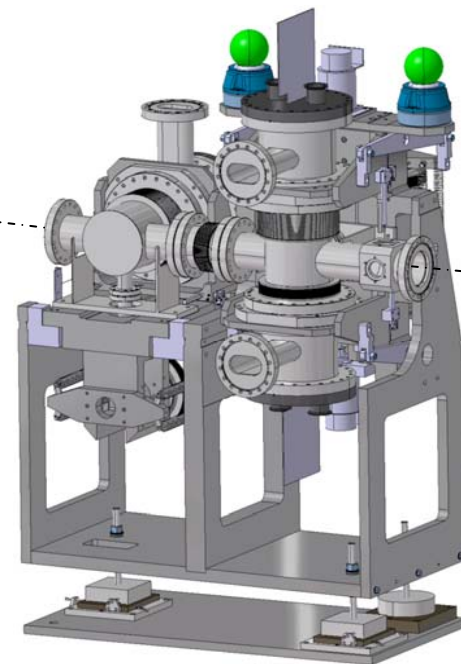# Roman Pots Control System

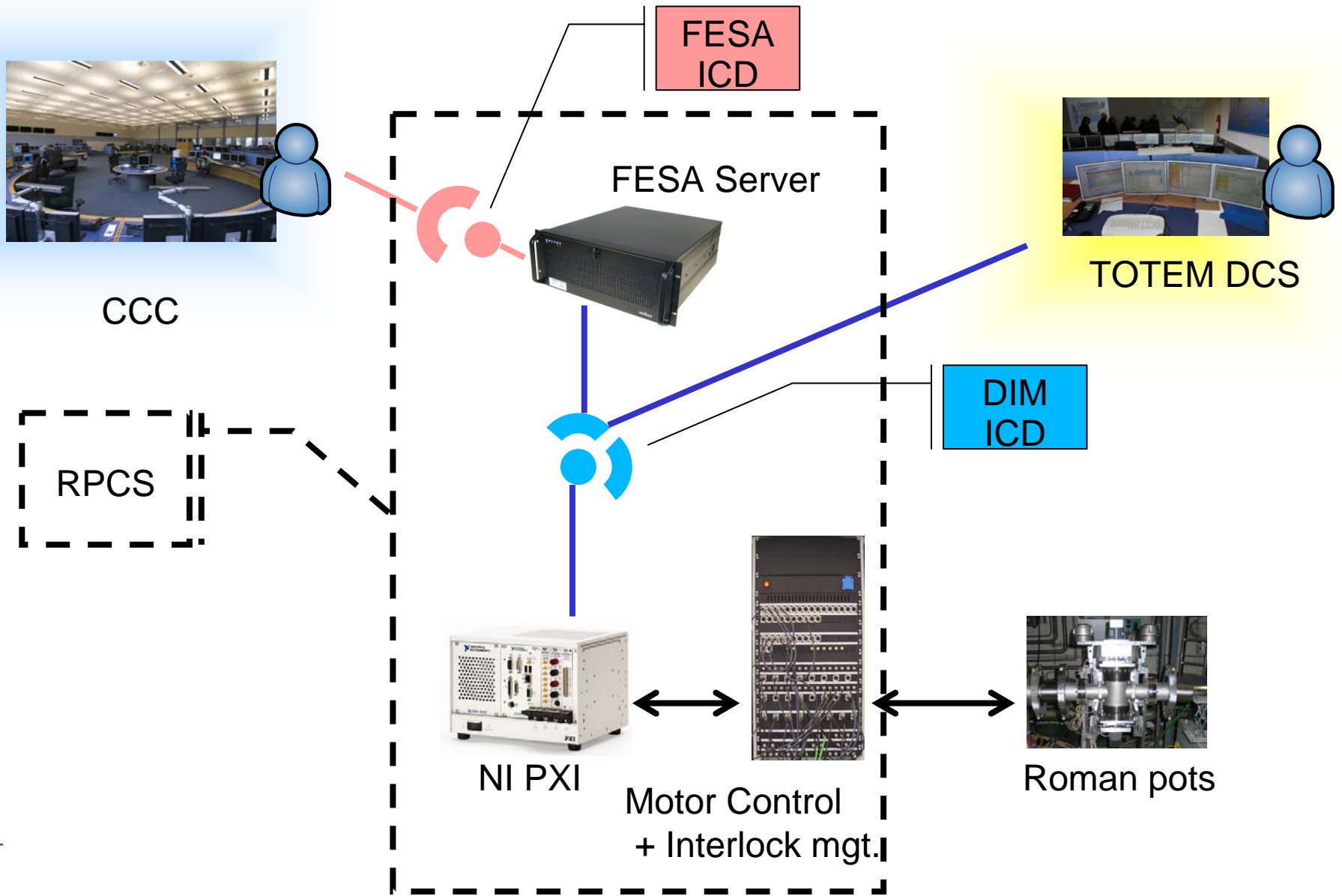(RPCS Use Cases: EDMS 937276)

