

# Reusable visualisation components

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Reusable?



Flexible

Creative-Tools.com



Simple

Wenger 16999 Swiss Army Knife Giant



PORTABLE

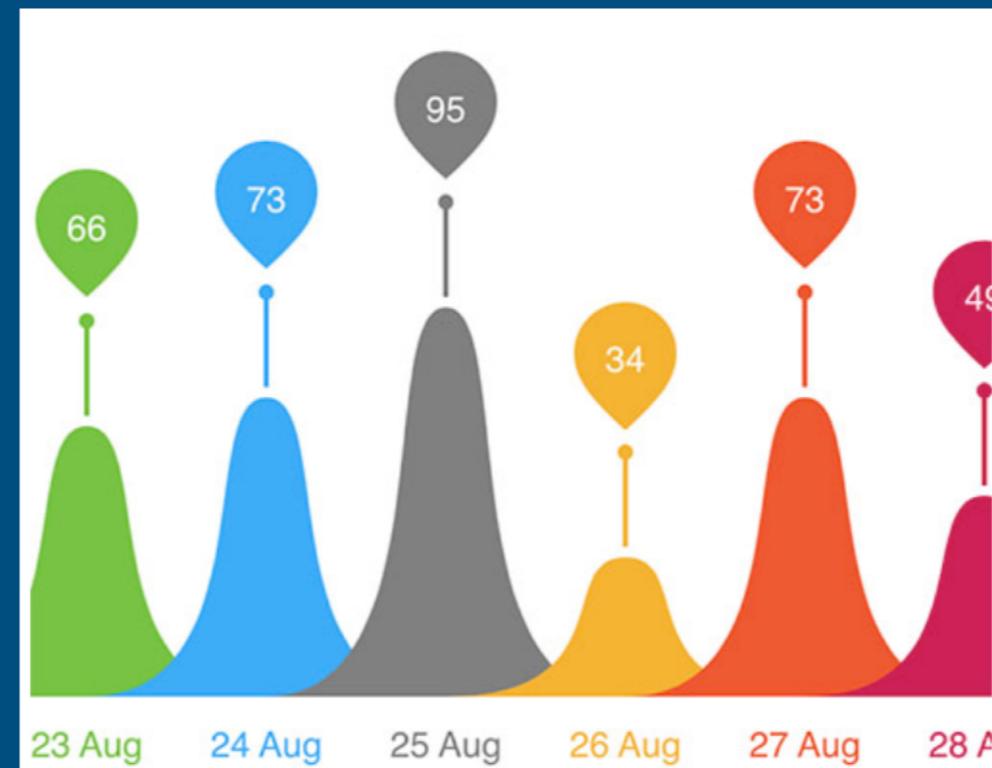
The “suitcase scooter” [BT.com](http://BT.com)

