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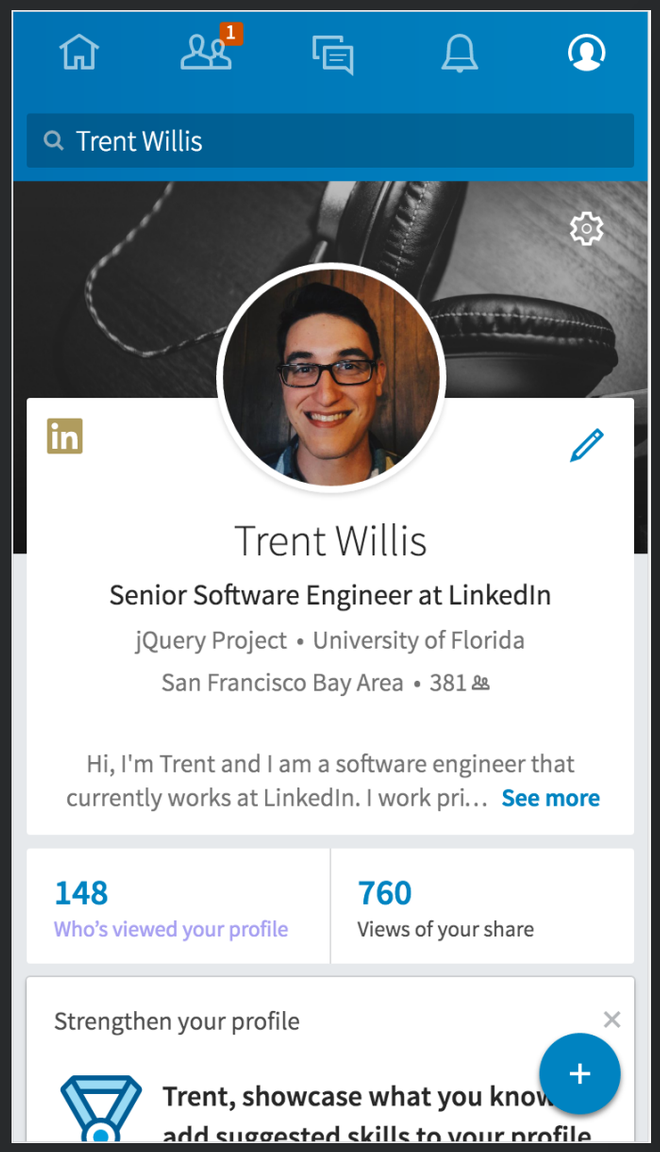
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