



Software Defined Control for Smart Manufacturing Systems

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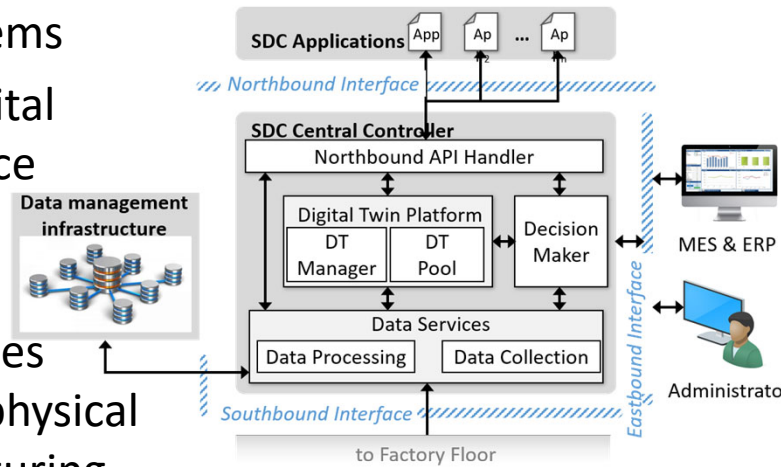
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Challenge:

- Integrate Information & Operations Technology for improved decision making in manufacturing systems
- Convergence of physical & digital spaces to optimize performance

Solution:

- Control framework that enables secure convergence of cyber-physical planes for enhanced manufacturing performance
- Digital twin (DT) framework to monitor systems, predict behaviors, and perform “what-if” analysis



Software-Defined Control, flexible control reconfiguration to enhance performance

Scientific Impact:

- Industry collaborations show generalization to discrete & process manufacturing systems
- Impact to CPS
 - *Simulation tools* to verify control decisions
 - *Data infrastructure* to store/secure data for CPS
 - *Generalized Digital Twin modeling framework*

Broader Impact:



Dissemination

- 15+ peer reviewed publications
- Implementation of DT framework for open automation at MxD facility
- 5+ invited talks

Industry Collaborations

