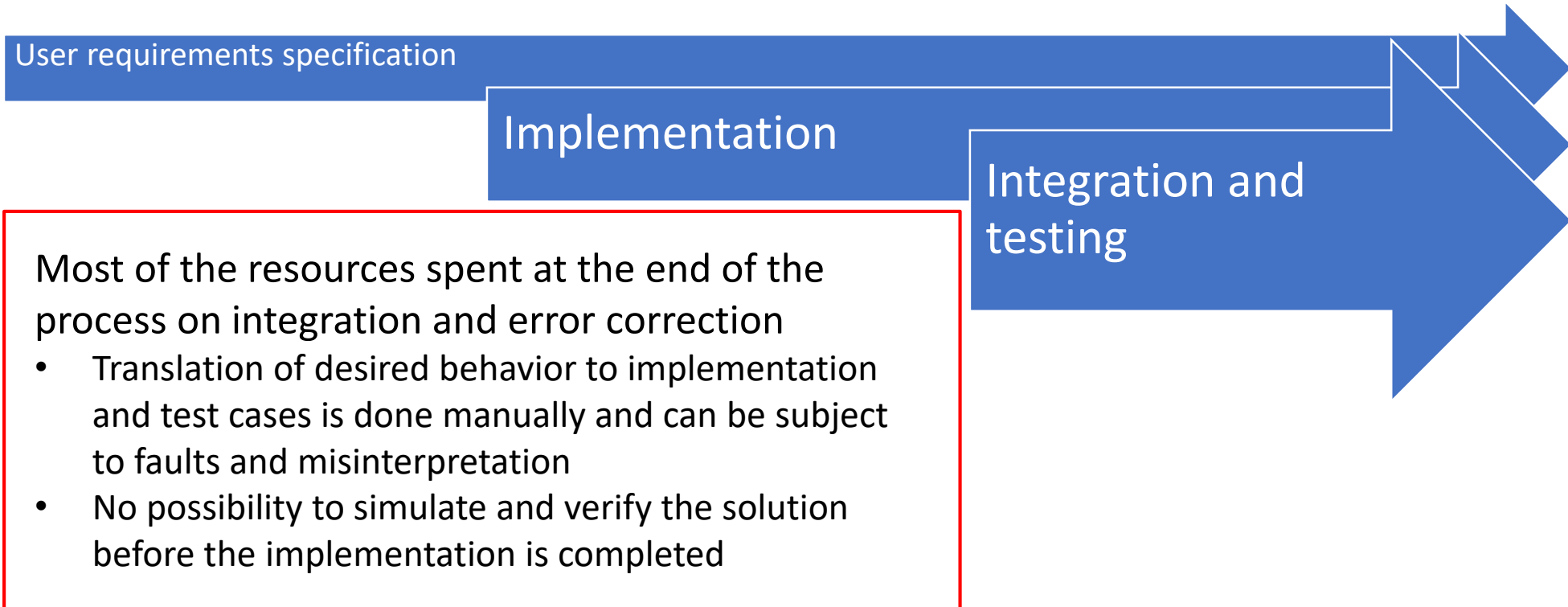


Developing a domain-specific language for Indoor Office Lighting

Kristina Ševo
Lighting
03-10-2017

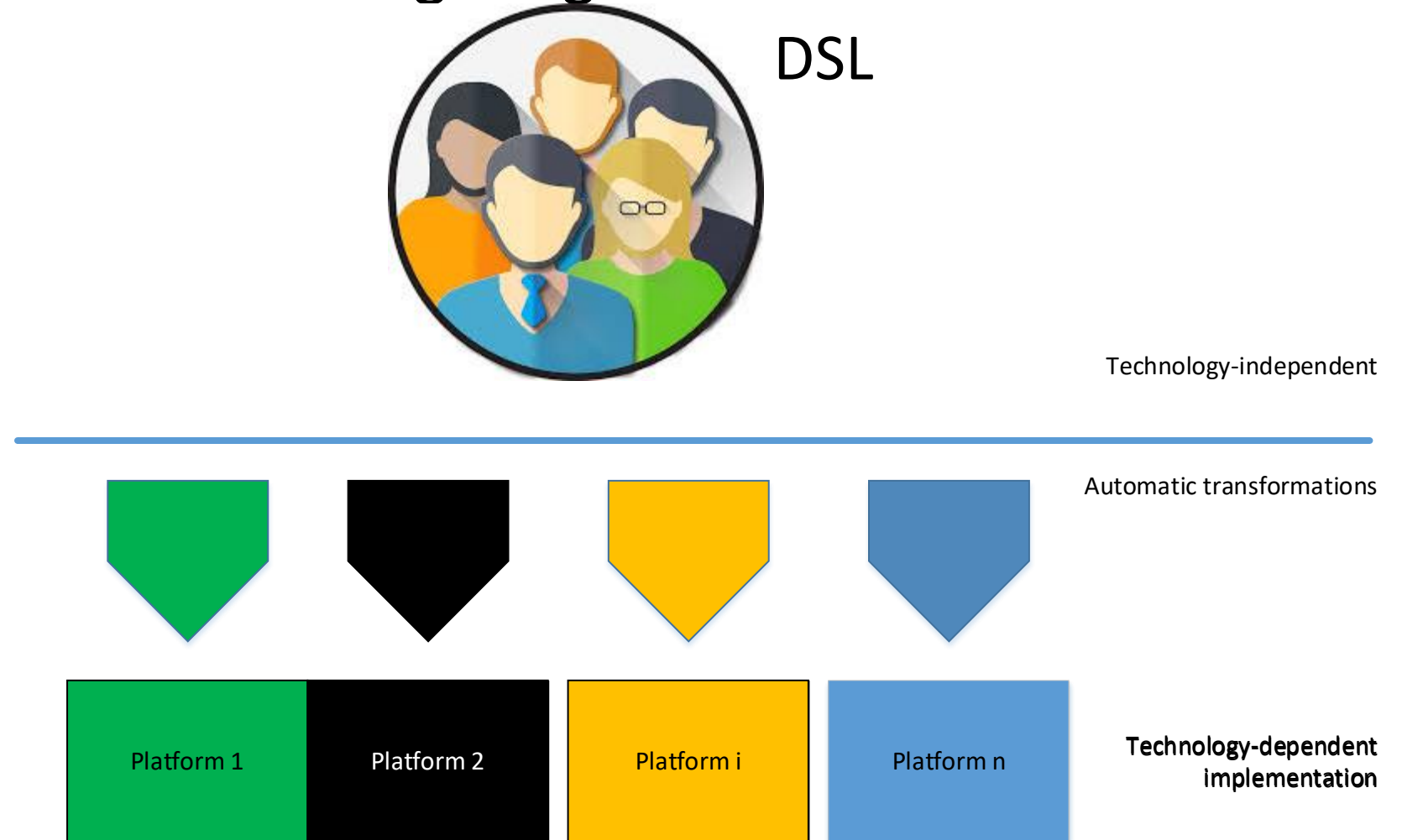
Application context

Developing office connected lighting system – challenges in current process



Rationale for using DSLs within Lighting

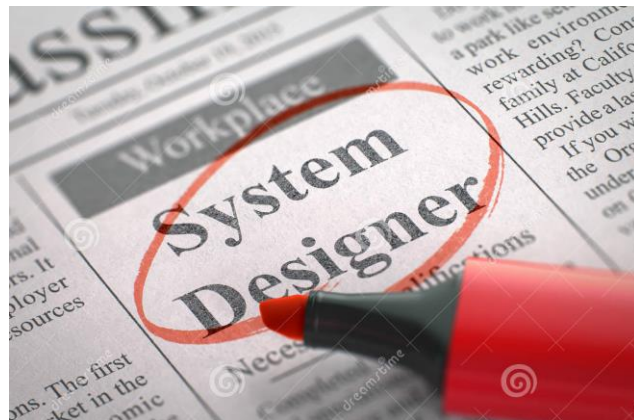
- From technology-driven point solutions towards identifying and making use of commonalities



