

Challenges in Engineering Coordination for Harmonizing Synergy in Cyber- Physical-Social Systems

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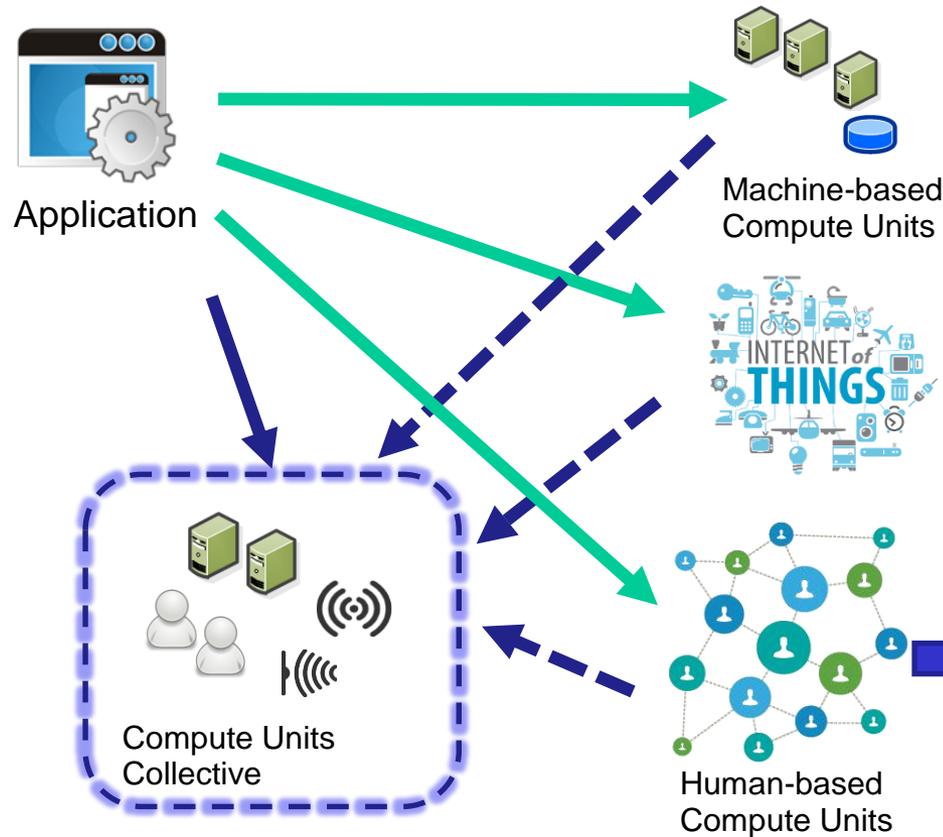
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Cyber-Physical-Social Systems

