



May 23, 2013

# **The Experience API v1.0 Released**

Nikolaus Hruska – ADL Technical Team  
*Contractor with Problem Solutions*

# Major Milestone Reached!

- Experience API v1.0 Released 26 April 2013
- Open, collaborative spec development effort
- 30+ vendors pledged adoption
- Used free, open source tools



# Agenda

- The new landscape
- What are APIs? How do they help me?
- What is the Experience API?
- “Activity Stream” examples
- Data storage and retrieval
- Why use the Experience API?
- eLearning market trends
- Analytics and reporting examples
- Highlights of the spec development process

# How Did We Get Here?

- **Sharable Content Object Reference Model (SCORM)**
  - Enables online learning in a (desktop) browser
  - Meets requirements for which it was designed
  - Uses common launch, packaging, data model, and communication specs
  - Works (and will work in the future), but we now have many more use cases to support
- **Project “Tin Can” Research -> Experience API**

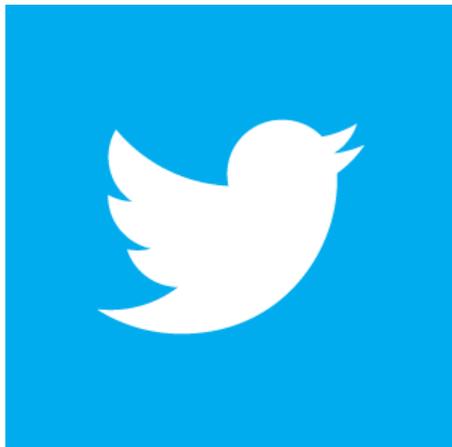
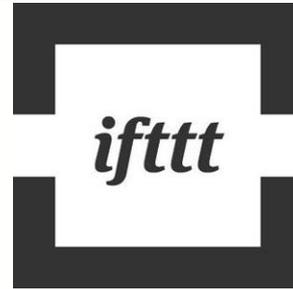
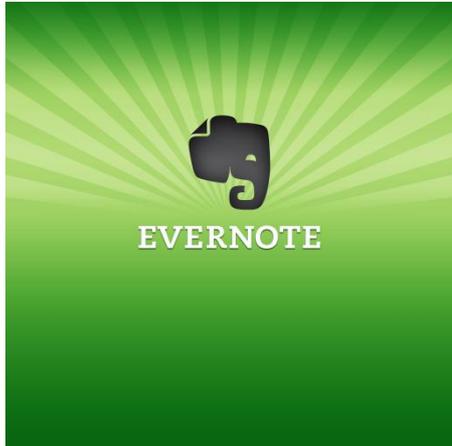
# Change In Landscape

- Mobile device proliferation and app ecosystems
- Widespread wireless and Wi-Fi coverage
- Games (web, mobile, console)
- Augmented reality and simulations
- Social media
- Open source movement

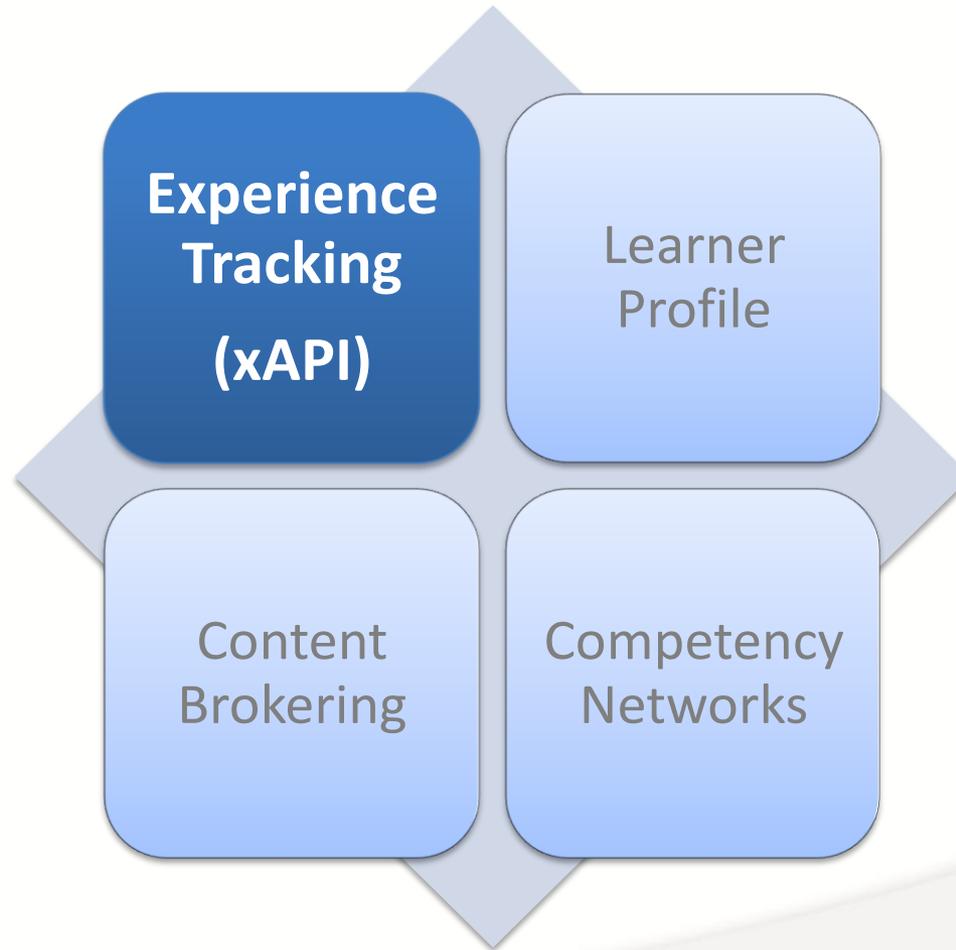


Source: <http://www.nydailynews.com/news/world/check-contrasting-pics-st-peter-square-article-1.1288700>

