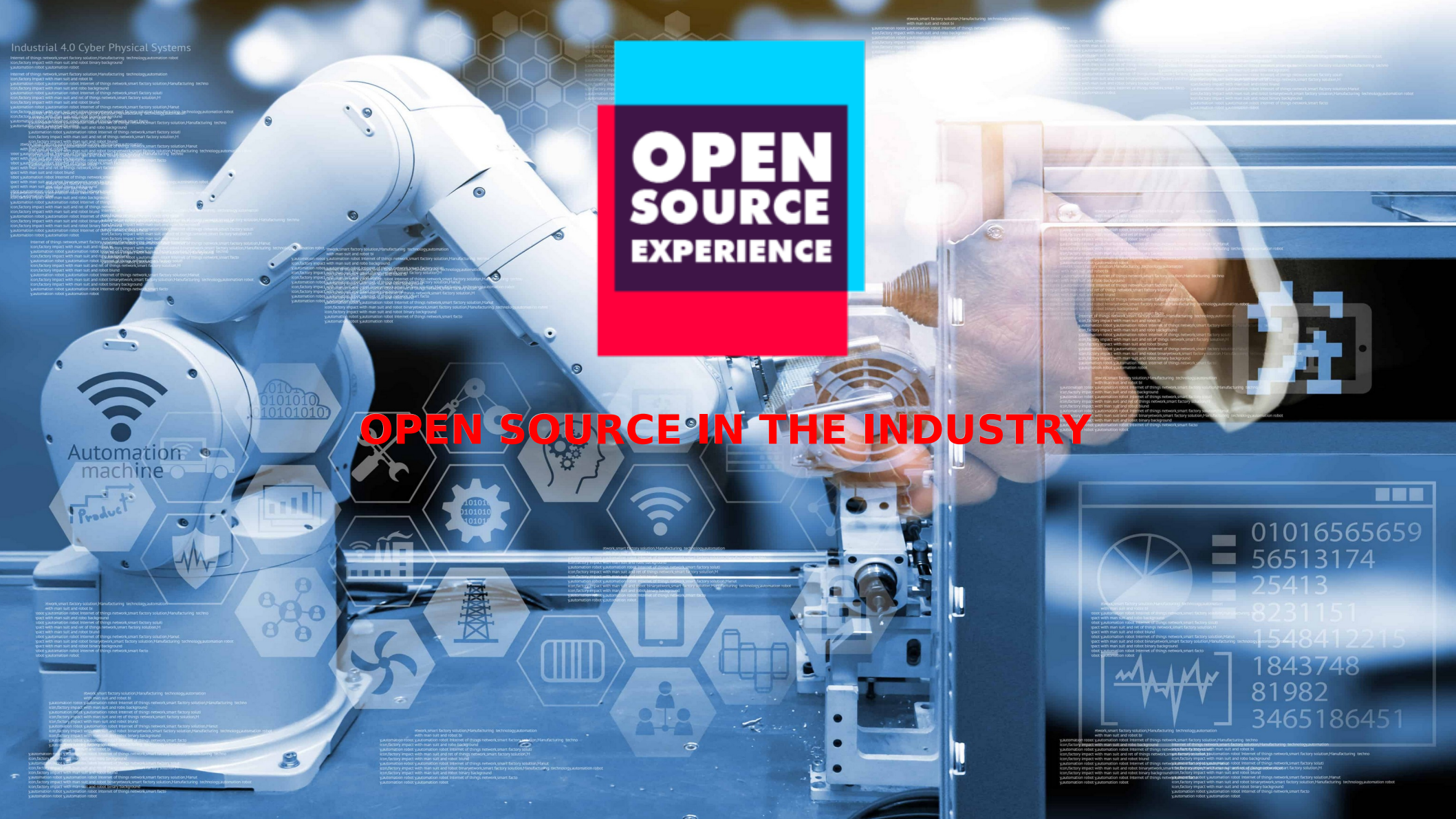

Industrial 4.0 Cyber Physical Systems
OPEN
SOURCE
EXPERIENCE
OPEN SOURCE IN THE INDUSTRY
Automation
machine
Product
01016565659
56513174
25413
8231151
154841215
1843748
81982
3465186451

