



ICITT 2025

2025 9th International Conference on
INTELLIGENT TRAFFIC AND TRANSPORTATION

ICCNT

2025 9th International Conference on
Communication and Network Technology

A Scalable Architecture for Deploying Novel Junction Control Algorithms in the Field

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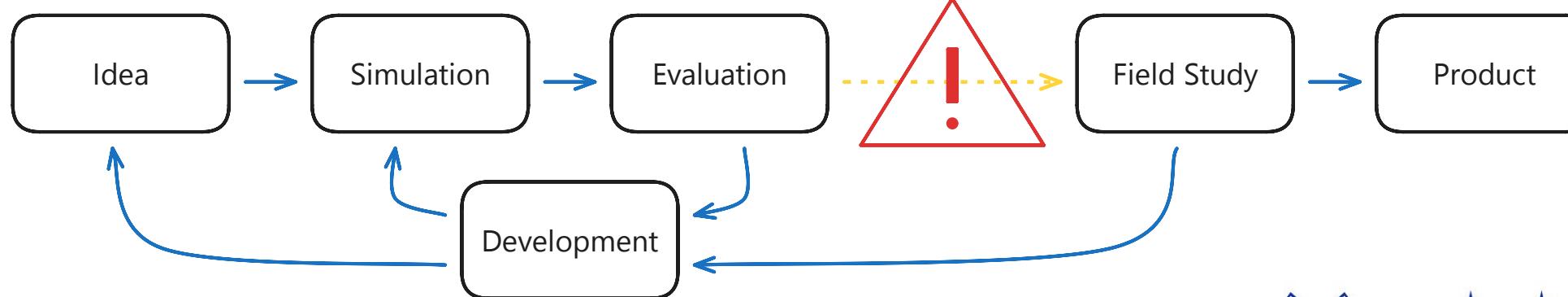
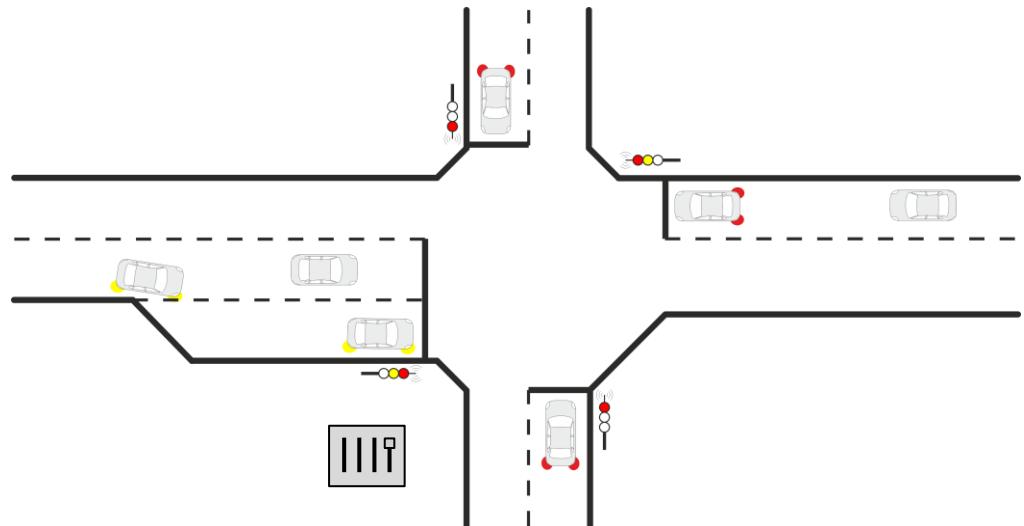


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Developing Novel Junction Control Algorithms



