

Metro Map: Cluster & Linked List interaction

Desktop & Mobile |

Figma prototype:

 [Visual Design & Content 2025](#) (desktop)

 [Data Centers](#) (mobile)

(see mobile version exceptions and details below the desktop version)

Refinements MIRO Board:

 [UX Initiatives](#) 

Introduction:

During a Northern Virginia session on Desktop (Hotjar), a user navigating to the Metro map sees facilities overlapping. In order to discern between these facilities, read which number they are, and see where they are located exactly the user needs to repeatedly zoom in and out. They then hover over the list, but end up navigating away from it quickly.

The list has no current interaction. If the facility group had a cluster interaction and clarification, time would have been saved. If as well hovering over the list highlighted a facility on the map, significant time would have been saved.

The lack of clarification as to which facility corresponds to which location on the map could be a factor that leads to users disengaging with the map. Including more interactivity may lead to deeper navigation to the facility level more quickly.

Pain point hypothesis:

Confusing visual design and a lack of interactivity/link between facility list and metro map is a factor that leads users to spending more time back and forth between Locations/Metros. The lack of an intermediate step that confirms the user is about to navigate to a new page upon click of a facility bubble leads to unexpected navigation outcomes.

Refinement hypothesis (Desktop):

Shipping this update will allow users to navigate the metro map more quickly and efficiently, reaching their end destination more quickly.

Specifications (Desktop): The update includes a list that, when hovering over a facility, the facility being hovered becomes clearly visible on the Metro map by the bubble changing color from transparent blue to fully opaque blue and within the map view, even if it was previously off-screen (below).

If the facilities are within a cluster (see above NorVA), the cluster will expand on hover within the map, and if a facility is being hovered within the map, that facility is highlighted. The facility highlighted within a cluster should be easily visible and clear.

Mobile:

Specifications (Mobile): The update includes a list that shows the recently tapped facility at the top of the list, and once the facility is tapped it becomes clearly visible on the Metro map by the bubble changing color from transparent blue (or purple or green) to fully opaque and within the map view, even if it was previously off-screen (below).

If the facilities are within a cluster, the cluster will expand with a tap within the map, and if a single facility is being tapped, that facility is highlighted and easily visible as it's distinguished from the rest by opacity and a popup (see below: "Frankfurt FRA9 [View Data Center](#)").

User story:

As a user,

I want to view the map in a given metro page

So that I can see data center facilities and their offerings within that metro

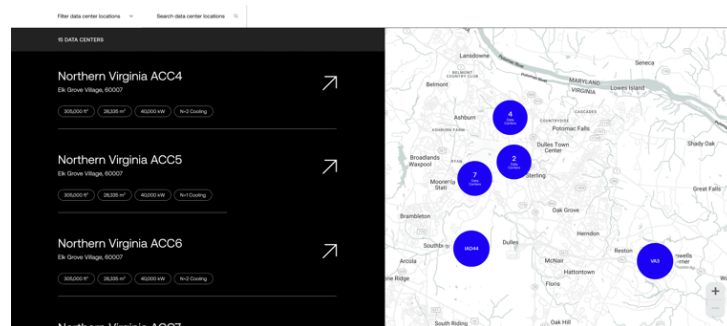
Acceptance criteria:

Grouped Facilities (On load)

Given a Metro Map block on Desktop,

When a user enters the metro map and is not hovering over a facility in the list or on the map,

The facilities bubbles will be fully opaque blue **#1F00FF**, purple **#7700EC**, or green **#01454F** (depending on region the metro is in), and the list will appear black with white text/graphics, showing no hover states, with a zoom in button clickable and a zoom out button that is disabled on the map



Given a Metro Map block on Mobile,

When a user enters the metro map and is not tapping/touching a facility in the facility list or on the map,

