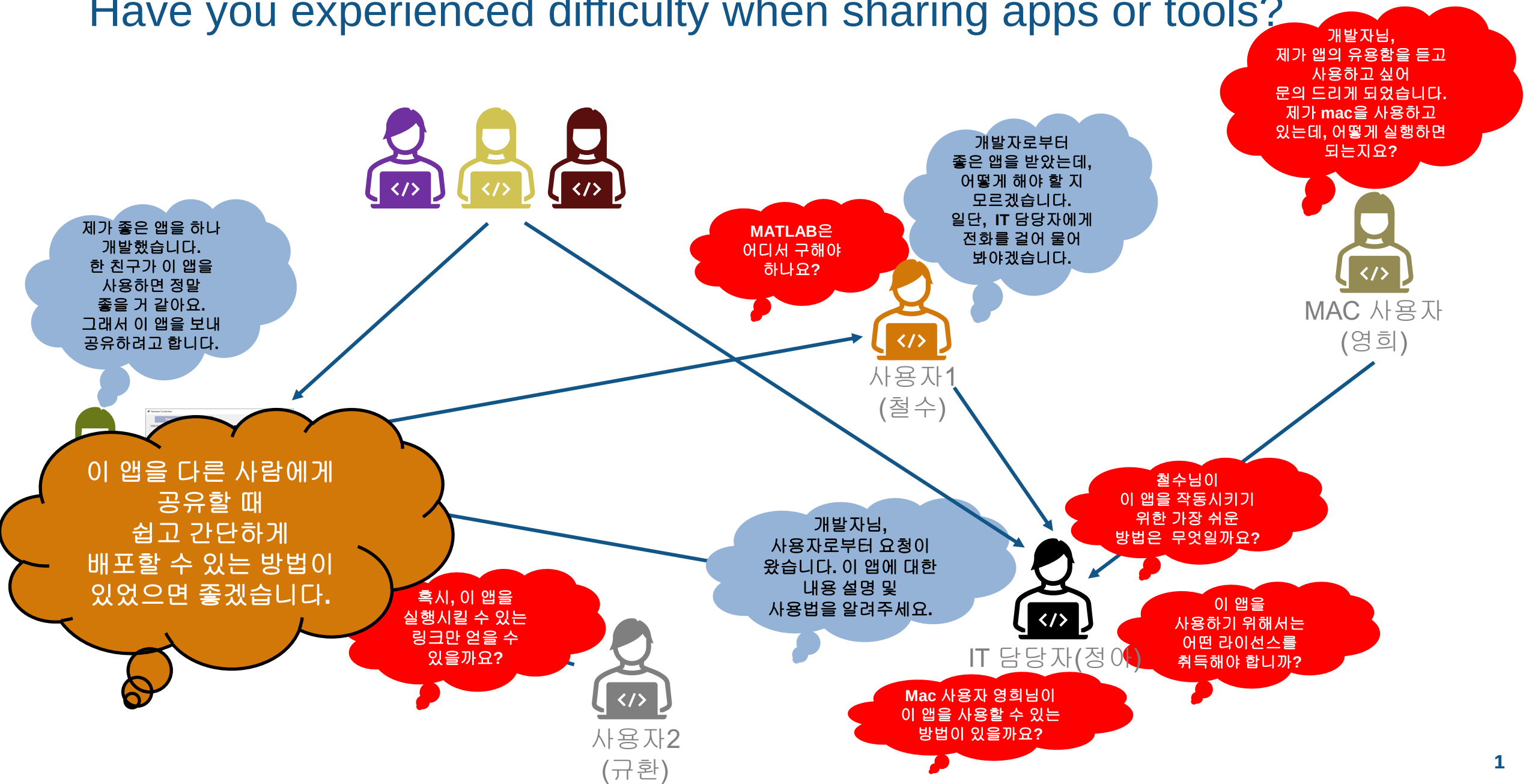
MATLAB EXPO 2021

MATLAB Web App Server를 이용한 클라우드 서비스 구축

장규환 차장

MathWorks

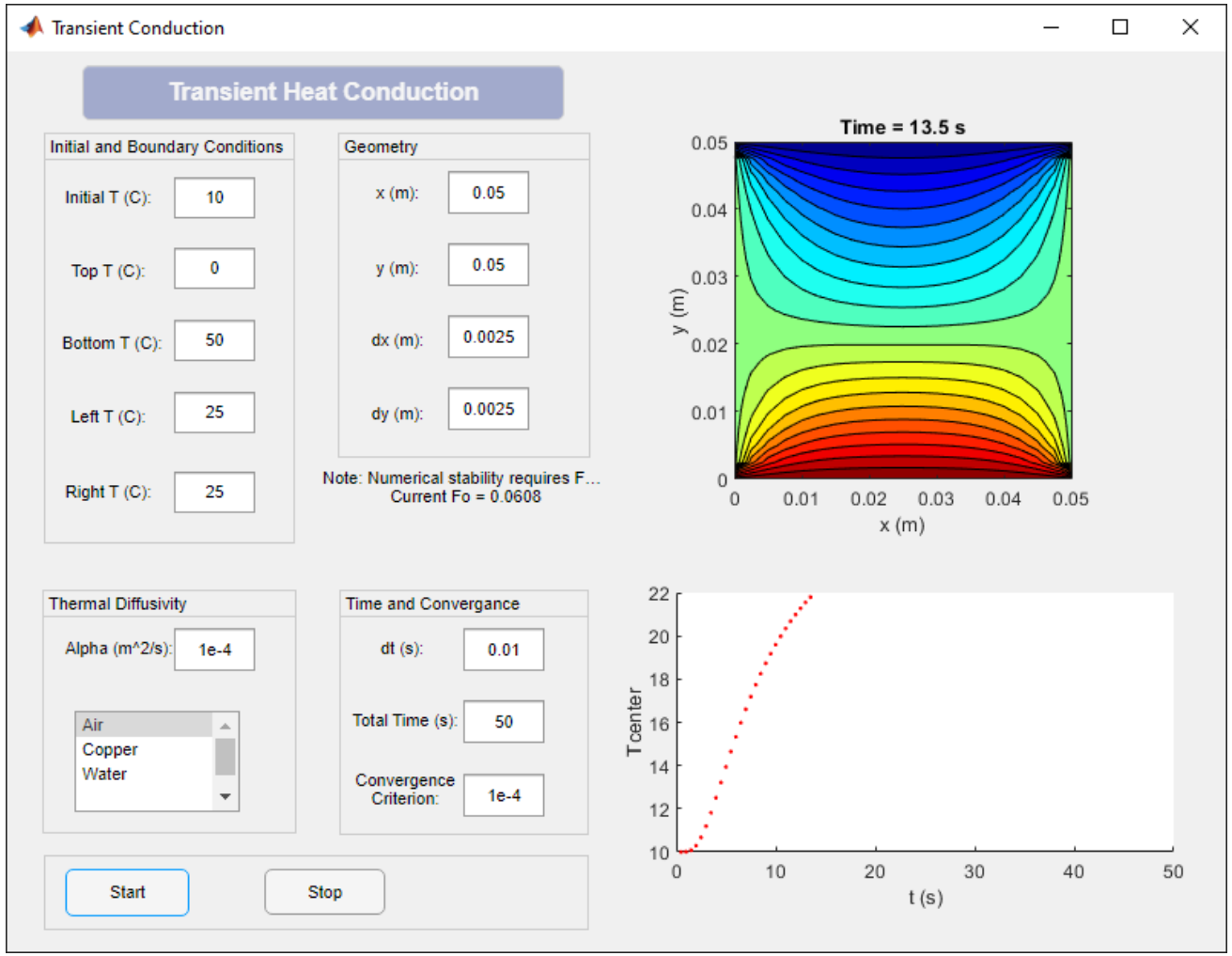
Have you experienced difficulty when sharing apps or tools?