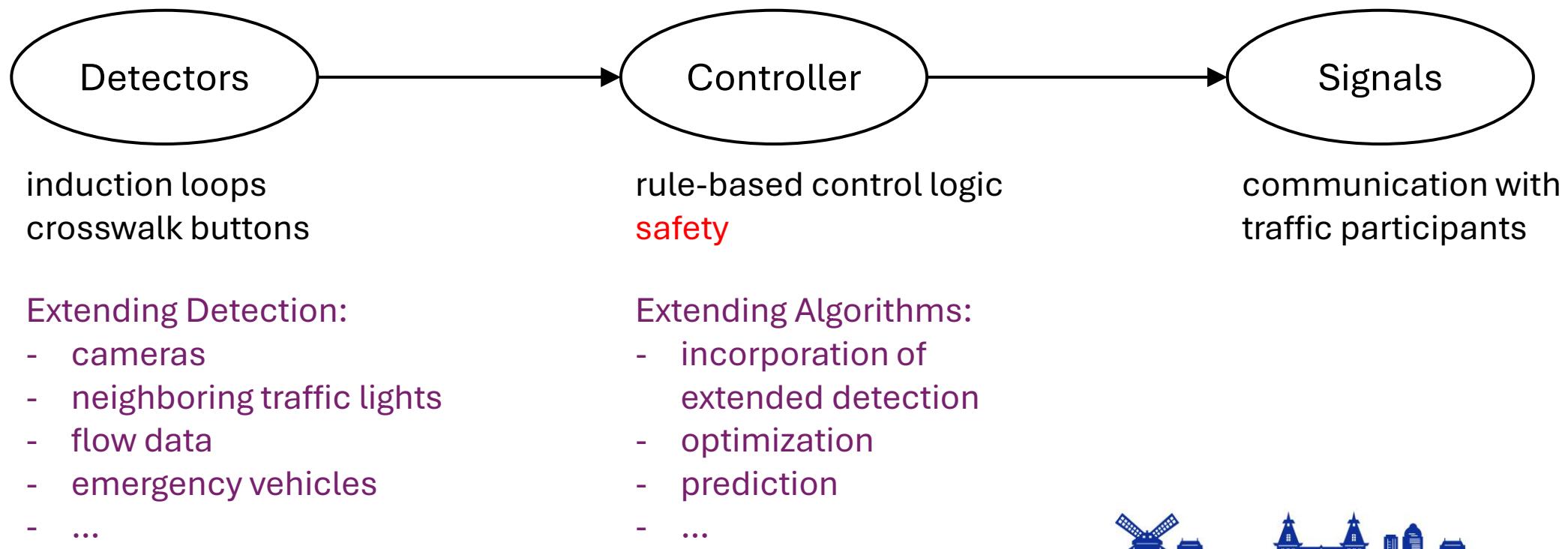
Outline

1. Motivation
2. Deploying Junction Control Algorithms
3. Approaching Deployment Challenges
4. First Implementations
5. Outlook