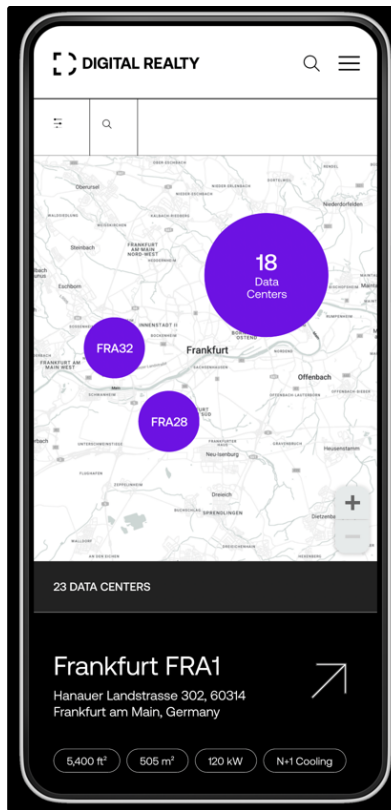
The facilities bubbles will be fully opaque blue **#1F00FF**, purple **#7700EC**, or green **#01454F** (depending on region the metro is in), and the facility list will appear black with white text and graphics, showing no touch states, with a zoom in button clickable and a zoom out button that is disabled in the map view

List behavior (as related to Map)

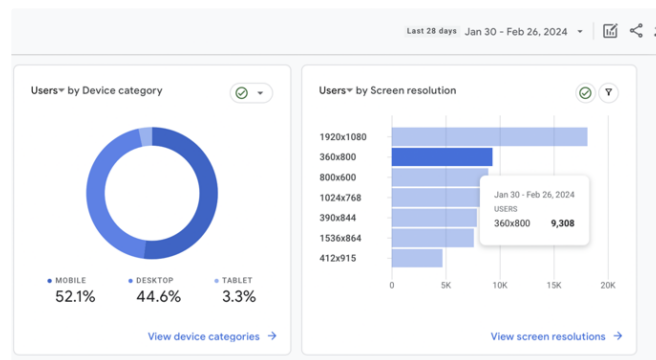
Given a facility list,

When there is more than one facility in the list,

Then the facilities will be ordered in alphanumeric order, starting with [Metro Name] A1 at the top and ending with [Metro Name] Z9, [Metro Name] Z10, and so on at the bottom



Android (Large) - 360x800 screen resolution



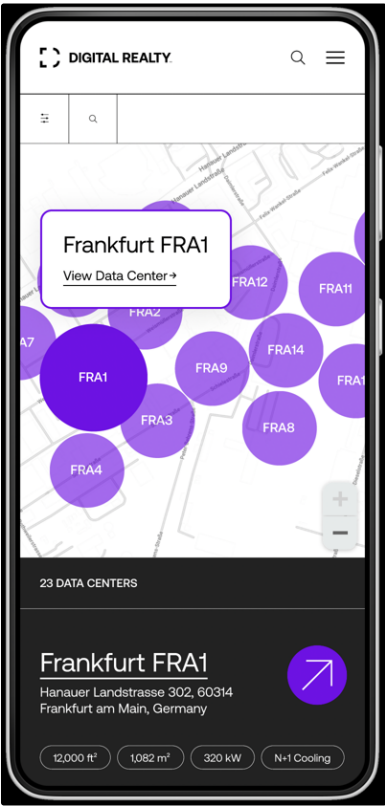
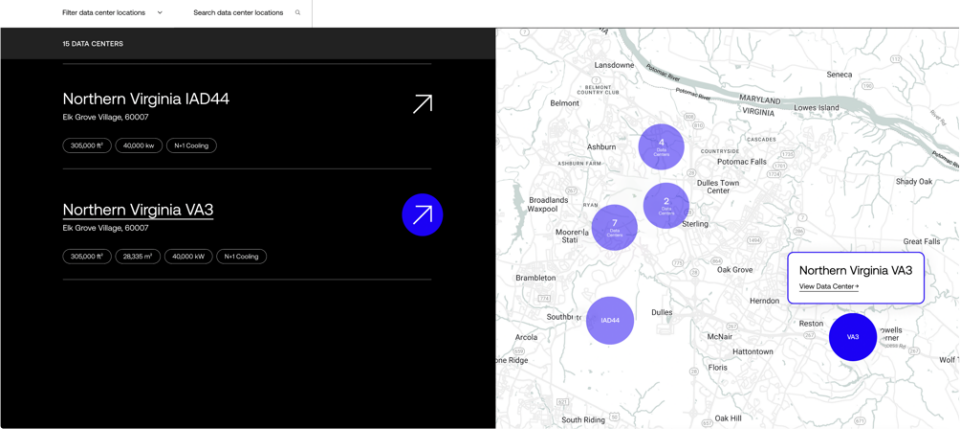
Users by device category, January 30 - February 26, 2024

