Proctoring Service API

Steve Lay, Questionmark

Introduction

▸ Increasing interest in proctoring of exams delivered electronically

▸ A number of proctoring services to choose between

▸ Proctoring service typically separate from the *Assessment Management System*

  ▪ Sometimes referred to as the *'Test Driver'*

▸ The Proctoring Service API aims to standardize the touch-points

Proctoring Service
Example Service Types

▸ Photo Capture and Compare
  ▪ The proctoring service captures one or more photos of the candidate during the exam
  ▪ Photos are compared with registration photos on file
  ▪ Photos are available for later review

▸ Record and Review
  ▪ The proctoring service captures a continuous audio and video stream of the candidate during the exam
  ▪ Data is processed and flagged automatically for anomalies
  ▪ Summary data and full streams are available for later review

▸ Online Proctoring
  ▪ The candidate is connected with a remote human proctor at the start of the exam
  ▪ The proctor monitors the candidate throughout the exam and records any anomalies
  ▪ Summary data from proctor and sample frames are available for later review

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ProctorExam

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Launching into an Assessment from the Proctoring Platform

What we've learned at ProctorExam

What are we trying to achieve?

1. Security
   a. The exam should only be accessible through the exam platform
   b. The exam attempt should always be correlated with the proctoring session
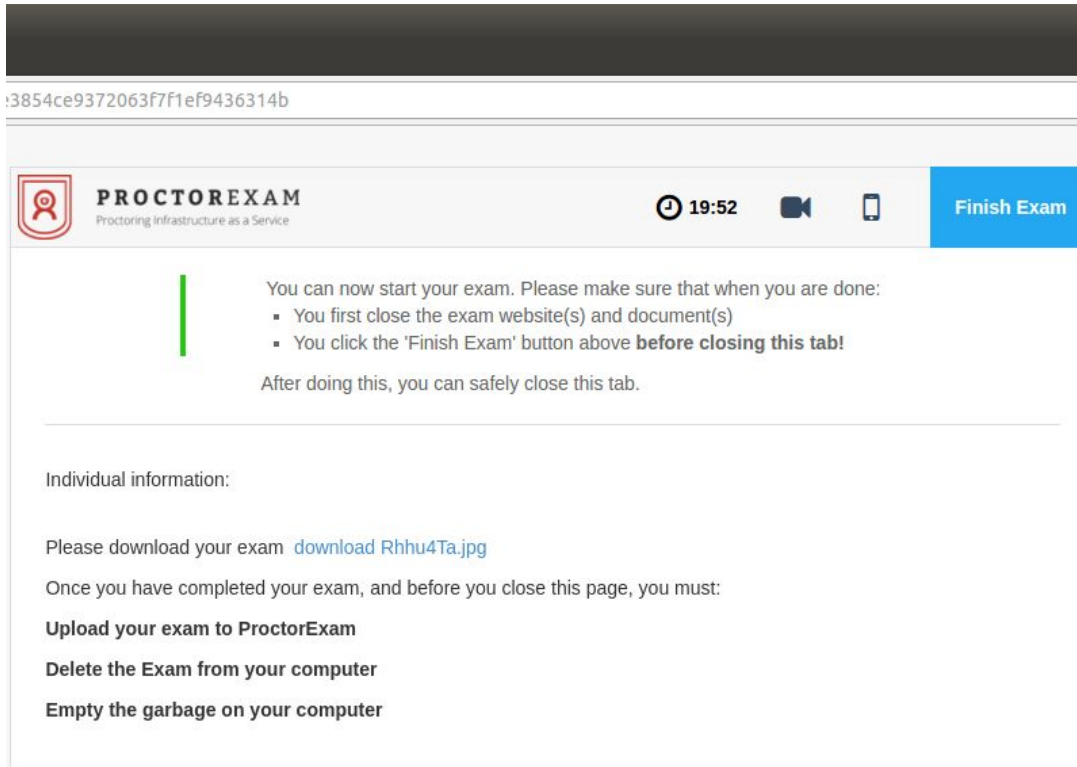   c. The exam should not be accessible after the attempt
2. Ease of Use
   a. The student should take the least amount of steps to access the exam
   b. The student should have explicit instructions to follow
3. Universality
   a. The exam access procedure should be the same across exam platforms

The "Download Your Exam as a Document" method

- Student can keep a copy of the exam in any number of ways
- Teacher has to download exam document
- This isn't our core competency!

