

MATLAB EXPO

Share Simulink Simulations as Standalone
Applications, Web Apps, and Enterprise Applications

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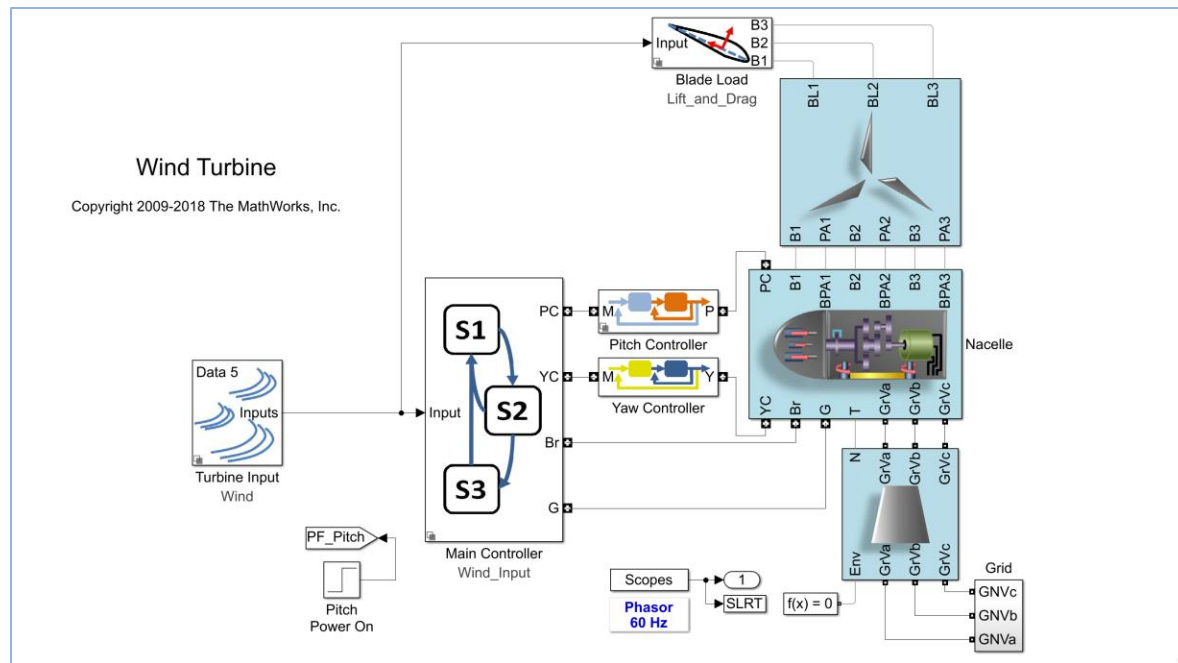


Key Takeaways

- Simulation goes beyond the design phase
- Simulation deployment made easy with Simulink Compiler
- Share simulations as standalone desktop apps, web apps, or enterprise applications

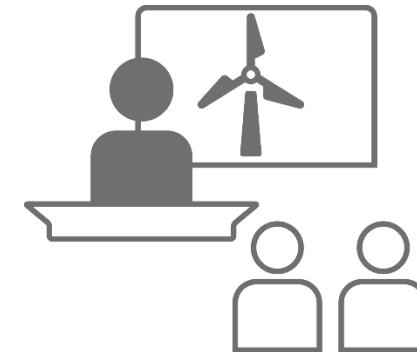
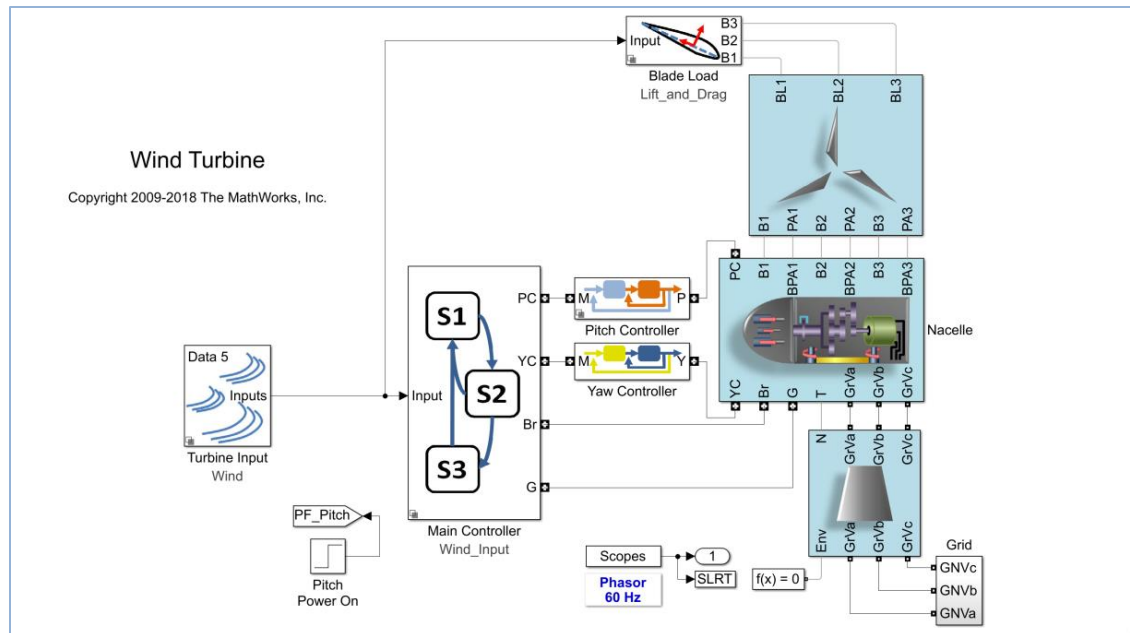
Your Simulation is Your Asset

- Simulation is critical to your system design, but it doesn't stop at design
- Maximize your simulation's value by re-using it



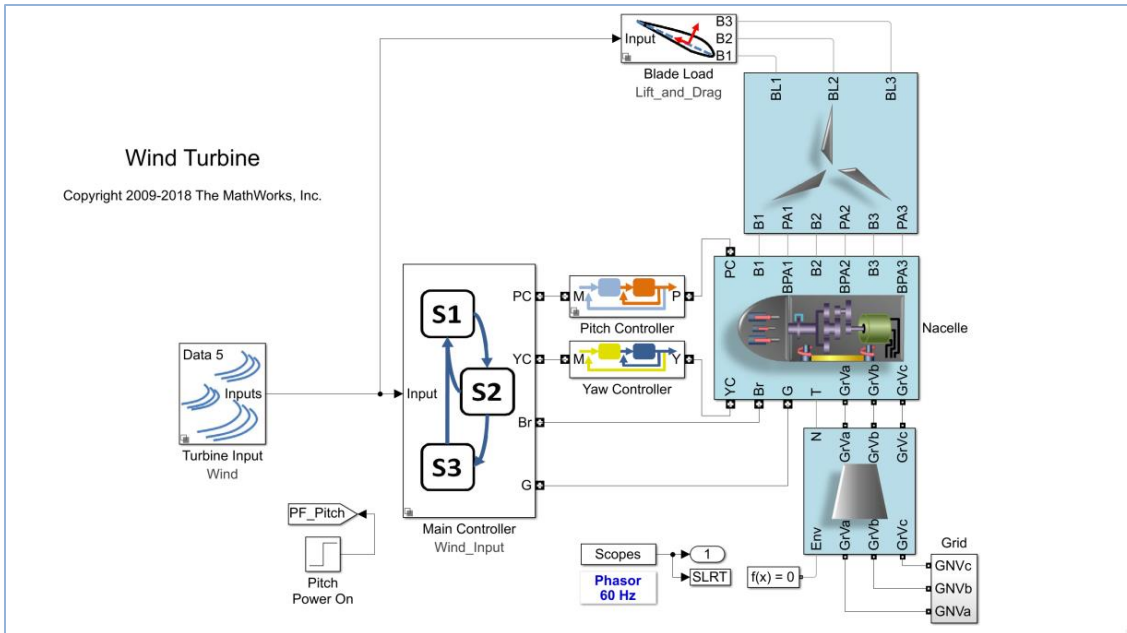
Re-use Your Simulation Beyond Design

- As a training / teaching tool



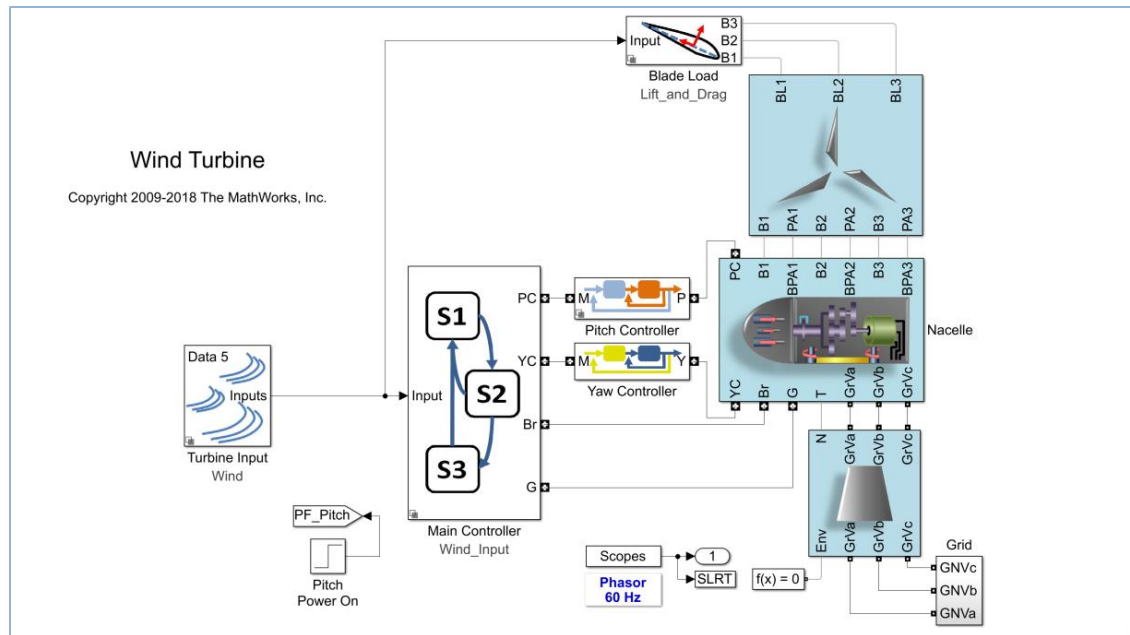
Re-use Your Simulation Beyond Design

- As a training / teaching tool
- As a product evaluation tool



Re-use Your Simulation Beyond Design

- As a training / teaching tool
- As a product evaluation tool
- In-operation usage, for example as a digital twin



