

Data Driven Simulation Framework

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Motivation

Challenges in Testing monitoring and control systems for large projects like SKA.

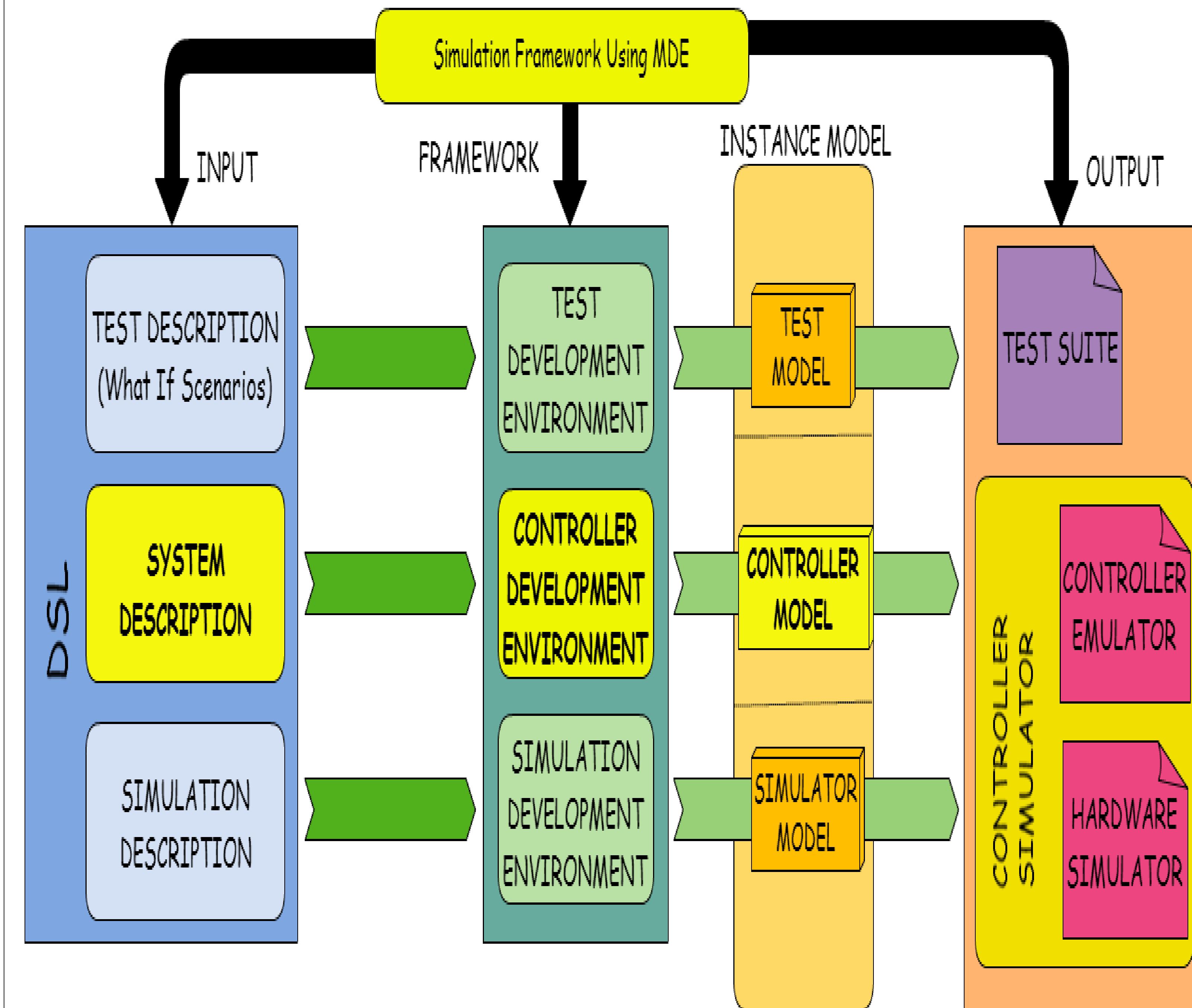
$$T = M * N$$

T = Total number of testable functionalities
M = Total number of Control Nodes
N = Number of testable functionalities per node

- Unit testing not enough - need dynamic behavior testing.
- Huge manual effort to implement individual simulators.