Building and Sharing Tools is a powerful way to share your work

Distribute MATLAB apps and Simulink simulations

Increase workflow efficiency by sharing tools



Save time and increase productivity

Royalty-free distribution

Common challenges

Customers recognize these items as barriers to enabling efficient sharing workflows

Simple, easy to use centralized distribution solution

Mechanism to secure and control access to applications

Manage and provide access to Runtime libraries

Simple process to deploy new application features

MathWorks offers solutions to help you share your work

Find out more about our portfolio of application deployment products

End User

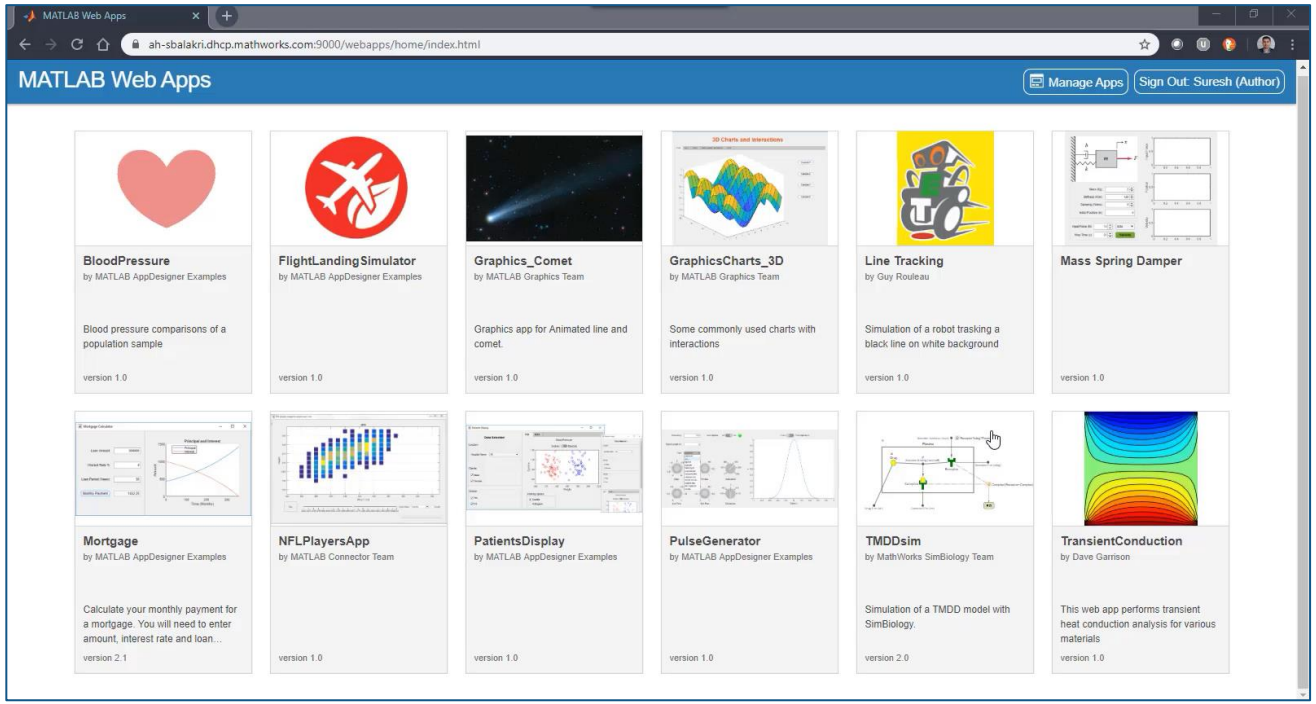
- Individual
- Workgroup
- Enterprise

MATLAB Web App Server

New product, introduced in R2020a

- What is it?
  - MATLAB Web App Server is a **server software** that **enables you to host and share** your custom MATLAB apps and Simulink simulations as **browser-based web apps**.

- Who does it help?
  - MATLAB and Simulink users
  - IT Administrator
  - End user needing access to MATLAB based apps



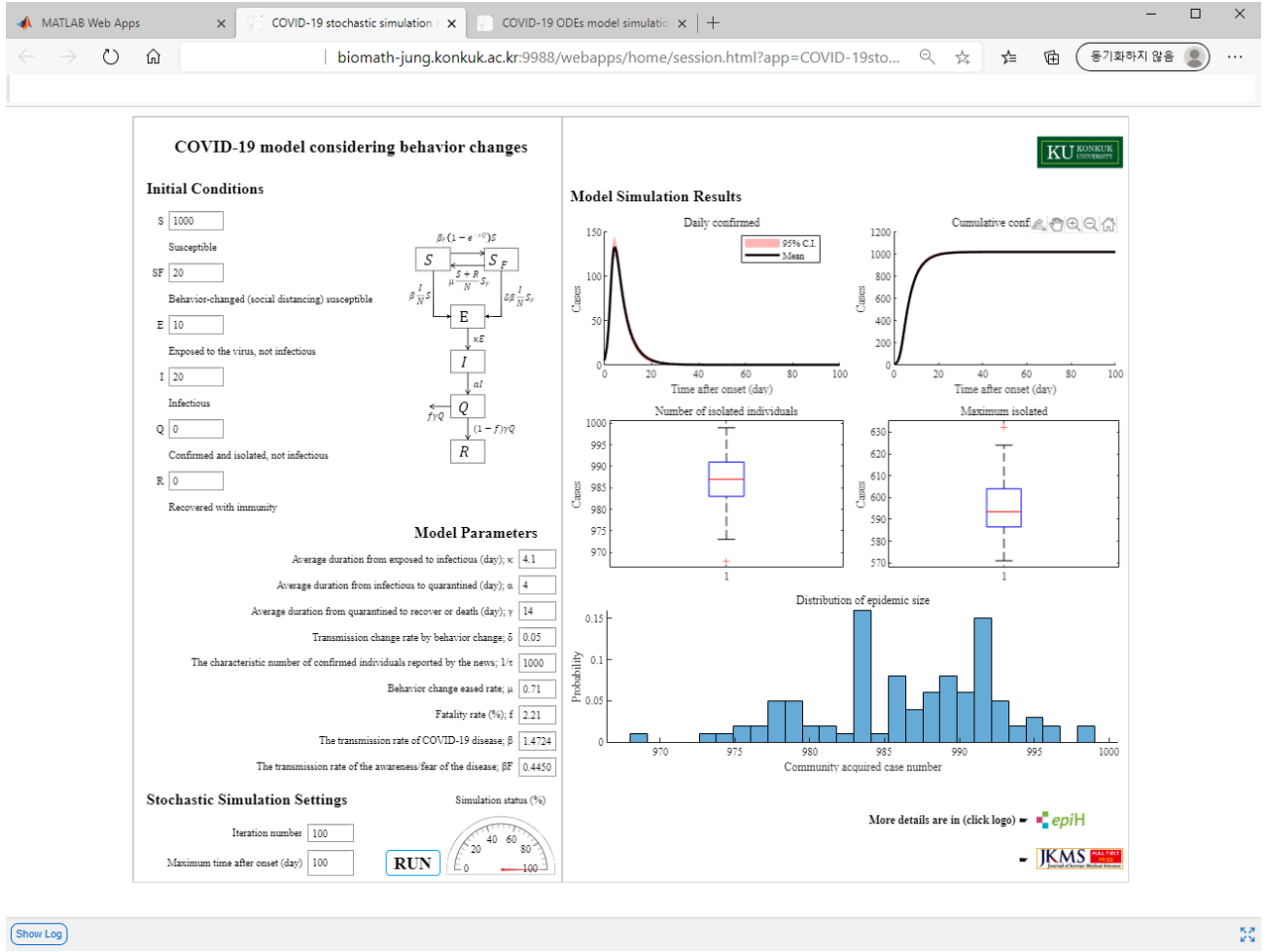
Konkuk University
Forecasts COVID-19 trend and effects of social distancing for KCDC

Professor Eun ok Jung has developed a SEIR model using MATLAB.

She predicts infection rate in South Korea and provides scientific background for KCDC.

The model is published using MATLAB Web App Server, and freely accessible from browser.

For her profound contribution, she received the honor of a President's Commendation from President award on April 21, 2020.