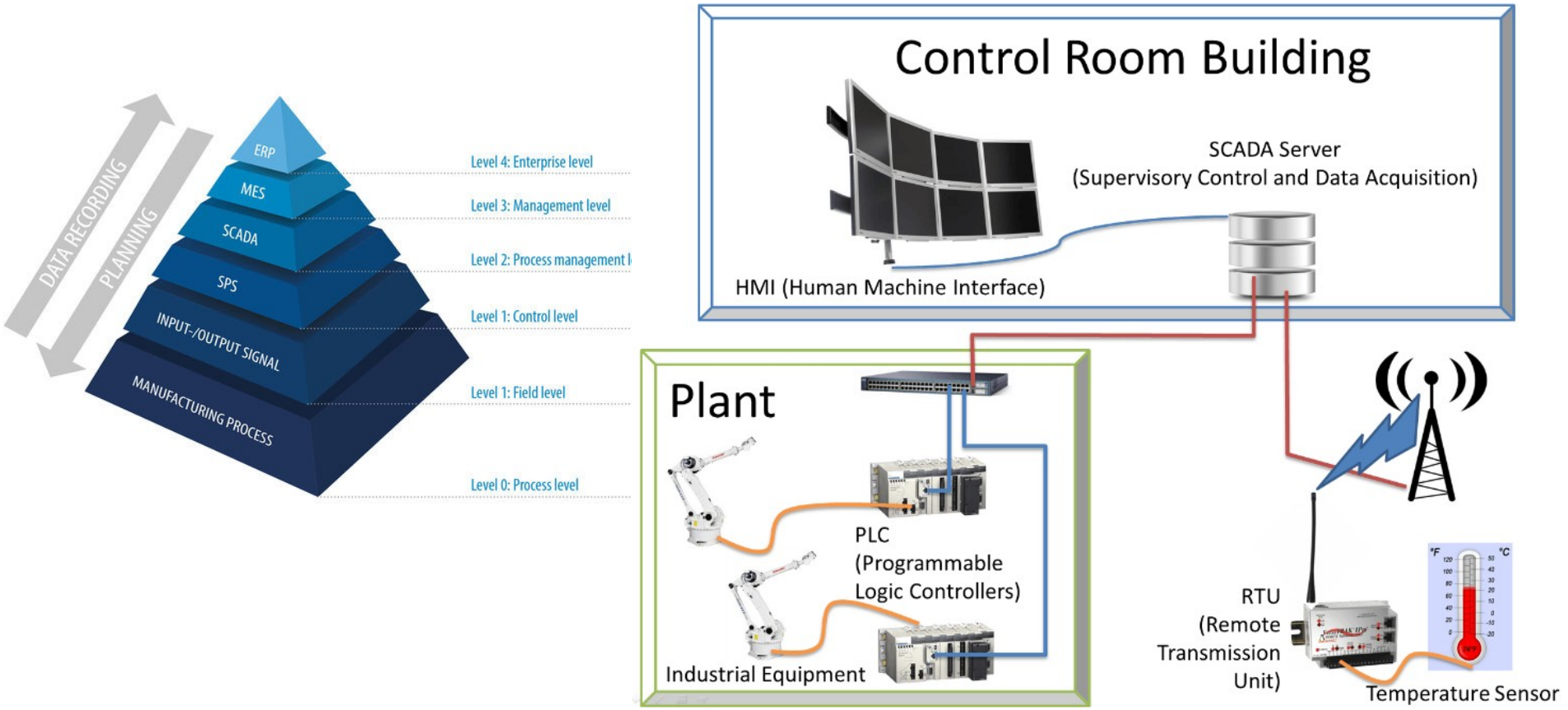
Who is this presentation for?