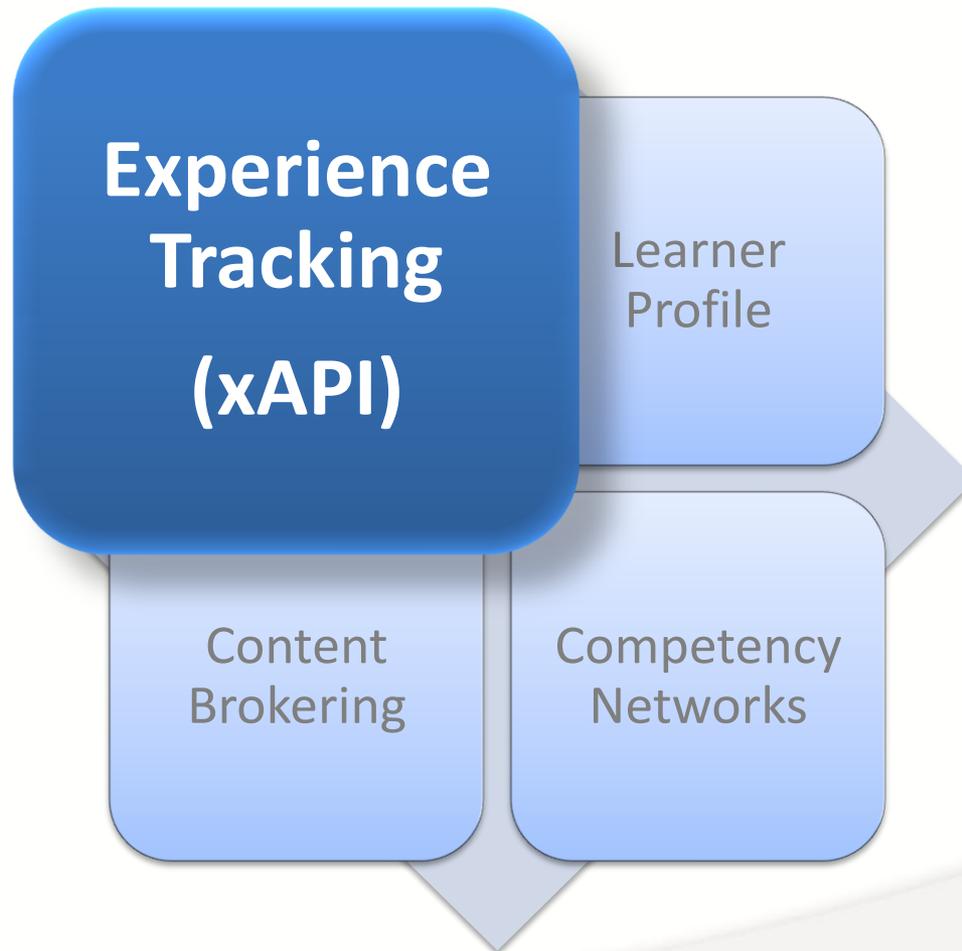
# How Do APIs Currently Help Me?



# The Training and Learning Architecture (TLA)



# The Experience API



# What is the Experience API (xAPI)?

- Tracks experiences, scores, progress, teams, virtual media, real-world experiences (not just completions)
- Allows data storage AND retrieval (ex. 3<sup>rd</sup> party reporting and analytics tools)
- Enables tracking mobile, games, and virtual worlds experiences
- Developed by open source community

# Activity Streams

- Collaboration between Google, Facebook, Microsoft and others
- Format: <Actor> <Verb> <Object> (I did this)
  - I (actor) completed (verb) the IA course (activity)
- Allows reporting of experiences, not just completions
  - Nikolaus posted a photo
  - Nikolaus liked a photo
  - Nikolaus commented on a photo

# Example (Formal) Learning Stream

- John Connor **attempted** “The War of 1812, Part 1”
- John Connor **watched** “The Battle of New Orleans Video”
- John Connor **completed** “The War of 1812, Part 1”
- John Connor **attempted** “The War of 1812, Part 2”
- John Connor **completed** “The War of 1812, Part 2”
- John Connor **attempted** “The War of 1812, Assessment”
- John Connor **answered** “Question 1” with “True”
- John Connor **answered** “Question 2” with “False”
- John Connor **answered** “Question 3” with “a”
- John Connor **completed** “The War of 1812, Assessment”
- John Connor **scored** “90%” on “The War of 1812, Assessment”
- John Connor **satisfied objective** “Battles of the War of 1812”
- John Connor **mastered objective** “The War of 1812” to level “1”
- John Connor **earned** “The War of 1812 – Level 1 Badge”

