



GRAPHISTRY

Interactive Guide

# Graphistry UI Guide

## I. Overview & Basic Interactions

- a. UI Overview
- b. Toolbar Overview
- c. Zooming
- d. Visualization Interaction
- e. Clustering
- f. Scene Settings
- g. Entity Selection & Moving

## II. Histogram Panel & Data Brush

- a. Creating a New Histogram
- b. Applying a Color Profile
- c. Filtering With a Histogram
- d. Using the Data Brush

## III. Filters & Exclusions

- a. Using Filters
- b. Using Exclusions

## IV. References & Documentation

- a. Workbooks
- b. API References
- c. Tutorial & Demo Notebooks

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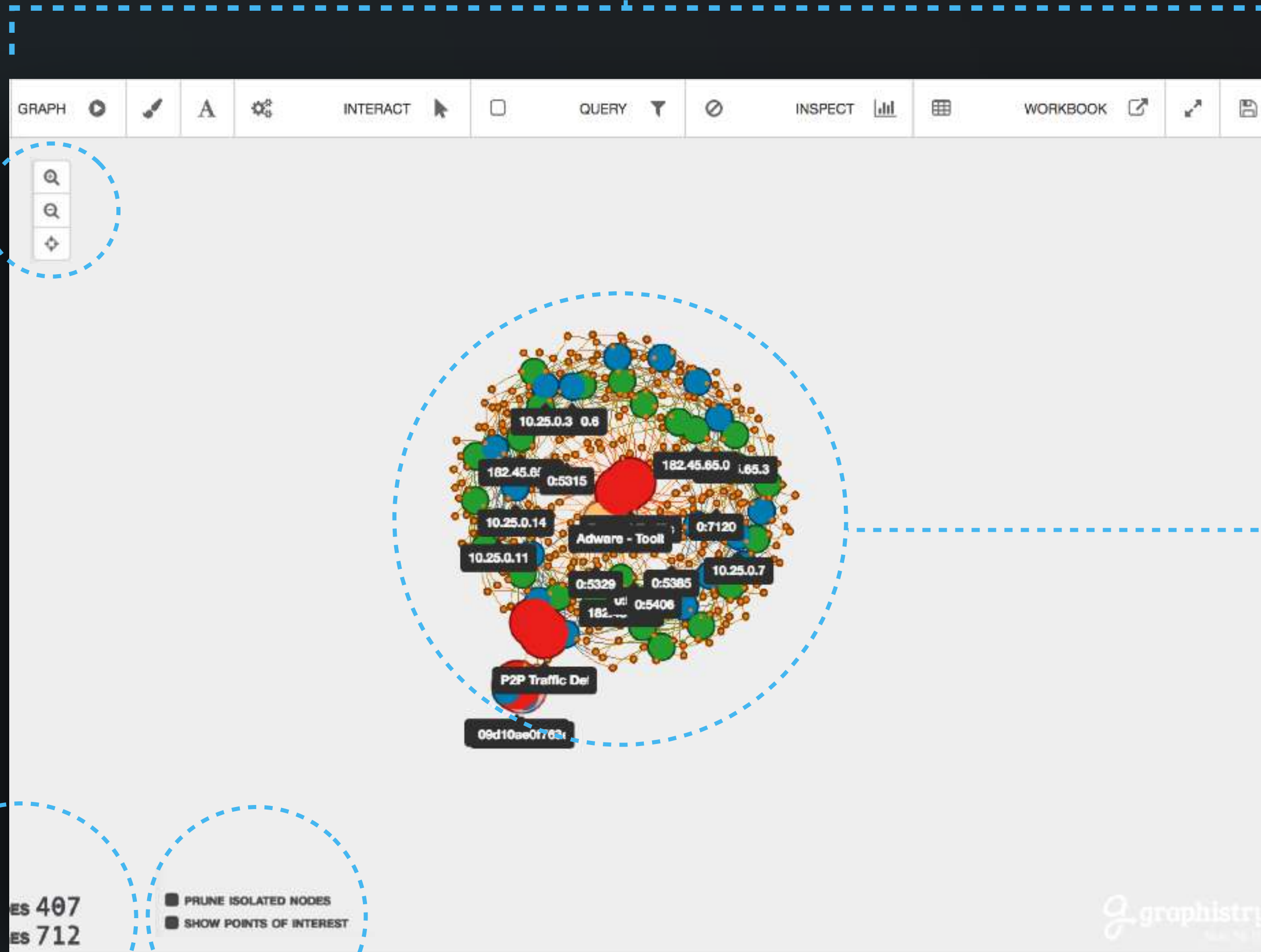
# Overview & Basic Interactions

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# UI Overview

## Toolbar

Zoom controls



Graph Vis.

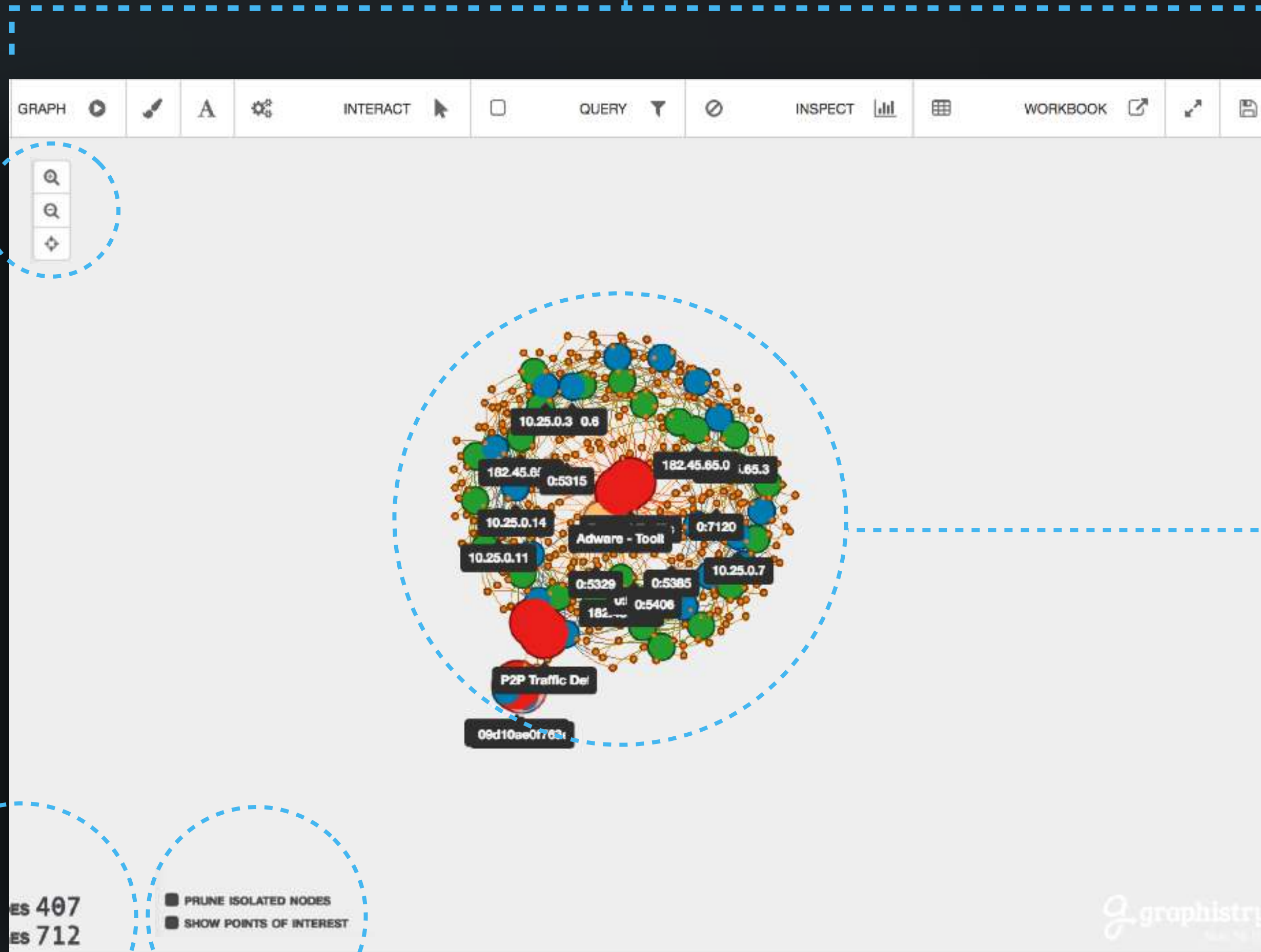
Node / Edge Count

Quick Toggles

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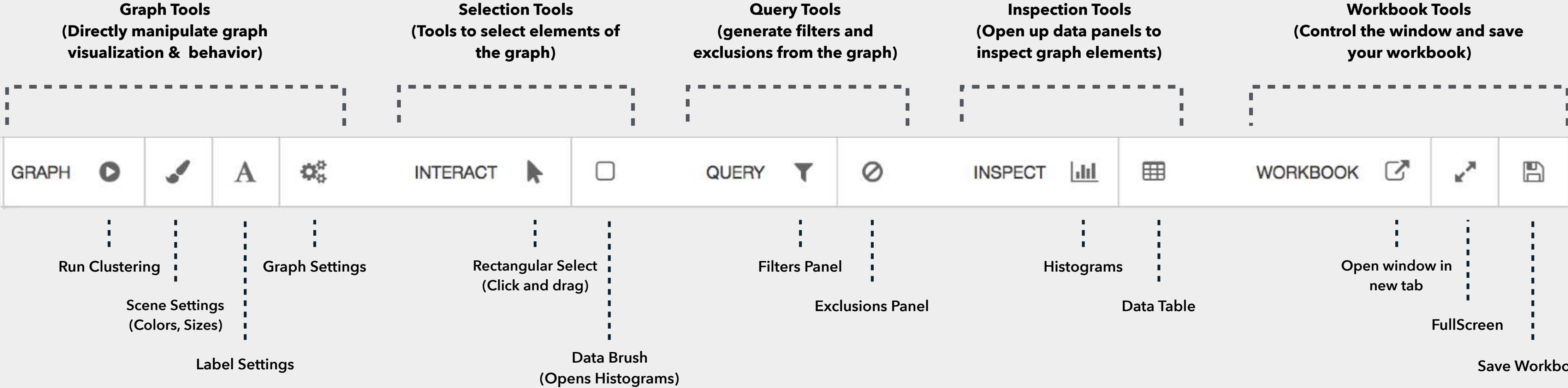