Software Engineer

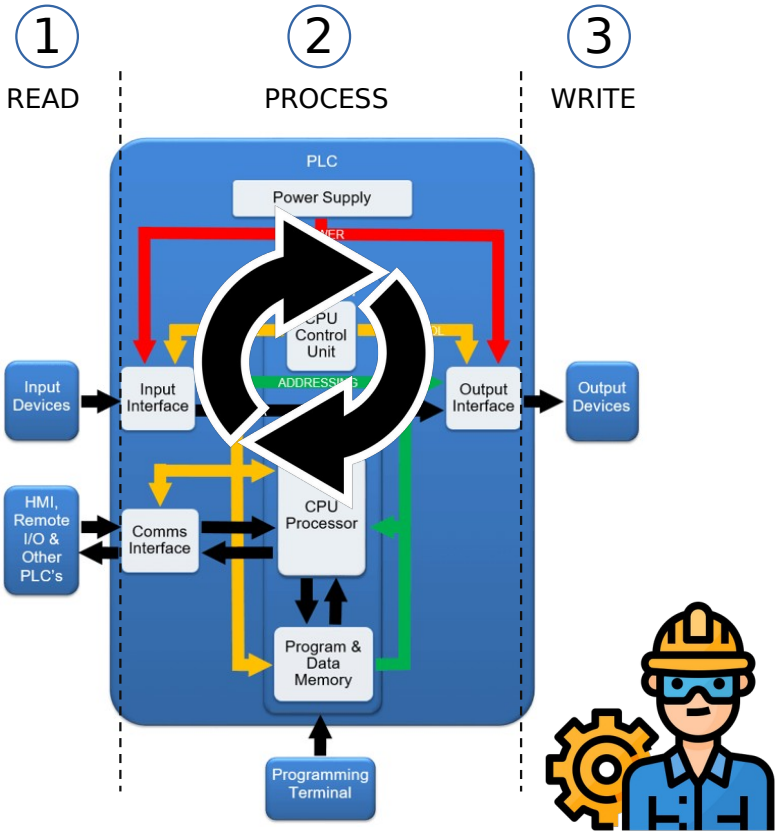
Automation Engineer

Industrial IT Manager / Design office / Machine manufacturer

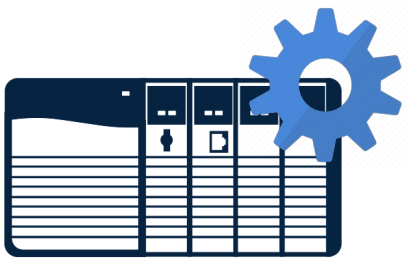
SCADA System Architecture



PLC (Programmable Logic Controller)

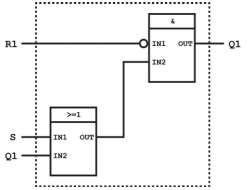


PLC - Open-source runtime



Runtime: Execution environment

Execute the program developed by the automation engineer written in standardized languages (like IEC-61132-3, IEC-61499, etc...)



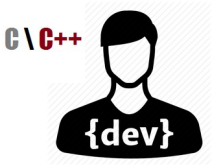
Proprietary controllers

Make

?

Buy

Open controllers



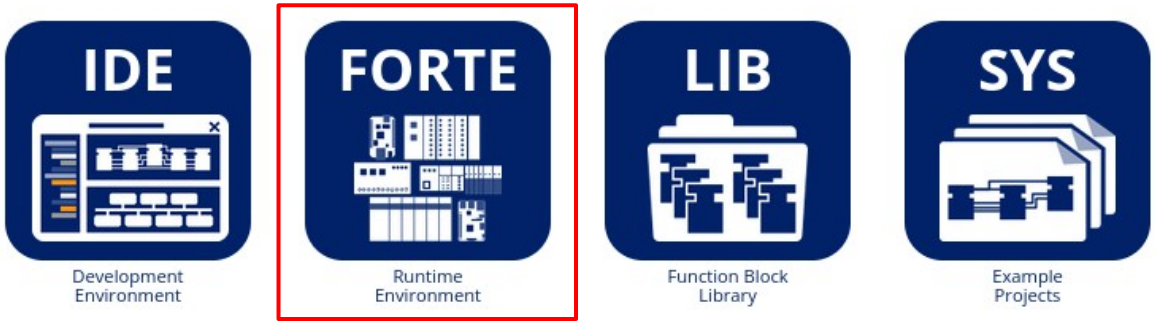
Embedded software engineer:

- Integrates the runtime in the hardware platform,
- Develops a hardware abstraction layer (HAL), adds protocols, etc...