Mathias Dutour, EN-ICE-SIC, 27 April 2009

Outline

1. What RPCS architecture?

2. Which principles for a safe RPCS design?

3. What are the main RPCS operation principles?

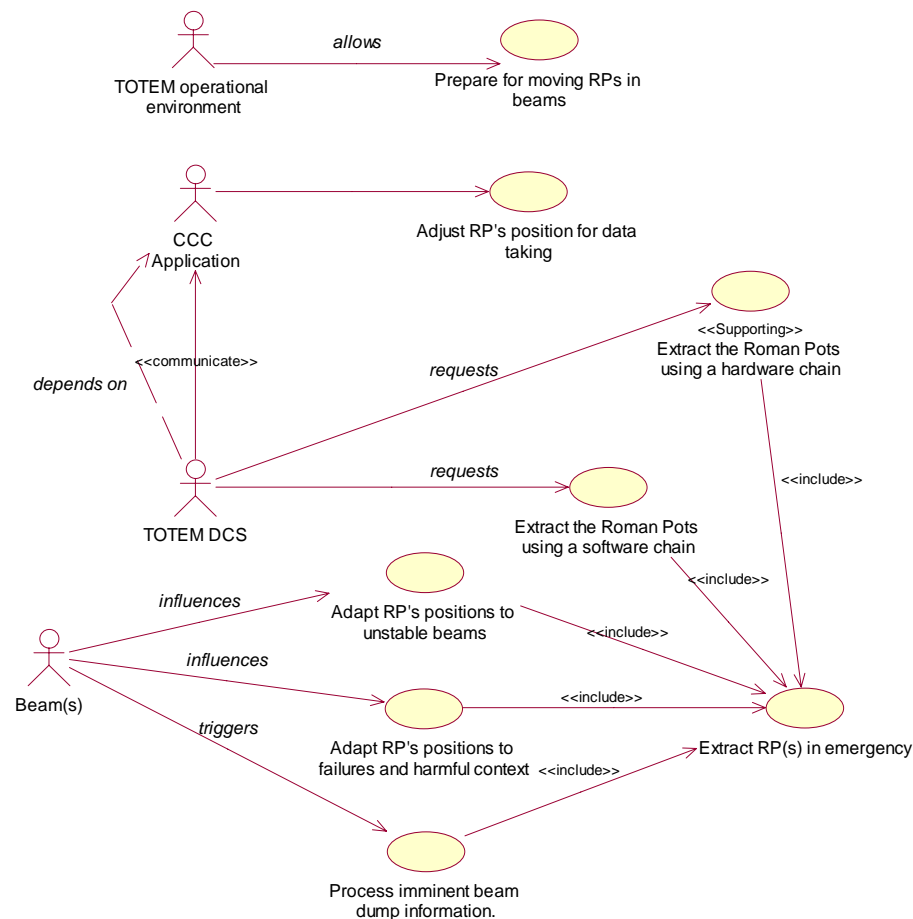4. Conclusion.

5. Q & A.

Roman Pots unit

TOTEM

RPCS architecture overview.

Principles for a safe RPCS design 1/2

- Use Cases approach to clarify all operation scenario.

- Incremental development and testing to strengthen weaknesses online.

- Use Cases as a basis for RPCS commissioning.

