Leveraging Vector Tile Layers in Web Apps

Rene Rubalcava

Vector Tiles

Vector Tiles

Do they work?

Vector Tiles

Do they work?

YES!

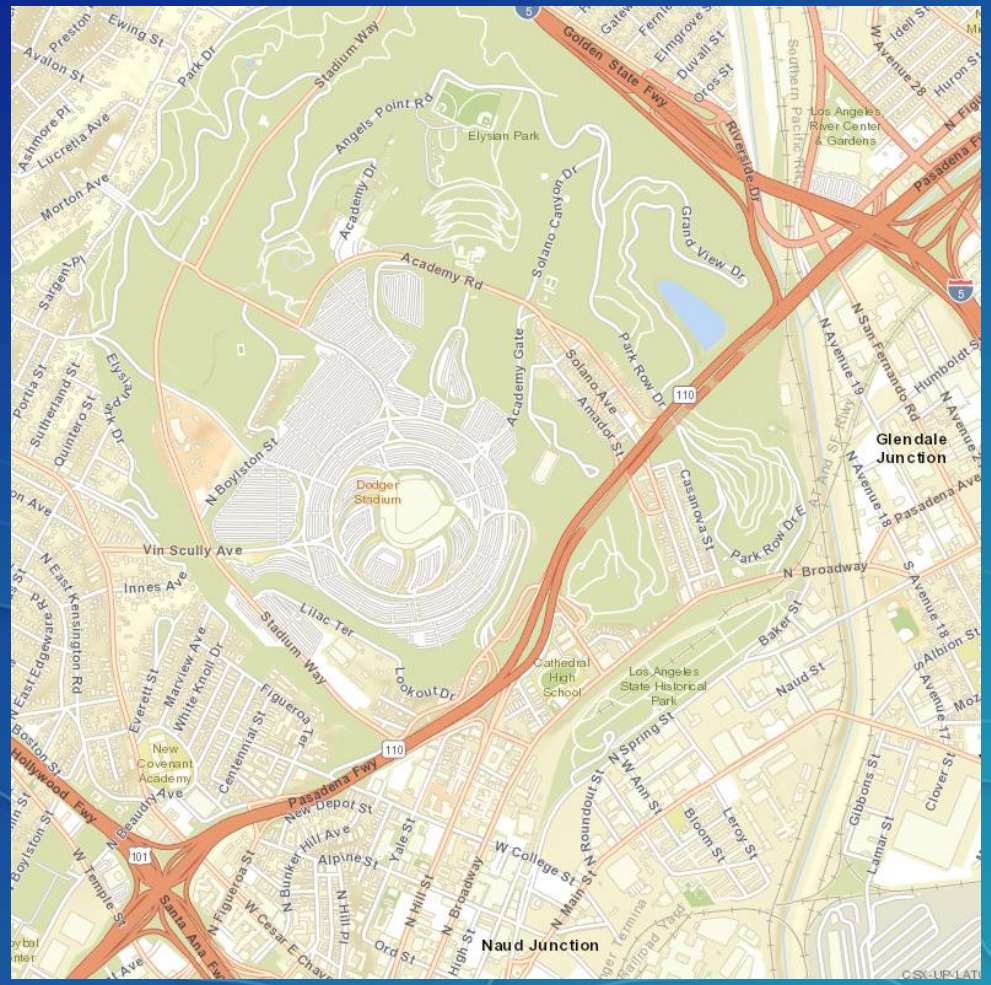
Questions?

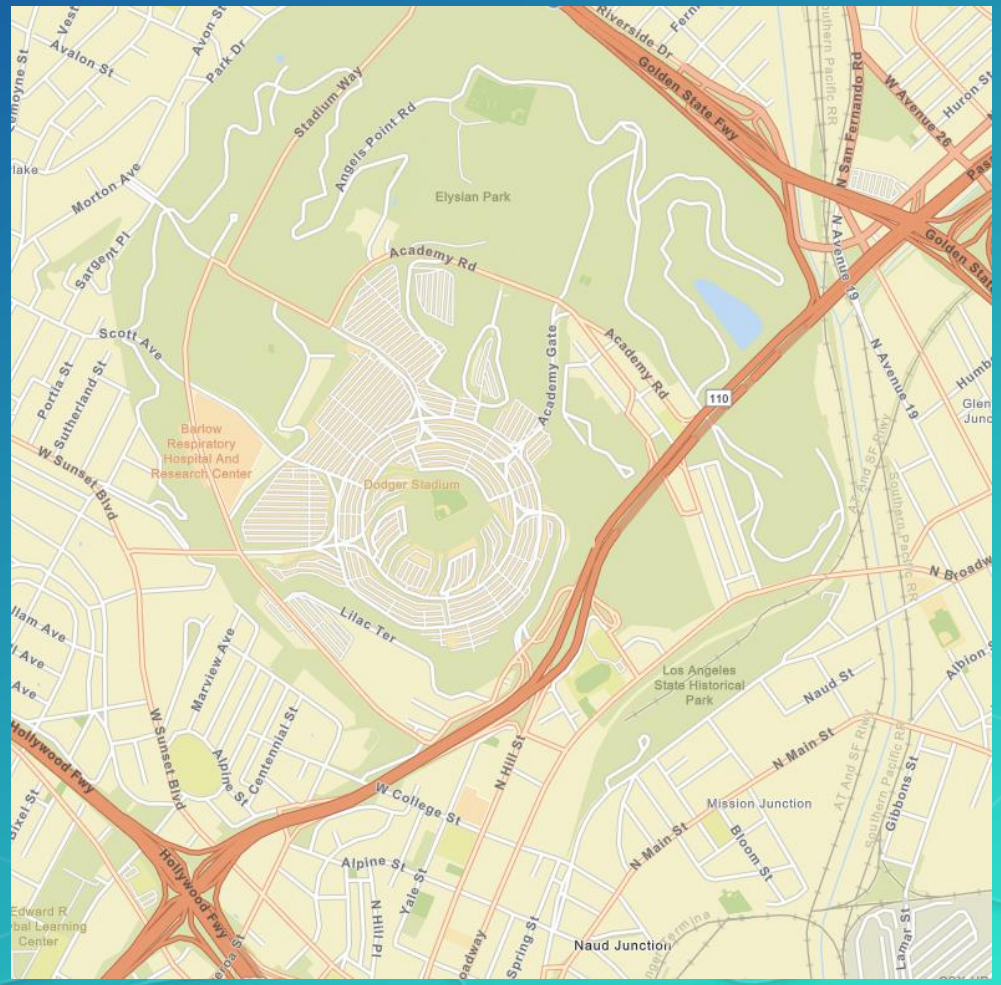
Kidding

Quick Intro

What are Vector Tiles?

Similar to Raster Tiles





What are Vector Tiles?

- Tiles of vector graphics rather than tiles of images

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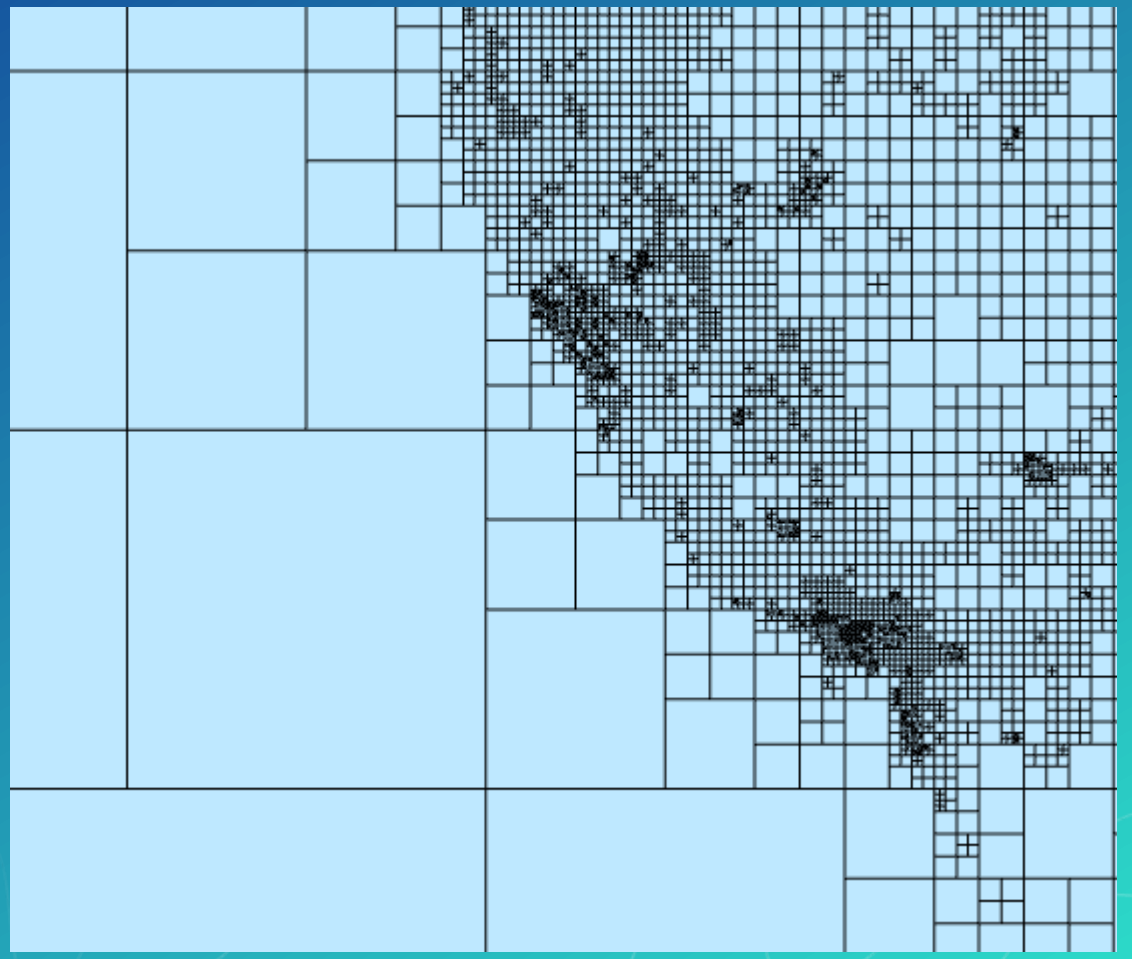
What are Vector Tiles?

