iSEE: integrated Simulation and Emulation platform for cyber-physical system security Experimentation

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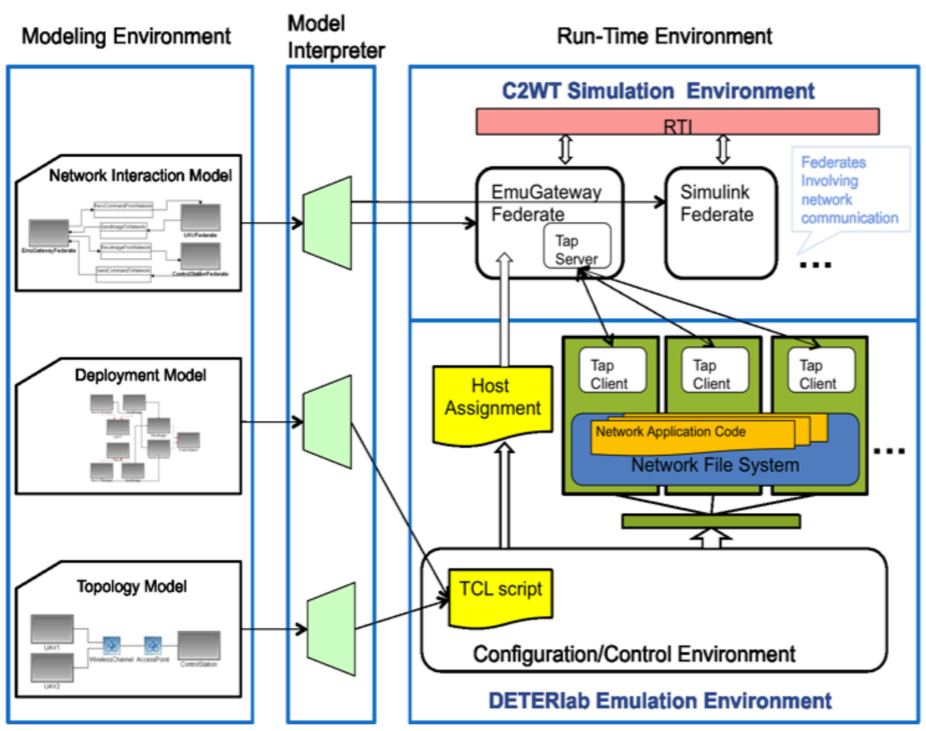
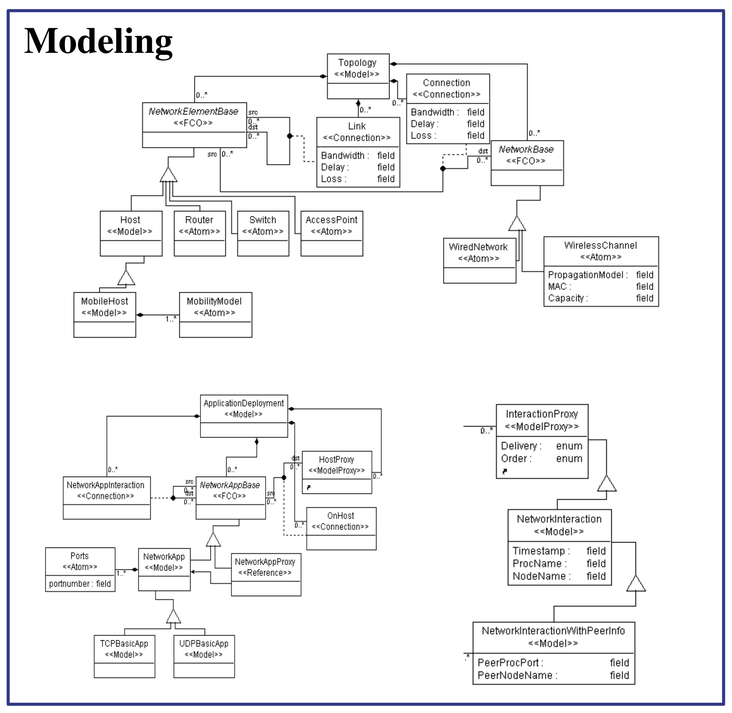
Introduction