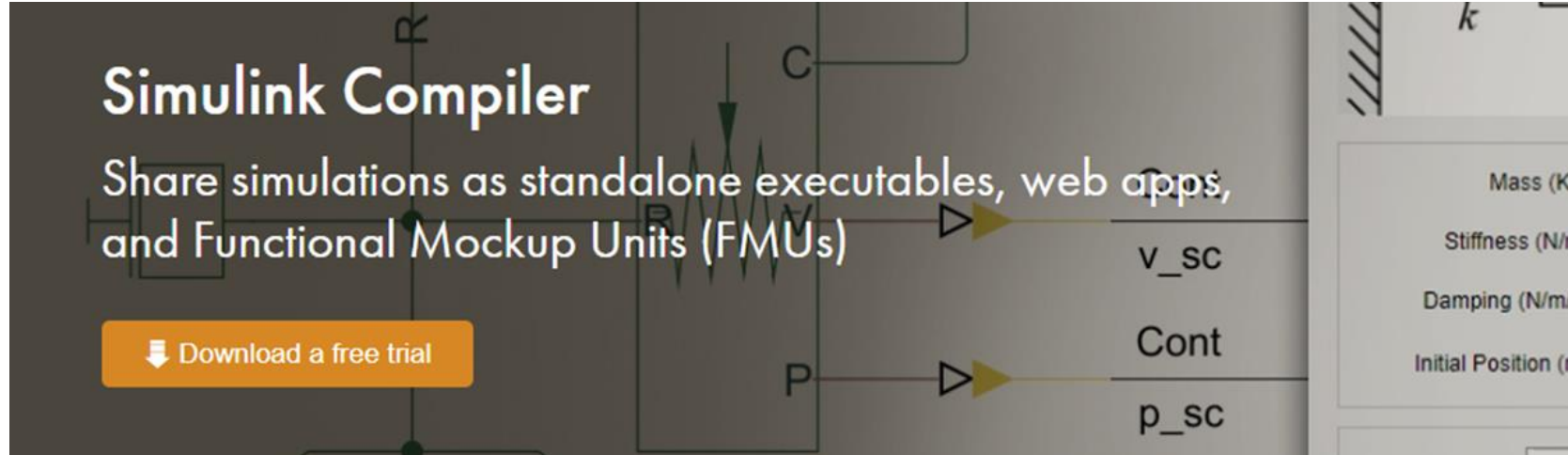
The Right Solution to Deploy Simulations

- Common traits of re-using your simulations beyond design
 - Simulation used as a black box for specific tasks
 - Simulation used for desktop or server applications
 - Many end users of simulations are not Simulink users
 - Reuse of existing Simulink models from Model-Based Design
- What is the right way to deploy the simulation for reuse?
 - No products seem to address your requirements entirely

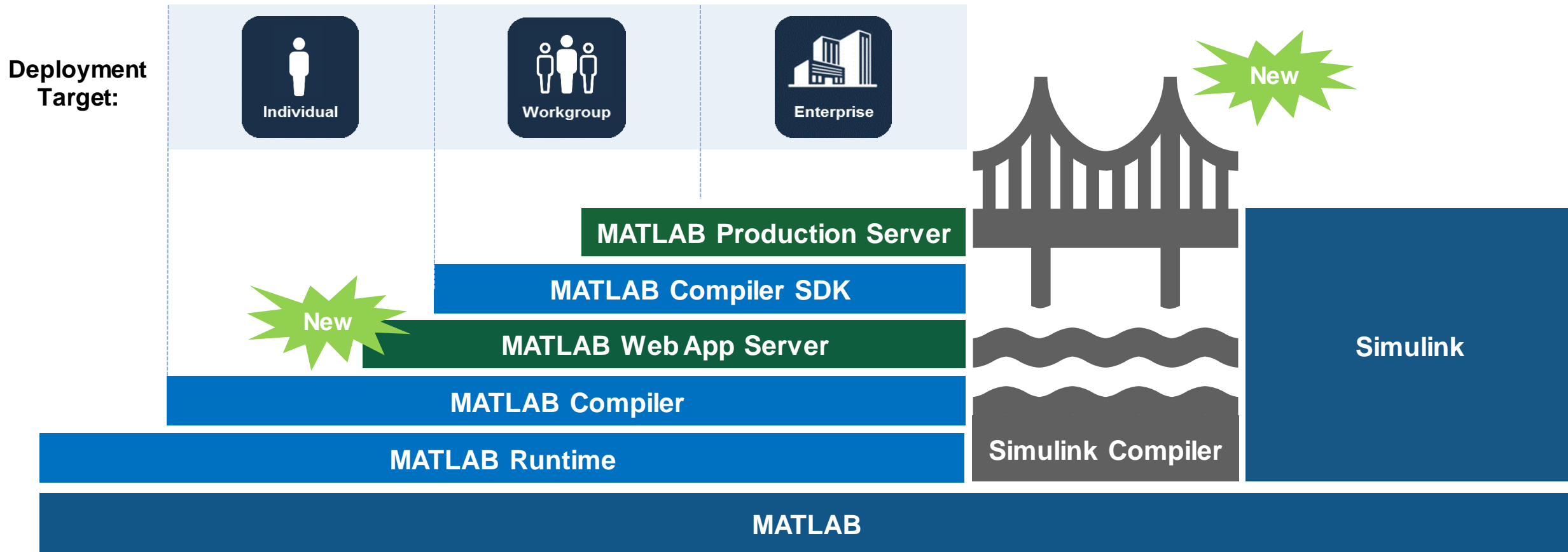


Simulation Deployment Made Easy with Simulink Compiler

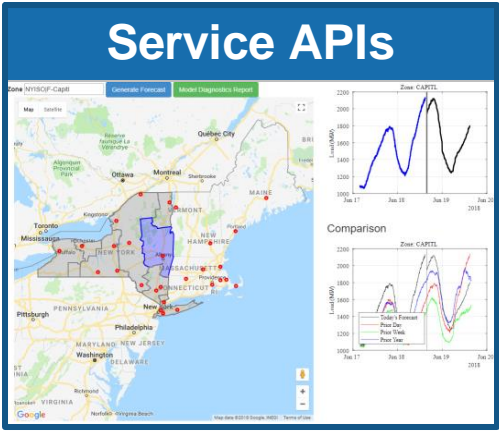
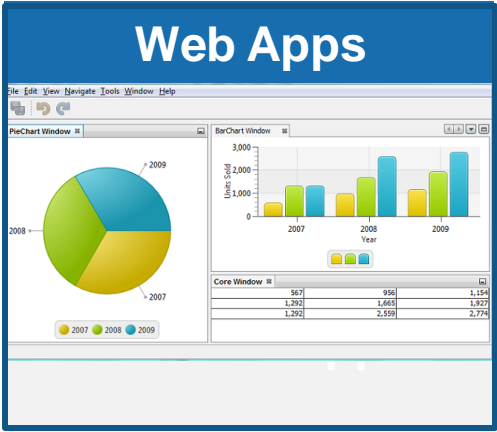
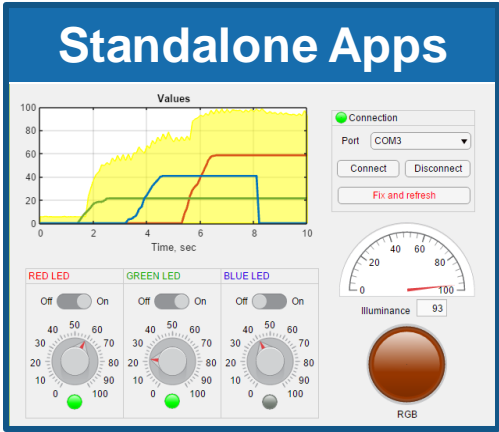
- An out-of-the-box solution to share simulations R2020a
 - Supports flexible simulation input / parameter tuning workflow
 - Supports a variety of Simulink simulation features including variable-step solvers
 - Royalty-free distribution



New Additions to Application Deployment Product Portfolio



Supports a Full Spectrum of Simulation Deployment Scenarios



Personas in Simulation Deployment



- **Simulation Author:** They define, build, edit and *compile* Simulink simulations