- Tiles of vector graphics rather than tiles of images
- Smaller in size
- Powered by GPU!
  - WebGL

1. Benefits to you and users
2. How to style (the good, the bad, the ugly)
3. Publish and consume

Benefits

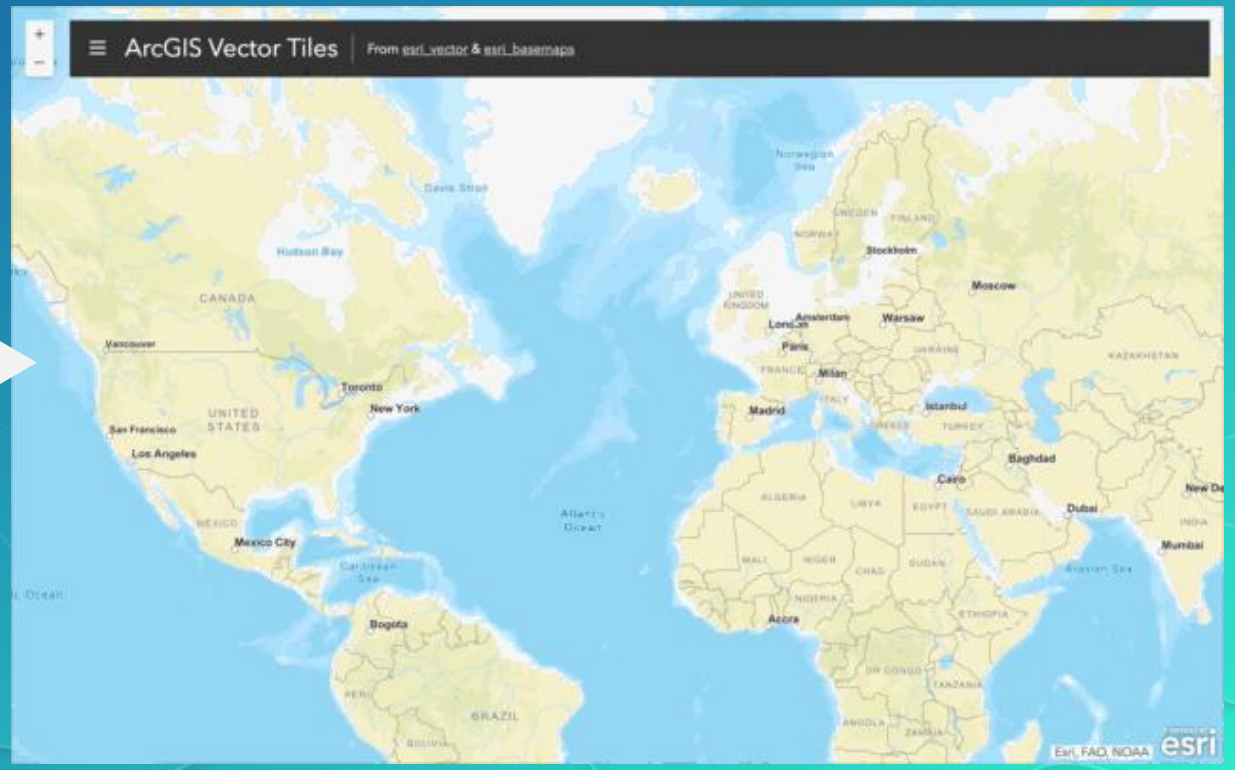
- Indexed Vector Tiles
  - Over-zoom
  - Normal tiling supported
  - Publish from ArcGIS Pro



Benefits

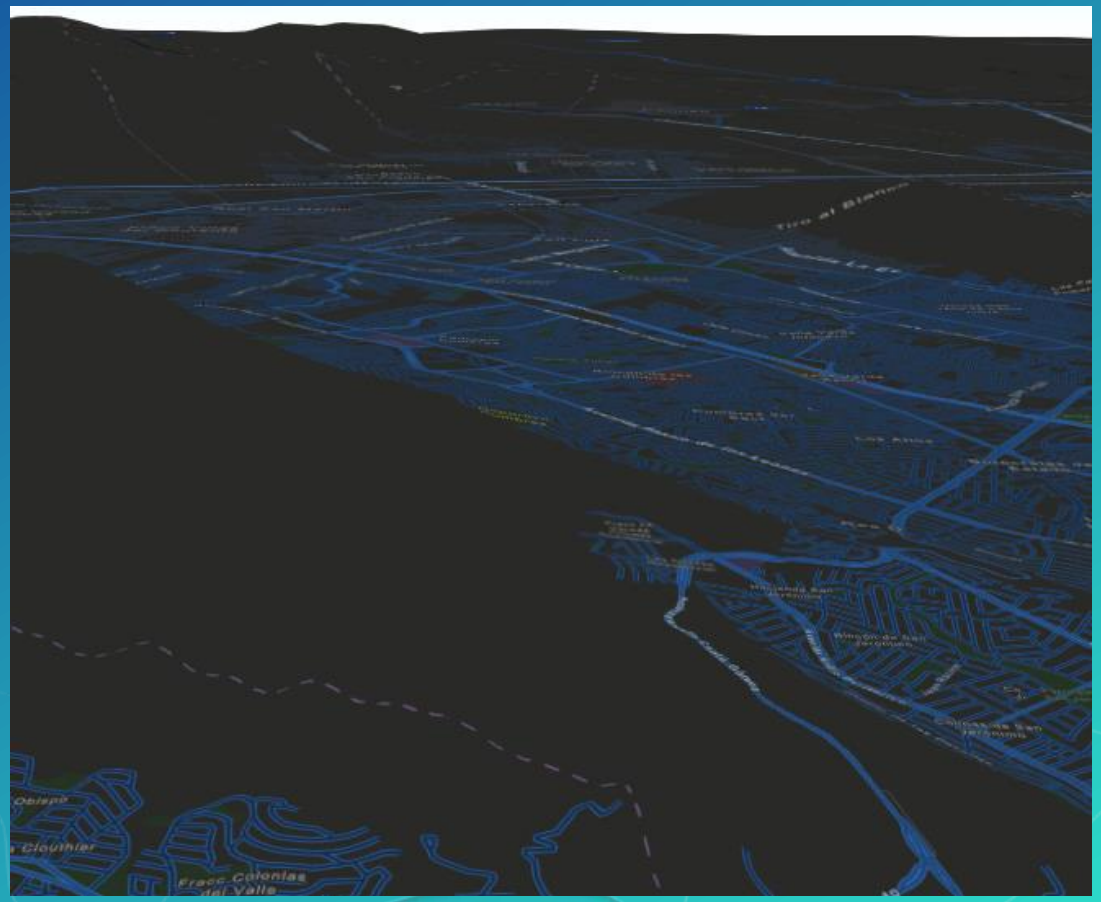
- Esri provided Basemaps
  - Vector Basemaps Group

