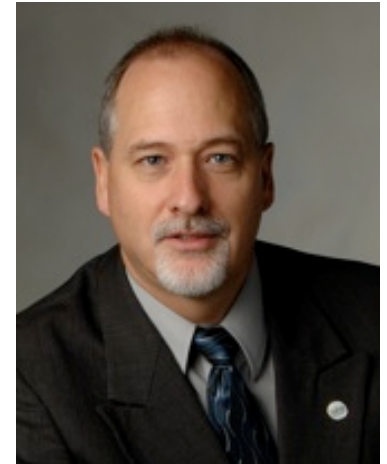




IMS Basic Learning Tools Interoperability



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Affiliate Coordinator

IMS Global Learning Consortium (IMS GLC)

<http://www.imsglobal.org/>

<http://www.dr-chuck.com/>





IMS: Digital Learning Standards

Free the content



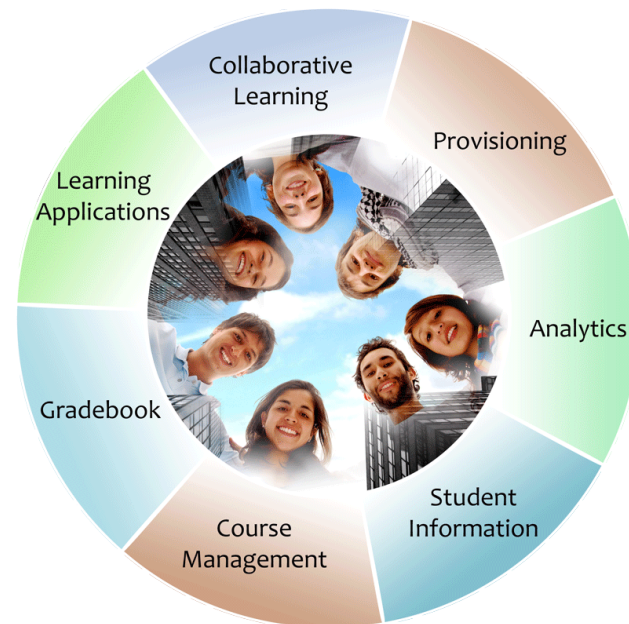
IMS Common Cartridge

Seamlessly connect to learning



IMS Learning Tools Interoperability (LTI)

The information architecture for learning



IMS Learning Information Services (LIS)



Outline

- Overview of Learning Tools Interoperability
- Basic Learning Tools Interoperability
- Basic LTI Certification
- Basic LTI Developer Tools



Learning Tools Interoperability

- Problem
 - Every CMS has their own very unique "module", "tool" "block", "nugget", "powerlink", etc
 - External tools like QuestionMark, Wimba, Elluminate, etc must prioritize which CMS they invest in plugging into
 - Tool Providers wait until customers are willing to pay money to start development



Learning Tools Interoperability

- Solution
 - Build a standard plug-in for all CMS systems
 - Tool and Content Providers can build one integration and use it in any CMS that supports the standard
 - Start simple and basic and then expand feature sets to allow market to adjust over time and insure that engineering due diligence is being done - phased release

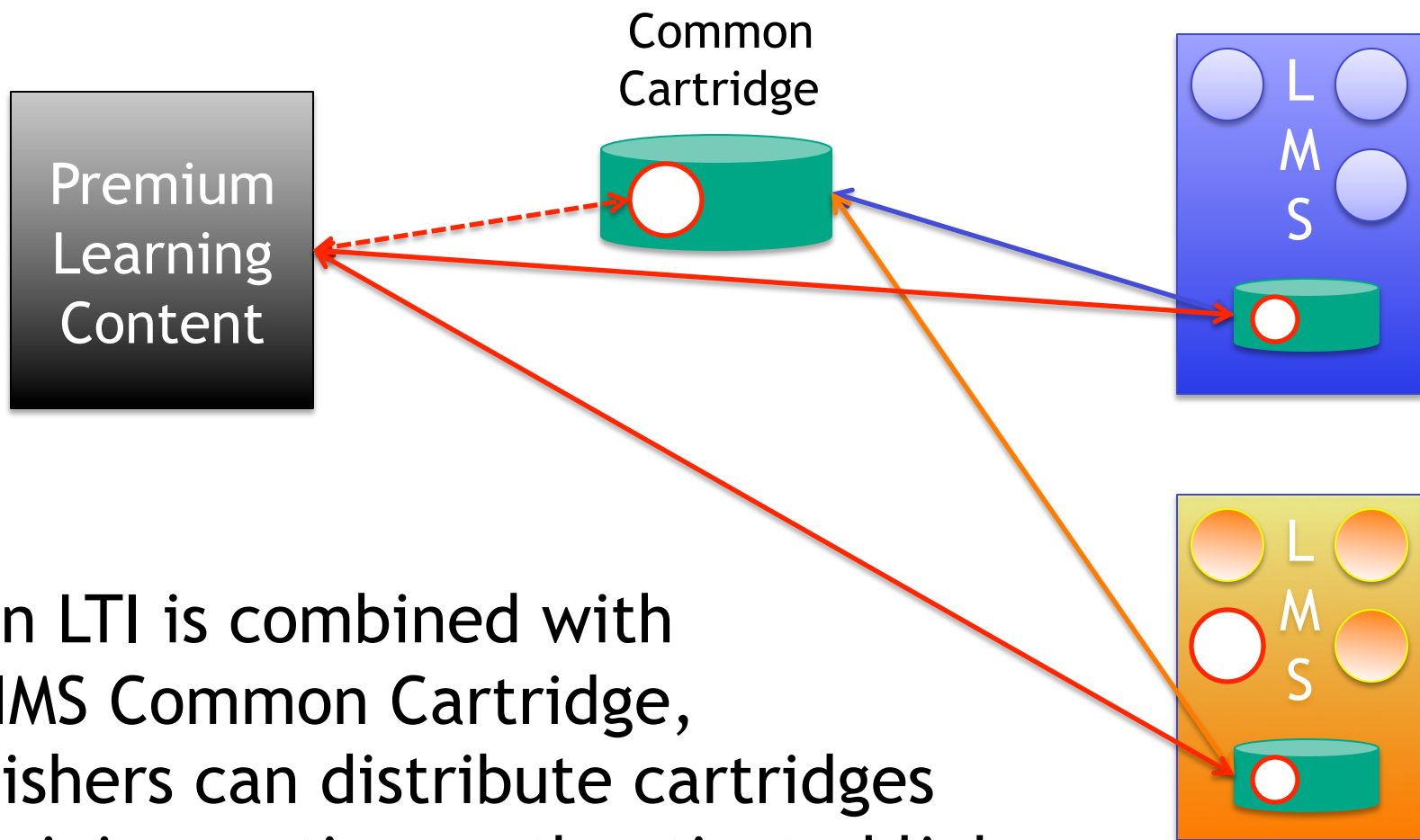


PHP
Java
App Engine
Wookie...



...



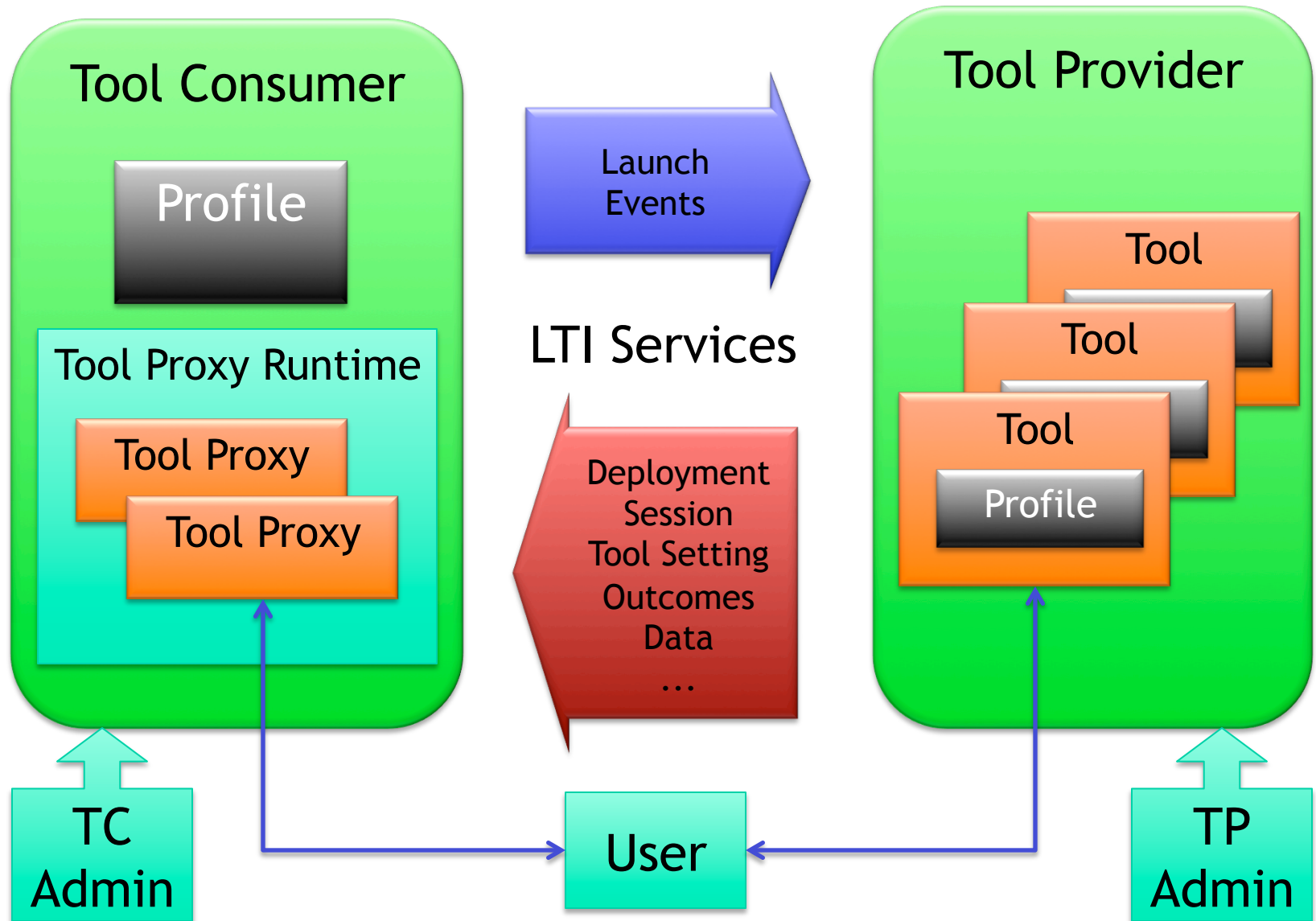


When LTI is combined with the IMS Common Cartridge, publishers can distribute cartridges containing active, authenticated links back centrally hosted content.