Deploying Junction Control Algorithms

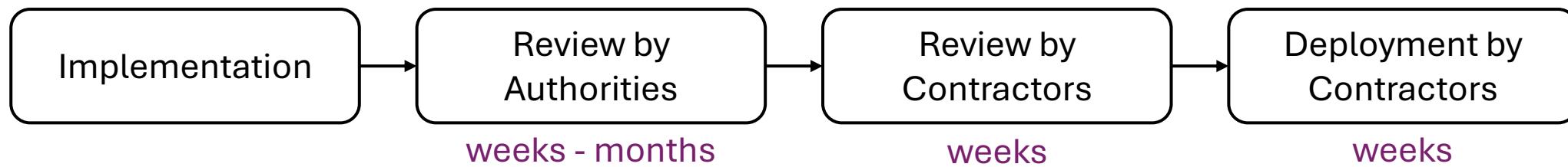
Technical Details of Traffic Lights



Deploying Junction Control Algorithms

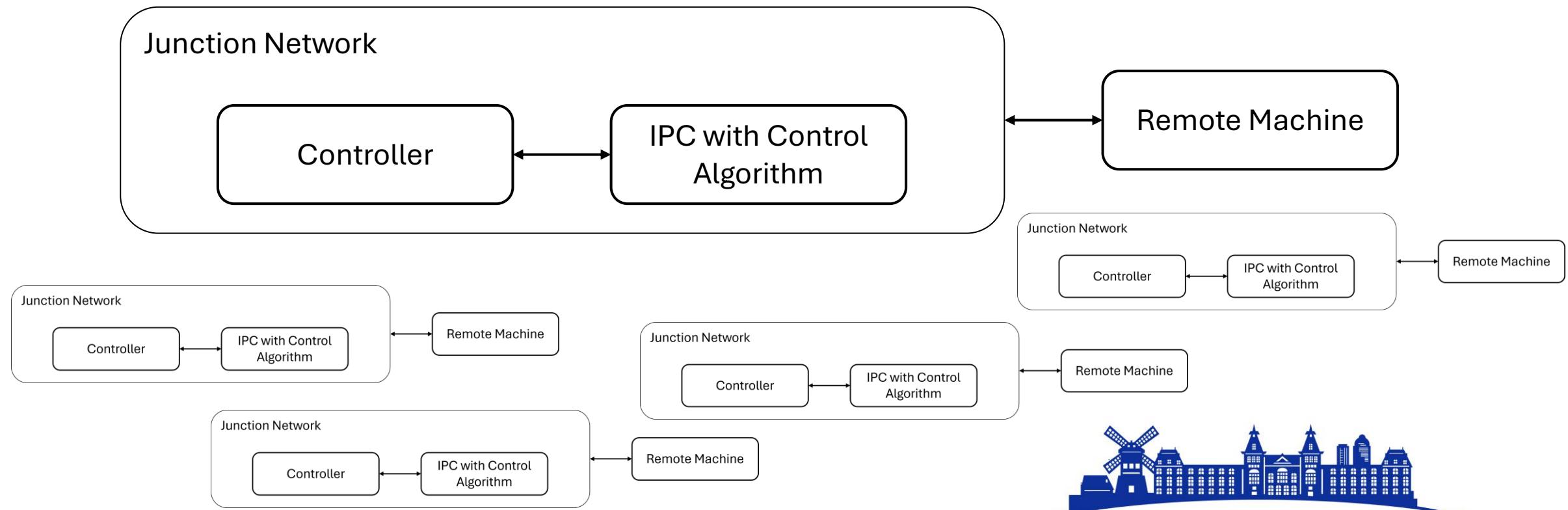
Organizational Challenges

- permits / approval from authorities
- public transport
- technical deployment / contractors



Deploying Junction Control Algorithms

Initial Architecture – Highly Individualized Solutions



Approaching Deployment Challenges

Decoupling Functionalities

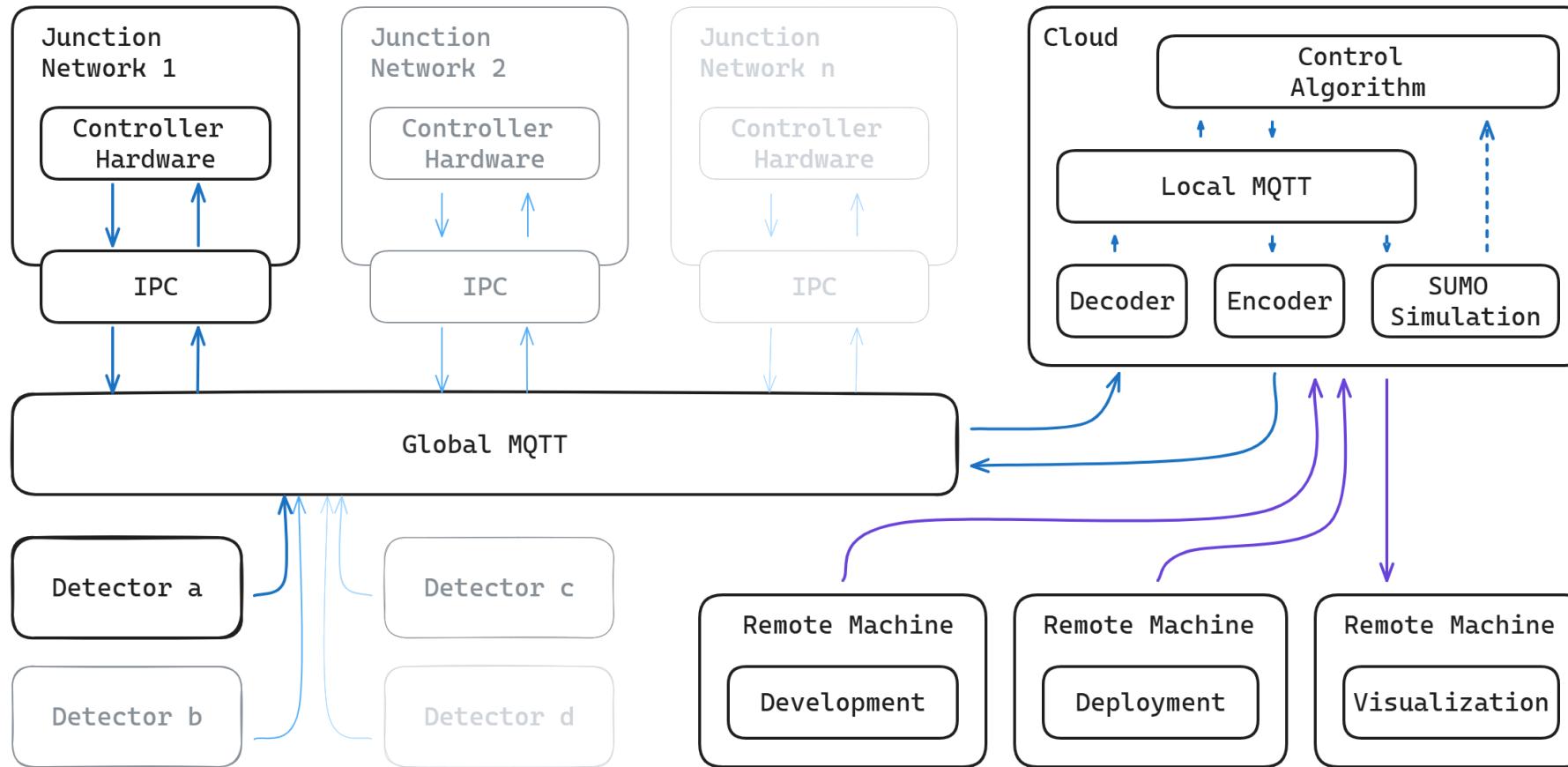
- generalizing algorithms
- standardizing detector interfaces
- moving intelligence away from the controller
- moving intelligence away from the junction