[Link to user demo]

Caltech Neuroscience

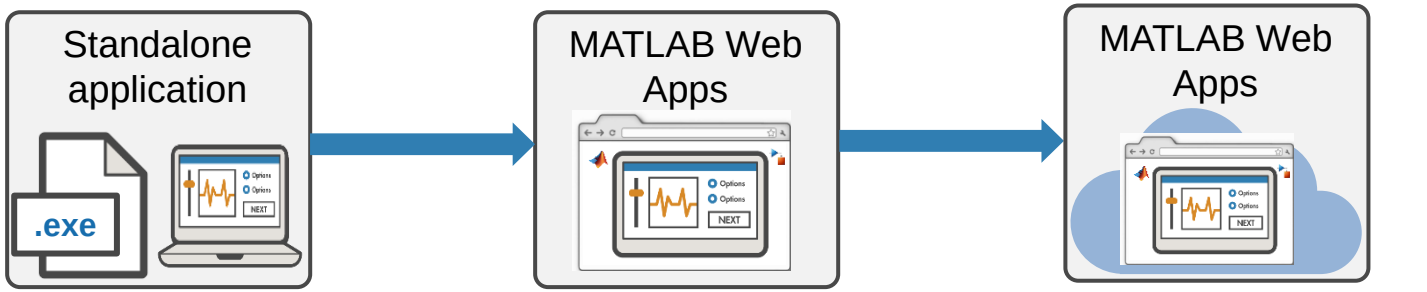
Leveraged MATLAB Web Apps as a browser-based interactive tool to run simulations

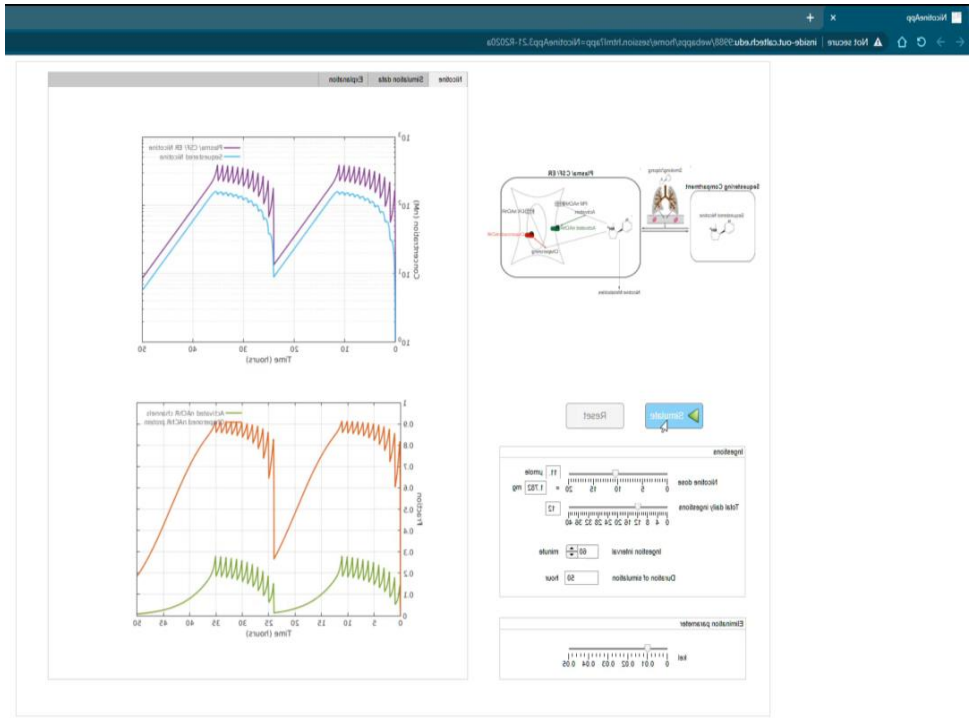
Use Case: Generate simulations for neuroscientists to examine the relationship of **acute**, **repeated** and **chronic** exposure to Nicotine

Dr Henry Lester

Janice Jeon

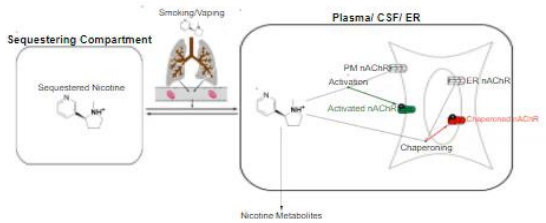
Alex Wang





NicotineApp

Not secure | inside-out.caltech.edu:9988/webapps/home/session.html?app=NicotineApp3.21-R2020a



Simulate | Reset

Ingestions

Nicotine dose: 11. µmole = 1.782 mg (0 5 10 15 20)

Total daily ingestions: 12 (0 4 8 12 16 20 24 28 32 36 40)

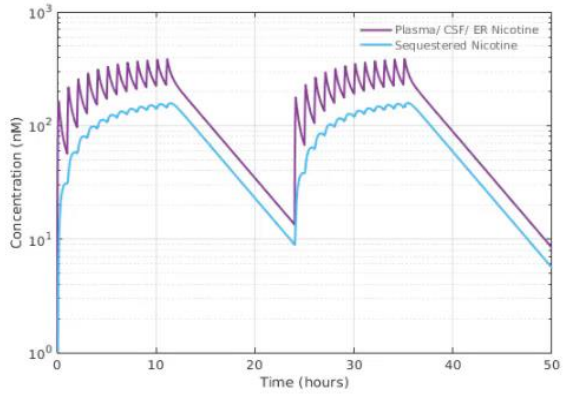
Ingestion interval: 60 minute

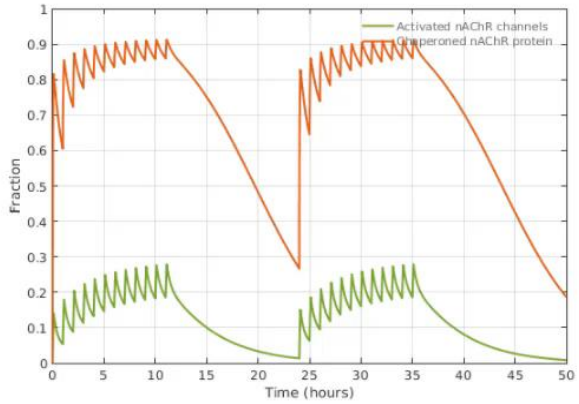
Duration of simulation: 50 hour

Elimination parameter

kel (0 0.01 0.02 0.03 0.04 0.05)

Nicotine | Simulation data | Explanation





Show Log

Recall our common challenges

How does MATLAB WebApp Server address these challenges?

Simple, easy to use centralized distribution solution

Mechanism to secure and control access to applications

Manage and provide access to Runtime libraries

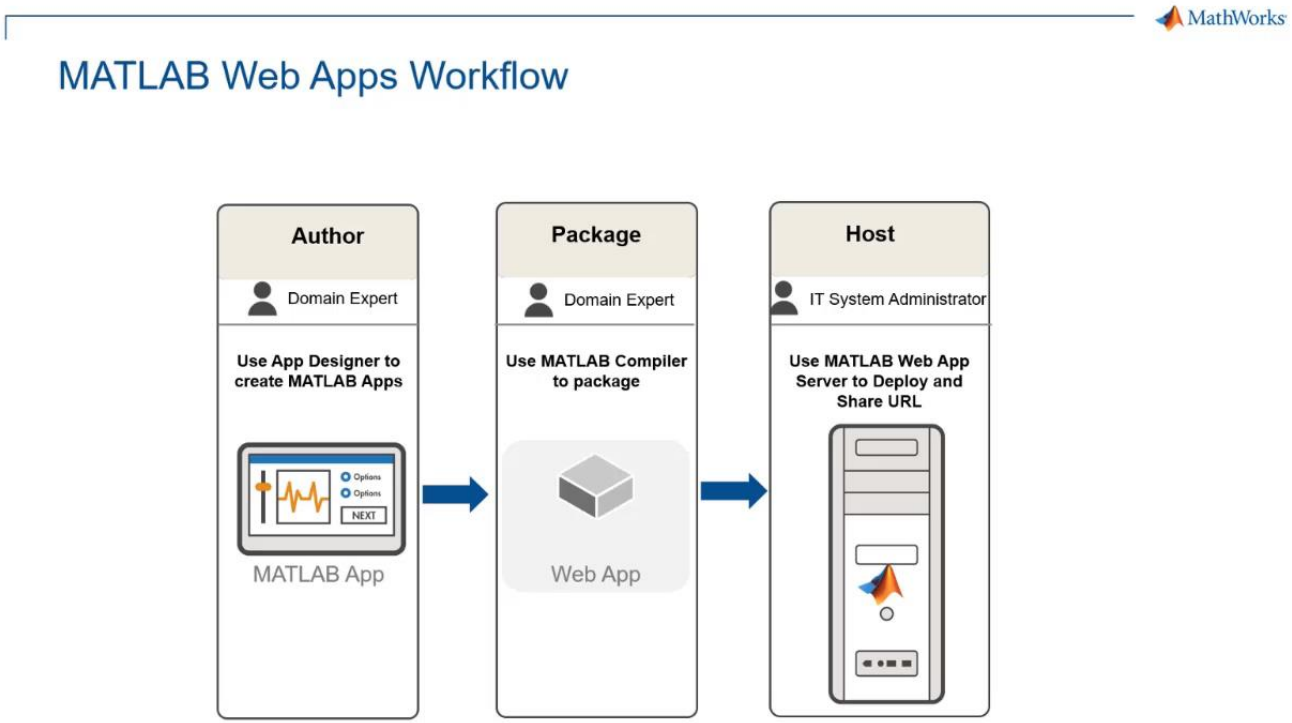
Simple process to deploy new application features