LTI Terminology

- **Tool Consumer** - The system that "consumes" the tool (i.e. the Learning Management System - e.g. Blackboard, Moodle)
- **Tool Provider** - The system that provides the tool (e.g. Wimba, LearningObjects, etc..)



Purpose of Certification

- Assure the end-user/purchaser that products will interoperate
- Any certified Provider (Tool) should be able to interoperate with any certified Consumer (LMS)





IMS GLOBAL LEARNING CONSORTIUM

STANDARDS THAT ENABLE THE
DEVELOPMENT AND ADOPTION OF INNOVATIVE TECHNOLOGIES
TO IMPROVE AND TRANSFORM EDUCATION WORLDWIDE



Join IMS | Innovation | Adoption | Learning Impact | Engage

Formal Process for Basic LTI Consumer Certification

Quick Link: [Test Setup](#)

To pass certification, you must take the following steps:

- You must be an IMS Common Cartridge Alliance member
- You must pass the tests using certification suite hosted on the Alliance web site.
- You must prepare a report of the results of the test including any necessary explanations of any anomalies in the test.
- The report must be submitted by a designated representative of the alliance member and you must agree that there is no misrepresentation or manipulation of the results in the submitted report.
- You must submit your report via E-Mail to basiclti-certification-report@imglobal.org
- After IMS reviews your report and notifies you that the report is approved and adds you to the Basic LTI product directory, you can claim certification to IMS Basic LTI and display the certification badge on your web site and in your software.

MORE INFORMATION

Alliance Home
Alliance Forum
Demonstrations
Sample Cartridges
Implementer Tools
Conformance Tests
Marketing
Events
Specification

<http://www.imglobal.org/developers/alliance/lti/blti-cert/>



Certified - LMS

- PowerLink for Blackboard WebCT v8
- Building Block for Blackboard Learn v9
- Desire2Learn Learning Environment v8.4
- Desire2Learn Learning Environment v9.0
- Jenzabar JICS v7.2
- Learning Objects Campus Pack v4
- Sakai v2.7
- Sakai 3 v0.4

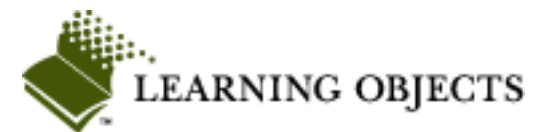




Certified - Tool



- Learning Objects Campus Pack v4
- SpACE v0.5 (Spatial Activities in Course Environments, map application)
- WebPA v1 (online peer assessment application)



LTI Scenario: Adding a Proxy Tool to a Consumer

*Seamlessly
connect
to learning*



IMS Learning Tools
Interoperability (LTI)

