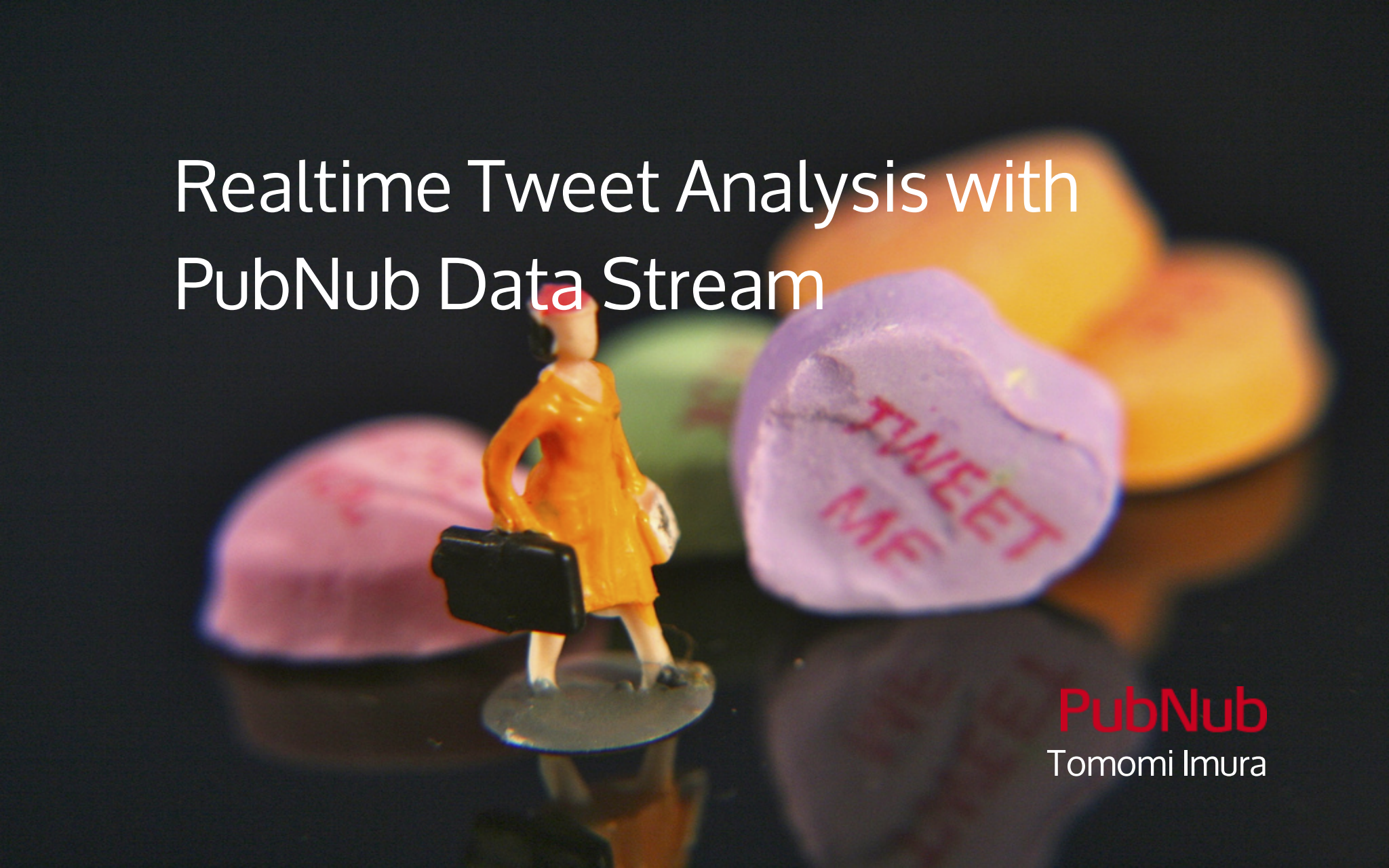
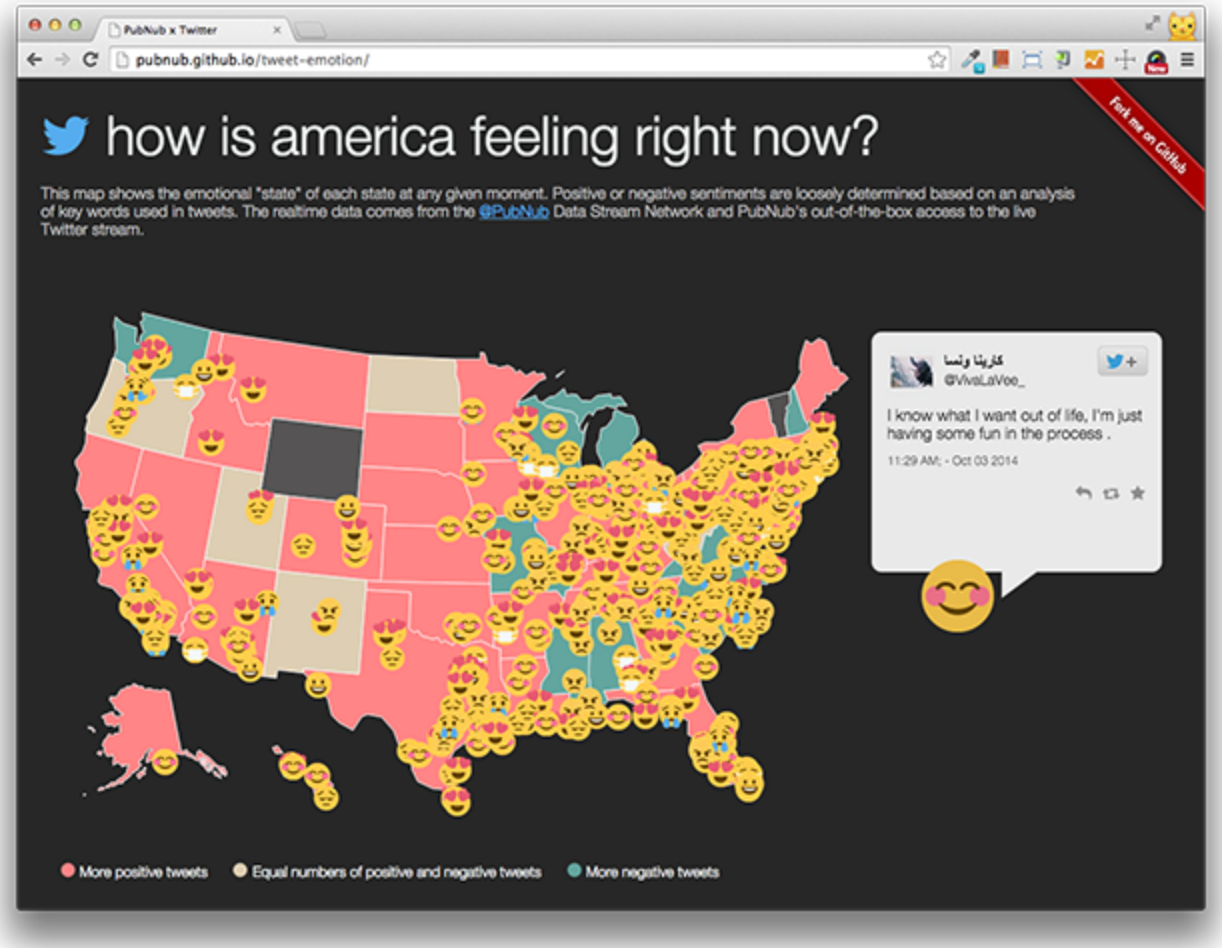
Realtime Tweet Analysis with PubNub Data Stream



