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CAPP 30239

The first two visualizations come from the same article, authored by Leon Yin and Aaron Sankin.
On The Markup as "Dollars to Megabits, You May Be Paying 400 Times As Much As Your Neighbor for Internet Service"
On Associated Press as "Poor, less white US neighborhoods get worst internet deals"

I was actually just sent this article by a researcher for a study that I am on the data team for, where we are looking at internet/broadband connectivity in cities around the country; it was also linked on Flowing Data.
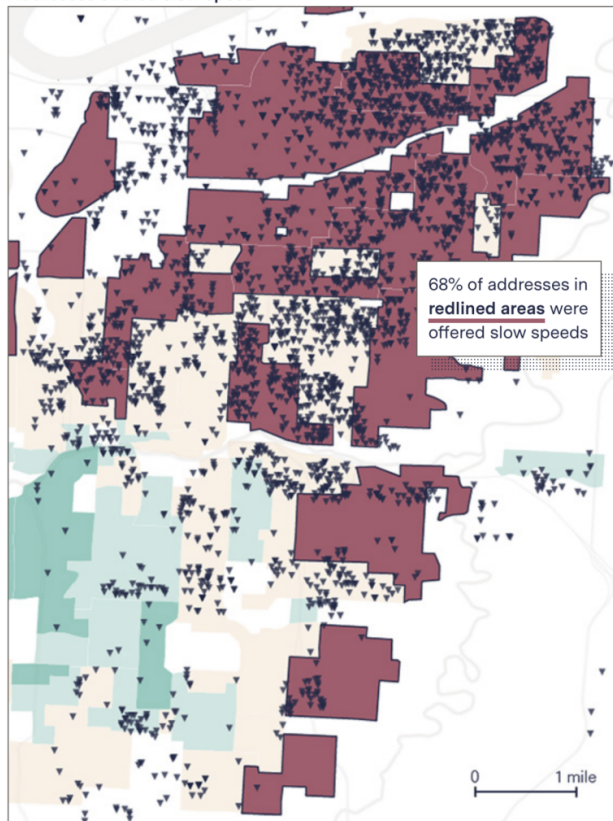
Figure 1:

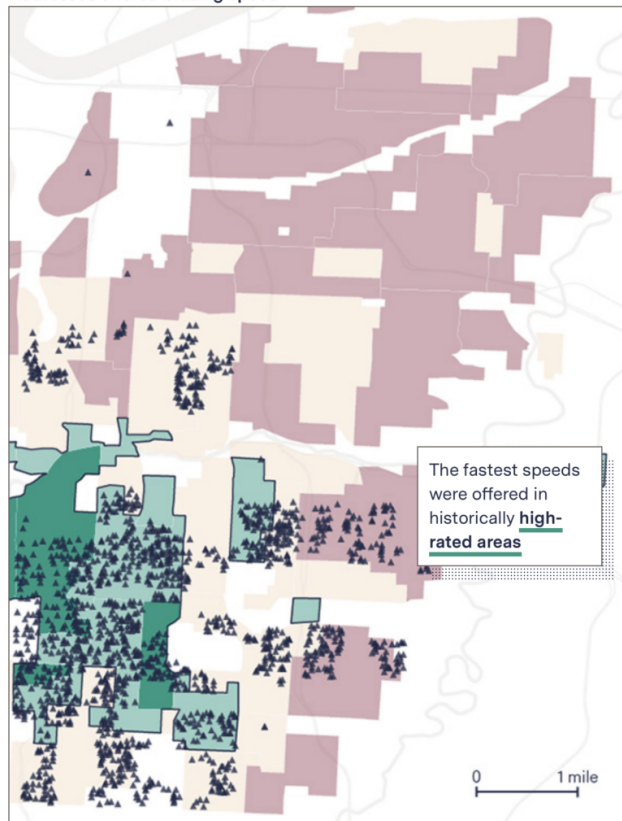**Historically redlined areas disproportionately received slow internet speeds in Kansas City, Mo.**