Challenge 1/4

Simple, easy to use centralized distribution solution

Benefits:

- One centralized server solution to host and share all web apps
- Meets corporate IT policies
- Author role provides self-serve tool to upload and manage the web apps



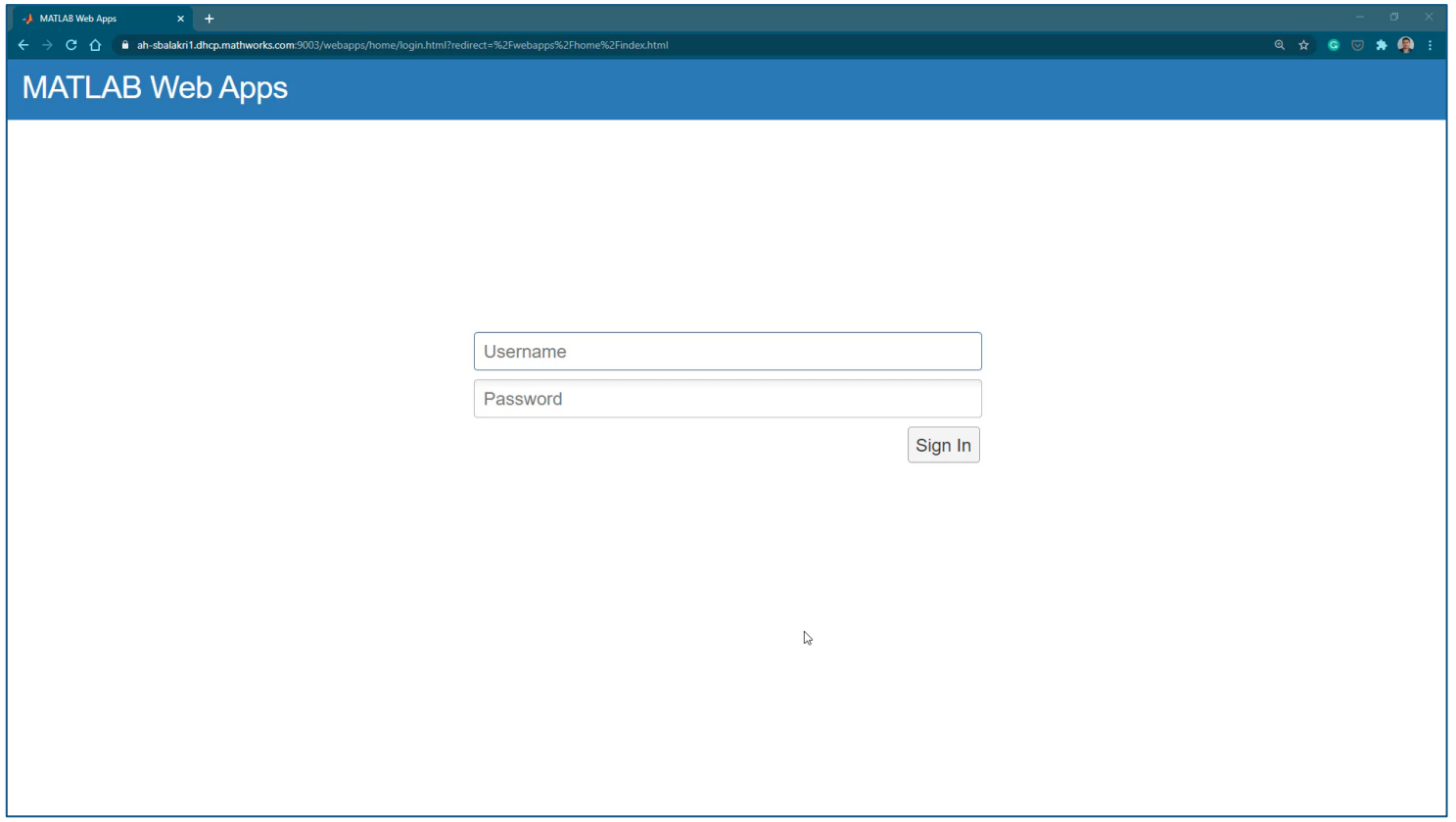
R2020a

Challenge 2/4

Mechanism to secure and control access to applications

Benefits:

- Integrate with your existing authentication servers (LDAP, OIDC)
- Allows to assign roles
  - **Author** can upload, delete and run the apps
  - **User** can run the apps



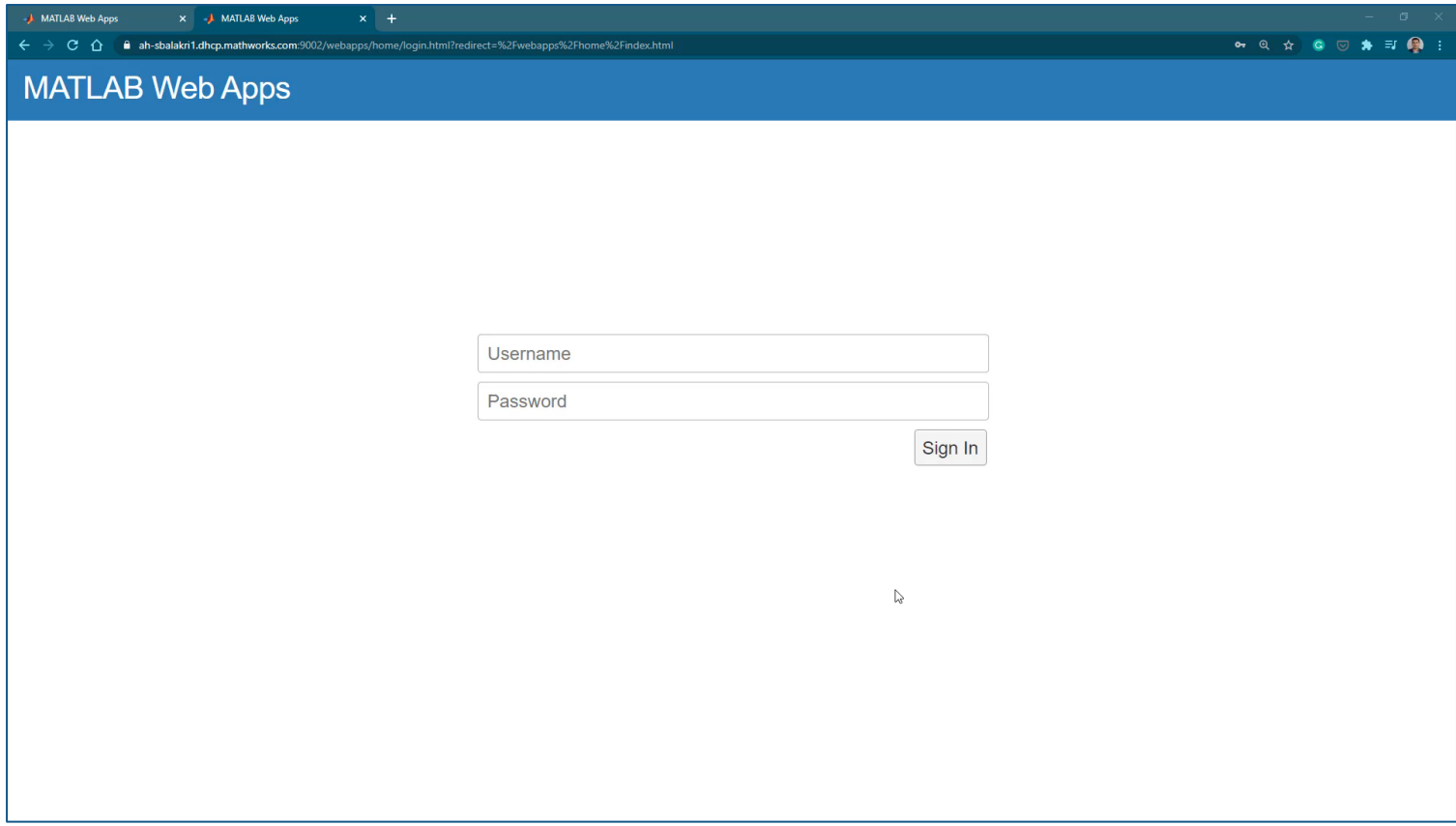
R2020a

Challenge 2/4 (continued)