VT Basemap Explorer
https://esri-es.github.io/arcgis-vector-tiles/



Benefits

- ArcGIS API for JavaScript
  - Out-of-the-box
  - 3D



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Benefits

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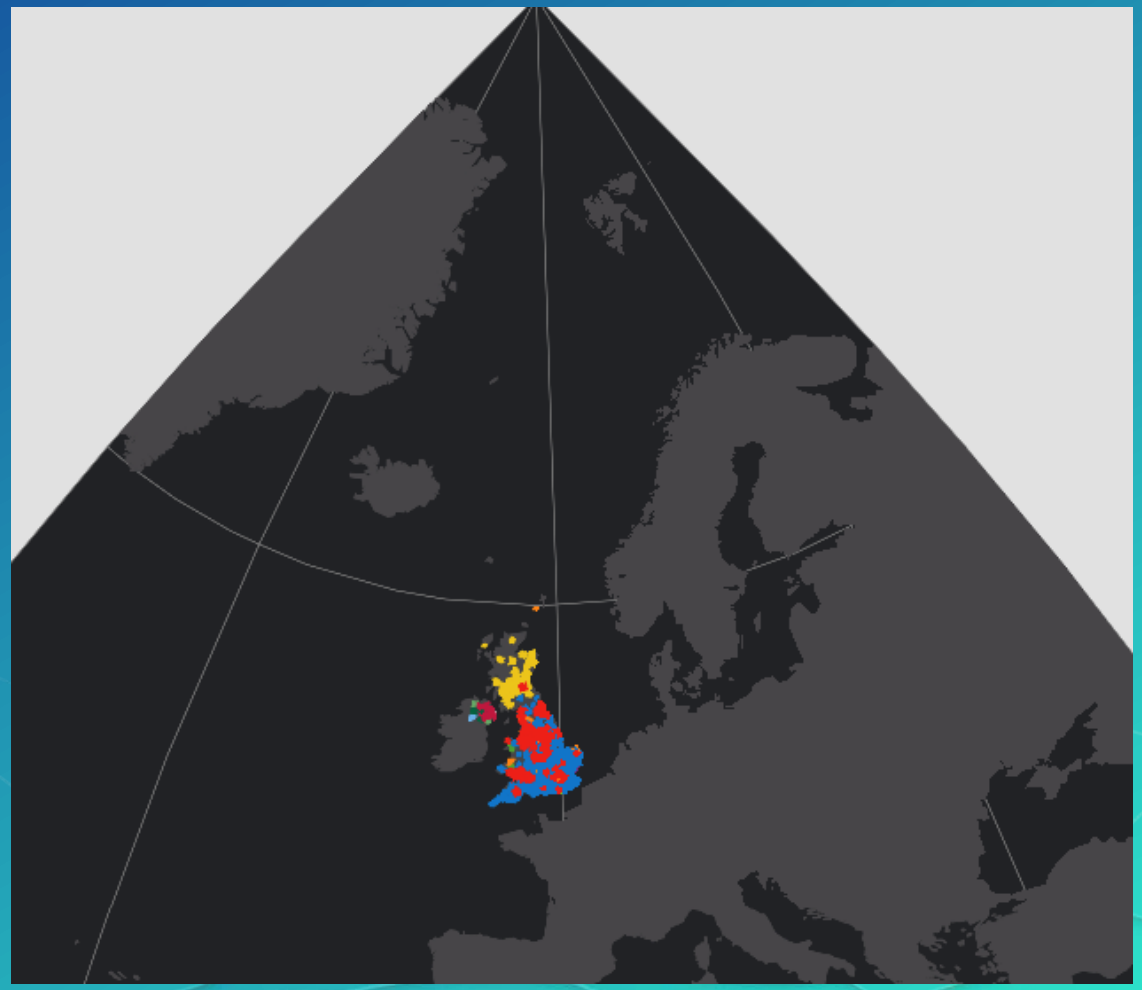
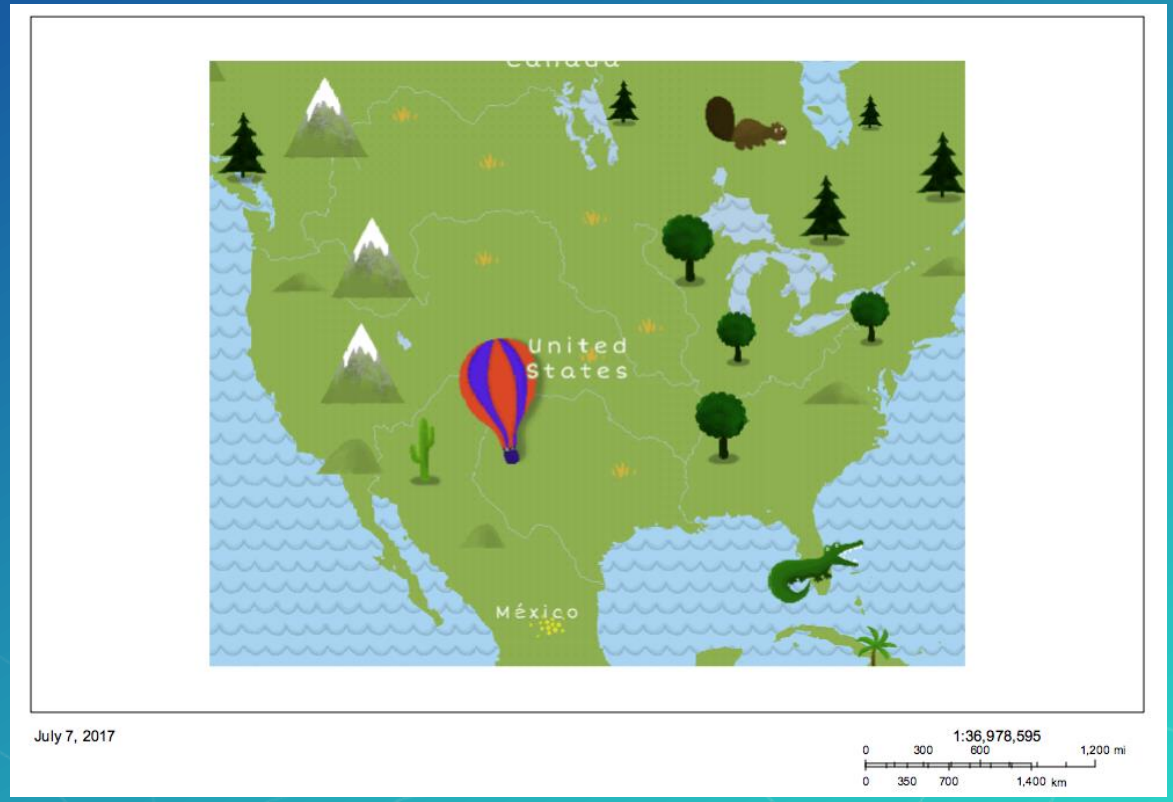
  - Out-of-the-box
  - 3D
  - Localized Labels
  - Custom Projections



Benefits

- ArcGIS API for JavaScript
  - Out-of-the-box
  - 3D
  - Localized Labels
  - Custom Projections
  - Printing



Benefits

- Do you need more than the basemaps?

Benefits

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  - Custom styles?

Benefits

- Do you need more than the basemaps?
  - Custom styles?
  - Publish your own data?

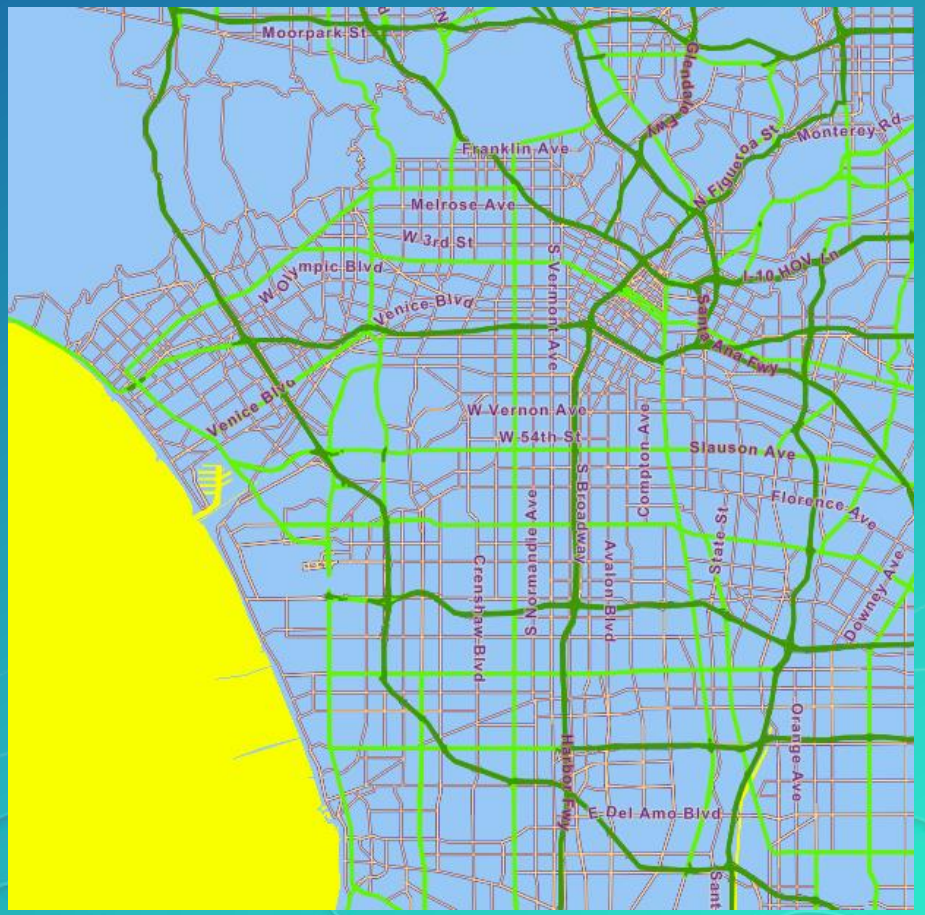
Benefits - Summary

- Indexed Vector Tiles
- Provided basemaps
- What are your needs?