# Example (Informal) Learning Stream

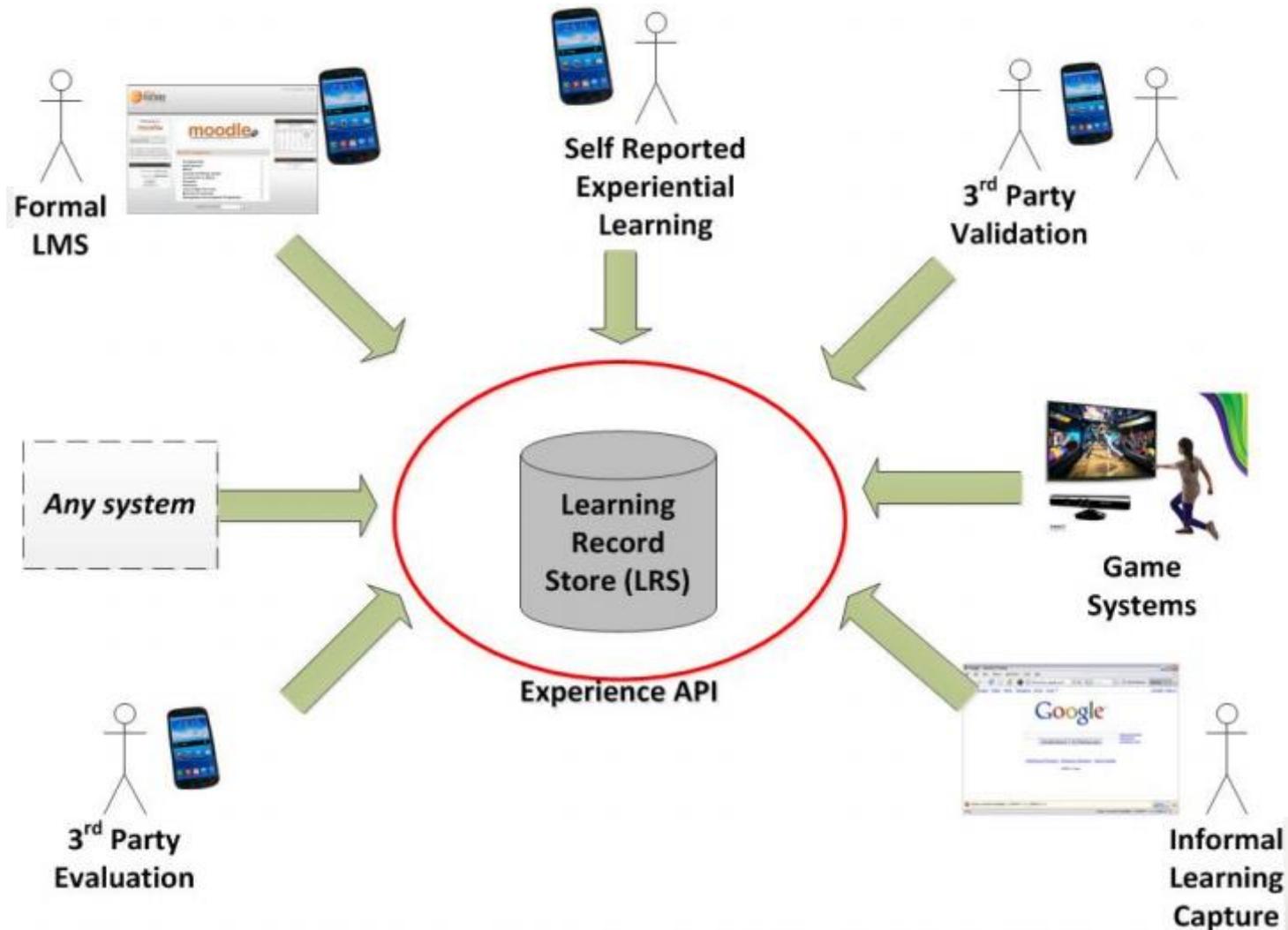
Walter Isaacson ***authored*** [Steve Jobs Biography]  
David ***proofread*** [Steve Jobs Biography]  
Margaret ***approved*** [Steve Jobs Biography]  
Simon & Schuster ***published*** [Steve Jobs Biography]  
John ***purchased*** [Steve Jobs Biography]  
Ted ***read*** [Steve Jobs Biography]  
Philip ***shared*** [Steve Jobs Biography]  
Steven ***liked*** [Steve Jobs Biography]  
Harry ***reviewed*** [Steve Jobs Biography]

# How Do We Track All Of These Activities?

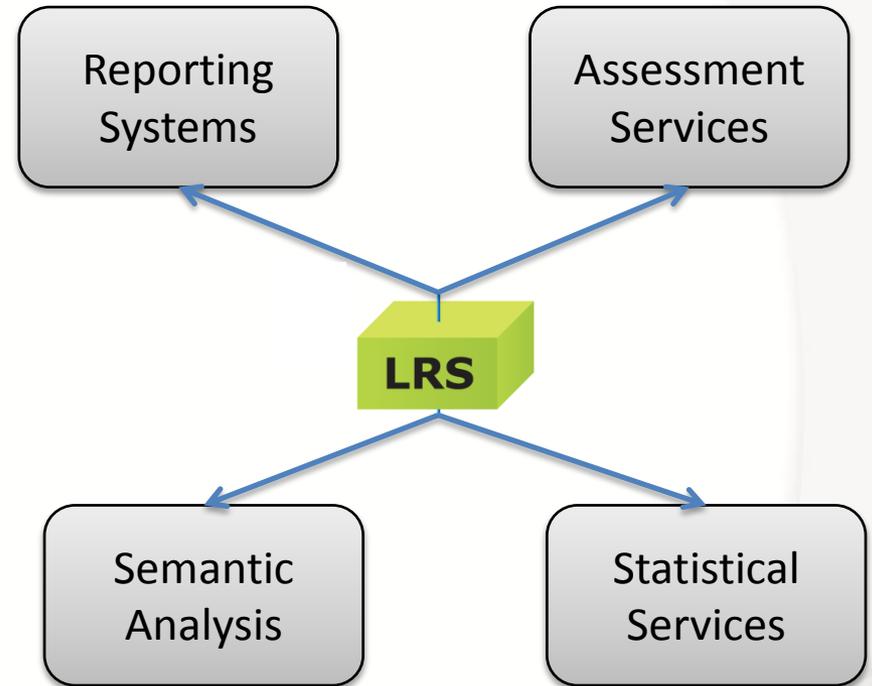


Credit: Liz Burow ([@Burlix](https://twitter.com/Burlix))

# Where Is The Data Stored?



# Store AND Retrieve LRS Data



# In The News...

*“The [Experience API].. is the most idealistic, futuristic and flexible of the APIs; its grammar is specifically designed so that developers can collect, move and report types of educational data that haven’t even been conceived of yet.”*

Source: NY Edtech Meetup Showcases New APIs for Data Interoperability and Integration  
<https://www.edsurge.com/n/2013-02-26-ny-edtech-meetup-showcases-new-apis-for-data-interoperability-and-integration>

# Why Use the xAPI in Your Product(s)?

- Activity Streams are widely supported
- Group/Guild Learning
- Real Time Data Gathering and Analysis
- Badges and Achievements
- Analytics and Reporting
- Global eLearning Market Potential

# 10 Things You Should Know

**1** **\$4.4tn**  
2012 global education expenditure  
Supported by **1.4bn** students and **62.5m** educators

**2** The e-Learning market is the fastest growing market in education, standing at **\$91bn** in 2012

**23%**  
**CAGR**  
forecasted out to 2017

**3** **700m** individuals of the world's population will lack basic literacy skills by 2015

**4** The cost of education has risen **84%** since 2000, **37%** higher than CPI, which has led to situations like the US student loan debt accumulation to over **\$1tn**. e-Learning is a cost effective alternative

**5** Internet users have grown **870%** since 2000 massing over **2.4bn** users globally and causing an evolutionary shift in how people can engage with the world

**2.4bn** internet users

**6** IBIS Capital's near term view on e-Learning:

In Europe alone there are **3,000+** e-Learning companies

Consolidation will be the theme as businesses seek to expand geographic reach, scale and service offering

