Leveraging Rails to Build Facebook Applications

By David Keener

VERSION 2.0

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Arizona's First Ruby Conference
SunnyConf

About Me

David Keener

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I'm a Senior Solutions Architect for **MetroStar Systems**, a 10-year-old consulting company where I work on New Media projects for government agencies, non-profits and commercial companies.

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The world's
largest social network
and
most productive web framework

And then Reality sets in…

Overview

- Why work with Facebook?

- The Facebook Development Landscape

- How to Get Started

- General Application Types

- Some tips and best practices

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  - Lots and lots and lots of people
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- **Why work with Facebook?**
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- **The Facebook Development Landscape**
  - Ugly, chaotic, fractured…but gradually improving

- **How to Get Started**
  - Learning to embrace the chaos

- **General Application Types**
  - Plus a few examples

- **Some tips and best practices**
  - Your Facebook development survival guide

🇮🇷 Iran Voices

IRAN VOICES
VOICE YOUR MIND

Home   **Invite**   **Polls**   **Tweets**   **My Polls**

Iran Voices
Wants to Know

IRAN'S ELECTION 2009

Ali Hoseyni Khamenei

Ali Akbar Hashemi Rafsanjani

Which of These Two Leaders Has the Greatest Influence In Iran?

Vote Now!   **Current Results**   **Create A Poll**

Welcome to Iran Voices! Voice your Opinion and Invite your friends to do the same. You can create your own Polls too!

Related Polls

Which Candidate Did You Vote For In The June 12th Presidential Election?
poll never expires

Which of These Two Leaders Has the Greatest Influence In Iran?
poll never expires

Related Tweets

AMSR12 Sind eure Landesgesetze und allgemein gültige demokratische Werte bei Massenmörder aufgehoben USA, EU? #iran
4 months ago

👤● Chat (2)

Search

PollCast

Home   **Polls**   **Invite**   **My Polls**

Welcome to PollCast! Create a cool Poll with your own photos and invite your friends to vote. You might be suprised what your friends really think!

Create Your Own Poll

Кой е вашият любим отбор във F1?

☑ Vote Now   🌐 View Results

Stanislav Dimitrov wants to know
1 vote 0 comments

NFL Football: Who Will Win the NFC East?

☑ Vote Now   🌐 View Results

Johnny Nguyen wants to know
52 votes 8 comments

What is your favorite holiday?

☑ Vote Now   🌐 View Results

Kayley Suk wants to know
28 votes 3 comments

Coke or Pepsi?

☑ Vote Now   🌐 View Results

👤● Chat (3)

Search

HOME   **VIDEOS**   **JUDGES**   **ABOUT**   **RULES**   **FAQS**   **CONTACT US**

Best Garage Band Contest 2010

Upload Video

Learn More

Sign In

Click icon to sign in

Tell your friends about the contest!

Share |

Who's Been Here?

Random Videos

Random

Recently Added

Top Rated

More...
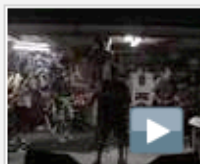
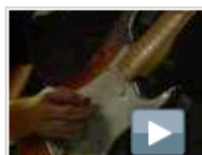|				
2 views ★ 3.73	1 view ★ 3.55	5 views ★ 2.70	3 views ★ 2.60	3 views ★ 2.75
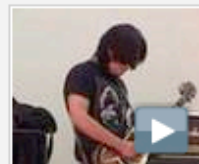
View All

More Entries

Recent Activity

Garage Band, Congresbury!
David McVicar, Johnny Nguyen and 3 people shared this.

Garage Band – Electric Funeral
Johnny Nguyen shared this.

Why Facebook?

