Multiagent Simulation on StarBED

Deploying Agent-based Traffic Simulation on StarBED

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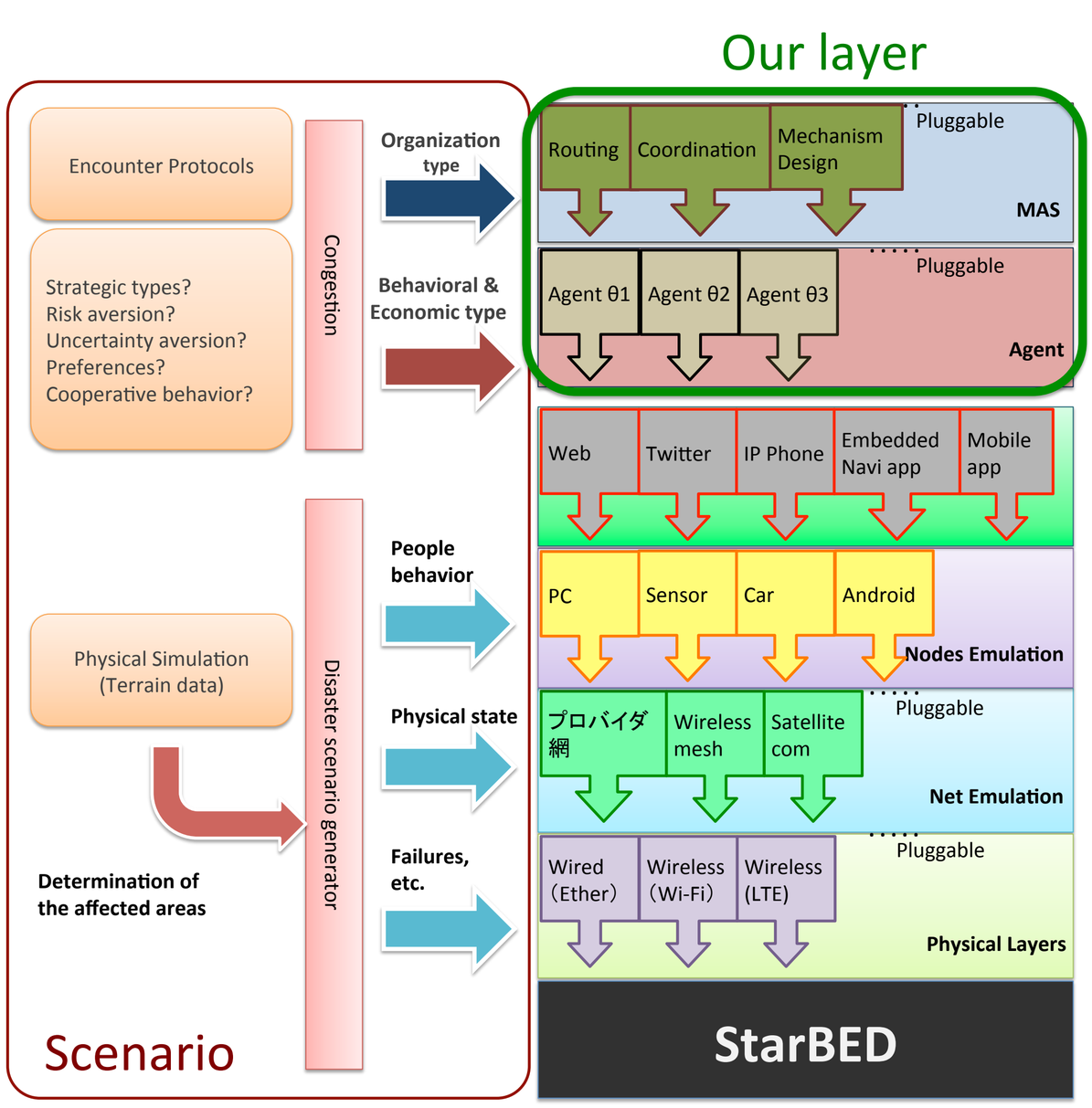
Goal: Build a generic framework for distributed, multi-purpose, and large-scale multiagent simulation. Our initial simulation domain is car traffic simulation. The framework is a testbed for general purpose Computational Intelligence.

Why did we adopt the agent paradigm?

