2021 NSF CYBER-PHYSICAL SYSTEMS PRINCIPAL INVESTIGATORS' MEETING

CPS: Synergy: Collaborative: Holistic Control and Management of Industrial Wireless Processes

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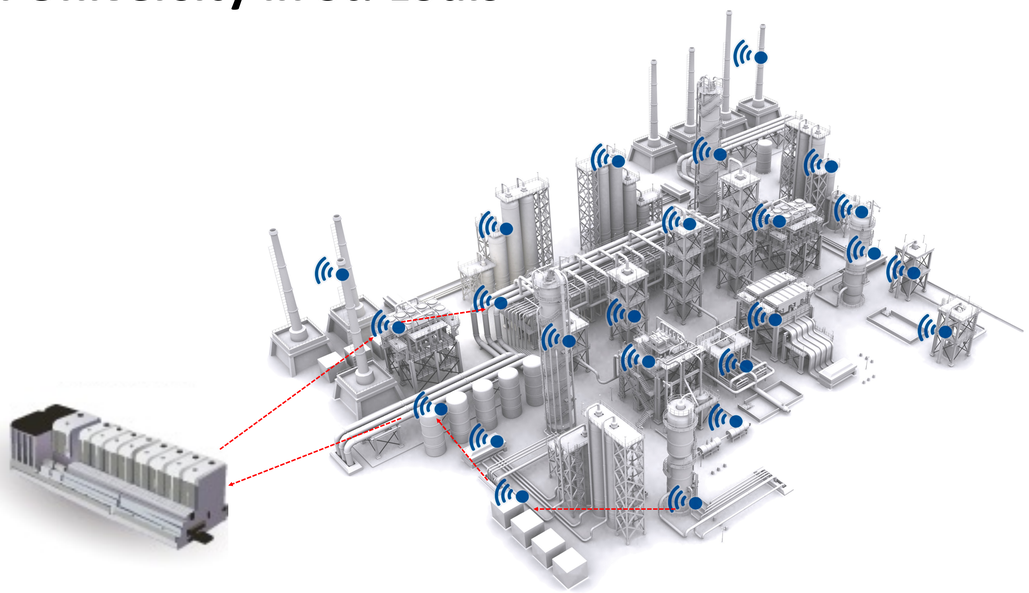
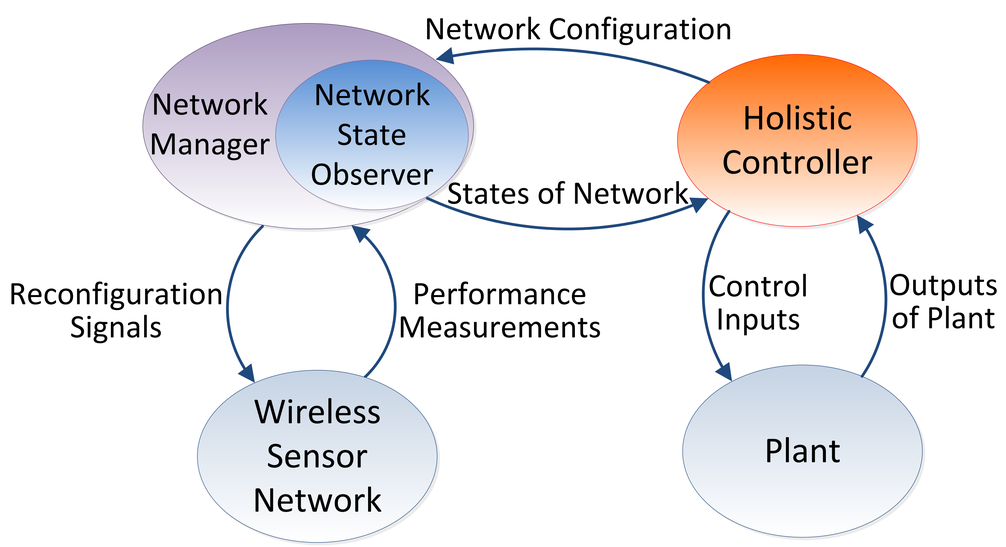
Challenge:

- Industrial control is vulnerable to **both physical and network** disturbances.
- Network and control operate in **isolation** → vulnerable and inefficient



Solution: Holistic Control

- Close the loop between controller & networks
- Holistic control architecture, algorithms, and protocols
- WCPS: Wireless Cyber-Physical Simulator



Scientific Impact:

- Control across cyber-physical boundaries → critical autonomous systems
- Smart infrastructure, medical devices

Broader Impact:

- Dependable industrial automation at lower cost and higher flexibility
- Leverage advances in wireless and edge computing

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http://cps.cse.wustl.edu/