More than
500 million
active users

50% of active users log on to Facebook in any given day

More than
35 million
users update their status each day

More than
60 million
status updates posted each day

More than
3 billion
photos uploaded to the site each month

More than
5 billion
pieces of content
(web links, news stones, blog posts, notes, photo albums, etc.)
shared each week

Average user has
130 friends
on the site

Average user sends
8 friend requests
per month

Average user spends more than
55 minutes
per day on Facebook

Average user clicks the Like button on
9 pieces of content
each month

Average user writes
25 comments
on Facebook content each month

Average user is a member of
13 groups

Every month
70% of all users
use Facebook apps

More than
1 million
developers from 180 countries

More than
500,000
active Facebook apps

More than
250 apps
have 1 million+ users

More than
80,000 sites
now use Facebook Connect

More than
60 million
use sites via Facebook Connect

FACEBOOK

Beyond the Stats….

Facebook provides…

- A large and <u>active</u> audience
- Global reach (70% non-US)
- Methods for apps to interact with that audience
- Well-defined ways for audience members to tell their friends what they like
- Successful apps can make real money

Bambi Meets Godzilla

Facebook:
500 million

AOL:
35 million

(Also a 1969 animated short from Marv Newland)

http://www.youtube.com/watch?v=ZpBkc2jK-6w
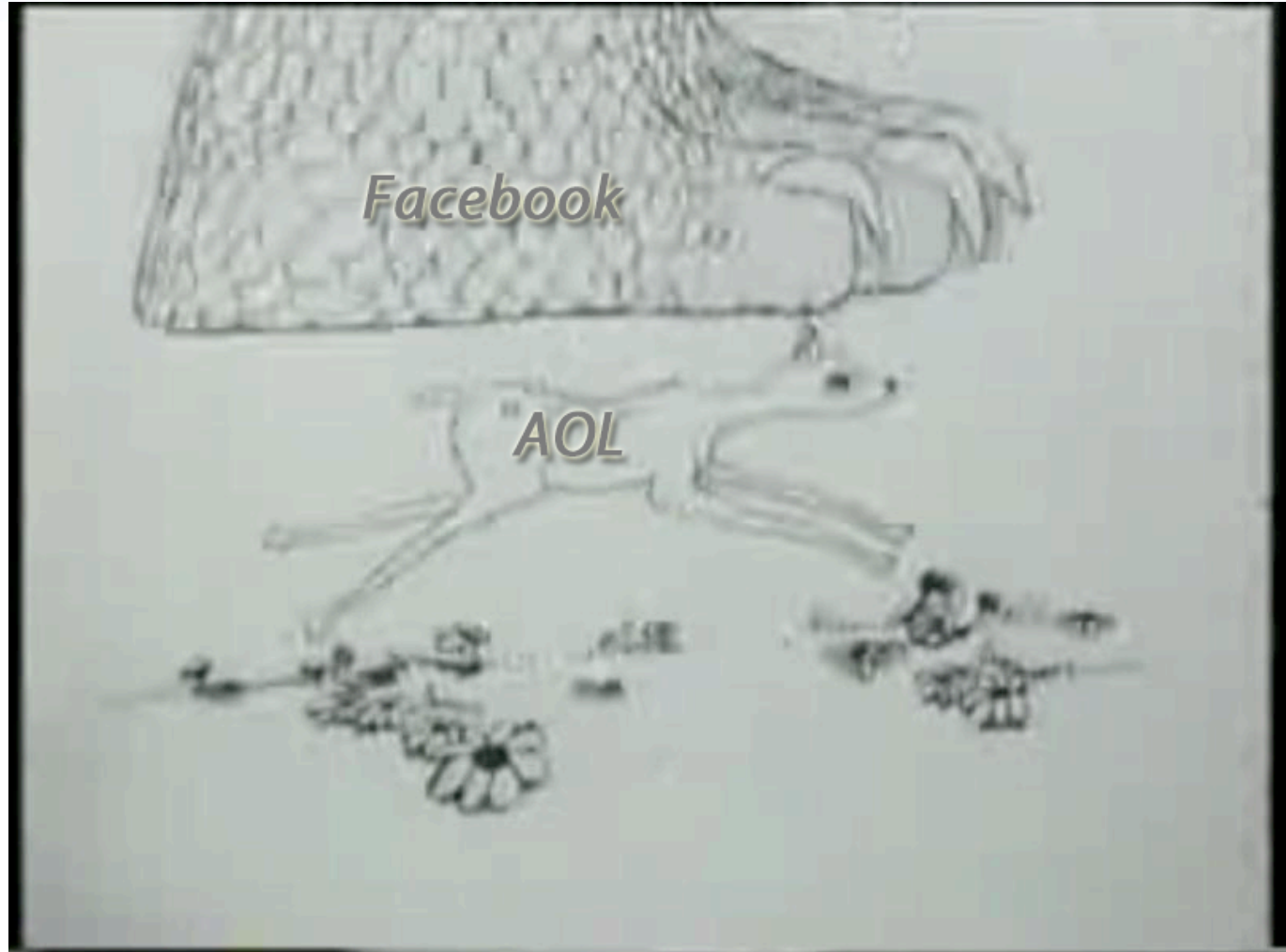
The Development Landscape