Mechanism to secure and control access to applications

Benefits:

- Starting in R2021a, apply app level policies to access control individual app
- Organize and group apps into folder per team
- Configure user access per folder or individual app
- Users can only see and run the specific authorized apps



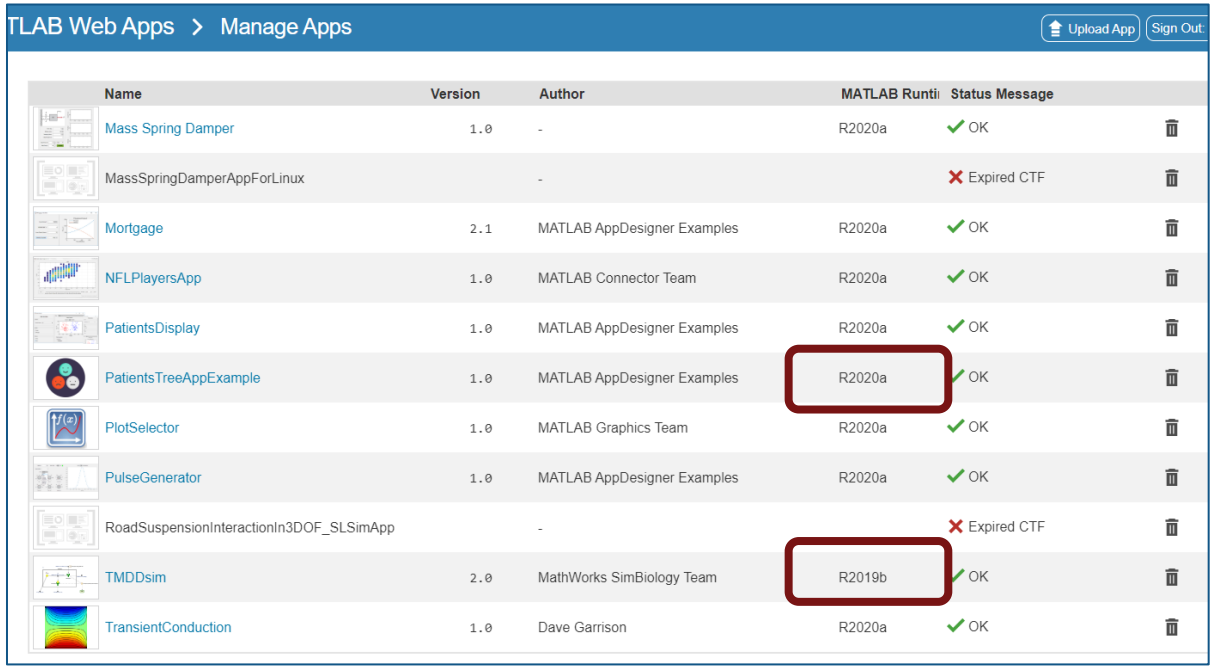
R2021a

Challenge 3/4

Manage and provide access to MATLAB Runtime libraries

Benefits:

- App developers using multiple versions of MATLAB and Simulink supported with single server
- Easy migration of apps after an upgrade
- Apps developed in 5 prior versions of MATLAB
  - Starting from R2019b



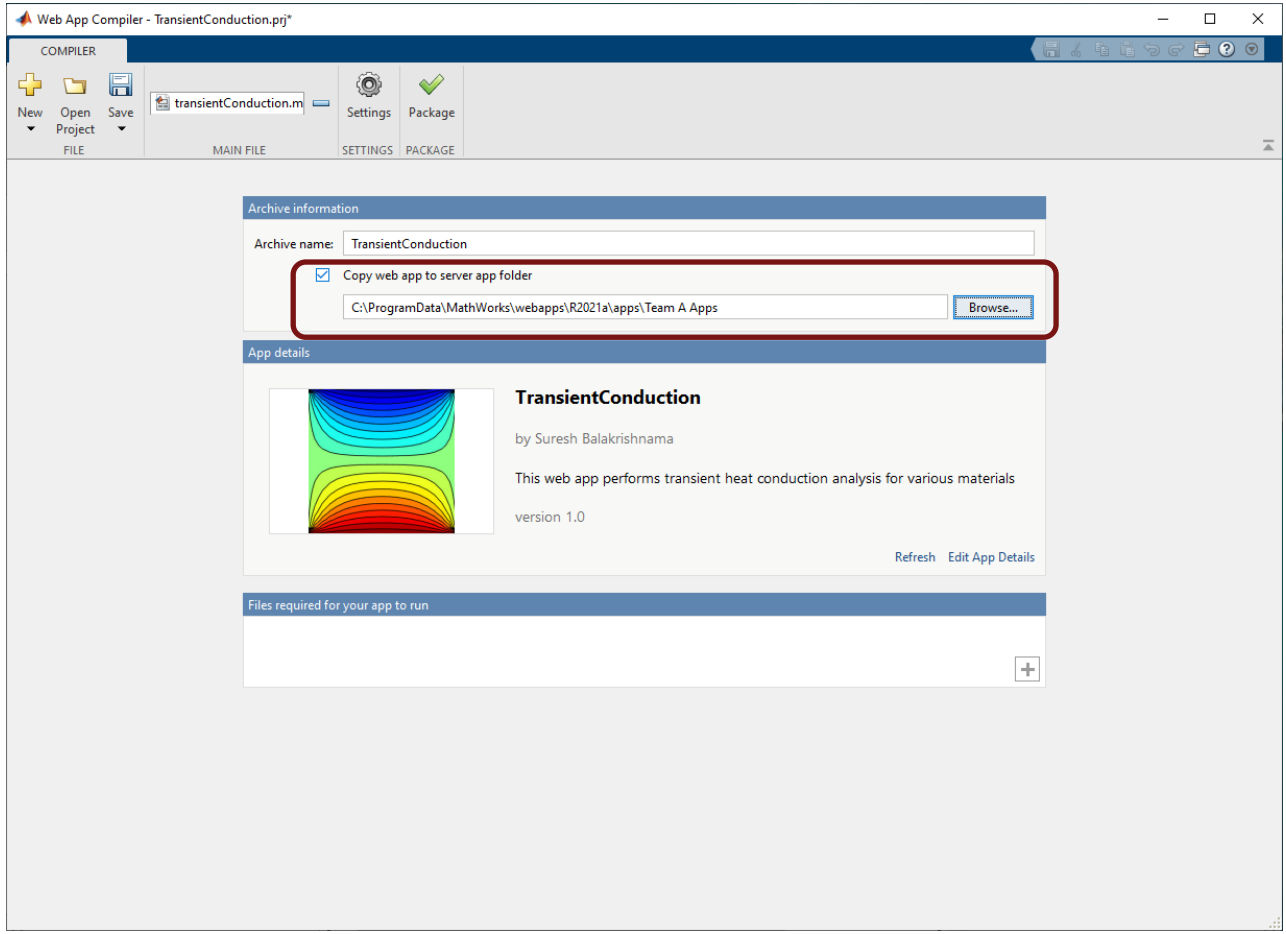
R2020a

Challenge 4/4

Simple process to deploy new application features

Benefits:

- Authoring environment allows you to develop and deploy
- No additional manual steps required to package the app data and dependent files



