

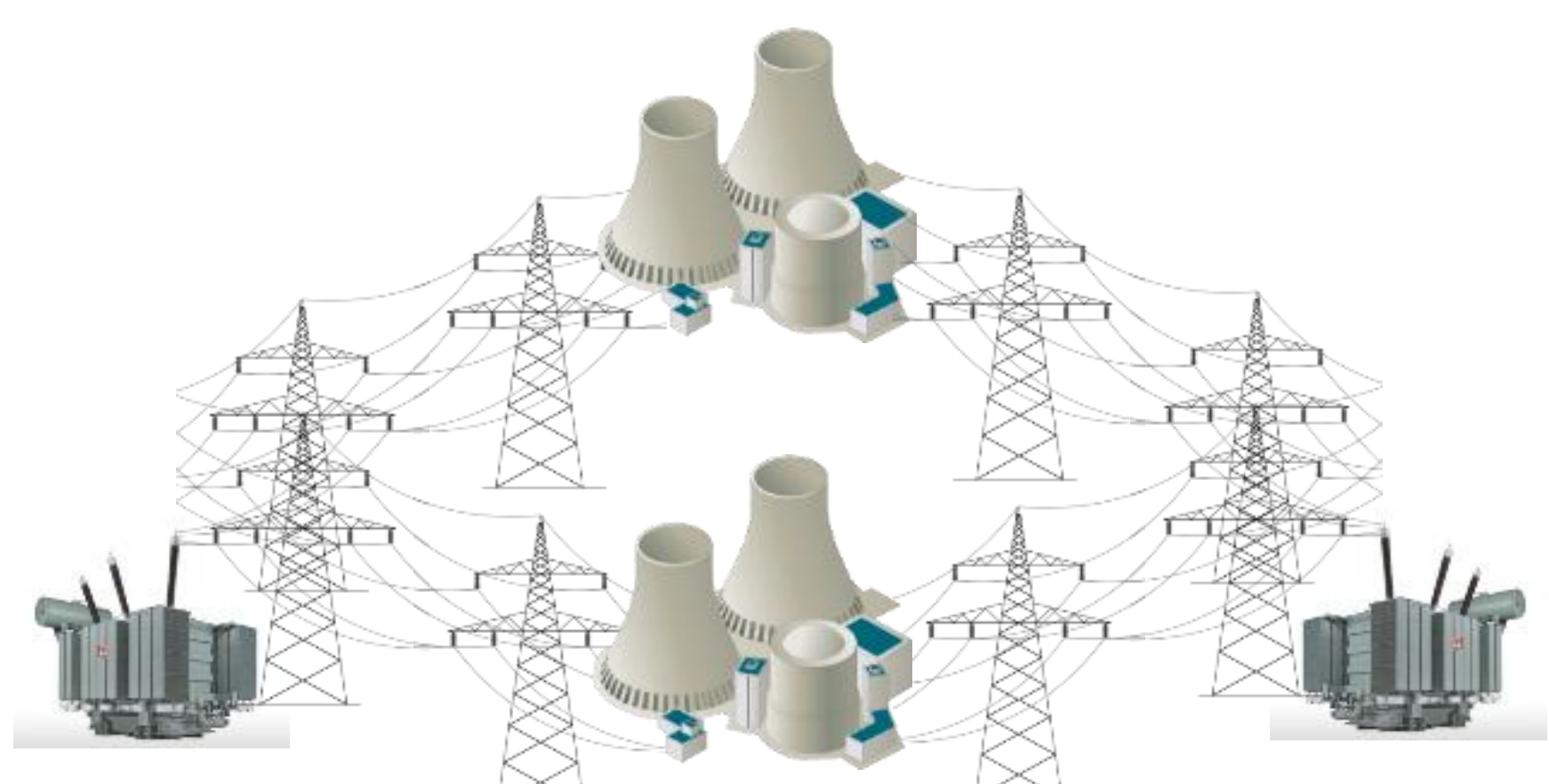
Smart grids, Smart buildings and Smart sensors using dedicated microelectronic ICs and real time ICT.