Custom Styling

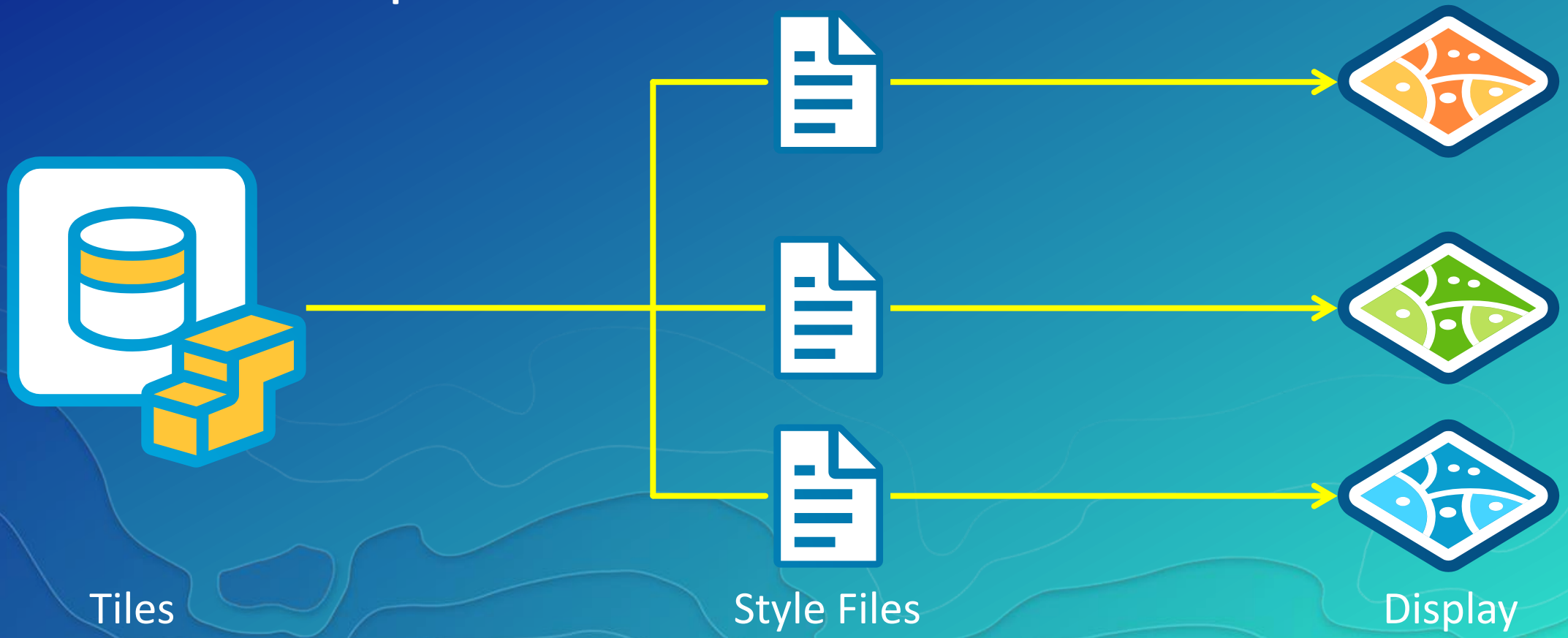
- This is going to be fun!

Please don't do this →



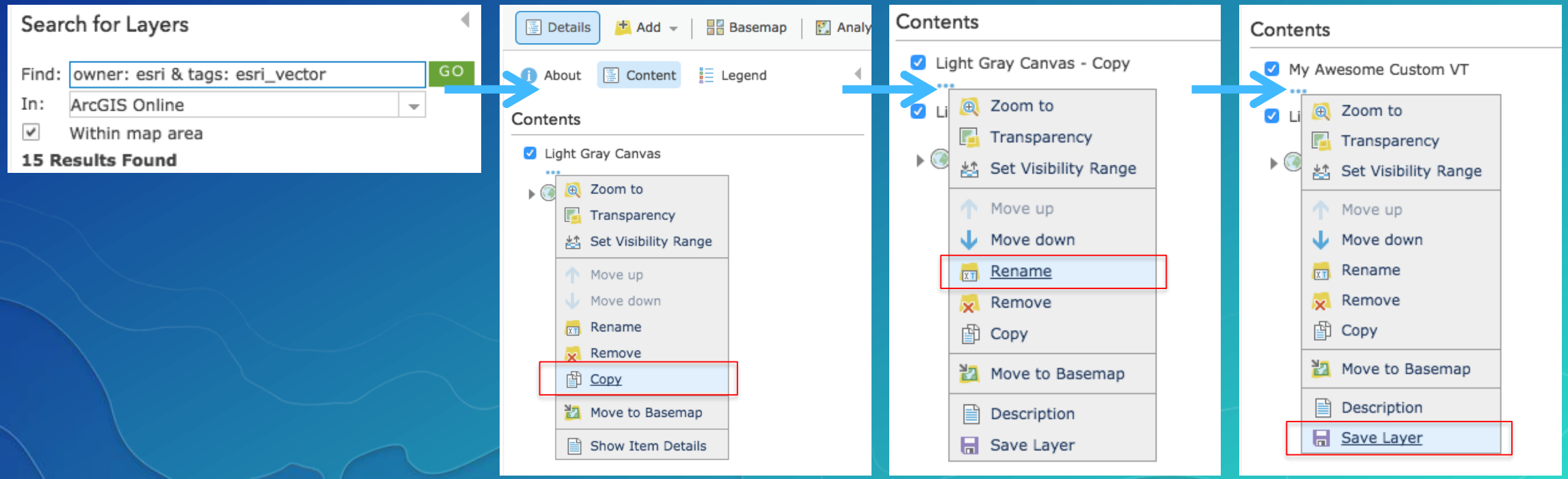
Custom Styling

- Quick Prerequisite



Custom Styling

- Step 1 – Copy a style in Online



Custom Styling

- Step 2 – Get creative!

3.X

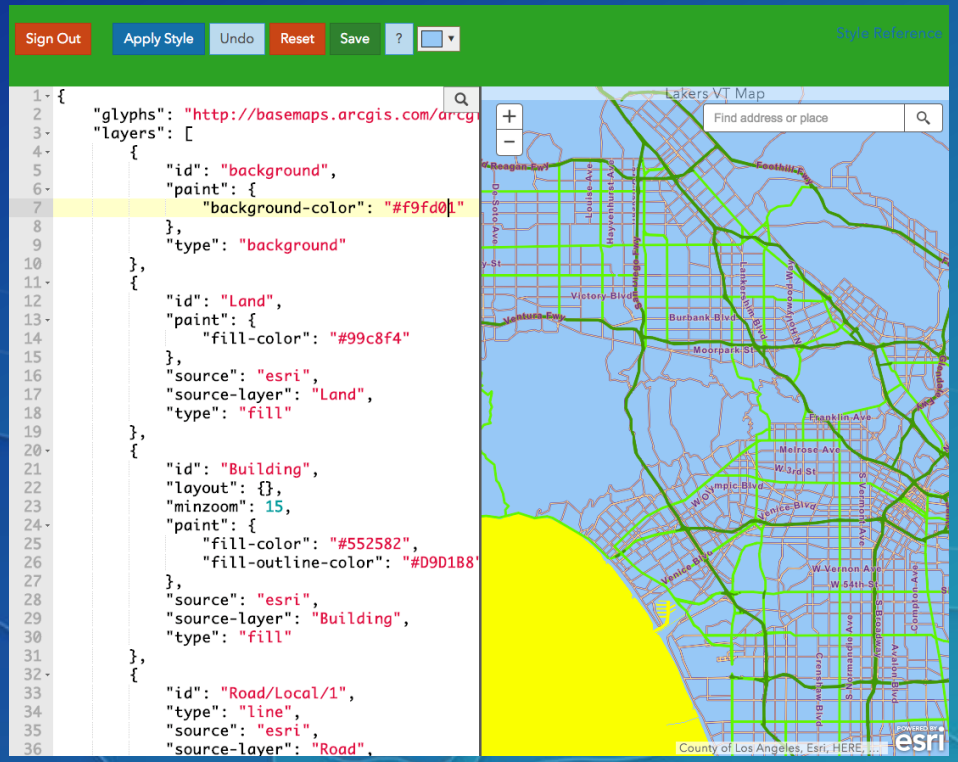
```
vectorTileLayer.setStyle(styleJSON)
```