Residential addresses offered different download speeds for the same price

Historical loan grade: ■ Best ■ Desirable ■ Declining ■ Hazardous

Addresses offered slow speed | **Addresses offered blazing speed**

68% of addresses in **redlined areas** were offered slow speeds

The fastest speeds were offered in historically **high-rated areas**

Source: The Markup analysis of AT&T; Mapping Inequality

1. The data for this map uses historical redlining data from the Mapping Inequality project at University of Richmond, Census geography data, and internet provider data from the FCC.
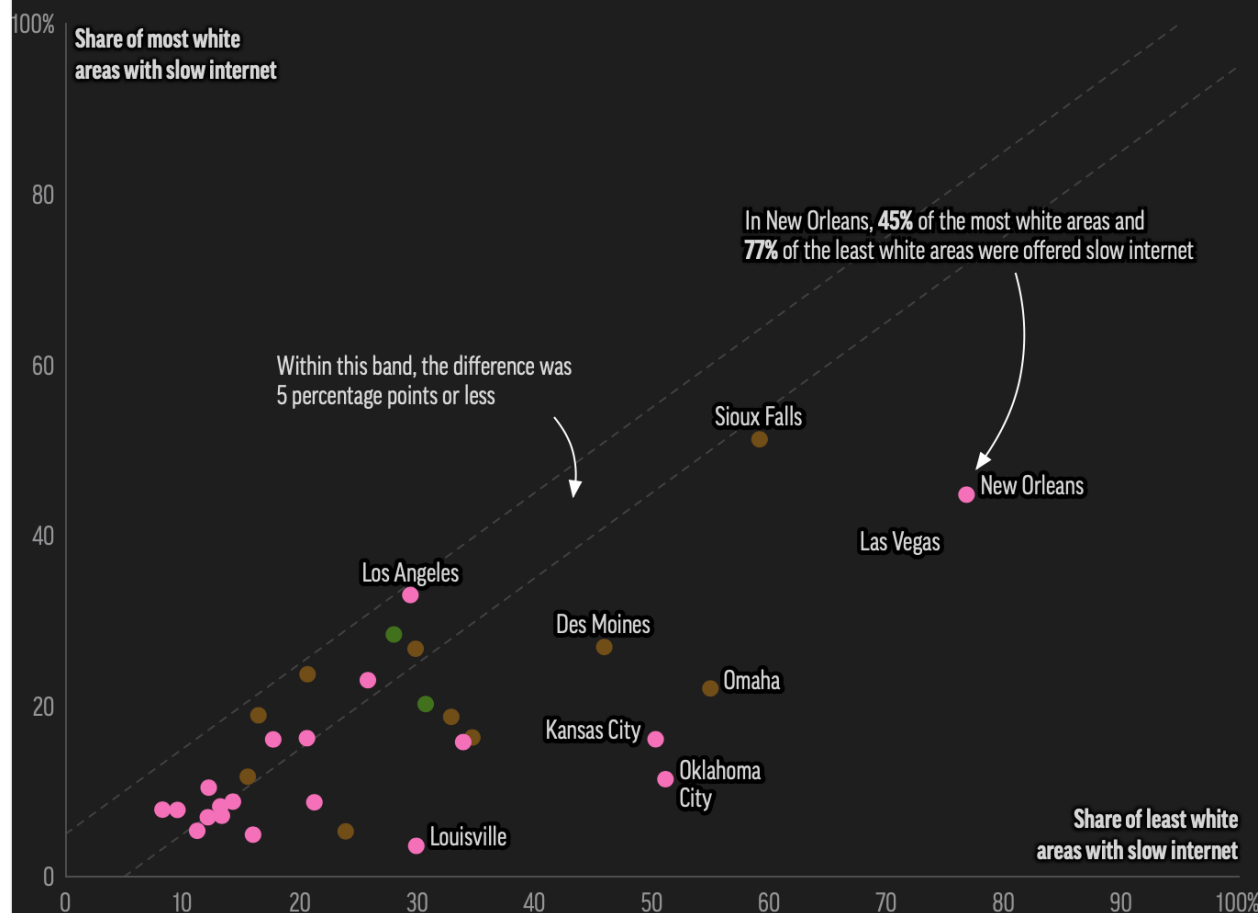
2. The purpose of this visualization is to display the unequal spatial distribution of high and low internet speed offerings, and especially to highlight the alignment between internet speed and redlined neighborhoods.
3. The visualization is composed of two side-by-side maps. They have the same background, but outline and change the saturation of different areas in the city to draw your attention. They also show point locations corresponding to addresses with high or low download speeds. Lastly, there are callout boxes offering further explanation of the visualization.
4. This visualization does have a clear message regarding the current state of internet connectivity. We cannot posit, of course, whether it is intentional discrimination by ISPs, but it shows room for improvement. There are multiple audiences. One is the ISPs themselves. Another is local governments, the FCC, and activists who will push for more equity.
5. I think this visualization is effective. For one thing, I think it was a good idea to separate it into two maps; they could theoretically have displayed both high and low speeds on the same map (since it uses the same background), but that would get cluttered.
6. One point of improvement would be to clarify what is meant by "slow" and "blazing"/"the fastest" speeds. This is explained elsewhere in the article, but I could see this map being reproduced elsewhere without the context. One question I have is about the extent of the map, which seems to be rather abruptly cut off instead of showing the entire city. This raises a question that the entire dataset might not have supported their argument as well?