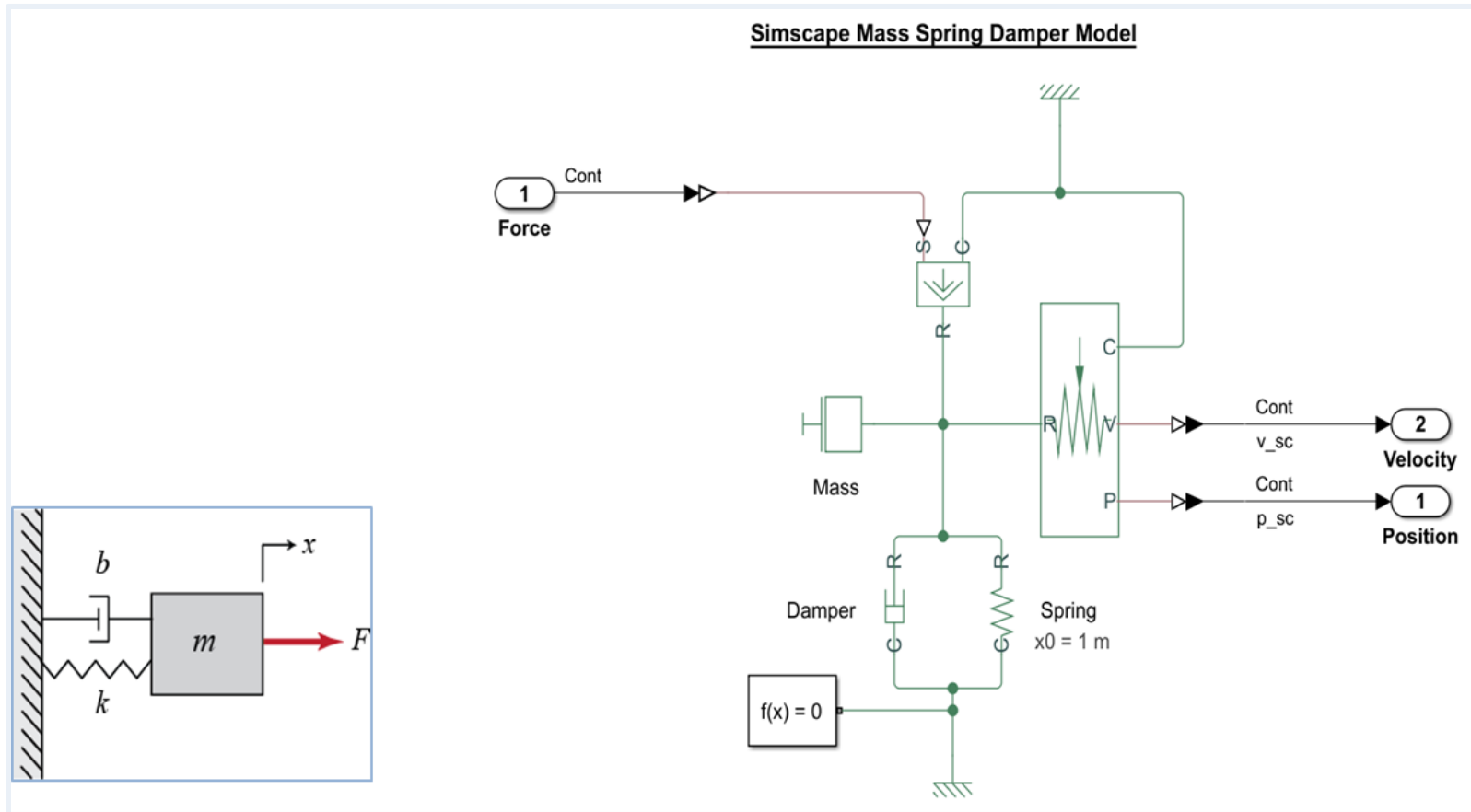


- **Simulation User:** They run, tune, and analyze the deployed simulations



- **IT:** They support integrating deployed simulations with IT systems

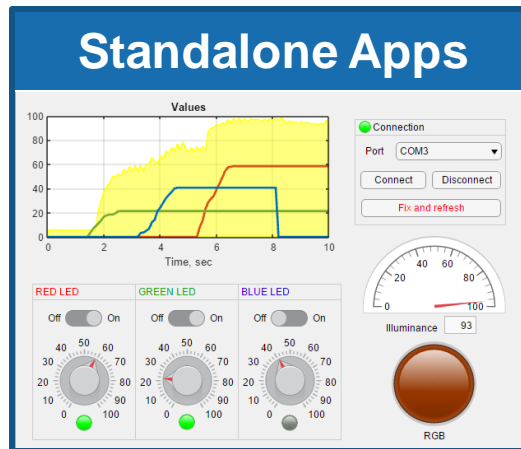
A “Hello, World” Example



Four tunable parameters:

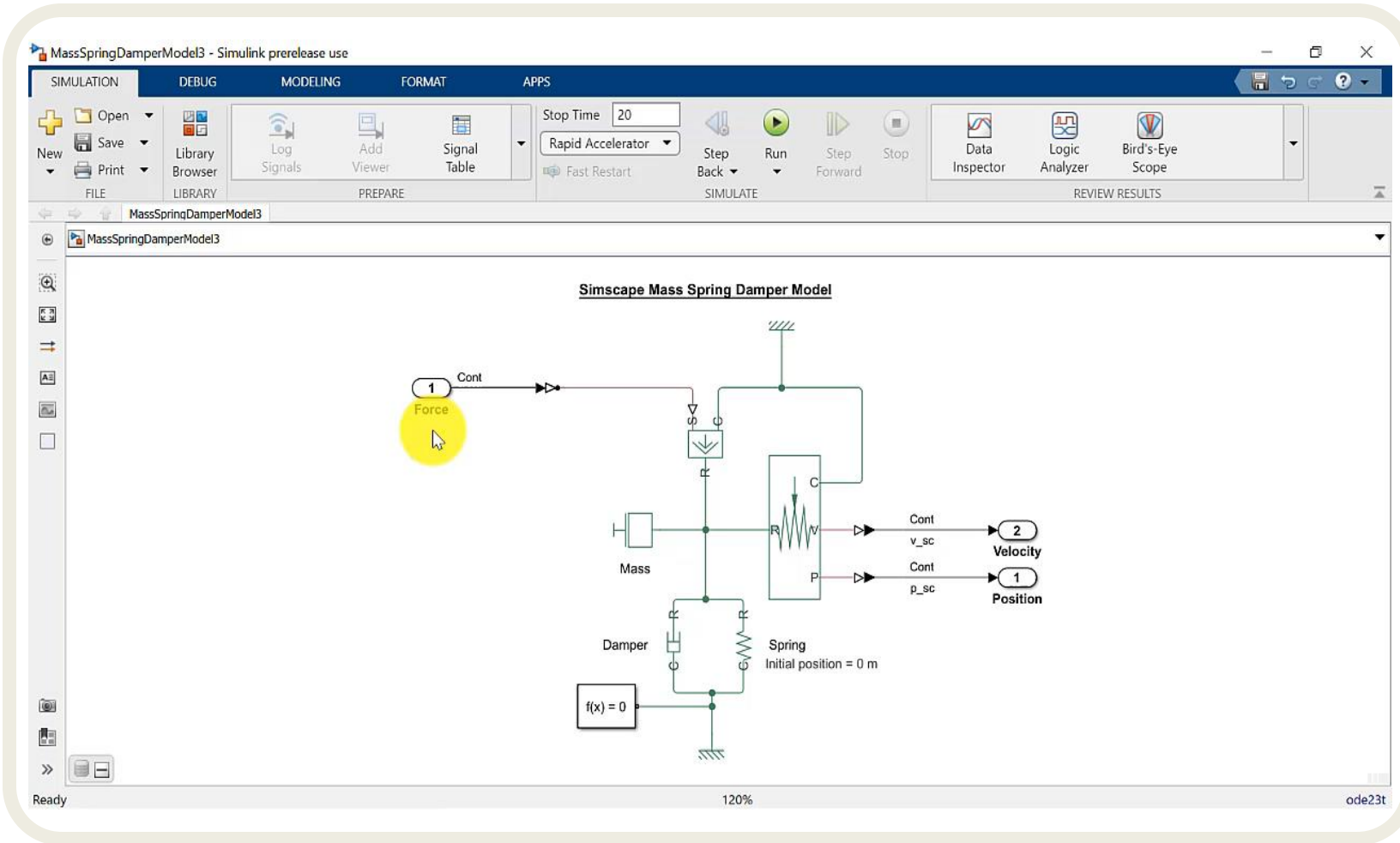
- Mass
- Initial position
- Damping coefficient
- Spring stiffness