F8 Announcements

- OpenGraph API replaces old REST API
- Relaxation of draconian data storage policies
- Re-branding of Facebook Connect
- Data Permissions
- OAuth 2.0
- Revised client libraries
- New easy-to-integrate widgets
- Deprecation of FBML

Paradigms:
Shift happens.

http://www.zazzle.com/paradigm_shift_
shirt-235689301340536532

Platform After F8

API

- OpenGraph *
- Old REST Web Services
- Libraries
  - Official: JavaScript, PHP and Python
  - Unofficial: Many
  - Gems: Facebooker, Facebooker2, Mogli

FQL - Similar to SQL

Social Plugins (Widgets) *

FBML and FBJS

- HTML with extensions
- JavaScript with extensions
- Used with "canvas" – not needed with iframe apps

Facebook Connect

- Single sign-on, external sites

Facebook Has a PHP Mindset

- Facebook was designed with PHP in mind
- No "dev" version of Facebook to test apps against upcoming platform changes
- Their REST interfaces don't do REST in the Rails way

  - https://graph.facebook.com/me/friends
  - https://graph.facebook.com/me/home (News Feed)

Just accept it and move on…

The Moving Target

- Facebook changes often, and with little warning
- 3rd party libs always lag behind platform changes…
- Facebook after F8 is in flux, and so are 3rd party libs

Getting Ready to Develop

① Create a Facebook account

  - You can't play if you don't join

② "Install" the Facebook Developer app

  - http://www.facebook.com/developers

③ Create a Facebook application

  - Register your app with Facebook

④ Record key data elements for later use

  - Application ID (Your OAuth client_id)
  - Application Secret (Your OAuth client_secret)

Some App Variations

- External, Single Sign-On Only
  - Just leverages Facebook's audience

- External, Shallow Integration (Social Plugins)
  - Quick, easy, limited…needs JavaScript lib only

- External, Deep Integration (OpenGraph)
  - A deeper user experience, more work

- Facebook Canvas Application
  - Functions within the Facebook context
  - Can integrate with Facebook Business Pages

Example 1: Single Sign-On

Single Sign-On, JavaScript (1)

Must include the following code:

```html
<div id="fb-root"></div>
<script src="http://connect.facebook.net/en_US/all.js"></script>
<script>
  FB.init({appId: '123456789012345', status: true, cookie: true, xfbml: true});
  FB.Event.subscribe('auth.sessionChange', function(response) {
  if (response.session) {
    // A user has logged in, and a new cookie has been saved    }
  else {
    // The user has logged out, and the cookie has been cleared    }  });
</script>
```

Single Sign-On, JavaScript (2)

<fb:login-button></fb:login-button>

- Or you can have your own button and call
FB.login via JavaScript for a login popup…

```
FB.login(function(response) {
  if (response.session) {
    if (response.perms) {
      // user is logged in and granted some permissions.  }
    else {
      // user is logged in, but did not get any permissions    }
  } else {
    // user is not logged in
    }
}, {perms:'read_stream,publish_stream,offline_access'});
```