M. Kayal*, M. Paolone*, J-Y Le Boudec*, R Cherkaoui*, M. Pastre* & R. Kanan**

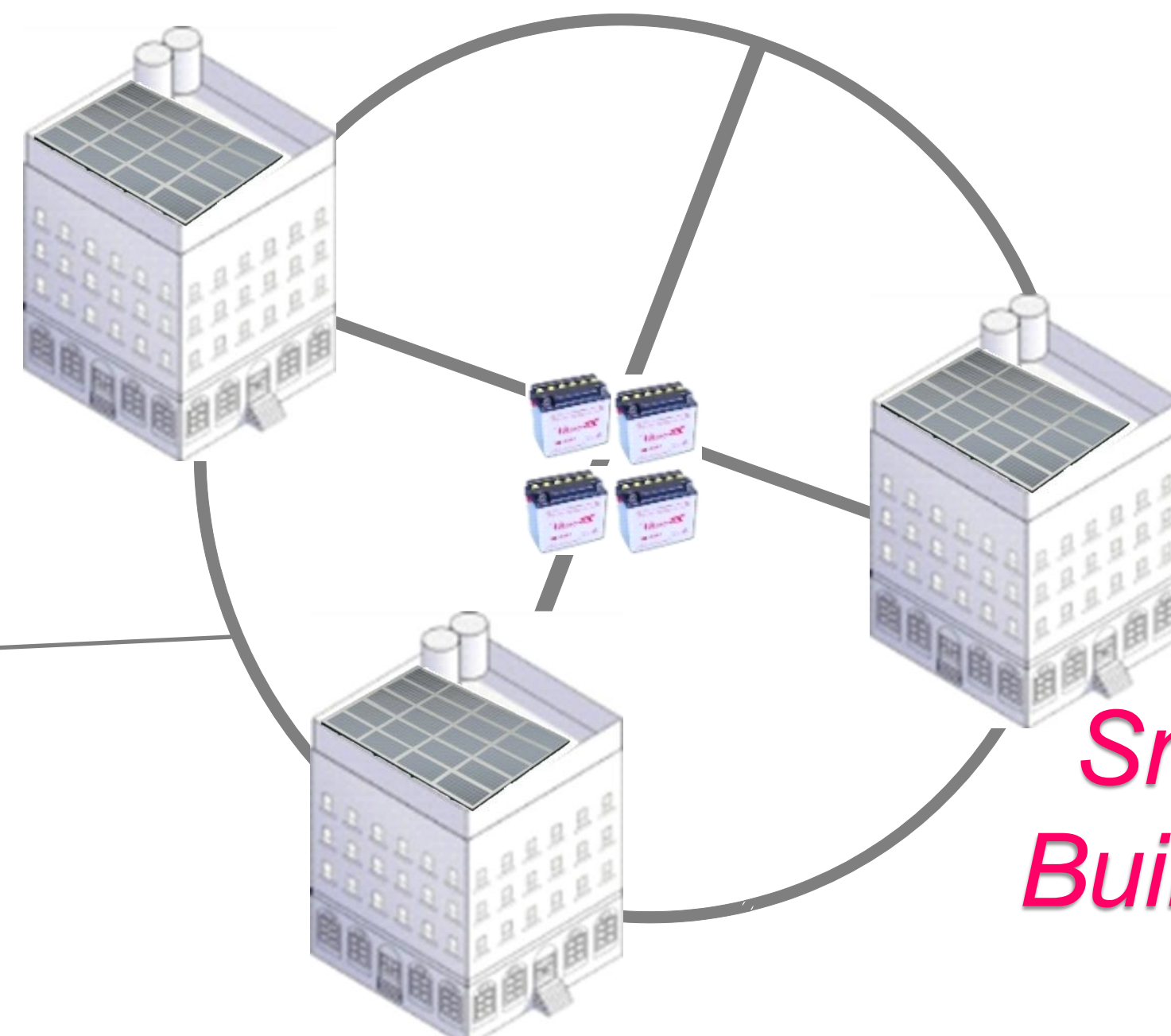
* EPFL, **HES.so-Valais

Project Structure

Transmission Network



Smart Grid



Smart Sensors



Smart Buildings

Smart Grid

- Real-time monitoring of power system state estimation using electronic ICs emulators with dedicated ICT layer