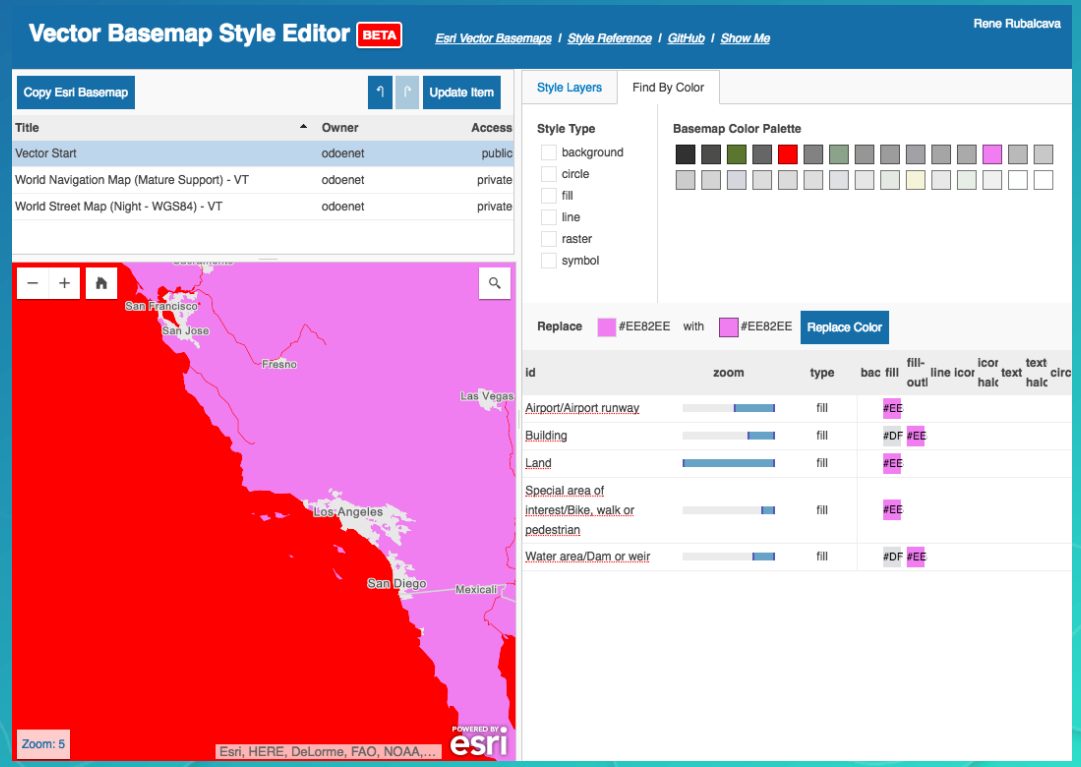
4.X

```
vectorTileLayer.loadStyle(styleJSON)
```

Custom Styling

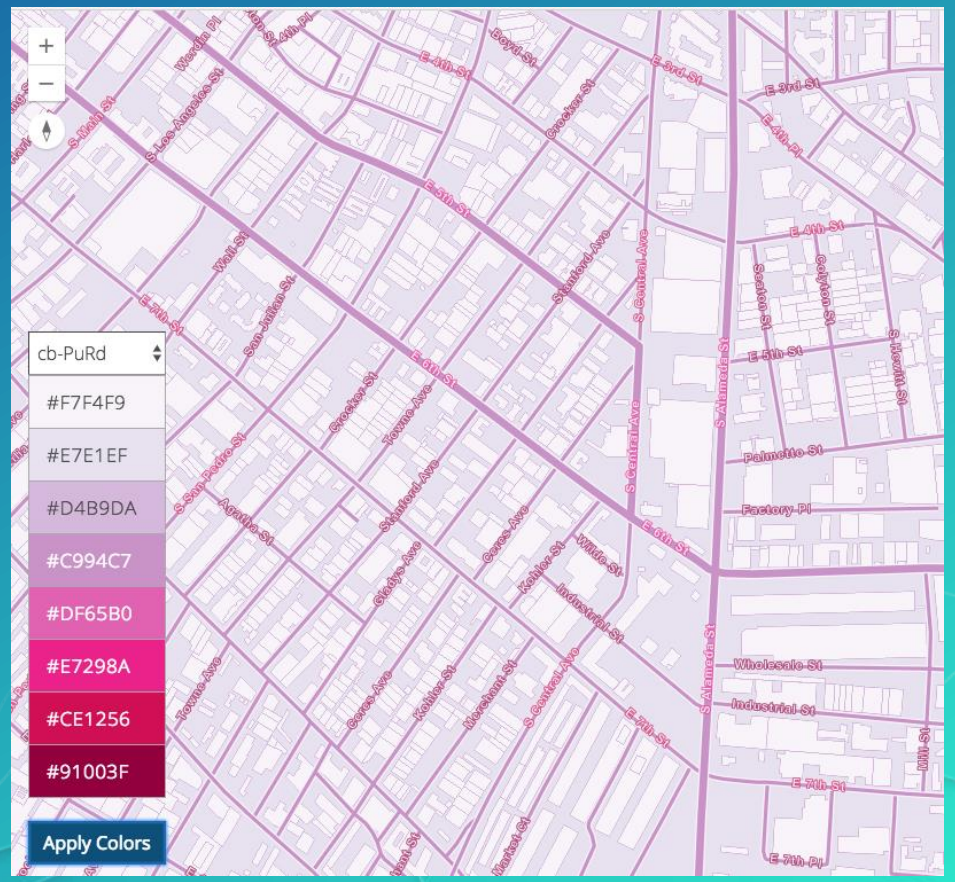
- Step 2 – Get creative!

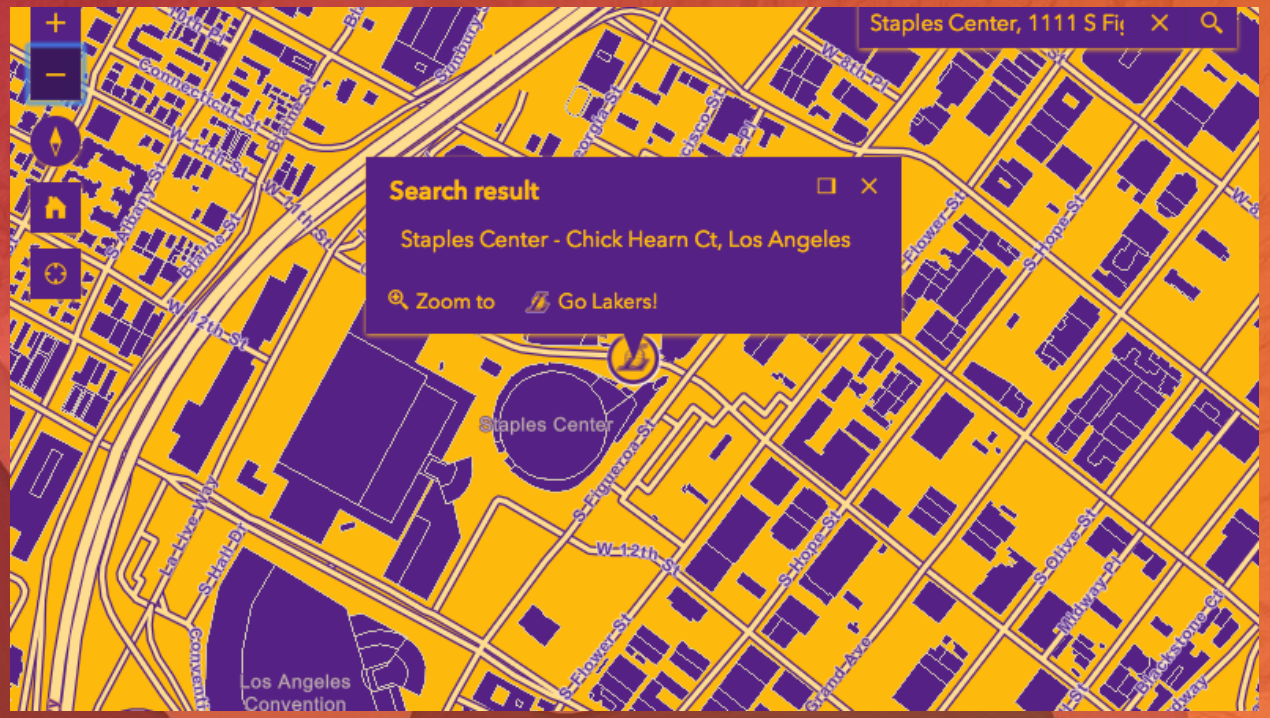




Custom Styling

- Step 3 – Experiment!





Style demos!

Disclaimer: I am not a cartographer. I write code. I make beautifully ugly maps.

Custom Styling - Summary

- Copy a style
- Edit the style
- Save the style back to Portal/Online
- Have fun!

Publish and Consume

- Got some data?

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- Want to publish some tiles?

Publish and Consume

- Got some data?
- Want to publish some tiles?
- Let’s publish some tiles!