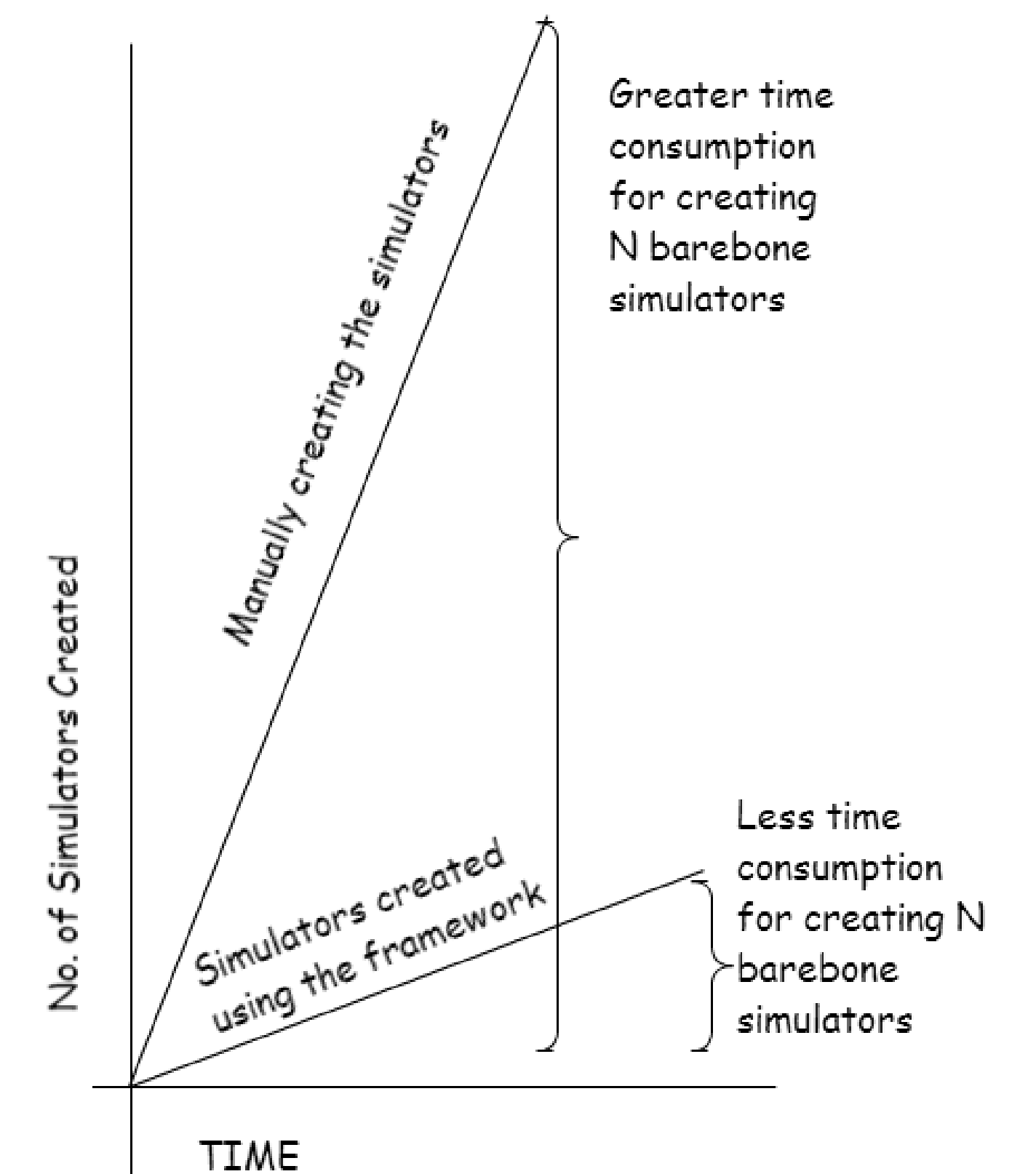
Solution cost optimized by the auto generation of simulators through simulation framework.