PubNub
Tomomi Imura

"How is America feeling now?"

Visualized cartographic data of the emotional "state" of each state at any given moment



http://pubnub.github.io/tweet-emotion/

Pseudo-analysis

Positive or negative sentiments are loosely determined based on an analysis of keywords used in tweets

```
positiveWords = [
  'excellent', 'amazing', 'marvelous', 'magnificent',
  'fabulous', 'astonishing', 'fantastic', 'peaceful',
  'brilliant', 'glorious', 'cheerful', 'gracious',
  ...
];
```

Process

1. using TopoJSON to display a US state map using d3.js
2. using PubNub JavaScript API to consume Twitter stream
3. colorizing the map by moods

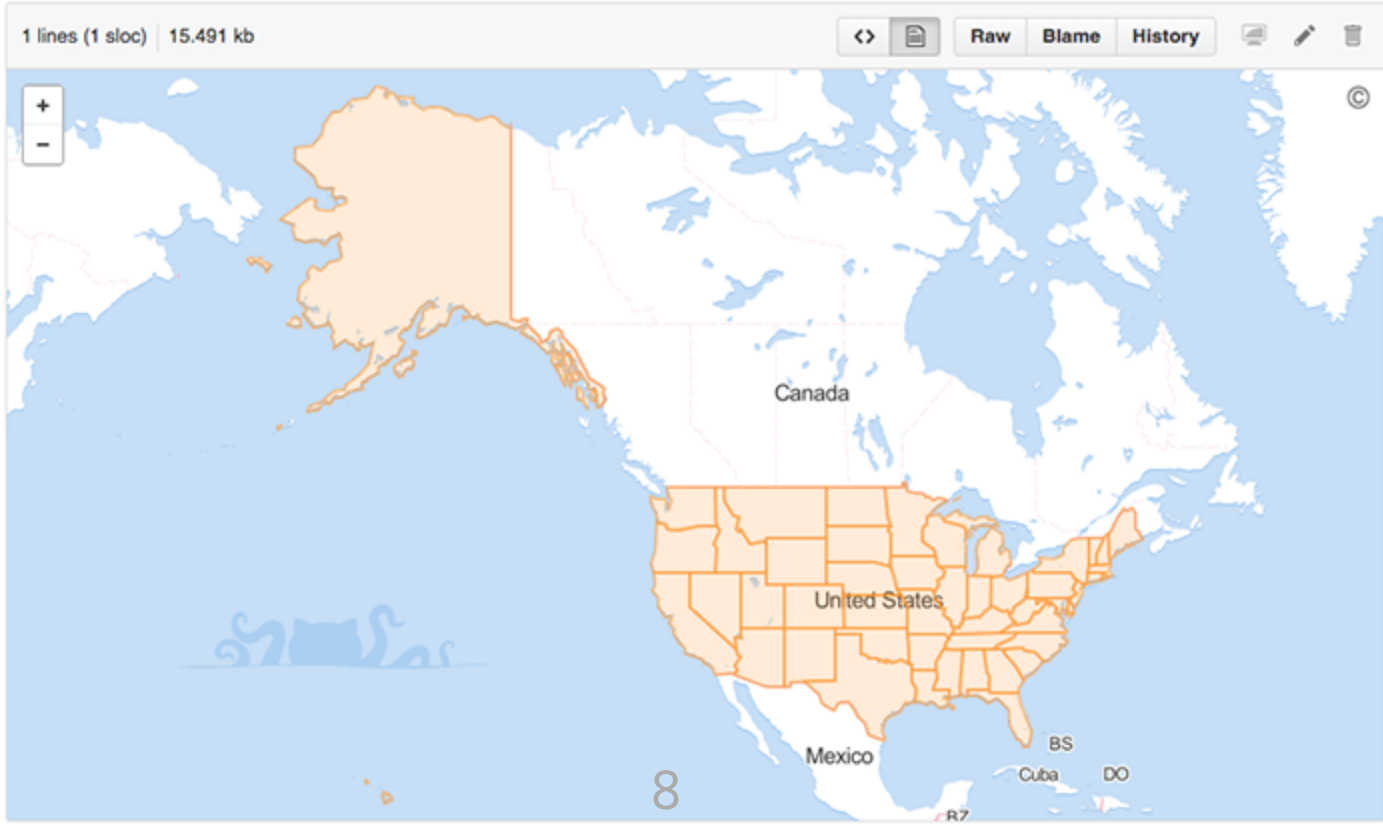
GeoJSON

- Open standard format for encoding geographical features
- Written in JavaScript Object Notation
- Typically large file size

TopoJSON

- Extension of GeoJSON that encodes geospatial topology
- Compressed / Smaller size
- Tailored for only what you need