**7** **257%**

US student tablet ownership grew **257%** last year and in 2011 technology adapted training has penetrated over **40%** of the Global 500 Fortune companies



**8** Current industry hype about new ideas and consumer learning requirements are disrupting the whole education eco-system

**9** The US<sup>(1)</sup> to push forward with Project Tin Can which will set **industry-wide e-Learning standards** for software

**10** IBIS Capital's hot picks for e-Learning for 2013: next generation content and its creation tools, adaptive learning, collaborative learning, Learning Record Stores (LRS), re-purposable learning, Massive Open Online Courses (MOOCs) and Open Education Resource (OER) management

Source: IBIS Capital - e-Learning Lessons for the Future  
<http://www.learninglight.com/e-learning-market-research>

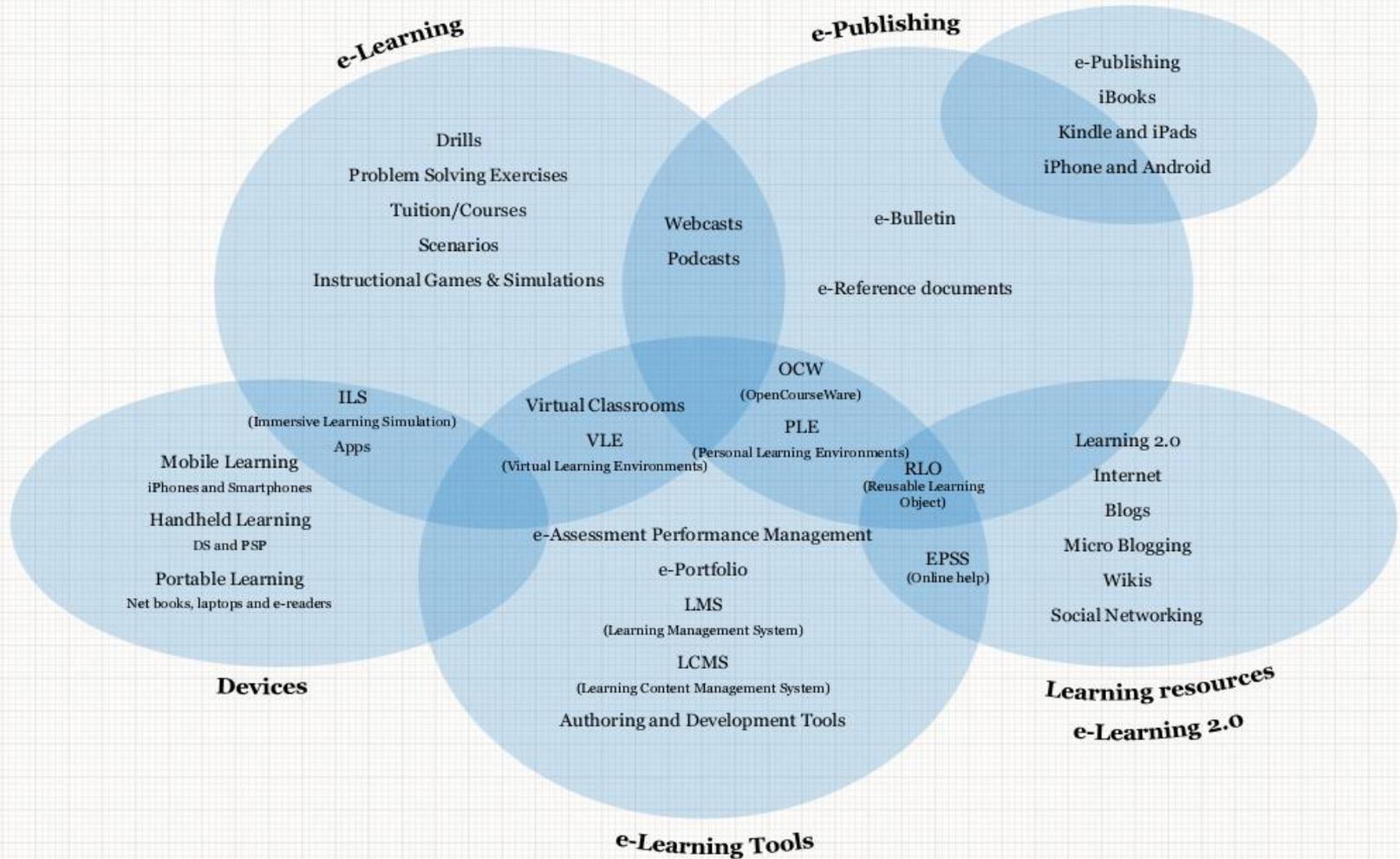
# How Can You Use the xAPI?

*“So some things get invented because it is suddenly possible to invent them.”*

-Vint Cerf

Source: [http://www.wired.com/epicenter/2012/04/ff\\_spotfuture\\_gas/all/1](http://www.wired.com/epicenter/2012/04/ff_spotfuture_gas/all/1)

# The Technology Environment Allows e-Learning to Flourish



# Track Your Activities...



**The Humane Society of the United States** shared a link via  
The Humane Society of the United States - Pennsylvania.  
June 15 ✨

Reward offered in PA! Please share the link below with anyone who may have information about this case.



**The Humane Society of the United States Offers Reward in Coatesville, Pa., Dog's Death**  
[www.humanesociety.org](http://www.humanesociety.org)

The Humane Society of the United States is offering a reward of up to \$2,500 for

Like · Comment · Share

84

👍 76 people like this.

💬 View all 24 comments

Write a comment...



**The Humane Society of the United States** shared a link.  
June 15 🌐

HBO Documentary Films is kicking off their 2012 Documentary Summer Series on June 18th with "One Nation Under Dog: Stories of Fear, Loss & Betrayal". To celebrate, we want to hear your stories -- Have you ever saved a dog's life? Has a dog ever saved yours? Post them to our wall!



**Sneak Peek**

[video.humanesociety.org](http://video.humanesociety.org)

HBO's "One Nation Under Dog: Stories of Fear, Loss & Betrayal" is an eye-opening look at our relationship with dogs and how far we need to go to treat all dogs humanely, airing Mon., June

Like · Comment · Share

136

👍 1,036 people like this.

💬 View all 74 comments

Write a comment...