Proposed Architecture



Conclusions

Observation	Result
Manually coding 1 bare bone simulator	~ 2 hours
Creating the DSL specification for 1 control node	~ 0.5 hours

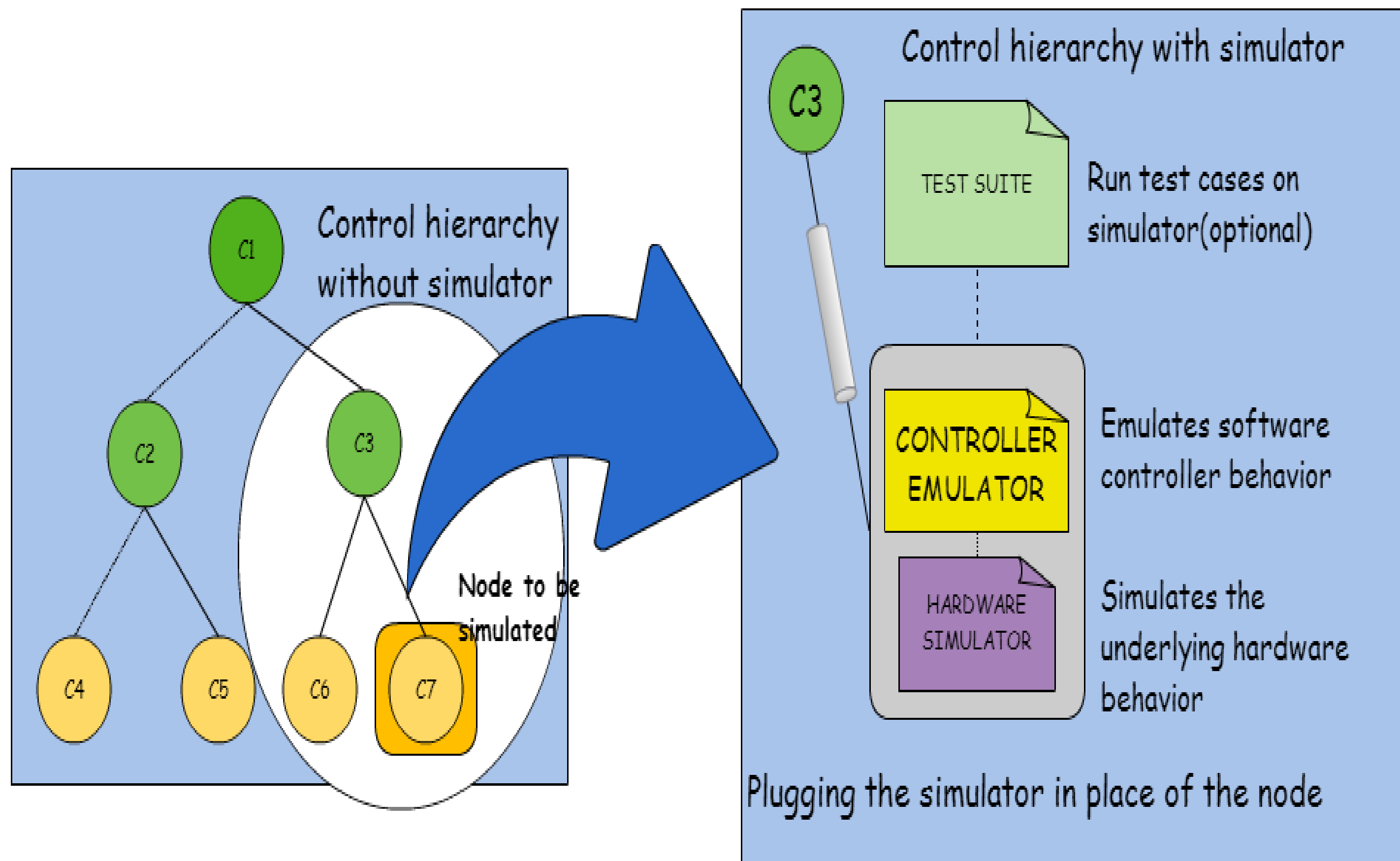


As a result we can conclude that

- More effort is required to create "N" simulators manually.
- Less effort required through simulation framework.