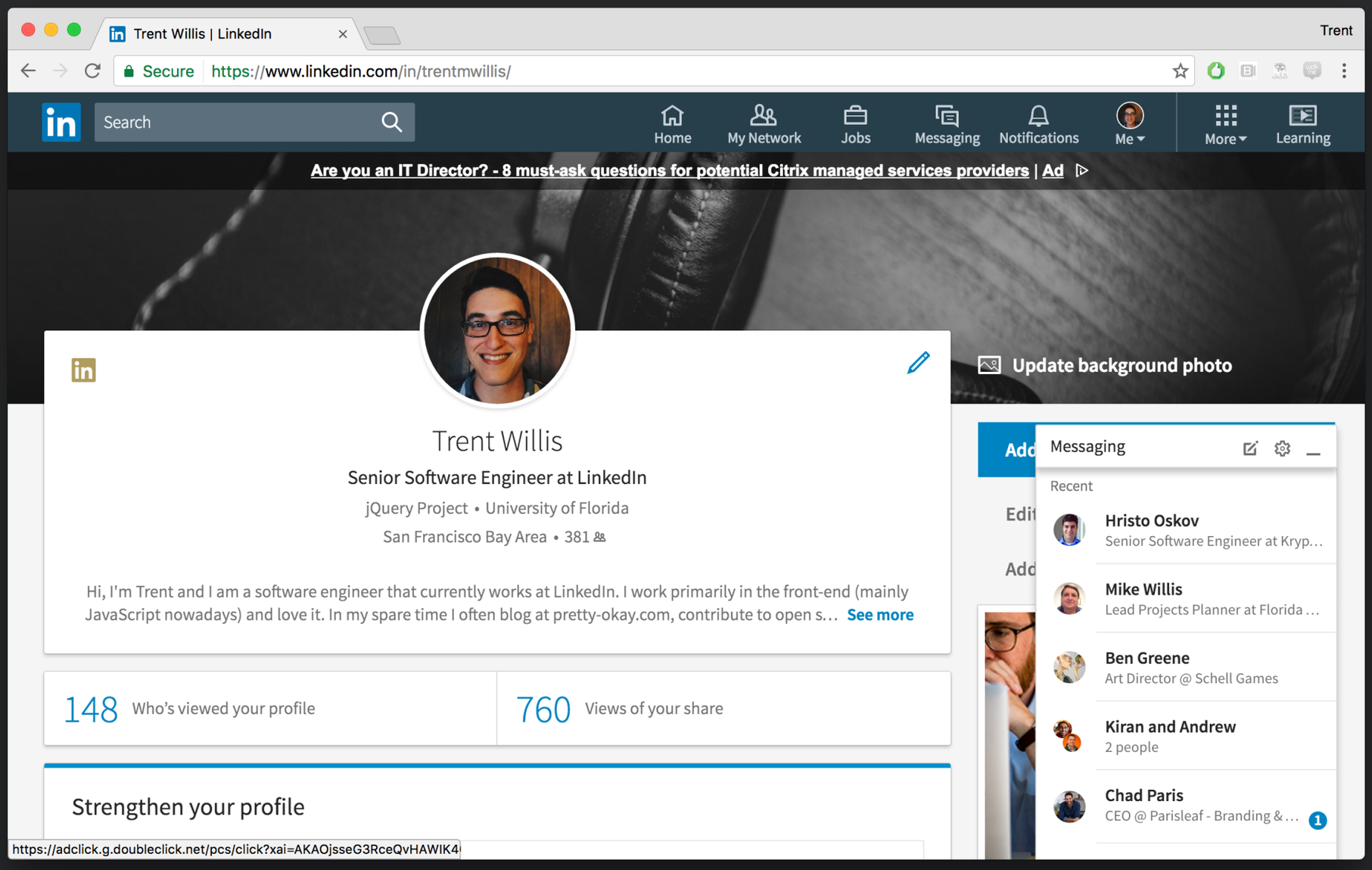
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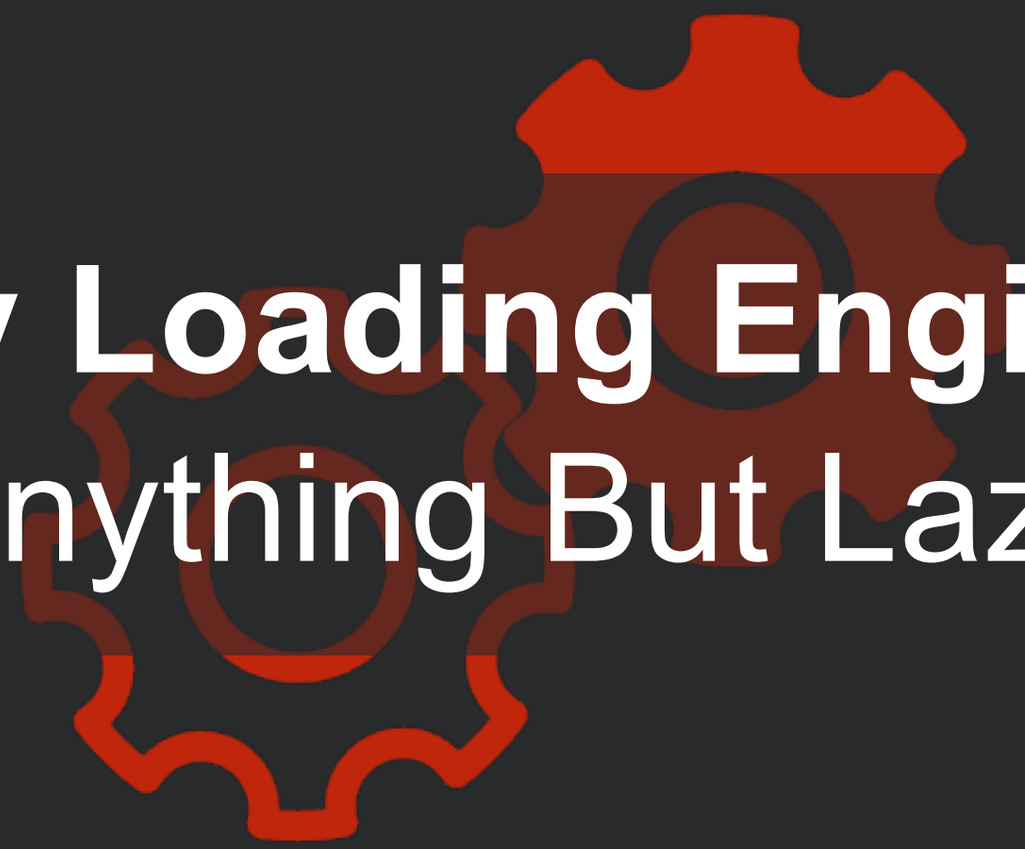