Given a facility list,

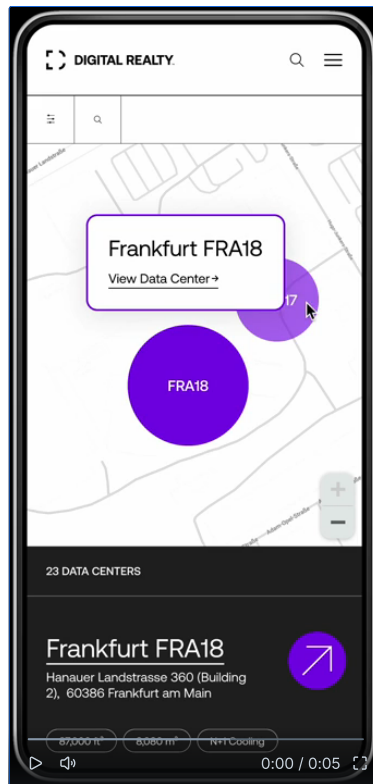
When the user hovers over a facility in the list (desktop) or touches a facility in the list (mobile),

Then a list hover state or touch state for that facility will be visible on the screen,

And the corresponding facility in the Metro Map will be highlighted with a pop-up “[Facility name] View Data Center” while the other facilities in the Metro Map will be shown with a 40% transparent color background (white text is still fully opaque)



User clicked on facility in list to get to this view



List interaction upon facility tap, switch

Facility behavior (as related to List)

Given a single facility on the map,

When a single facility is hovered over or tapped/touched,

Then the facility popup will appear above the facility on the map

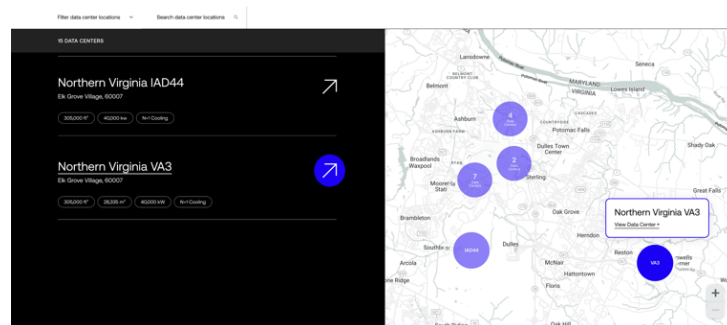
And the facility bubble will appear at full opacity, with other facilities and facility clusters on the map at 40% transparency

Given a single facility on the map,

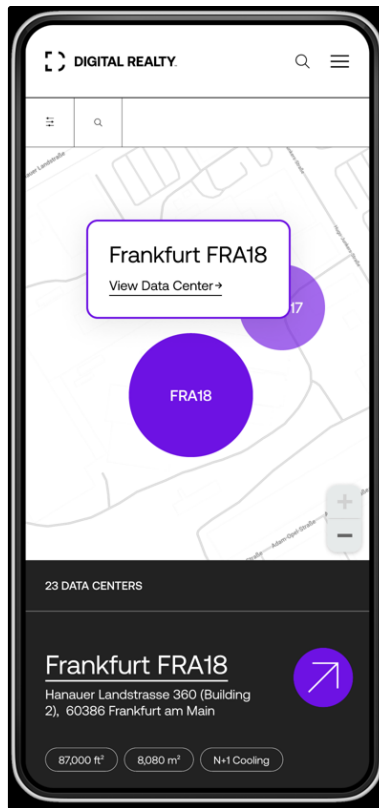
When a single facility is hovered over or tapped/touched,