Tool Consumer

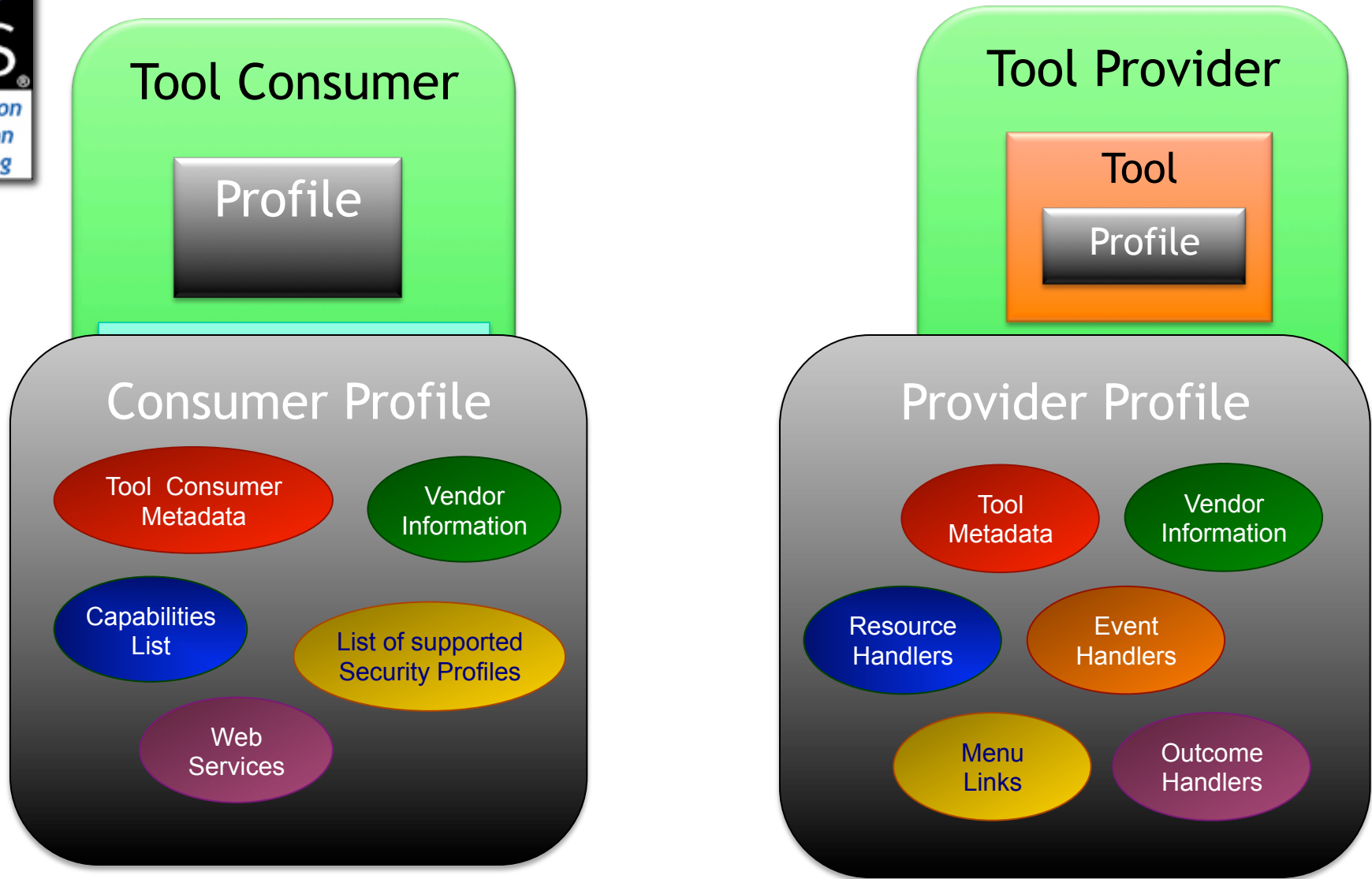
Profile

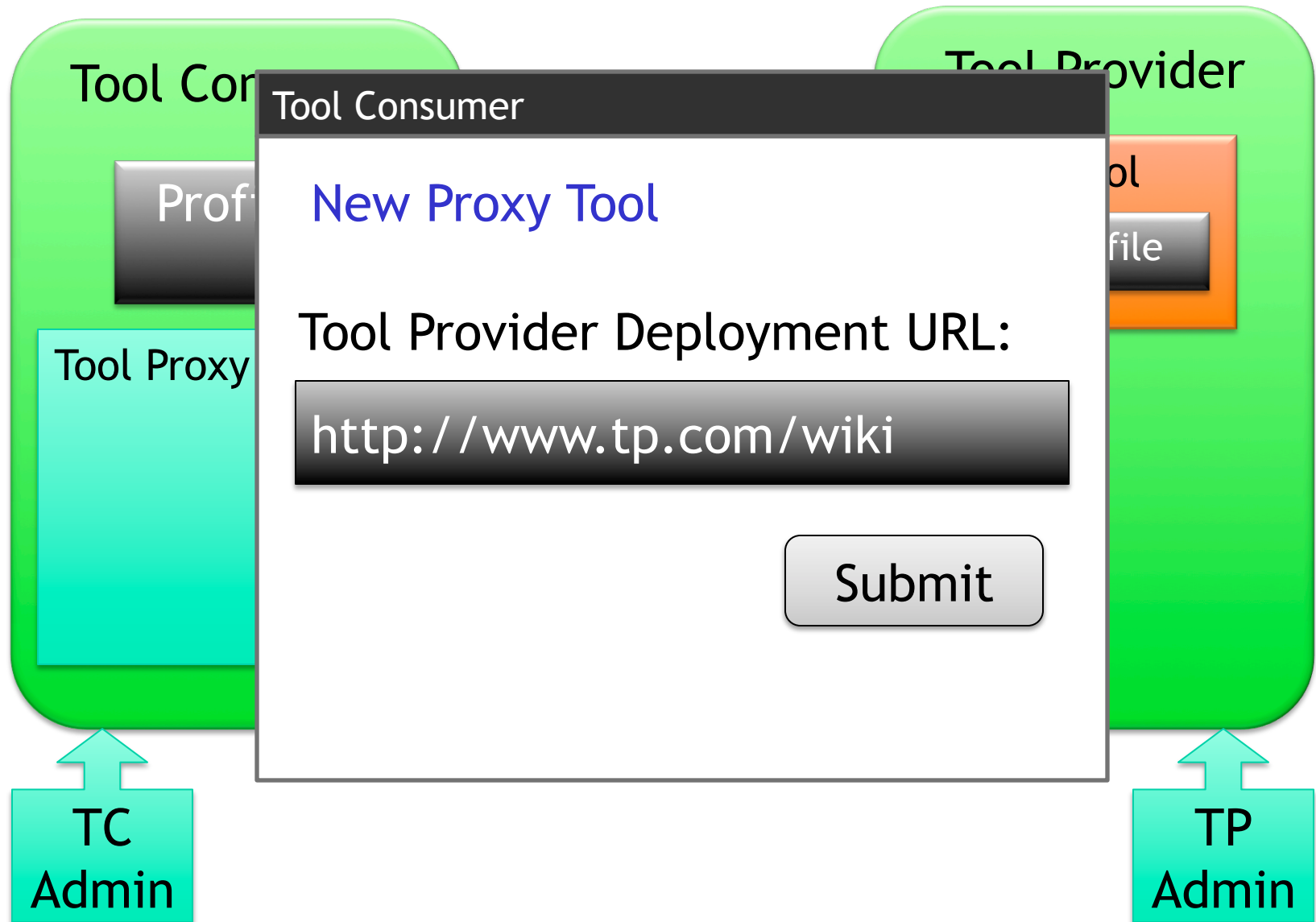
Tool Proxy Runtime

Tool Provider

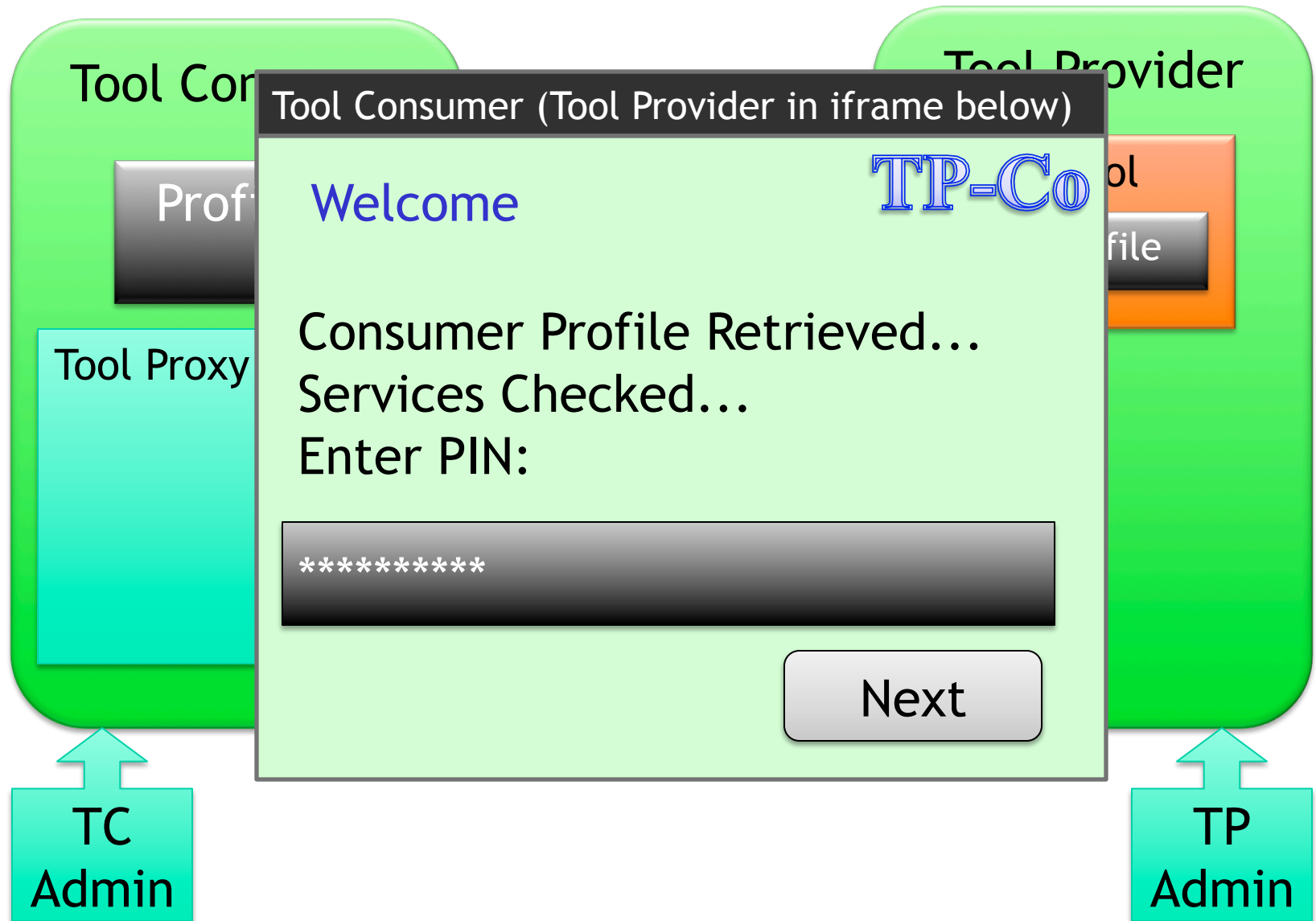
Tool