Publish and Consume

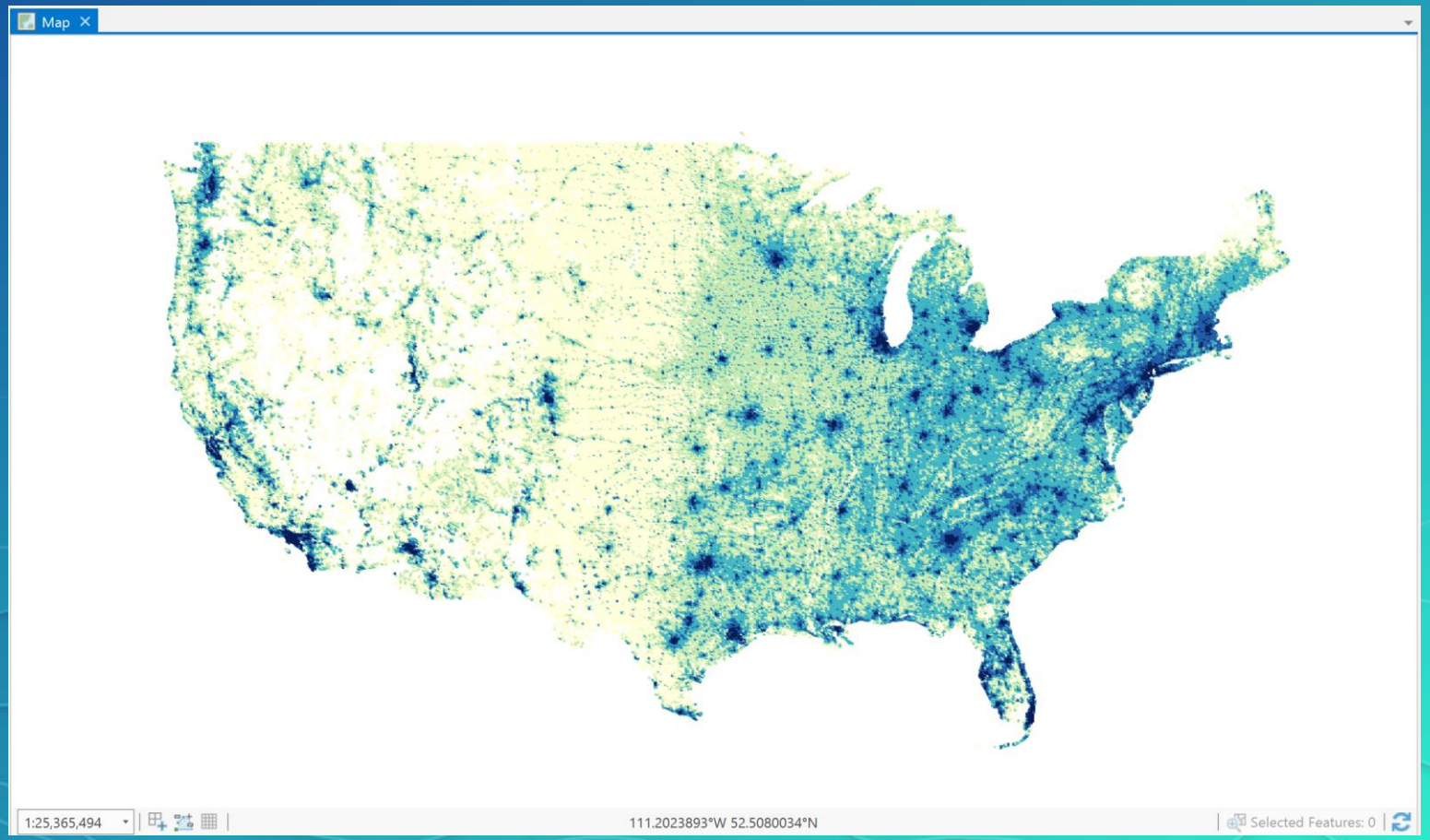
- I have a little bit of data

0 of 192444 selected

But their hexbins

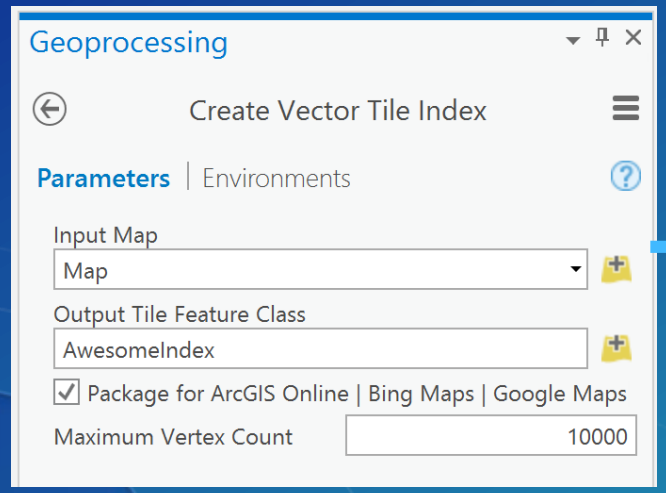
192,444 x 6 =

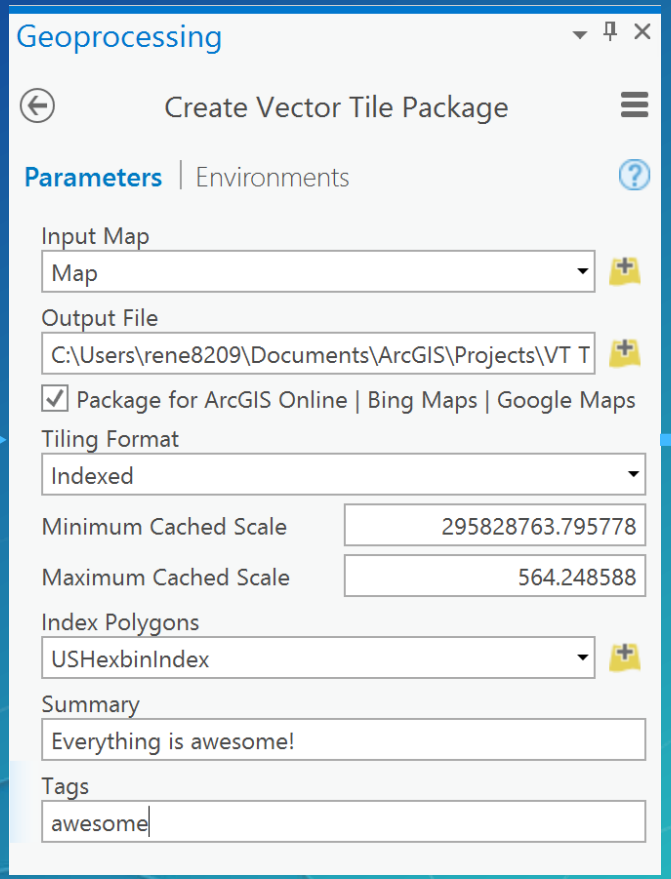
1,154,664 vertices!