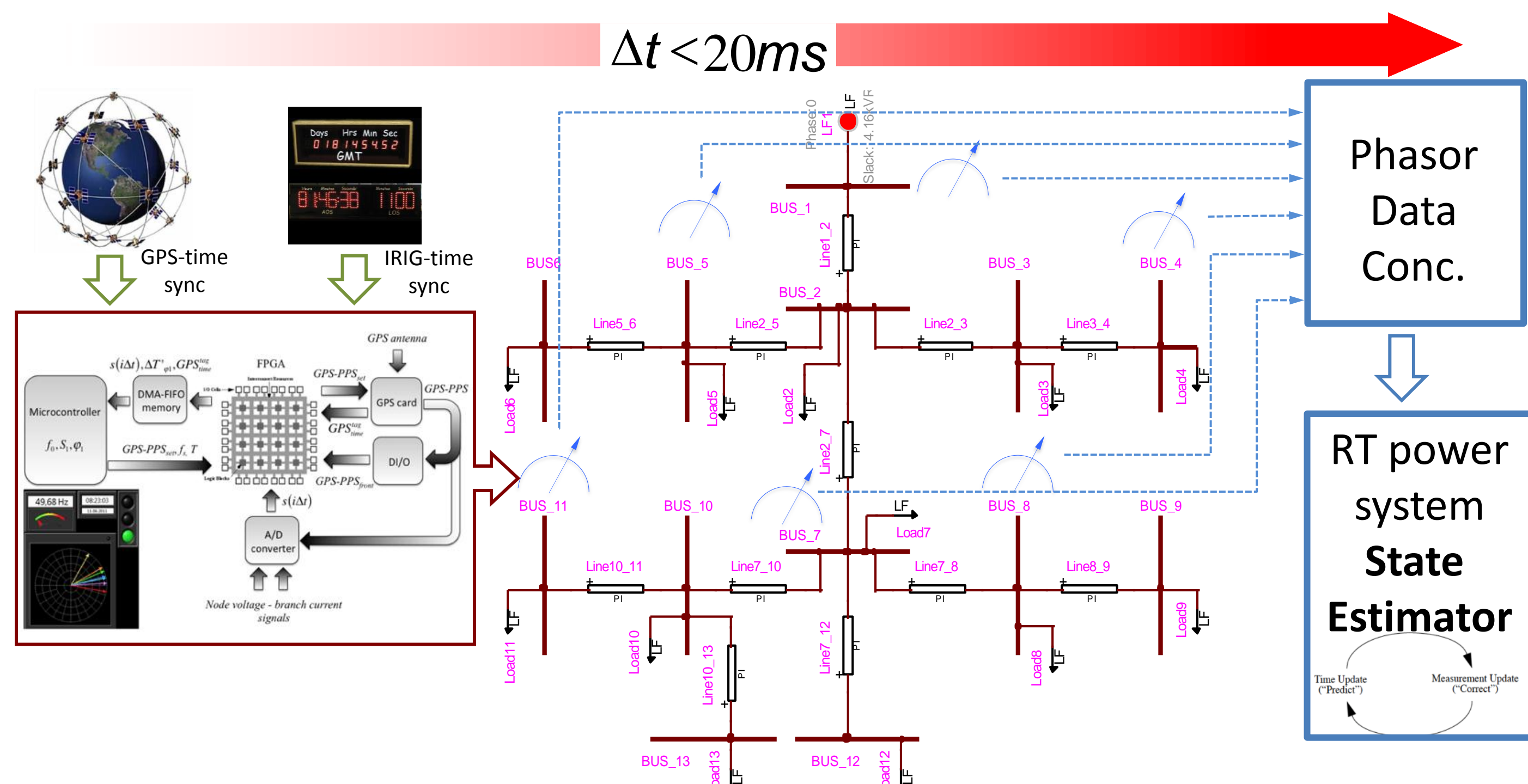
Smart Buildings

- Demand side management, using intelligent plugs (eSmart) to create a cluster of controllable loads (power distribution)