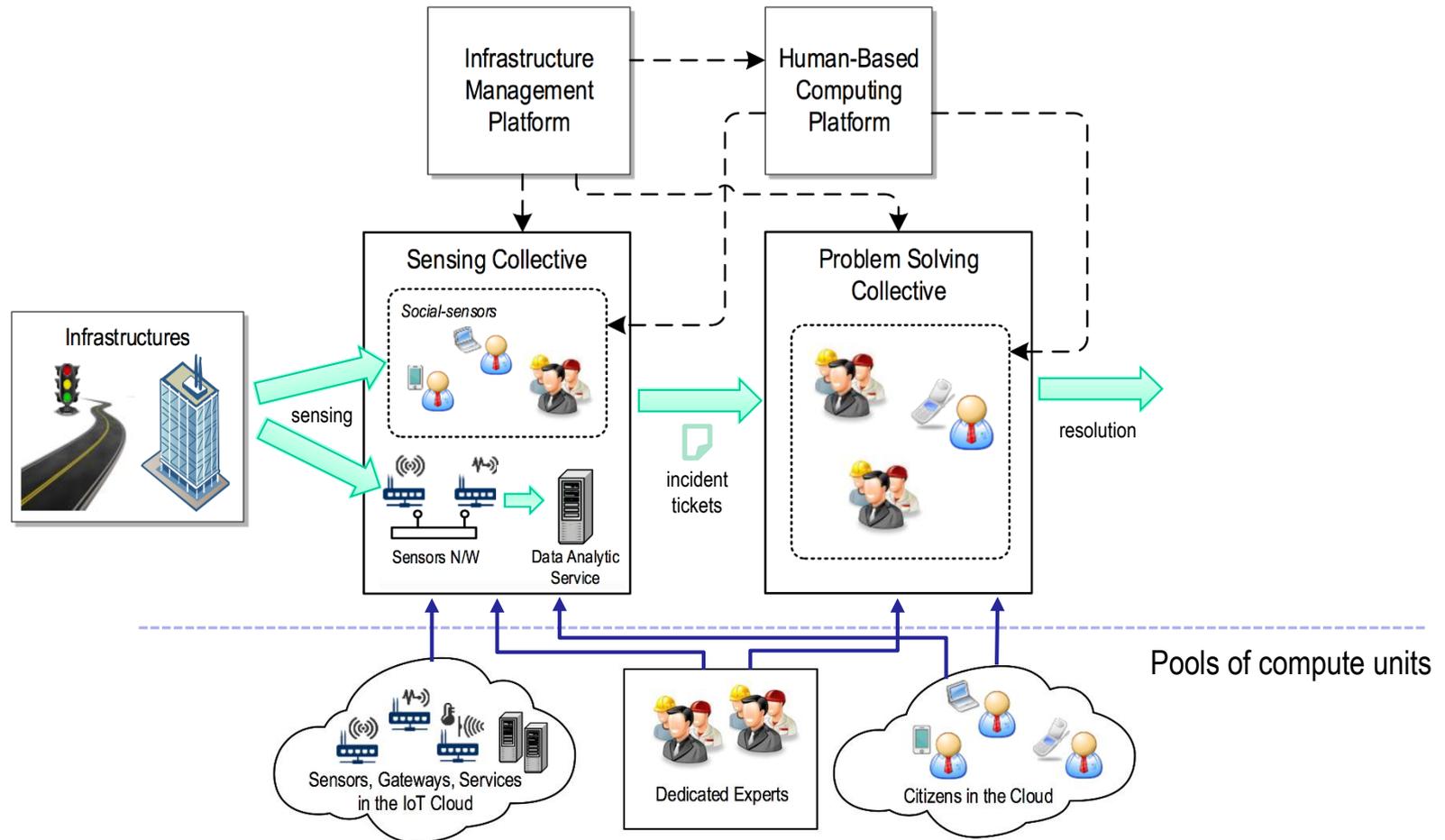
- Smart Cities
- IoT applications
- Predictive maintenance
- System optimization



- Big data analytics
- Cloud services
- IoT infrastructures
- Sensing and actuating

- Crowdsourcing platforms
- Collective intelligence
- Social networks of experts
- On-premise domain experts

Motivating Scenario



Key technical problems

1. We have very powerful IoT infrastructures, big data analytics, and nice HCI but how would we communicate the results to resource management systems to **trigger on-demand provisioning of collectives of human and compute units**?

Huge gaps between IoT/big data and collective/hybrid compute units provisioning algorithms!

2. How do we **coordinate actions** between the machine subsystems and the human subsystems and what would be suitable service engineering techniques for them?

interactions and information exchange granularity and the common metrics among various subsystems

Our ways

- Helping resource management systems to make decision by providing **reliability analytics** techniques (ICSOC 13, CAISE 2014, CIC 15, Services Congress 2016)

<https://github.com/tuwiendsg/RAHYMS>

- Languages and platforms for **“programming” collectives** (WESOA 2014, ICSOC 2016, SOCA 15, CIC 2015)



<http://www.smart-society-project.eu/>

Thanks for your attention!

Questions?

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