



# Formal Specifications for Secure Component Deployment

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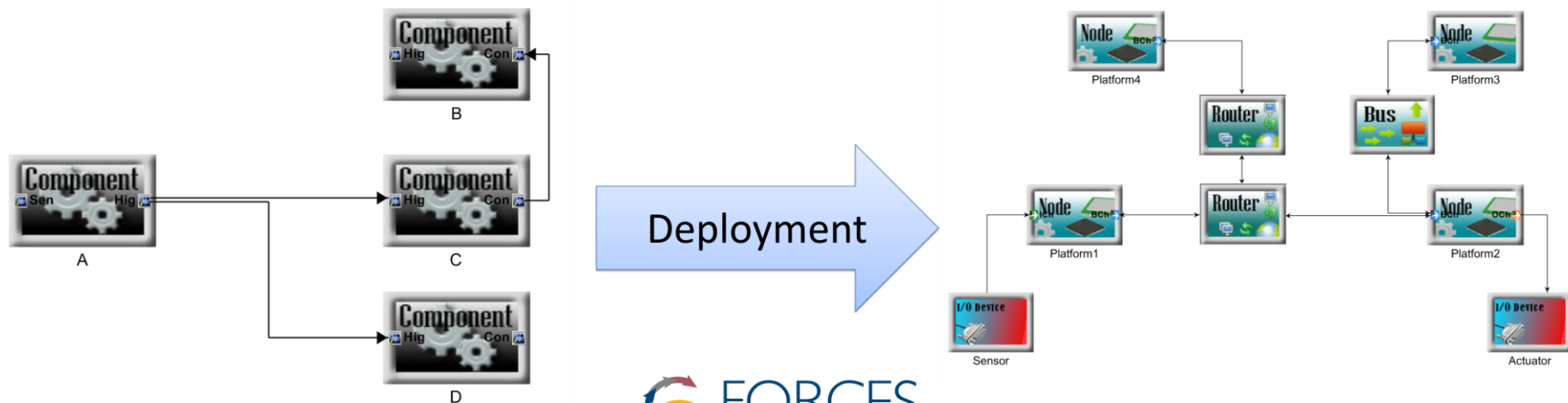


# Motivation

- \* Distributed Cyber-Physical System
  - \* Traffic control, smart grid, transportation
- \* Hierarchical control system
  - \* Subject to attacks
- \* How can we provide security and safety?
  - \* Dynamic reconfiguration based on policies
- \* How do we model the system and describe the policies?

# Language design in GME

- \* Consider some control system
  - \* Functions and functions mapped to hardware components
  - \* Sensors / measurement, computations
  - \* Security and timing constraints
- \* Domain Specific Modeling
  - \* Meta-programmable tool-suite
  - \* Need for precise semantics, unambiguous policy specifications



# Formal Semantics with FORMULA

