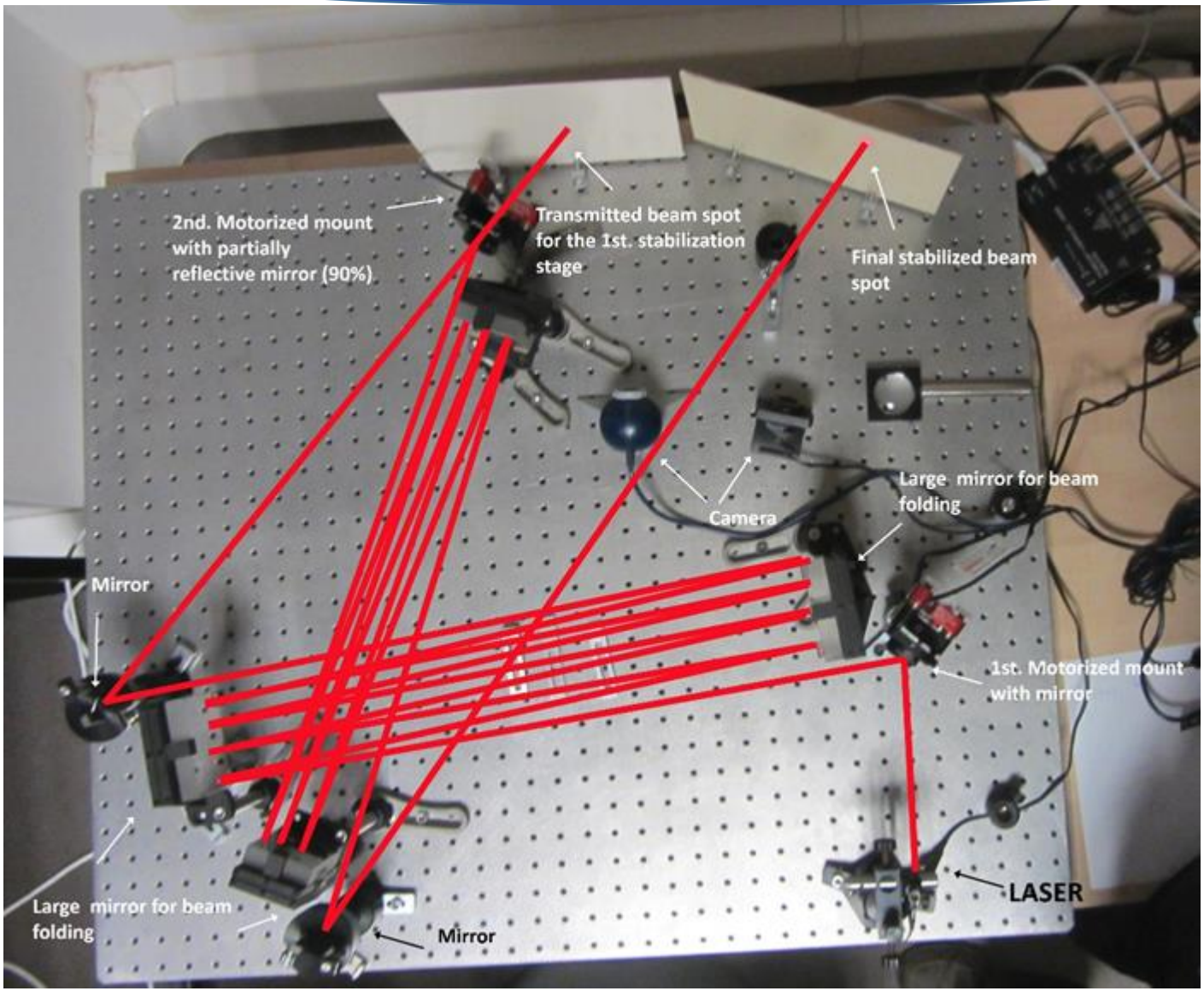
System skeleton prototype: Astor



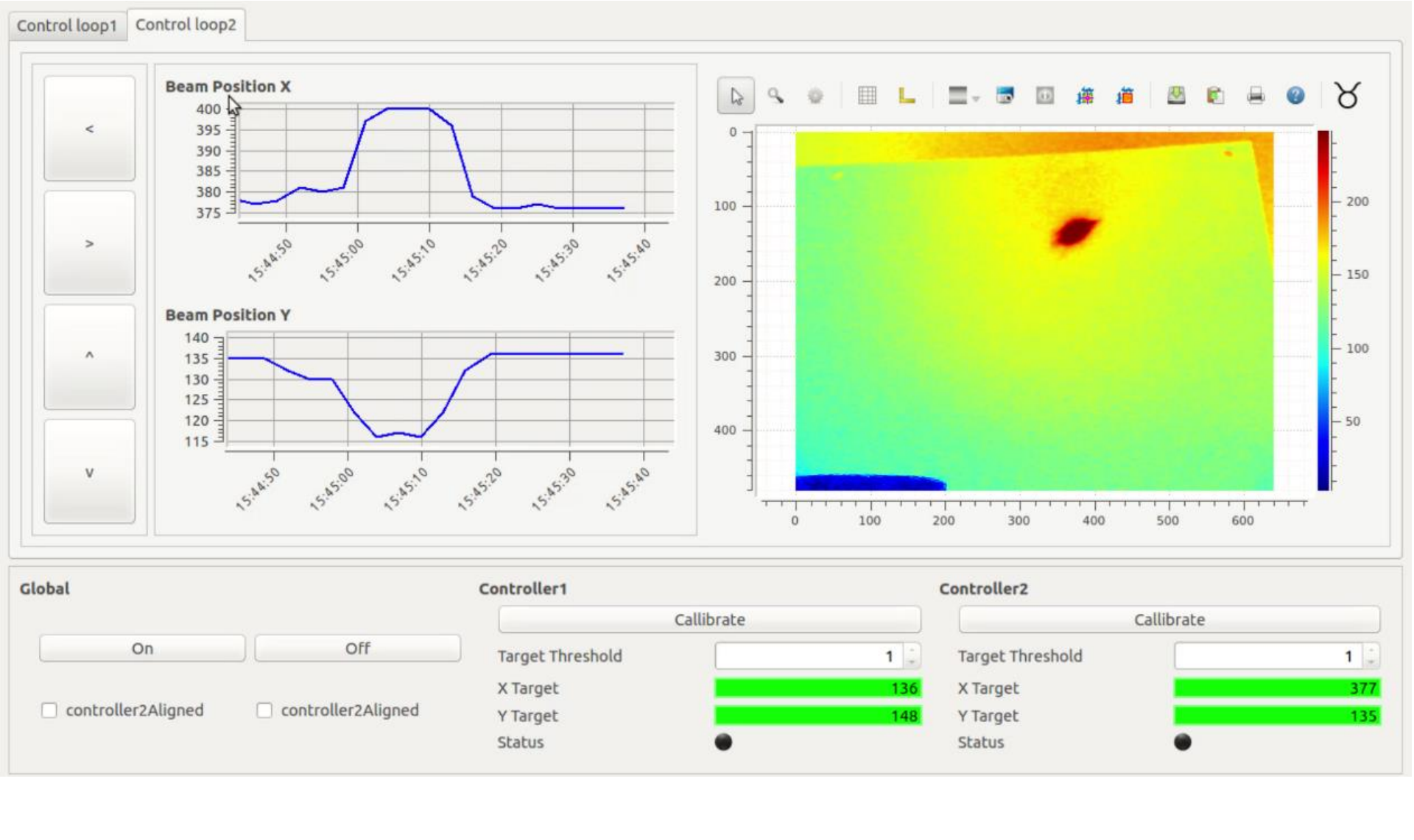