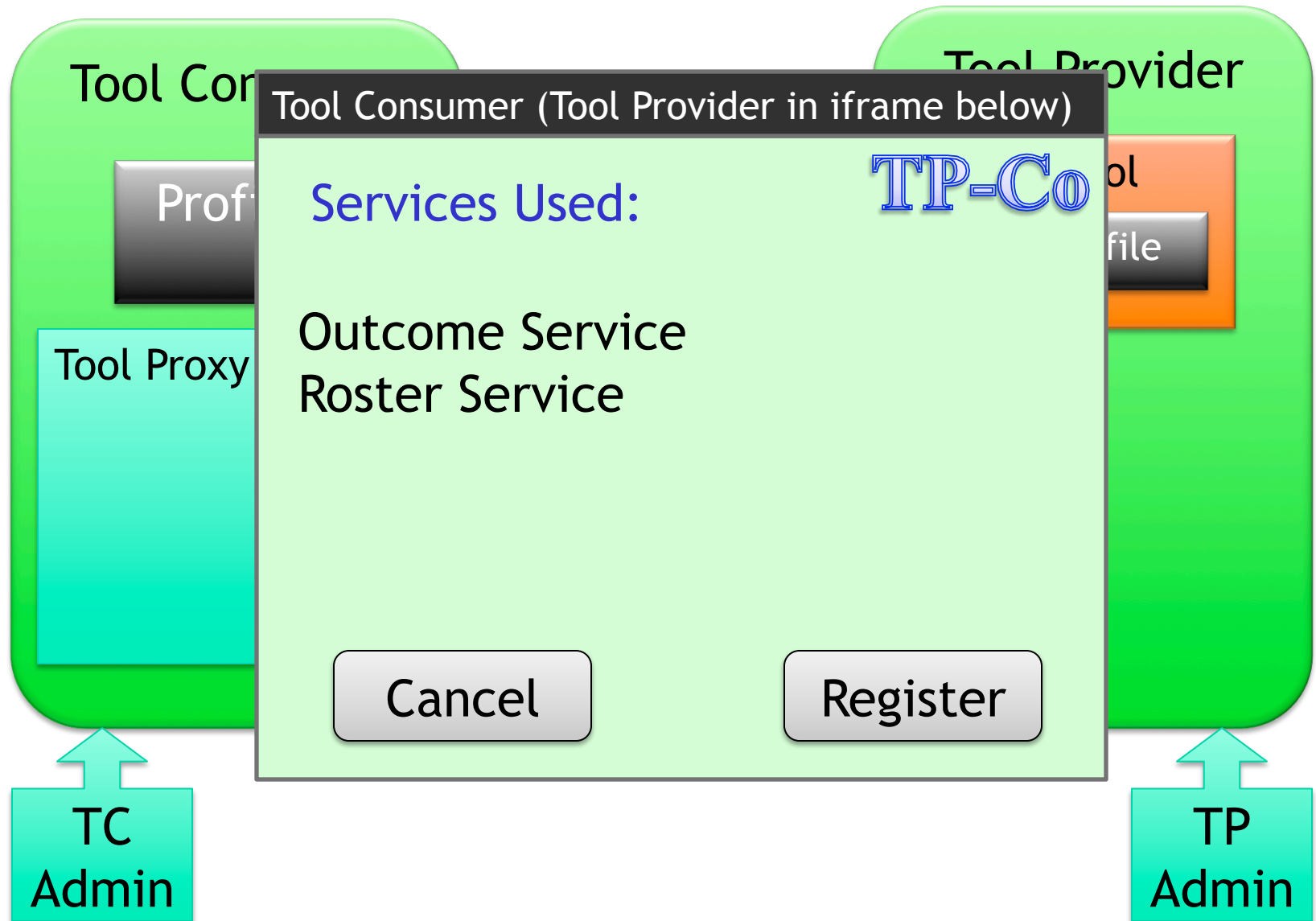
Profile

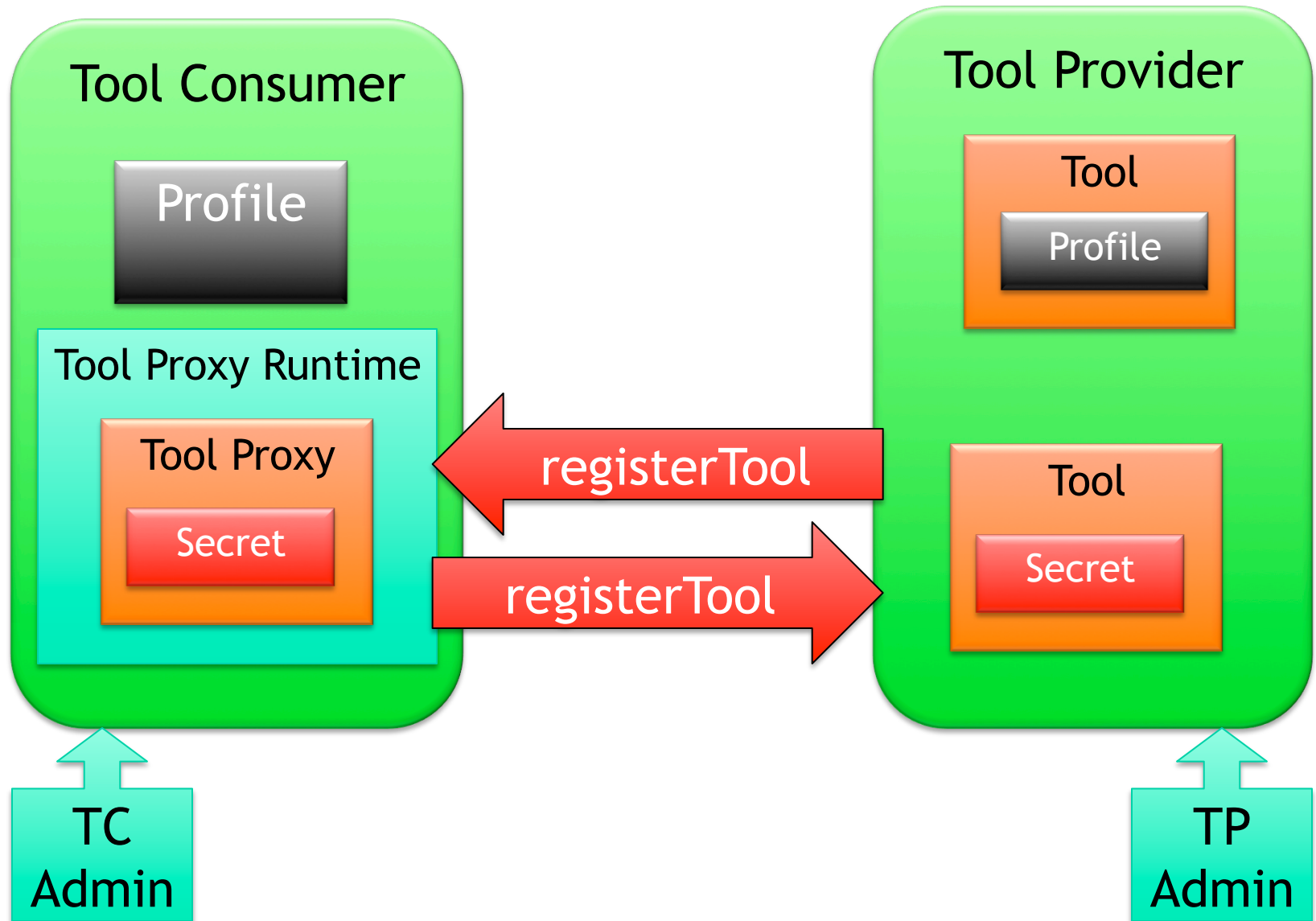


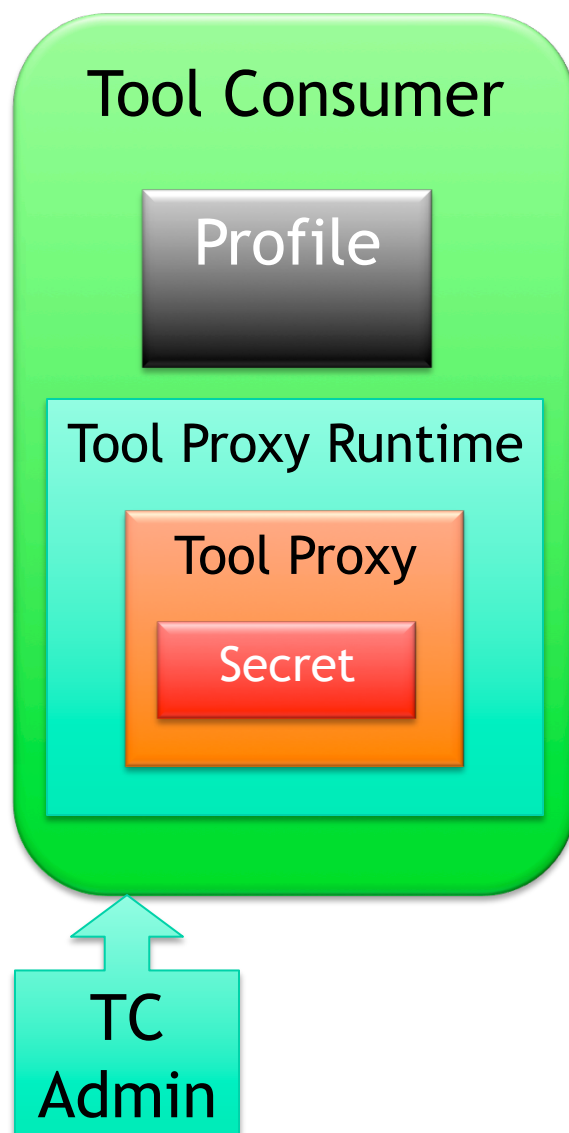










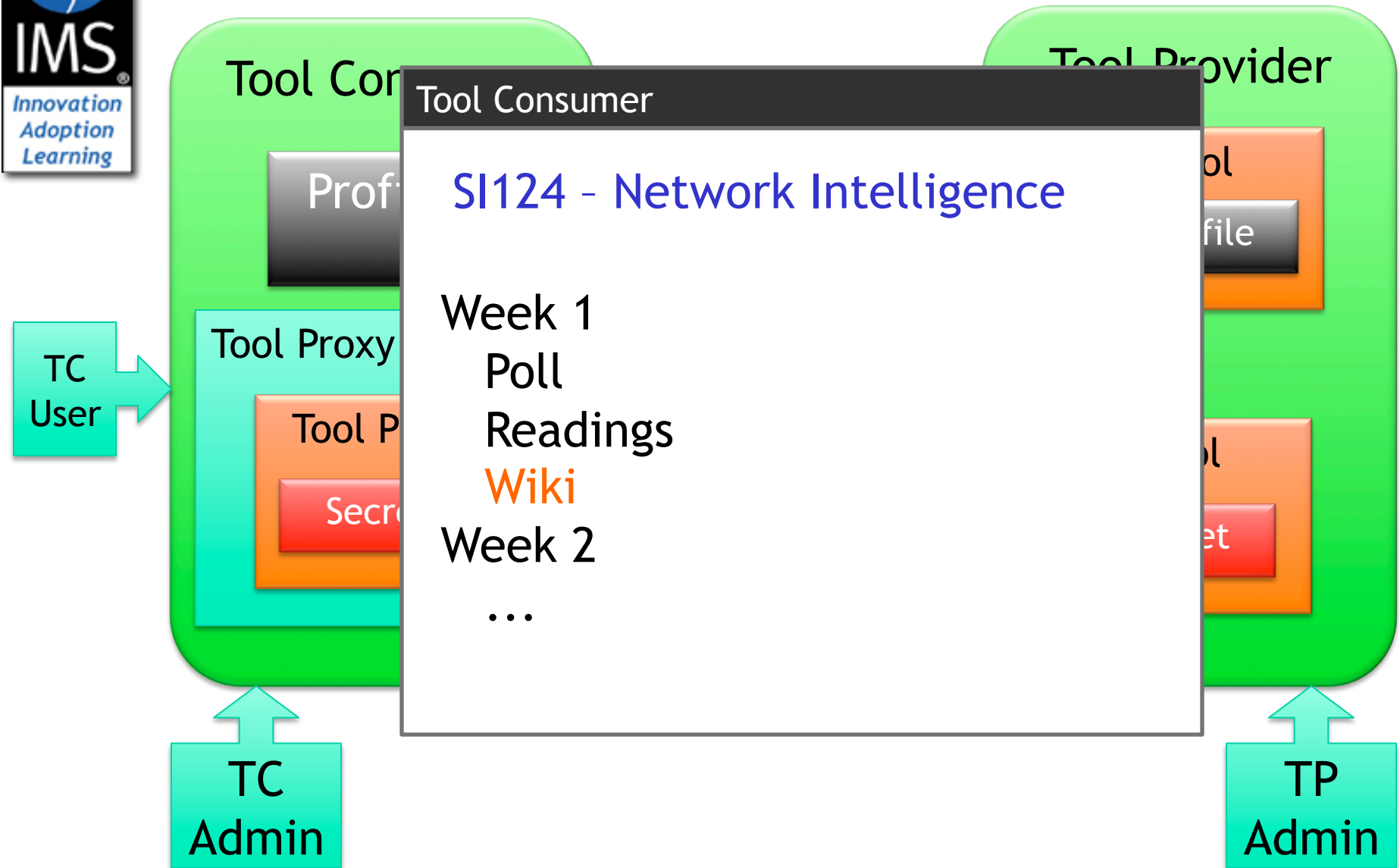


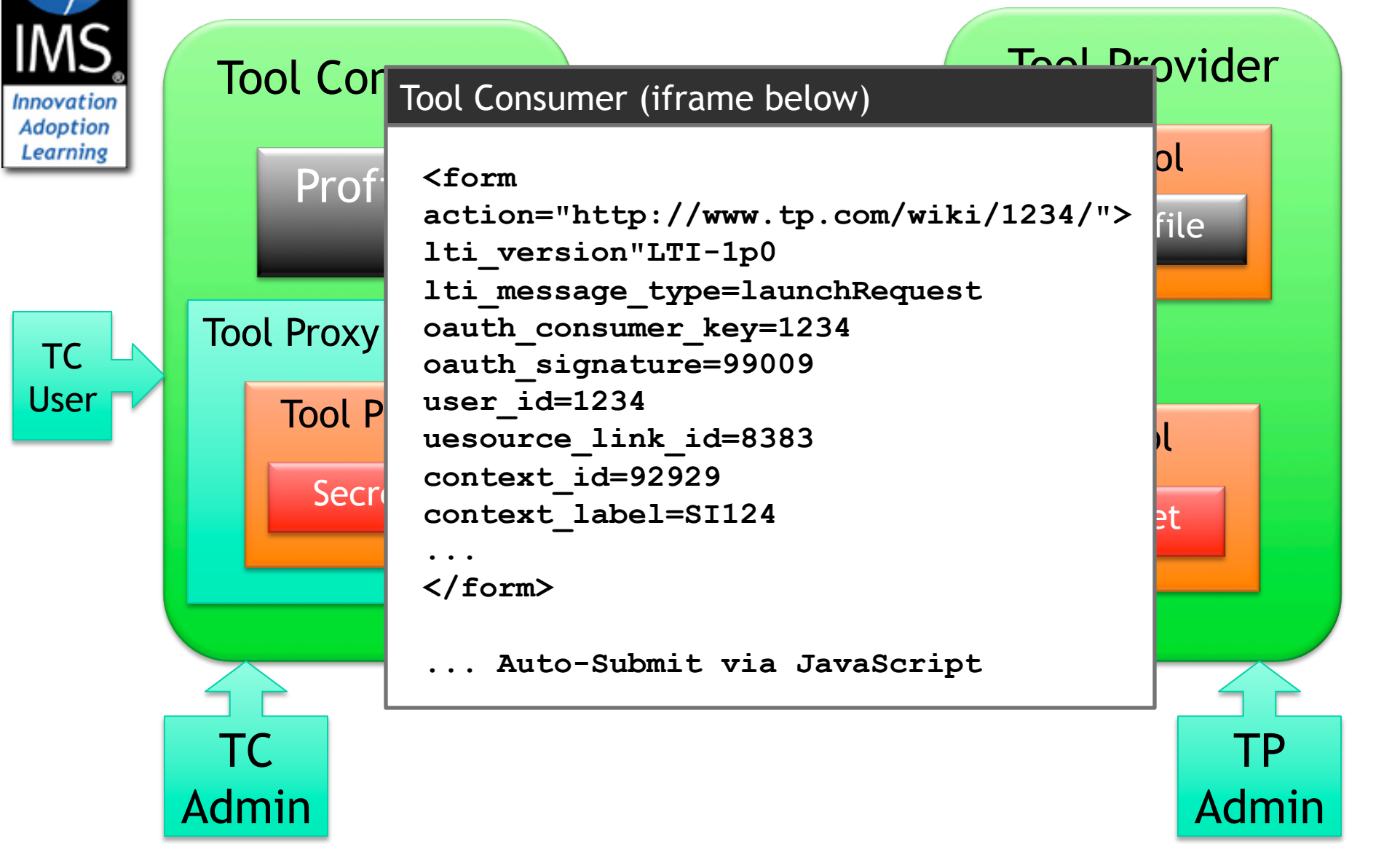