# ...Aggregate Them to Make Meaning



**Ashley Stroba** listened to Blue Moon Rising on Spotify.



- ▶ Stone By Stone Blue Moon Rising
- ▶ Marie Blue Moon Rising
- ▶ The Dust Bowl Blue Moon Rising
- ▶ Blue Moon Rising Blue Moon Rising
- ▶ I Will Come Back Again Blue Moon Rising

Like · Comment · Share · Listen · Sunday at 11:54pm



**Mary Flaherty Rogers** listened to Grateful Dead Download Series Vol. 11: Pine Knob Music Theater, Clarkston, MI, 6/20/91 by Grateful Dead on Spotify.



- ▶ Johnny B. Goode [Live at Pine Knob Music Theater, Clarkston... Grateful Dead
- ▶ The Other One [Live at Pine Knob Music Theater, Clarkston, M... Grateful Dead
- ▶ Stella Blue [Live at Pine Knob Music Theater, Clarkston, MI,... Grateful Dead
- ▶ Brokendown Palace [Live at Pine Knob Music Theater, Clarkst... Grateful Dead

Show 20 More Songs

Like · Comment · Share · Listen · Yesterday at 12:38pm

## Rate Recently Used Apps



**Renee Mazurek** listened to Lucinda Williams on Spotify.



- ▶ Buttercup Lucinda Williams
- ▶ Blessed Lucinda Williams
- ▶ Right In Time Lucinda Williams

Like · Comment · Share · Listen · 23 hours ago



**Terry Tomei** listened to the Vibesquad Radio station on iHeartRadio.



- Size Matters Subvert
- Tauhid Boxcutter
- Cut Copy Paste ill.gates
- Warrior Concerto The Glitch Mob
- Show 5 More Songs

Like · Comment · Share · Listen · 21 hours ago

# Build Recommendation Engines

## Amazon Instant Video - TV

Page 1 of 9

Navigation arrows: < >

				
<b>New Release</b> The Event Season 1 Jason Ritter \$0.00  \$2.99 per episode Why recommended?	<b>New Release</b> Ax Men Season 4 \$0.00  \$2.99 per episode Why recommended?	<b>New Release</b> Hogs Gone Wild Season 1 \$1.99 per episode Why recommended?	<b>New Release</b> The Americans Season 1 \$1.99 per episode Why recommended?	<b>Battlestar Galactica</b> ★★★★☆ (308) \$7.99 per episode Why recommended?

> See all recommendations in Amazon Instant Video - TV

## Electronics

Page 1 of 20

Navigation arrows: < >

				
<b>New Release</b> Roku 3 Streaming Player \$119.99 Why recommended?	★★★★☆ (1,410) <del>\$14.99</del> \$7.63 Why recommended?	★★★★☆ (1,353) \$99.00 Why recommended?	★★★★☆ (63) <del>\$89.99</del> \$32.95 Why recommended?	★★★★☆ (212) \$7.49 Why recommended?

> See all recommendations in Electronics

# Use Data Analytics

- Visualize large datasets and make informed decisions
- Plan your learning according to previously travelled “expert” paths
- Track user progress, analyze, and group users to personalize instruction
- Use live data to drive business decisions
- Report data which was not easily gathered previously
- GOAL: Increase **PERFORMANCE**

# Use Social Learning Analytics

The screenshot shows the Klout social learning analytics dashboard for the ADL TechTeam. The top navigation bar includes the Klout logo, a search bar, and links for Home, Profile, Friends, Pulse, and Help. The user's profile information is displayed on the left, showing a score of 40 and the team's name. Below this, there are sections for 'Your Influencers' (listing ADL Initiative with a score of 48 and ADL Mobile Learning with a score of 41) and 'Your Topics'. The main content area, titled 'Your Moments', displays two tweets from the ADL TechTeam. The first tweet, dated 09:05am on 06 Feb 2013, discusses the team's new Learning Record Store (LRS) for testing ExperienceAPI activities. The second tweet, dated 11:08am on 07 Mar 2013, promotes the team's website for ExperienceAPI adopters. Both tweets show retweets from other users.

**KLOUT** BETA Search PERKS 1 ADL

Home Profile Friends Pulse Help

**ADL TechTeam**  
40  
The Advanced Distributed Learning (@ADL\_Initiative) Technical Team  
0 Tagged pages

Your Influencers [See More](#)

**ADL Initiative**  
48

**ADL Mobile Learning**  
41

Share your influencers: [Tweet](#)

Your Topics [See More](#)

**Your Moments**  
These are your influential moments from the past 90 days.

**ADL TechTeam** tweeted  
@ADLTechTeam  
ADL now hosting a public Learning Record Store #LRS for testing #ExperienceAPI learning activities <http://bit.ly/VRFEXr> #xapi #tincanapi  
09:05am • 06 Feb 2013

retweeted you.

**ADL TechTeam** tweeted  
@ADLTechTeam  
#ExperienceAPI adopters: Get your company listed on the @ADL\_Initiative website! Sign up here: <http://t.co/dP2jeoFVno> #xapi #tincanapi  
11:08am • 07 Mar 2013

**ADL Initiative** retweeted you.

Source: <http://klout.com/adltechteam>



# Compare Social Analytics



Annalisa (my girl)

BEAUTIFUL BECKY BENI BORN BOTTLEWORKS BOTTOM BREATHE BRING CAKE  
TAKE THANKFUL THINKING TIME WAIT  
OVER PEACE SAFE SANFORD SOMETHING  
HAPPIEST HAPPINESS HERE HOPE INEZ  
COUPLE EVENT FALL FAR FOREVER FUN  
ROCK TREES WEEKS WISHES JOY  
AWESOME DANCE GREAT MISS FB  
THANK CARRY EVERYONE  
BIRTHDAY CELEBRATE <sup>BIG</sup>  
<sup>BKI</sup>  
LOVE HAPPY <sup>AGAIN</sup> HELP  
DAY FRIENDS TODAY  
HUGS FAMILY HEART LIFE  
MUCH THANKS WISH BOTH <sup>ART</sup>  
<sup>ADD</sup>  
HRUSKA MOM NIKOLAUS PLEASE  
ALWAYS AUGURI BDAY BEST COME EVEN  
FRIEND GIGGLE GIVE GOOD GRATITUDE  
ITEMS KNOW LAUGH NEAR NEED NIK OH  
SPREAD START SUNSHINE SUPPORT <sup>ANGELA</sup>  
AFTERNOON ALEXANDRA ARTICLE ASKING ATTENTION AUCTION AWAY BABY