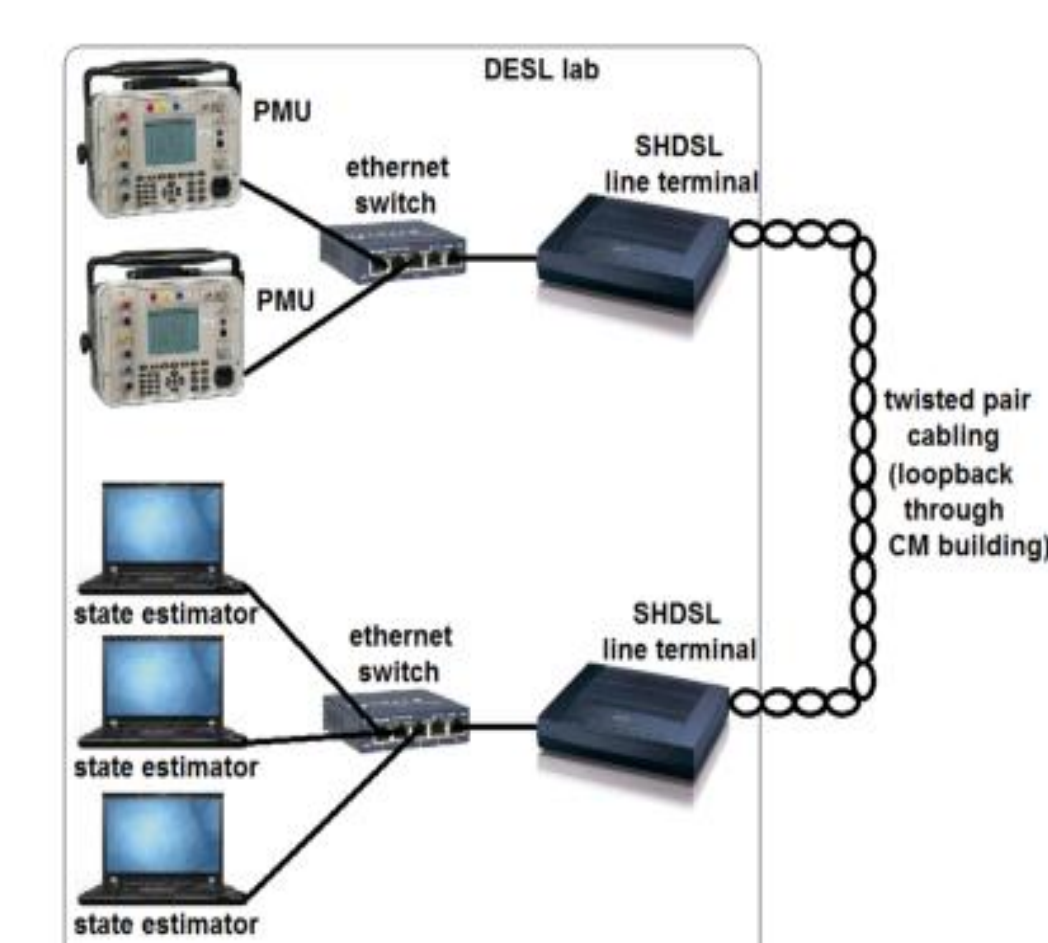
Smart Sensors

- Local power optimization respecting building occupancy with Zero-power sensors network.