Eclipse 4DIAC

Open-source PLC framework for Industrial Automation and Control

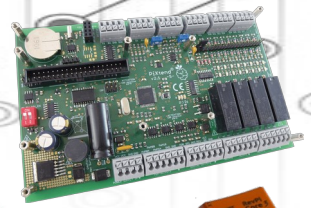
https://eclipse.dev/4diac/



ECLIPSE® FOUNDATION

4DIAC-FORTE

Windows

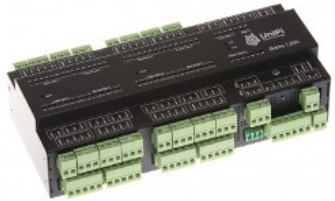


MQTT

OPC FOUNDATION

freeRTOS

VxWorks



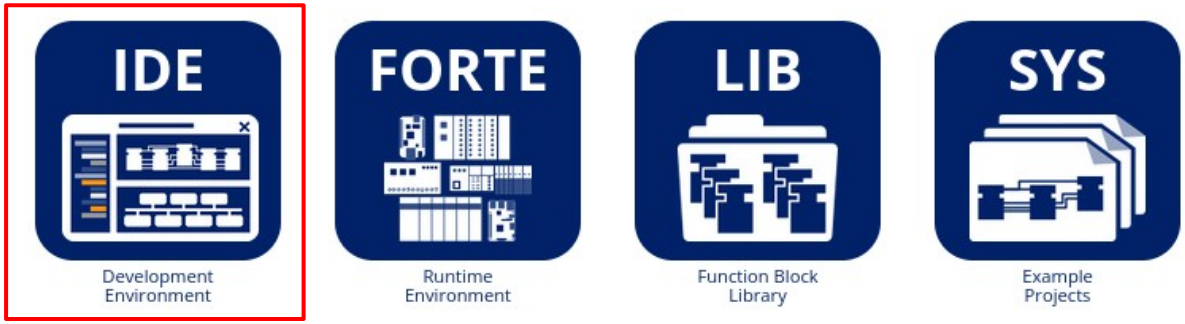
Modbus

* Non-exhaustive lists

Eclipse 4DIAC

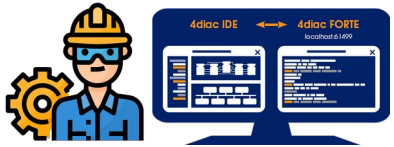
Open-source PLC framework for Industrial Automation and Control