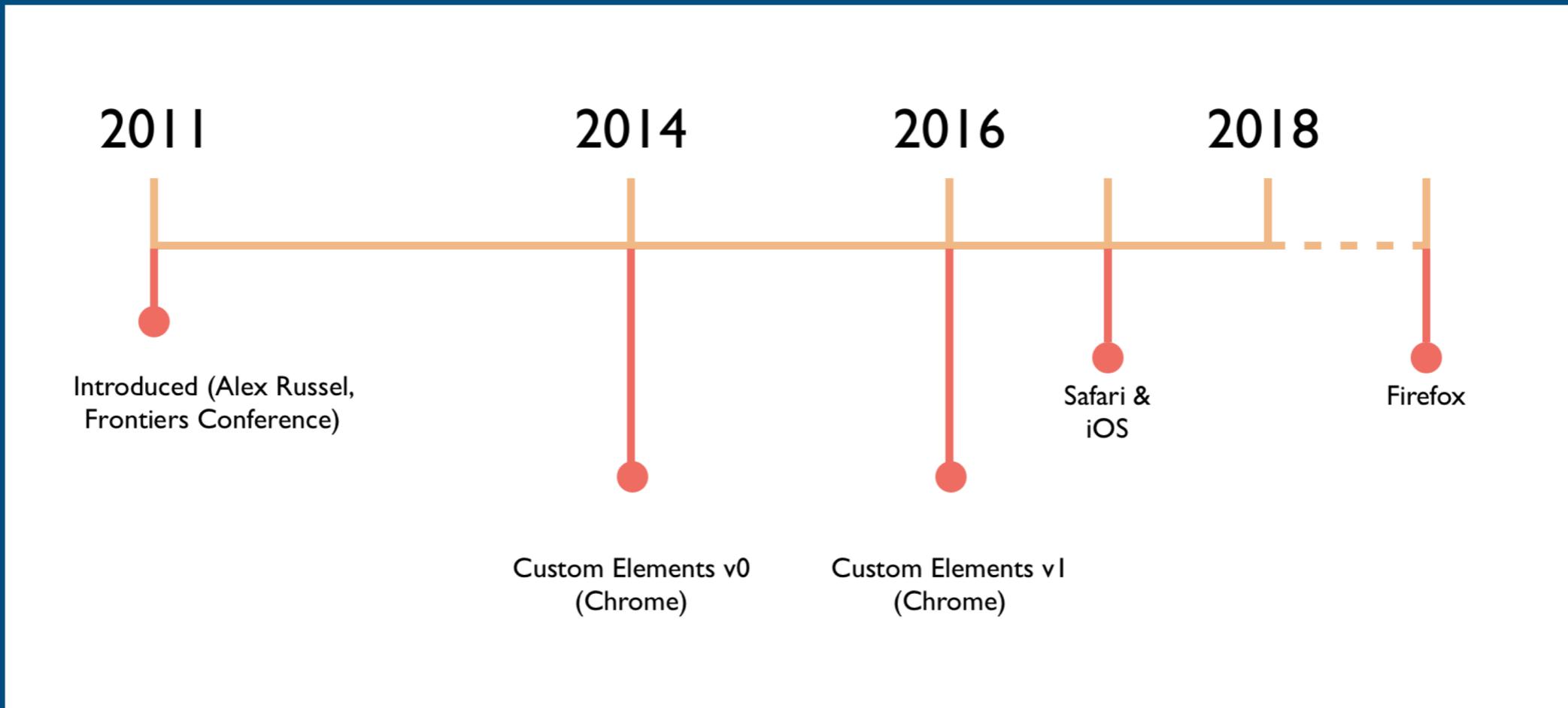
# Web components

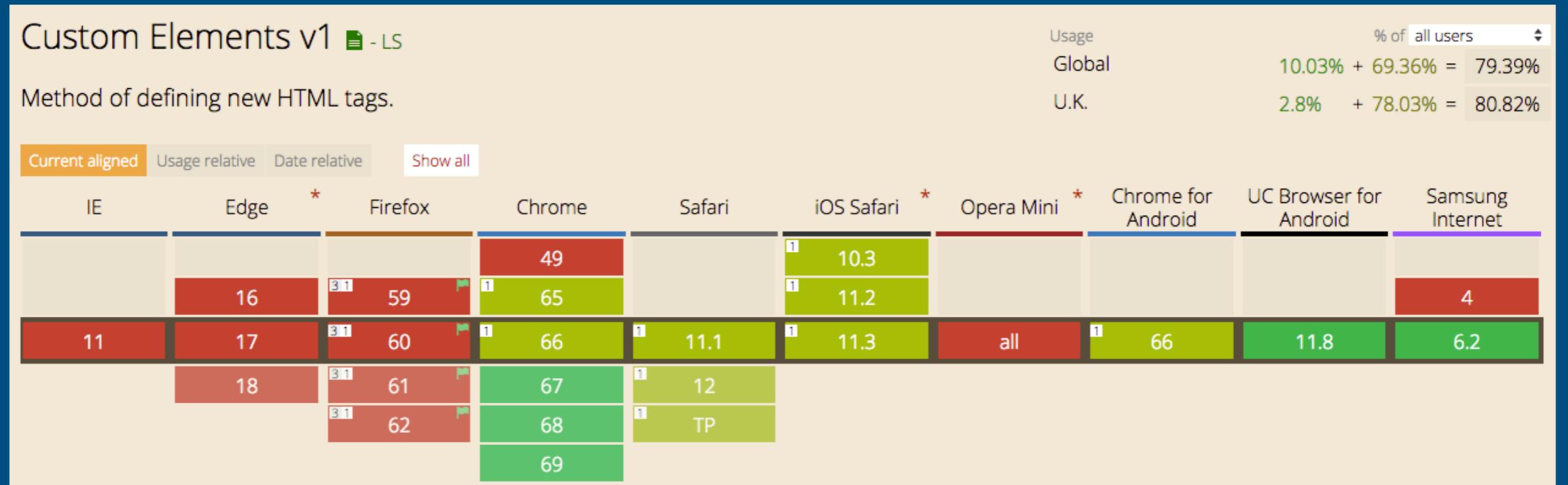
*“A set of features currently being added by the W3C to the HTML and DOM specifications that allow for the creation of reusable widgets or components in web documents and web applications.”*