Scenario 1: Standalone Desktop App



- Runs on PC
- Can use App Designer GUI
- Needs local installation

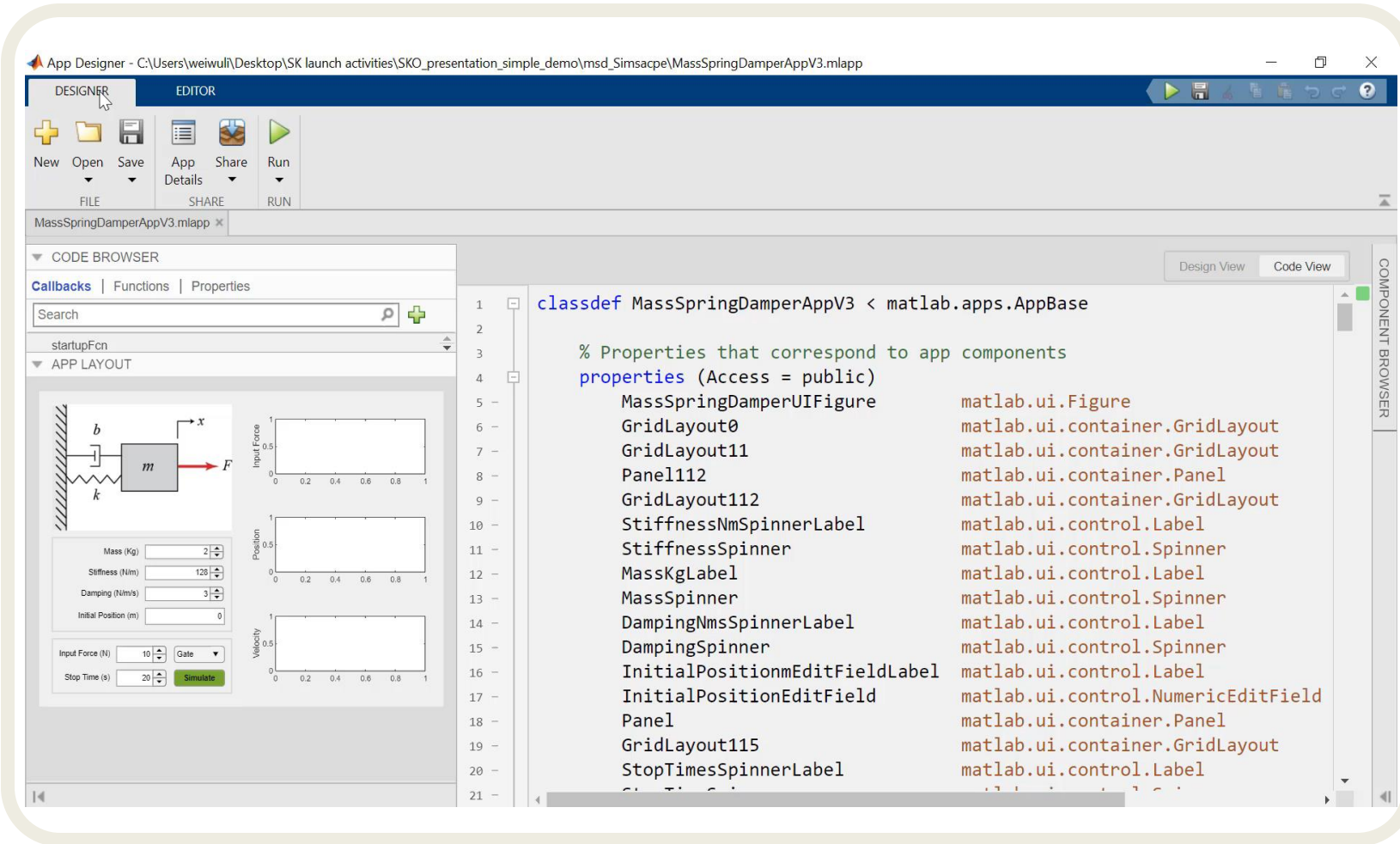
Scenario 1: Standalone Desktop App



Simulation Author

Use App Designer to create simulation apps

Scenario 1: Standalone Desktop App



Simulation Author

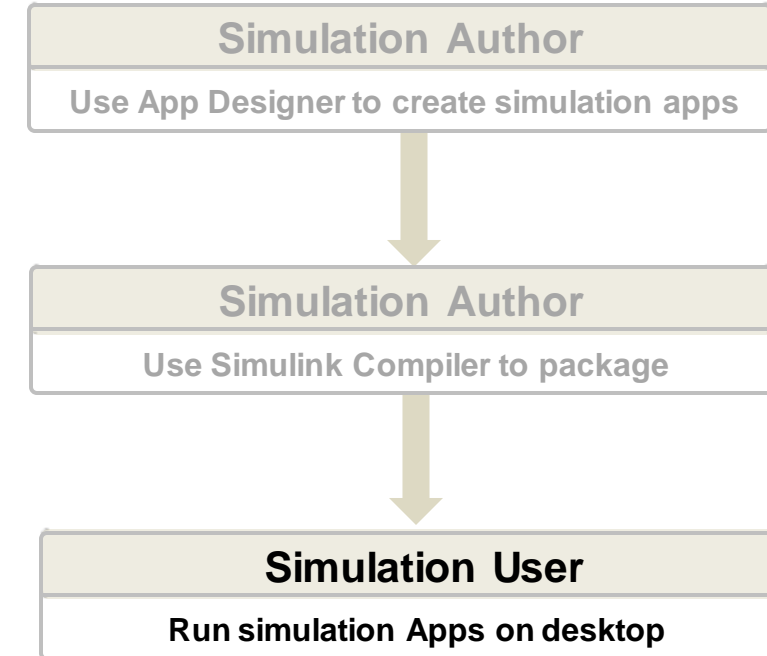
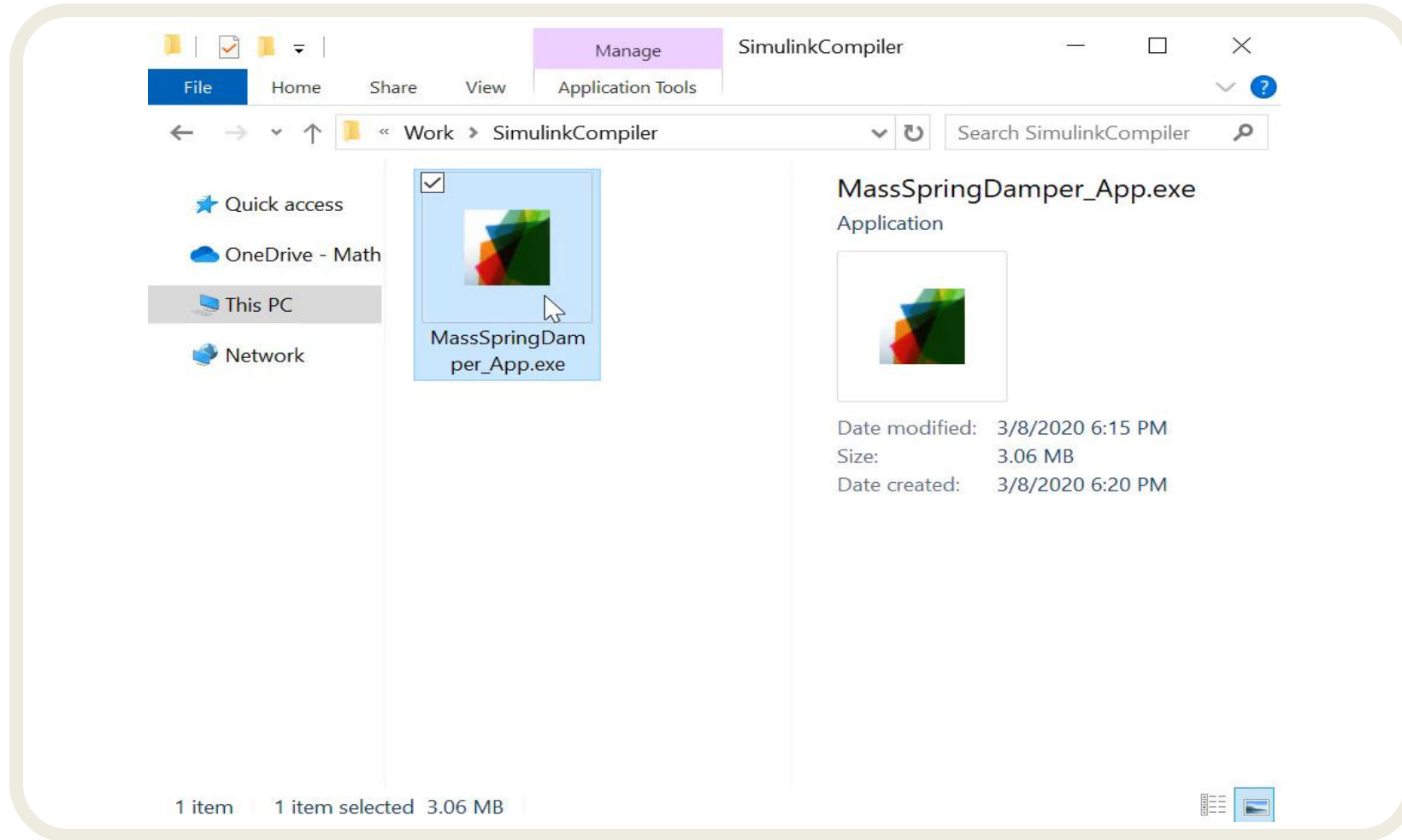
Use App Designer to create simulation apps