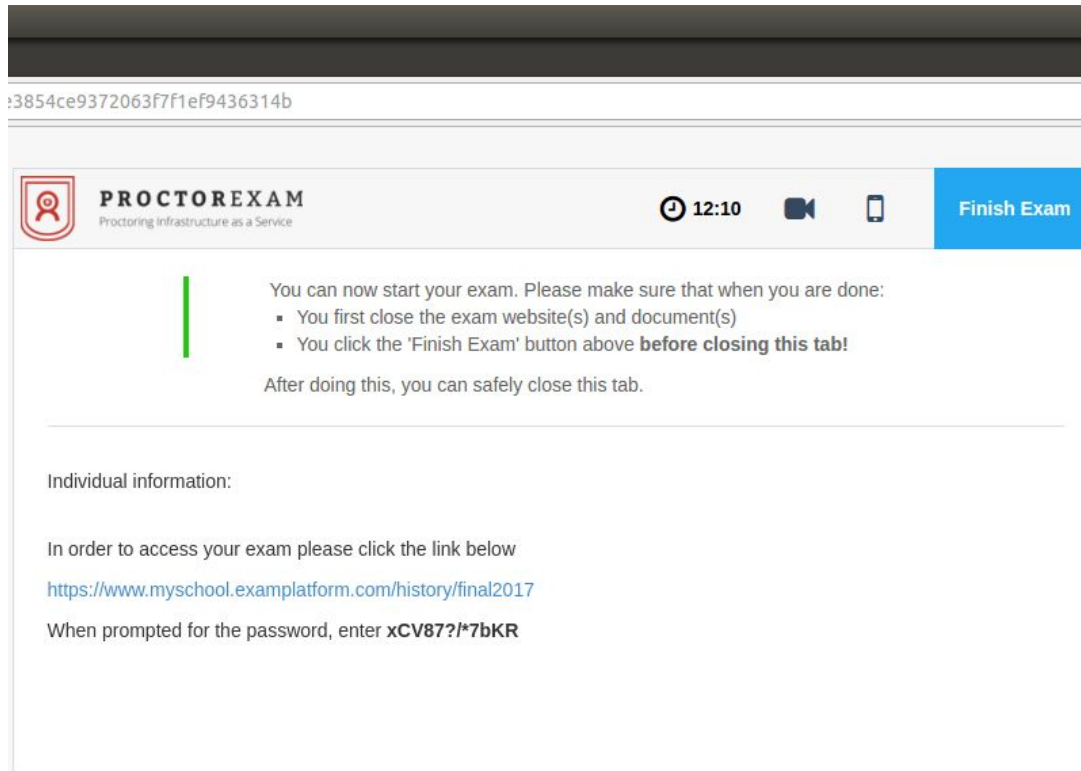# The "Sign in to Blackboard" method

- The student can access the exam if the poke around blackboard enough
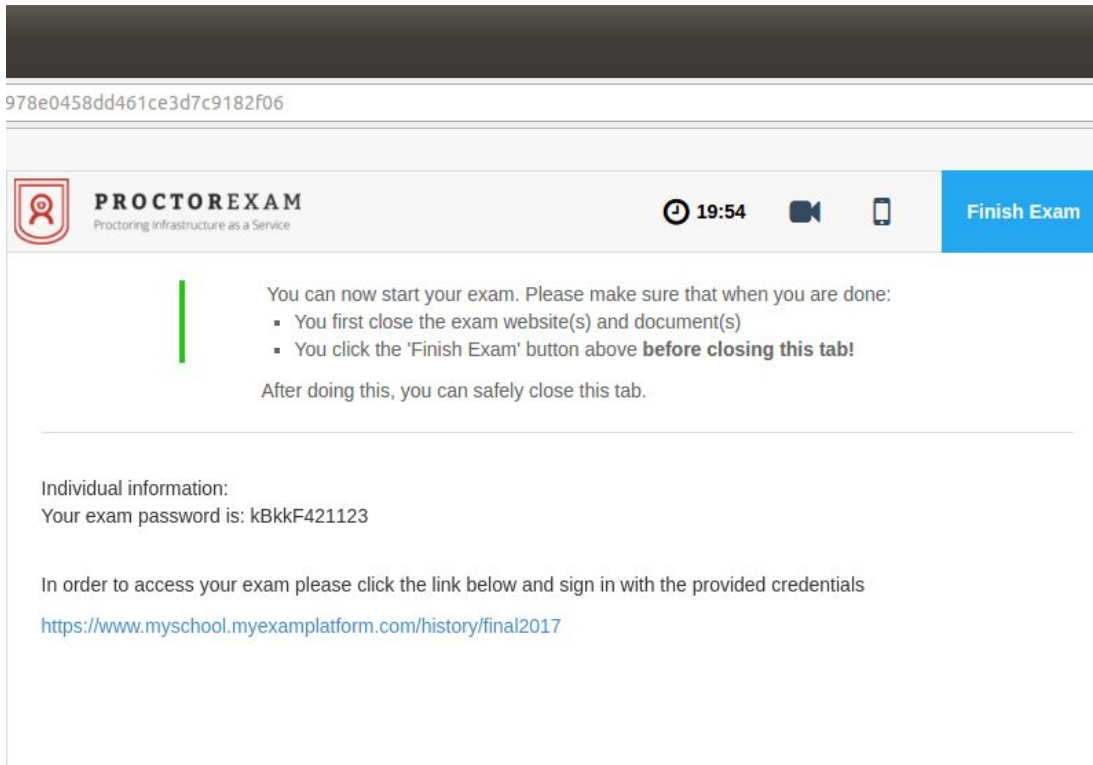- The student can share their credentials with anyone
- Way too many steps!