Facebook Cookie

- Successful logins result in the creation of a Facebook cookie
- The cookie is called: fbs_**APP_ID**
- That cookie can be interrogated by Ruby code on the server

  - access_token, facebook_id (UID)

- Generally, you create local accounts for Facebook users (and record things like their name, UID, etc.) after they've logged in for the 1st time

Example 2: Profile Pics

Facebook Profile Pics

Who's Been Here?

View All

- If you know any user's Facebook UID, then you can show their profile pic…

https://graph.facebook.com/UID/picture?type=small

Example 3: Single Sign-On

(Ruby and OAuth2)

Single Sign-On, Ruby

- We'll use the OAuth2 gem for Facebook authentication
- Same technique also works with Twitter and LinkedIn

Facebook Login Badge

```
<% if @auth_method.nil? || @auth_method == :any %>
  <p><%= I18n.t('text.login.choose') %></p>
  <ul id="login-types" class="clear">
    <li class="vtr" style="cursor:pointer"></li>
    <li class="fb"><%= link_to "<span class=\"alt\">" +
        I18n.t('label.connect_3rd_party',
        :network=>"Facebook") + "</span>",
        facebook_login_url(:contest_id => contest_id, :back =>
        request.env['REQUEST_URI']), :title =>
        I18n.t('label.connect_3rd_party', :network=>"Facebook")
      %>
    </li>
...
```

Facebook Routes

- We support multiple auth schemes
- Each one has its own controller, e.g. – facebook_controller.rb
- Here are the relevant routes:

```
map.facebook_login  "facebook/", :controller => 'facebook',
    :action => 'new'
map.facebook_oauth_callback "facebook_oauth_callback/",
    :controller => 'facebook', :action => "oauth_callback"
```

New Login Action

```ruby
class FacebookController < StoreBaseController
  before_filter  :authorize, :except=>[:new, :oauth_callback]

  def new
    session[:return_to] = params[:back] if params[:back]
    redirect_to client.web_server.authorize_url(:redirect_uri =>
      facebook_oauth_callback_url)
  end

  def oauth_callback end     # Provided on next slide

  protected

    def client
      @config ||= YAML.load(File.open(RAILS_ROOT +
          "/config/facebook_auth.yml").read)[RAILS_ENV]
      OAuth2::Client.new(@config['client_id'],
        @config['client_secret'], :site => @config['base_url'])
    end
end
```

Oauth_Callback Action

```ruby
def oauth_callback
  unless params[:code]
    authentication_failed('Authentication info does not match session info.') and return
  end
  access_token = client.web_server.get_access_token(params[:code],
    :redirect_uri => facebook_oauth_callback_url)
  user = FacebookUser.identify_or_create_from_access_token(access_token)
  session[:user_id] = user.id
  session[:user_type] = user.user_type
  user.increment!(:login_count)
rescue Net::HTTPServerException => e
  case e.message
    when '401 "Unauthorized"'
      authentication_failed('This auth request is no longer valid') and return
    else
      authentication_failed('There was a problem trying to auth you.') and return
  end
end
```

Parsing the JSON

```ruby
def self.identify_or_create_from_access_token(token)
  raise ArgumentError, 'Must authenticate with an OAuth2::AccessToken.' unless
    (token) || token.is_a?(OAuth2::AccessToken)
  user_json = token.get('/me')
  user_info = JSON.parse(user_json).symbolize_keys

  unless user = self.find_by_external_id(user_info[:id])
    user = self.new( :external_id => user_info[:id])
  end
  FACEBOOK_ATTRIBUTES.each do |att|
    user.send("#{att}=", user_info[att]) if user.respond_to?("#{att}=")
  end
  user.external_id = user_info[:id]
  user.access_token = token.token
  user.profile_pic = "https://graph.facebook.com/#{user_info[:id]}/picture?type=small"}
  user.save
  user
end
```