# Custom Elements

```
<my-awesome-component beautiful="true"></my-awesome-component>
```







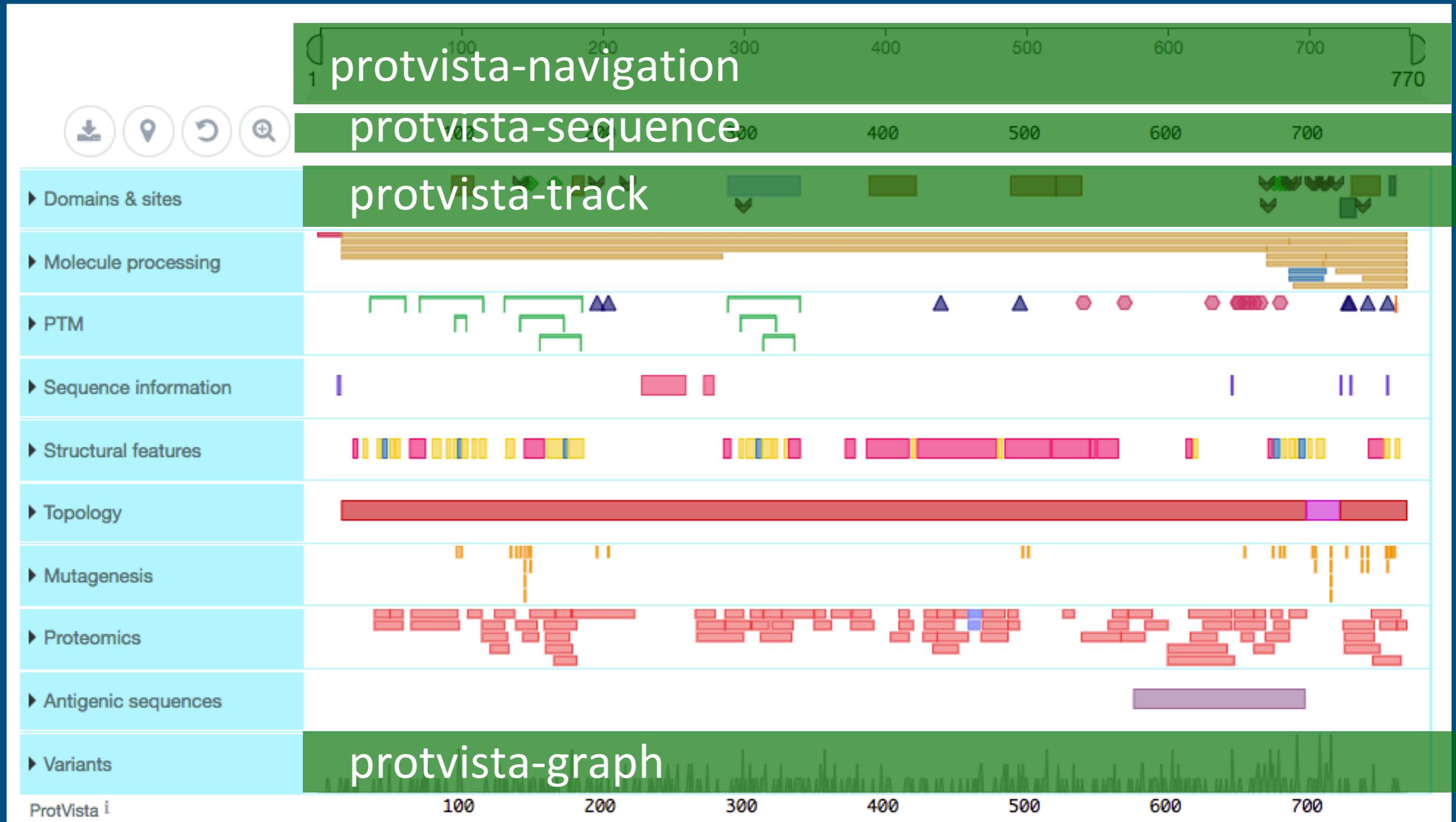
Polyfills to the rescue 

# EBI web components

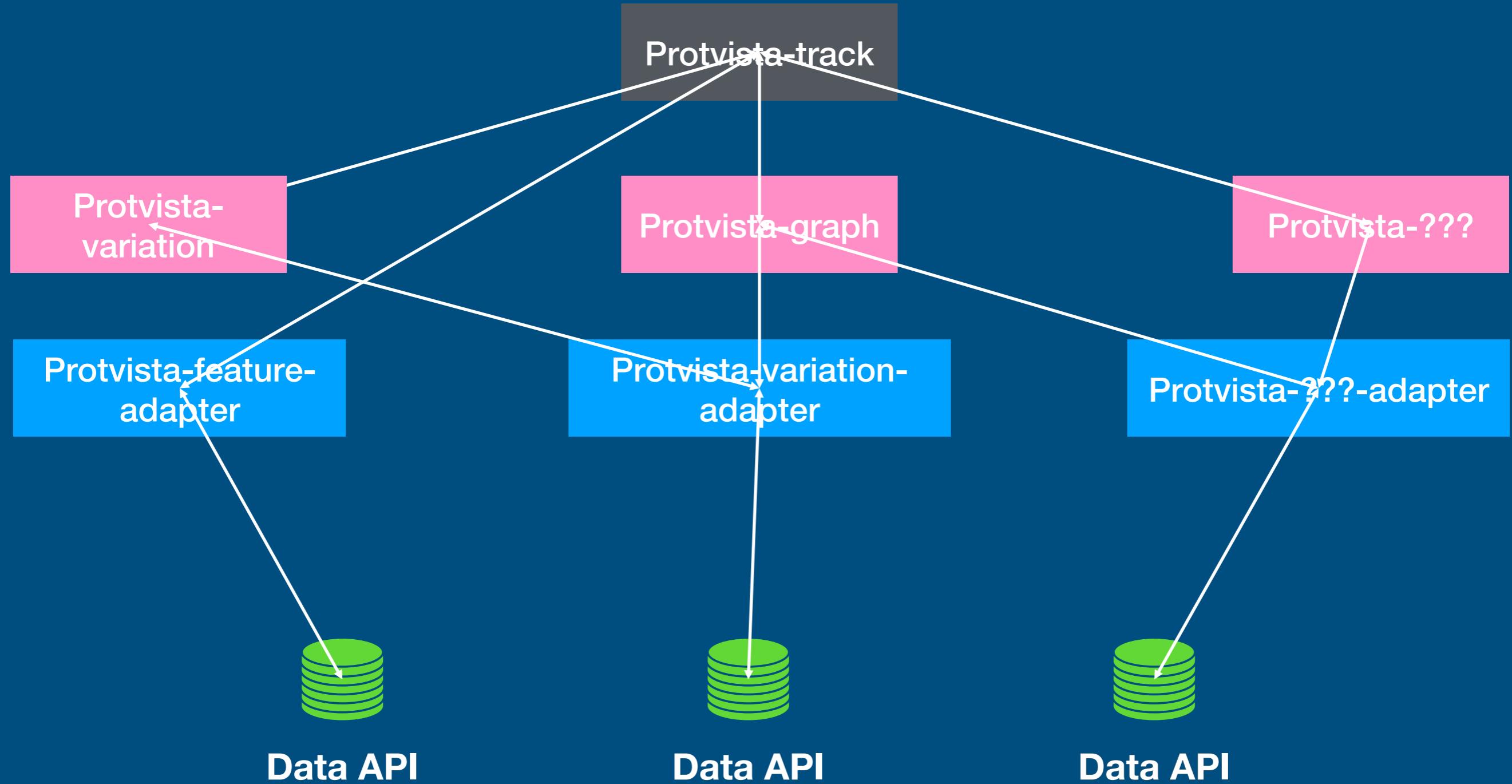
# ProtVista







# Flexible?



```
<protvista-track>
  <protvista-feature-adapter>
    <source>https://www.ebi.ac.uk/proteins/api/features/P05067</source>
  </protvista-feature-adapter>
</protvista-track>
<protvista-track>
  <protvista-variation-adapter>
    <source>https://www.ebi.ac.uk/proteins/api/variation/P05067</source>
  </protvista-variation-adapter>
</protvista-track>
<protvista-track>
  <my-awesome-adapter>
    <source>https://www.my-own-resource.com/api</source>
  </my-awesome-adapter>
</protvista-track>
```

Is it really that simple?