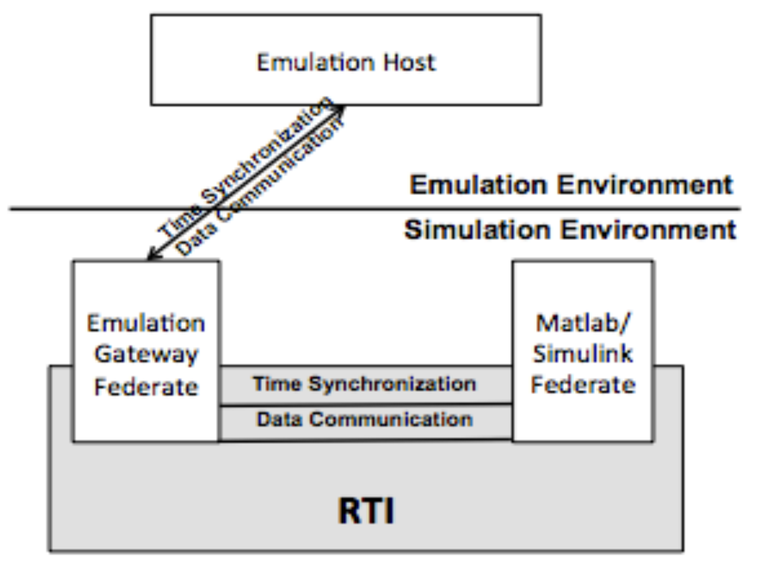
iSEE

- **Integrated emulation and simulation environment for CPS security experiment.**
- **Modeling Environment: based on Model Integrated Computing (MIC) for efficient and rapid prototype and model consistency across the control components and the network components of CPS.**
- **Run-Time Environment: simulation environment built on the HLA framework for the support of accurate time synchronization and consistent data communication; emulation environment deployed in DETERlab providing realistic network security experiment environment.**

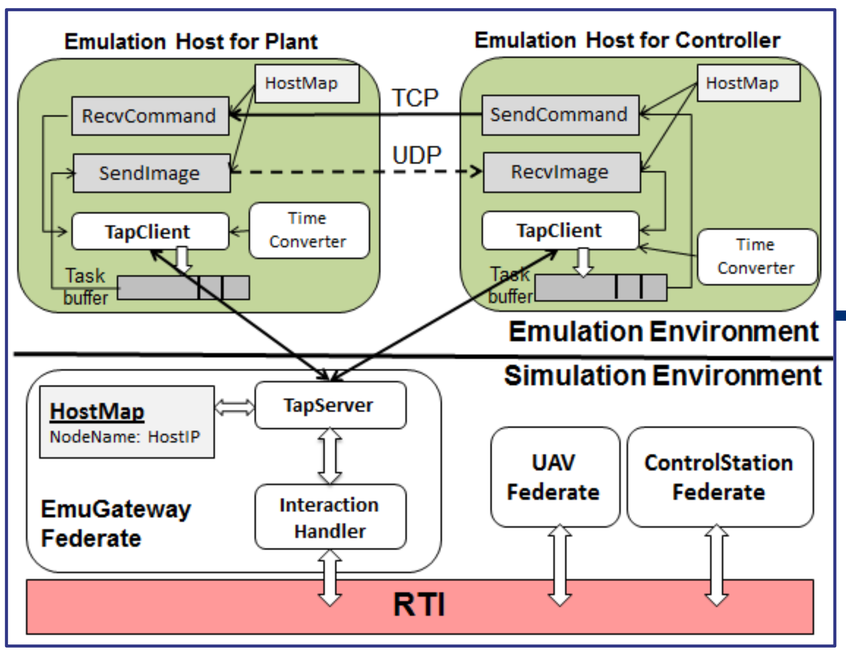
Architecture and Implementation Overview