TopoJSON


1 lines (1 sloc)
15.491 kb
Raw
Blame
History
+
−
©
Canada
United States
Mexico
BS
Cuba
DO

Render TopoJSON with D3.js

```
var svg = d3.select('#map').append('svg')
  .attr('width', 900).attr('height', 550);

var path = d3.geo.path().projection(d3.geo.albersUsa());
```

Render TopoJSON with D3.js

```
var g = svg.append('g');

d3.json('us-states.json', function(error, topology) {
  g.selectAll('path')
    .data(topojson.feature(topology,
      topology.objects.usStates).features)
    .enter().append('path')
    .attr('class', function(d){
      return 'states ' + d.properties.STATE_ABBR;} )
    .attr('d', path)
    .attr('fill', 'gray')
});
```

Getting Realtime Tweets from PubNub Stream

Getting Started with PubNub APIs

```
01.
<script src="//cdn.pubnub.com/pubnub.min.js"></script>

02.
var channel = 'pubnub-twitter';

var pubnub = PUBNUB.init({
  subscribe_key:'sub-c-78806dd4-42a6-11e4-aed8-02ee2ddab7fe'
});
```

Receiving Live JSON Data

To retrieve the live tweets, you simply use PubNub `subscribe()` API.

```
pubnub.subscribe({
  channel: channel,
  callback: processData
});
```

Pseudoanalyze Tweets

Create a mini dictionary that describes moods

```
var positiveWords = [
  'excellent', 'amazing', 'happy', 'magnificent', ':)',
  ...
];
var negativeWords = [
  'unhappy', 'sorry', 'annoyed', 'dislike', 'anxious', ':(',
  ...
];
```

Pseudoanalyze Tweets

See if these words are used in each tweet, in the callback function

```
function processData(data) {
  // looking for US data only for this demo
  if(data.place.country_code !== 'US') return;

  // Check if emotional words are used in the tweet
  if (positiveWords.some(function(v) {
      return data.text.toLowerCase().indexOf(v) > 0; })) {
    displayData(data, positive);
  } else if
    ...
}
```