The "Global Exam Password" method

- Once the password leaks, anyone can access the exam
- Exam session isn't automatically linked to the proctoring session

The "Individual Password" method
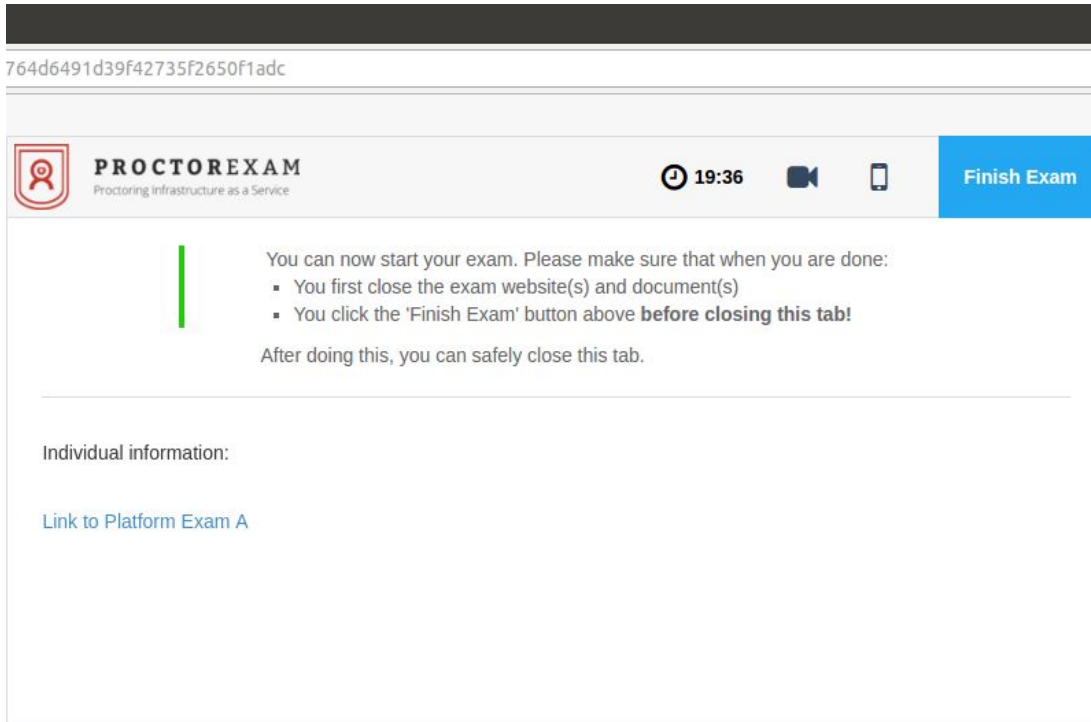
- Student can share their individual credentials out of band if they are sneaky enough

The "Signed Exam Link" method
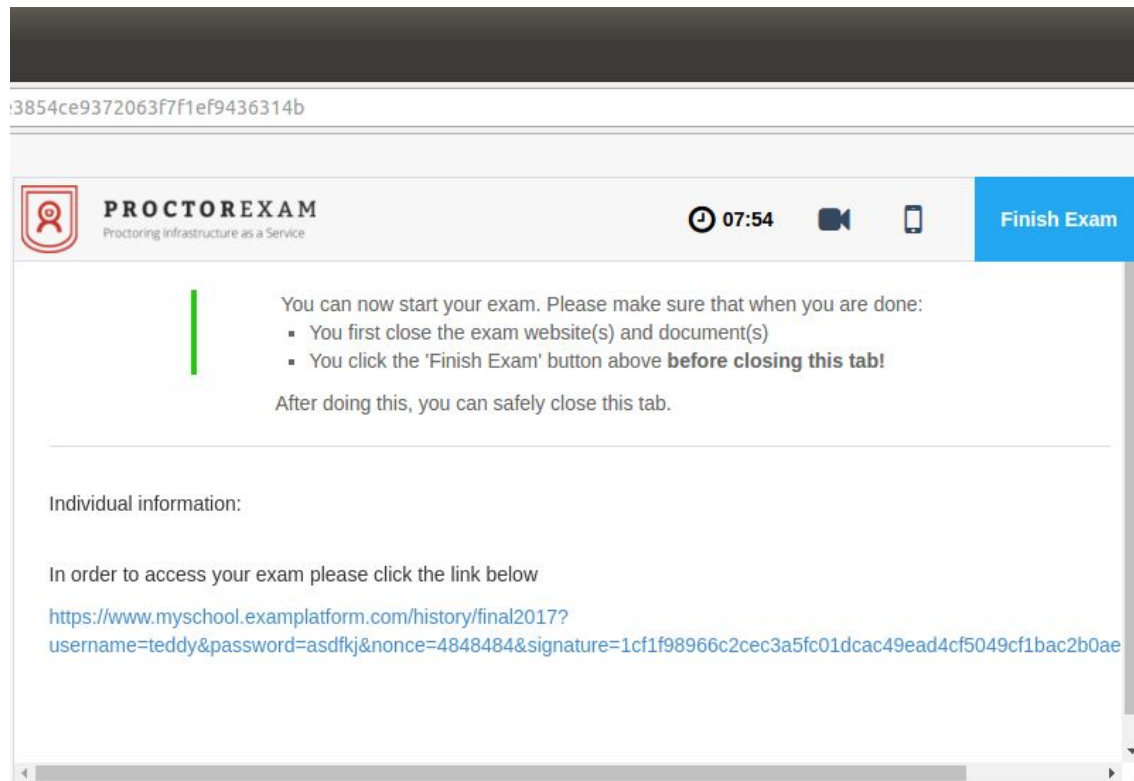
- More difficult to communicate through a side channel, as the link is fairly long
- Technically minded students can access credentials to use if there is also a login page
- Requires exam platform to provide mechanism to sign links

