

BACKSTAGE

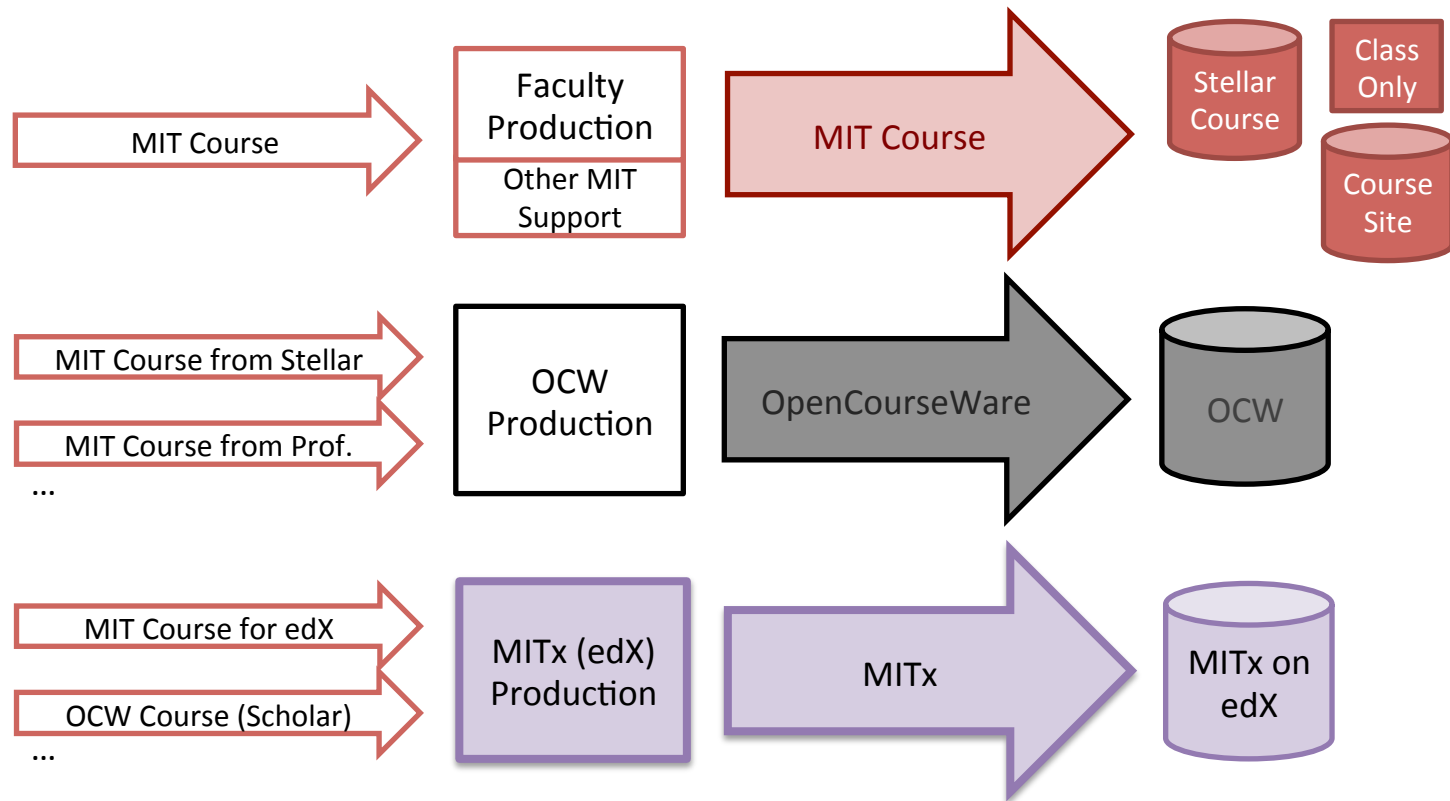
What's Behind the Curtain

Brandon Muramatsu, Jeff Merriman & Cole Shaw
MIT Office of Digital Learning

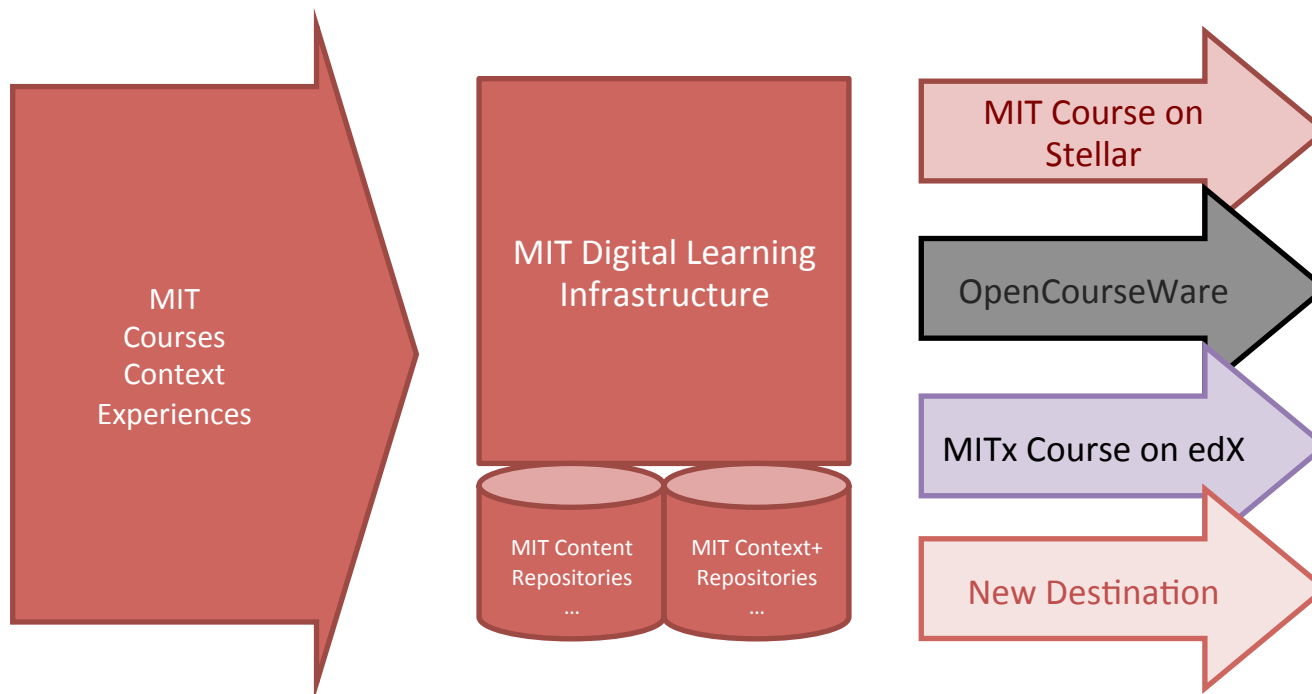
The Problem

- MIT Faculty are *investing heavily in content development* (notes, videos, assessments) for edX and OCW delivery.
- Ideally, MIT should *manage these resources* and make them available as needed to our community for re-use.
- Solution must...
 - Support integration with edX, OCW and others
 - Be adaptable to new technologies and market products