PMU-based monitoring

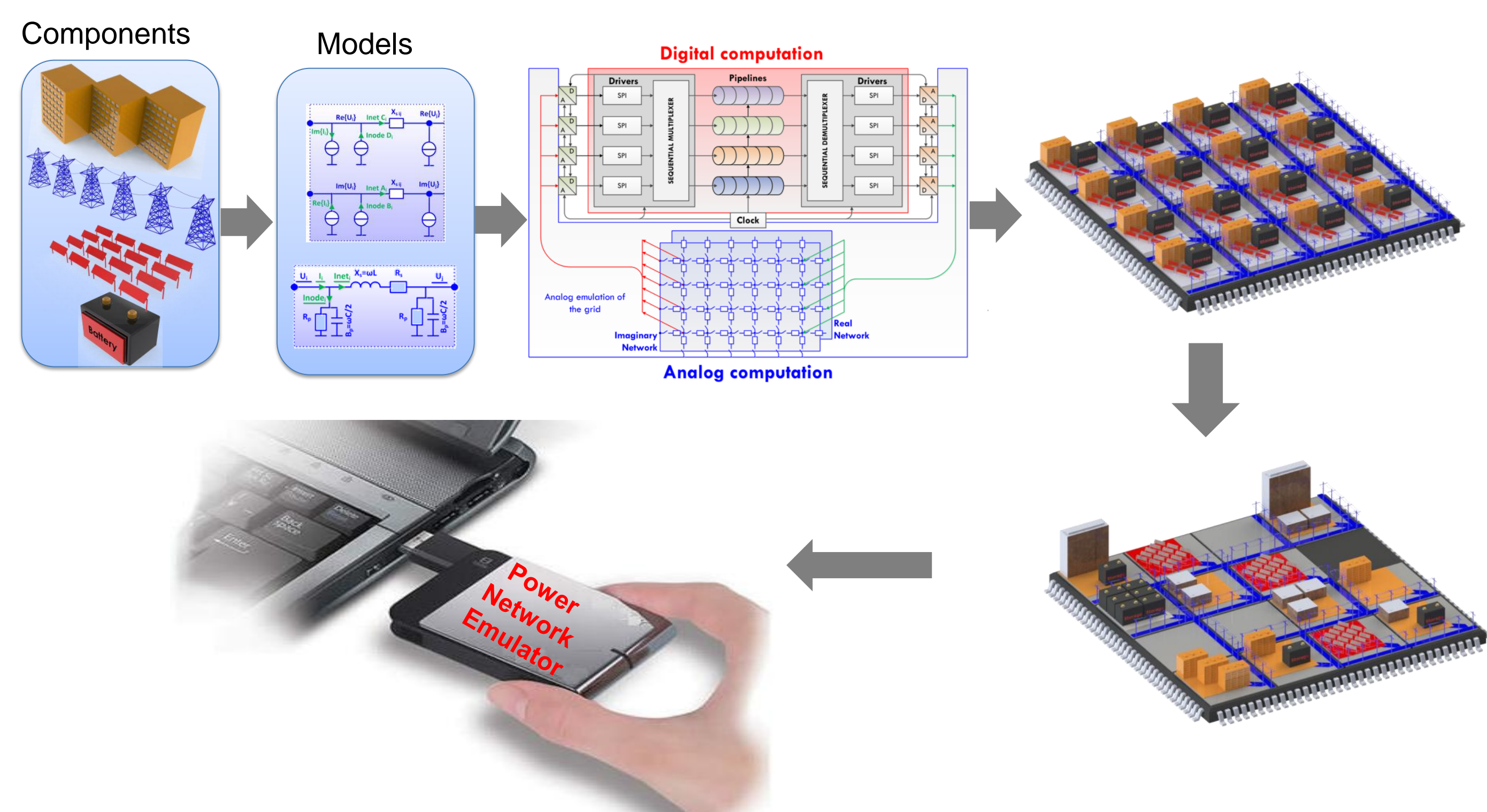


EPFL campus as experimental verification

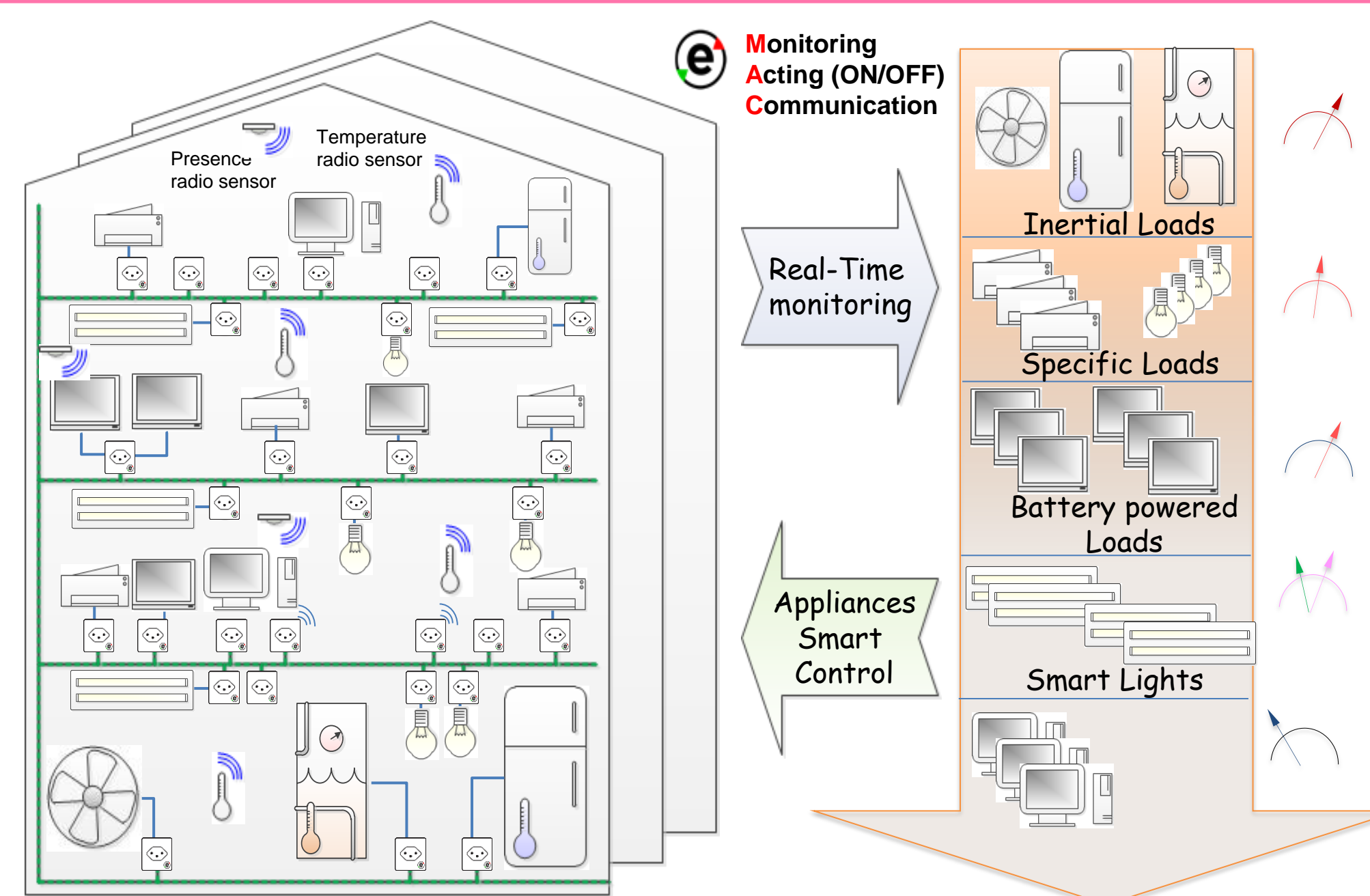


- Evaluation of wireless technology with low rate and redundant paths
- Security by logging and authentication

Real-time electronic ICs emulators



Smart Buildings & Smart sensors



- Load management with zero-power environmental sensors