Then the facility popup will appear above the facility on the map

And the list will scroll to the corresponding facility in the list so that it appears near the top, with a circle behind/enclosing the arrow in the list (shown in the same color as the highlighted facility bubble on the map)



Desktop facility with pop-up



Mobile facility with pop-up

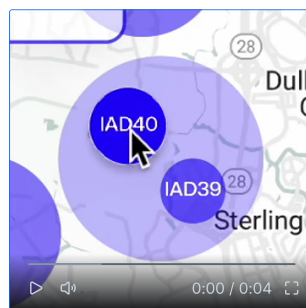
Clustered facilities behavior

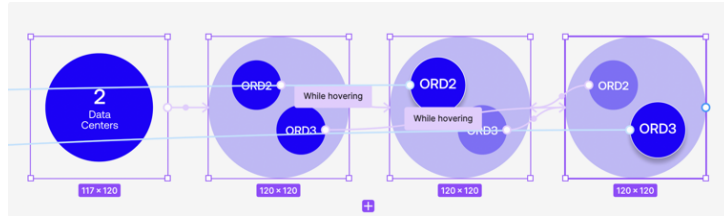
Given a cluster of facilities on the Metro Map,

When there is two or more facilities within a cluster,

Then white text will appear within a fully opaque circle informing how many data centers are within the cluster

And when a user hovers over(desktop)/touches the cluster(mobile), the cluster will animate outward (expand) to reveal the facilities within the cluster



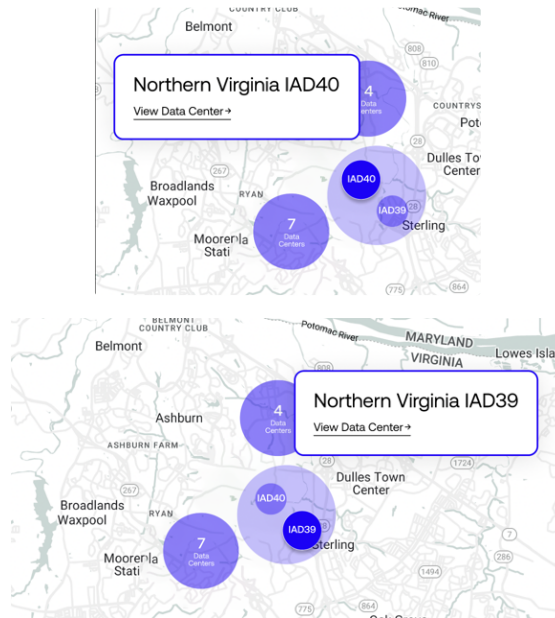


Given a cluster is expanded,

When a user hovers over (Desktop) or taps (Mobile) a facility within the expanded cluster,

Then white text will appear within a fully opaque circle that designates the facility being hovered over or that was just tapped

And a white pop-up with a colored stroke indicating that specific facility will appear above the cluster indicating that another tap or one click will navigate the user to that facility page