The famous "LTI Launch" method

- Link points to url on proctoring platform, which then redirects to a time limited(single use) signed LTI launch
- We can ensure that the student is sharing all streams before launching exam platform

Questionmark

Performance Data vs Exam Session Evidence

Performance Data	**Exam Session Evidence**
▸ Exam and Question content	▸ Photos taken during the exam
▸ Candidate responses	▸ Audio/Video captured during the exam
▸ Detailed navigation paths	▸ Screen captures
▸ Timing information	▸ Application usage information captured from operating system
	▸ Proctor incident reports
	▸ Flags from automated detection of anomalies

Roles

Program Administrator
Registers Candidates for the Exam
Sets Proctoring Requirements

Candidate
Takes the exam

Proctor
Oversees Exam Session
Helps collect Exam Session Evidence

Reviewer
Reviews Exam Session Evidence
Makes decisions about outcomes

Use Cases: Pre-exam

▶ **Site-wide Proctoring Options**
   - Configuring proctoring options that will apply to all assessments delivered within the institution

▶ **Add Proctoring Requirement**
   - Add proctoring requirement to an assessment

▶ **Assessment Specific Proctoring Options**
   - Modify default proctoring options for an individual assessment

▶ **Schedule an Appointment**
   - Pre-register and/or schedule an appointment with a live proctor or other type of resource-limited proctoring service

▶ **Schedule Blocking**
   - Request a booking from proctoring system for a given number of candidates and time slot

Use Cases: In-Session

▸ Validate User System

 ▪ Check technology requirement for a specific PC, laptop or other device

▸ Launch the Exam

 ▪ Launch the exam through the proctoring service

▸ Proctor Intervenes

 ▪ Control a running exam to protect integrity of the process

▸ External Proctor Launch of Proctoring System

 ▪ Users in the consumer system act as live-online proctors in the proctoring tool (agent provided own proctors)