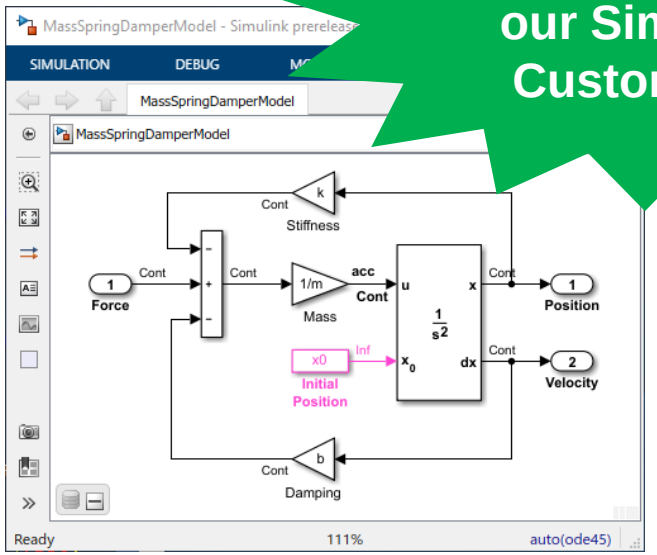
Share Simulink simulations

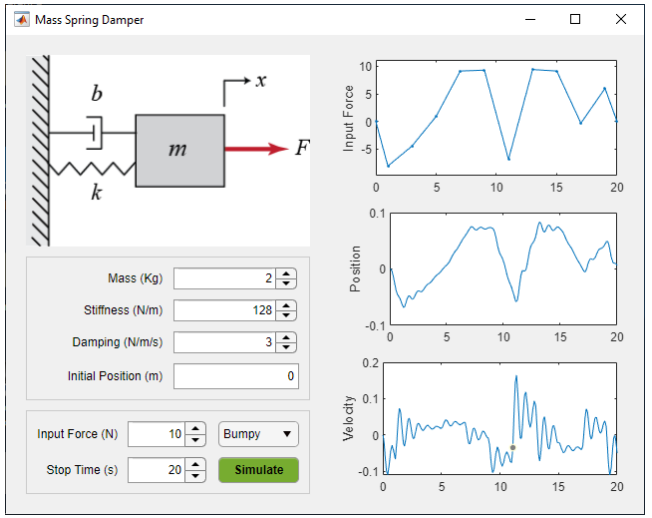
MATLAB WebApp Server supports Simulink

A long-standing request from our Simulink Customers!

Benefits:

- End users do not require a Simulink license
- End users can use a web app to choose tunable parameters and run the simulation from a browser
  - MATLAB Apps that call sim() can be deployed as web apps
- Simulink Compiler can generate a “Starter” app to get you started





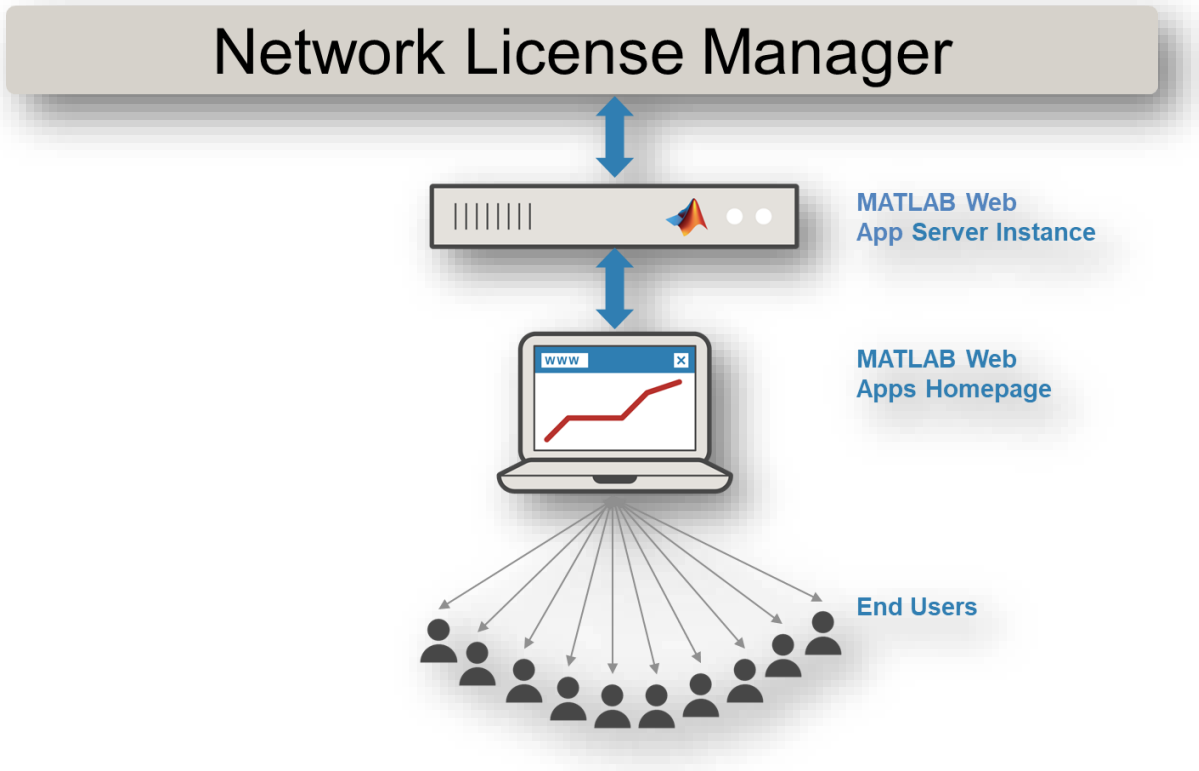
R2020a

Flexible license model

Designed to support both user and business needs

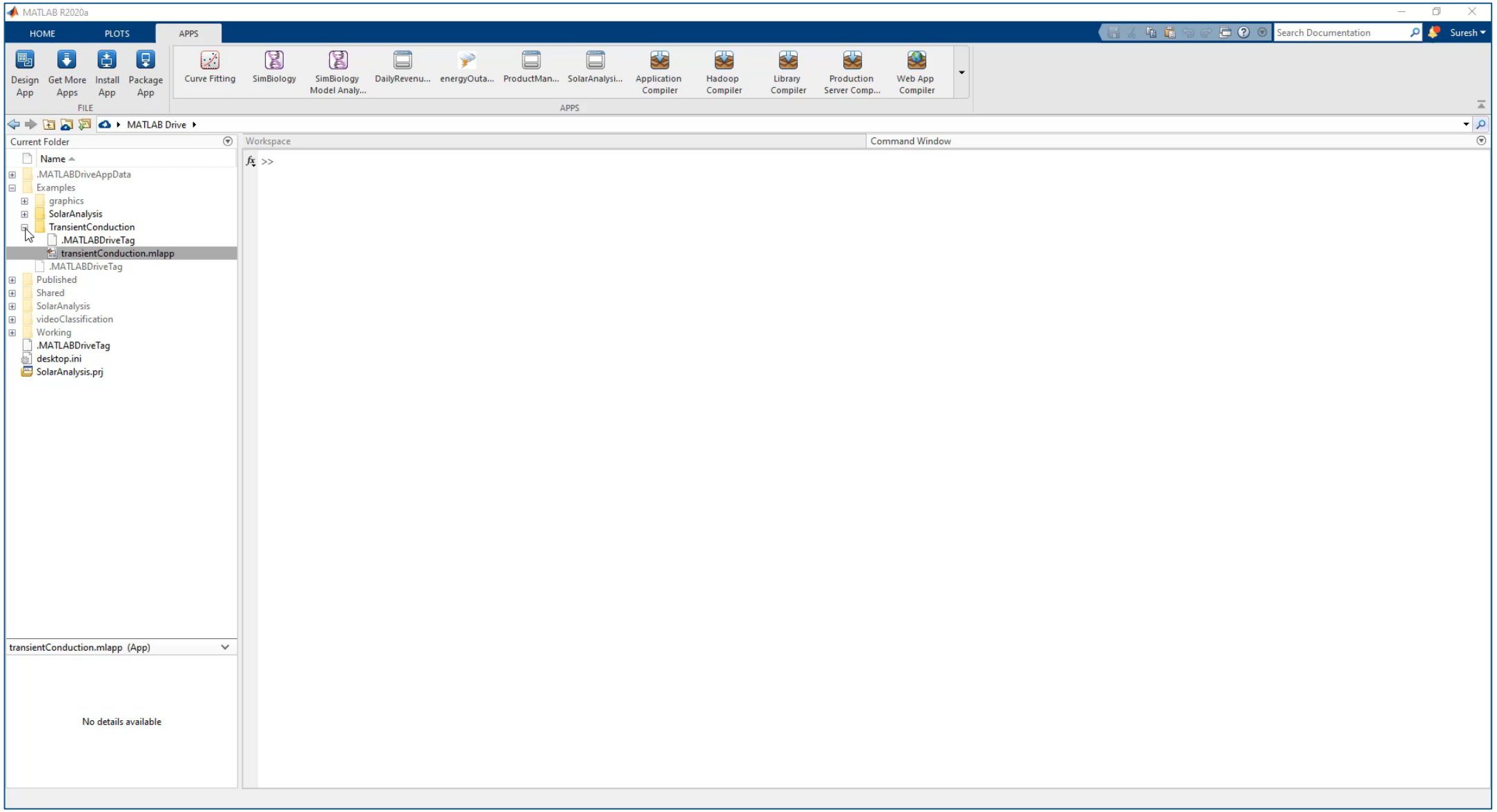
Benefits:

- End user do not need MATLAB or Simulink license
- License model does not count number of apps deployed or users accessing the apps
- Full control to IT administrators to add users per need

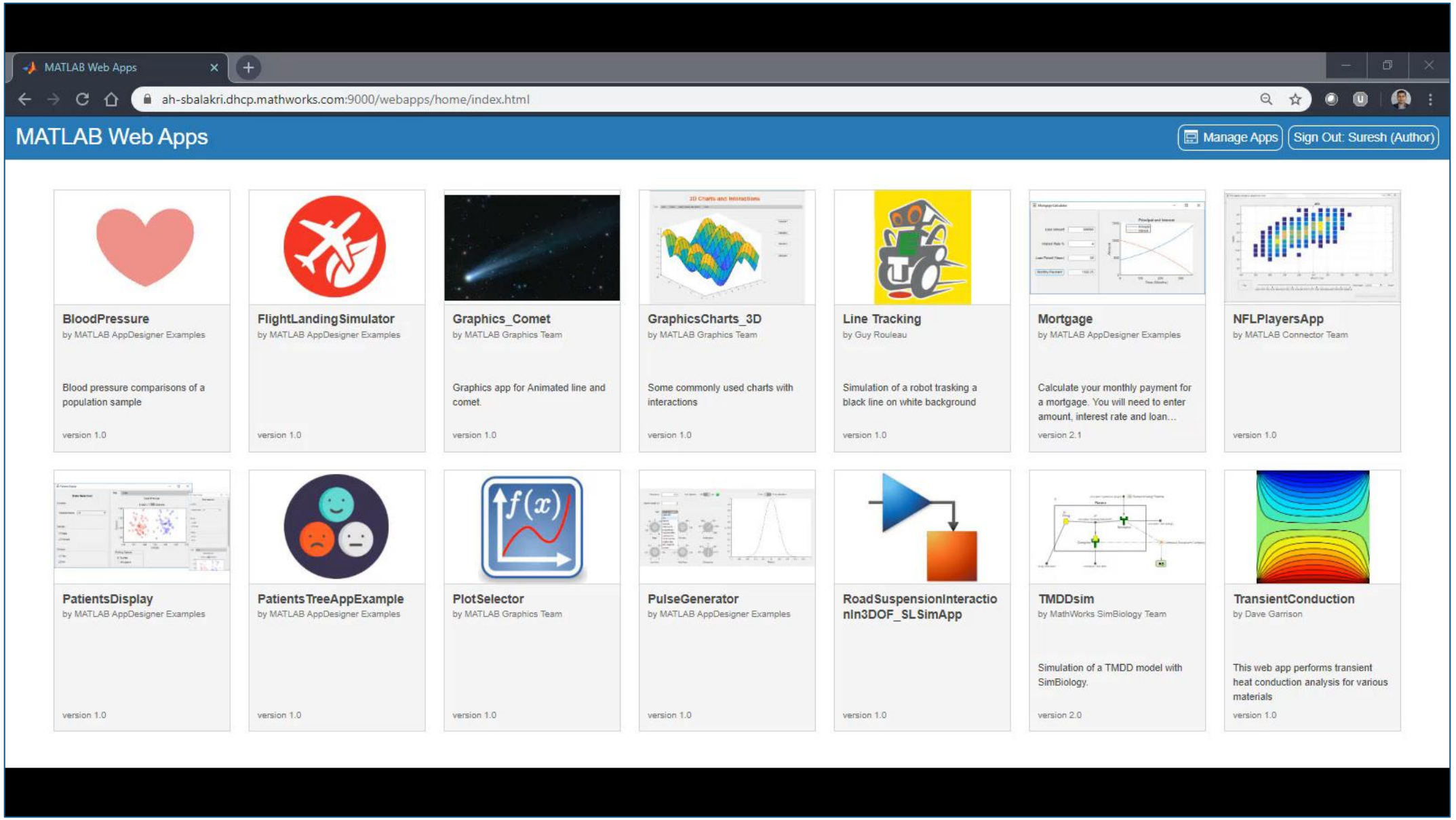


R2020a

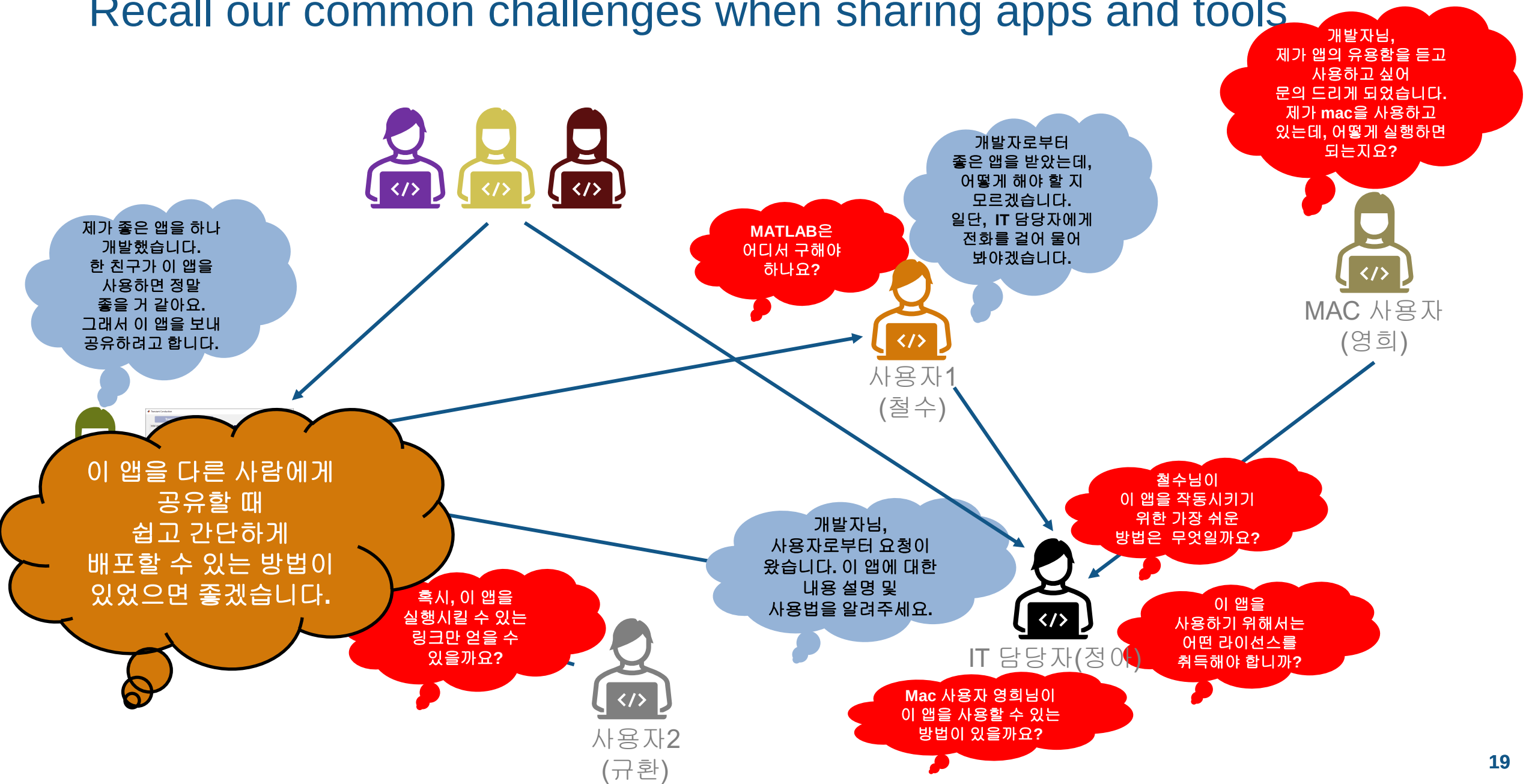
Summary Demo: Share MATLAB programs as MATLAB Web Apps