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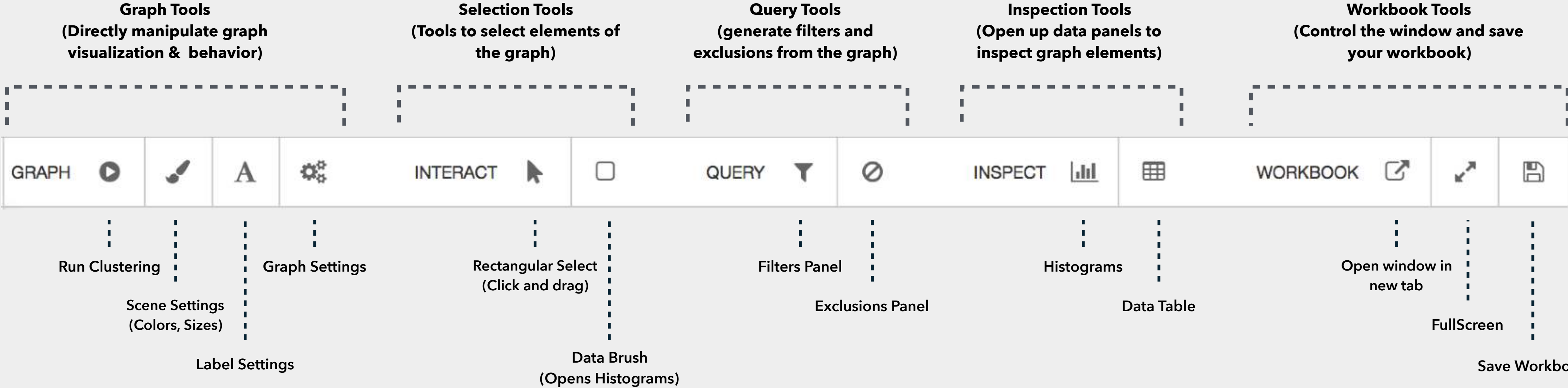
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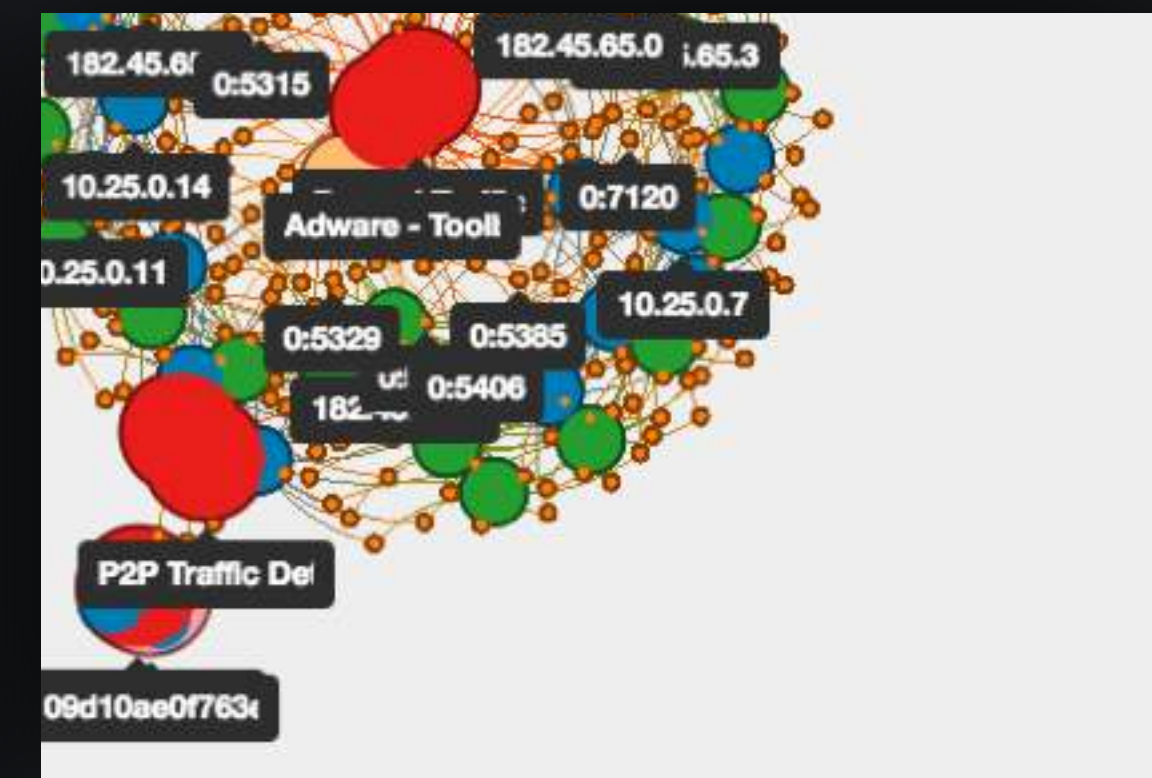
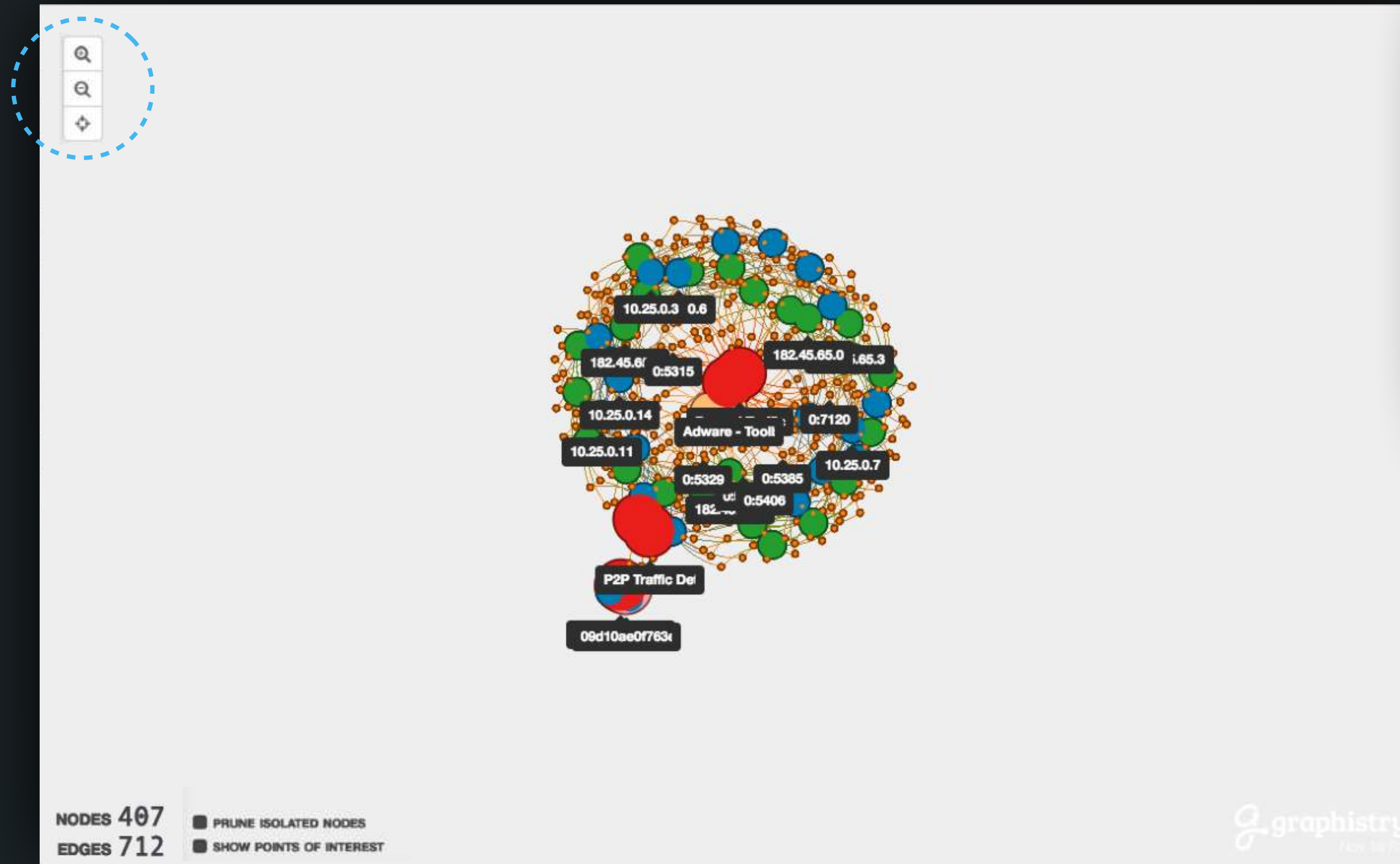
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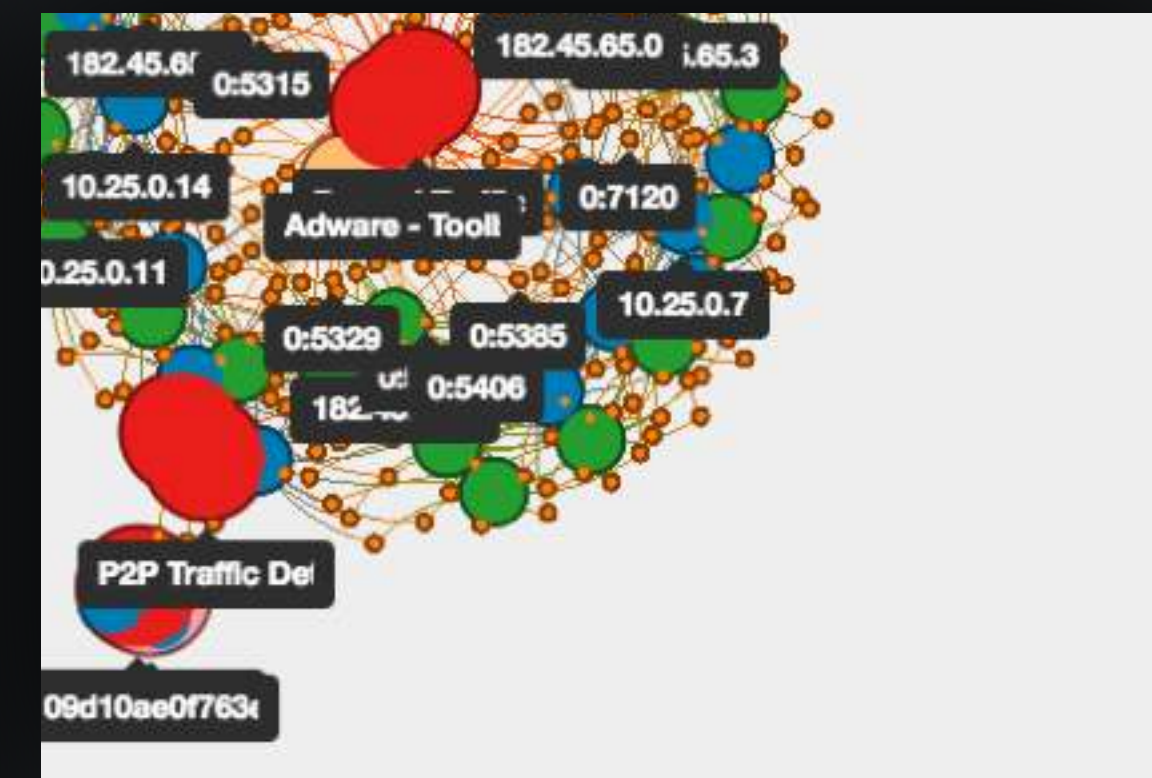
# Zooming



Zoom in & out using...

- Toolbar + - buttons
- Mouse scroll wheel
- Touch pad with 2 fingers

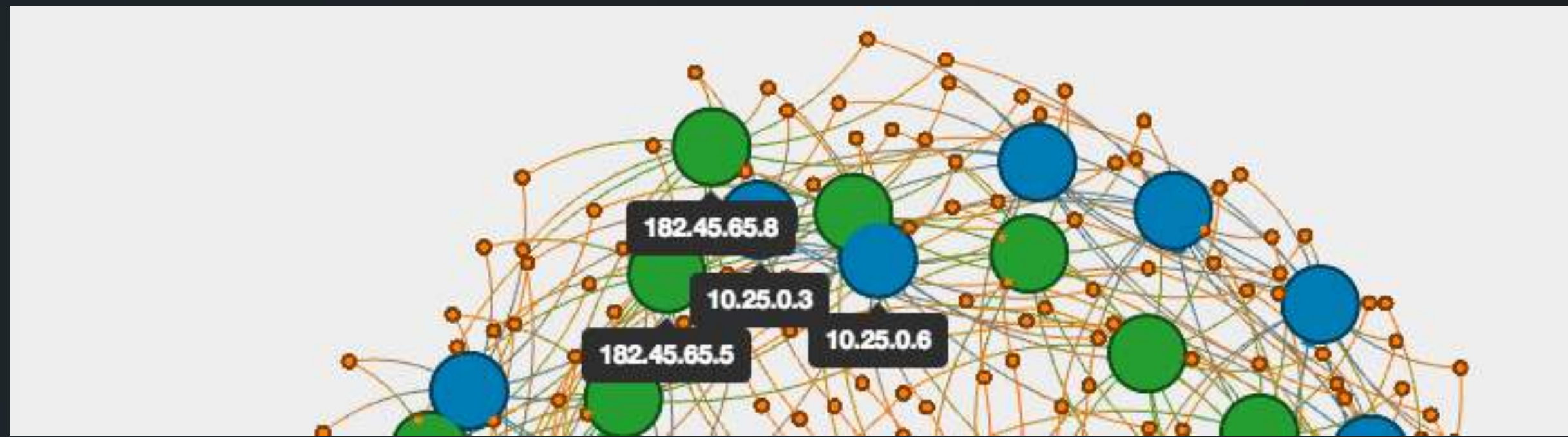
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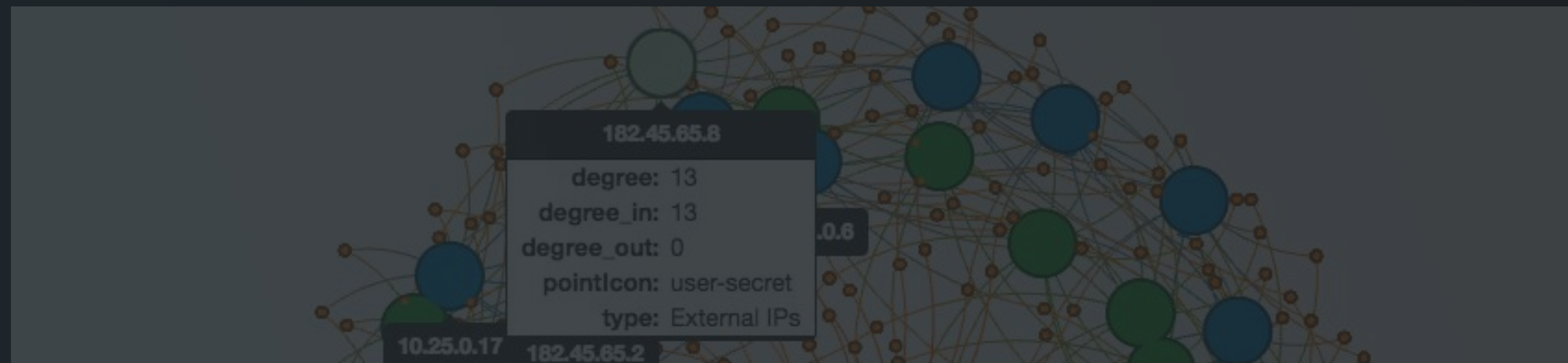
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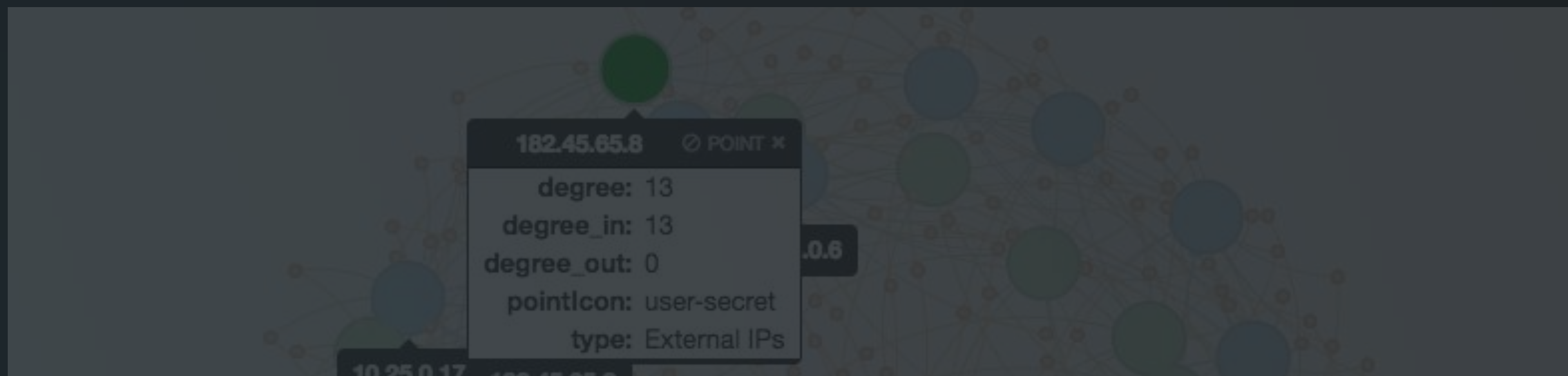
# Graph Visualization Interaction



Points of Interest are shown when you load the graph.

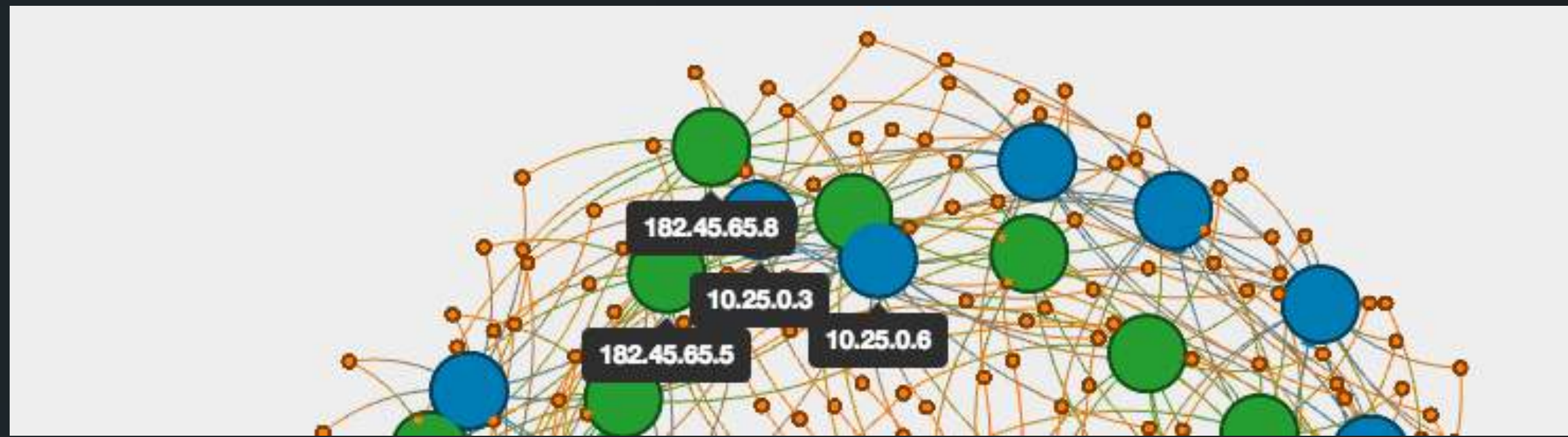


Hover over a node or edge to see its label, a detailed description of its attributes.