Lazy Loading Engines:

Anything But Lazy

Engines allow multiple logical applications to be composed together into a single application from the user's perspective.

- Engine RFC

Lazy Loading Engines.

Lazy Loading.

Lazy Loading. **It’s hard**.

Lazy Loading. It’s hard.

But, **Ember makes it easy**.

Problem 1: ***Serializing URLs***

How do we construct a URL to a lazily loaded route?

```
{{#link-to “blog”}}
  Blog
{{/link-to}}
```

How to construct a URL

Router +
Model +
Query Params +
Route +
Controller

URL

How to construct a URL

Router +
Model +
Query Params +
~~Route~~ +
~~Controller~~

URL

Problem 1: **Serializing URLs**

Problem 1: **Serializing URLs**

Model Serialization $\boldsymbol{w/o}$ Routes
Query Params $\boldsymbol{w/o}$ Controllers

Model Serialization w/o Routes

```
Router.map(function() {
  this.route('post', {
    path: ‘/post/:post_id’
  });
});
```

```
Route.extend({
   serialize(model) {
      return {
         post_id: model.id
      };
   }
});
```

Route Serializer RFC

emberjs/rfcs#120

[Replace] the existing Route#serialize method with an equivalent method on the options hash passed into this.route within Router#map.

```
Route.extend({
   serialize(model) {
      return {
         post_id: model.id
      };
   }
});
```

```
function serialize(model) {
   return {
      post_id: model.id
   };
}
```

```
function serialize(model) {
  return {
    post_id: model.id
  };
}
```

```
Router.map(function() {
  this.route('post', {
    path: ‘/post/:post_id’,
    serialize
  });
});
```

Query Params w/o Controllers

Default Query Param Values

```
Controller.extend({
  queryParams: [‘lang’, ‘locale’],
  lang: ‘en’
});
```

```
Controller.extend({
  queryParams: ['lang', 'locale'],
  lang: 'en'
});

serialize({
});
```

```
Controller.extend({
  queryParams: [‘lang’, ‘locale’],
  lang: ‘en’
});
```

```
serialize({
  lang: ‘en’,
  locale: ‘uk’
});
```

```
Controller.extend({
  queryParams: [‘lang’, ‘locale’],
  lang: ‘en’
});
```

```
serialize({
  lang: ‘en’,
  locale: ‘uk’
}); => ?locale=uk
```

```
Controller.extend({
  queryParams: [‘lang’, ‘locale’],
  lang: ‘en’
});
```

```
serialize({
  lang: ‘en’,
  locale: ‘uk’
}); => ?locale=uk&lang=en
```

With lazy Engines, **default query params are part of the URL**

Problem 2: ***Link Scoping***

```
{{link-to “blog”}}
```

Where does

`{{link-to “blog”}}`

go in an Engine?

```
{{link-to “blog”}}
```

```
{{link-to “mountPoint.blog”}}
```

To ensure isolation (and loose-coupling), **links are scoped to an Engine's mount point.**

How do you link ***outside*** the scope of an Engine?

Engine Linking RFC

emberjs/rfcs#122

```
{{link-to-external “home”}}
```

```
this.transitionToExternal(‘home’);
```

```
export default Engine.extend({
  dependencies: {
    externalRoutes: [
      'home',
      'settings'
    ]
  }
});
```

```
Ember.Application.extend({
  engines: {
    myEngine: {
      dependencies: {
        externalRoutes: {
          home: 'home.index',
          settings: 'user.settings'
        }
      }
    }
  }
});
```

With `{{link-to-external}}`
you are specifying ***what*** you want
to go to.

It is the consumer's responsibility
to tell you ***where*** that is.

Engine: Hey App, I want to go to “settings”. Where is that?

Engine: Hey App, I want to go to “settings”. Where is that?

Host: “settings” is located at “user.settings.index”.

Engine: Hey App, I want to go to “settings”. Where is that?

Host: “settings” is located at “user.settings.index”.

Engine: Thanks!

Problem 3: **Loading Assets**

Problem 3: **Loading Assets**

What do we load?

How do we load it?

What do we load?

Asset Manifest RFC

emberjs/rfcs#153

*The **Asset Manifest** is a JSON specification to describe assets and bundles of assets that can be loaded into an Ember application asynchronously at runtime.*

```
interface Asset {
   type: String;
   uri: String;
}
```

```
type BundleName = string;

interface Bundle {
  assets: Array<Asset>;
  dependencies?: Array<BundleName>;
}
```

```
interface AssetManifest {
  bundles: Map<BundleName, Bundle>;
}
```

Transforms (e.g., fingerprinting)

Compositional Loading

Extensibility

Transferability

How do we load it?