Principles for a safe RPCS design 2/2

- **CCC has full control** over Roman Pots positioning parameters.
- TOTEM **can not move inwards** Roman Pots.
- TOTEM **can only extract** the Roman Pots.
- Unplanned movement command are ignored (mvt. inhibit).
- FESA, PXI and DCS systems are monitoring each others.
- A **hardware chain to extract** the Roman Pots is available.
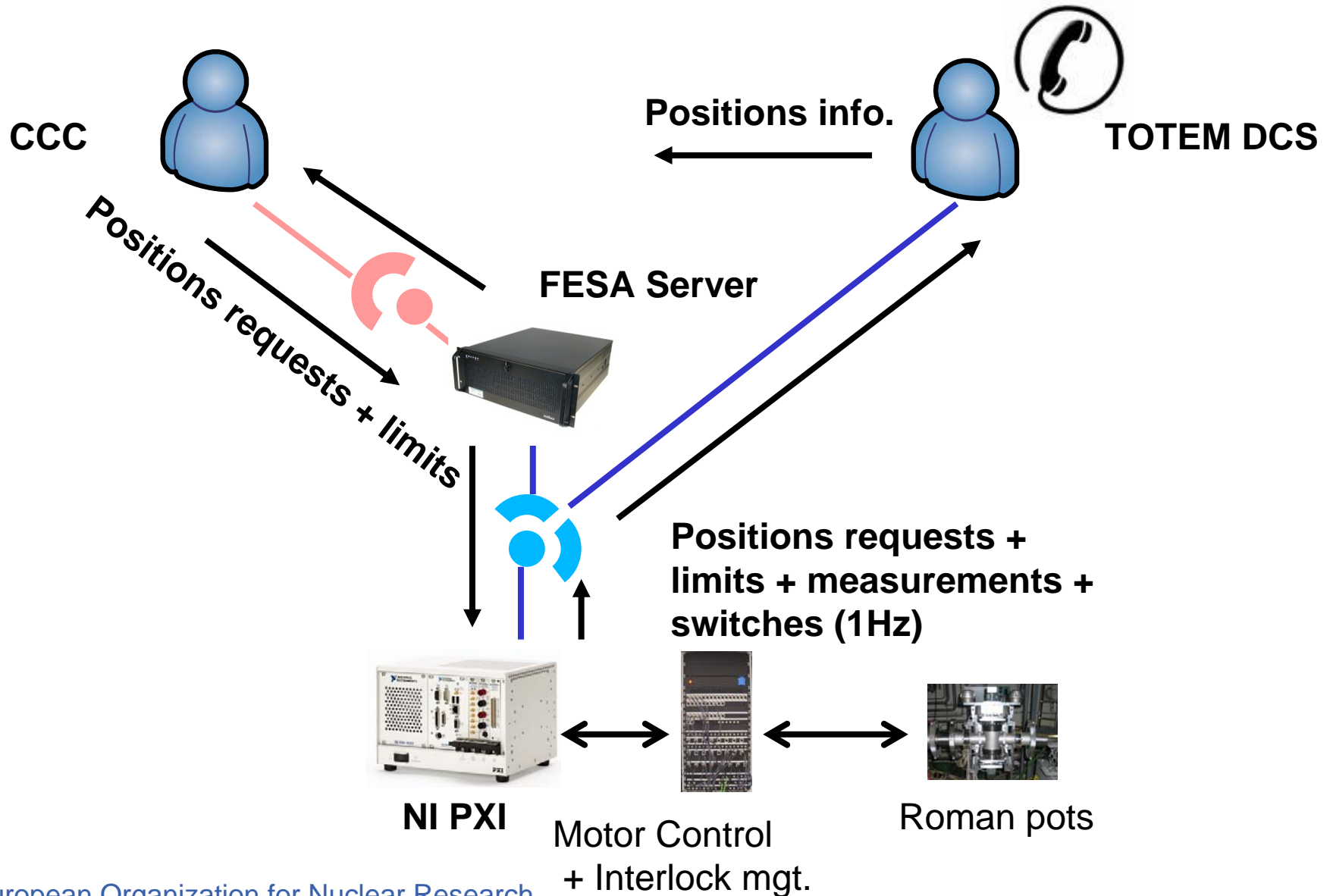- Online verification of calibration.