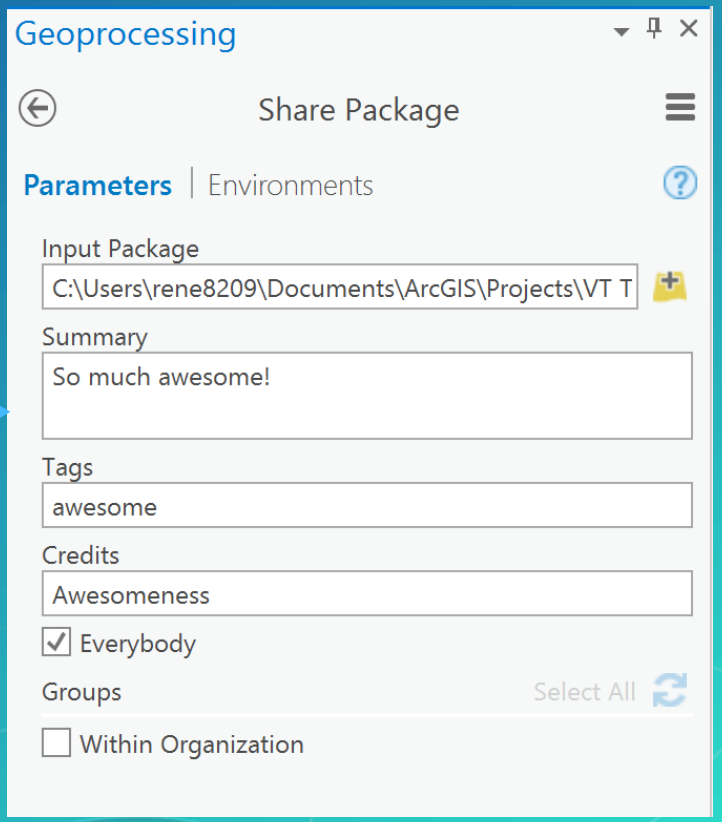


Publish and Consume

- Publish

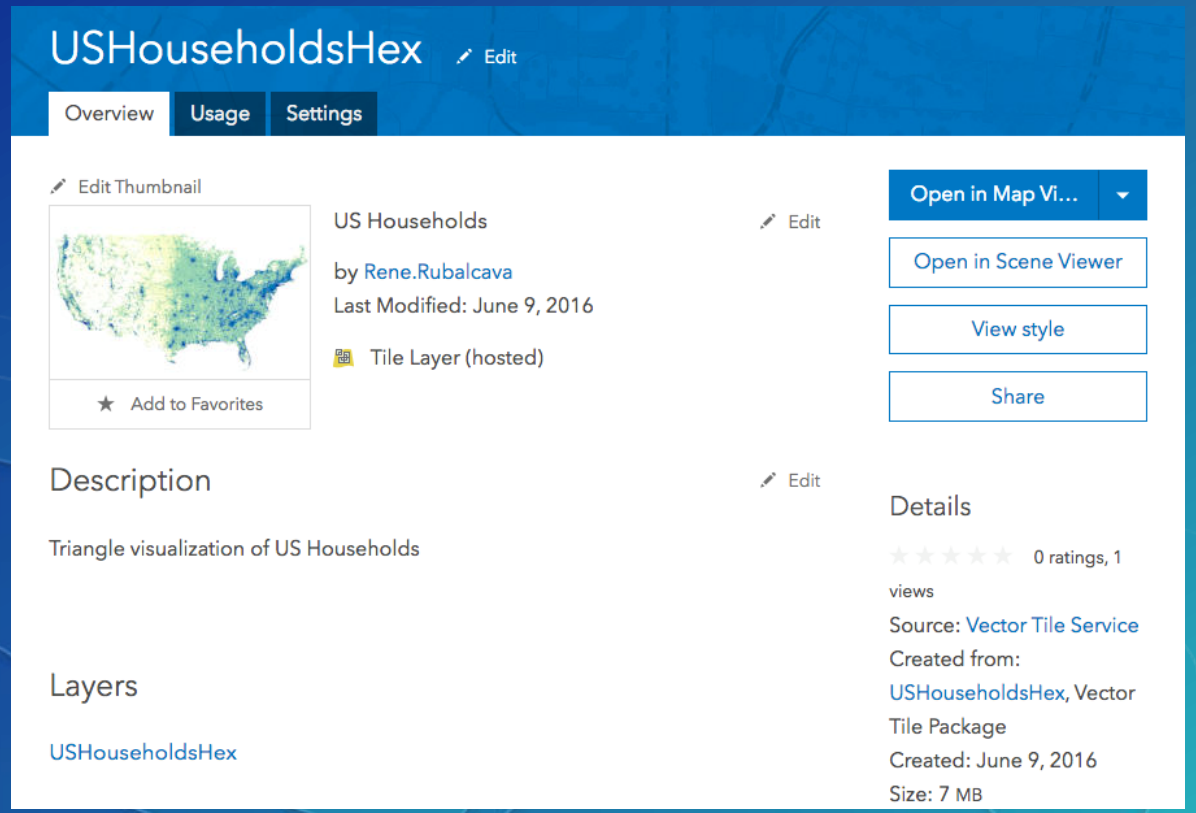


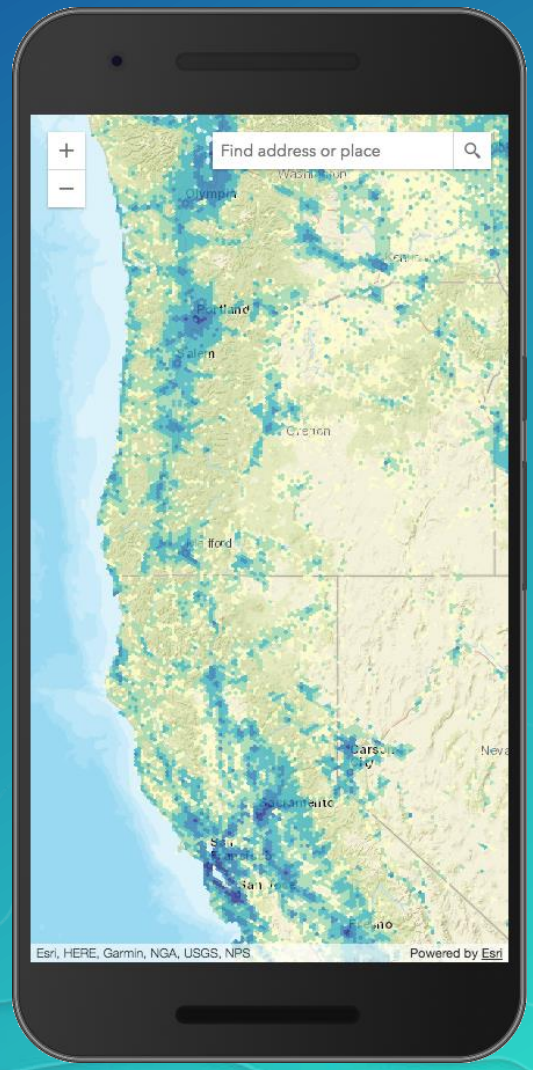




Publish and Consume

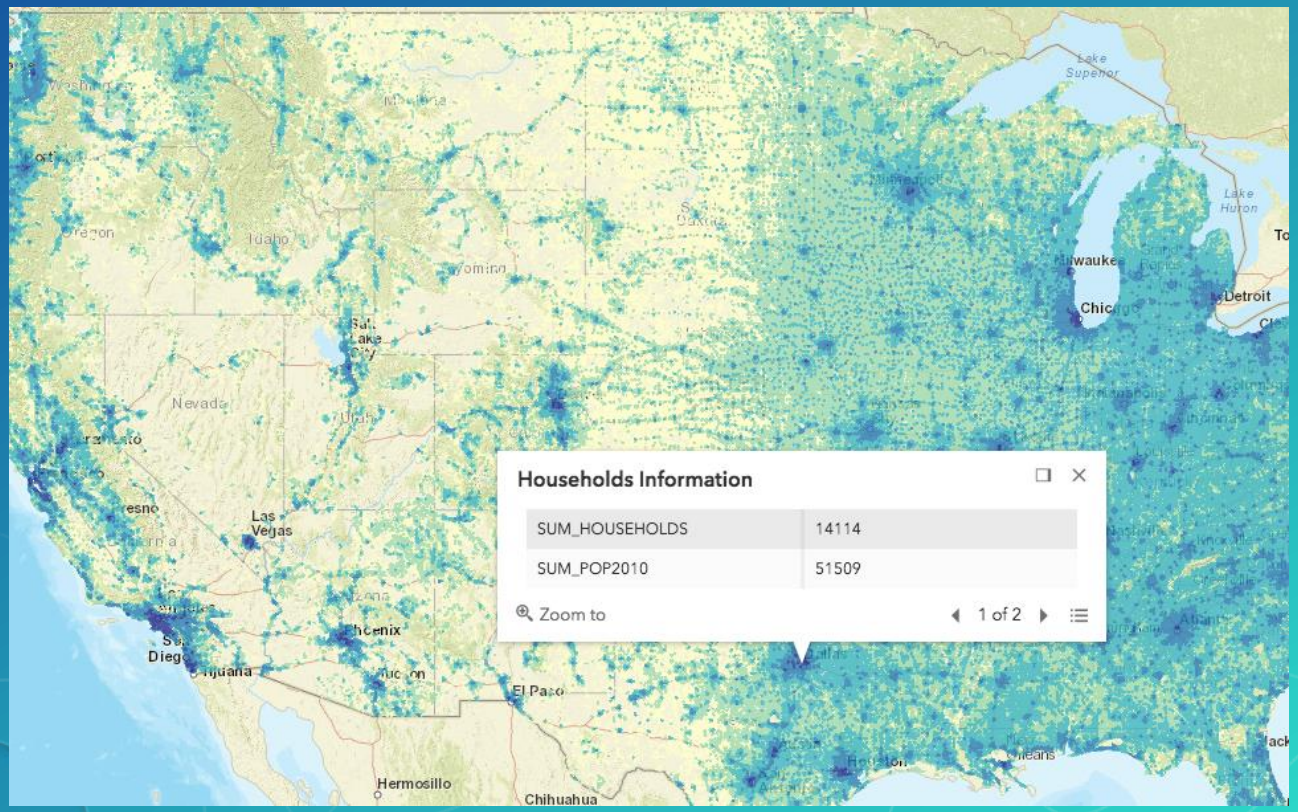
- Consume



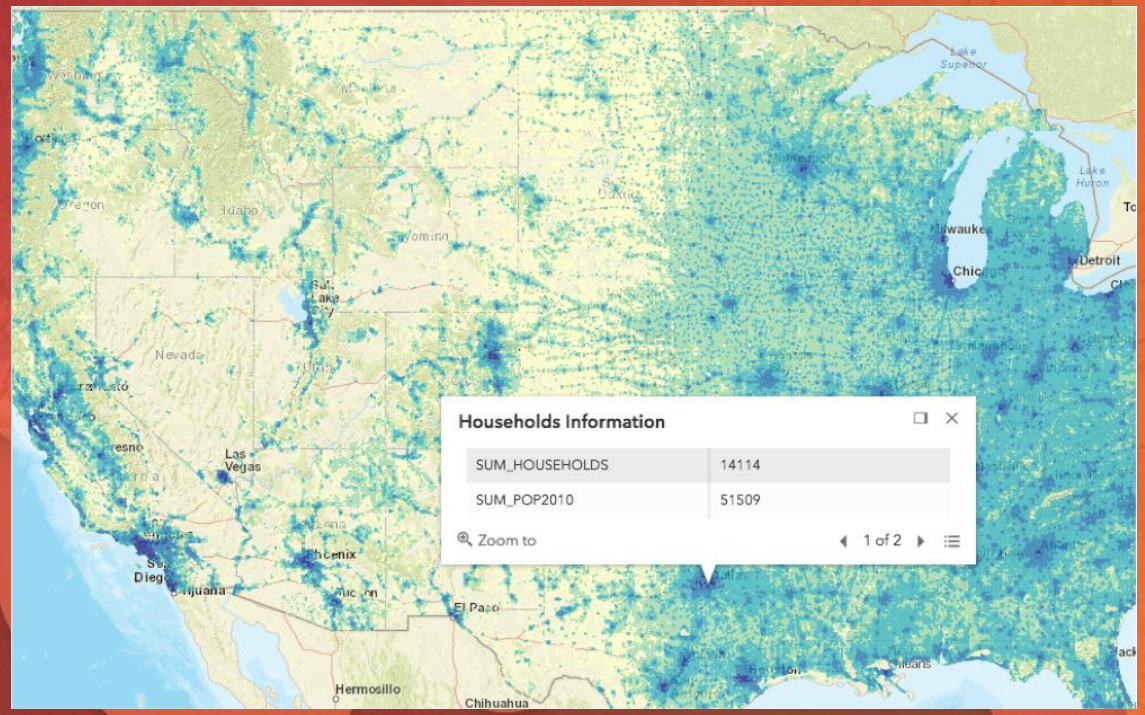


Publish and Consume

- Consume++
  - Publish source data
  - Don’t display it



https://odoe.github.io/esrijs4-vt-misc/vector-tile-query.html

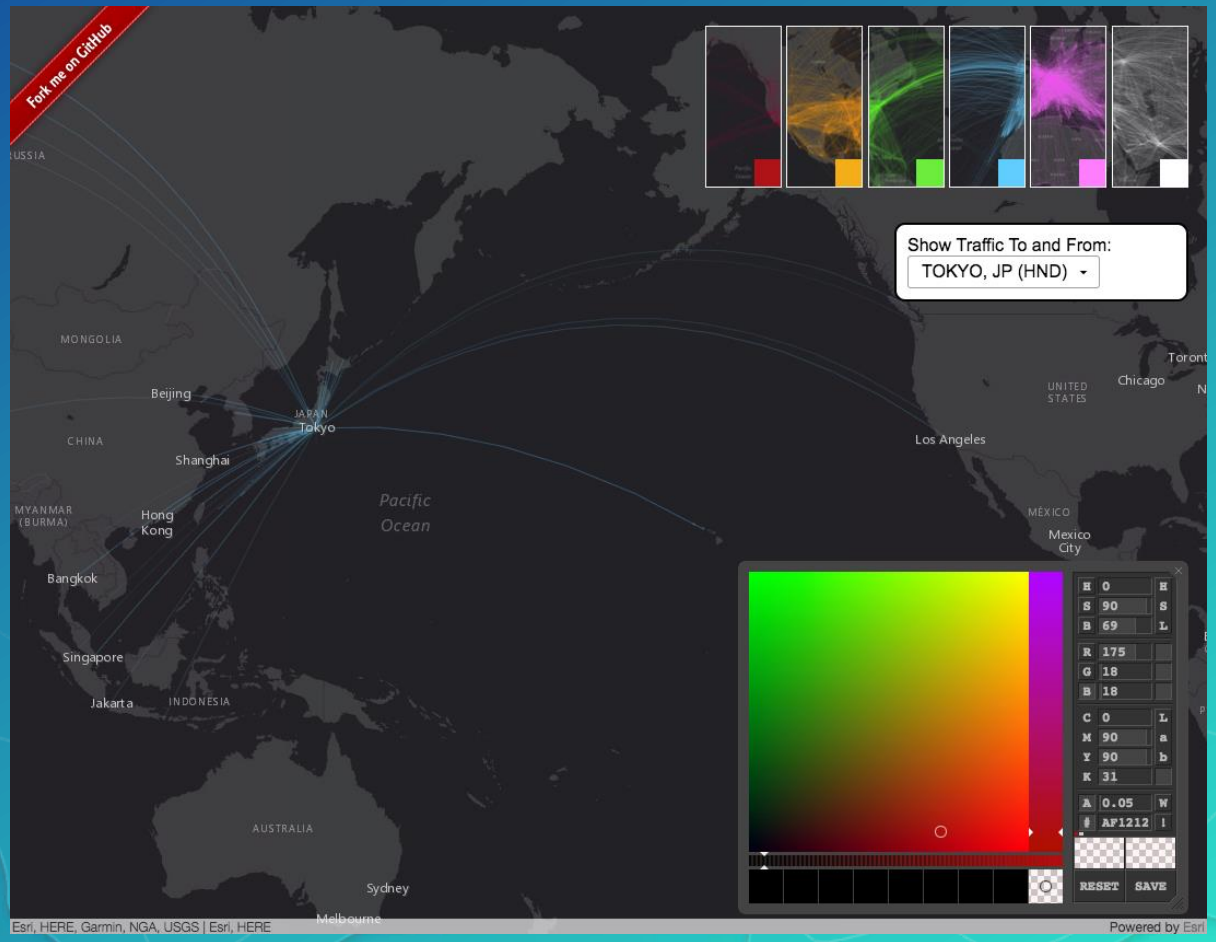


Query hax

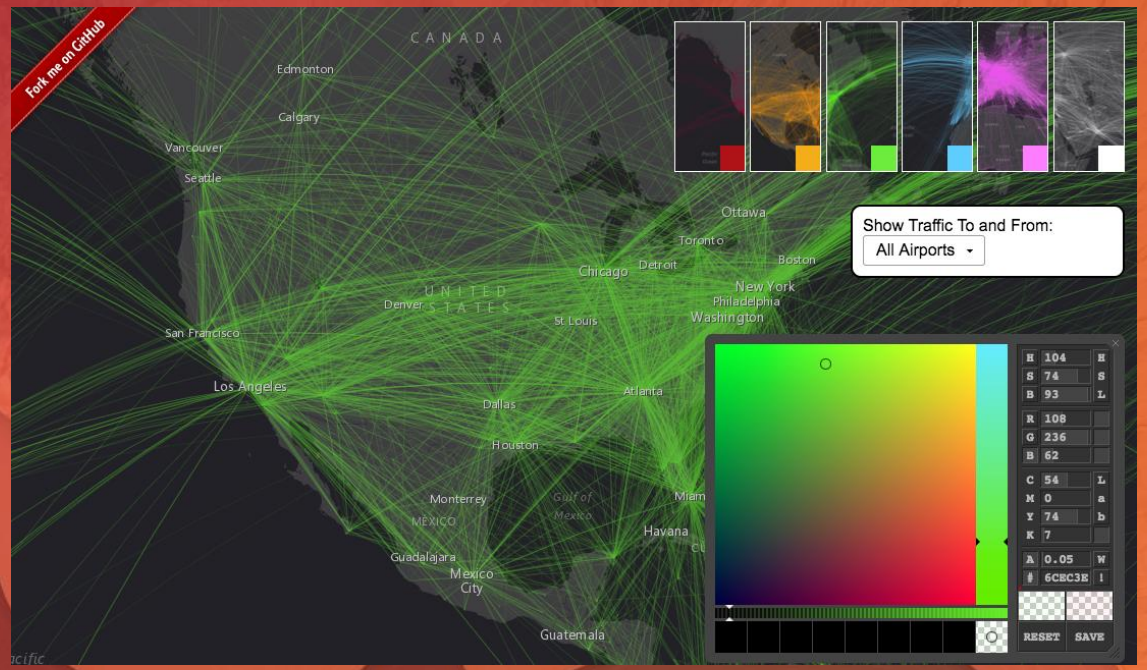
Query the source data, display the tiles.

Publish and Consume

- Consume+++
  - Filter the layer style
  - Style on the fly



https://gbochenek.github.io/vector-tile-demo-js/



More fun hax

You can apply filters to styles

Publish and Consume - Summary

- Publish tiles in Pro
- Consume tiles in Online/App
- Have even more fun!

Resources

- Editors
  - https://github.com/Esri/arcgis-vectortile-style-editor
  - https://maps.esri.com/jg/VectorBasemapStyleEditor/
- Demos
  - https://esri-es.github.io/arcgis-vector-tiles/
  - https://gbochenek.github.io/vector-tile-demo-js/
  - https://github.com/odoe/esrijs-vt-demos

Questions?

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SCIENCE
OF
WHERE