https://eclipse.dev/4diac/



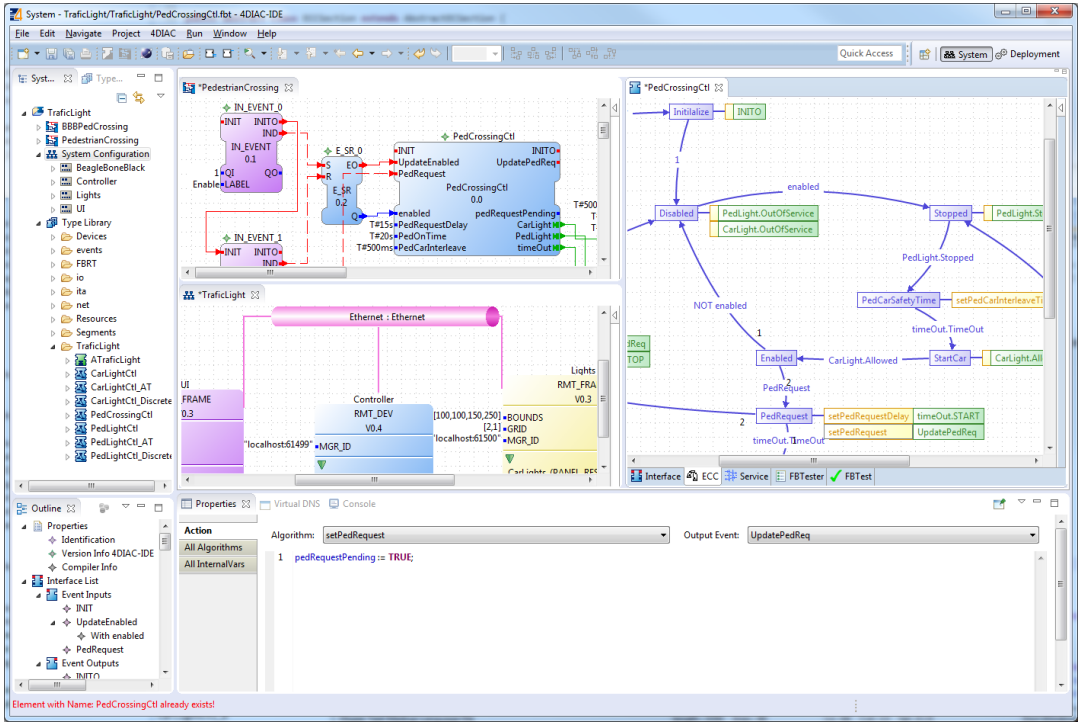
ECLIPSE® FOUNDATION

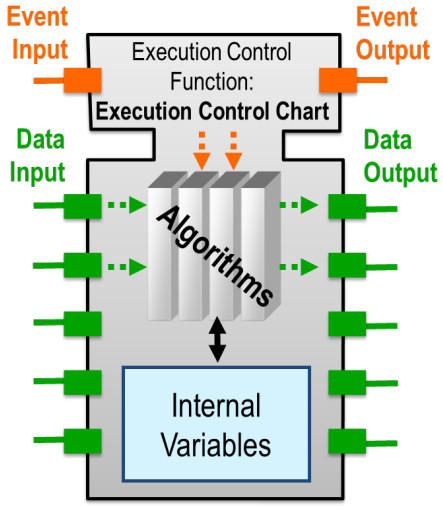
4DIAC IDE



IEC 61499 Compliant Development Environment

Based on the Eclipse framework





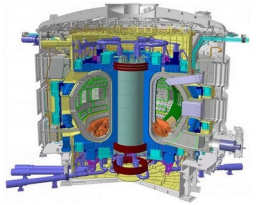
IDE features:

- Application editor
- Hardware editor
- Type editors
- Distribution editor
- Deployment
- Monitoring & debugging
- Testing

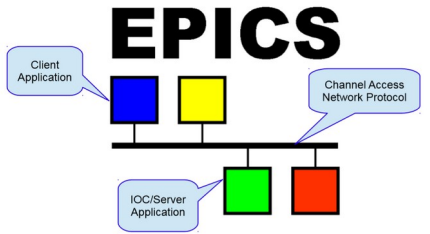
Open source Scada

Open source scada

- **Who develops?**
  - Mainly by laboratories / research institutes / Universities
- **And why ?**
  - Very specific needs (functional and material), systems in perpetual evolution, etc...
- **My favorite projects:**
  - Tango Control System
  - EPICS Control (Experimental Physics and Industrial Control System)



C\C++ python Qt

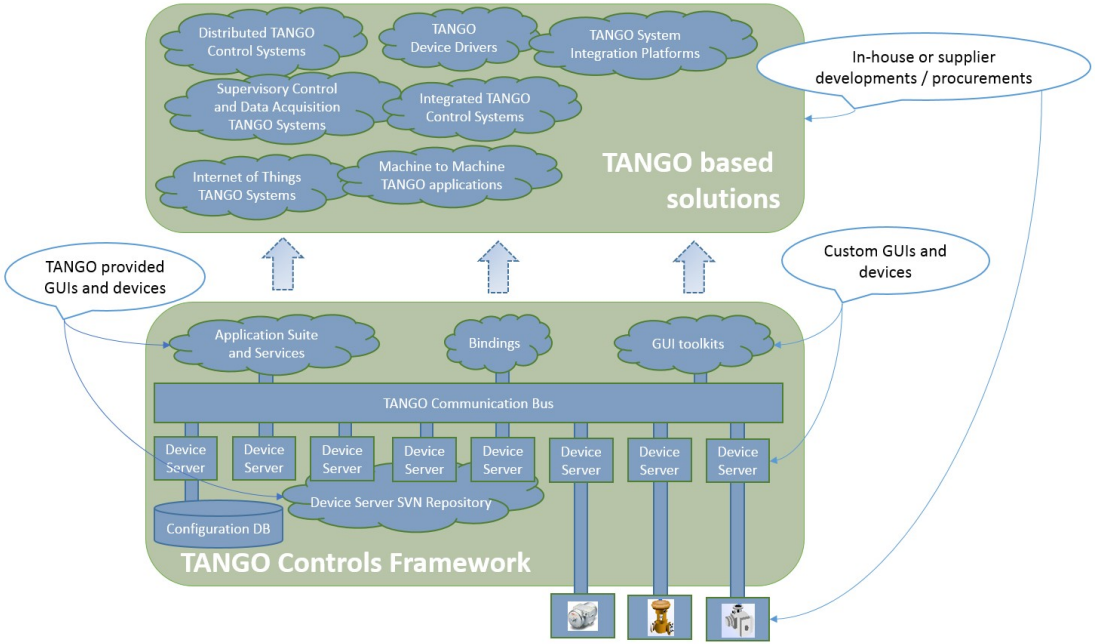


Tango Control

- **Short presentation**
  - The original proposal for Tango was made in a paper written in 31/7/1998 by W-D. Klotz, A. Götz, E. Taurel and J. Meyer

ESRF
The European Synchrotron

SOLEIL
SYNCHROTRON




QUESTIONS