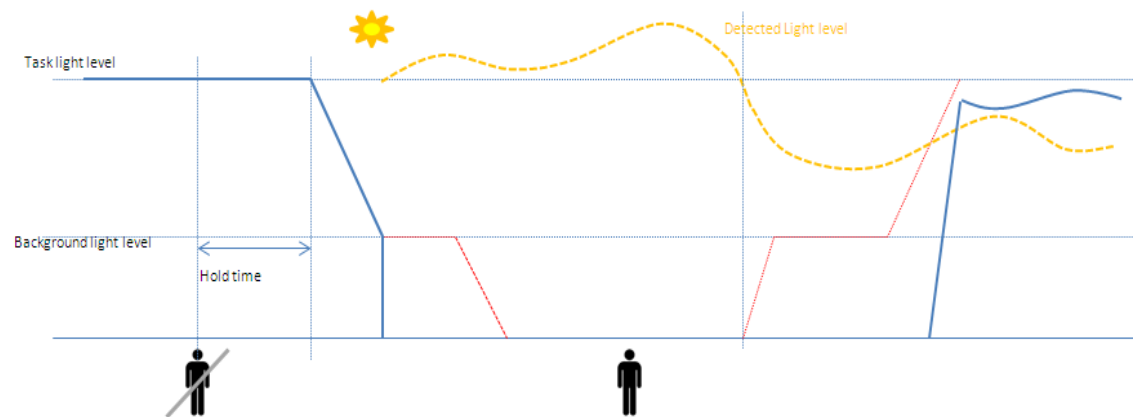
Developing DSLs for Lighting

Identifying the user and the scope

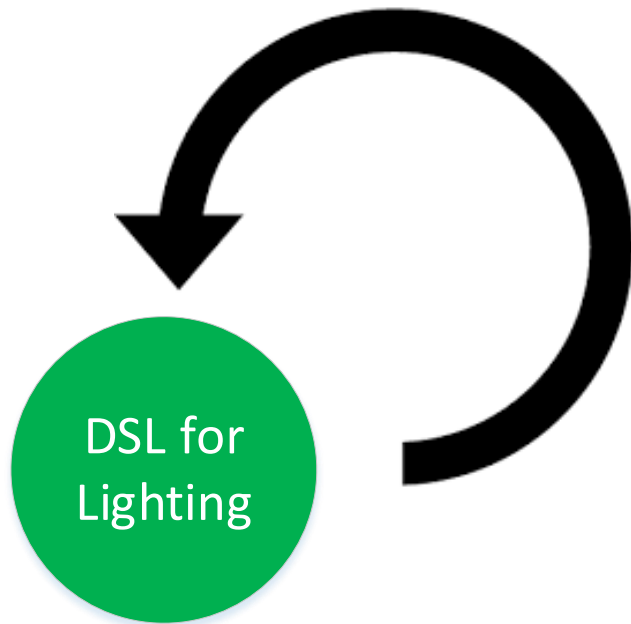
System developer, system architect,
integration and validation engineer