# Additional Boilerplate

## Browser page has dependency on webcomponent scripts

```
<script src='https://d3js.org/d3.v4.min.js' charset='utf-8' defer></script>
  <!-- Required for IE11 -->
  <script src='https://cdn.jsdelivr.net/npm/babel-polyfill/dist/polyfill.min.js'></script>
  <!-- Web component polyfill (only loads what it needs) -->
  <script src='https://cdn.jsdelivr.net/npm/@webcomponents/webcomponentsjs/webcomponents-lite.js' charset='utf-8'></script>
    <!-- Required to polyfill modern browsers as code is ES5 for IE... -->
    <script src='https://cdn.jsdelivr.net/npm/@webcomponents/webcomponentsjs/custom-elements-es5-adapter.js' charset='utf-8'></script>

    <script src='https://cdn.jsdelivr.net/npm/data-loader@latest/dist/index.js' charset='utf-8' defer></script>
    <script src='https://cdn.jsdelivr.net/npm/uniprot-entry-data-adapter@0.0.6/dist/UniProtEntryDataAdapter.min.js' charset='utf-8' defer></script>
    <script src='https://cdn.jsdelivr.net/npm/protvista-navigation/dist/protvista-navigation.js' charset='utf-8' defer></script>
    <script src='https://cdn.jsdelivr.net/npm/protvista-feature-adapter@0.0.4/dist/ProtVistaFeatureAdapter.min.js' charset='utf-8' defer></script>
    <script src='https://cdn.jsdelivr.net/npm/protvista-zoomable/dist/protvista-zoomable.js' charset='utf-8' defer></script>
    <script src='https://cdn.jsdelivr.net/npm/protvista-tooltip@0.0.1/dist/protvista-tooltip.js' charset='utf-8' defer></script>
    <script src='https://cdn.jsdelivr.net/npm/protvista-track@latest/dist/protvista-track.js' charset='utf-8' defer></script>
```

# Webcomponent display meta data

- Track requires meta data such as length, start and end to be correctly displayed
- Parameters for each adapter are provided at the repository

<https://github.com/ebi-webcomponents>

```
<protvista-track id='track1' length='500' displaystart='1' displayend='500'>
<protvista-feature-adapter id='adapter1'>
<data-loader>
<source
src='https://www.ebi.ac.uk/proteins/api/features/P00740?categories=PTM' />
</data-loader>
</protvista-feature-adapter>
</protvista-track>
```