Current Development Workflows



Possible Future

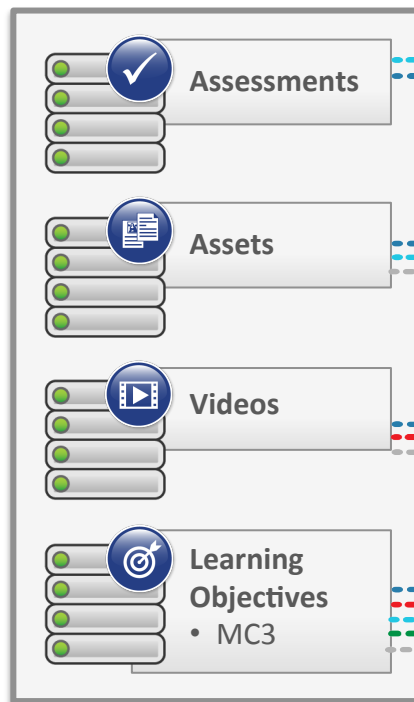


Proposed Solution – Backstage Services

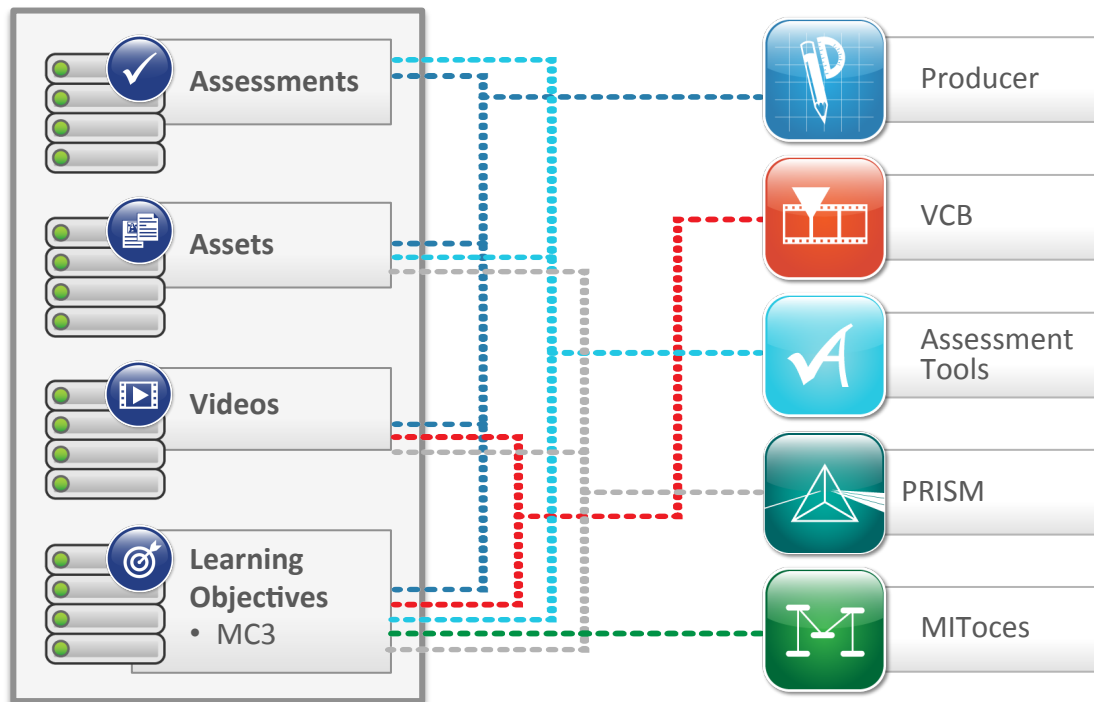
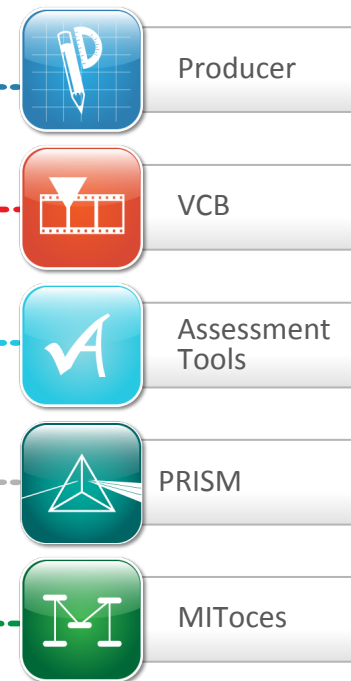
- “Headless” content services with published APIs
 - REST, Python, Java
- Key applications using these services
- Support a developer community