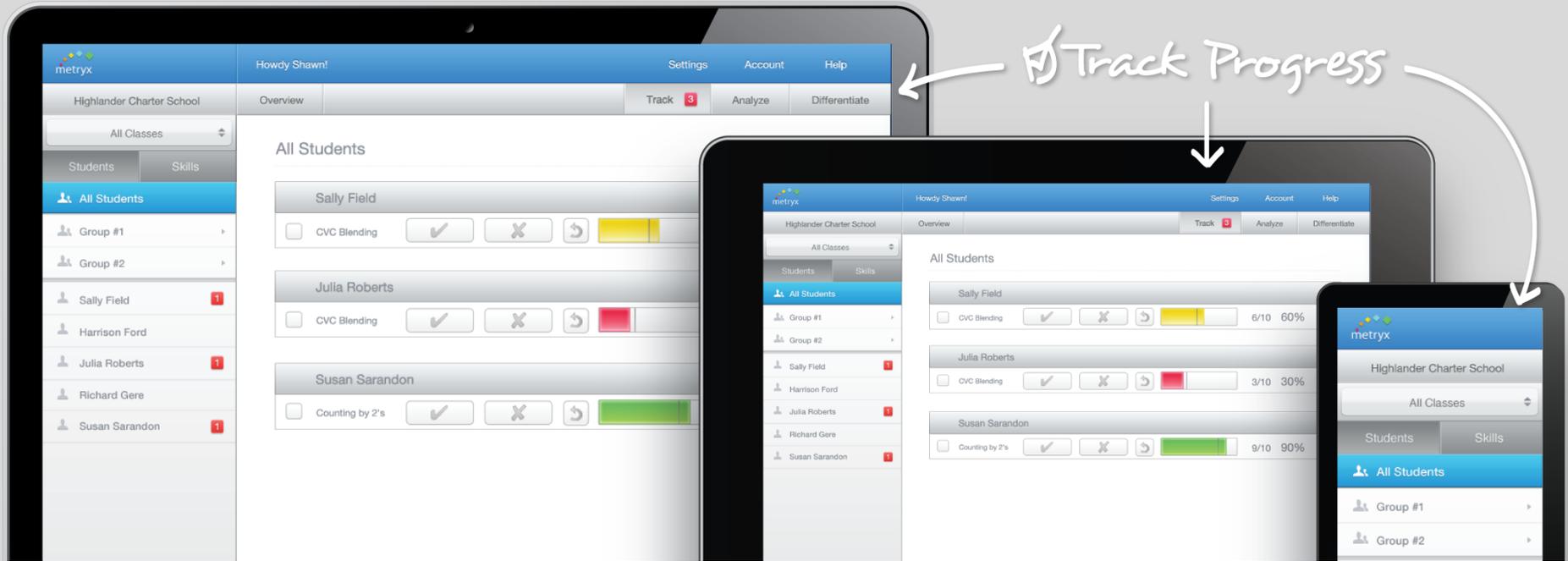


Sanford (my dog)

LEFTOVERS LOVE MAD MADE MAKE MAMA MAN'S MARX MIDDLE MONEY  
GIANT GOD GREAT GROUCHO HAPPY HEAD HEAVEN HOLE HOLES HOME KEPT  
CIGARS DANE DARK DIGGING DOG'S ECONOMY ENTERTAIN EXCITED EYES FACT  
NOW PEOPLE WANT BEFORE BELIEVE BEST BITES FYI  
YARD BARKING BETTER BOTHER  
HERE HUMANS NEED BONE  
DOG <sup>ALLEN ANYONE BIG</sup> JEALOUS ARNETTE AROUND IM  
DOGS BIRTHDAY  
ANYTHING COUCH FOOD <sup>DIG</sup>  
<sup>DIE</sup>  
RIGHT SUCCESSFUL CAT <sup>EATS</sup>  
<sup>BALL</sup>  
KNOW LABRADOR NEVER NEW <sup>ASTHMA</sup>  
BLANTON BONES BOOK BOOMERANG BREAKDOWN BUSTED CATS CIGAR DAMN  
FEELING FENCED FEW FLAVORED FORGET FRIEND FRIENDS FUNNY FURRY LOT  
HOUND HOURS IMPROVED INSIDE KILLING KINKY KRYPTONITE LASER LICKING

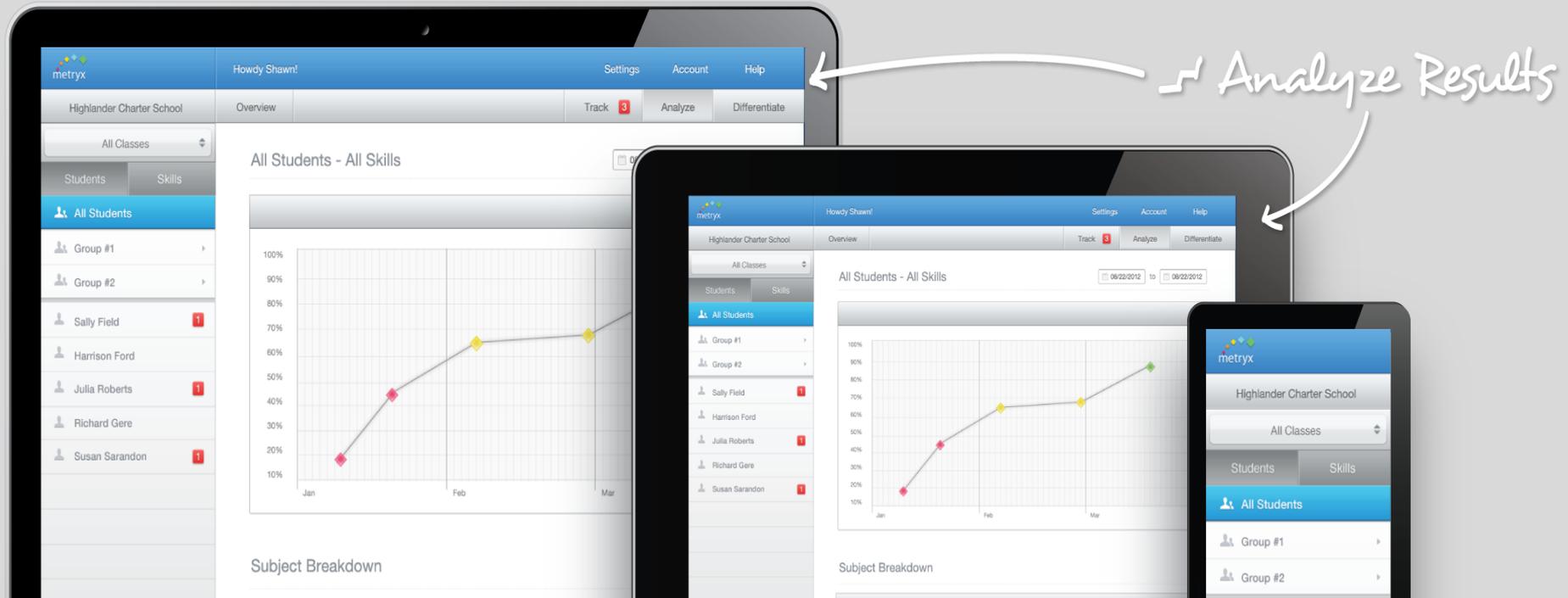
Source: <http://www.WolframAlpha.com/facebook>