Scenario: End User Launches Proxy Tool

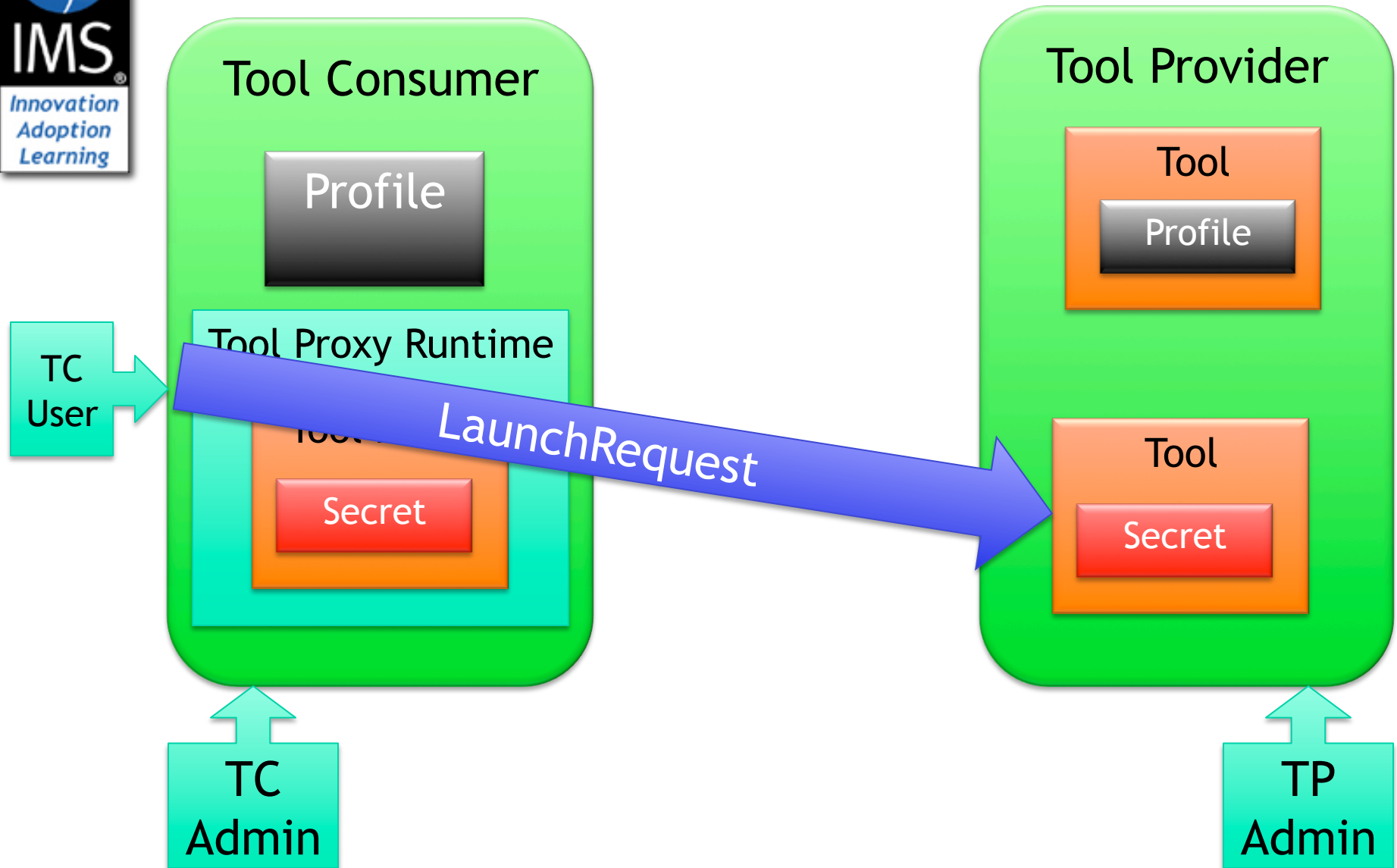
*Seamlessly
connect
to learning*

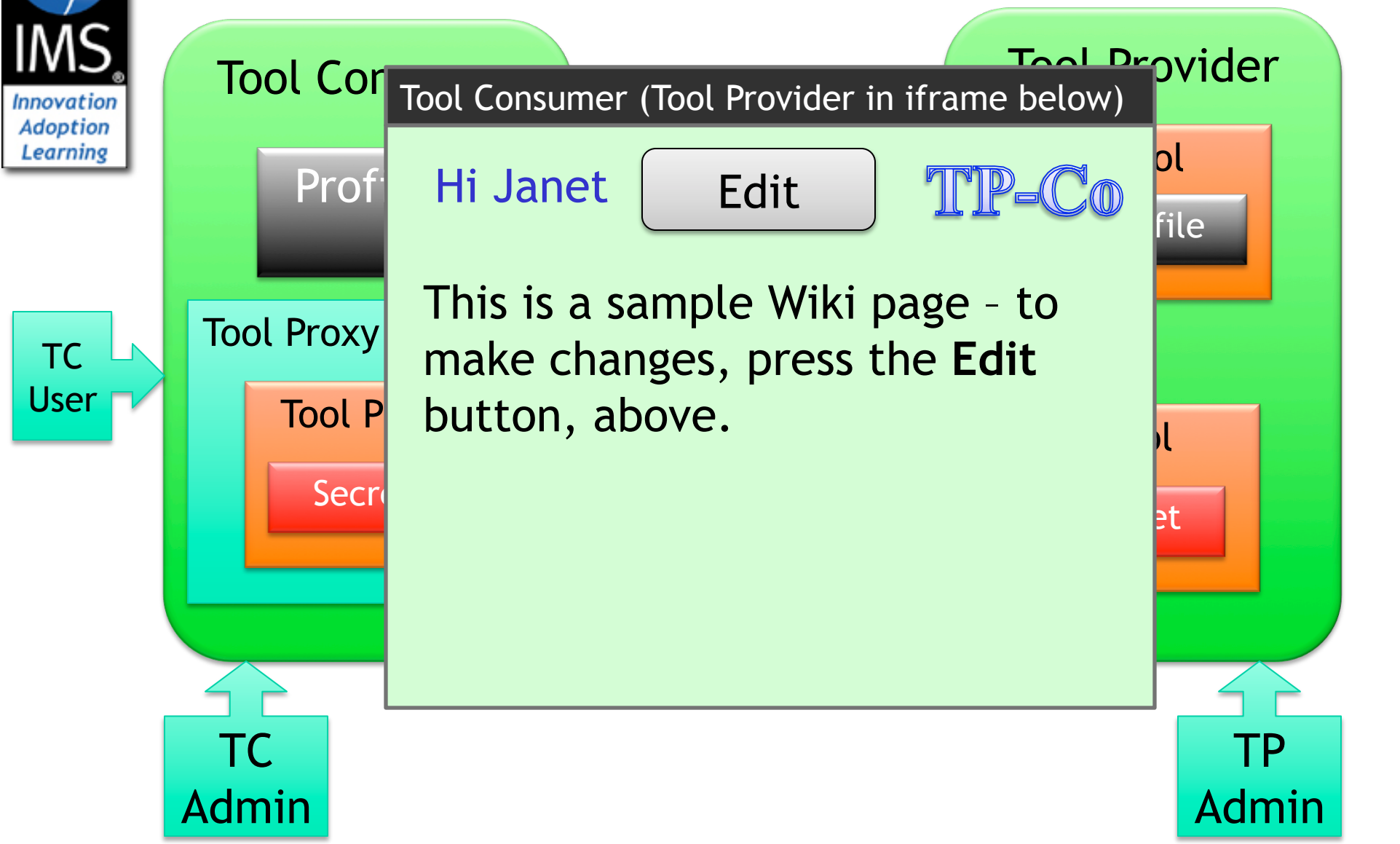


IMS Learning Tools
Interoperability (LTI)









