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From Chip to City

Closed loop ADAS and Autonomous Vehicle development

Engineering implications of the AV development challenge

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Rethink the vehicle development processes

- Increased hardware and software complexity
- Massive validation and verification cycles
- Number and variety of sensors
- Reconciling agility with better traceability

While balancing safety, comfort and efficiency performances

The highly automated driving car as a system of systems
From Chip to City

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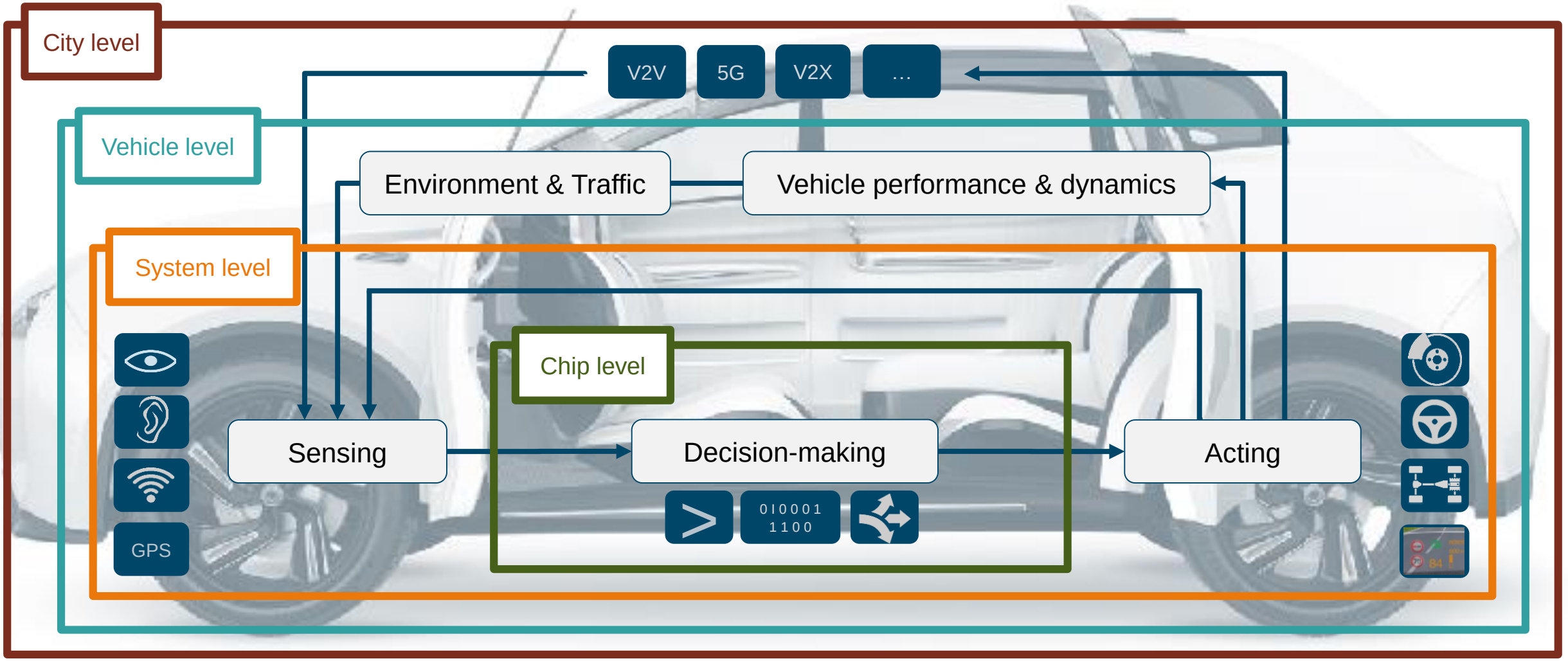


Challenge:

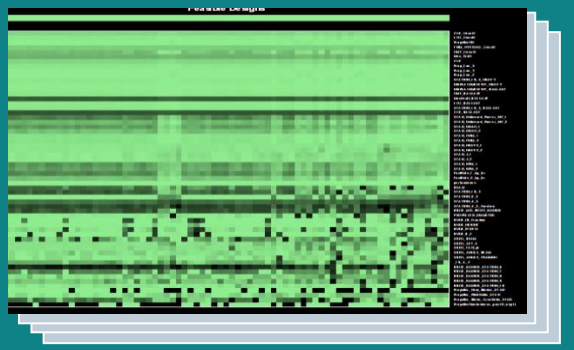
From thousands of scenarios (or millions of miles) to the relevant critical representation

Simcenter Prescan360

Closed loop automated process for generating critical scenarios based on massive virtual verification in cluster or cloud

Simcenter Prescan

Simcenter HEEDS



Data Mining, Analytics

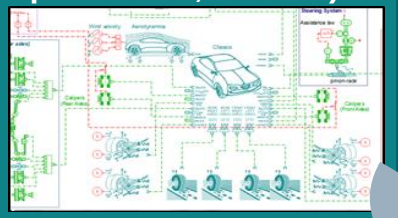
"Falsification"
Identify critical scenarios

Orchestration of virtual test scenarios

Digital Twin of the World
1000's of scenarios
(weather, light, road types, …)

Simcenter Prescan Siemens Aimsun

Digital Twin of the Test Vehicle
(sensors, controls, powertrain, chassis)



Simcenter 3D, Amesim

Optimize vehicle only against relevant critical scenarios

HiL, DiL and ViL simulation – mixed reality

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Simcenter Prescan, Simcenter Amesim and Simcenter 3D for HiL, DiL and ViL simulation

- HiL (Hardware-in-the-Loop) testing ,having the actual or virtual controller hardware connected
- DiL (Driver-in-the-Loop) simulation for testing the human-machine interaction
- ViL (Vehicle-in-the-Loop) testing to safely test the complete vehicle in critical situations

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Tomorrow 15:00
Scientific paper session
Training and Validation
Londres Room

Motorcycle Multibody Model Validation for Human-in-the-Loop Simulation

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