Tips and Best Practices

Practical Tips

- Look carefully at performance
  - Control the number of Facebook calls on a page
  - Consider FQL to get data more efficiently
  - FQL has been updated to use OpenGraph
  - Cache data where possible

- If you use the canvas, use the iframe sub-type

  - Better control of the output
  - No need for HTML to be scrubbed (or mangled) by Facebook

- Do periodic regression tests on <u>production</u> code

For Canvas Apps

- "Hybrid Apps" is the way to go
- Limited functionality works within the Facebook "canvas"
- For advanced features, users taken to a separate site
- Example: PollCast – Users can take polls within Facebook, but they create them by going to a separate site

Best Gems Right Now

- **OAuth2** – For authentication

- ~~**Facebooker**~~

  - Pros: Handles FBML, well documented, plus has Mike Mangino's book
  - Cons: Many things don't work anymore, it won't support Rails 3.0 and FBML is deprecated

- **Facebooker2**

  - Pros: Updated for OpenGraph, Rails 3.0
  - Cons: Alpha, still evolving

- **Mogli** – Library wrapper for OpenGraph

Resources

- Facebook Developer Resources
  - http://www.facebook.com/developers
  - http://developer.facebook.com
- "Developing Facebook Platform Applications with Rails" by Michael J. Mangino, Pragmatic Programmers, 2008
- Pragmatic Programmers Forum
  - http://forums.pragprog.com/forums/59
- Google Group
  - http://groups.google.com/group/facebooker
- AllFacebook.com
  - http://www.allfacebook.com

Questions

- **Blog:** http://www.keenertech.com
- **Facebook:** http://www.facebook.com/keenertech
- **Twitter:** dkeener2010
- **Email:** dkeener@keenertech.com
  dkeener@metrostarsystems.com

Appendix A: App Creation

As a prerequisite for developing applications for Facebook, you must first register your app…

This appendix shows the various Facebook pages involved in the process

Documentation | Forum | Policy   Help

Create new applications

Developer

+ Set Up New Application

News

Displaying 1 of 312 stories   See All | Subscribe

Connecting with f8
Yesterday at 5:00pm
Published by Julia Lam

276
f Share

Whether you're joining us in person at f8, or will be following the event from afar, we're looking forward to celebrating the developer community with everyone on April 21.

Preparing for f8, Taking a Look Back
As we get closer to the next f8, we'll begin sharing videos from past conferences on the f8 Page for a look at some of the conversations that took place when Facebook Platform launched, and a year later when the focus was Facebook Connect.

Bringing f8 to You
With such a large and diverse ecosystem of developers and entrepreneurs around the world, we want to give everyone the opportunity to participate in f8. We'll continue to post the latest content to the f8 Page, including a live stream, updates, and photos on the 21st, so that you can see what's going on at the event, ask questions, and interact with other developers and Facebook employees on the ground.

In addition to the f8 Page and live stream, you can also connect to the event on Twitter at @fbplatform (hashtag: #f8).

For those who missed out on purchasing a ticket on time, the staff at TechCrunch has free tickets they're awarding to five people with the best comments on this article (as judged by TechCrunch). Just let them know why you should attend f8 this year for a chance to win.

The Countdown Begins!
We're anticipating another great crowd this year. Go to the f8 Page and share what you're most looking forward to discussing and learning at the event.

See you there (or you'll see us) on April 21!

Julia is moving fast with the rest of the f8 team, getting ready for the big day.

List of your apps

My Applications

See My Applications

☐ dkfbone   more ▾
    Monthly Active Users
    Application Fans   0
                       0

☐ JobCast   more ▾
    Monthly Active Users
    Application Fans   0
                       0

☐ metrostarconnection   more ▾
    Monthly Active Users
    Application Fans   0
                       0

🎨 PollCast   more ▾
    Monthly Active Users
    Application Fans   51
                       28

Status

Subscribe | See All

IFrame app issues
Apr 7, 2010 12:50pm

Hello, we are aware of issues currently affecting some iFrame apps, and we're working on a solution. You can see updates and... Read more...