Figure 2
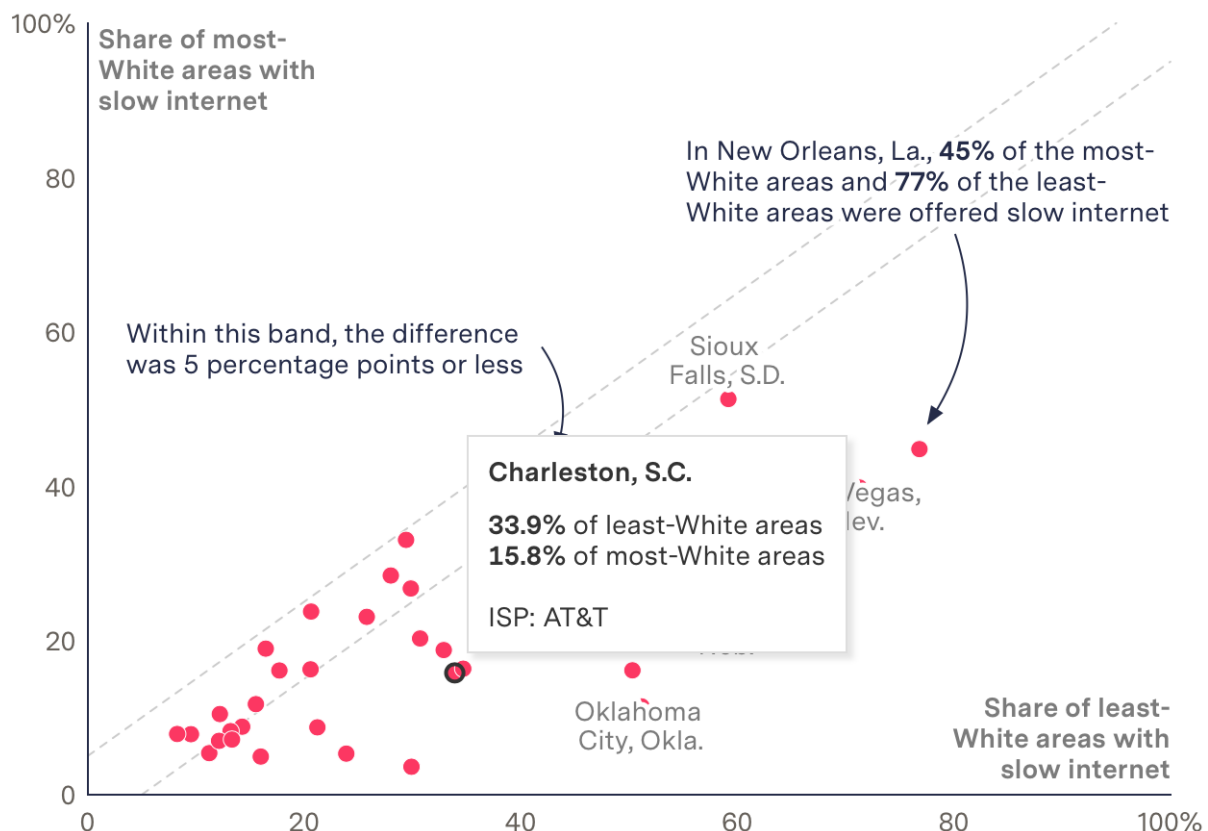
Homes in most cities' least white areas often get offered slower internet service

Share of addresses offered slow internet speeds, by percentage of non-Hispanic white residents in area in each city

Share of most white areas with slow internet

In New Orleans, **45%** of the most white areas and **77%** of the least white areas were offered slow internet

Within this band, the difference was 5 percentage points or less

Sioux Falls

New Orleans

Las Vegas

Los Angeles

Des Moines

Omaha

Kansas City

Oklahoma City

Louisville

Share of least white areas with slow internet

Slow internet is download speeds below 25 megabits per second.
Source: The Markup analysis of offers from AT&T, CenturyLink, Verizon; U.S. Census Bureau

1. The first version of this visualization is from the The Markup article and the second from the AP article. It again uses FCC data and ACS data.
2. The purpose is to display both how many people have slow internet and the ratio between majority and minority white areas, in a number of cities.
3. This visualization is a scatter plot with each point representing a city. The dashed band in the middle draws your eyes to the more equitable cities (though not necessarily with fast internet). Both charts have tooltips that give the percentages for the highlighted city and the ISP. The AP chart is also color-coded by ISP, and on mouseover it hides points from other ISPs so you can compare one company's offerings.
4. The message about inequality and slow internet in some cities is apparent. If there is supposed to be a message regarding the three ISPs, it is muddled since each serve some good and some bad cities. The audience is the same as above.

5. I think the visualization is effective. The callout texts are good. It is easy to understand as a ratio that both axes are showing the same "type" of data.
6. A minor point is that the positioning of city names on their dots gets in the way in a few cases. Overall I think this is a very good example.