Use Cases: Post-Exam

▸ External Reviewer Launch of Proctoring System

  ▪ Review exceptions for an individual assessment

  ▪ Review audit information for entire assessment program

Anatomy of a Proctoring Solution

Candidate's Browser

Candidate Check-in

AMS Candidate Exam Delivery

Proctoring API

Proctor/Reviewer Application

AMS Proctor Controls

Proctor's web browser
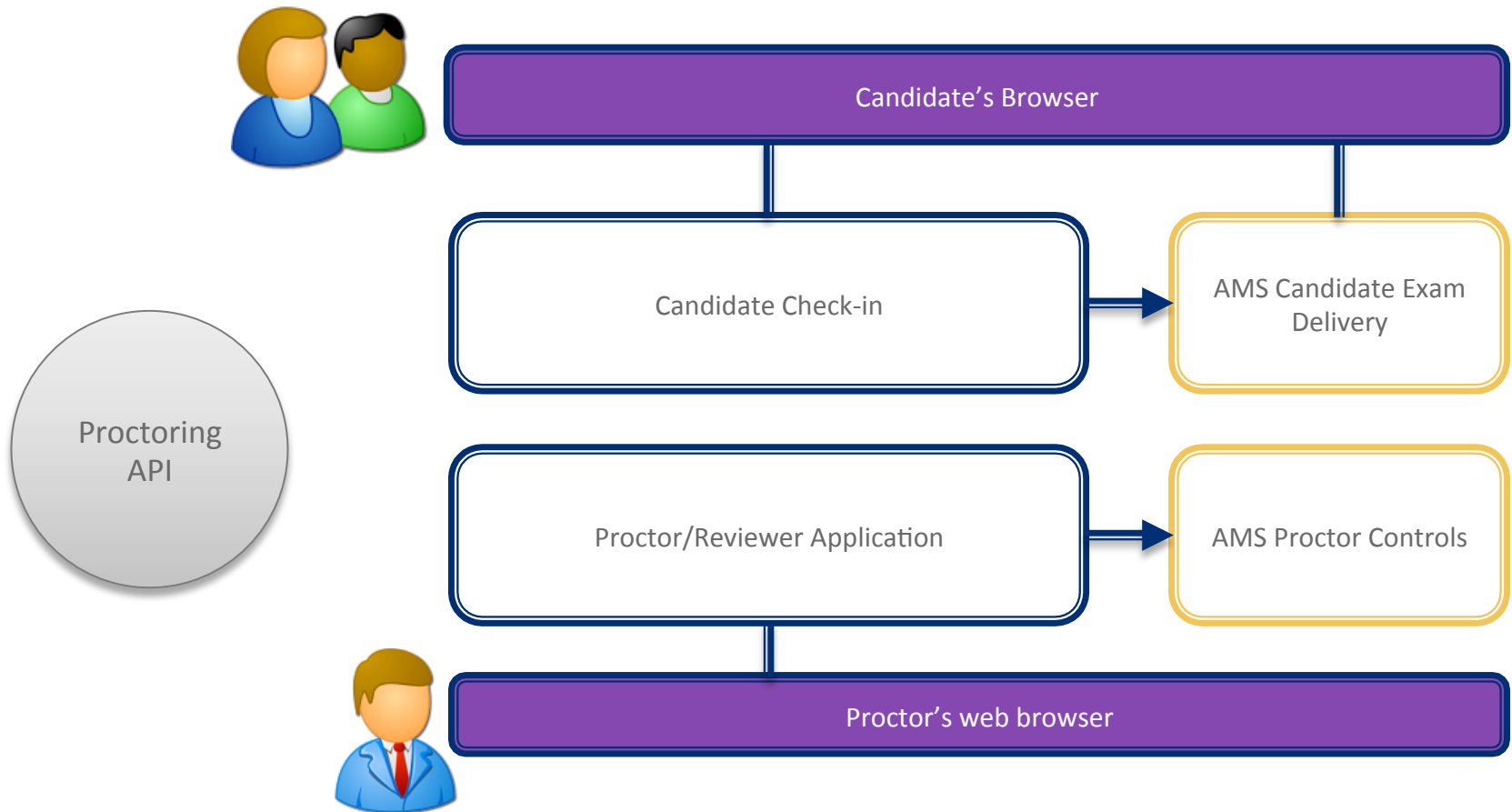
API Details

IMS Learning Tools Interoperability (LTI)