Multi-friend selector issues resolved
Apr 6, 2010 11:04pm

Initial App Creation

- http://www.facebook.com/developers/createapp.php
- Must fill out a CAPTCHA upon submission

Back to Developer Home

🗂 My Applications

[+ Set Up New Application]

⚙ airbanking
⚙ dkfbone
⚙ dkfbtwo
⚙ JobCast
K keenertech
⚙ metrostarconnection
📋 PollCast
✅ Votridea

airbanking

Directory Status: Not Submitted
Once you have completed your application, you may submit it to the Application Directory.

Monthly Active Users	People Who Like This	Total Users
0	**0**	**0**

Application ID
122981967744938

API Key
f0085f2c484f9fd3b7a34e13d6e0995d

Application Secret
[blurred]

Canvas Page
http://apps.facebook.com/airbanking/

Canvas URL
http://web1.tunnlr.com:11225/

Canvas FBML/iframe
iframe

Contact Email
dkeener@metrostarsystems.com

Support Email
dkeener@metrostarsystems.com

Application Description
Social Banking: Banking for the 21st century

Sample Code
Get started quickly with some example code!

Edit Settings
Application Profile Page
Insights
Translations
Advertise
Reset Application Secret

Delete Application

Short-Cut App Creation

- Hard to find…
- Has never worked for me…
- Your mileage may vary…

http://developers.facebook.com/setup/

Appendix B: SSH Tunneling

SSH tunneling is only needed if:

- You are building an app that will run within Facebook's canvas
- You want Facebook to pull the app from your dev environment, e.g. – your laptop

http://127.0.0.1:3000

…is not acceptable…

Facebook can't find your laptop…

One Simple Access Method

- Set up ssh access to a host on the Net
- On host, `sshd_config` file needs:

  ```
  GatewayPorts = clientspecified
  ```

- Run the following command on a UNIX flavor dev machine (like your laptop):

  $ ssh keenertech.com -R
  :3001:127.0.0.1:3000 sleep 99999

Forwards host's port 3001 to 3000 on laptop

Appendix C: Other Examples

Some other code examples:

- Example 4: Social Plugins (Like Button)
- Example 5: Metadata
- Example 6: Canvas App

Example 4: Social Plugins

Social Plugins

- Leverages Facebook's JavaScript SDK
- Can easily add social plugins to web sites
- Enables rapid "shallow integration"
- Eight type of social plugins available
- Each widget supports customization options
- Customization is still limited, though

Available Social Plugins
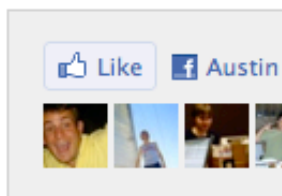
Like Button
The Like button lets users share pages from your site back to their Facebook profile with one click.
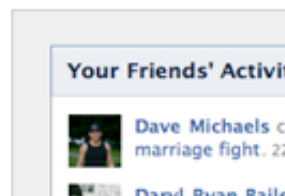
Activity Feed
The Activity Feed plugin shows users what their friends are doing on your site through likes and comments.
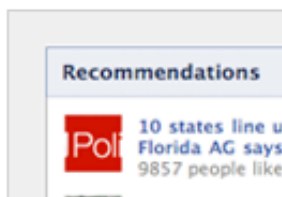
Recommendations
The Recommendations plugin gives users personalized suggestions for pages on your site they might like.
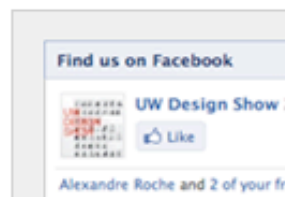
Like Box
The Like Box enables users to like your Facebook Page and view its stream directly from your website.
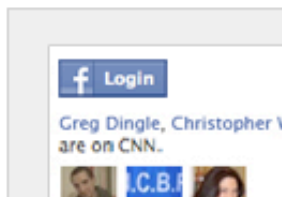
Login Button
The Login Button shows profile pictures of the user's friends who have already signed up for your site in addition to a login button.
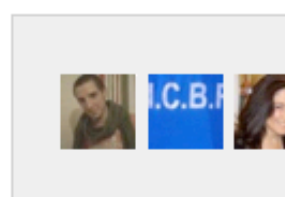
Facepile
The Facepile plugin shows the Facebook profile pictures of the user's friends who have already signed up for your site.