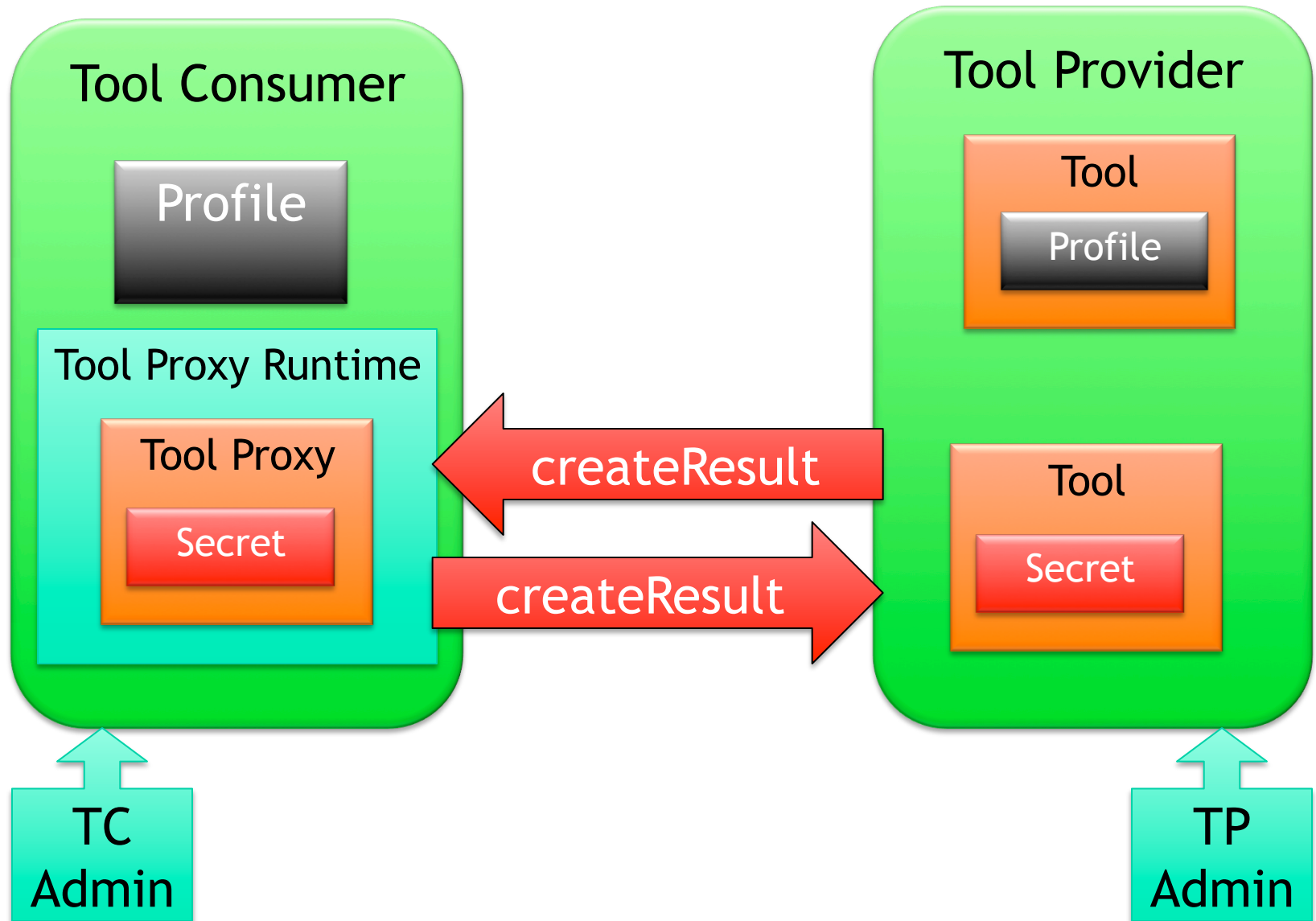


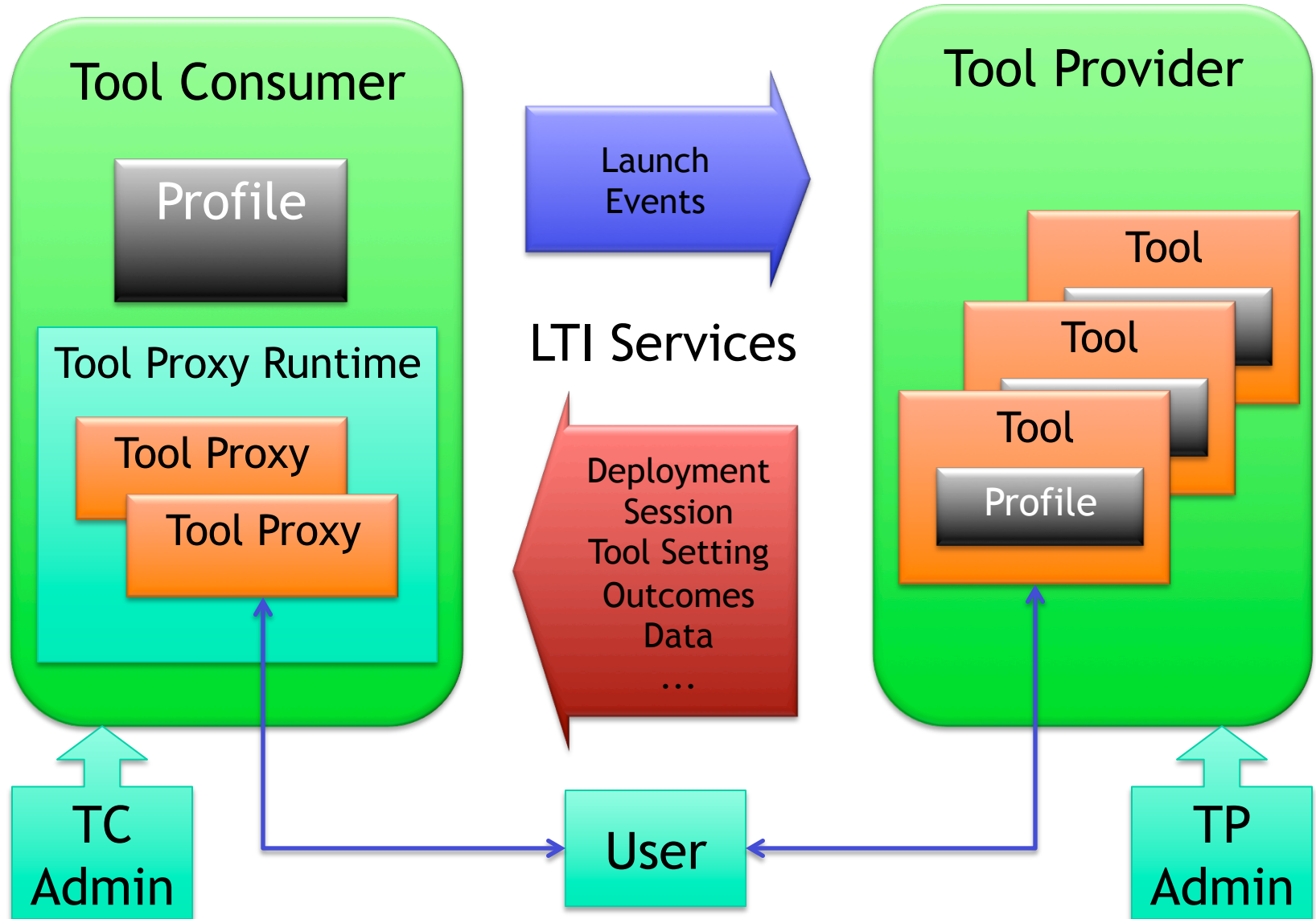
Scenario: Tool Provider Returns Outcome (i.e. a grade)

*Seamlessly
connect
to learning*



IMS Learning Tools
Interoperability (LTI)





Basic Learning Tools Interoperability (BLTI)

*Seamlessly
connect
to learning*

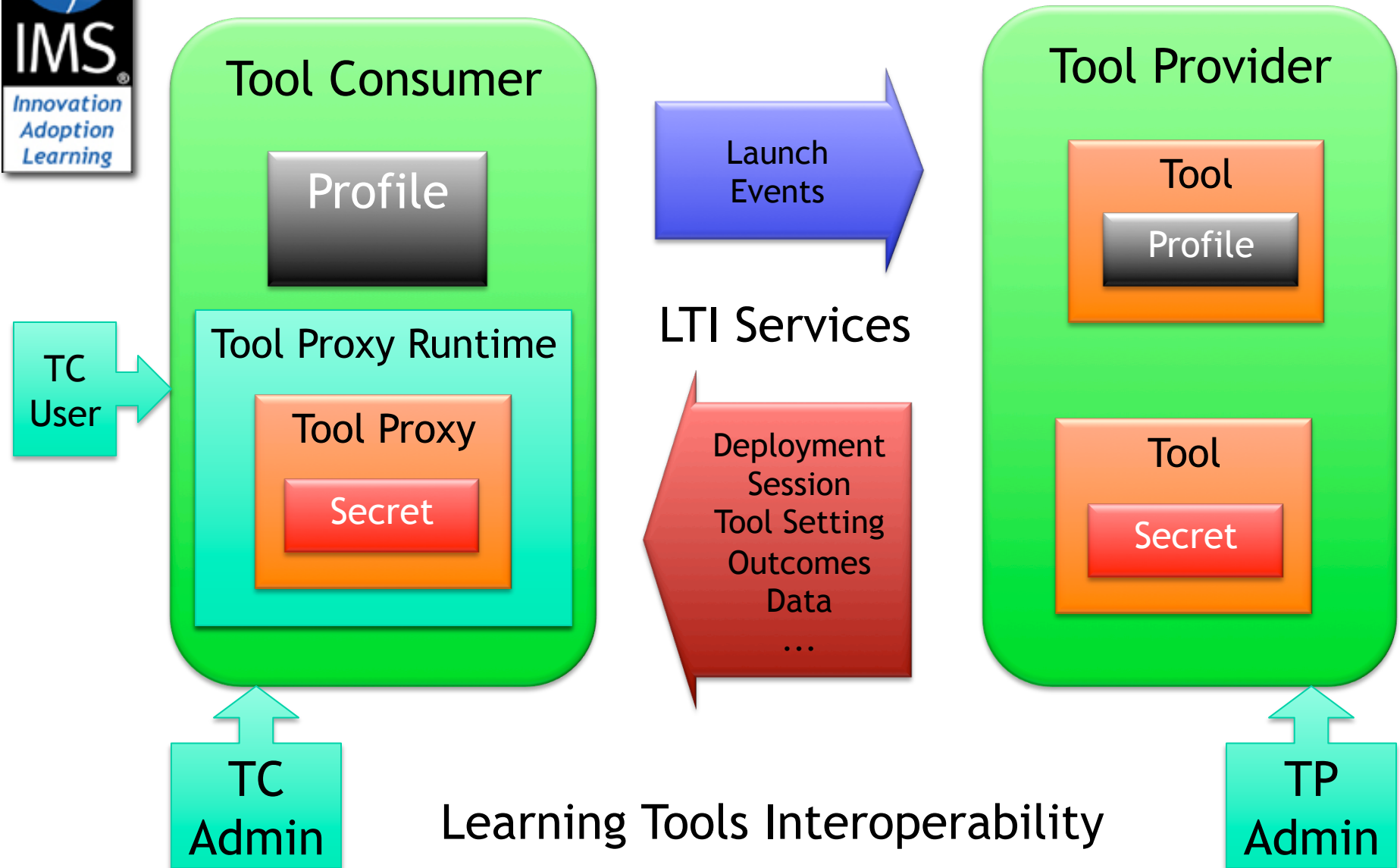


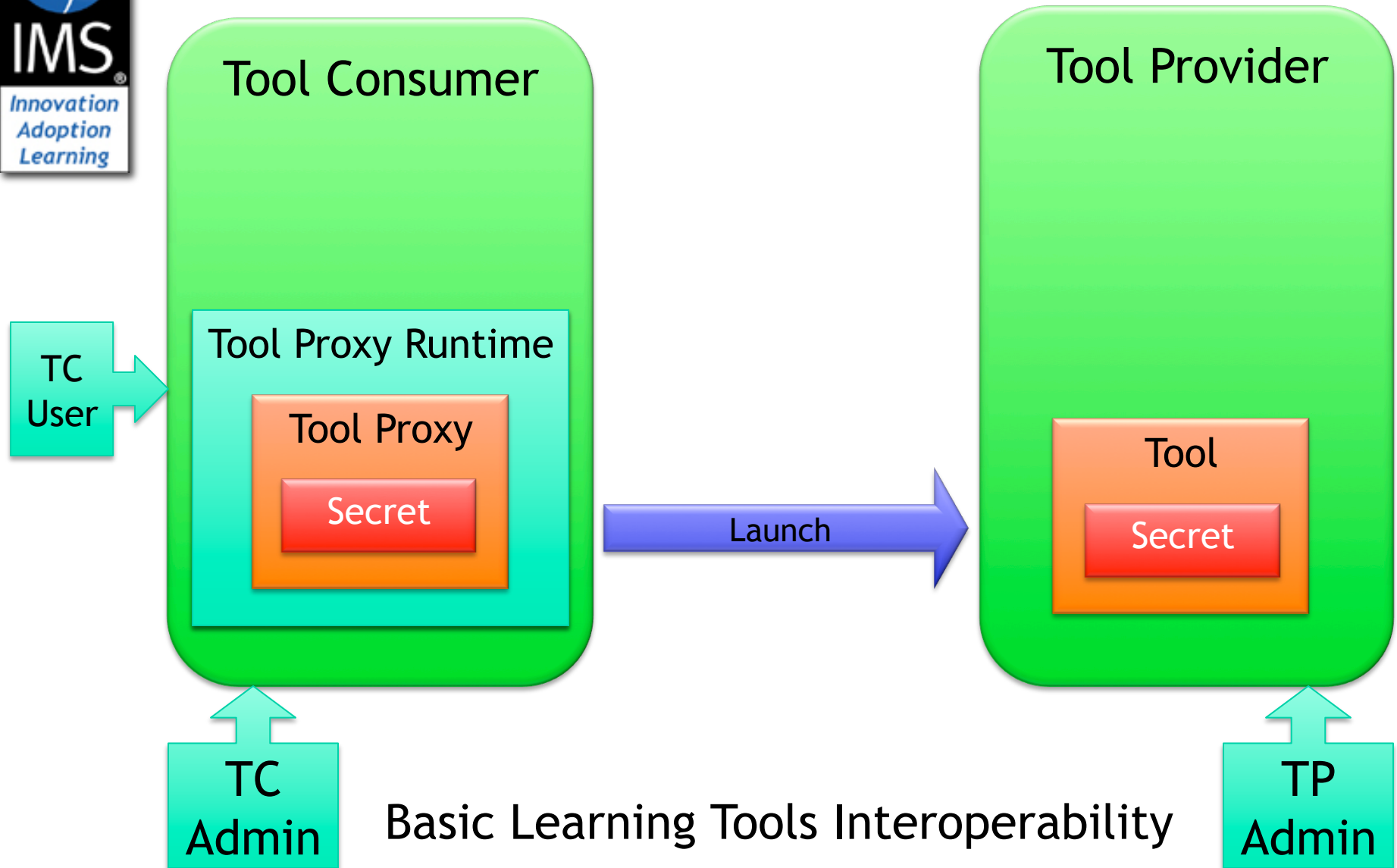
IMS Learning Tools
Interoperability (LTI)



