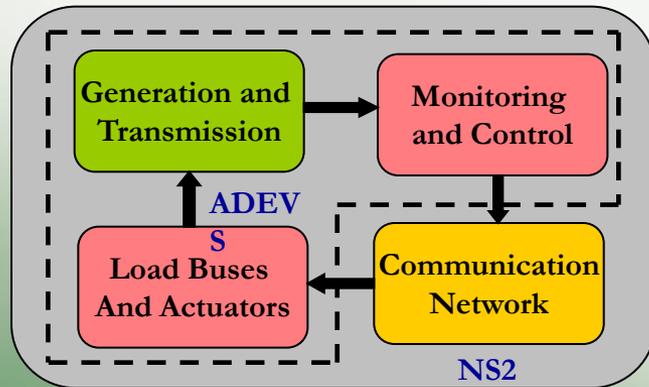
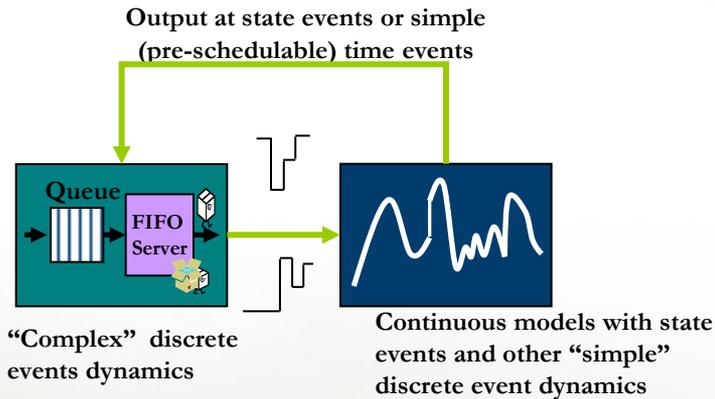


# Toolkit for Hybrid Systems Modeling & Evaluation (THYME)

Modeling and Simulation Group

Computational Sciences & Engineering Division



## Problem Statement:

- A new generation of large-scale distributed systems are emerging in which sensing, control processes, & actuation are separated by data communication networks. These hybrid systems can be found in electric power grids, automotive controls, & manufacturing processes. Simulation of such systems is essential for designing the next generation of communications-dependent systems. The goal is to develop software for complex hybrid systems that incorporates continuous models, large discrete event sub-components & packet-level network models.

## Technical Approach:

- THYME is an extensible framework for integrating continuous and hybrid system models into NS2 (open source network simulator) simulations. It includes a set of numerical integration schemes for solving ordinary differential equations & can be easily extended by users who require specialized simulation algorithms.

## Benefit:

- THYME will permit the accurate simulation of network-centric systems with continuous & discrete-event components.

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