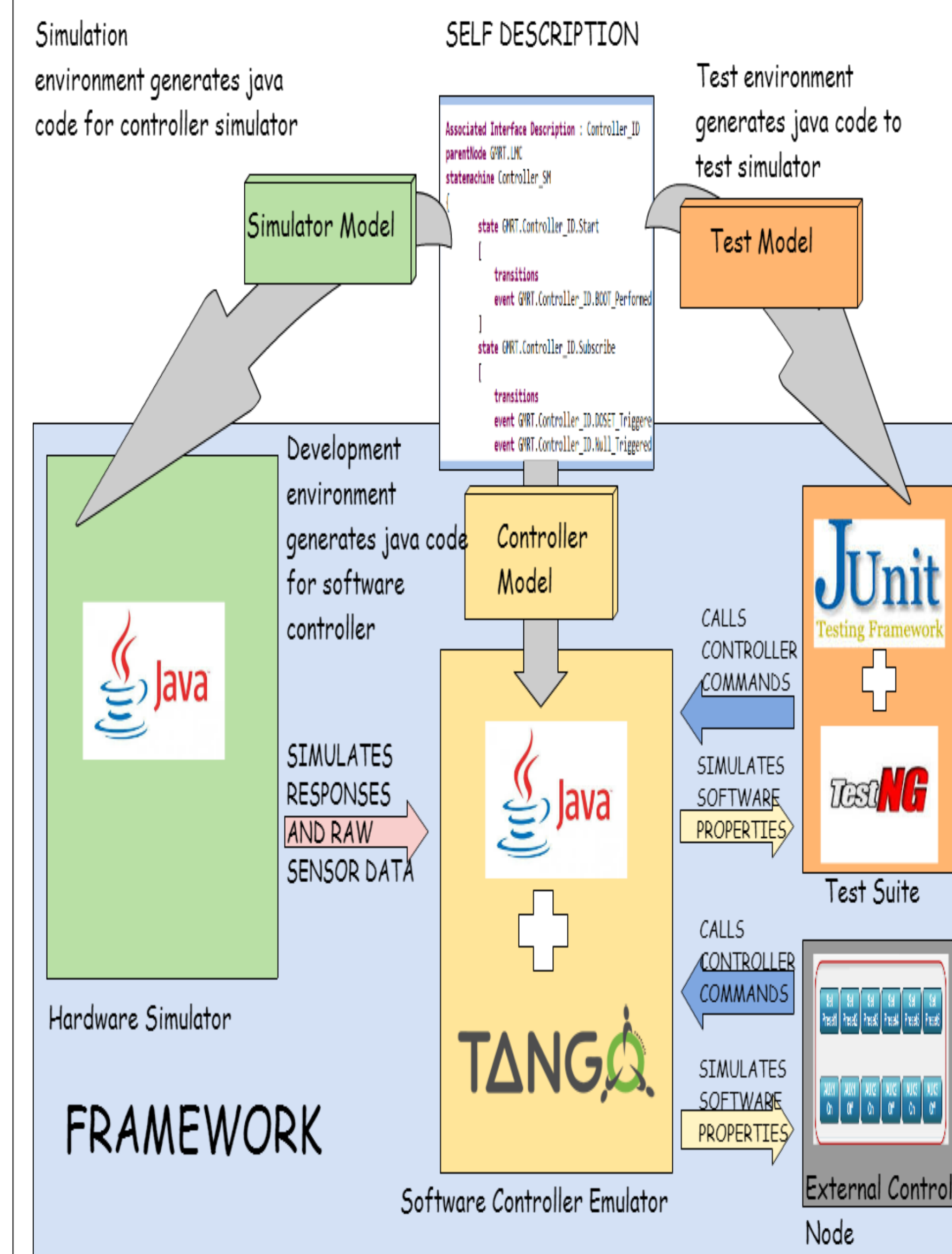
Internal Details & Usage of Generated Simulator

A model driven engineering approach could be used to generate bare-bone simulators



- The simulator can be plugged in place of a node that needs to be simulated
- Test suite can also be generated to test the simulator

Technology Stack and Configuration Data



Road-map Ahead