Horizontal/Vertical prototypes



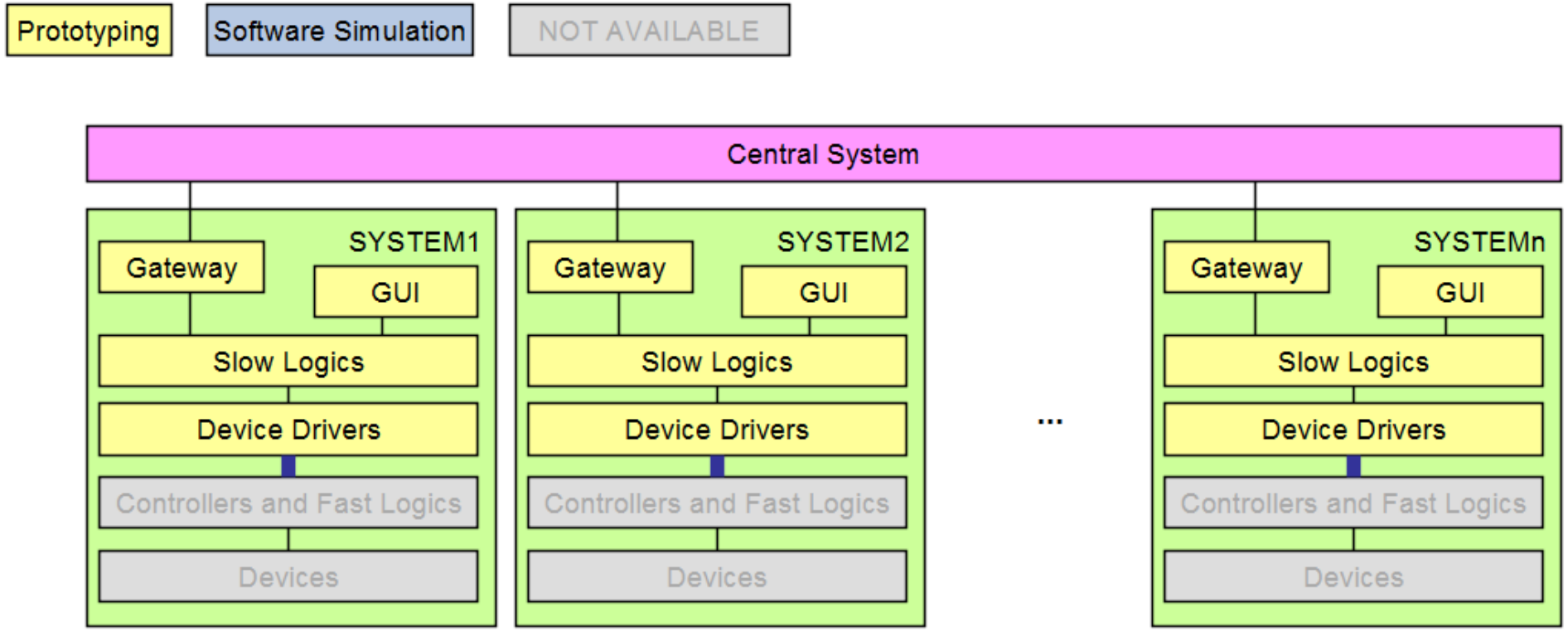
Vertical Prototype:
Optical Table – Beam Alignment