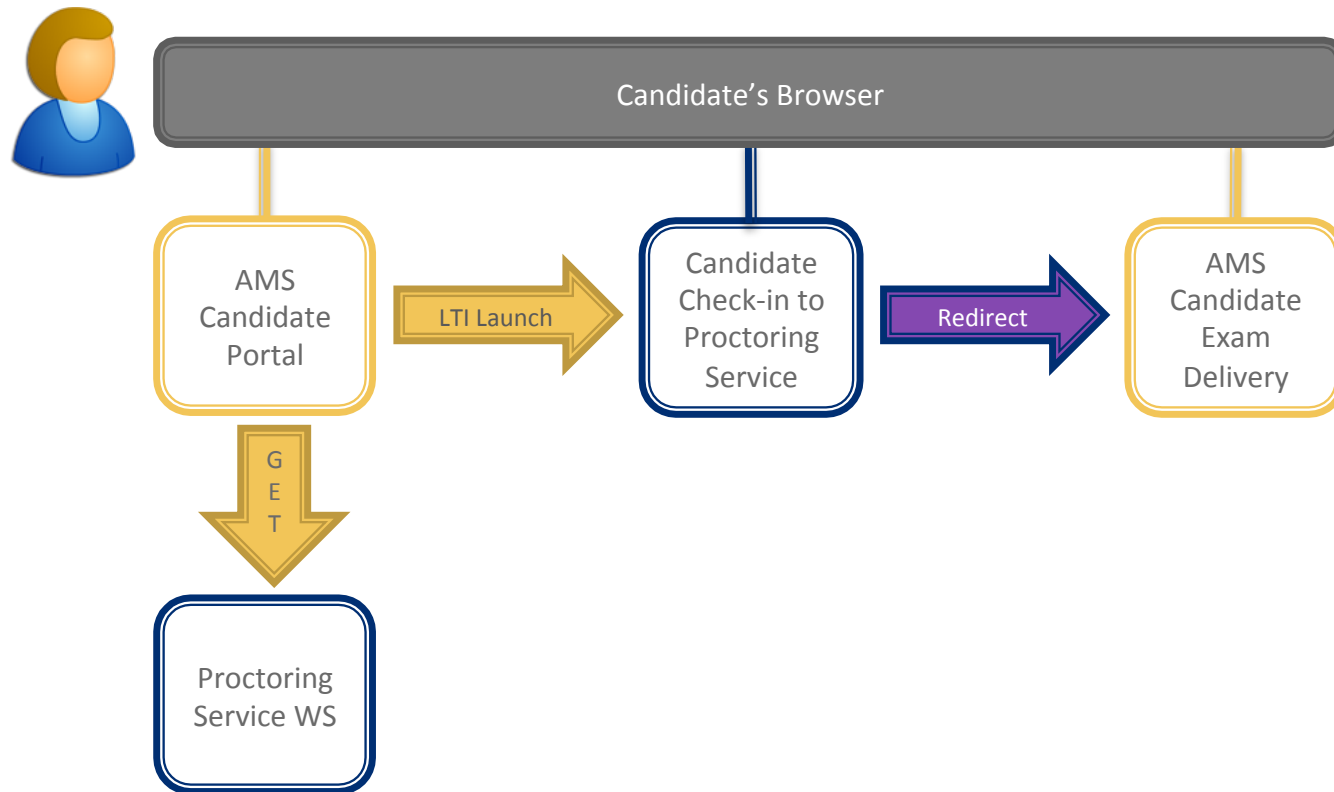https://www.imsglobal.org/activity/learning-tools-interoperability
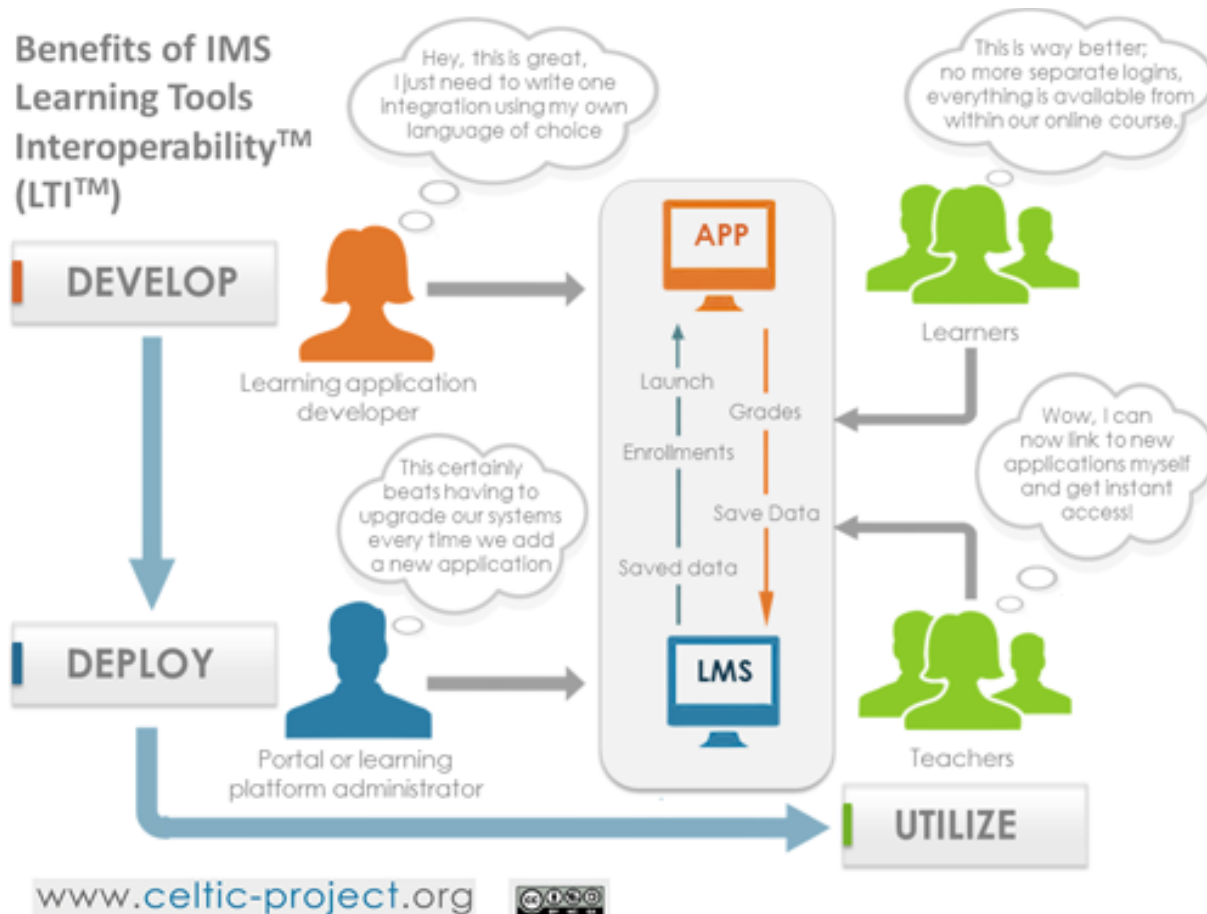
Why LTI?

▸ Already used by LMS community

▸ Designed to solve the problem of 'launching' one web app from another
  ▪ *Tool Consumer* launches *Tool Provider*

▸ One stop-shop:
  ▪ User, context and role information
  ▪ Resource placement (e.g., multiple exams to same group)
  ▪ Authentication via OAuth signing
  ▪ Return links for smooth hand-back