- Supplementary mechanisms to be implemented.
  - Link to other measurements devices for automatic extraction (after 2009)
  - Integration of beam energy information (after 2009)
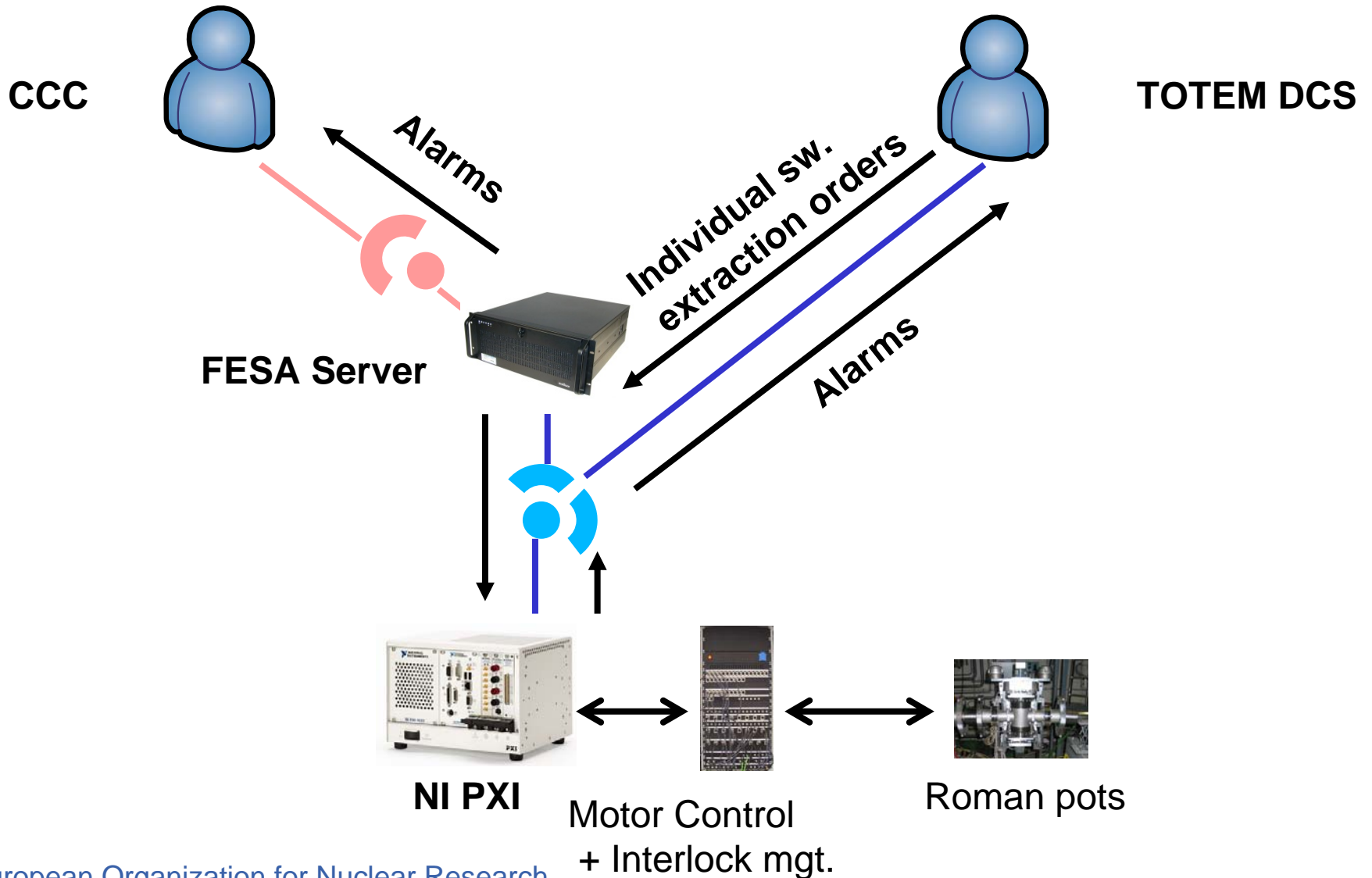
European Organization for Nuclear Research

Main RPCS operation principles

<<Adjust Roman pots for data taking>>

Main RPCS operation principles

<< Extract the Roman Pots using a software chain.>>

Main RPCS operation principles

<< Extract the Roman Pots using a hardware chain.>>

CCC

Alarms

TOTEM DCS

FESA Server

Rack switch off

Mechanical extraction

NI PXI

Motor Control
+ Interlock mgt.