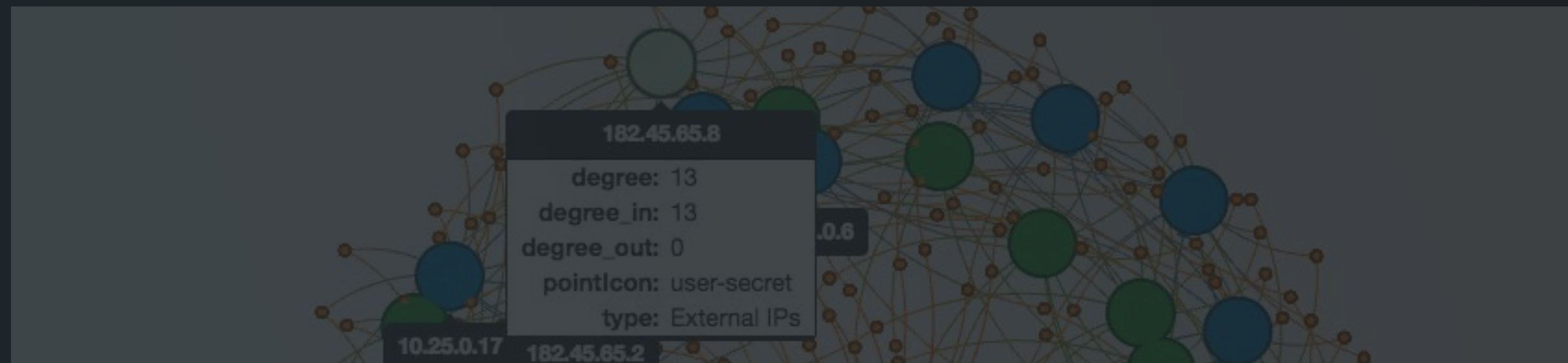


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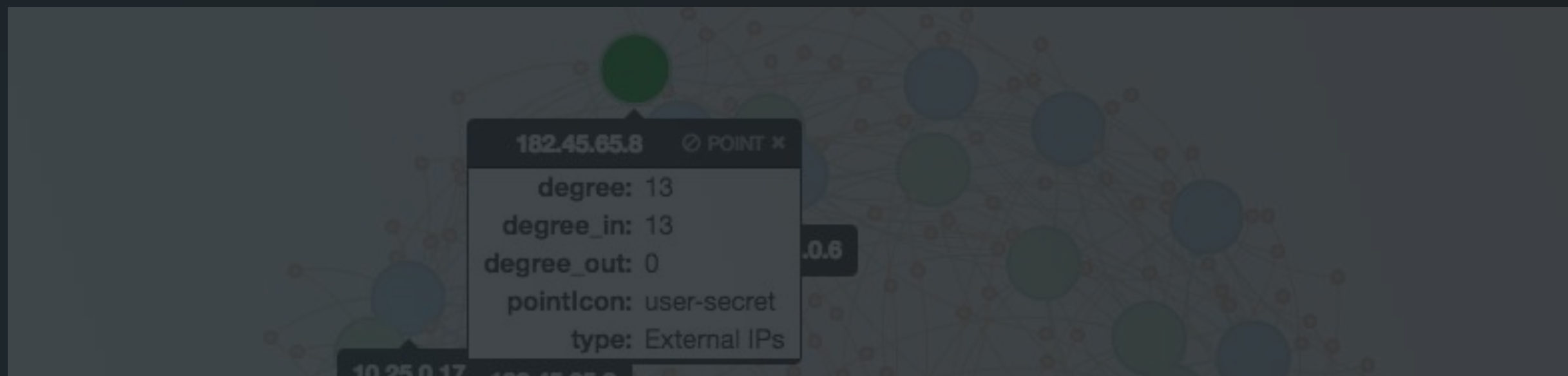
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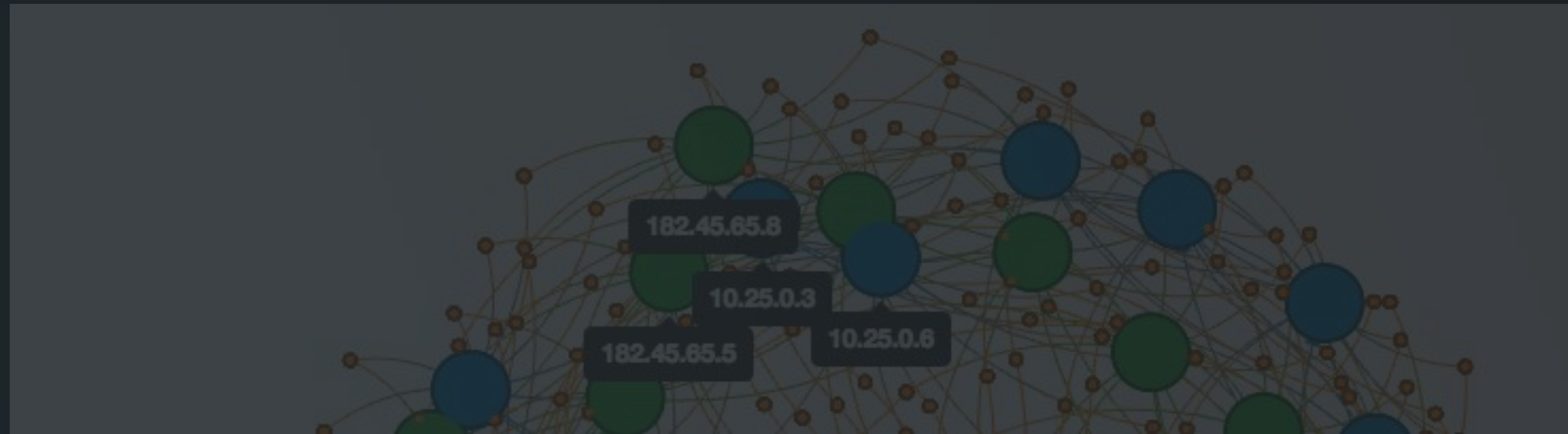


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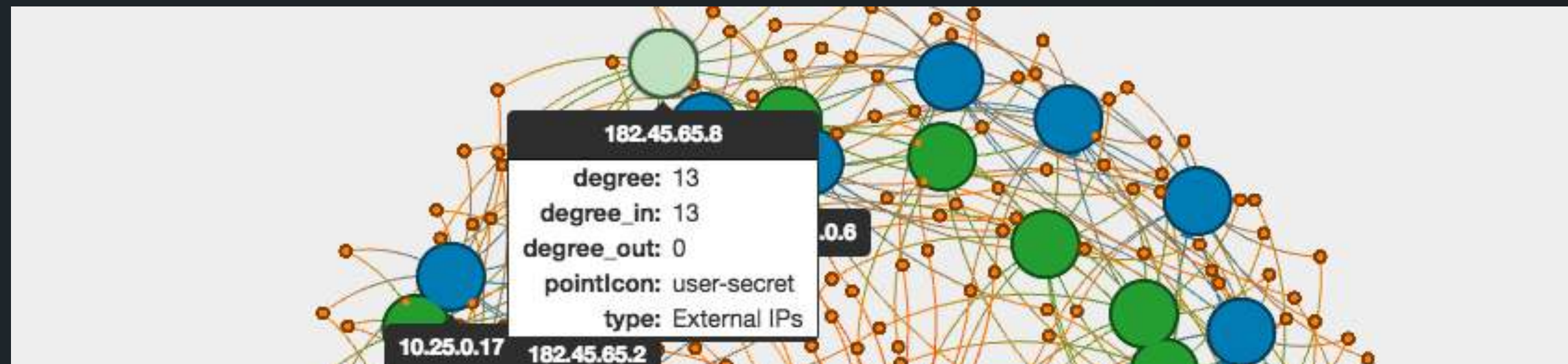


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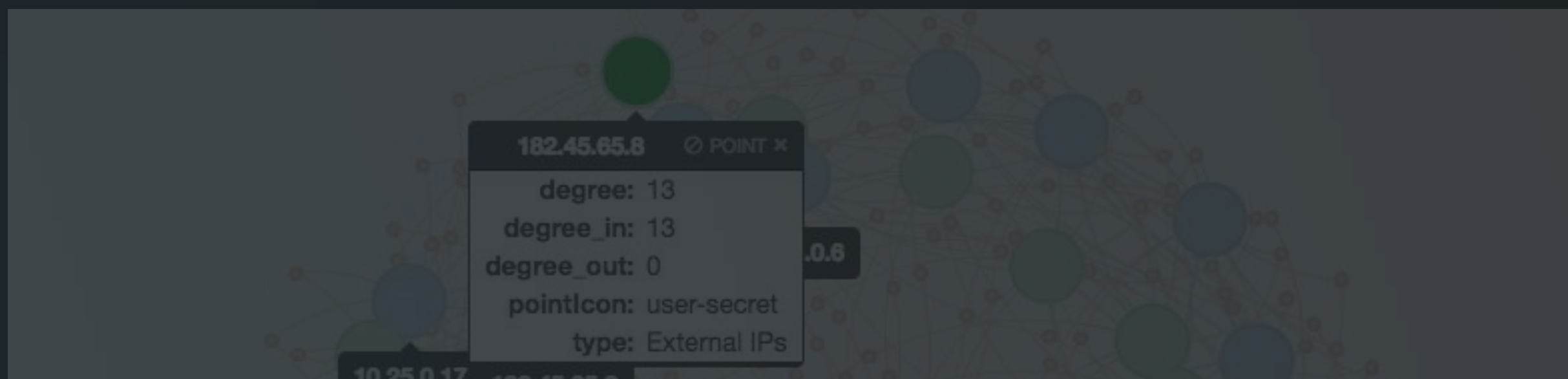
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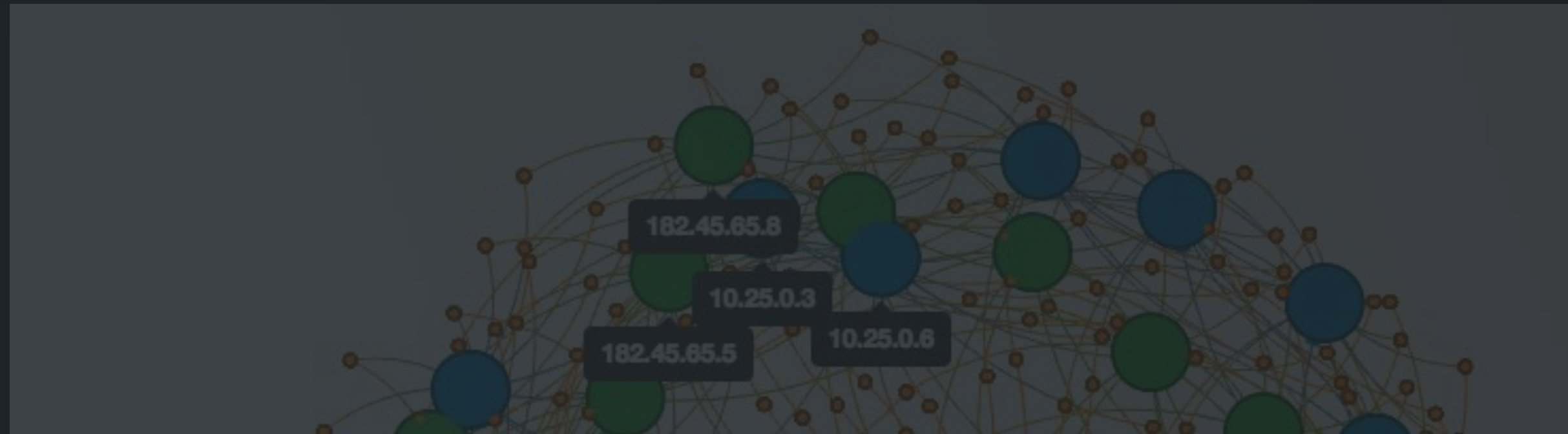


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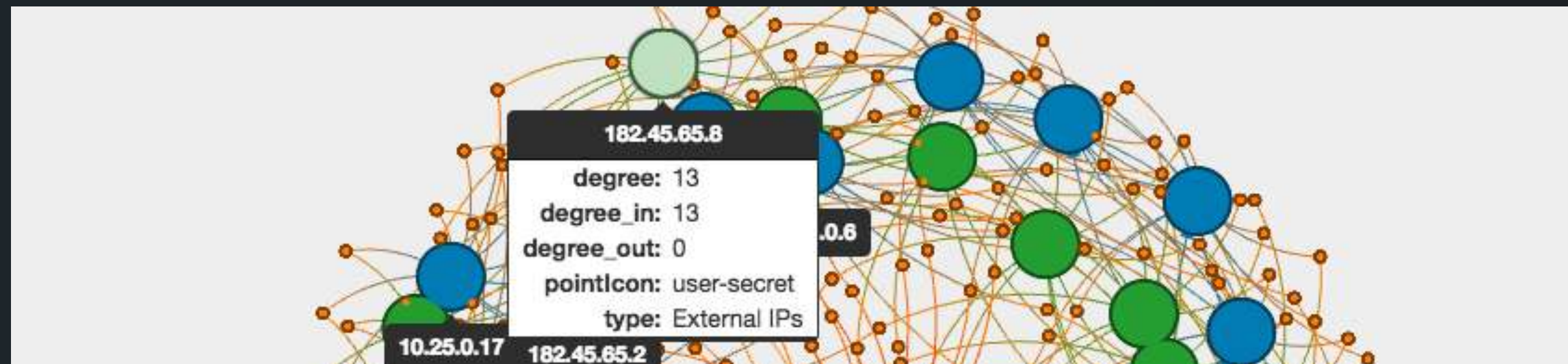


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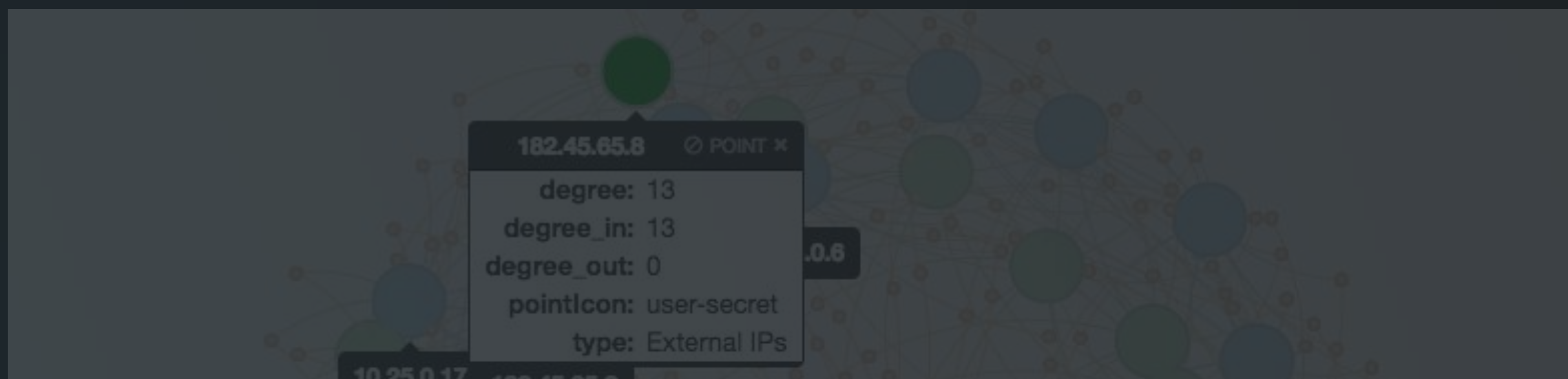
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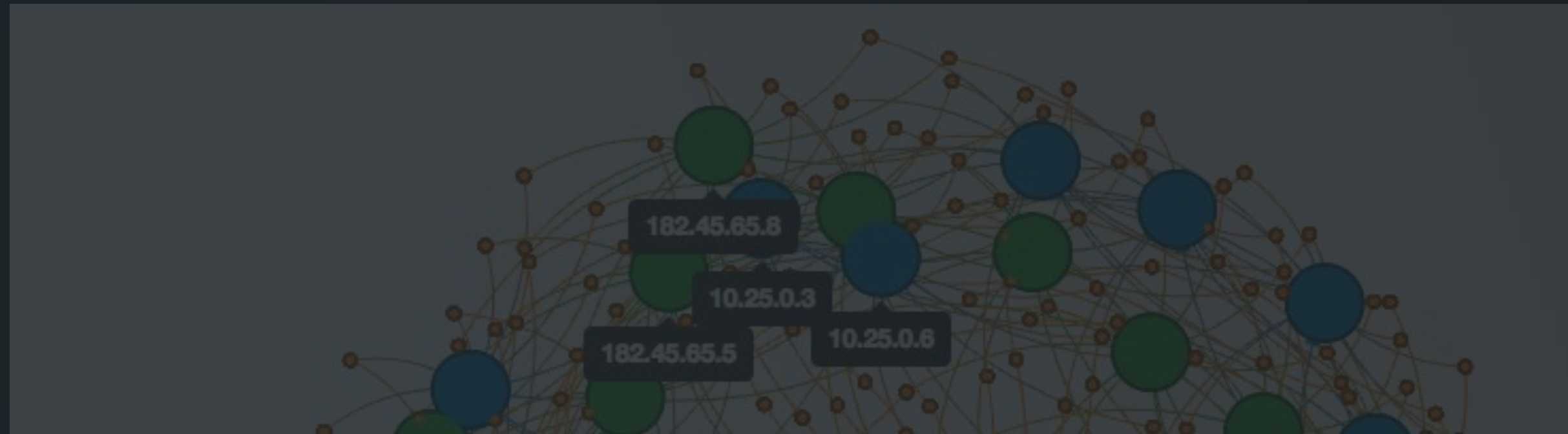