Comments
The Comments plugin lets users comment on any piece of content on your site.

Live Stream
The Live Stream plugin lets your users share activity and comments in real-time as they interact during a live event.

Adding a Like Button

- "Like" will cause the web page to be promoted on the user's News Feed…and will also appear for their friends
- The number of people who "Like" an item impacts how often the item will be shown on Facebook news feeds
- Facebook will retrieve info about the page

Blog Entry, With "Like" Button

Social Plugin Requirements

Need to have the following code…

```
<div id="fb-root"></div>
<script>
  window.fbAsyncInit = function() {
    FB.init({appId: '106529556064124', status: true, cookie: true,
         xfbml: true});
  };
  (function() {
    var e = document.createElement('script'); e.async = true;
    e.src = document.location.protocol +
      '//connect.facebook.net/en_US/all.js';
    document.getElementById('fb-root').appendChild(e);
  }());
</script>
```

Using a Partial…

```
<%= render(:partial => 'shared/facebook_like_button', :locals =>
    { :href => ”#{SITE_URL}#{request.request_uri}" }) %>
```

- This is <u>part</u> of "show.html.erb" for content pages on the KeenerTech blog
- Partials help keep social plugin code modular

Like Button – Embed Code

```
<iframe
  src="http://www.facebook.com/plugins/like.php?href=
    <%= CGI::escape(href%>
    &amp;layout=standard&amp;show_faces=false&amp;width=450
    &amp;action=like&amp;colorscheme=light&amp;height=35"
  scrolling="no" frameborder="0"
  style="border:none; overflow:hidden; width:450px; height:35px;"
  allowTransparency="true">
</iframe>
```

- /shared/_facebook_like_button.html.erb

Example 5: Metadata

Metadata for Facebook (1)

```
<html xmlns:og="http://opengraphprotocol.org/schema/"
    xmlns:fb="http://www.facebook.com/2008/fbml">
<head>
<meta property="og:description" content="Description"/>
```
- See http://developers.facebook.com/docs/opengraph#types
```
<meta property="og:image" content="/images/ctnt/123/rn.jpg"/>
```
- Images should be square and at least 50x50 pixels

Metadata for Facebook (2)

<meta property="og:url" content="http://.../your_page/"/>

  - Permalink for the article; used by Facebook

<meta property="og:site_name" content="KeenerTech"/>

  - Official name of your website

<meta property="fb:app_id" content=" 106529556064124"/>

  - The app ID (or use fb:admins with comma-delimited

   list of Facebook ID's for the admins)

…

Example 6: Canvas App

Prerequisite - Appendix B: SSH Tunneling

Facebook Application

- Entire app functions within the "canvas," i.e.- within the Facebook context
- Two sub-types:

  - Canvas: Deprecated.

  - Iframe: External app functions within an iframe

- Many games use iframes with an embedded Flash app
- Mostly the same as external apps…now

What Is the Canvas?

The canvas is the area within the Facebook web site that your application can control.

- As a "Canvas" app, or…
- An external app running in an iframe

It looks like this…

DKFBONE Home

This is a test.
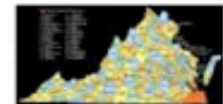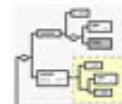
This is the Canvas

How Facebook Canvas Apps Work