Simulation Author

Use Simulink Compiler to package

Scenario 1: Standalone Desktop App

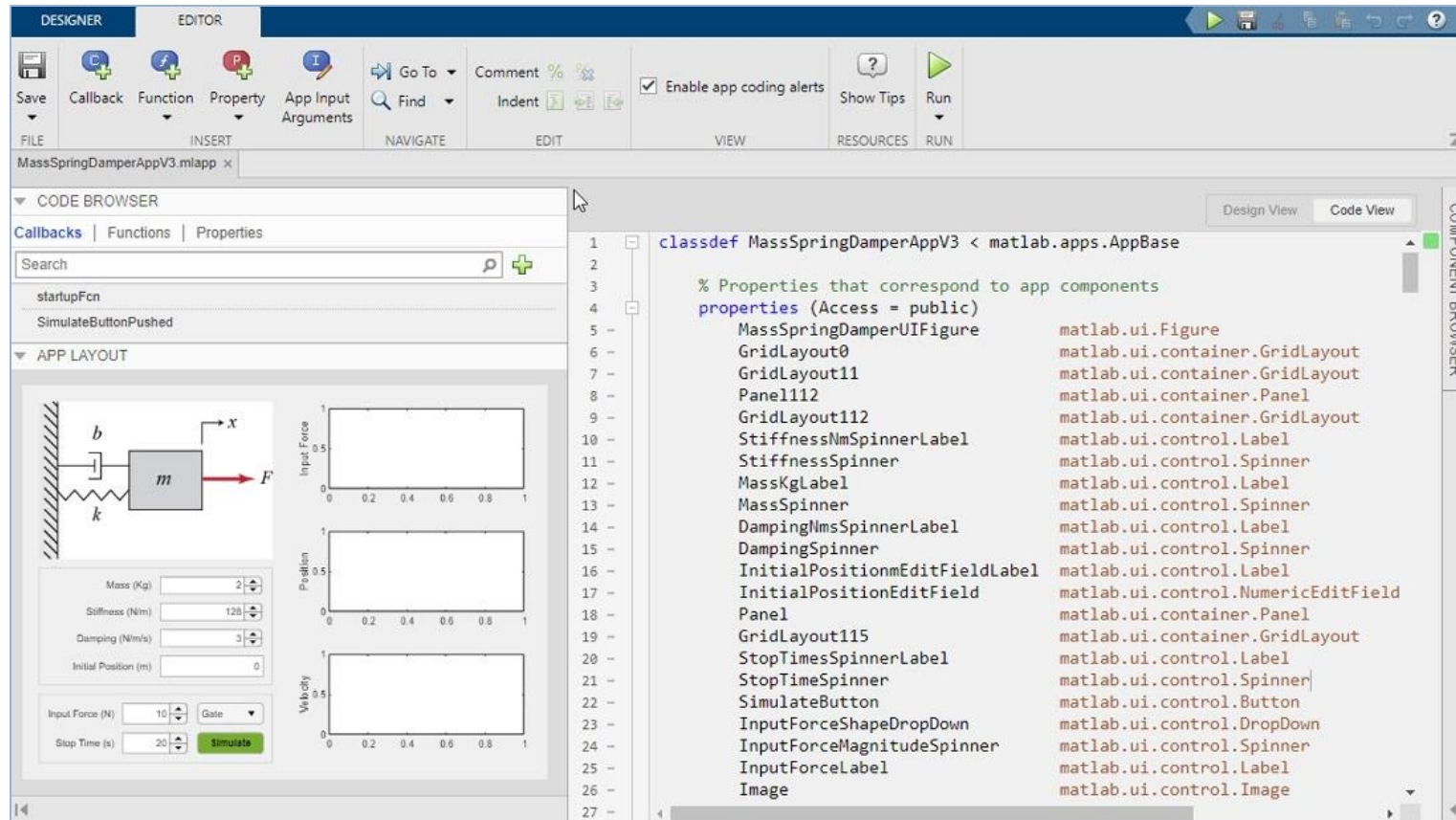


Scenario 2: Web App



- Runs on a Server (MATLAB Web App Server)
- Uses App Designer GUI
- Browser-based access, no local installation needed

Scenario 2: Web App



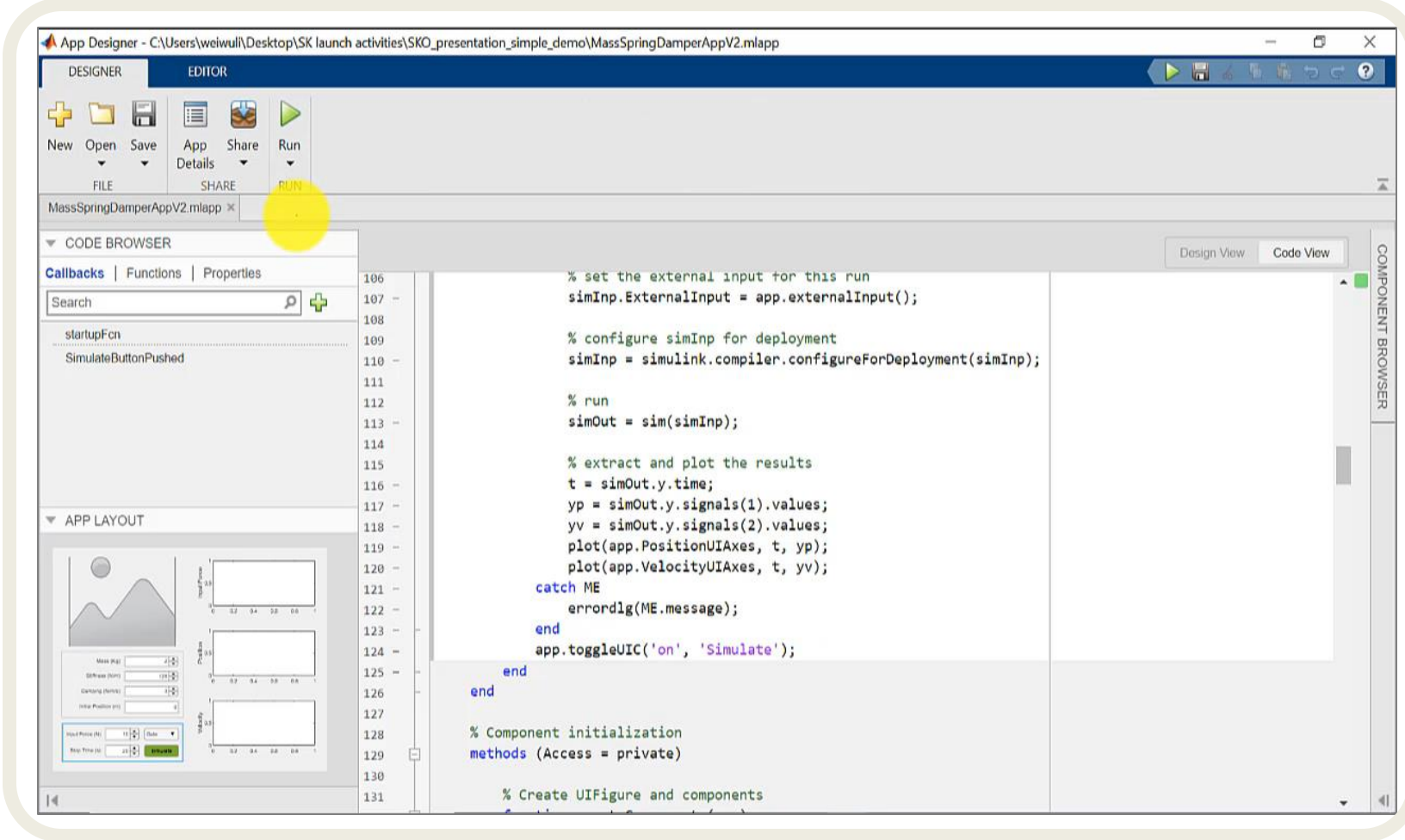
Simulation Author

Use App Designer to create simulation apps

The same step as designing a standalone desktop App

Scenario 2: Web App

The simulation app is packaged as a MATLAB Web App archive file (.ctf)



Simulation Author

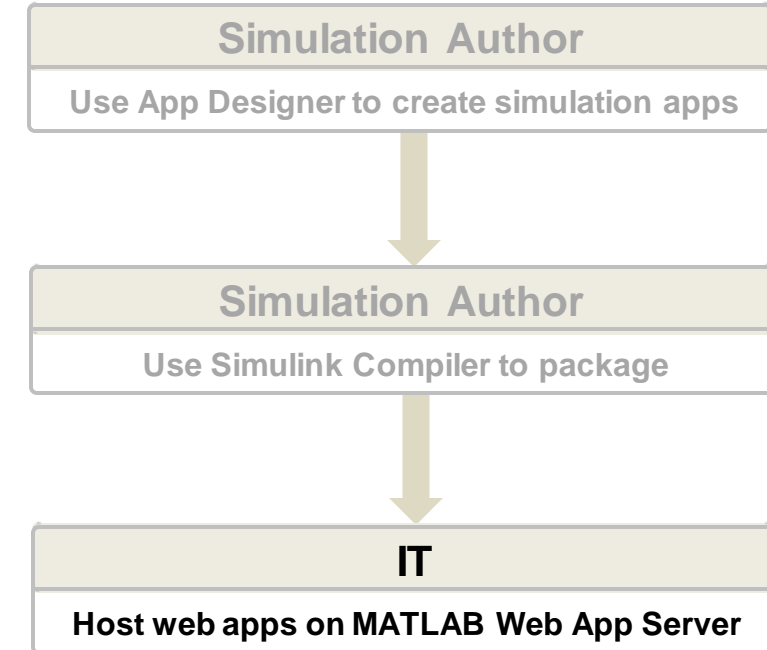
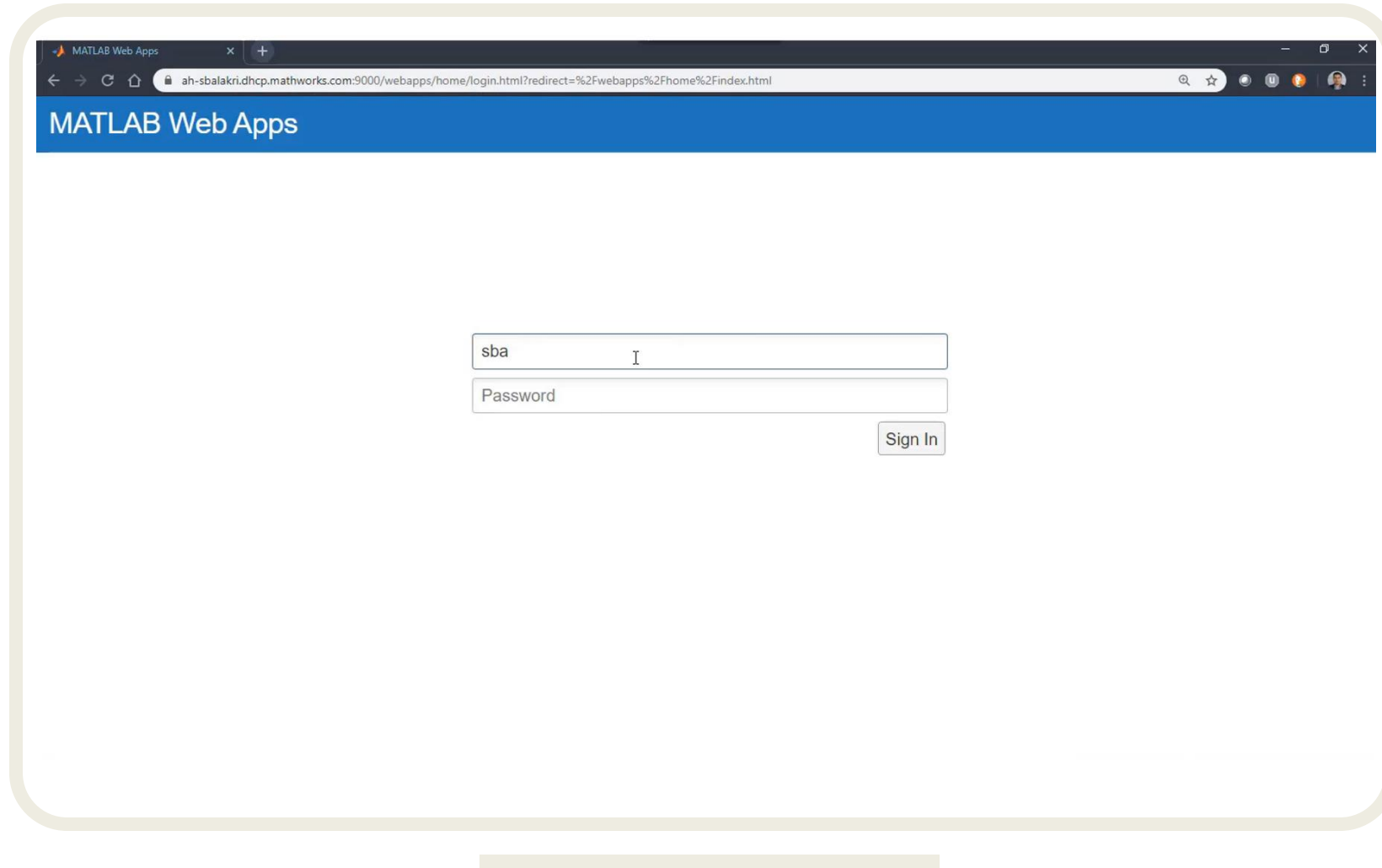
Use App Designer to create simulation apps