Other Advantages

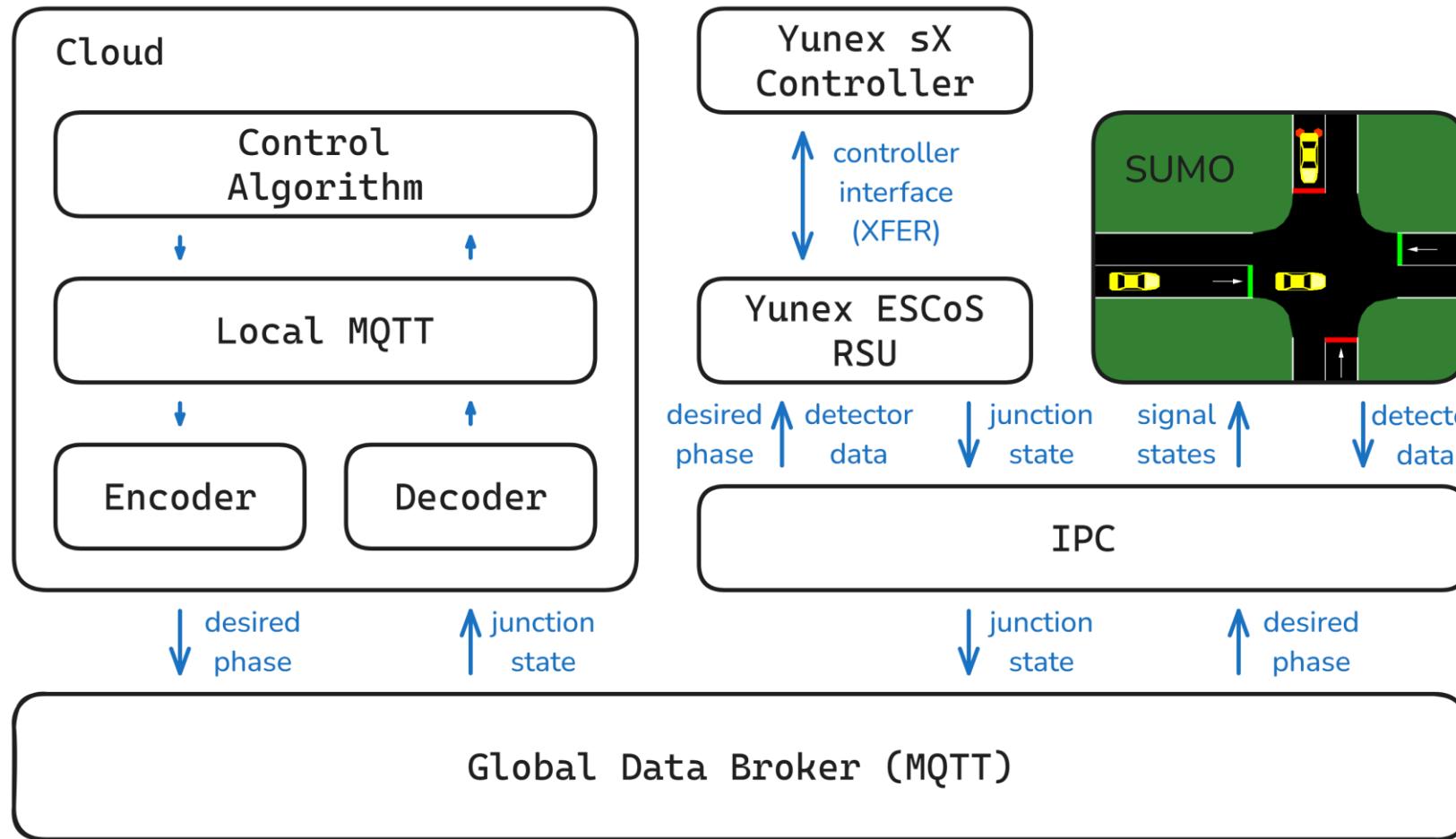
- testability
- debuggability
- extendability



Approaching Deployment Challenges



Fist Implementations



Outlook

- first deployment at Tostmannplatz in Brunswick, Germany
- network controllers
- easier integration of external partners