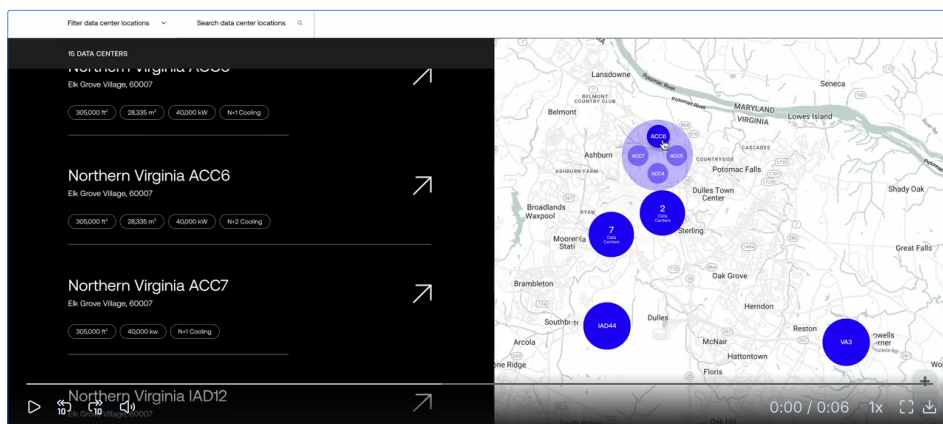
Zoom behavior (Desktop)

Given a cluster of two or more facilities hovered over and expanded,

When a user clicks into the background circle surrounding the facilities (not the facility itself),

Then the map will zoom into the view that captures the facilities within that cluster

And the zoom button will show at the most zoomed in level, with the zoom in button disabled and the zoom out button clickable



Given a cluster has been clicked into (zoomed into)

When a user hovers over a single facility,

Then the facility popup will appear above the facility on the map

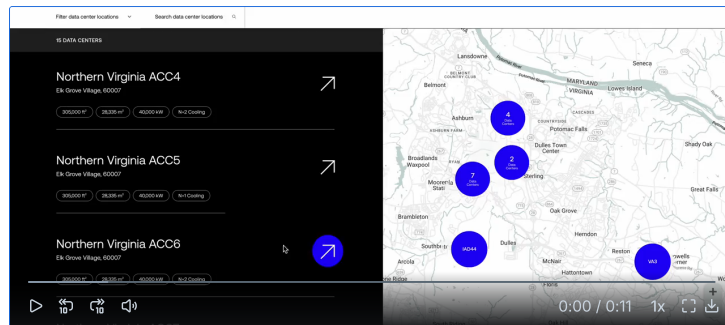
And the list will scroll to the corresponding facility in the list so that it appears near the top, with a circle behind/enclosing the arrow in the list (shown in the same color as the highlighted facility bubble on the map)

Given a cluster has been clicked into (zoomed into)

When a user clicks on the zoom out button,

Then the map view will show at the original metro view that appears on page load

(Only two zoom levels for Desktop)



Cluster expansion + Zoom behavior (Mobile)

Given a cluster of two or more facilities on mobile,

When a cluster has been tapped,

Then the cluster will expand to show the facilities within it

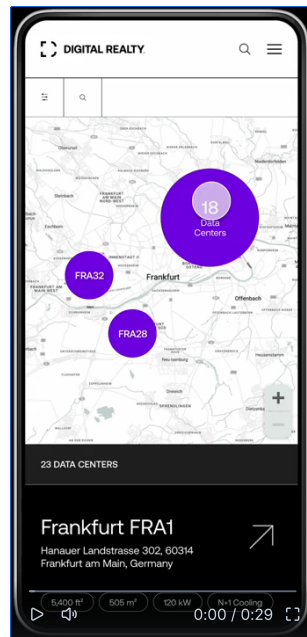
Cluster expansion + Zoom behavior (Desktop & Mobile)

Given a cluster has 10 or more facilities,

When a cluster is expanded,

Then it will show 8 facilities around the outside of an inner cluster that,

When tapped, the inner cluster will zoom into a new set of facilities



Given a user has just loaded the map
And the zoom out button is disabled,
When the user clicks the zoom in button
Then the map will advance to the next zoom level (see recording above)

Given a user has zoomed in on the map,
When the user clicks zoom out,
Then the map will revert to the previous zoom level

Given a user has zoomed all the way into the map
And the zoom in button is disabled,
When the user zooms out,
Then the map will revert to the previous zoom level
unless the user has reached the maximum amount they can zoom out in that metro
(which displays/encompasses all facilities within that metro in one view)

Given a cluster has been expanded,
When a user taps outside of the expanded cluster,
Then the cluster will collapse