# Personalize Games - Track Progress...



Source: <http://mymetryx.com>

# ...Analyze Results...



Source: <http://mymetryx.com>

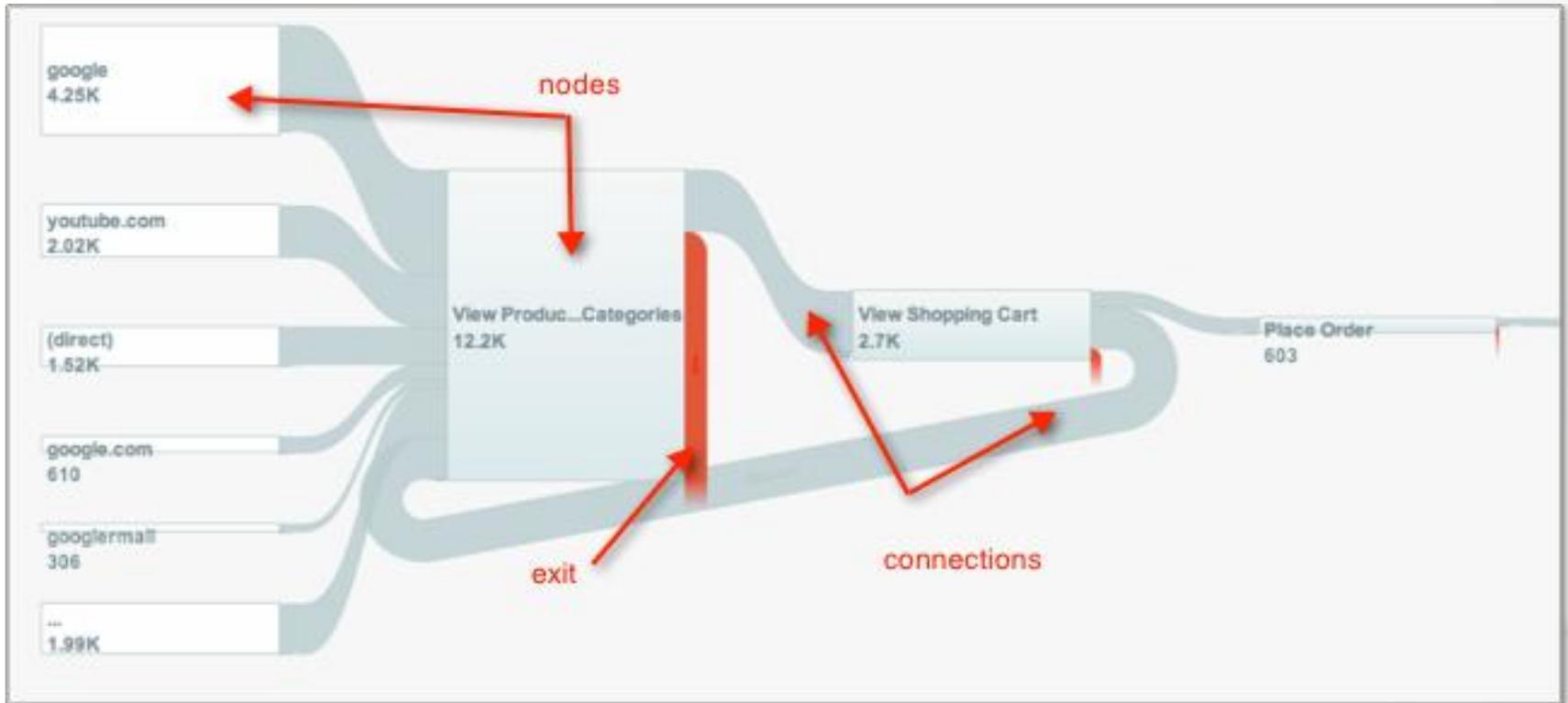
# ...Personalize Instruction

The image shows three devices displaying the metryx software interface. The desktop view on the left shows a navigation menu with 'All Students' selected, a list of students (Sally Field, Harrison Ford, Julia Roberts, Richard Gere, Susan Sarandon), and a table of student performance for 'CVC Blending' with 5 scores each at 80%. The tablet and smartphone views show a similar interface but with a simplified layout. A white arrow points from the text 'Differentiate Instruction' to the 'Differentiate' button in the desktop view.