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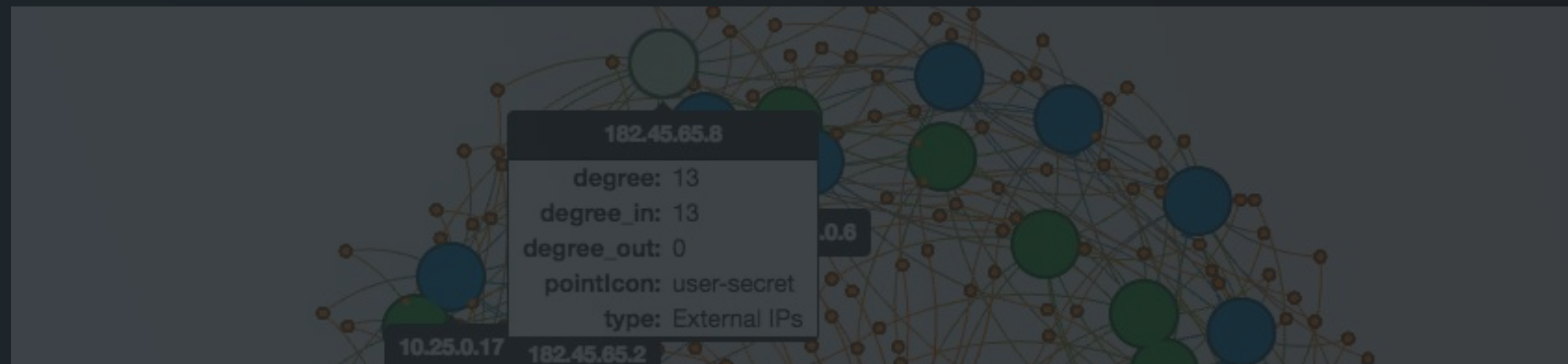


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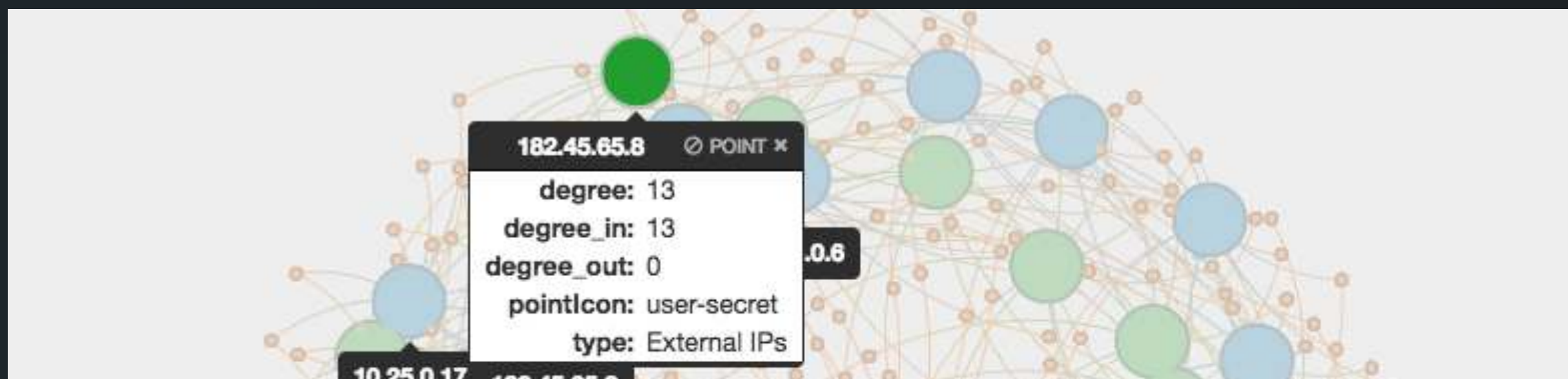
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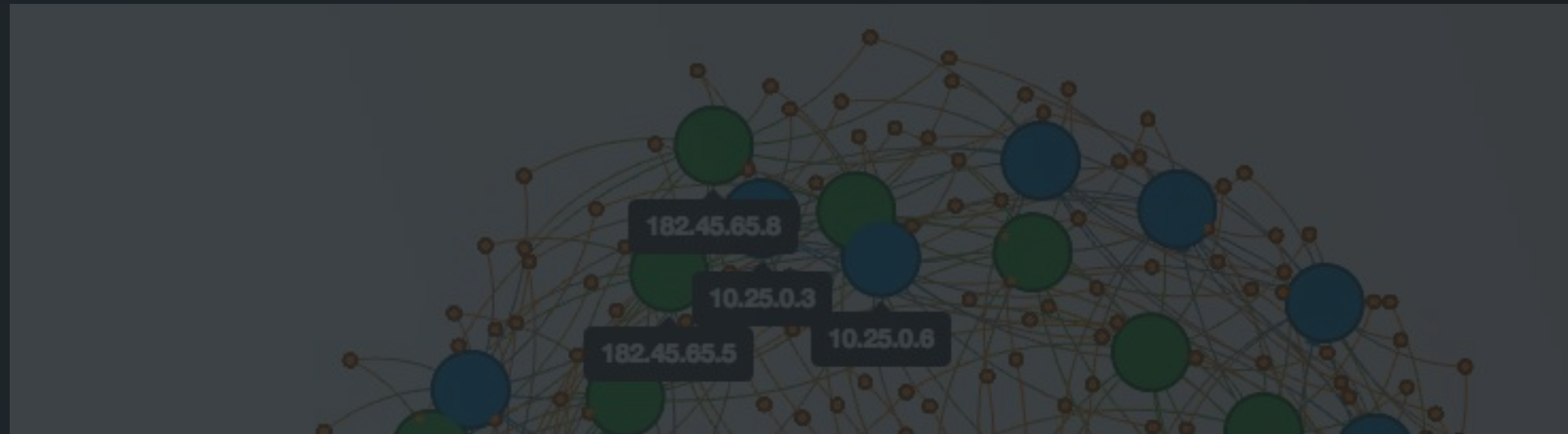


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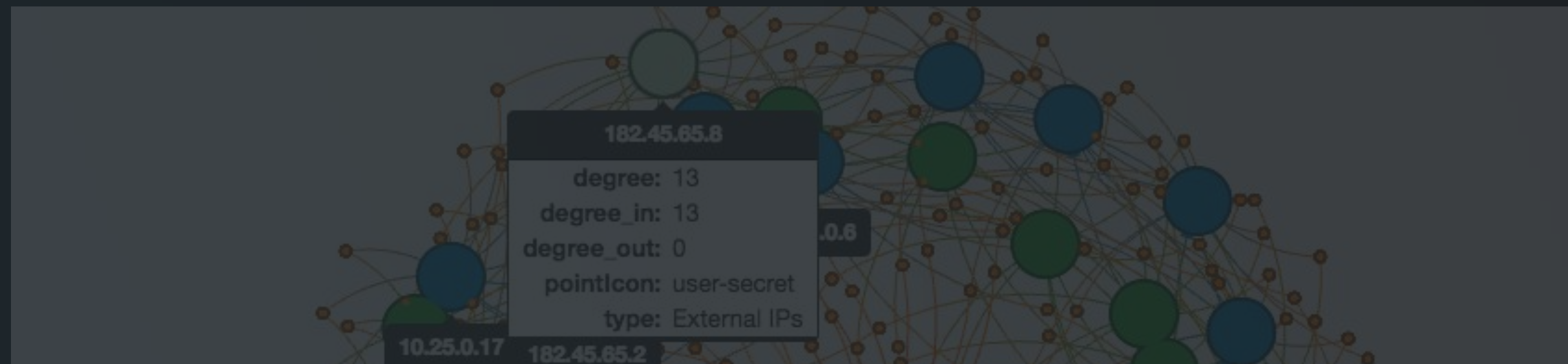


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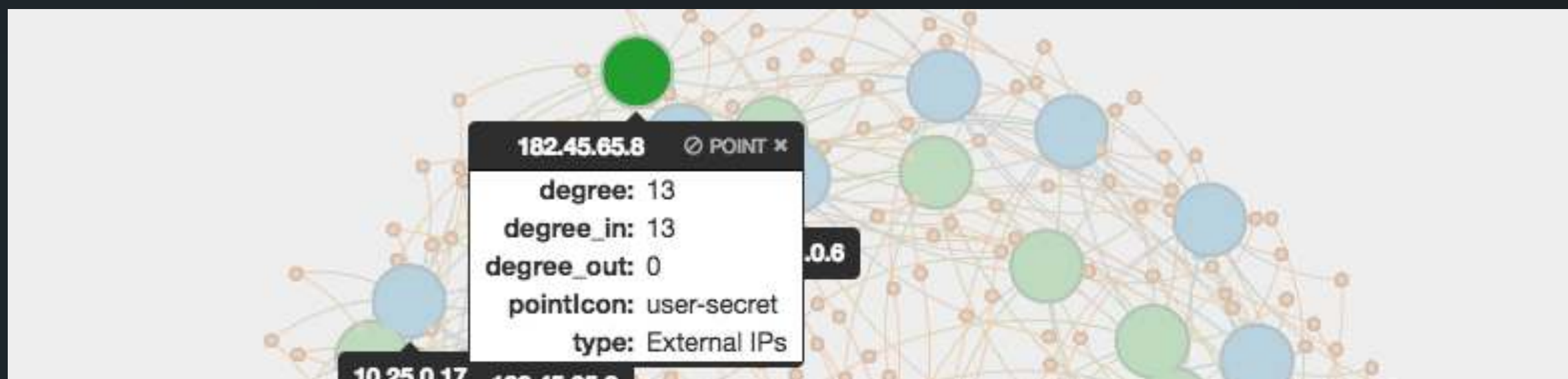
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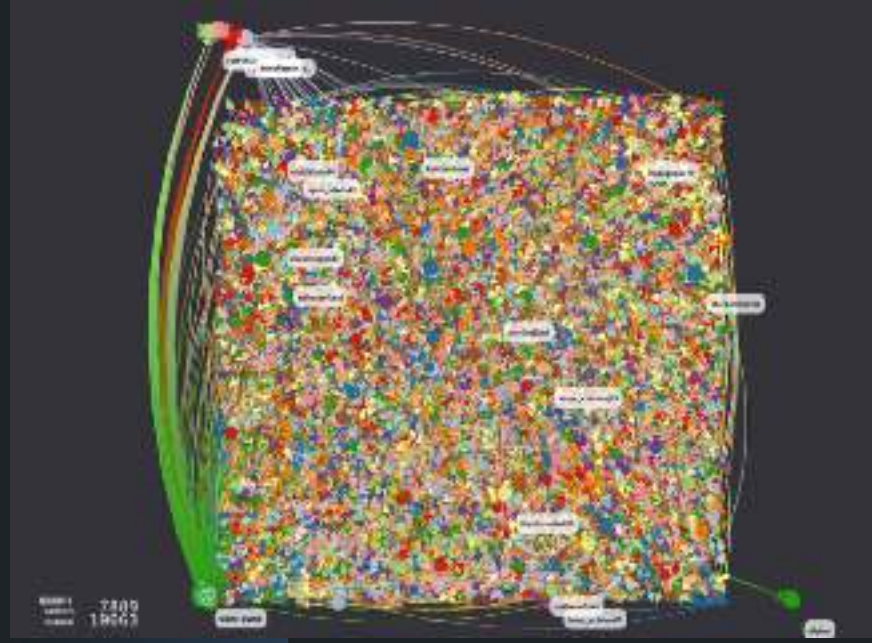


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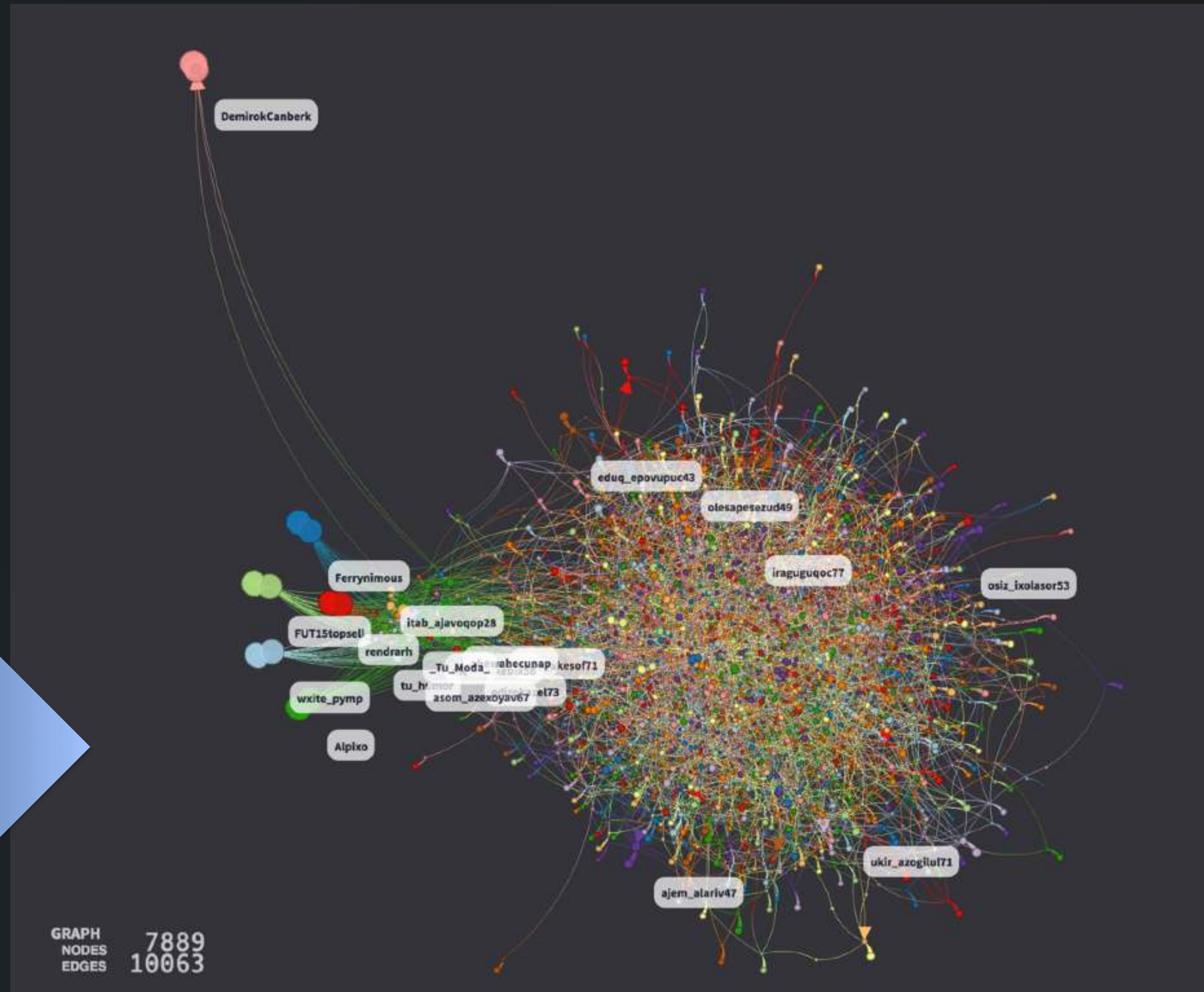
# Visual Clustering