Simulation Compiler

Use Simulink Compiler to package

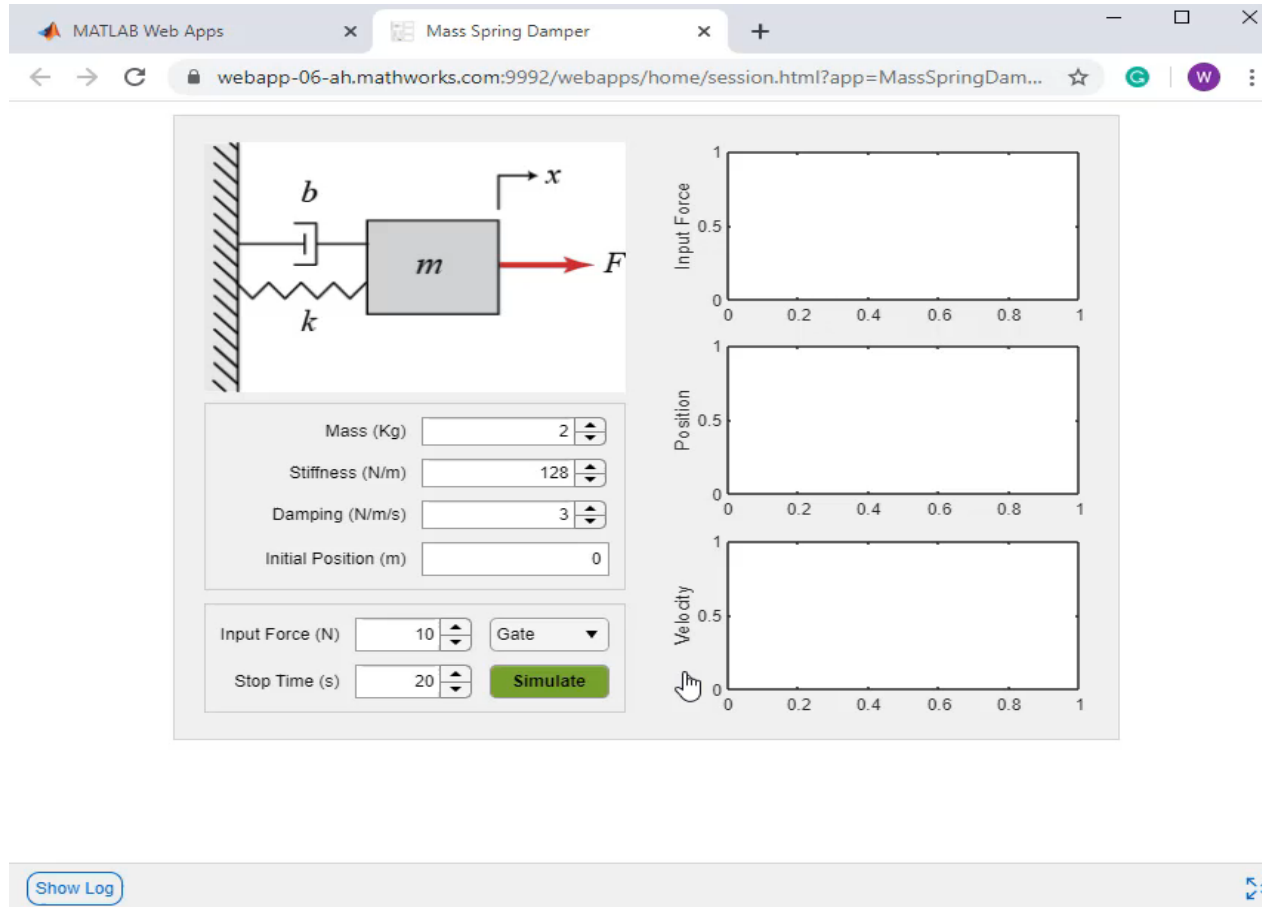
Scenario 2: Web App



MATLAB Web App Server:
Host and share Simulink simulation apps created using MATLAB App Designer

NEW

Scenario 2: Web App



Simulation Author

Use App Designer to create simulation apps

Simulation Author

Use Simulink Compiler to package

IT

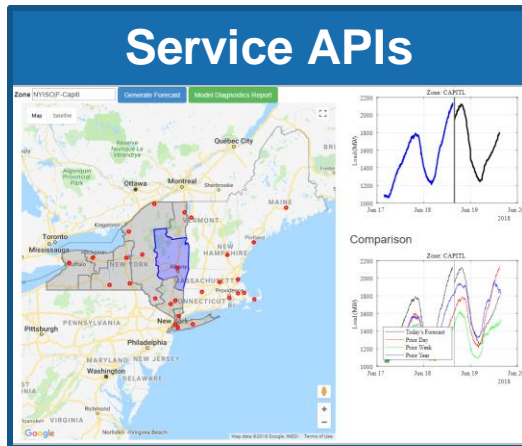
Host web apps on MATLAB Web App Server

Simulation User

Access web apps through URL

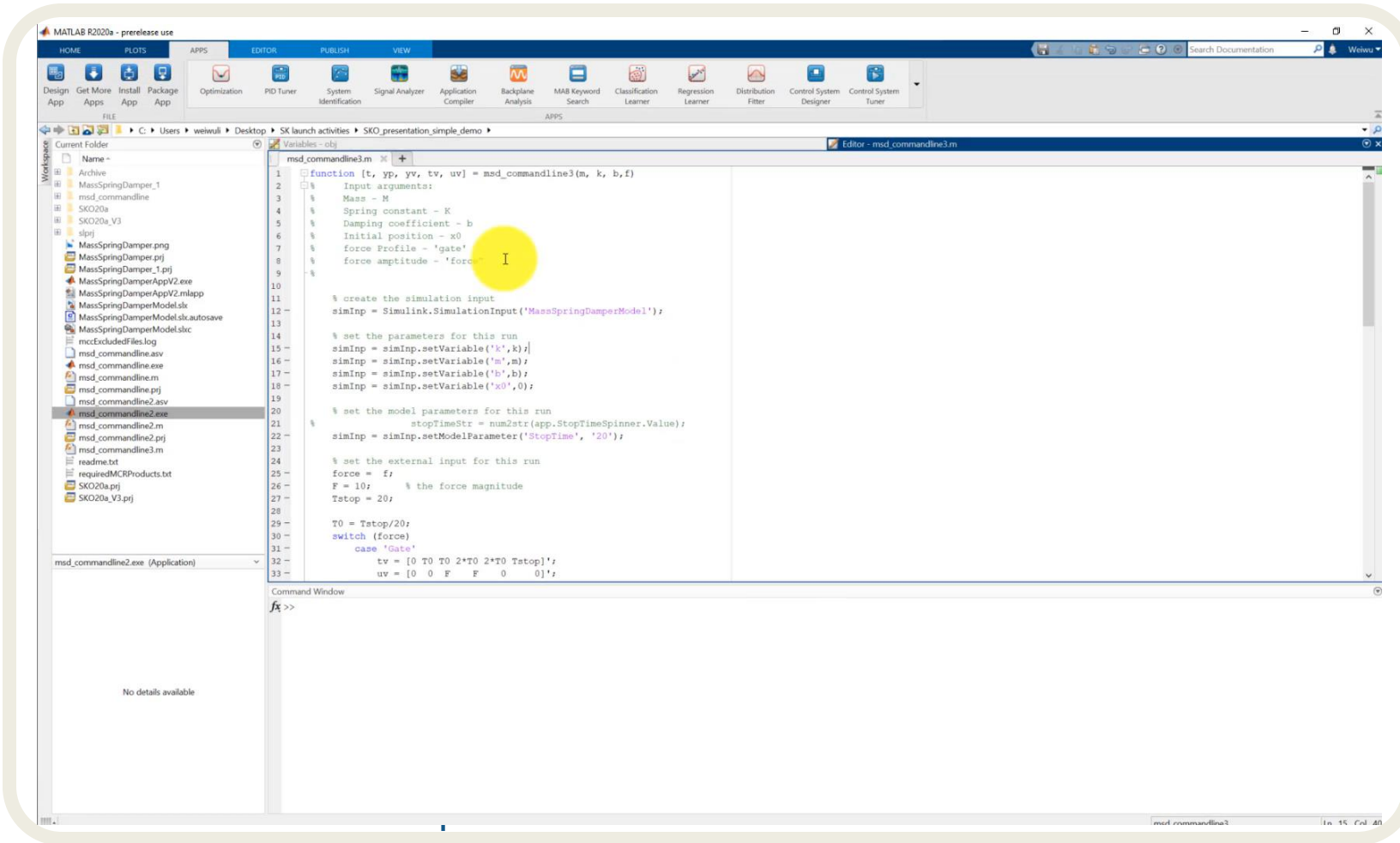
No local installation needed

Scenario 3: Service API



- Runs on a Server (MATLAB Production Server)
- Supports customer developed client-server App and web app e.g. HTML/JavaScript
- Centrally hosted, no local installation needed