▸ What's missing?
  ▪ Communication of workflow information:
    • Time constraints on resource (exam) availability set by AMS
    • State of proctoring service, e.g., appointment booking phase, appointment readiness
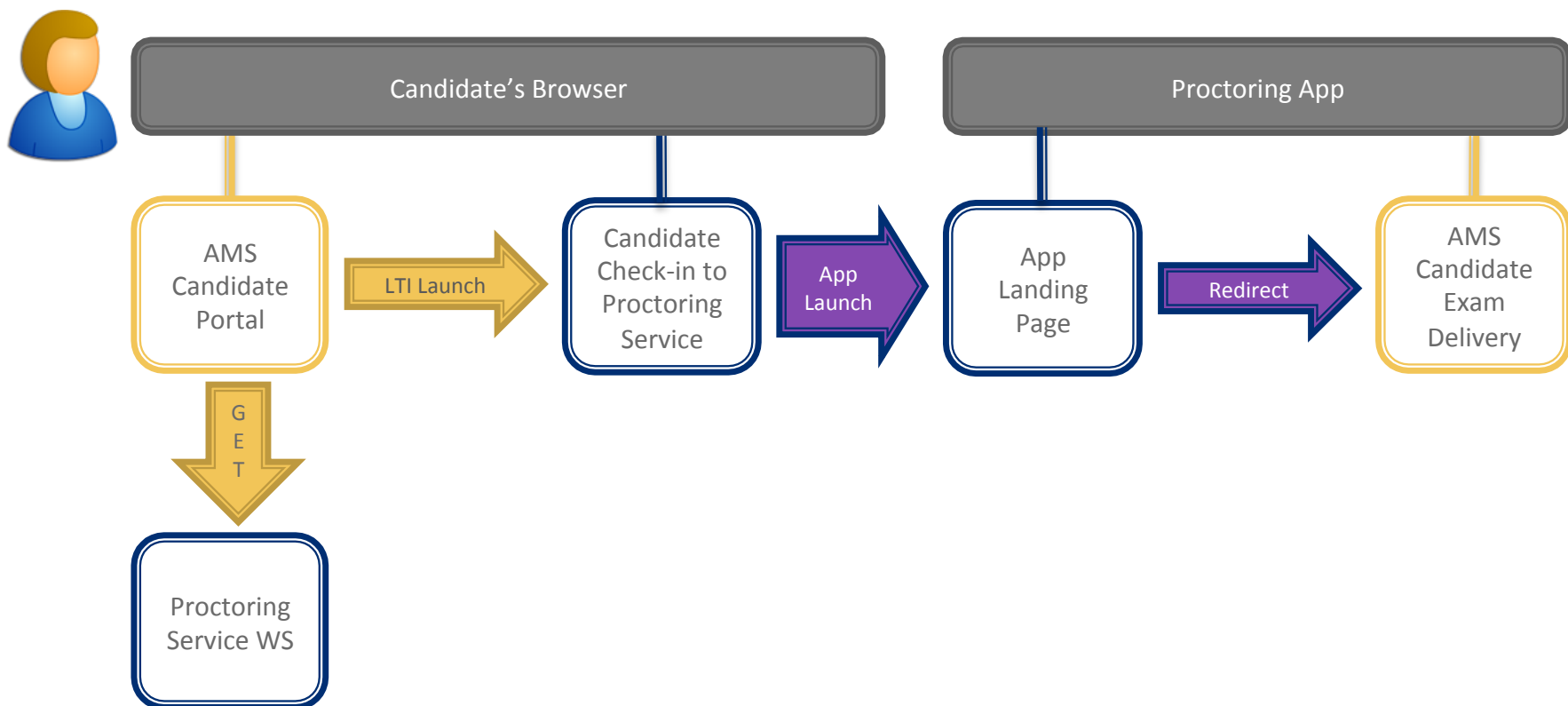 ▪ Safe way to communicate the Exam Launch information

Proctoring Solution
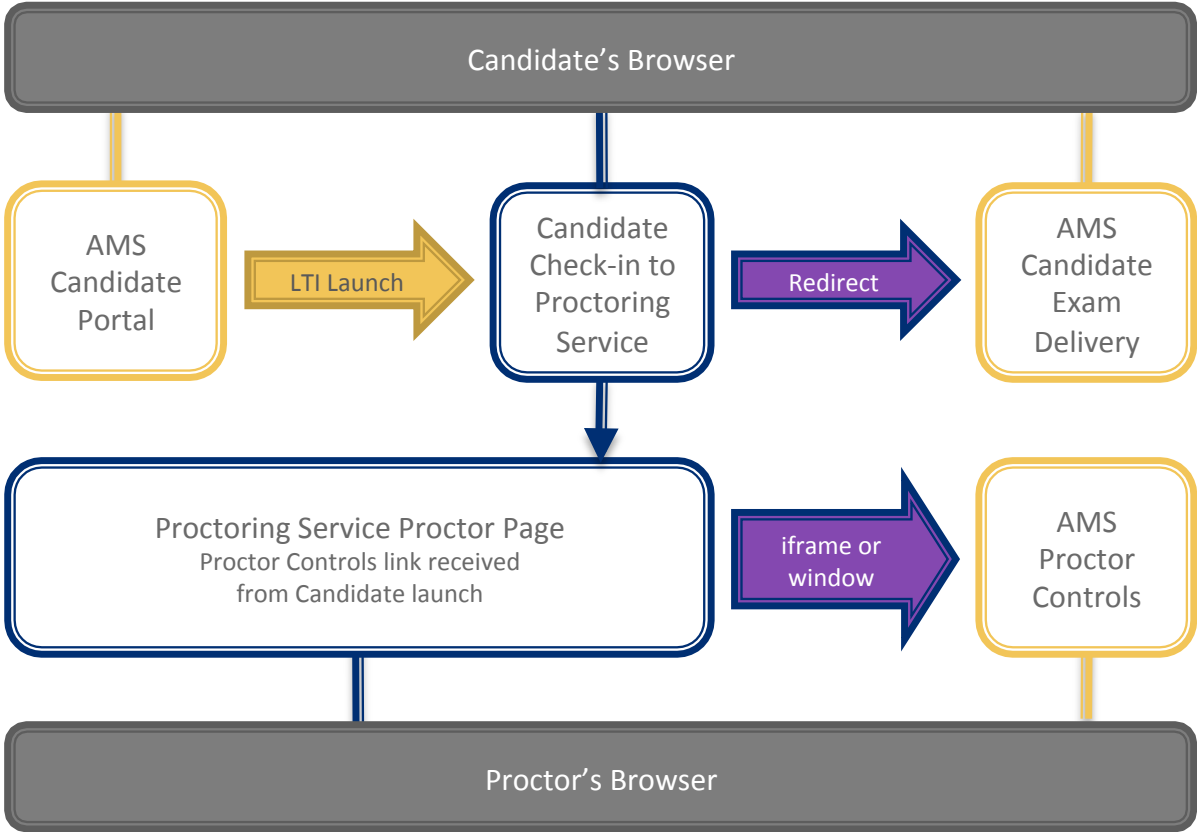## Candidate flow in Web Browser