Basic LTI Goals

- We decided to roll out Learning Tools Interoperability in a phased series of releases
 - These specifications are pretty detailed so we want to get them right
 - We want to engineer reference implementations along the way
- Basic LTI: "The smallest useful subset of LTI"







Basic LTI

- Removes Consumer and Provider Profiles, Removes Tool Registration, Removes SOAP Run-Time Services (outcomes, etc.)
- Launch URL, key, secret - transported out of band
- Provides user, context information on launch to allow "lazy" roster transfer



IMS Learning Tools Interoperability Technical Overview



My Home Email Locker Schedule Chat Content Welcome, Chuck Mar 10, 2010

Desire2Learn Dr. Chuck's Desire2Learn Course Surveys Edit Course Logout

Course Home Content Discussions Dropbox Self Assessments Quizzes Classlist Grades Links Glossary

Content Map

[Collapse All](#) [Expand All](#)

- Unit1. [Learning Tools](#)
 - i. [Dr. Chuck Sample](#)
 - ii. [Wisdom of Crowds](#)
 - iii. [Wookie](#)
 - iv. [Sakai Wiki](#)
 - v. [Documentation \(DRAFT\)](#)
 - vi. [Wookie Poll](#)
 - vii. [Vview](#)
 - viii. [Wordpress](#)
 - ix. [MediaWiki](#)

MediaWiki

[Back to Table of Contents](#)

[category](#) [discussion](#) [edit](#) [history](#) [watch](#)

[Cseverance@msglobal.org](#) [my talk](#) [my preferences](#) [my watchlist](#) [my contributions](#) [log out](#)

Category:DrChuckD2LCourse

Welcome to the course wiki.
This category currently contains no pages or media.

navigation

- [Main Page](#)
- [Community portal](#)
- [Current events](#)
- [Recent changes](#)
- [Random page](#)
- [Help](#)

search

toolbox

- [What links here](#)
- [Related changes](#)
- [Special pages](#)
- [Printable version](#)
- [Permanent link](#)

This page was last modified on 10 March 2010, at 20:24. This page has been accessed 2 times. [Privacy policy](#) [About Chuck](#) [Disclaimers](#)



Content Map

[Collapse All](#) [Expand All](#)

- [-] [Unit1. Learning Tools](#)
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 - v. [Documentation \(DRAFT\)](#)
 - vi. [Wookie Poll](#)
 - vii. [Vview](#)
 - viii. [Wordpress](#)

Wordpress

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DrChuckD2LCourse

Just another Dr. Chucks WordPress Multi-User Sandbox weblog

Hello world!

March 9th, 2010 by Chuck Instructor

Welcome to [Dr. Chucks WordPress Multi-User Sandbox](#), accessed from Desire2Learn using IMS Basic LTI.

Posted in [Uncategorized](#) | [Edit](#) | [1 Comment](#) »

Pages

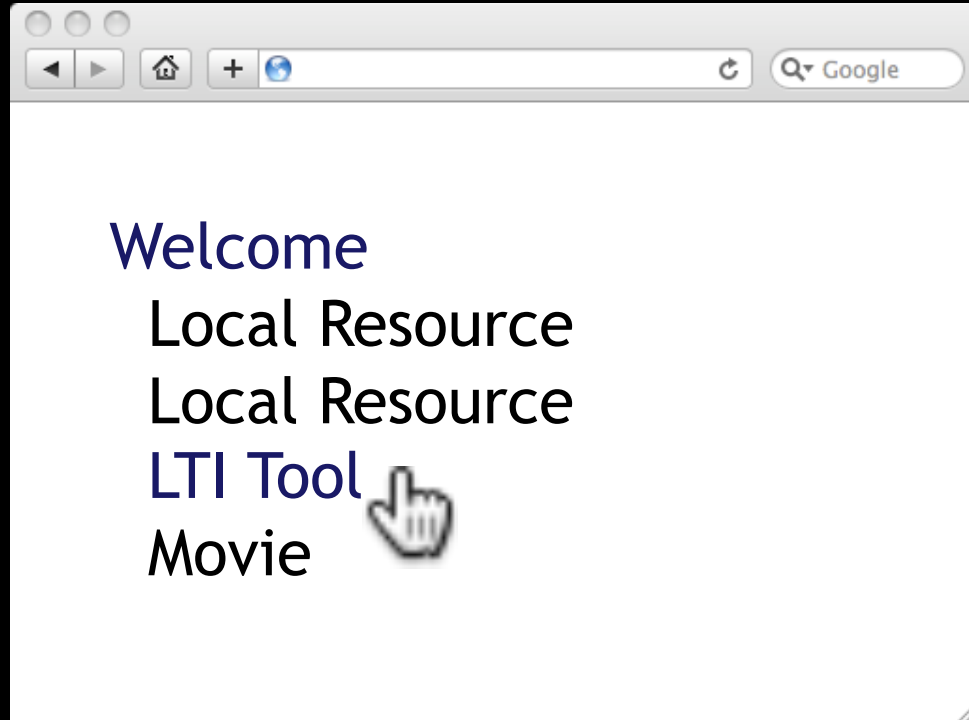
- [» About](#)

Archives

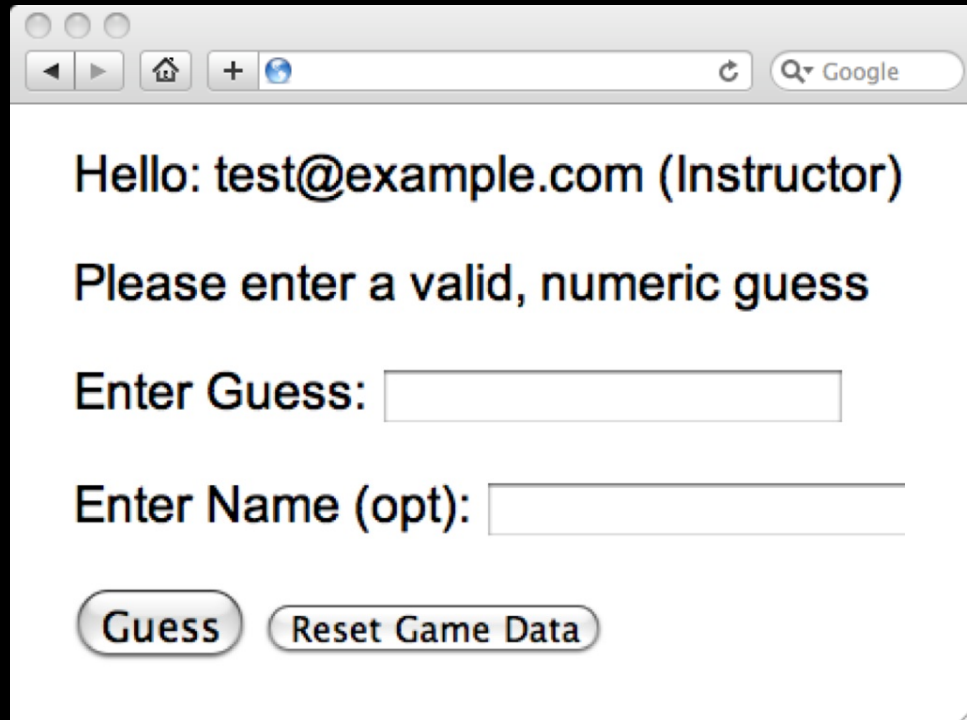
- [» March 2010](#)

Cateagories

Integrated User Experience



User Experience



A screenshot of a web browser window. The browser's address bar shows a search engine (Google) and a search icon. The page content includes a greeting, a prompt for a numeric guess, two input fields, and two buttons.

Hello: test@example.com (Instructor)

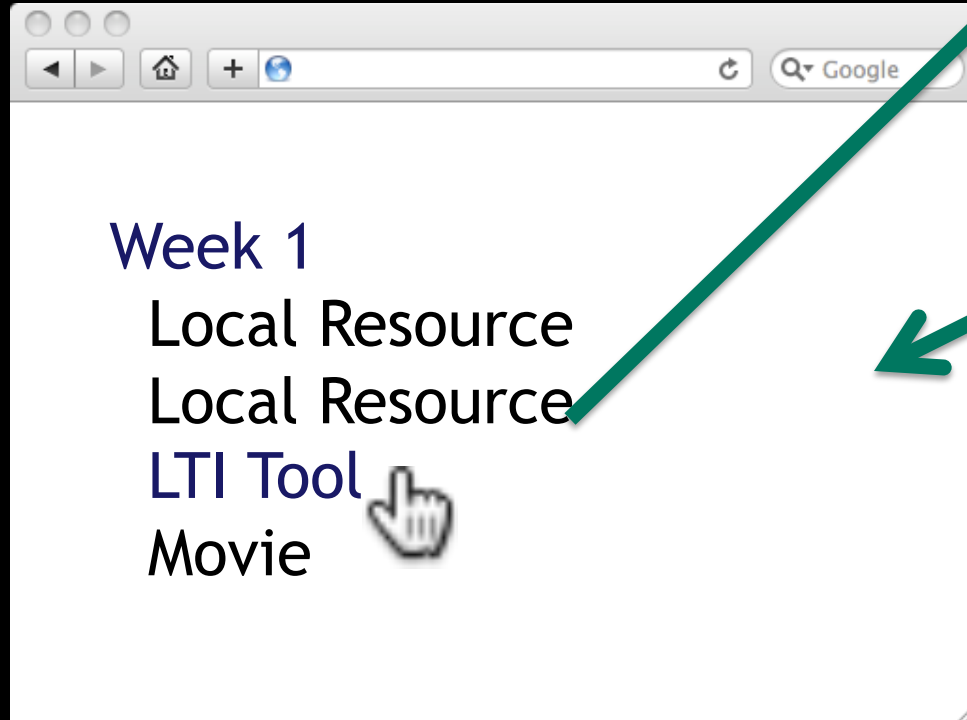
Please enter a valid, numeric guess

Enter Guess:

Enter Name (opt):



Again in slow motion...



LMS (LTI Consumer)

LMS Looks up User and Course Information.