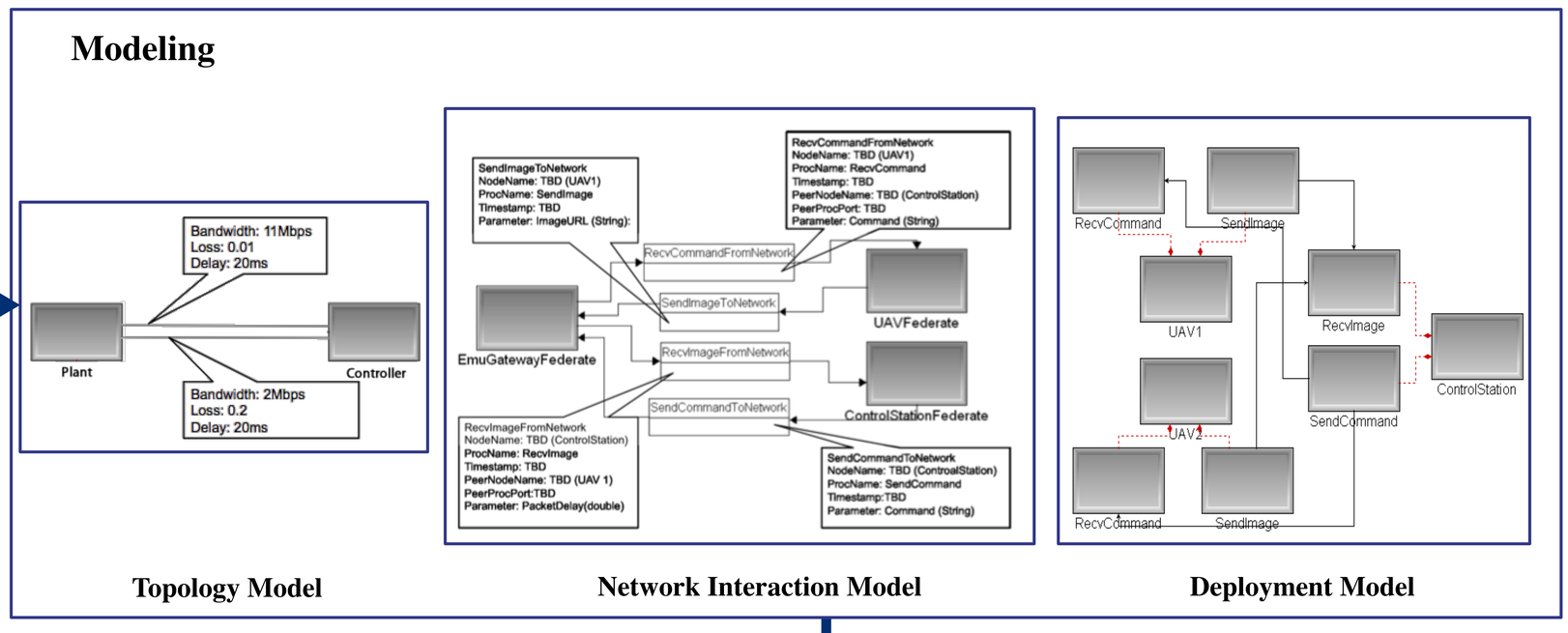




iSEE Architecture

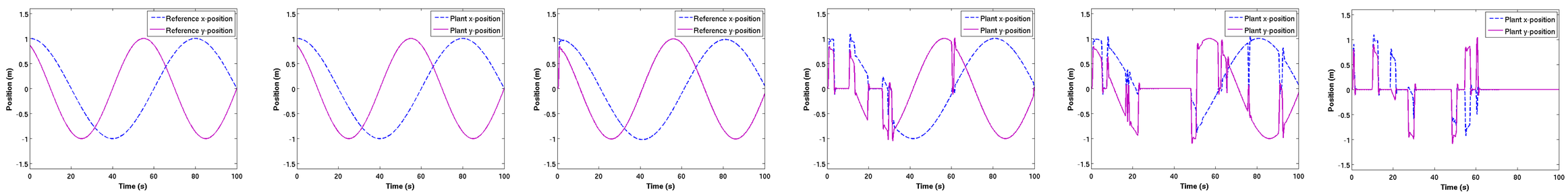


iSEE Implementation



Case Study

Code Generation/ Deployment



Run-time

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Demo code available: http://vanets.vuse.vanderbilt.edu/dokuwiki/doku.php?id=research:isee