Candidate's Browser

AMS Candidate Portal

LTI Launch →

Candidate Check-in to Proctoring Service

Redirect →

AMS Candidate Exam Delivery

GET ↓

Proctoring Service WS

Proctoring Solution
Candidate flow with Special Proctored App

Proctoring Solution

Proctors registered with Proctoring Solution

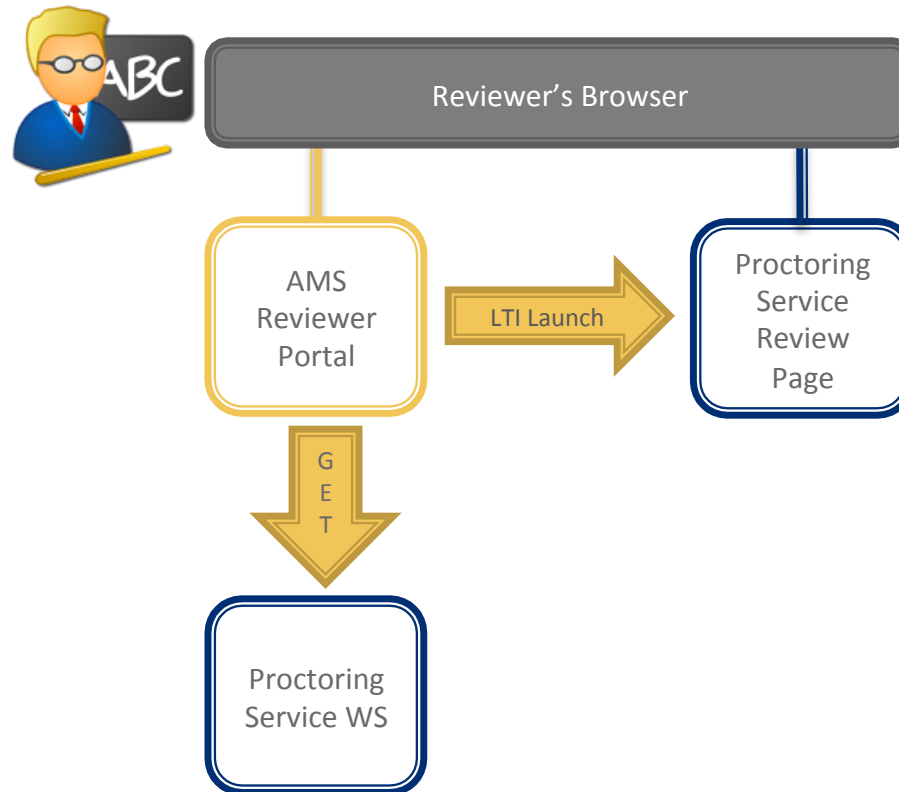**Candidate's Browser**

AMS Candidate Portal → LTI Launch → Candidate Check-in to Proctoring Service → Redirect → AMS Candidate Exam Delivery

Proctoring Service Proctor Page
Proctor Controls link received from Candidate launch → iframe or window → AMS Proctor Controls

Proctor's Browser

Proctoring Solution
Proctors registered with AMS

Proctor's Browser

AMS Proctor Portal

LTI Launch →

Proctoring Service Proctor Page

iFrame or Pop-up →

AMS Proctor Controls

GET ↓

Proctoring Service WS

Proctoring Solution
Reviewer flow

What next?

▸ Review use-case document:

  ▪ https://drive.google.com/file/d/0B-xMrCxugbJxUDJHaHVXaUtoRmM/view

▸ Fill in your priorities:

  ▪ https://docs.google.com/spreadsheets/d/1I6Dg6sqysumQk1XVGaX6FPfu2ramAsi804B2hGPbu1Q/edit?usp=sharing

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