Asset Loader RFC

emberjs/rfcs#158

*The **Asset Loader** service is an Ember Service that is responsible for loading assets specified in an Asset Manifest.*

The API for loading these assets is Promise-based for integration with Router.js.

```
interface AssetLoader {
    pushManifest(manifest:
        AssetManifest);
}
```

```
interface AssetLoader {
  pushManifest(manifest:
    AssetManifest);
  loadAsset(asset: Asset):
    AssetPromise;
}
```

```
interface AssetLoader {
  pushManifest(manifest:
    AssetManifest);
  loadAsset(asset: Asset):
    AssetPromise;
  loadBundle(bundle: BundleName):
    BundlePromise;
}
```

```
interface AssetLoader {
  pushManifest(manifest:
    AssetManifest);
  loadAsset(asset: Asset):
    AssetPromise;
  loadBundle(bundle: BundleName):
    BundlePromise;
  defineLoader(type: String,
    loader: (uri: String) =>
    Promise<T, U>);
}
```

```
interface AssetLoader {
  pushManifest(manifest:
    AssetManifest);
  loadAsset(asset: Asset):
    AssetPromise;
  loadBundle(bundle: BundleName):
    BundlePromise;
  defineLoader(type: String,
    loader: (uri: String) =>
    Promise<T, U>);
}
```

Asset Manifest + Asset Loader

Ember Asset Loading Strategy

ember-asset-loader

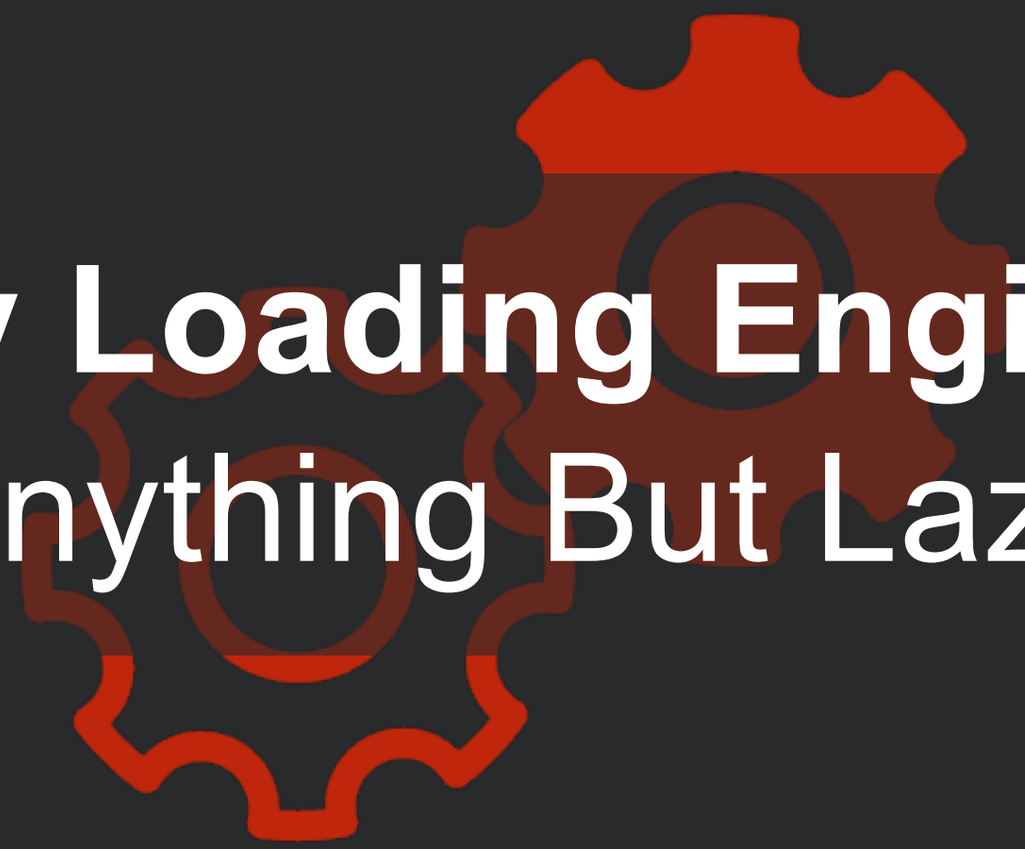
Ember Engines

Ember Engines:

A ***community-driven*** solution to lazy loading.

ember-engines.com

github.com/ember-engines



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