GRAPH



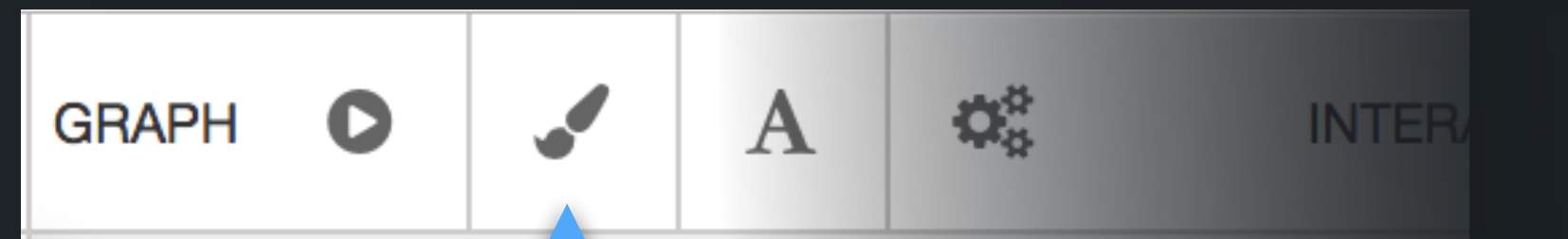
A



GRAPH  
NODES 7889  
EDGES 10063



# Scene Settings



Scene

**Canvas**

Point Colors

Background Color

**Appearance**

Point Size

Edge Size

Point Opacity

Edge Opacity

Show Arrows

Prune Isolated Nodes

Change all node colors

Change background color

Scale Nodes

Scale Edges

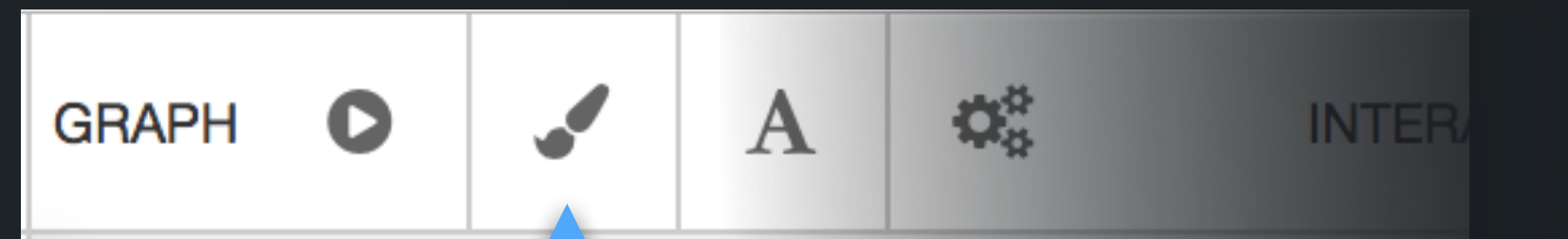
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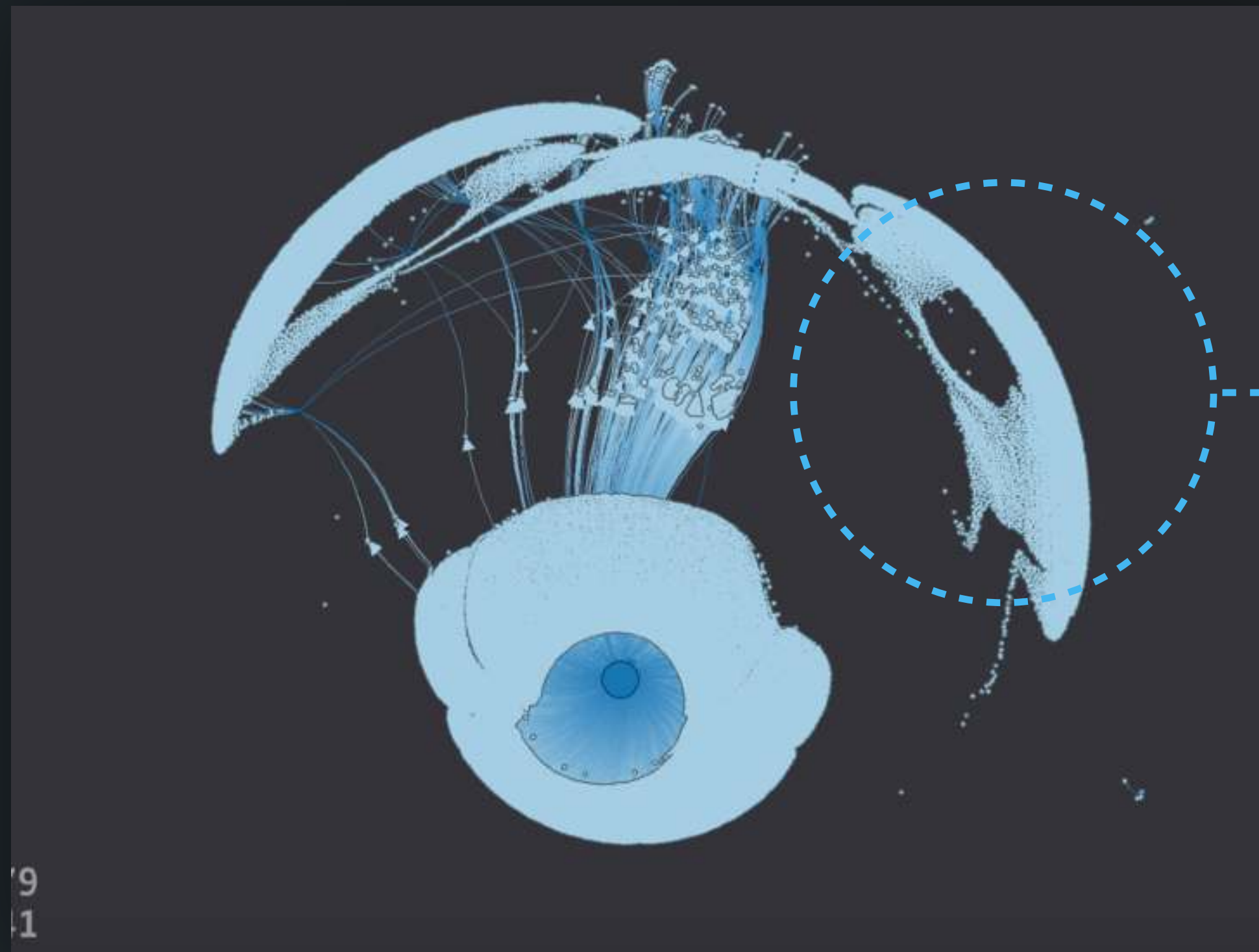
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Prune Isolated Nodes

## Prune Isolated Nodes

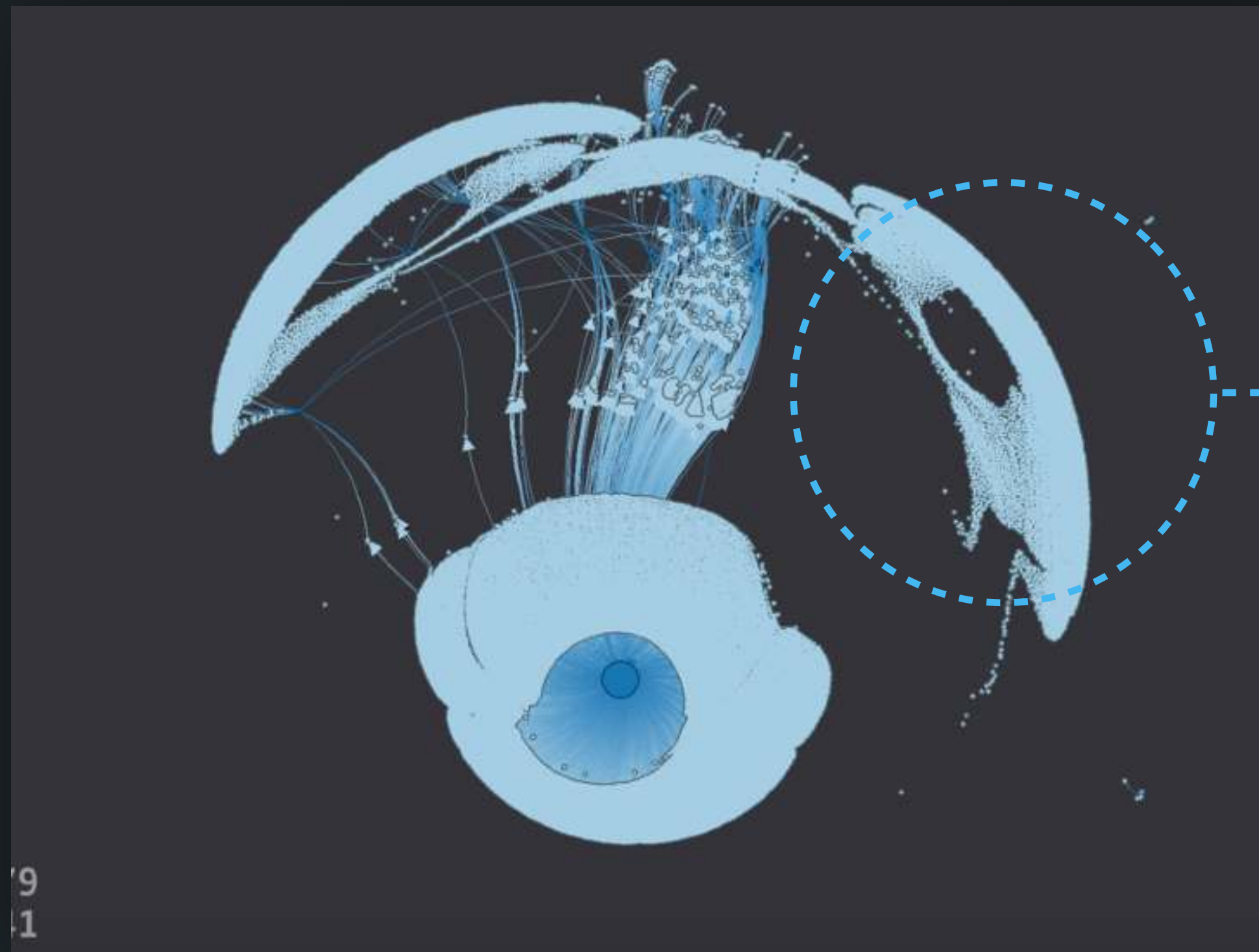
Prune Isolated Nodes lets you exclude all of the nodes with 0 degree connection to other elements in the graph (Nodes without edges)



**These nodes are disconnected from our graph, so we might want to exclude them.**

## Prune Isolated Nodes

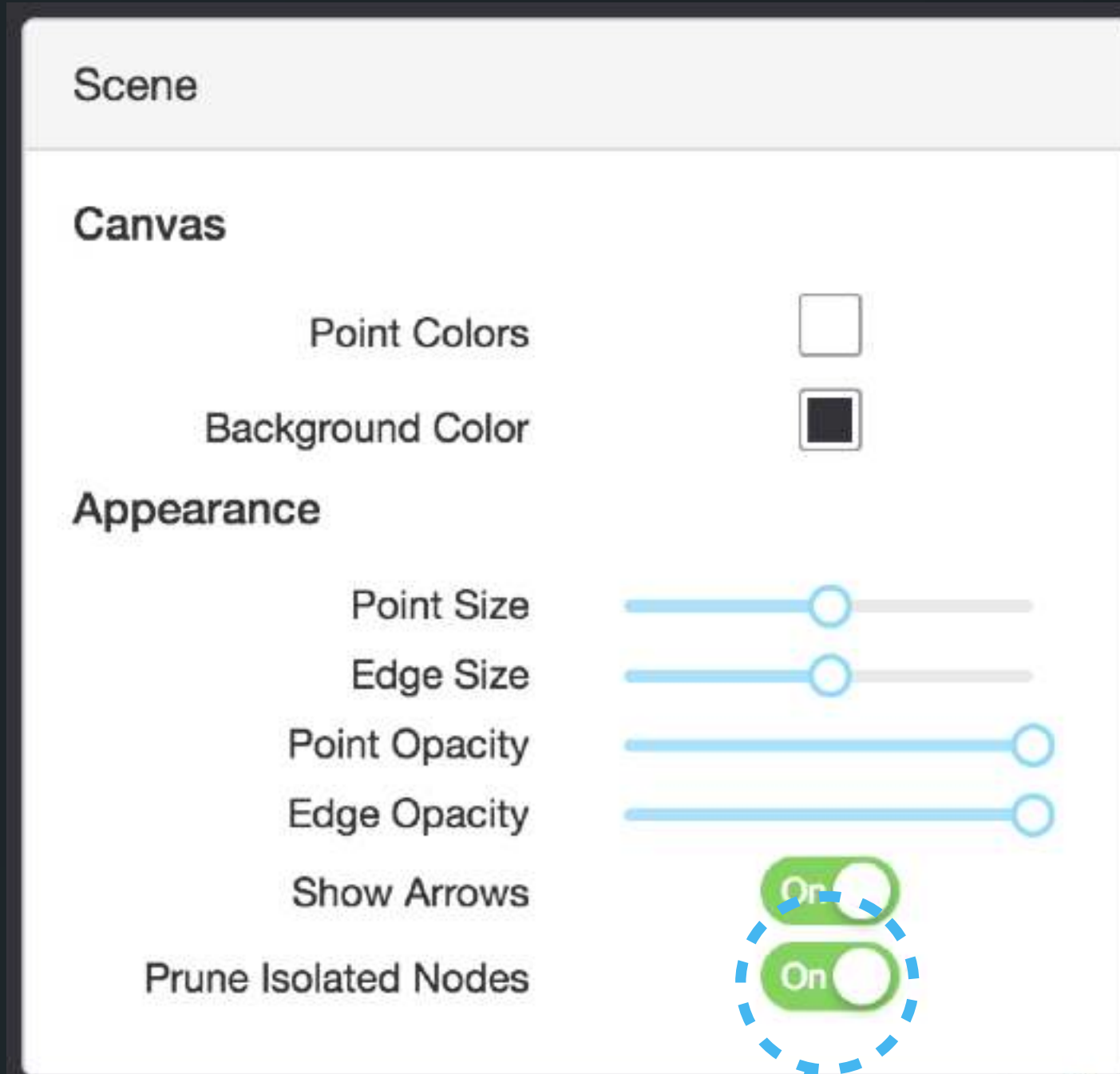
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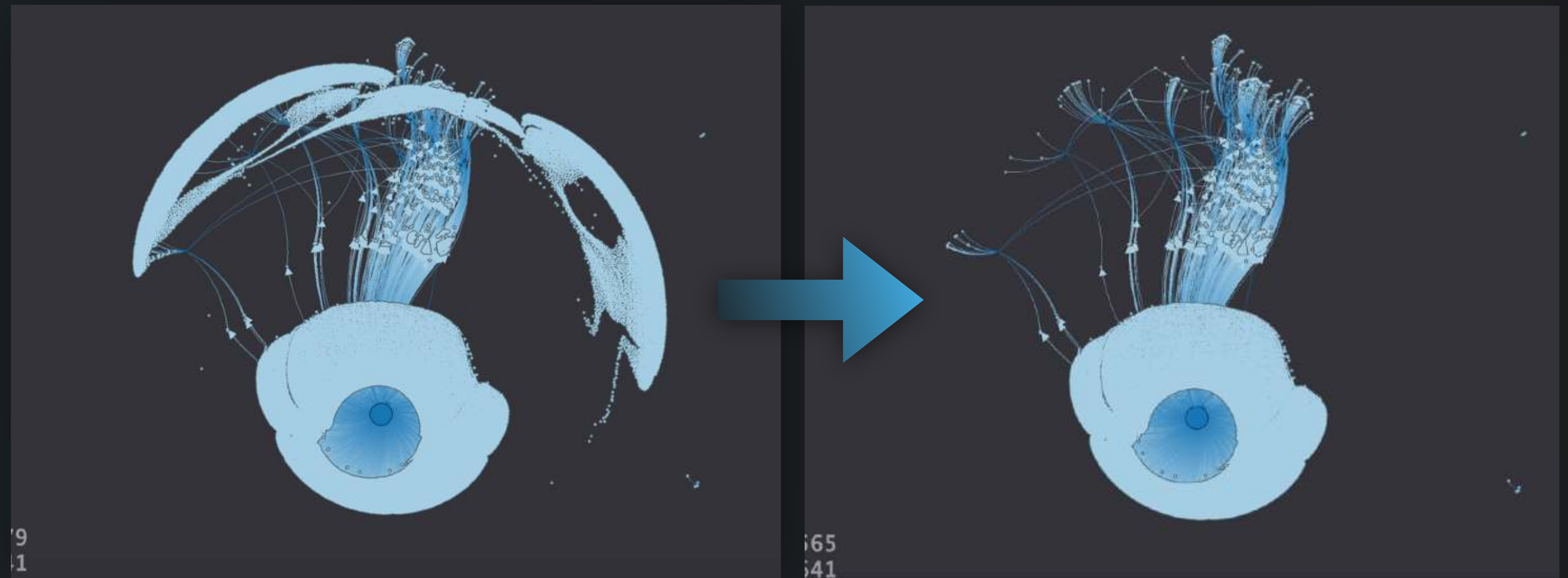
# Prune Isolated Nodes

To do so, toggle the **Prune Isolated Nodes** option in the Scene Settings, or with the quick toggle!