Differentiate Instruction

Source: <http://mymetryx.com>

# Build New Reporting Capabilities



Source: <http://support.google.com/analytics/bin/answer.py?hl=en&answer=2519986>

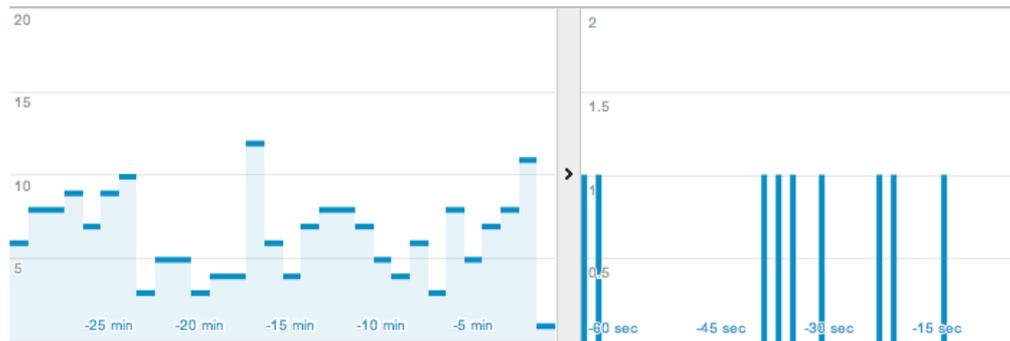
# Use Live Analytics

Right now

# 30

active visitors on site

■ DIRECT
 ■ ORGANIC
 ■ REFERRAL
 ■ CAMPAIGN



ALL TRAFFIC

Metric Total: **30**

	Medium	Source	Active Visitors	↓
1.	Organic	google	11	<div style="width: 36.67%;"></div> 36.67%
2.	Direct		7	<div style="width: 23.33%;"></div> 23.33%
3.	Referral	google.com	4	<div style="width: 13.33%;"></div> 13.33%
4.	et	DiscoverList	2	<div style="width: 6.67%;"></div> 6.67%
5.	feed	feedburner	2	<div style="width: 6.67%;"></div> 6.67%
6.	Referral	adsense.blogspot.com	1	<div style="width: 3.33%;"></div> 3.33%
7.	Referral	blog.metycea.com	1	<div style="width: 3.33%;"></div> 3.33%
8.	Referral	blogger.com	1	<div style="width: 3.33%;"></div> 3.33%
9.	sm	gatweet	1	<div style="width: 3.33%;"></div> 3.33%

Source: <http://www.google.com/analytics>

# ADL Prototypes and Examples

- ADL Prototypes
  - <http://www.GitHub.com/adlnet>
- Virtual World Framework
  - <http://vwf.adlnet.gov>
  - 3DR -> VWF -> LRS (via scripting)
- Learning Registry (bookmarklet or plugin)
- Mobile QR Code Game (Word Puzzle)
- Data Visualizations
- Bookmarklet LRS Tracking
- All are freely available (source code too) on our GitHub site



Search or type a command



Explore Gist Blog Help



nhruska



## Advanced Distributed Learning (ADL)

adlnet

Alexandria, VA and Orlando, FL

help@adlnet.gov

http://www.adlnet.gov

Joined on Dec 11, 2011

31 public repos 0 private repos 14 members

Repositories

Members

Edit adlnet's Profile

Find a Repository...

All Public Private Sources Forks Mirrors



vwf

Perl ★ 3 17

forked from virtual-world-framework/vwf

The Virtual World Framework (VWF) is a fast, light-weight, web-based architecture for creating and distributing secure, scalable, component-based, and collaborative virtual spaces.

Last updated 12 minutes ago



xAPI-Spec

★ 30 44

Last updated 3 hours ago



ADL\_LRS

Python ★ 34 17

ADL's Open Source Learning Record Store (LRS) is used to store learning data collected with the Experience API.

Last updated 3 days ago



LR-Wordpress-Widget

JavaScript ★ 0 2

forked from mickmuzac/LR-Wordpress-Widget

Last updated 20 days ago



ITAEngine

C# ★ 0 1

A prototype extensible intelligent tutoring framework designed to teach different types of subject matter on different platforms

Last updated a month ago



RUSSELgwt

Java ★ 0 0

Google Web Toolkit (GWT) files for the RUSSEL project.

Last updated 2 months ago



RUSSEL

JavaScript ★ 1 1

The Re-Usability Support System for eLearning (RUSSEL) is an open-source software project to manage and repurpose courses, documents and multimedia assets.

Source: <http://www.github.com/adlnet>

What made the xAPI effort  
successful?

# Experience API Highlights

---

1. Listen to the community

# Experience API Highlights

---

1. Listen to the community
2. Define a new approach

# Experience API Highlights

---

1. Listen to the community
2. Define a new approach
3. Use industry knowledge to kick start the project

# Experience API Highlights

1. Listen to the community
2. Define a new approach
3. Use industry knowledge to kick start the project
4. Help facilitate collaboration

# Experience API Highlights

1. Listen to the community
2. Define a new approach
3. Use industry knowledge to kick start the project
4. Help facilitate collaboration
5. Provide the community with **OWNERSHIP**

# Experience API Highlights

1. Listen to the community
2. Define a new approach
3. Use industry knowledge to kick start the project
4. Help facilitate collaboration
5. Provide the community with OWNERSHIP
6. Choose collaboration tools

# Experience API Highlights

1. Listen to the community
2. Define a new approach
3. Use industry knowledge to kick start the project
4. Help facilitate collaboration
5. Provide the community with OWNERSHIP
6. Choose collaboration tools
7. Drive the process

# Experience API Highlights

1. Listen to the community
2. Define a new approach
3. Use industry knowledge to kick start the project
4. Help facilitate collaboration
5. Provide the community with OWNERSHIP
6. Choose collaboration tools
7. Drive the process
8. Complete transition to industry/academia

# An Open Source Success Story



# What's next for ADL and the xAPI?

- Build vendor/user community and tool ecosystem
- Attract early adopters to build tools
- Create open source software libraries, tools, best practices, and examples
- Write articles to illustrate new capabilities enabled by using the xAPI
- Get feedback from YOU on xAPI v1.0 release
- GET INVOLVED HERE: <http://xapi.adlnet.gov>

# Questions?

- Nikolaus Hruska
  - Email: [nikolaus.hruska.ctr@adlnet.gov](mailto:nikolaus.hruska.ctr@adlnet.gov)
  - Twitter: [@nikolaushruska](#)  
[@ADLTechTeam](#)  
[@ADL Initiative](#)
- ADL Website: <http://www.adlnet.gov>
- xAPI Resources: <http://xapi.adlnet.gov>
- ADL GitHub: <http://www.github.com/adlnet>
- Resources:  
<http://www.adlnet.gov/webinars/experience-api-version-1-0-0>