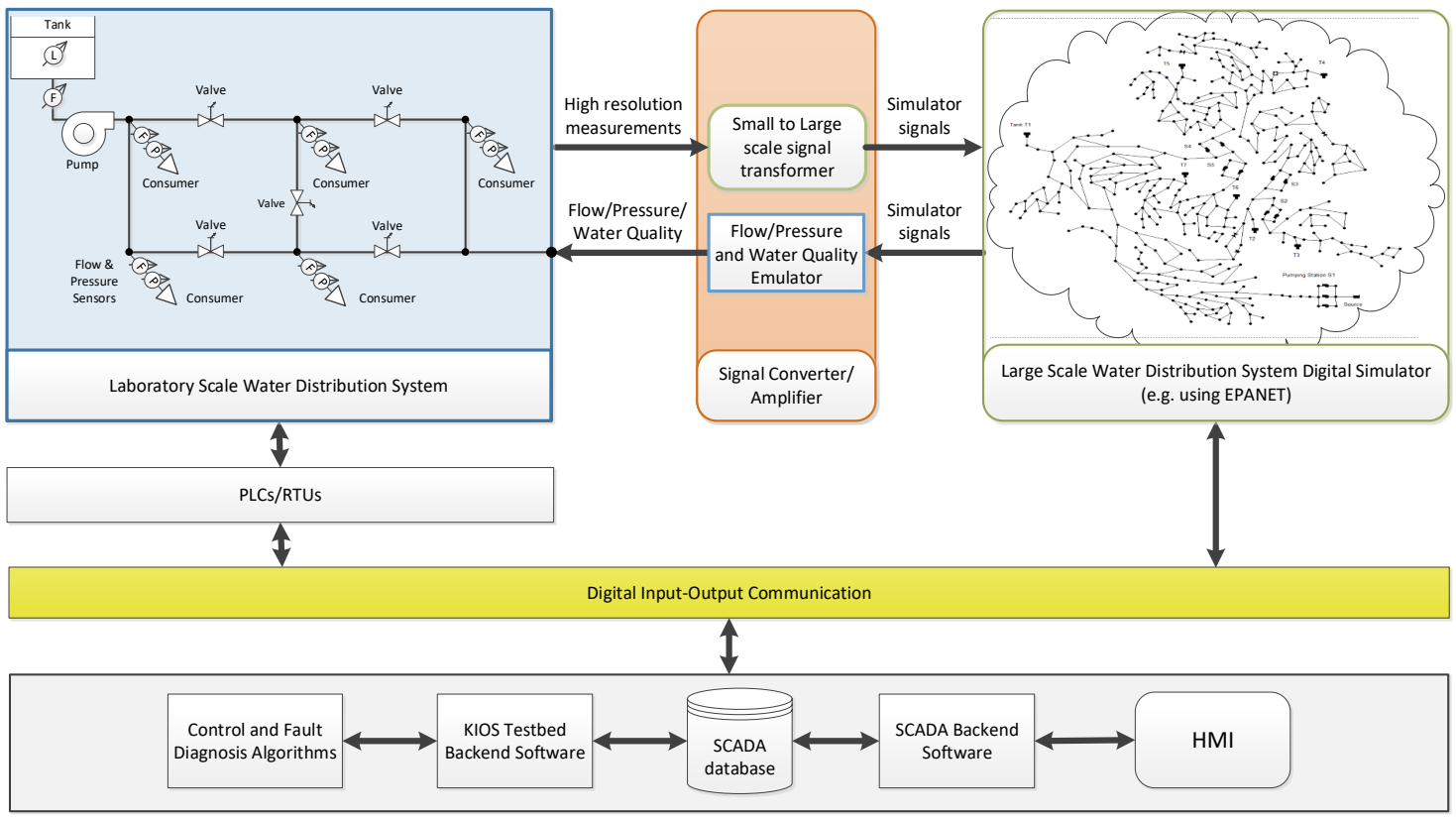
KIOS

Research and Innovation Center of Excellence

KIOS TESTBEDS FOR CRITICAL INFRASTRUCTURE SYSTEMS

Water Systems Testbed

The Water Systems Testbed is an interconnected physical and virtual plant, which allows users to evaluate new monitoring and control algorithms and topologies, within a physical and virtual environment. The Testbed will support research which aims at the improvement and expansion of the knowledge associated with efficiency, reliability and security of smart water systems.



ARCHITECTURE

- **Pilot deployment** of a physical small-scale Water Distribution System
- **Virtual simulator** of a realistic large-scale Water Distribution System
- **Connectivity** between the physical and virtual systems
- Industrial **sensors and actuators** for monitoring and control
- Industrial **SCADA system**, connected to KIOS Testbeds backend

CAPABILITIES

- Changes in the physical system can affect the simulated system and vice-versa
- Reproduce real events (leakages, contaminations, sensor and actuator faults, cyber-physical attacks on PLCs, power losses, etc.)
- Real-time control of system
- Create benchmark datasets
- Automated network reconfiguration

IMPACT

- Evaluate monitoring algorithms for state estimation and fault diagnosis in TRL4-6
- Optimize system operation and reduce losses
- Measure the energy savings using new control algorithms
- Demonstrate resiliency during cyber-physical attacks
- Industrial users can compare sensor capabilities and evaluate new topologies, products and services

University of Cyprus

Imperial College London

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