Introducing Apache Annotator (Incubating)
Hi.

- Solutions Architect for John Wiley & Sons
- BigBlueHat most places
  - https://github.com/bigbluehat
  - https://twitter.com/bigbluehat
  - https://keybase.io/bigbluehat
  - http://bigbluehat.com
  - bigbluehat@apache.org
My History with Apache

- 2000 – built sites with Apache Cocoon
- 2010 – started contributing to Apache CouchDB
- 2014 – became Apache CouchDB committer
- 2016 – started incubating Apache Annotator
My History with Annotation

- In love with the Web since 1996
- Built CMS after CMS after CMS
- Eventually found The Hypothes.is Project
- Co-edited the Web Annotation Data Model & Vocabulary specs
- Tested and implemented the Web Annotation Protocol
- Joined John Wiley & Sons, Inc. to help upgrade it’s implementation
Collaborative Effort

- Open Knowledge Foundation
- The Hypothes.is Project
- Shuttleworth Foundation

- Nick Stenning – started in July 2009
- Aron Carroll – joined in Feb 2011
- Randall Leeds – joined in April 2012
  - v0.0.2 of Hypothes.is “h” code released in October 2012
The Hypothes.is Project

- Originally built on Annotator.js + Apache CouchDB
- Eventually switched to ElasticSearch because FTS
- Eventually heavily forked/modified/extended Annotator.js
- Hired: Nick, Aron, Randall (and me)
- Participated in the Open Annotation & Web Annotation groups
Annotator.js Community

- Fractured
- Forked
- Mixed Licenses
  - Core code is dual licensed GPL & MIT
  - Plugins consequently pick their favorite
  - No way to re-combined Voltron
- No driver to contribute back
- BDFL(s) lost interest / moved on / forked
Open Annotation Spec Development

- **Phase I: July 2009 - December 2010**
  - define an initial version
  - lay the foundation for further developing

- **Phase II: January 2011 - February 2013**
  - directly engage [potential implementers] in annotating that content
  - demonstrate and refine Phase I to produce **suitable-for-production** Open Annotation data model and specifications.

- **Phase III: January 2013 through September 2013**
  - develop the OA community and engage stakeholders
  - provide essential community infrastructure elements
Web Annotation
built from Open Annotation

- W3C Digital Publishing Interest Group publishes Use Cases for Annotations doc
- Open Annotation Community Group is formed
- Web Annotation Working Group chartered
  - Builds on Open Annotation specs
- The Hypothes.is Project joins the W3C
- I join editors of the Web Annotation Data Model & Vocabulary
- W3C publishes Web Annotation Data Model, Protocol, & Vocabulary docs (2017-02)
Apache Annotator

(incubating)
Annotation Community Needs

- Shared space
- Shared understanding
- Shared ownership
- Shared objective
- Shared code

Hence...The ASF
By Our Powers Combined

- Extract good bits from Annotator.js history / thinking
- Build on Randall Leeds’ latest libraries (which Hypothes.is uses)
- Provide way forward for Annotator.js users & developers
- Implement the specs
- Provide client + server flagship implementations
- Focus on core tools, not “kitchensink” annotation tool
Web Annotation Data Model
Basic Annotation Model

interstitial awesome

{
  "@context": "http://www.w3.org/ns/anno.jsonld",
  "id": "http://example.org/anno1",
  "type": "Annotation",
  "body": "http://example.org/post1",
  "target": "http://example.com/page1"
}
External Web Resources

audio annotation

{
  "@context": "http://www.w3.org/ns/anno.jsonld",
  "id": "http://example.org/anno1",
  "type": "Annotation",
  "body": {
    "id": "http://example.org/post1",
    "format": "audio/mpeg",
    "language": "fr"
  },
  "target": "http://example.com/page1"
}
Specific Resources
SPACEJUMP

```json
{
    "@context": "http://www.w3.org/ns/anno.jsonld",
    "id": "http://example.org/anno4",
    "type": "Annotation",
    "body": "http://example.org/description1",
    "target": {
        "id": "http://example.com/image1#xywh=100,100,300,300",
        "type": "Image",
        "format": "image/jpeg"
    }
}
```

https://www.w3.org/Protocols/HTTP/Methods/SpaceJump.html
More Specific Resources

CSS Selector

```json
{
    "@context": "http://www.w3.org/ns/anno.jsonld",
    "id": "http://example.org/anno24",
    "type": "Annotation",
    "body": "http://example.org/note1",
    "target": {
        "source": "http://example.org/page1.html",
        "selector": {
            "type": "CssSelector",
            "value": "#elemid > .elemclass + p"
        }
    }
}
```
XPath Selector

```json
{
    "@context": "http://www.w3.org/ns/anno.jsonld",
    "id": "http://example.org/anno25",
    "type": "Annotation",
    "body": "http://example.org/note1",
    "target": {
        "source": "http://example.org/page1.html",
        "selector": {
            "type": "XPathSelector",
            "value": "/html/body/p[2]/table/tr[2]/td[3]/span"
        }
    }
}
```
Much <b>cute!</b> So <i>kitten!</i>
Multiple Bodies & Targets

