



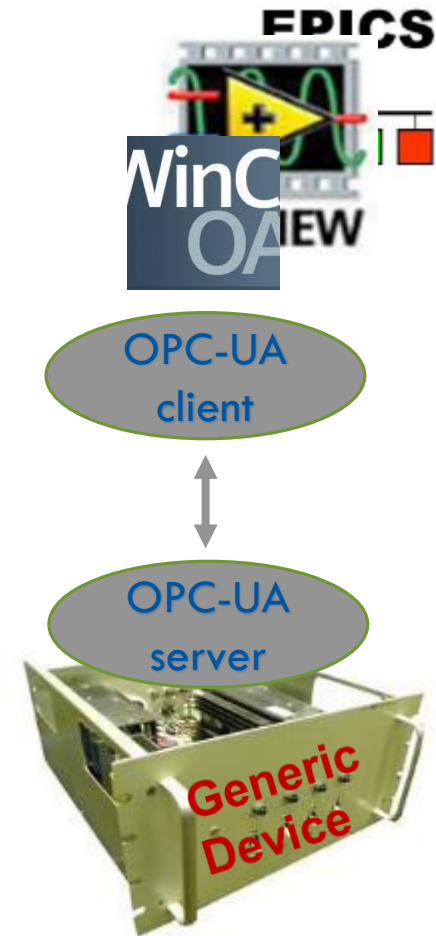
Introduction to OPC-UA
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Agenda

1. OPC-UA overview
2. How OPC-UA is used at CERN
3. Building an OPC-UA server
4. Current collaborations

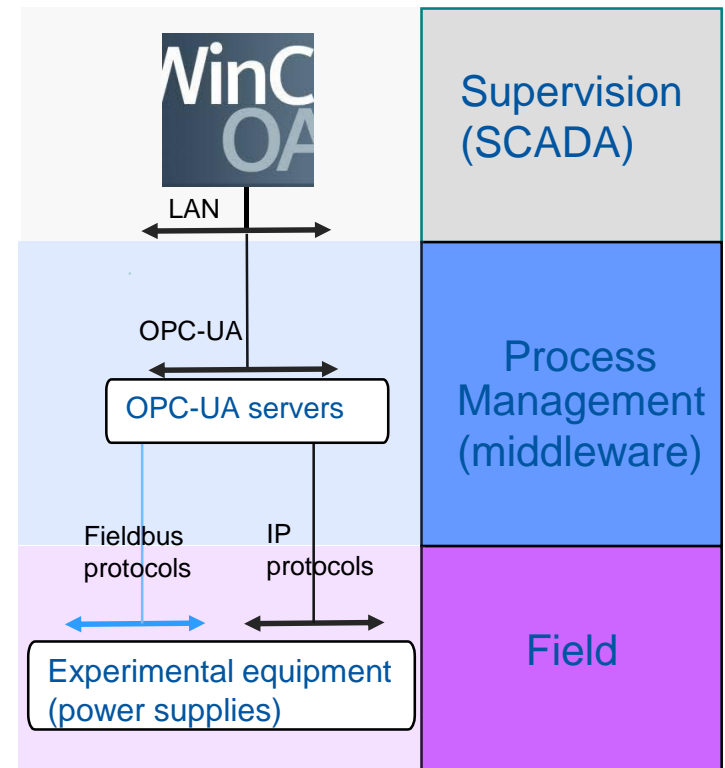
1. OPC-UA overview

- Industrial standard
 - Communication protocol for industrial communications.
 - IEC 62541
 - opcfoundation.org
- Widely adopted in many industrial sectors.
- Client-Server model.
 - Any OPC-UA client can read/write information to/from any OPC-UA compliant server.
- Many products have OPC-UA clients built-in.
 - Many devices come with OPC-UA servers.



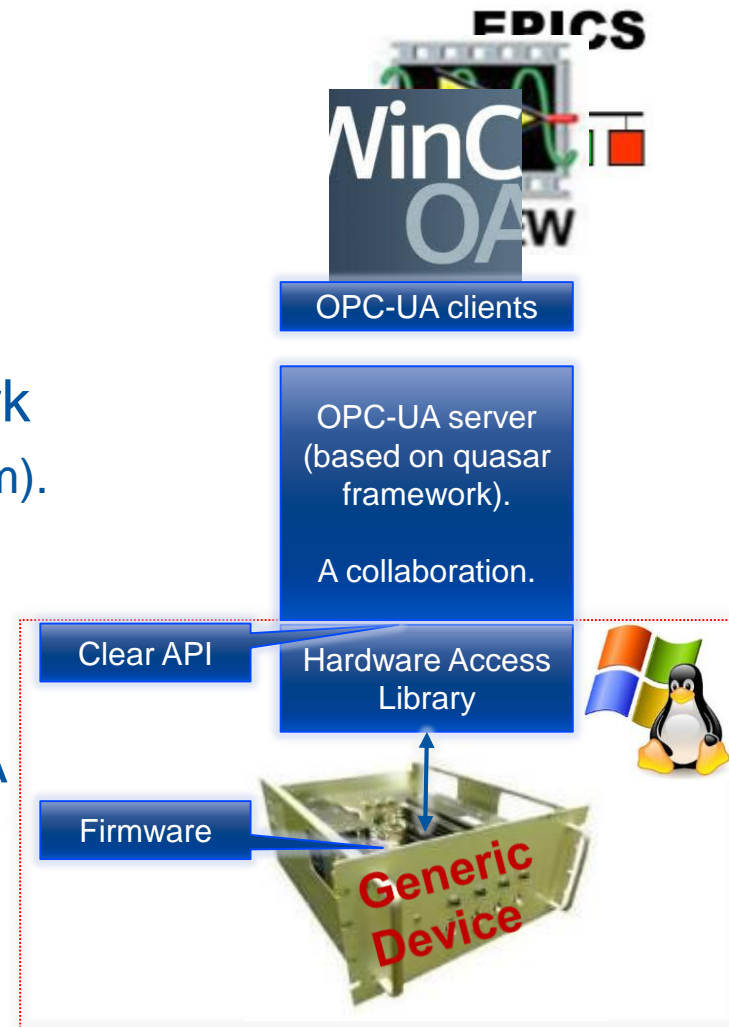
2. How OPC-UA is used at CERN

- SCADA Layer
 - Unified view of (sub)-detector
 - Highly integrated control systems
 - WinCCOA SCADA
- Process Management Layer
 - OPC-UA servers
 - One per device-type generally
 - Middleware: communications between SCADA and field devices.
- Field Layer
 - (Your) hardware
 - Communicates with dedicated OPC-UA server
 - IP network.
 - Fieldbus (e.g. CANbus).



3. Building an OPC-UA Server

- Base requirement (vendor provides)
 - Hardware Access Library (+API).
 - Windows (WS2016) + Linux (Centos7).
- OPC-UA server generation framework
 - Quasar (OS: see github.com/quasar-team).
 - Collaboration (shared source code).
 - Model -> code generation.
- And hence connection to all OPC-UA clients (WinCCOA, LabView, etc.)



4. Current collaborations

- CAEN & ISEG

- Collaboration agreements signed (with CERN's Knowledge Transfer group).
- Collaborative development work.
 - Test and optimize hardware access library in large scale deployments.
 - Build OPC-UA server on top of library.
- OPC-UA servers running in 2018 in production environments.
- Mass roll-out during 2019.

- Wiener

- Collaboration agreements signed.
- Very active collaborative development ongoing.
- Mass rollout foreseen for 2019.



End. Thank you.