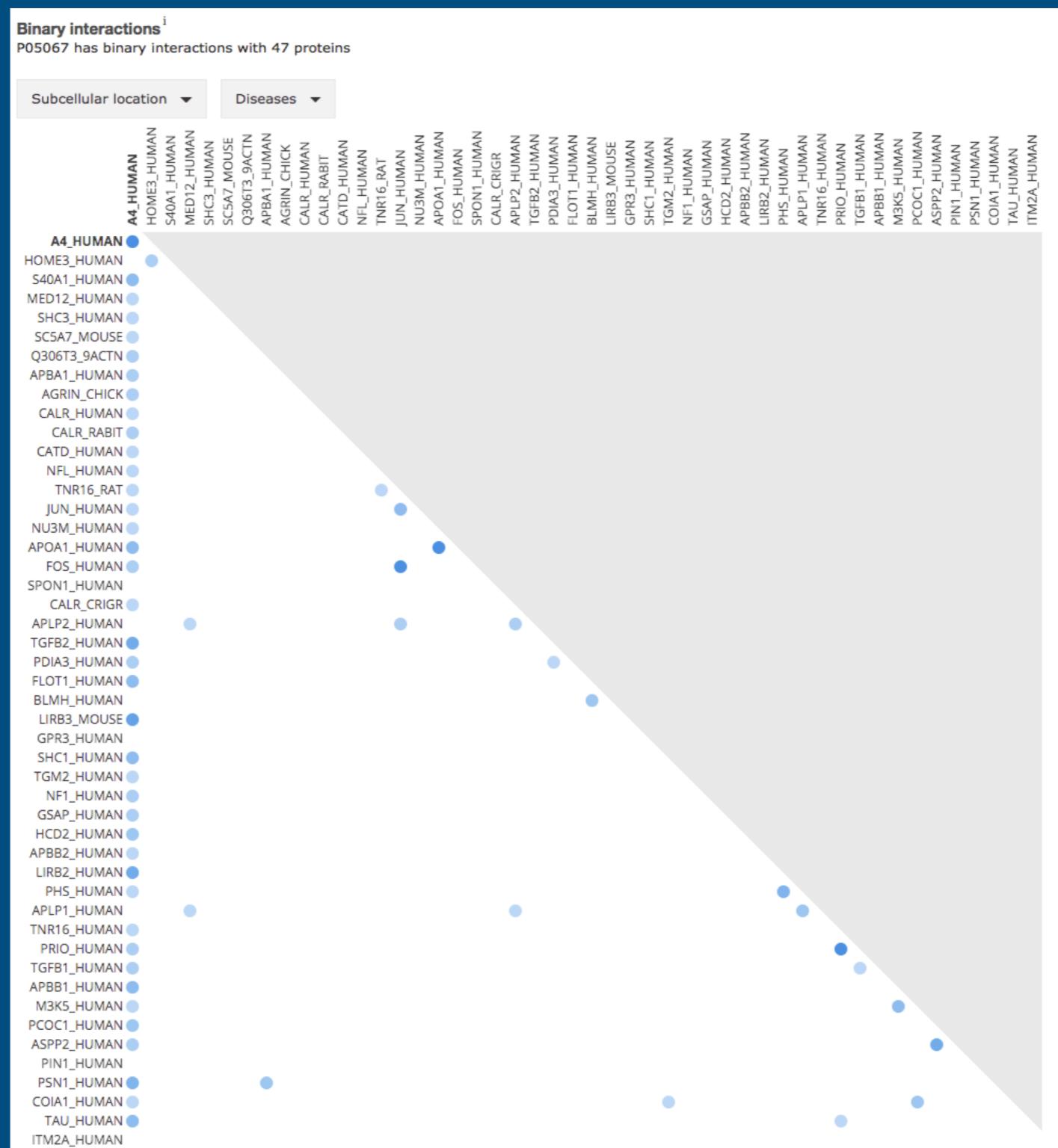
# Component communication



```
<protvista-manager attributes="length displaystart displayend highlightstart highlightend variantfilters" id="example">
.....
</protvista-manager>
```

So far...





4Y72



PDB Entry	Method	Resolution	Chain	Positions	Links
1LC9	Model		A	1-297	<a href="#">PDBe</a> <a href="#">RCSB PDBi</a> <a href="#">PDBj</a> <a href="#">PDBsum</a>
4Y72	X-ray	2.30 Å	A	1-297	<a href="#">PDBe</a> <a href="#">RCSB PDBi</a> <a href="#">PDBj</a> <a href="#">PDBsum</a>
4YC3	X-ray	2.70 Å	A	1-297	<a href="#">PDBe</a> <a href="#">RCSB PDBi</a> <a href="#">PDBj</a> <a href="#">PDBsum</a>
4YC6	X-ray	2.60 Å	A/C/E/G	1-297	<a href="#">PDBe</a> <a href="#">RCSB PDBi</a> <a href="#">PDBj</a> <a href="#">PDBsum</a>
5HQ0	X-ray	2.30 Å	A	1-297	<a href="#">PDBe</a> <a href="#">RCSB PDBi</a> <a href="#">PDBj</a> <a href="#">PDBsum</a>
5LQF	X-ray	2.06 Å	A/D	1-297	<a href="#">PDBe</a> <a href="#">RCSB PDBi</a>

# Future plans

- First (official) release
  - Mono repository so dependencies and versions are easily resolved
- Document guidelines and best practices
  - New (community?) components can be added
- VCF data adapter (file upload?)
- Work with ENSEMBL to create genome / transcript browsers
- GO term explorer

## Last bit

# Webcomponents in Jupyter notebooks

```
%%HTML
<iframe id="basic-track", height=500, width=900 srcdoc="<!doctype html>
<html class='no-js' lang="">
<head>
<meta charset='utf-8'>
<meta name='viewport' content='width=device-width, initial-scale=1'>
<title>Basic Track</title>
</head>
<body>
<h1>Basic Track</h1>
<p>This is a basic track example.</p>
</body>
</html>
">
</iframe>
```

# Thank you

<https://github.com/ebi-webcomponents>