Scenario 3: Service API

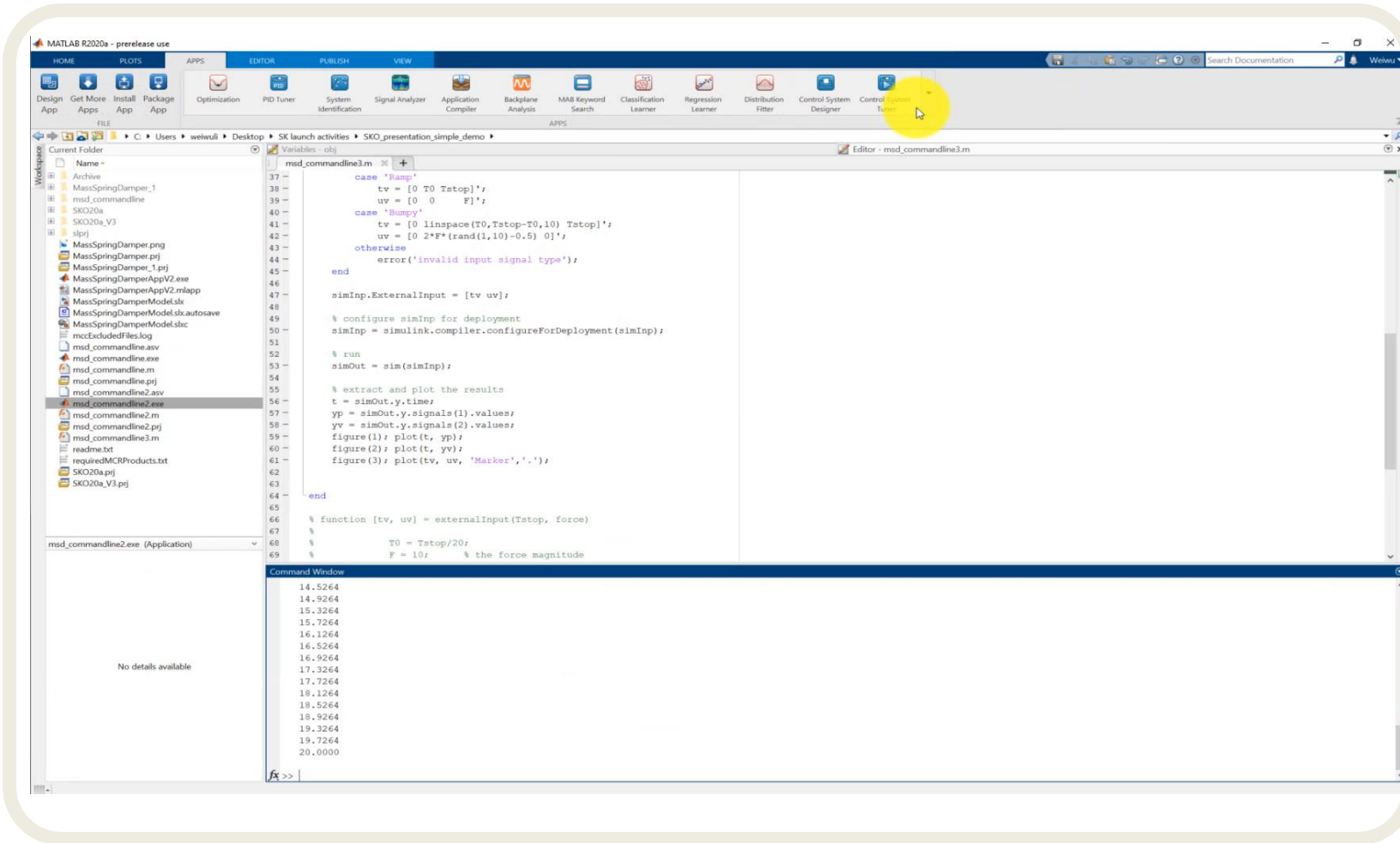


Simulation Author

Use MATLAB to create a function of simulation

Scenario 3: Service API

Package the simulation function as a deployable archive (.ctf)



Simulation Author

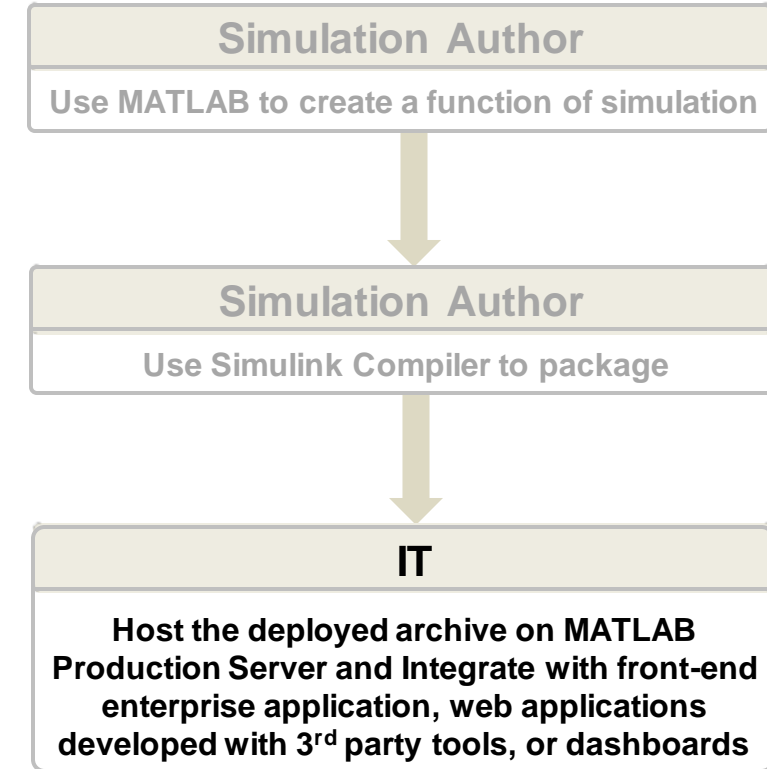
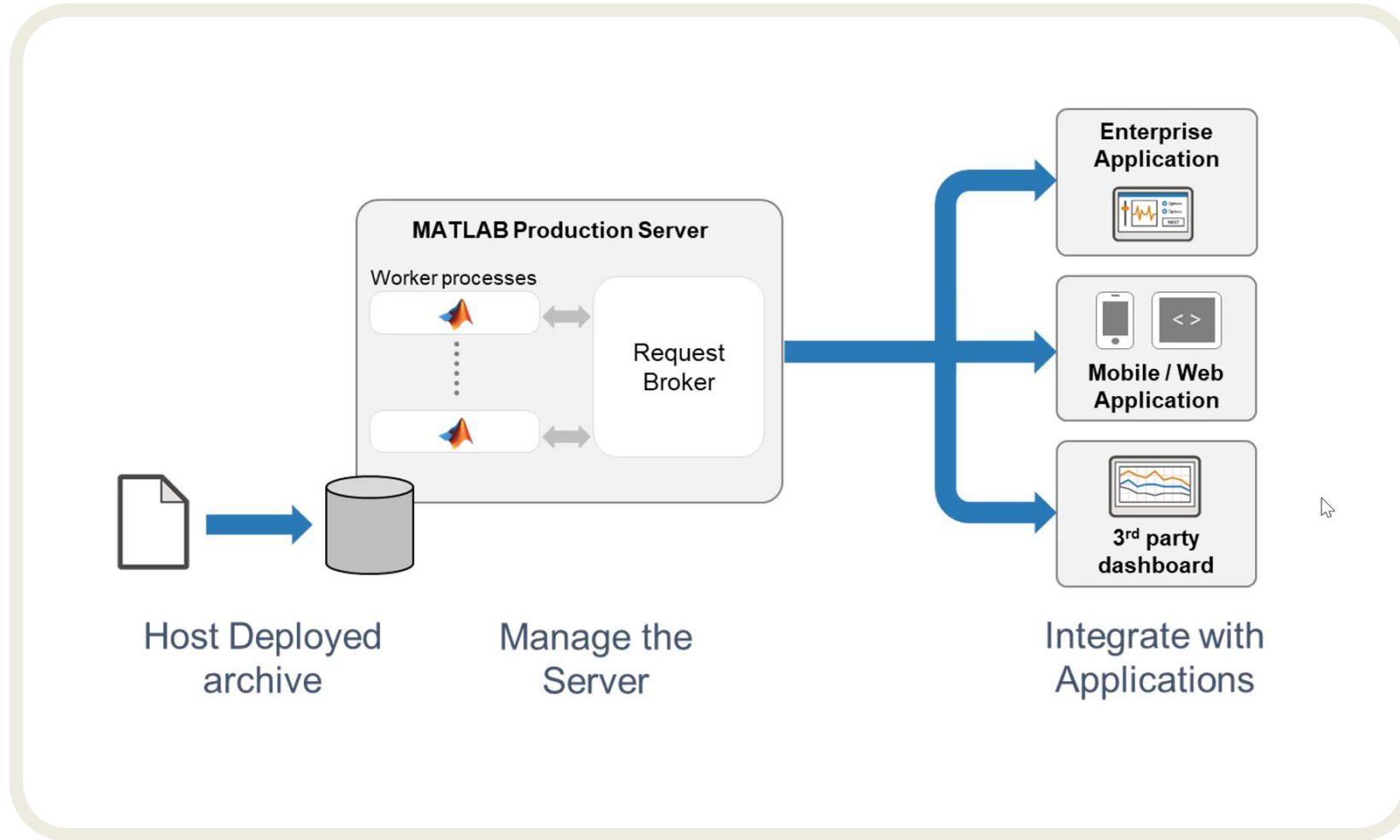
Use MATLAB to create a function of simulation