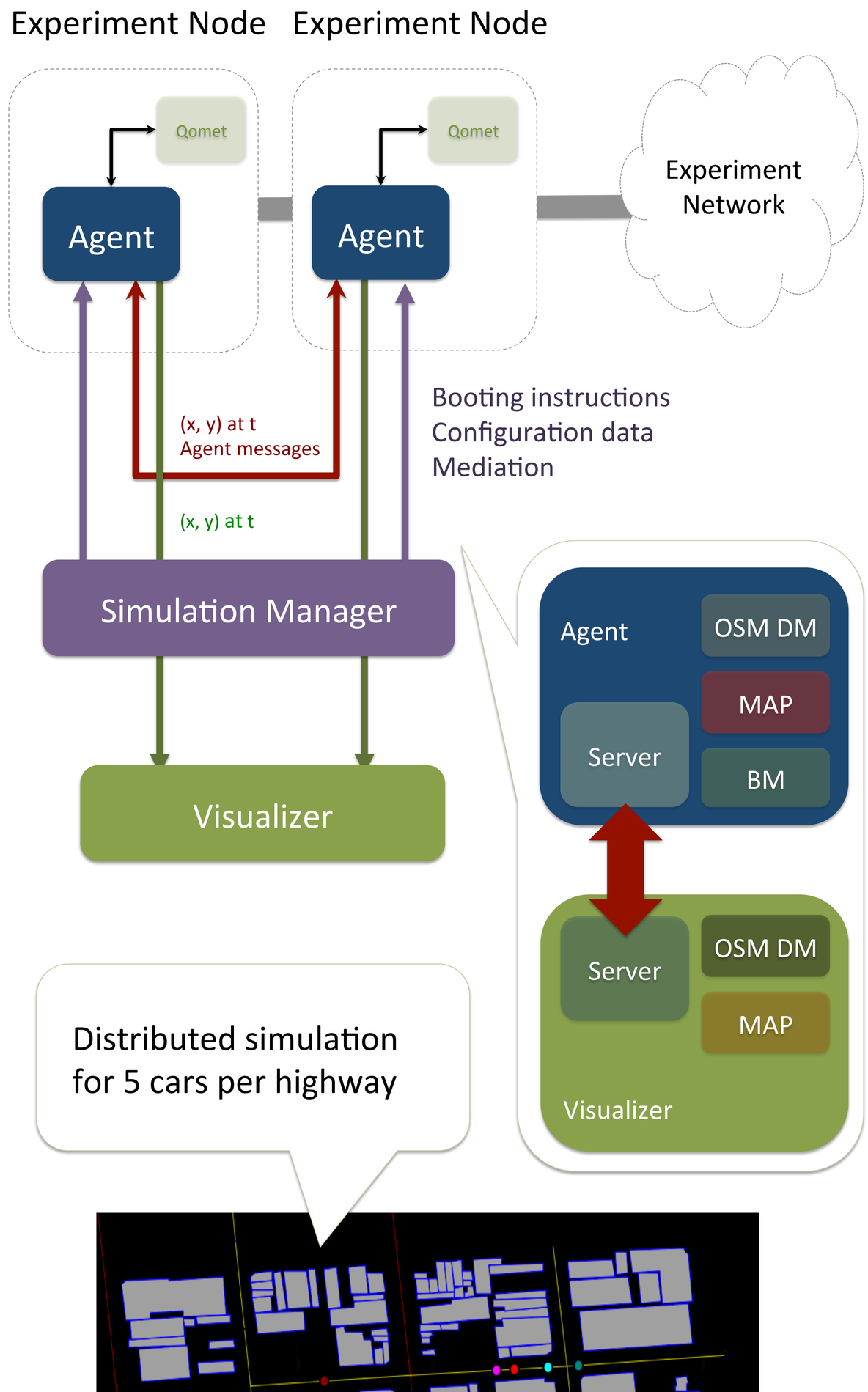
- Agents are autonomous entities (run in parallel), reactive, collaborative and goal-oriented.
- They can reproduce complex behaviors like vehicles motion, drivers, sensors, etc.
- They can coordinate in real time and solve complex problems.

Architecture on StarBED



Example: Simulating traffic coordination in a disaster situation involving car-embedded & mobile app agents representing risk seeking, uncertainty averse drivers (only α% are cooperative). The coordination mechanism uses a sensor network acting as a feedback mechanism for congestion prediction.

Implementation for Traffic Simulation



Distributed simulation for 5 cars per highway