Backstage Core Service Suite

MIT Educational Content Related Services



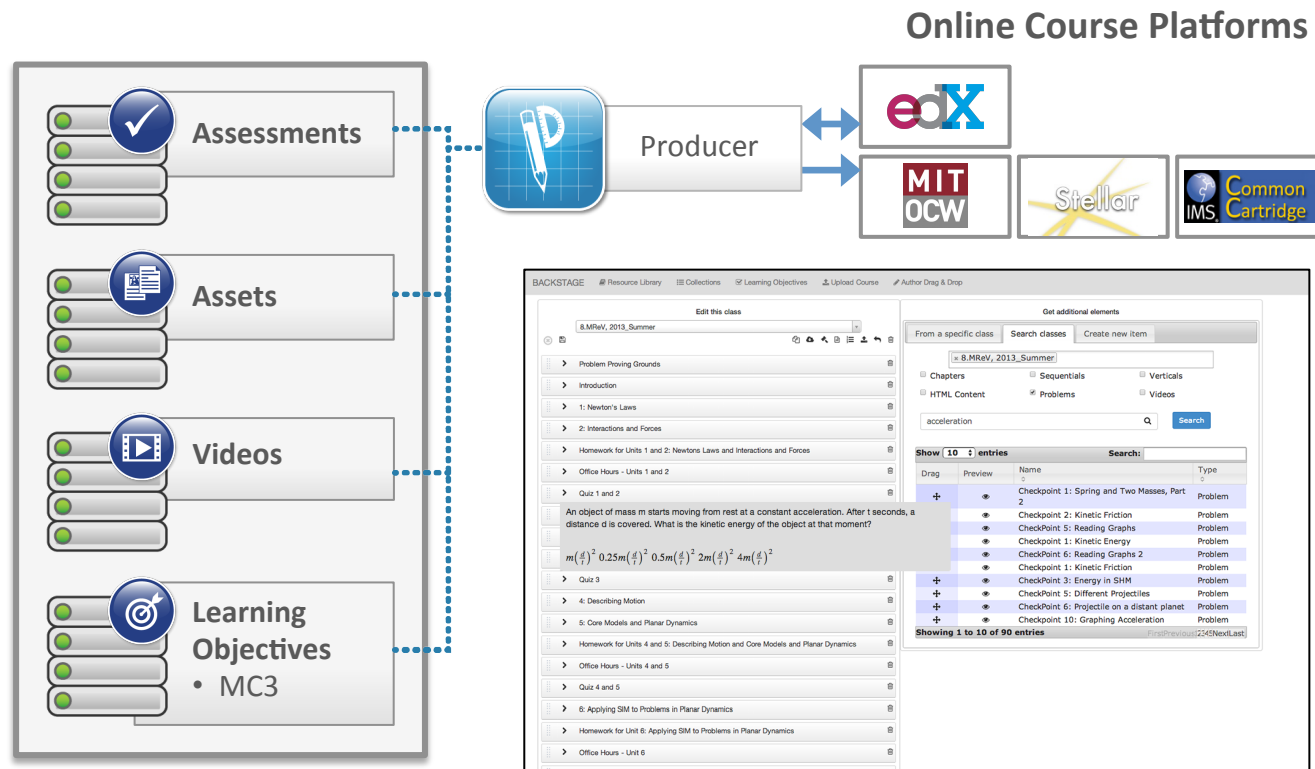
Applications



Producer – Asset Management for Reuse

- Motivation
 - Support content reuse in MITx (edX) content workflow
 - Ease content search and integration
 - Explore alternative authoring tools for edX delivery
- Status
 - Proof-of-concept being tested

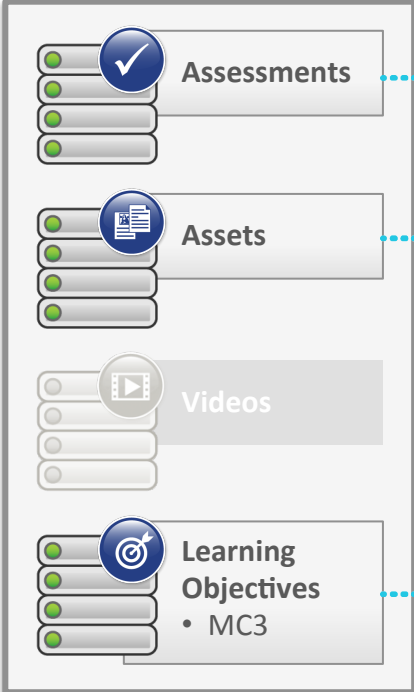
Producer and Backstage Services



Assessments

- Motivation
 - Manage, share and author assessment items
 - Track usage and IRT data across assessment offerings
 - Implement APIs for taking as well as managing/sharing
- Status
 - Proof of concept drag-and-drop authoring tool (demo)
 - App to Embed Assessments (QTI assessment items)
 - Physics Question Bank (PQB) under development


Assessment Backstage Services



The navigation menu on the left contains four main sections, each with a list of items and a status indicator:

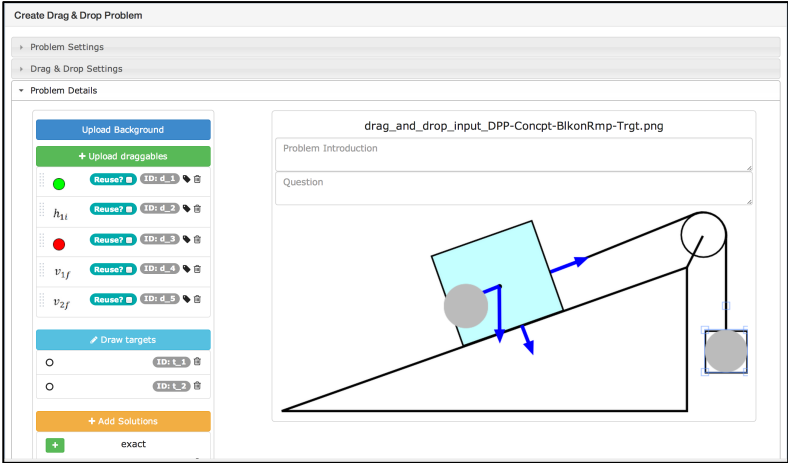
- Assessments**: Represented by a checkmark icon and a list of four items.
- Assets**: Represented by a document icon and a list of four items.
- Videos**: Represented by a play button icon and a list of four items.
- Learning Objectives**: Represented by a target icon and a list of four items, with the text "• MC3" below it.