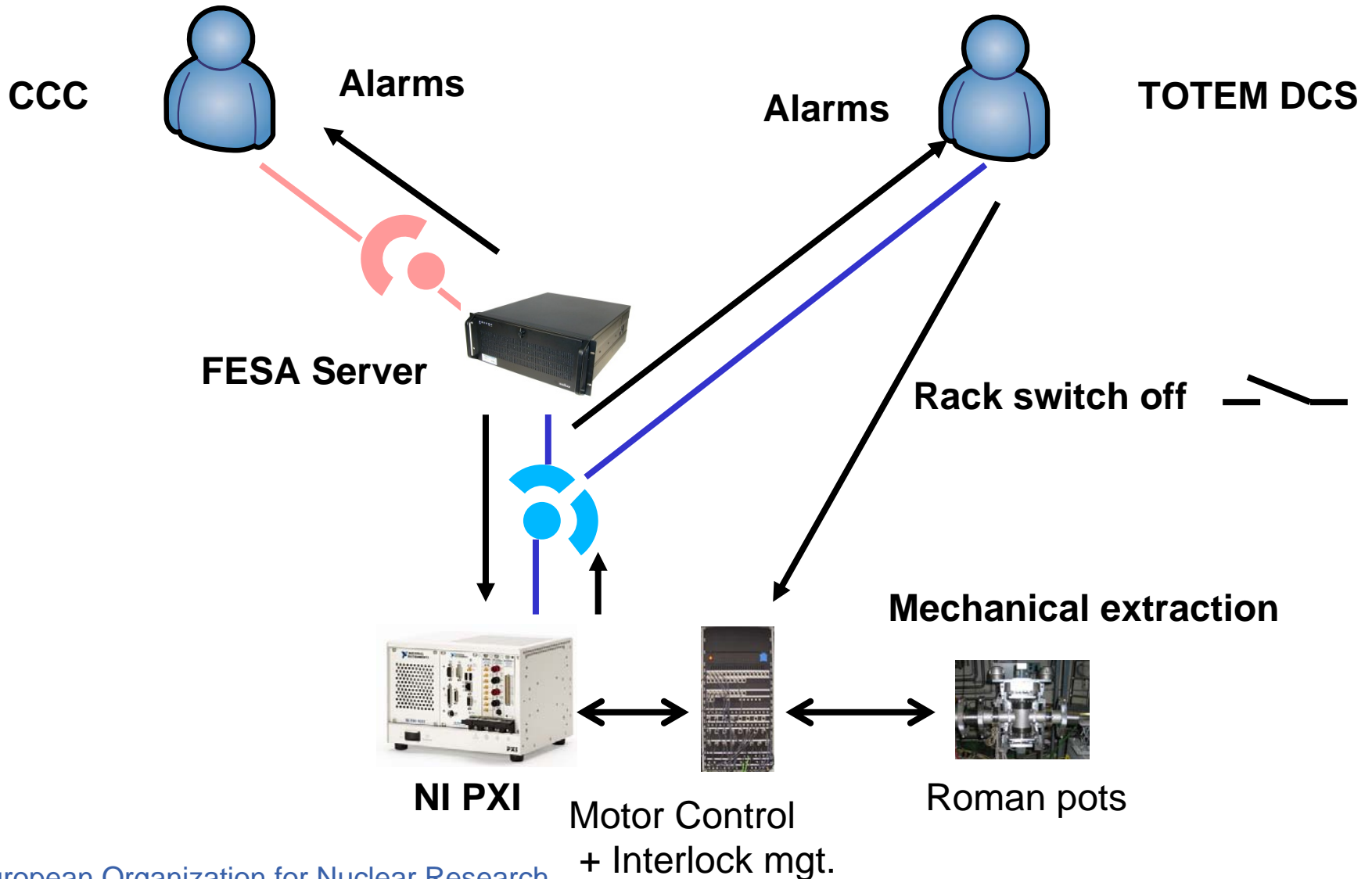Roman pots

Conclusion

- CCC has the control of the Roman Pots positions.

- In case of emergency Roman Pots can be extracted by Sw. or Hw.

- Interlocks and beam states managed by low level.

- Efficient collaboration with AB-OP and TOTEM for Use Cases definition, RPCS interface definition and testing.

EN **Q & A**

Thank you for your attention.