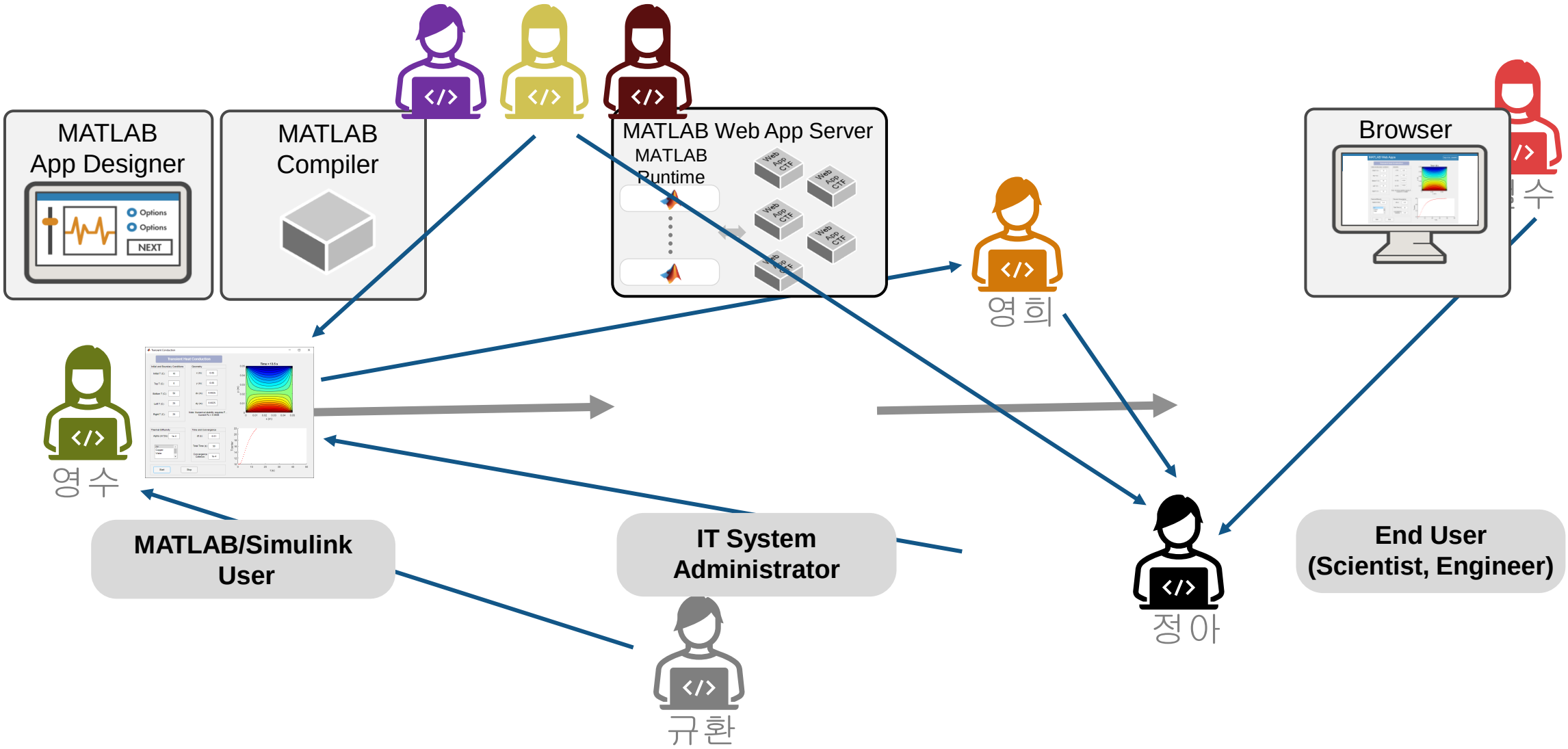
Summary Demo: Share MATLAB programs as MATLAB Web Apps



Recall our common challenges when sharing apps and tools

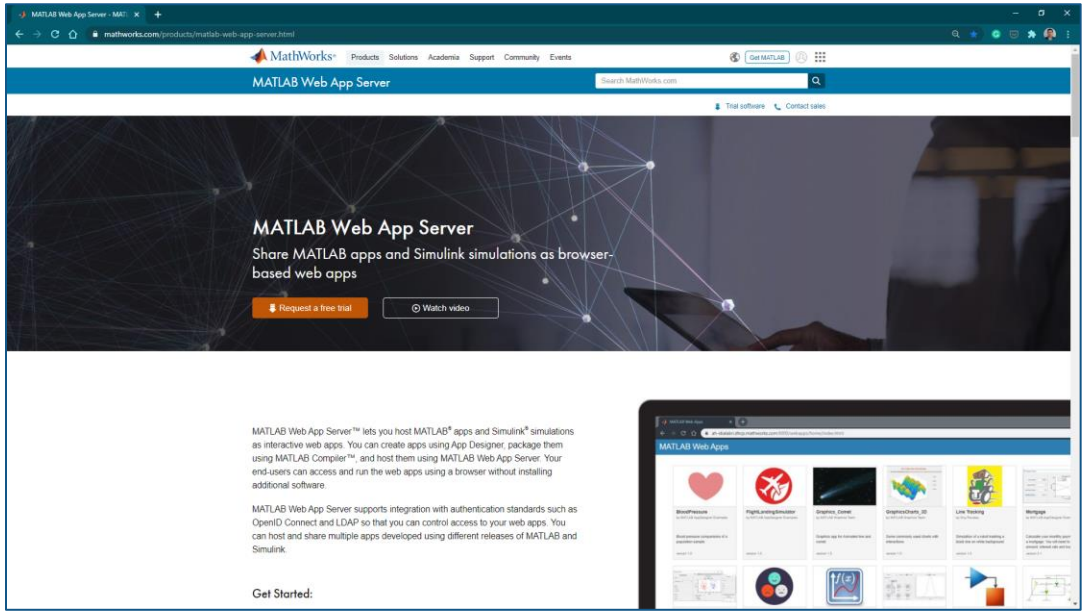


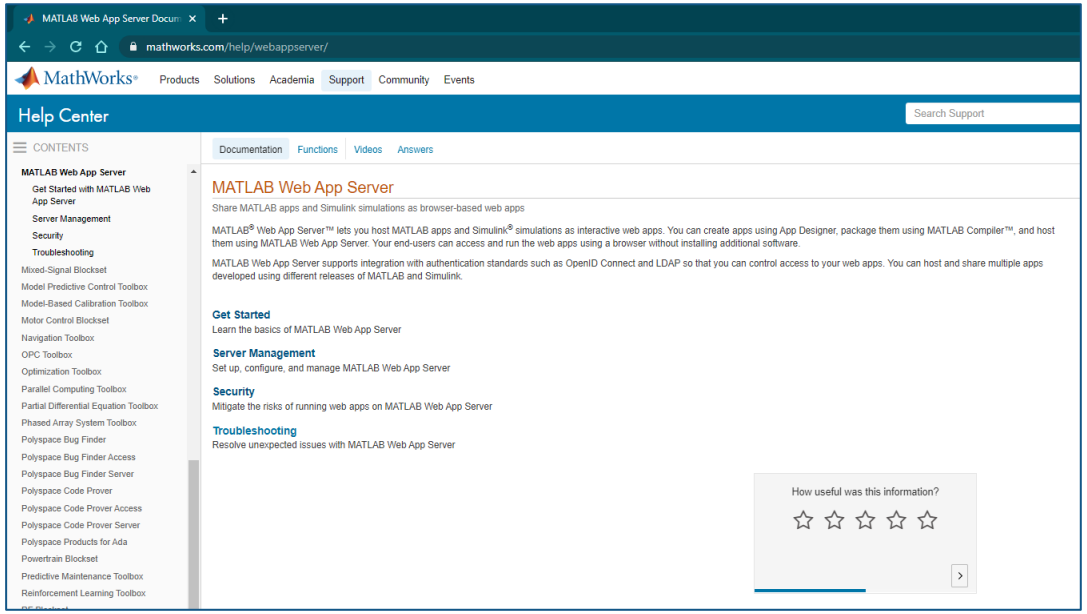
MATLAB Web App Server *helps you enable sharing workflows*



Learn more about MATLAB Web Apps

Search: *MATLAB Web Apps*





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Get up to speed quickly with professional, focused courses

- MATLAB Fundamentals (link)
- MATLAB Programming Techniques (link)
- Building Interactive Applications in MATLAB (link)
- Object-Oriented Programming with MATLAB (link)
- Advanced MATLAB Application Development
  - New course, contact us for scheduling details

MathWorks Training

MATLAB EXPO 2021

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