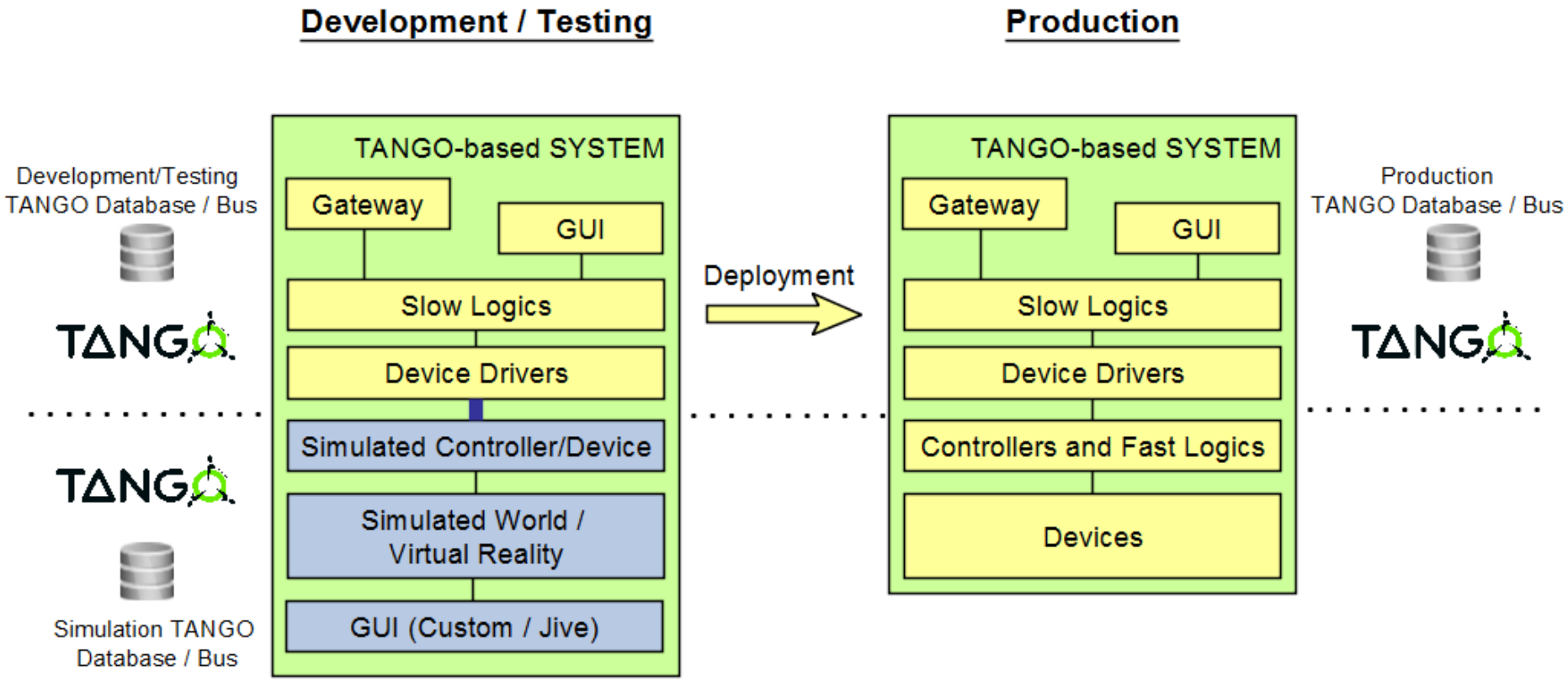
Vertical Prototype:
Final stabilized beam spot



„Deployable” prototypes



„Deployable” prototypes



Others

- TANGO interactive HTML map (tooltips + links)
- Questions
  - TANGO = devices (servers) + communication + clients (?)
  - Slow logic? So called „Software Middleware”
    - E.g. state handling may not applicable in all cases (?)
    - Terminology: Devices vs. Components vs. Objects
  - Some other ideas… as everybody has some ☺

Future

- Deployable prototypes
  - Beam Transport System, Optical Table Prototype
- Industrial day on 2nd of June
- Procurement
- …

THANK YOU FOR YOUR ATTENTION!

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European Union
European Regional Development Fund
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