Resource Classification

```json
{
  "@context": "http://www.w3.org/ns/anno.jsonld",
  "id": "http://example.org/anno5",
  "type": "Annotation",
  "motivation": "classifying",
  "body": [
    {
      "value": "cat",
      "purpose": "tagging",
      "type": "TextualBody"
    },
    {
      "value": "Cats are furry",
      "purpose": "describing",
      "type": "TextualBody"
    }
  ],
  "target": [
    "https://en.wikipedia.org/wiki/Cat",
    {
      "type": "Photo",
      "id": "https://upload.wikimedia.org/wikipedia/commons/thumb/0/0b/Cat_poster_1.jpg/1280px-Cat_poster_1.jpg"
    }
  ]
}
```
Multiple Annotation Identifiers

Offline First + Publication

```json
{
    "@context": "http://www.w3.org/ns/anno.jsonld",
    "id": "http://example.org/anno20",
    "type": "Annotation",
    "canonical": "urn:uuid:dbfb1861-0ecf-41ad-be94-a584e5c4f1df",
    "via": "http://other.example.org/anno1",
    "body": {
        "id": "http://example.net/review1",
        "rights": "http://creativecommons.org/licenses/by/4.0/"
    },
    "target": "http://example.com/product1"
}
```
Web Annotation Protocol
Container Retrieval

GET /annotations/

…response headers…

Link: <http://www.w3.org/ns/ldp#BasicContainer>; rel="type" Link: <http://www.w3.org/TR/annotation-protocol/>; rel="http://www.w3.org/ns/ldp#constrainedBy"
ETag: "0f6b5cd8dc1f754a1738a53b1da34f6b"
Vary: Accept
Allow: POST, GET, OPTIONS, HEAD
Accept-Post: application/ld+json; profile="http://www.w3.org/ns/anno.jsonld", text/turtle
Annotation Containers

Default Minimal container

Prefer: return=representation;
include="http://www.w3.org/ns/ldp#PreferMinimalContainer"

{
  "@context": [
    "http://www.w3.org/ns/anno.jsonld",
    "http://www.w3.org/ns/ldp.jsonld"
  ],
  "id": "http://example.org/annotations/?iris=1",
  "type": ["BasicContainer", "AnnotationCollection"],
  "total": 42023,
  "label": "A Container for Web Annotations",
  "first": "http://example.org/annotations/",
  "last": "http://example.org/annotations/"
}
Other Preferences

Prefer Contained IRIs

Prefer: return=representation;
       include="http://www.w3.org/ns/oa#PreferContainedIRIs"

"first": {
"id": "http://example.org/annotations/?iris=1&page=0",
"type": "AnnotationPage",
"next": "http://example.org/annotations/?iris=1&page=1",
"items": [
"http://example.org/annotations/anno1",
"http://example.org/annotations/anno2",
...
"http://example.org/annotations/anno999"
]}
}
Other Preferences

Prefer Contained Descriptions

Prefer: return=representation;
   include="http://www.w3.org/ns/oa#PreferContainedIRIs"

"first": {
   "id": "http://example.org/annotations/?iris=1&page=0",
   "type": "AnnotationPage",
   "next": "http://example.org/annotations/?iris=1&page=1",
   "items": [
      {"id": "http://example.org/annotations/anno1", "type": "Annotation",
       "body": "http://example.net/body1", "target": "http://example.com/page1"},
      {"id": "http://example.org/annotations/anno2", "type": "Annotation",
       "body": {"type": "TextualBody", "value": "I like this!"},
       "target": "http://example.com/book1"}
   ]
}
Annotation Containers

Minimal container + Preference

Prefer: return=representation;
    include="http://www.w3.org/ns/ldp#PreferMinimalContainer \ http://www.w3.org/ns/oa#PreferContainedIRIs"

{
    "@context": [
        "http://www.w3.org/ns/anno.jsonld",
        "http://www.w3.org/ns/ldp.jsonld"
    ],
    "id": "http://example.org/annotations/?iris=1",
    "type": ["BasicContainer", "AnnotationCollection"],
    "total": 42023,
    "label": "A Container for Web Annotations",
    "first": "http://example.org/annotations/?iris=1&page=0",
    "last": "http://example.org/annotations/?iris=1&page=42"
}
Participating
W3C + The ASF

- W3C Open Annotation Community Group
  - http://w3.org/community/openannotation/

- Apache Annotator (incubating)
  - Continues the AnnotatorJS.org community
  - Combines past efforts into a shared social structure
  - http://annotator.apache.org/
Thanks.