Professional office lighting use-cases

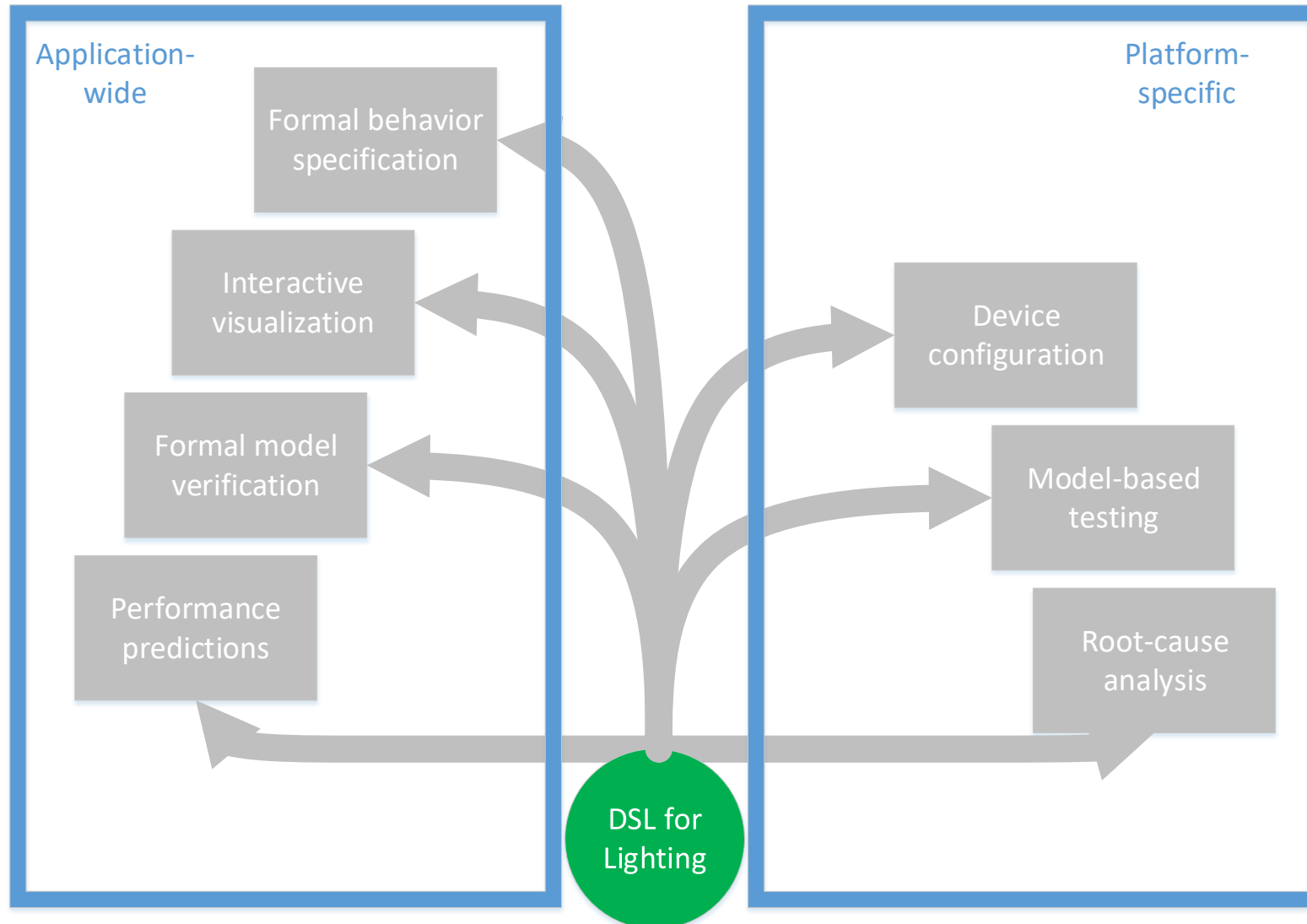


Collect domain expert knowledge, model, check, repeat...



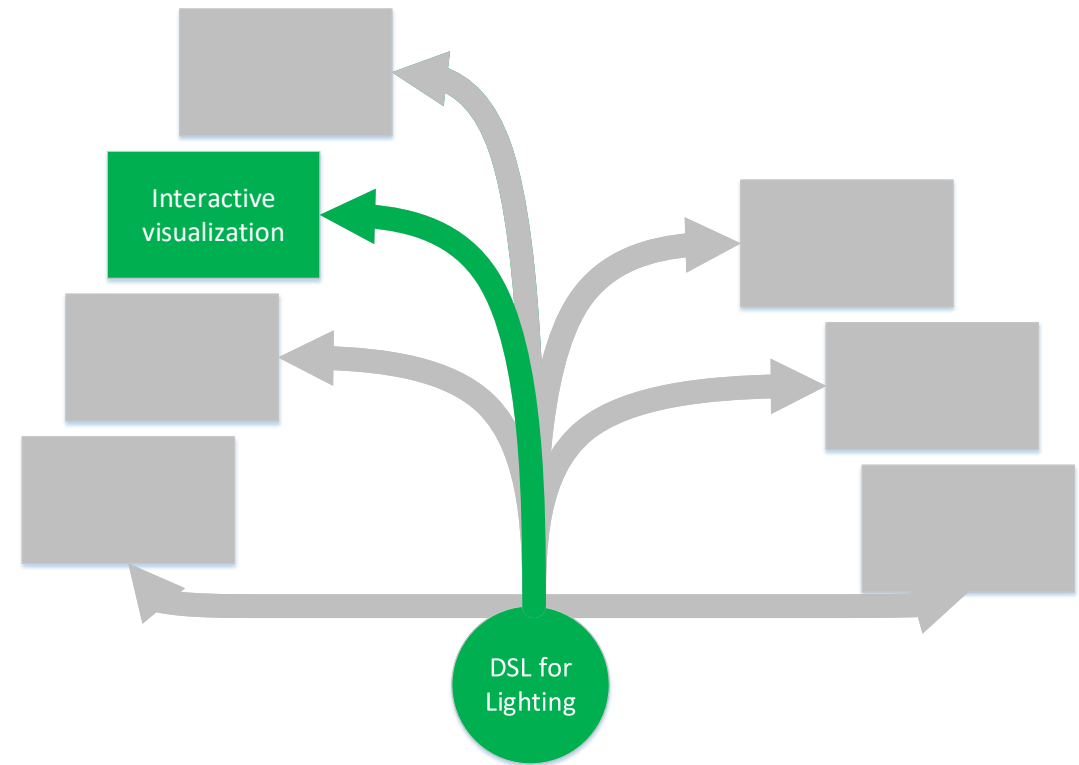
- Check expressiveness against use-cases
- Check technology fit
- Check usage
 - Add functionality for different purposes and end-user groups

What can DSLs mean for lighting system development?