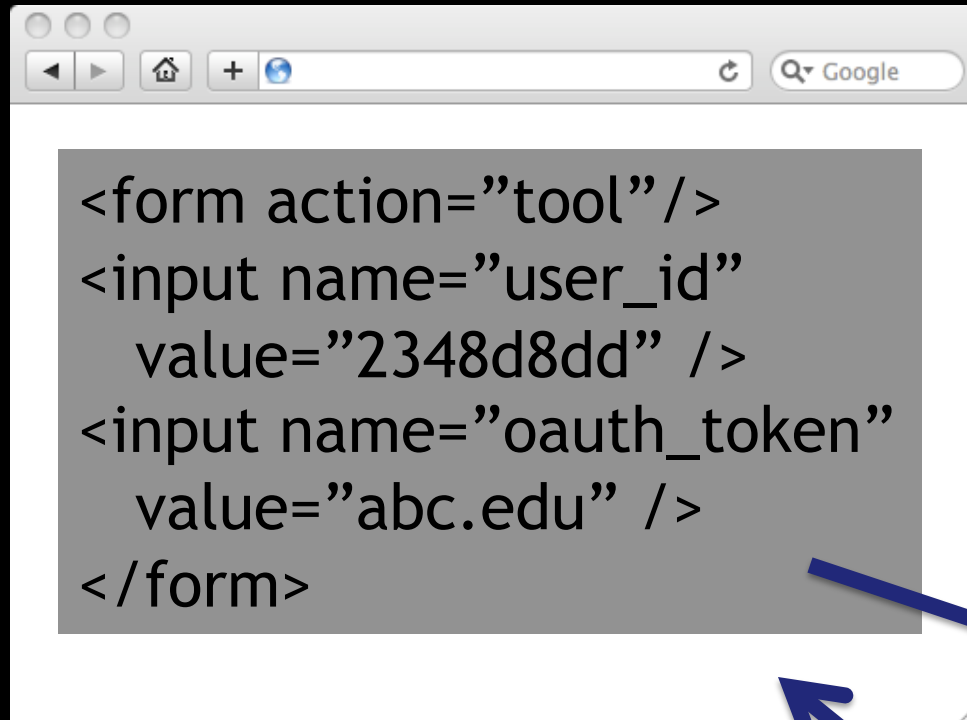
Information is signed using **secret** and OAuth

Form data sent to Browser

Tool (LTI Provider)



Form is immediately auto-submitted using JavaScript.



```
<form action="tool" />
<input name="user_id"
  value="2348d8dd" />
<input name="oauth_token"
  value="abc.edu" />
</form>
```

LMS (LTI Consumer)

Tool (LTI Provider)

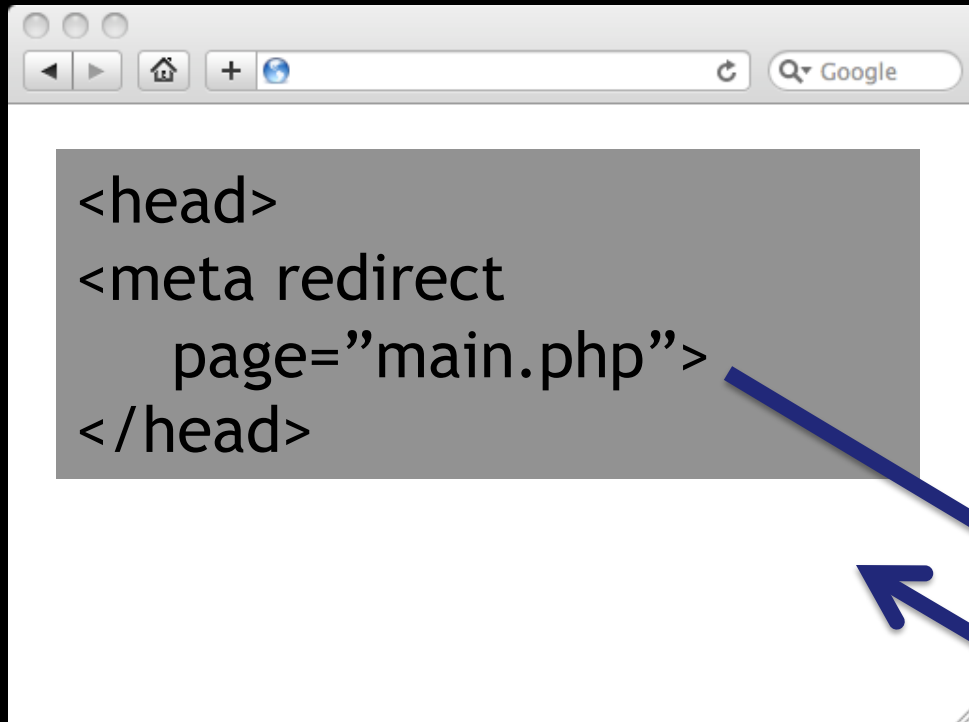
Tool looks up **secret** and validates signature.

Tool provisions user, course, and session.

Tool sends redirect



Browser follows redirect...



```
<head>  
<meta redirect  
  page="main.php">  
</head>
```

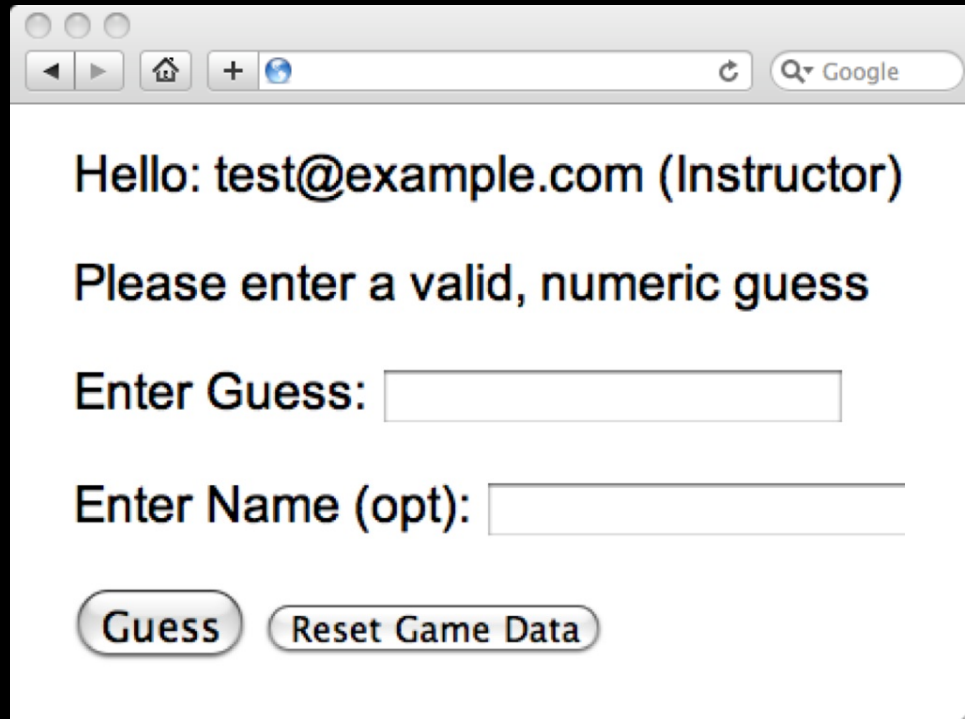
LMS (LTI Consumer)

Tool (LTI Provider)

Tool produces first page.



LMS (LTI Consumer)



A screenshot of a web browser window. The address bar shows a search engine (Google) and a search icon. The main content area displays the following text and form elements:

Hello: test@example.com (Instructor)

Please enter a valid, numeric guess

Enter Guess:

Enter Name (opt):

Guess Reset Game Data

Tool (LTI Provider)



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All Rights Reserved.



Basic LTI Sample Launch Data

lti_version=LTI-1p0

lti_message_type=basic-lti-launch-request

oauth_consumer_key=lmsng.school.edu

resource_link_id=120988f929-274612

user_id=292832126

roles=Instructor

lis_person_name_full=Charles R. Severance

lis_person_contact_email_primary = csev@umich.edu

context_id=456434513

context_title=SI301 - PHP

tool_consumer_instance_description=University of School



OAUTH

[About](#) [Advisories](#) [Documentation](#) [Code](#) [Blog](#) [Community](#)

An **open protocol** to allow **secure API authorization** in a **simple** and **standard** method from desktop and web applications.

[Read on »](#)

For Consumer developers...

If you're building...

- desktop applications
- dashboard widgets or gadgets
- Javascript or browser-based apps
- webpage widgets

OAuth is a simple way to publish and interact with protected data. It's also a safer and more secure way for people to give you access. We've kept it simple to save you time.

For Service Provider developers...

If you're supporting...

- web applications
- server-side APIs
- mashups

If you're storing protected data on your users' behalf, they shouldn't be spreading their passwords around the web to get access to it. Use OAuth to give your users access to their data while protecting their account credentials.



Basic LTI and IMS Common Cartridge

- Common Cartridge 1.1 will include the ability to define a Basic LTI resource and include that resource in course organizational structures

Welcome
HTML Resource
Folder
LTI Tool
Discussion
QTI Pool



Pushing Basic LTI Adoption

- Sample Java + PHP Basic LTI implementations at
 - <http://code.google.com/p/ims-dev/>
- Use/include sample code from oauth.net
- Both structured to provide reusable code
 - `org.imslobalorg.basiclti.BasicLTIUtil.java`
 - `blti_util.php`
- Copyright IMS, Apache 2 - Usable anywhere




Classified Ad Application

- Simple Sample Application
 - Key / Secret administration
 - Example use of the Basic LTI utility code
 - Multi-tenancy examples including AuthZ
 - System-scoped versus course scoped keys
 - Code plus simple database schema patterns to support Basic LTI in a tool

A Sample Tool - Classified Ads

My Home | Email | Locker | Schedule | Chat | Content | **Ad List** Welcome, Chuck Mar 29, 2010

Desire2Learn Dr. Chuck's Desire2Learn Course 

Course Home Content Discussions Dropbox Self Assessments Quizzes Classlist Grades Links Glossary Surveys Edit Course Logout

Title (Create New Ad)	Date	Action
Honda Shadow 600 VLX - Factory Footpegs - \$95.00	2010-03-29 13:15:24	edit delete
1983 Honda 450 - New Lower Price \$1200	2010-03-29 13:12:12	edit delete



My Next Steps for LTI

- Promote Basic LTI - Focus on tool writers
 - Webinar offer / conference talk
- Building PHP, Java, C# Reference Implementations for Full LTI (incl. IMS General Web Services)
 - Provisioning, Registration, Launch, Outcomes
- Would love to have outcomes working for an Educause Demo (October 12-15, Anaheim, CA)



Questions

- IMS - www.imsglobal.org
- cseverance@imsglobal.org



*Seamlessly
connect
to learning*



IMS Learning Tools
Interoperability (LTI)