Pseudoanalyze Tweets

Create a mini dictionary that describes moods

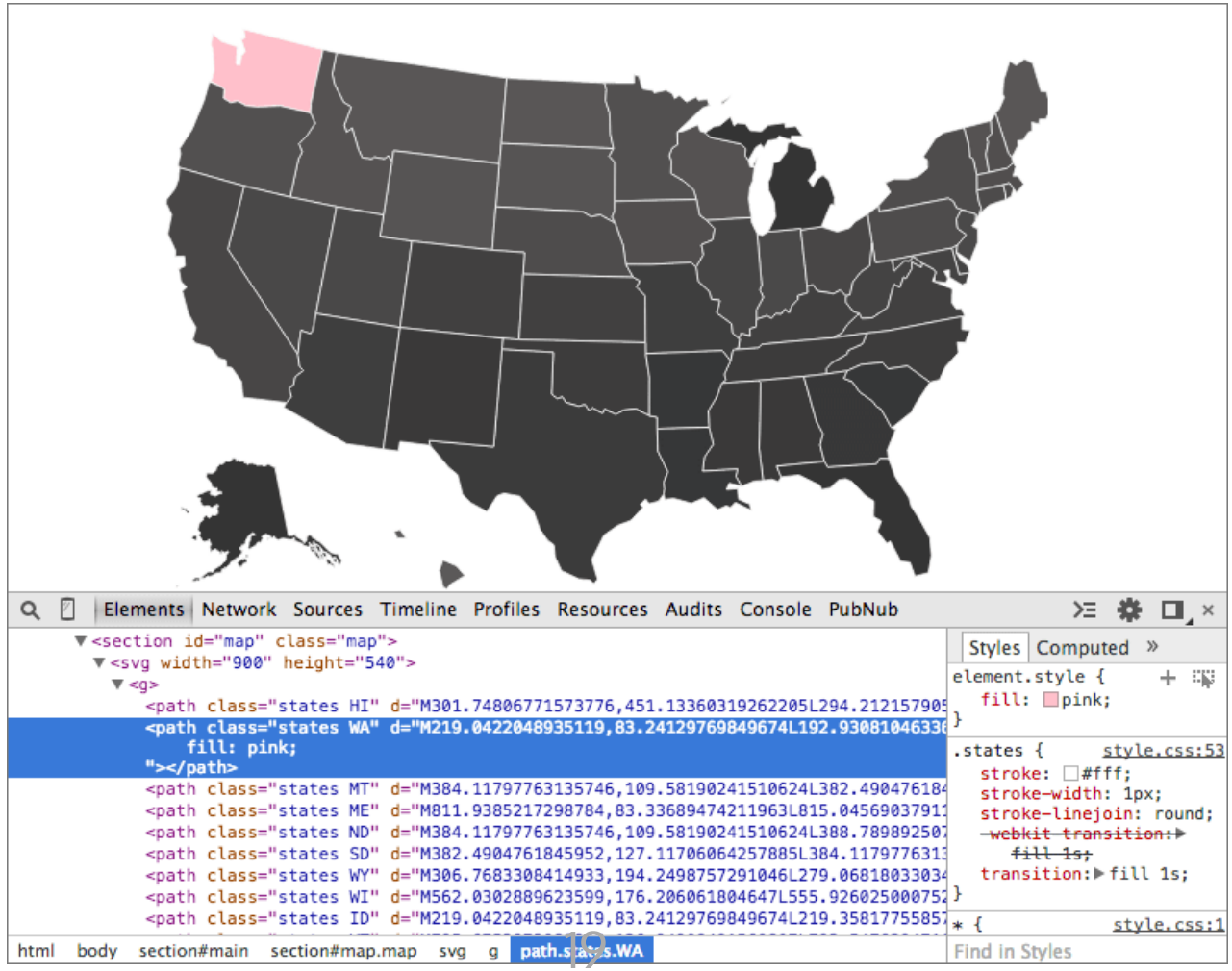
```
var positiveWords = [
  'excellent', 'amazing', 'happy', 'magnificent', ':)',
  ...
];
var negativeWords = [
  'unhappy', 'sorry', 'annoyed', 'dislike', 'anxious', ':(',
  ...
];
```

Display Data on Map

```
function displayData(data, emotion) {
  var state = data.place.full_name.substring(
    city.lastIndexOf(',')+1).trim();

  if(document.querySelector('.'+state)) {
  var stateEl = document.querySelector('.'+state);

  // count
  tally[state] = (tally[state] || {positive:0, negative:0});
  tally[state][emotion] = (tally[state][emotion] || 0) + 1;

  ...
```

...cont'd

```
  // colorize svg path
  stateEl.style.fill = (
    tally[state].positive > tally[state].negative)
      ? 'pink' :
      ((tally[state].positive < tally[state].negative)
      ? 'turquoise' : 'beige');
    }
  }
}
```


Elements
Network
Sources
Timeline
Profiles
Resources
Audits
Console
PubNub
<section id="map" class="map">
<svg width="900" height="540">
<g>
<path class="states HI" d="M301.74806771573776,451.13360319262205L294.21215790
<path class="states WA" d="M219.0422048935119,83.24129769849674L192.9308104633
fill: pink;
"></path>
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<path class="states ME" d="M811.9385217298784,83.33689474211963L815.0456903791
<path class="states ND" d="M384.11797763135746,109.58190241510624L388.78989250
<path class="states SD" d="M382.4904761845952,127.11706064257885L384.11797763
<path class="states WY" d="M306.7683308414933,194.2498757291046L279.06818033034
<path class="states WI" d="M562.0302889623599,176.206061804647L555.926025000752
<path class="states ID" d="M219.0422048935119,83.24129769849674L219.35817755857
Styles
Computed
element.style {
fill: pink;
}
.states {
style.css:53
stroke: #fff;
stroke-width: 1px;
stroke-linejoin: round;
-webkit-transition:
fill 1s;
transition: fill 1s;
}
* {
style.css:1
Find in Styles
html
body
section#main
section#map.map
svg
g
path.states.WA

Full Article

blog.twitter.com

Thank you!

Tomomi Imura @ PubNub

pubnub.com

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@girlie_mac

github.com/pubnub

Photo Credit

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