DSpace 7 New User Interface
Progress update - June 2017

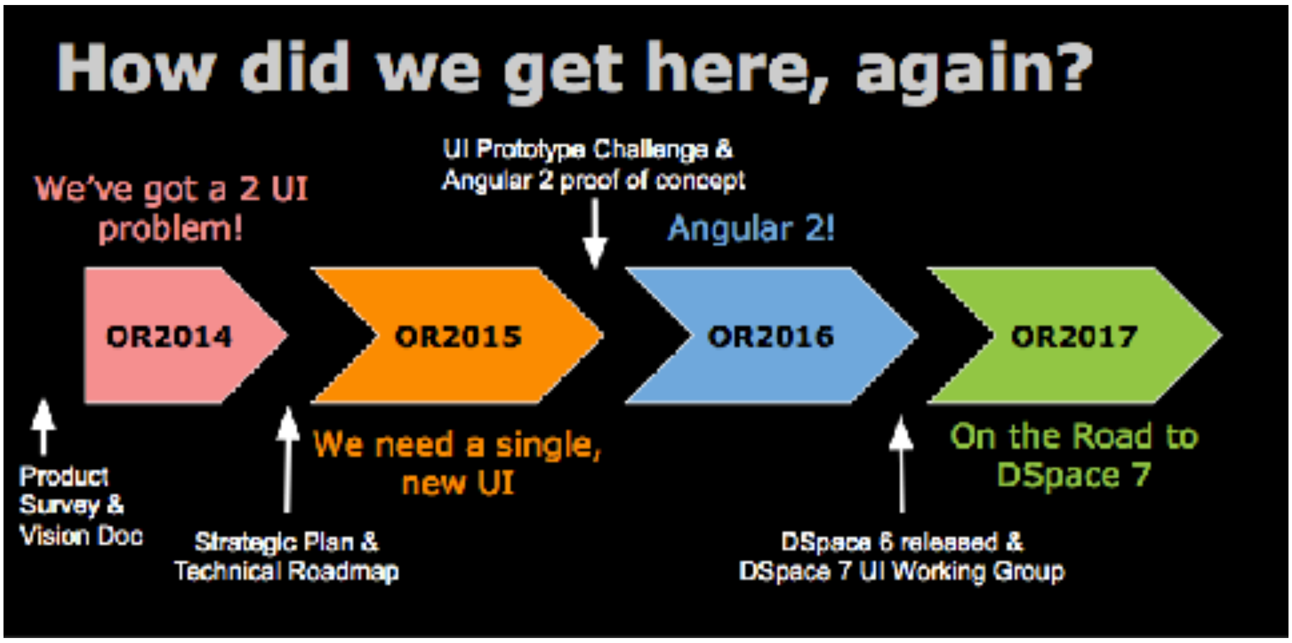
How did we get here, again?
We've got a 2 UI problem!
UI Prototype Challenge & Angular 2 proof of concept
Angular 2!
OR2014
OR2015
OR2016
OR2017
Product Survey & Vision Doc
Strategic Plan & Technical Roadmap
We need a single, new UI
DSpace 6 released & DSpace 7 UI Working Group
On the Road to DSpace 7

Image courtesy of Tim Donohue

Breaking down the technology
What is Angular 2? Why choose Angular2?

Angular 2 is the second version of the Angular Javascript framework built by Google: https://angular.io/
There are several reasons Angular 2 caught our immediate attention when it was beta released in late 2015 (For more on some of these see: https://angular.io/features.html)

1. Angular 2 supports Search Engine Optimization (SEO). In other words, applications built with Angular 2 can be easily indexed/searched by Google or Google Scholar
2. Angular 2 supports Accessibility guidelines
3. Angular 2 supports web archiving (e.g. Internet Archive harvesting and similar)
4. An Angular 2 application works even when Javascript is turned OFF. While this may sound strange, this is the feature that supports #1-3 above. Your users don't need to even have Javascript running to use an Angular 2 application
5. Angular 2 applications are written in a language called TypeScript (built by Microsoft). TypeScript is an enhanced version of Javascript (and while it's new, it is widely supported by Microsoft and Google). Typescript also supports many Java-like concepts. So, we feel developers familiar with Javascript or Java will be able to pick up this new language quickly
6. The Angular framework is the most popular / widely used client side Javascript framework. So, there are many opportunities for support, and many third-party plugins available for building/enhancing Angular 2 applications

Finally, Angular also provides all the benefits of a client-side (Javascript) application; those benefits include:

- A more dynamic and modern user experience
- Better separation of the user interface and backend. Building the user interface on a client side technology forces a distinct separation between server-side (backend) code and the user interface
- Better / enhanced REST API (for future integrations) - see overleaf for more on this
- Innovative / exciting; updating DSpace to use modern technologies will not only improve the user experience and UI development processes, it'll also help us get newer developers involved and excited about DSpace!

Why are we re-building the REST API?

While DSpace has had a REST API since DSpace 4.0, this REST API is very limited in functionality and practical use cases. In addition, the existing REST API has the following disadvantages:

- While it is a decent, first-try at a REST API, it does not follow any modern best practices for REST APIs (e.g. HATEOAS (Hypertext As The Engine Of Application State), ALPS (Application Level Profile Semantics), etc)
- It is mostly "handcrafted", custom code (i.e. it defines its own response syntaxes, not based on any widely adopted standards). While it does provide basic documentation on those responses, there is no formal REST "contract" (a contract is detailed documentation on how a REST API "promises" to interact with any external system)
- It uses a third-party library (Jersey) that is not widely used in the DSpace codebase, and does not provide the modern best practices mentioned above

We can more easily enhance and maintain it

Keep in mind, if you have local, custom tools or applications that already make use of the (existing) DSpace REST API, they will need updating once this new REST API is released (as we get further along, documentation will be provided).

What have we done so far on this?

- Hashed out how to build the new REST API
- Started building mock ups of the REST API
- Started building mock ups of the Angular UI
- Started preparing a demo of search/browse ready for OR2017 in June 2017
- The REST API codebase is in the main codebase at: https://github.com/DSpace/DSpace/tree/rest7
- The Angular UI codebase is at https://github.com/DSpace/dspace-angular/