Figure 3:
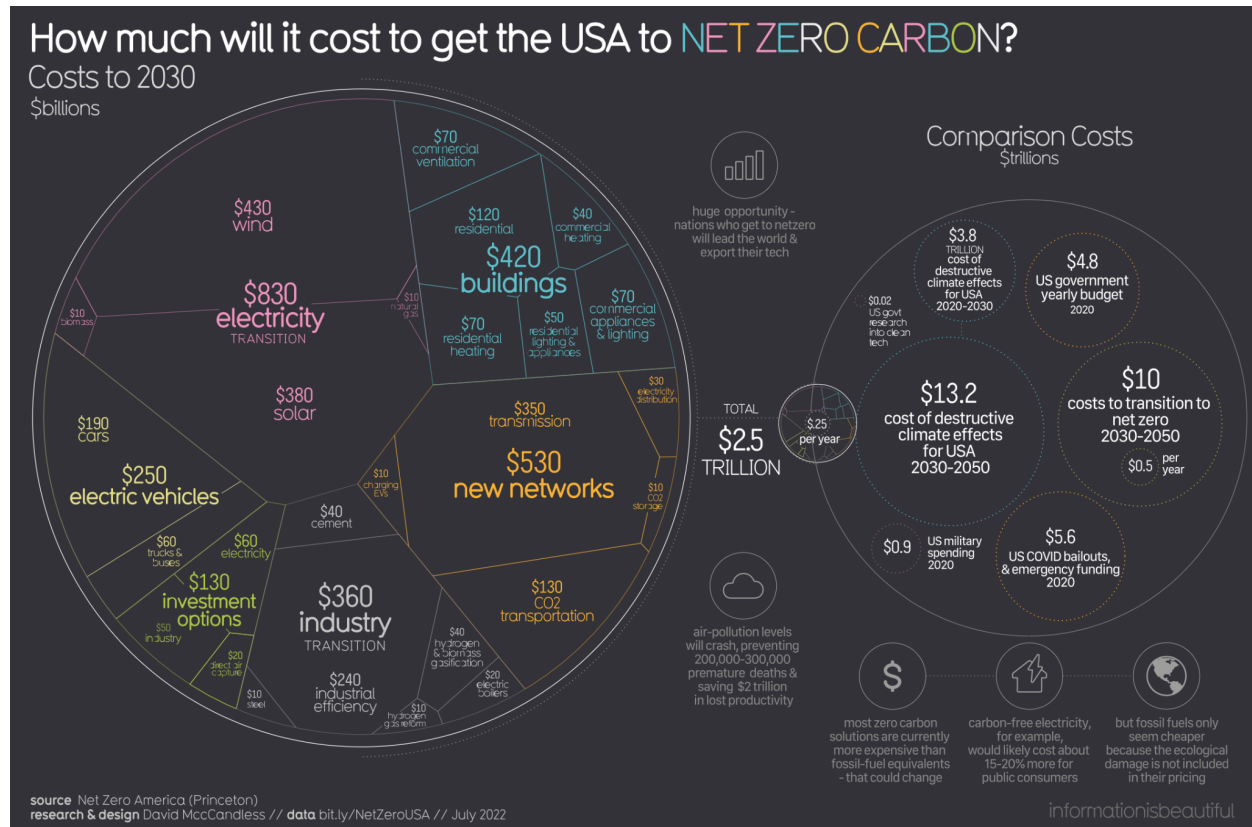
1. How to get the USA to NET ZERO CARBON by 2050, by David McCandless, Stephanie Starling, Keshia Naurana-Baldage, and Fabio Bergamaschi on Information is Beautiful. Data from Princeton Environmental Research.
2. The purpose is to show the costs of actions in various sectors that will get the US to net zero carbon in the next 8 years, compared to the intentional and "side effect" costs of getting there by 2050.
3. This chart uses a Voronoi diagram or sort of tree map. (It reminds me of soap bubbles. I got one search result for that, which told me it is called a Frucht graph in math.) Each shape is color coded to a sector and has a label with the specific industry/type of expense. There is also a bubble chart comparing the other costs. Finally, there are informative text blurbs on the periphery.
4. The clear message is that the cost of getting to net carbon by 2030 is much, much, smaller than the other costs that will accrue. The audience of this chart is likely policymakers and actors in the corporate world who will make the decisions to invest.
5. I do not think this visualization is that effective. I'm not arguing for just bar charts a la Stephen Few – I have a bit more faith in my ability to compare areas. However, these

irregular shapes are difficult to compare and don't really add anything to the numbers. I'm also not sure I like the peripheral information; it seems kind of just stuck on.

6. I would change the left part to be a bubble chart, like the right side, or a rectangular tree map if bubbles do not lend themselves to subdivisions within sectors.