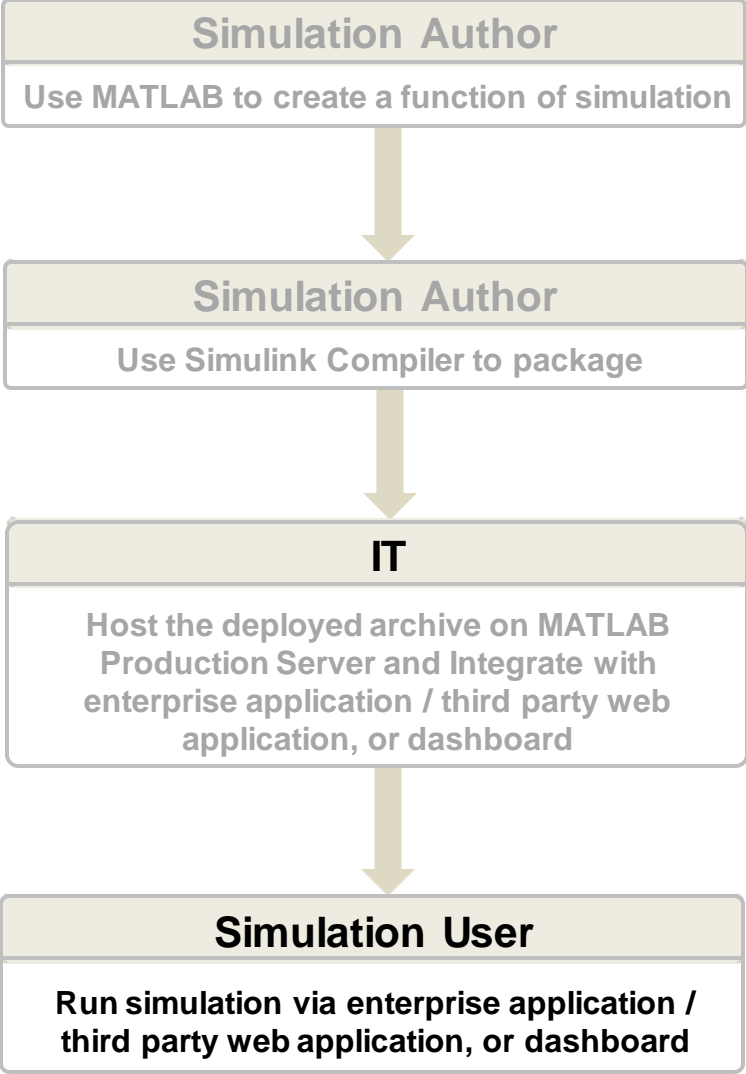
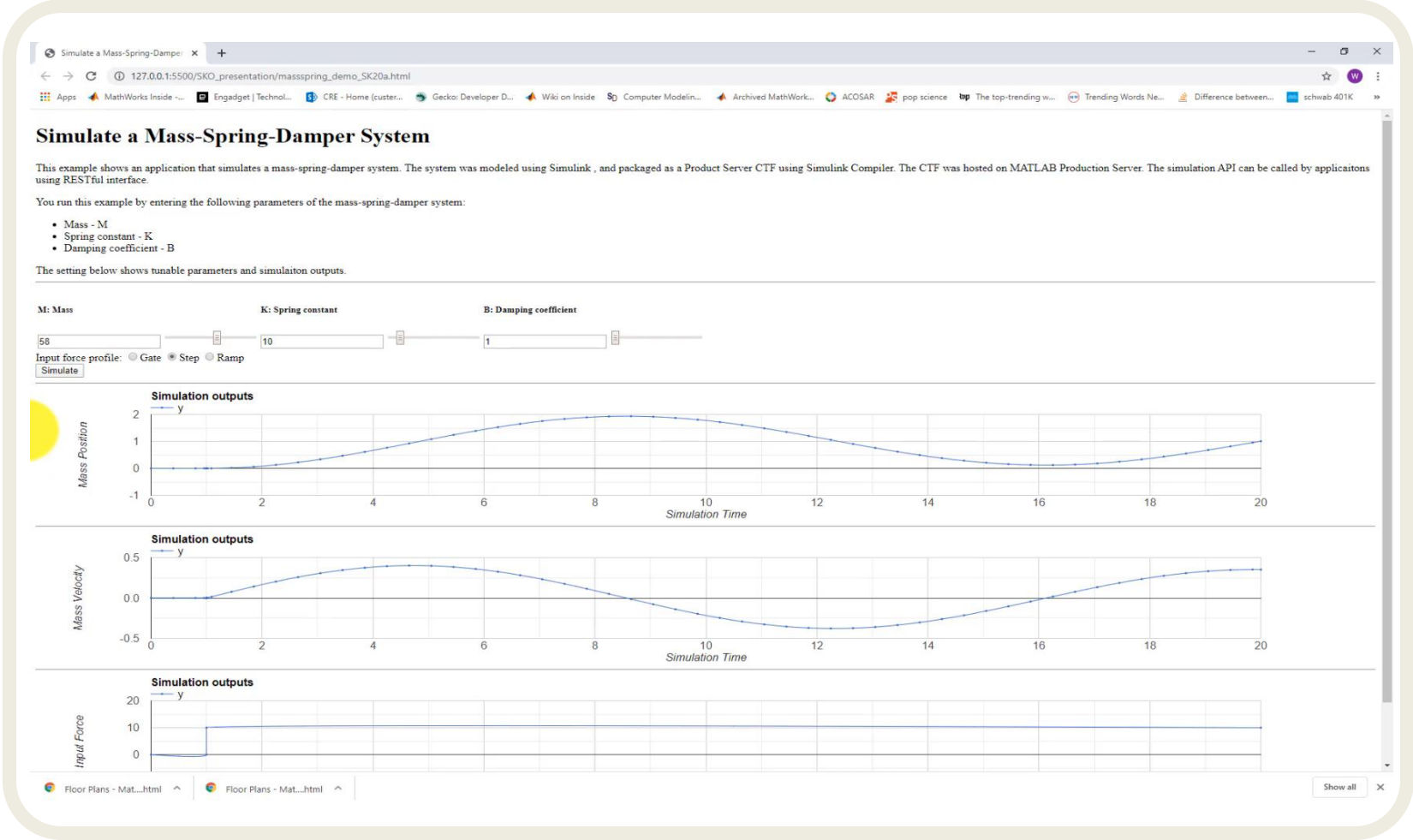
Simulation Compiler

Use Simulink Compiler to package

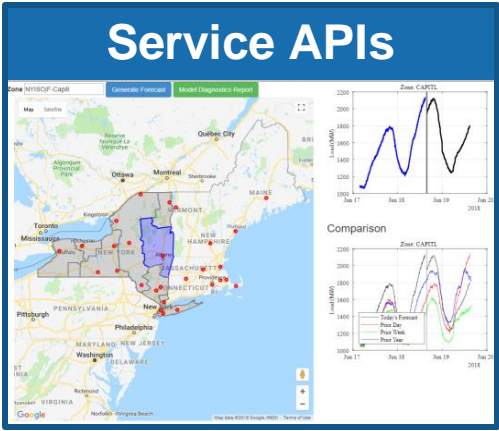
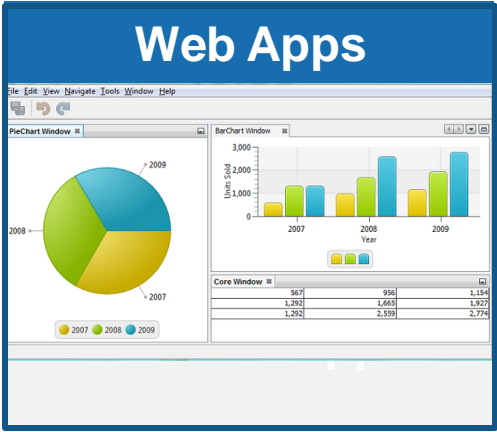
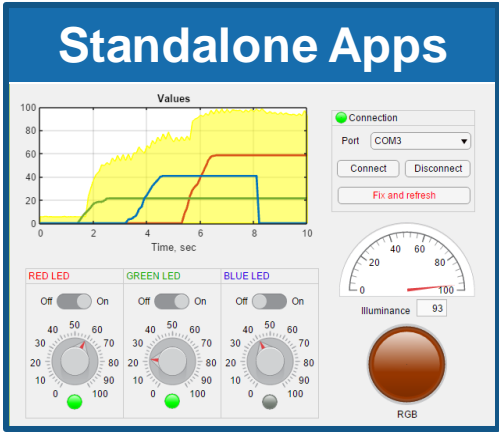
Scenario 3: Service API



Scenario 3: Service API



Supports a Full Spectrum of Simulation Deployment Scenarios



Summary

- Simulation goes beyond the design phase
- Simulation deployment made easy with Simulink Compiler
- Share simulations as standalone desktop apps, web apps, or enterprise applications

Learn More

- See us at Tech Showcase # 1