Turn Prune Isolated Nodes On

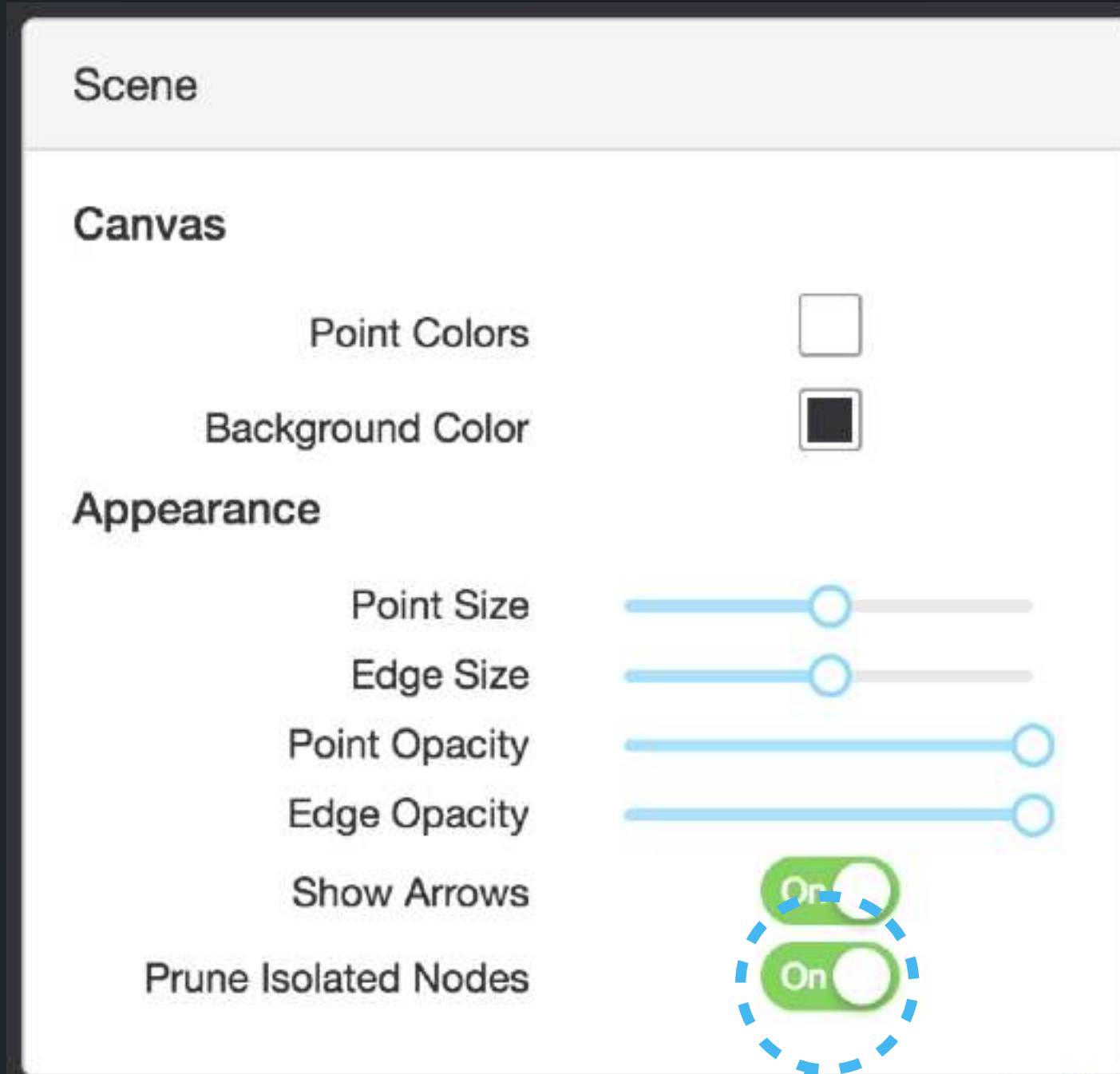
OR



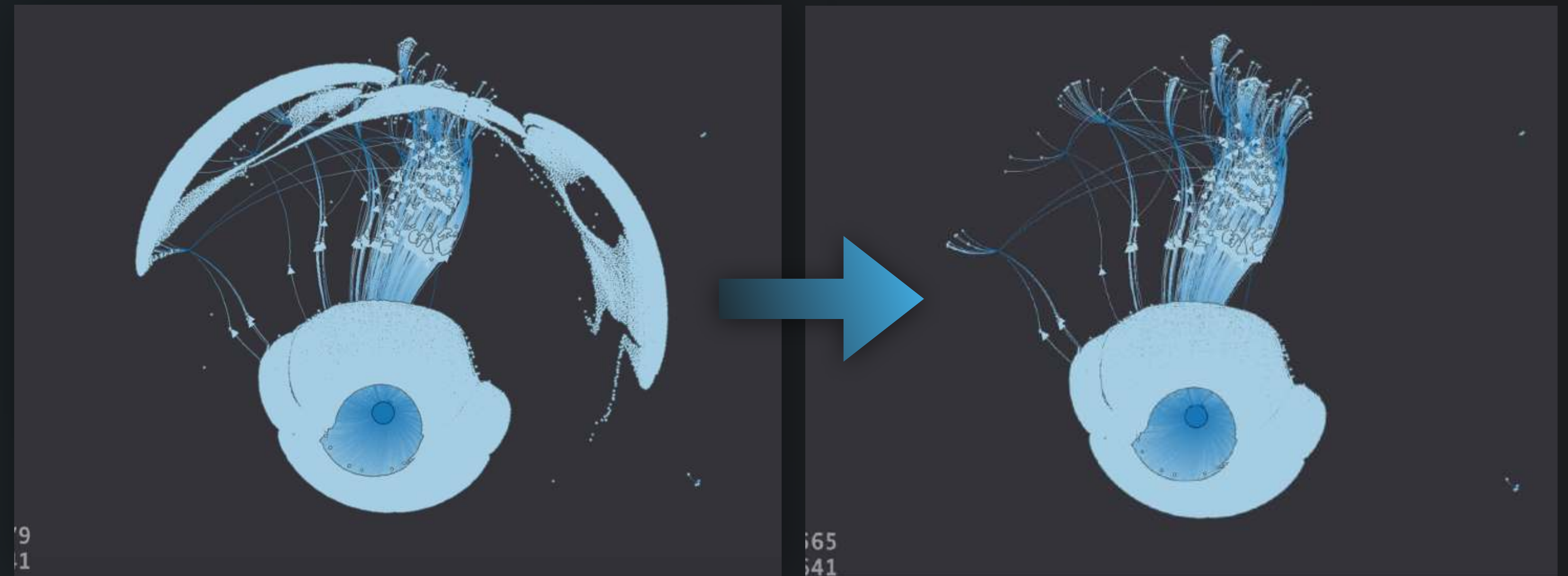
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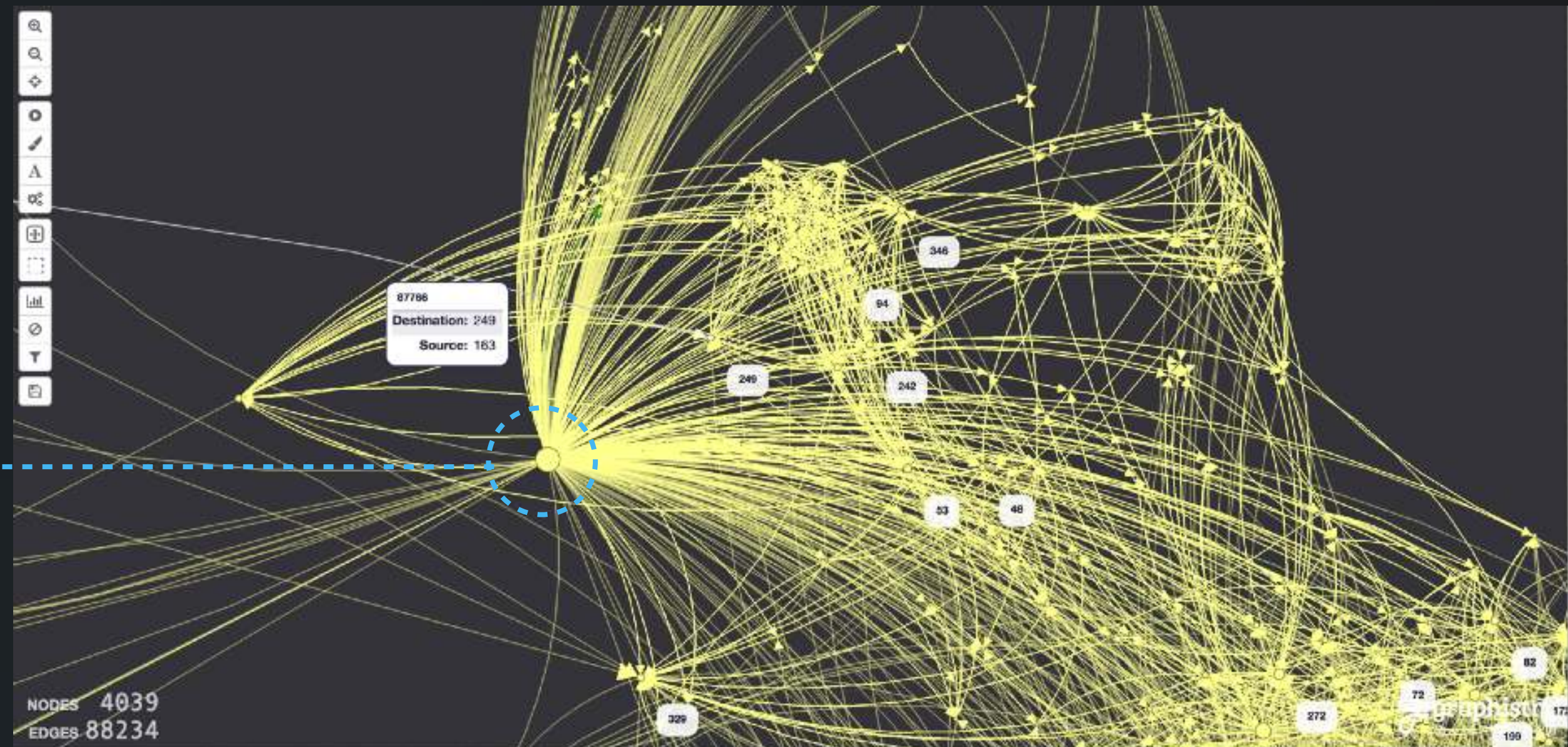
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# Move An Individual Node

To move a node:

- 1. Click on the node to select it**
- 2. Drag and drop to new location**

Click to select

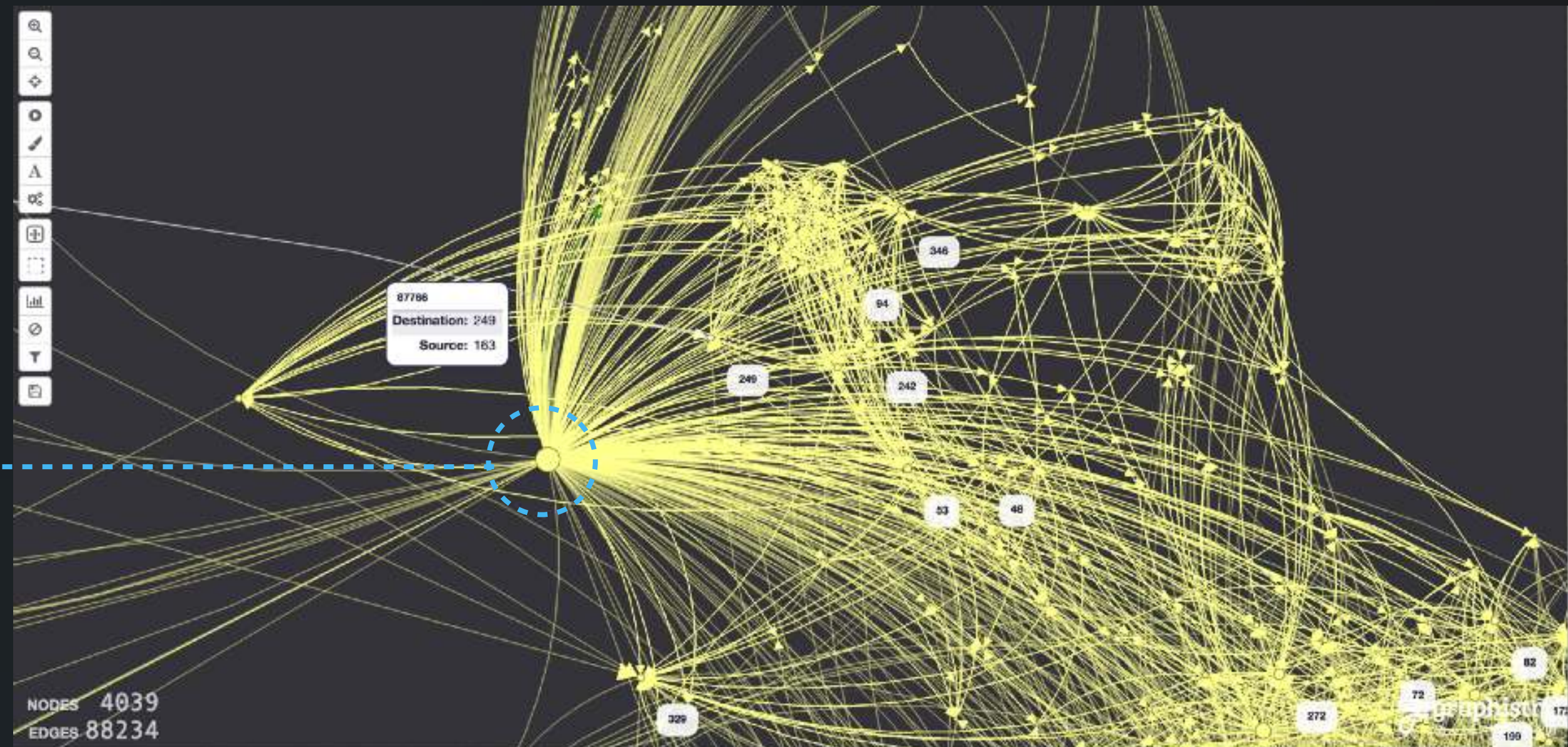


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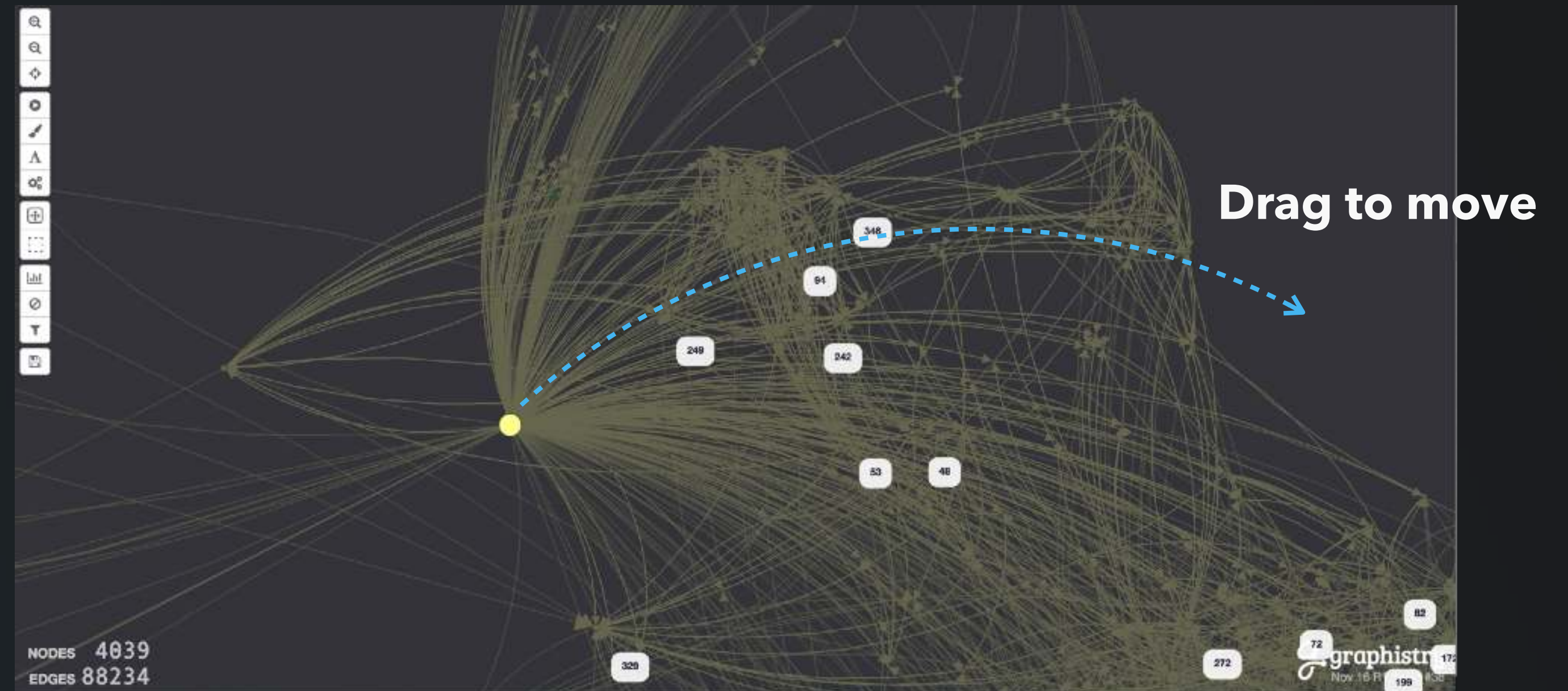
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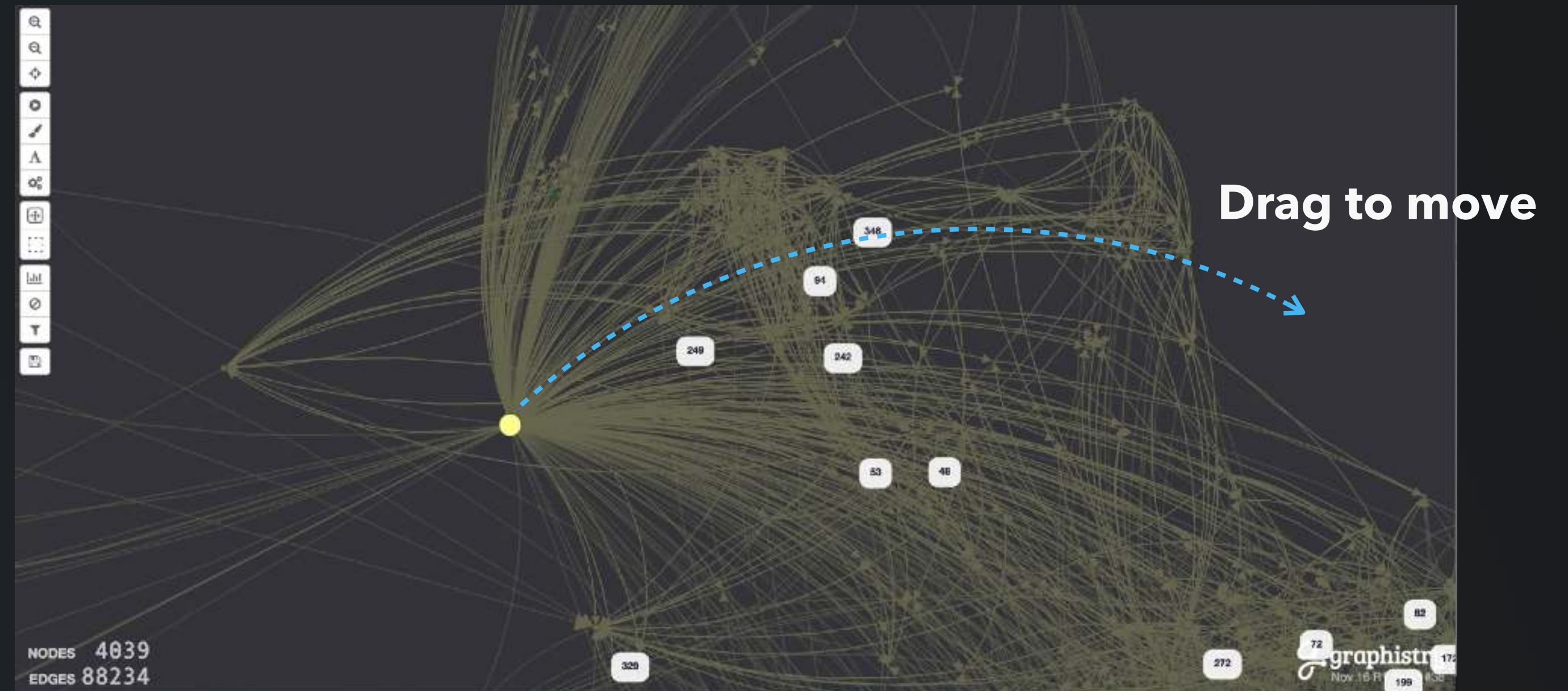
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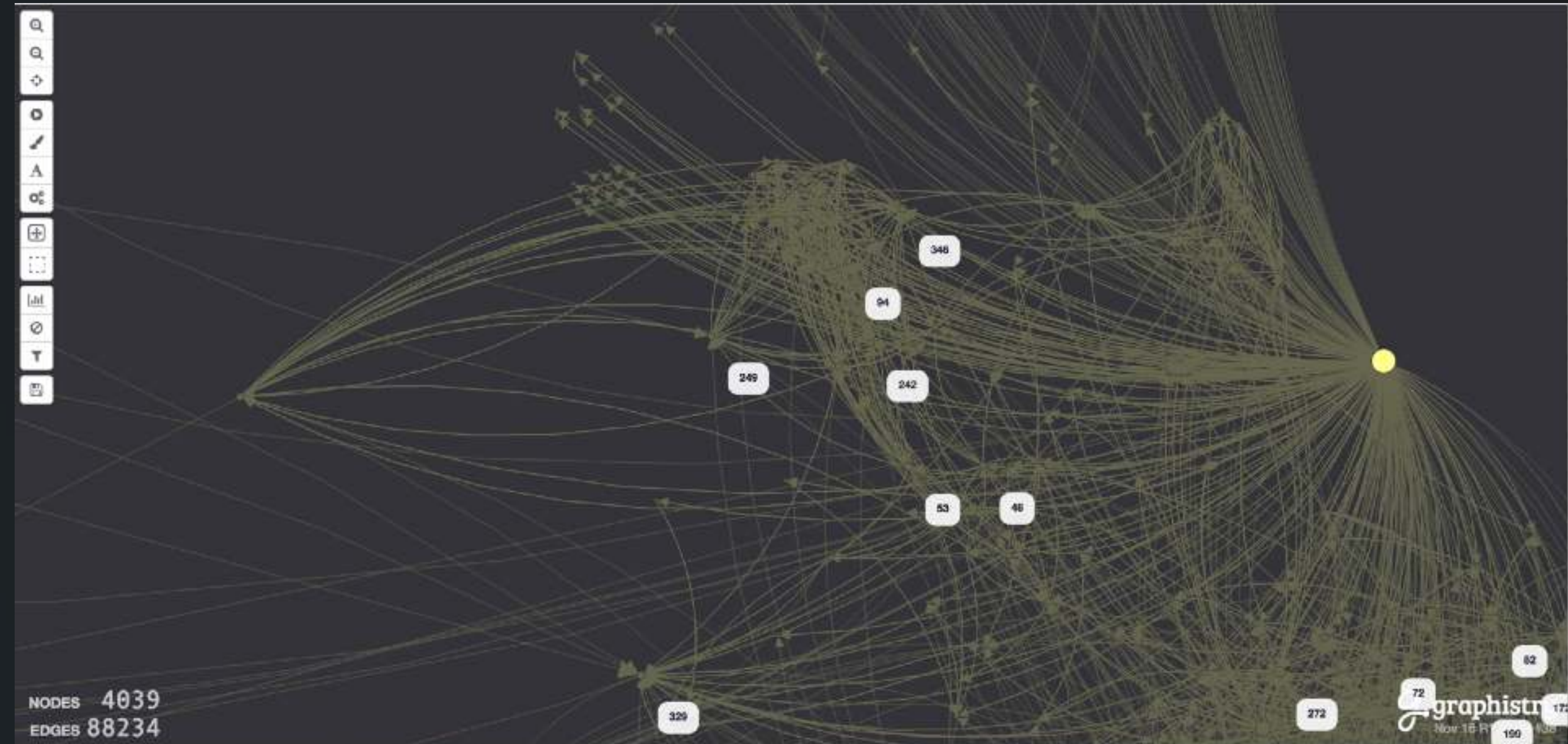
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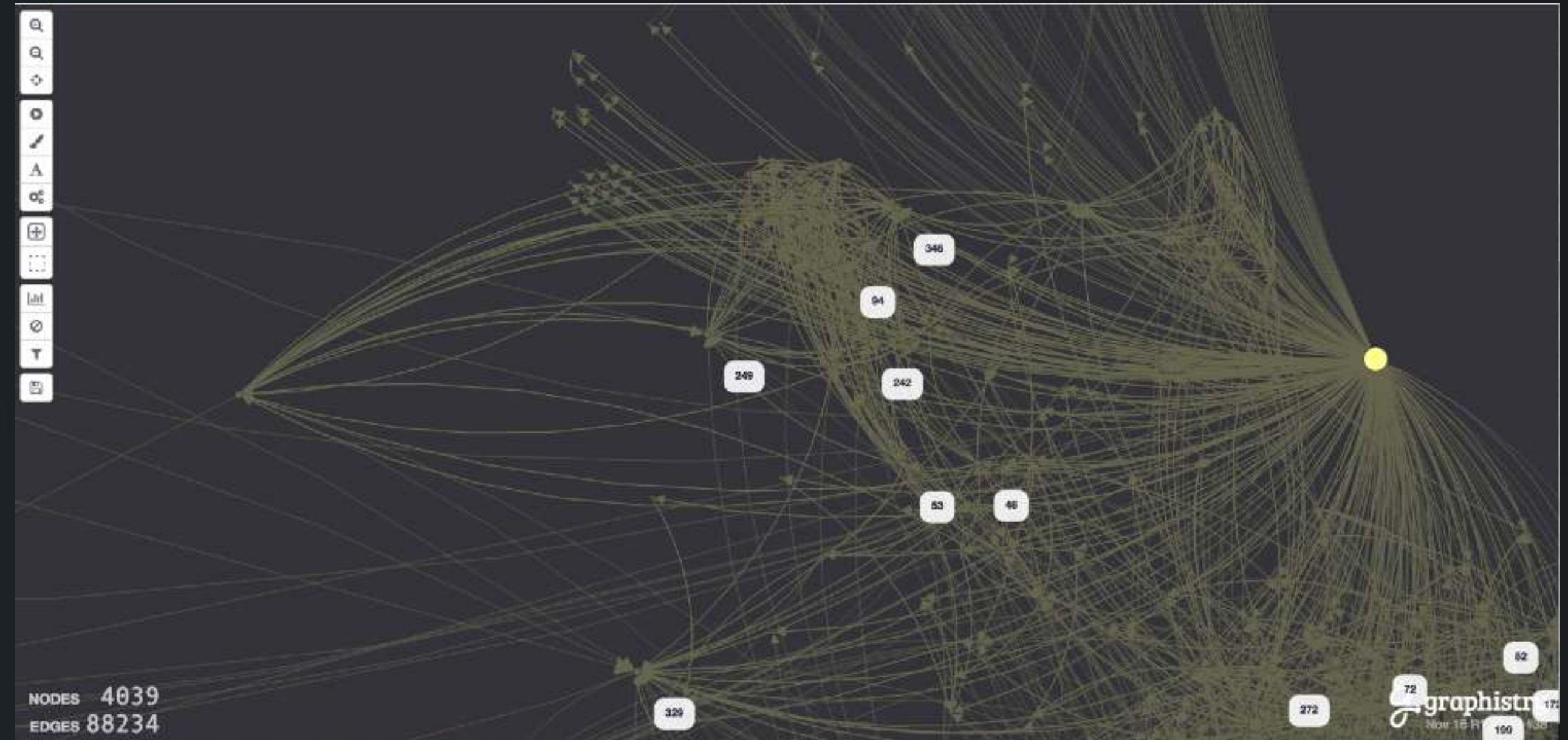
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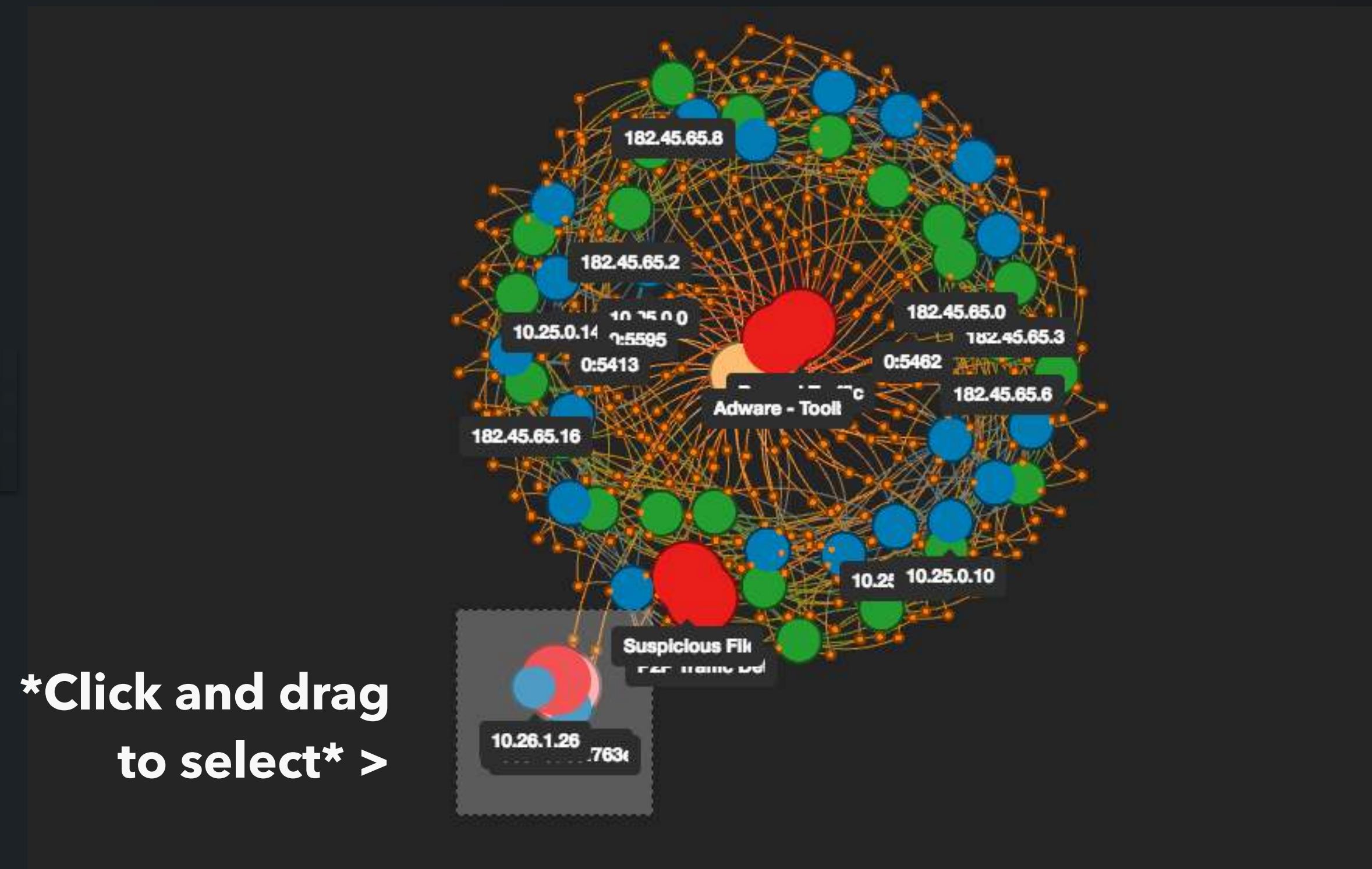
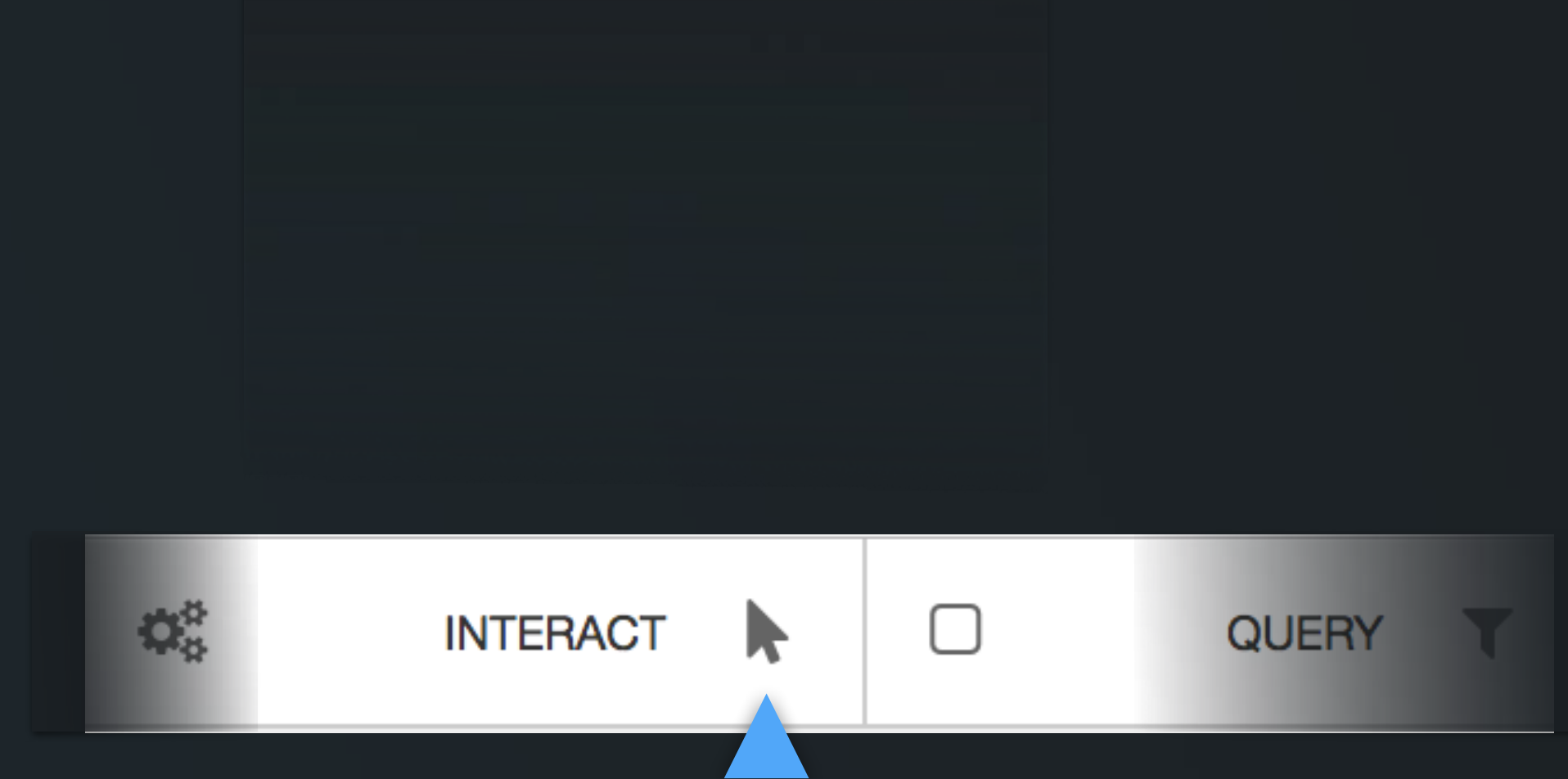
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# Selecting and Moving Multiple Nodes

