

Cyber-physical simulation

OPAL-RT Technologies and **SCALABLE Networks Technologies** are proud to offer a complete real-time cyber-physical solution for the development, testing and assessment of engineering systems with communication networks.

Benefit from powerful state-of-the-art simulation tools to help ensure the cybersecurity, reliability, and efficiency of your critical infrastructure and systems.

Applications include the design and testing of :

- Situational awareness, anomaly detection and cyber-attack mitigation systems
- Communication systems
- Industrial control, monitoring and protection systems

The solution architecture (shown below) allows for critical hardware, communication systems, and applications to be integrated within a high-fidelity real-time simulation, incorporating all critical layers.

OPAL-RT SOLUTIONS

- Comprehensive state-of-the-art suite of electromagnetic, electromechanical and control system simulation software for real-time applications for the following industries:

- Automotive, Ship, Aerospace, Defense and Power

- Extensive and flexible industrial communication protocol emulation including the following protocols:

- MODBUS
- DNP3
- OPC UA Server
- TCP/IP
- UDP
- RS-232, RS-422, RS-485
- IRIG-B and 1 PPS Sync
- IEC 60870-5-104
- IEEE 1588
- IEC61850-8-GOOSE
- IEC61850-9-2 SV
- C37.118

- Engineering service including custom protocol development using OPAL-RT's LAB environment

- Flexible test automation capabilities permitting for extensive and elaborate testing schemes