Visualize, check and deploy system behavior

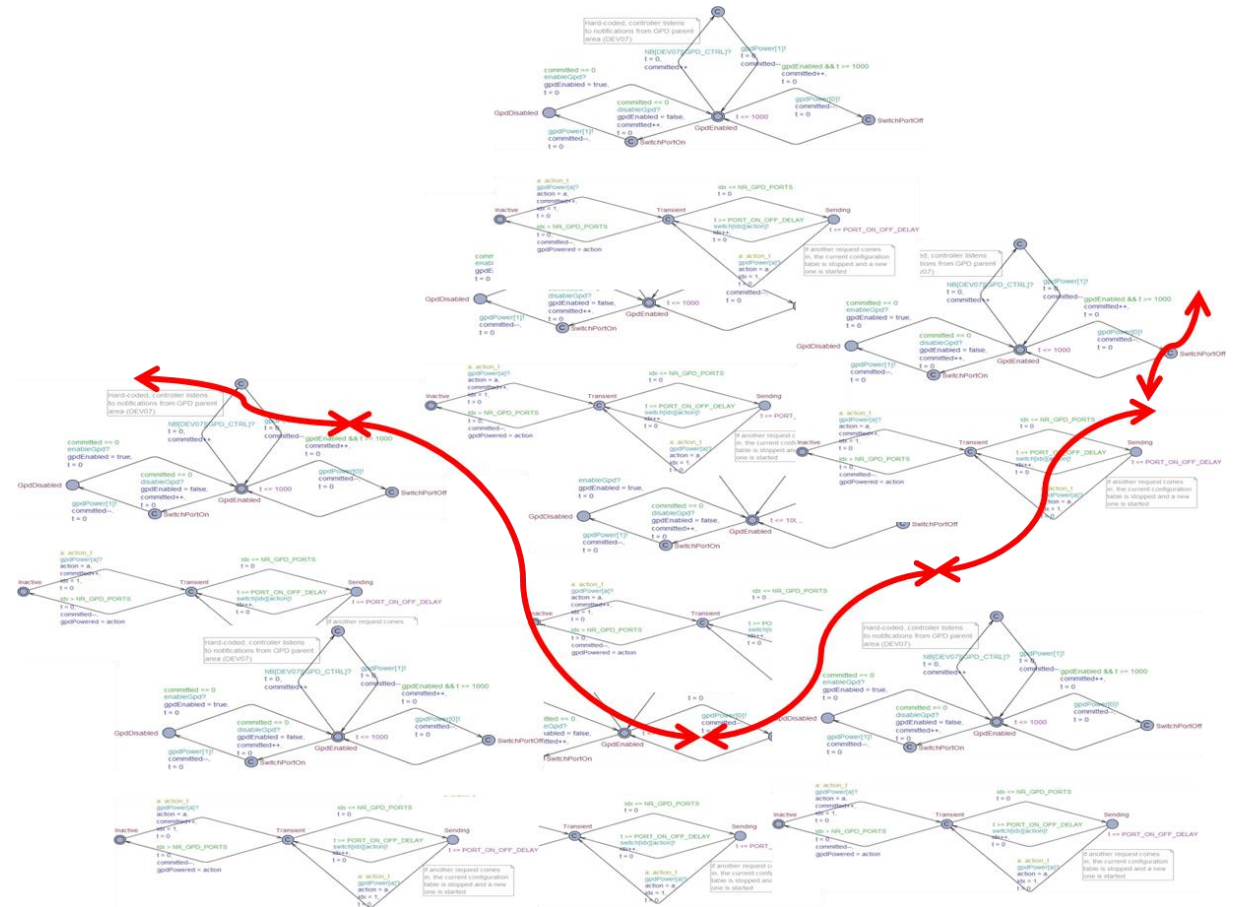
- Describe lighting behavior using DSL
- Verify features before implementation
- Deploy required behavior to real system



Demo of the DSL

Model checking and verification

- As soon as the system size extends hundreds of devices, it becomes impossible to reason about all “paths” through the system state diagram that can occur. UPPAAL can do that – walk through all the cases and check the results



Co-simulation and visualization