A blue dashed line connects the "Assessments" section to the "Assessment Authoring" icon.



Assessment Authoring

Drag and Drop edX assessment item authoring



The screenshot shows the "Create Drag & Drop Problem" interface. It is divided into two main panels:

- Left Panel (Problem Settings):**
 - Problem Settings:** Includes "Upload Background" and "+ Upload draggables".
 - Drag & Drop Settings:** Includes "Draw targets".
 - Problem Details:** Includes "Add Solutions".
- Right Panel (Problem Content):**
 - drag_and_drop_input_DPP-Concept-BikonRmp-Trgt.png:** The main content area showing a physics diagram of a block on an inclined plane with a pulley system. Blue arrows indicate forces and directions.
 - Problem Introduction:** A text input field.
 - Question:** A text input field.

Video Concept Browser – Browse Video by Concept

- Motivation
 - Enable better use of whole-class lecture video (60-90 minutes) by segmenting by concepts/topics
 - Pre-production for MOOC courses
- Status
 - App to browse lecture videos by concepts (demo)

VCB and Backstage Services

The diagram illustrates the VCB (Video Content Browser) interface and its integration with course assets and learning objectives. On the left, a sidebar menu lists four categories: Assessments, Assets, Videos, and Learning Objectives. The Videos category is highlighted with a red dashed line, indicating its connection to the VCB. The VCB icon, a red square with a white film strip and a white arrow, is positioned above the main content area. To the right of the VCB icon, a text box explains its function: "Navigate course video by concept or learning outcome". The main content area displays a video player showing a lecture on "Example problem" with a chalkboard background. The video player includes a progress bar and a "More Video Metadata" link. To the right of the video player is a navigation tree for "Mechanics and Materials, Spring 2013". The tree lists various topics, including "3D Continuum Mechanics", "Plasticity", "Viscoelasticity", "Introduction to Viscoelastic...", "Viscoelasticity I", "Review: Viscoelasticity", "Example problem", "Analog modes of viscoelastic...", "Stress relaxation: standard l...", "Creep: standard linear solid m...", "Other analog modes: Maxwell M...", "Correspondence Principle: Load...", "Beam Bending Example", "Viscoelasticity II", "Fracture and Fatigue", "Rubber Elasticity", "Labs", "Recitations", "Visual TA", and "Archive".

Assessments

Assets

Videos

Learning Objectives
• MC3

VCB

Navigate course video by concept or learning outcome

VCB Mechanics and Materials, Spring 2013 View Topics Search the current class

Example problem

Mechanics and Materials, Spring 2013

Mechanics and Materials

- 3D Continuum Mechanics
- Plasticity
- Viscoelasticity
 - Introduction to Viscoelastic...
 - Viscoelasticity I
 - Review: Viscoelasticity
 - Example problem
 - Analog modes of viscoelastic...
 - Stress relaxation: standard l...
 - Creep: standard linear solid m...
 - Other analog modes: Maxwell M...
 - Correspondence Principle: Load...
 - Beam Bending Example
 - Viscoelasticity II
- Fracture and Fatigue
- Rubber Elasticity
- Labs
- Recitations
- Visual TA
- Archive

Discussion Questions

- How are you reusing course content?
 - Between MOOCs
 - From existing sources, LMS/VLE, OER, etc.
 - What tools are you using?
- Are you tracking data about asset effectiveness?
 - E.g., Did learners have difficulties answering a particular question correctly? Did learners skip materials? Etc.
- Does your course include learning outcomes and transparently link outcomes with content and assessments?

BACKSTAGE

The End!

Brandon Muramatsu, mura@mit.edu

Jeff Merriman, merriman@mit.edu

Cole Shaw, cjshaw@mit.edu