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1. **Select a region of nodes using the "Rectangular Select" tool.**
2. **Drag and drop nodes to new location**

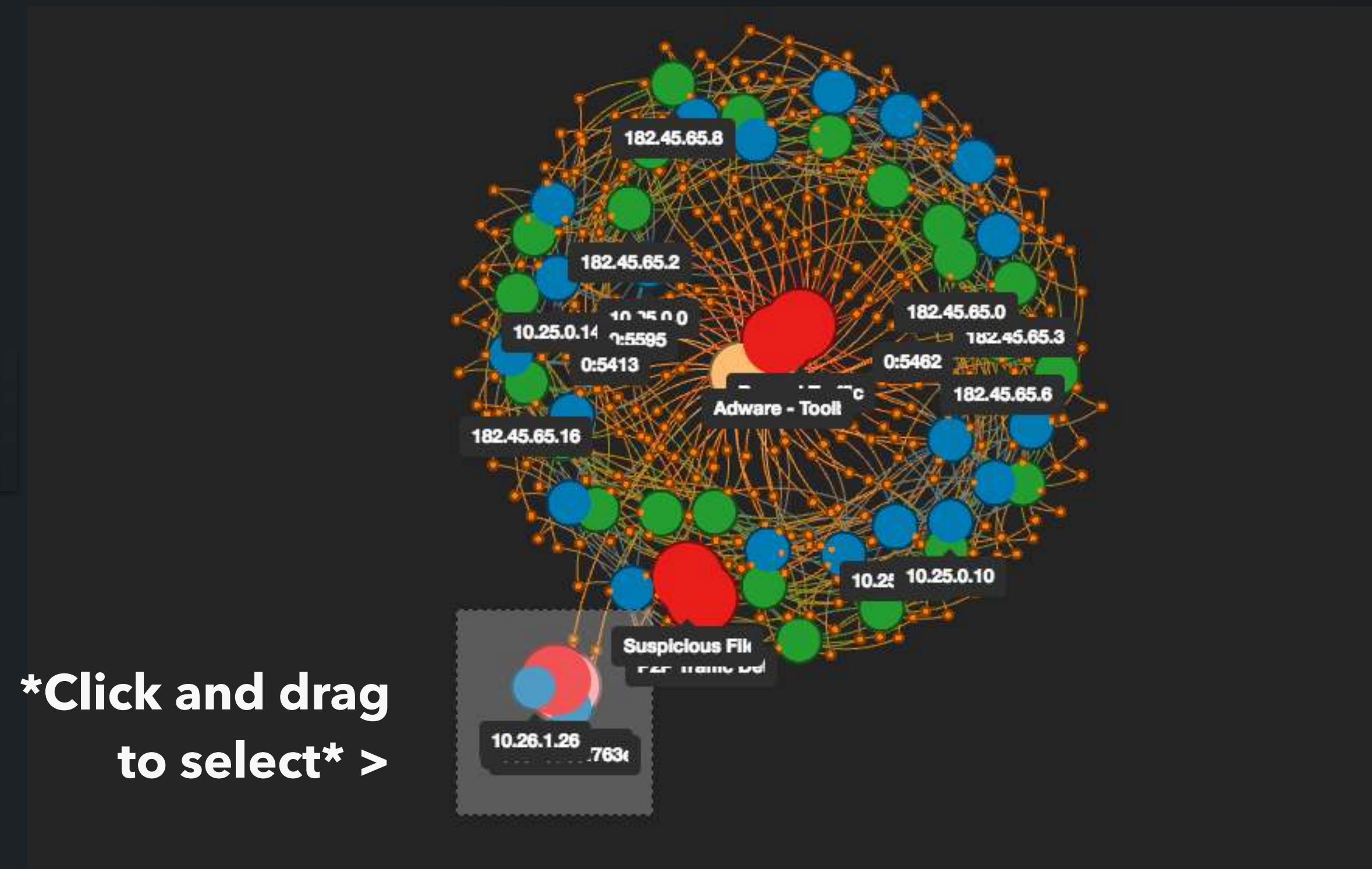
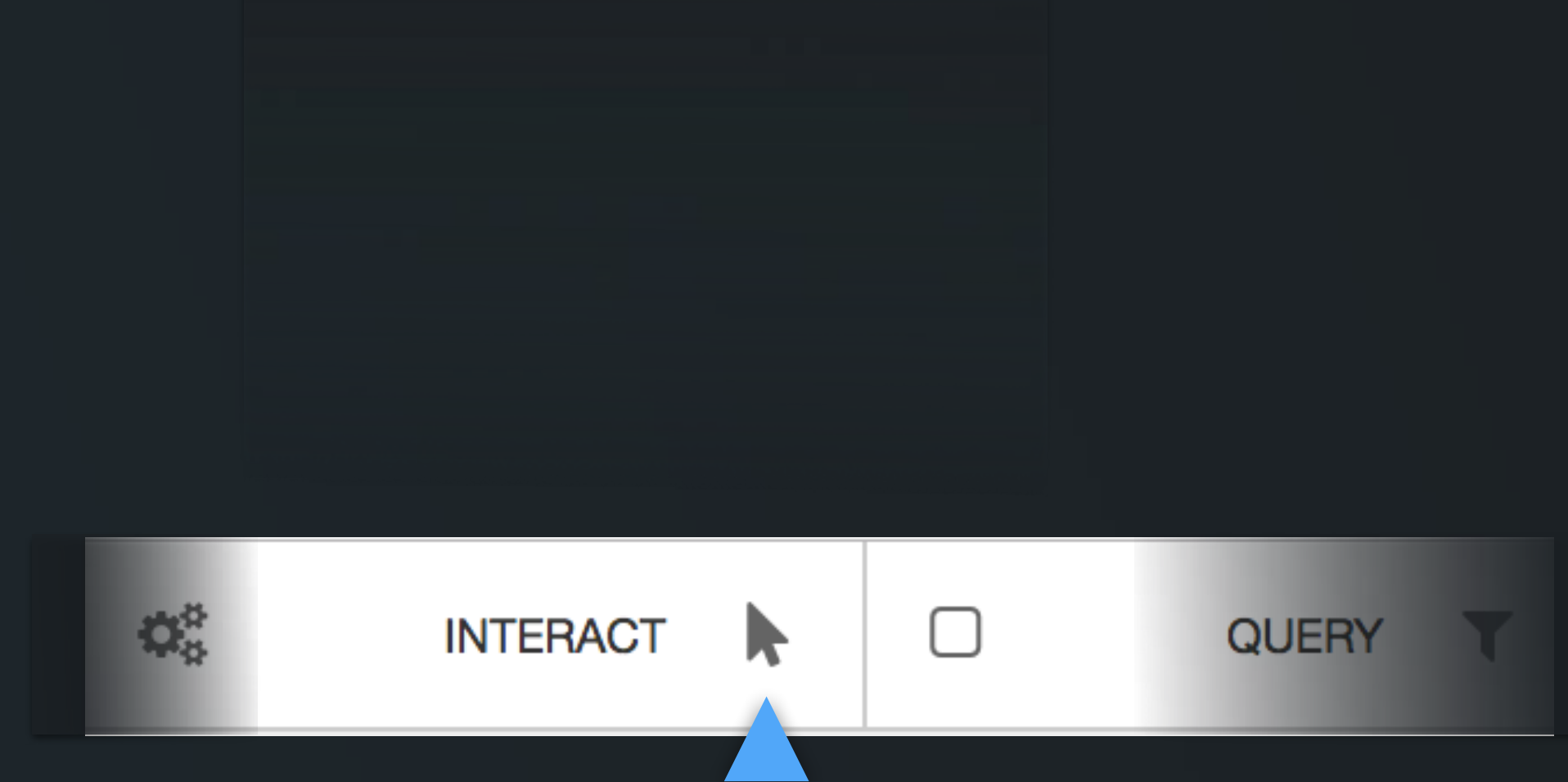


**\*Click and drag  
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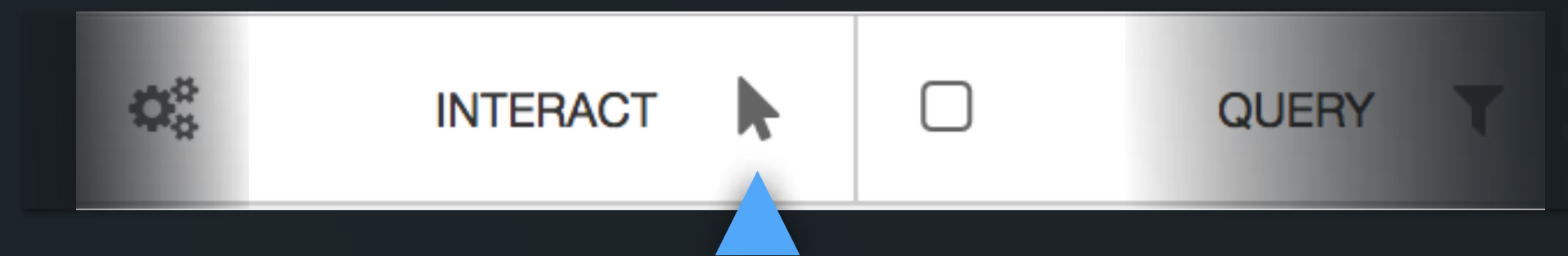
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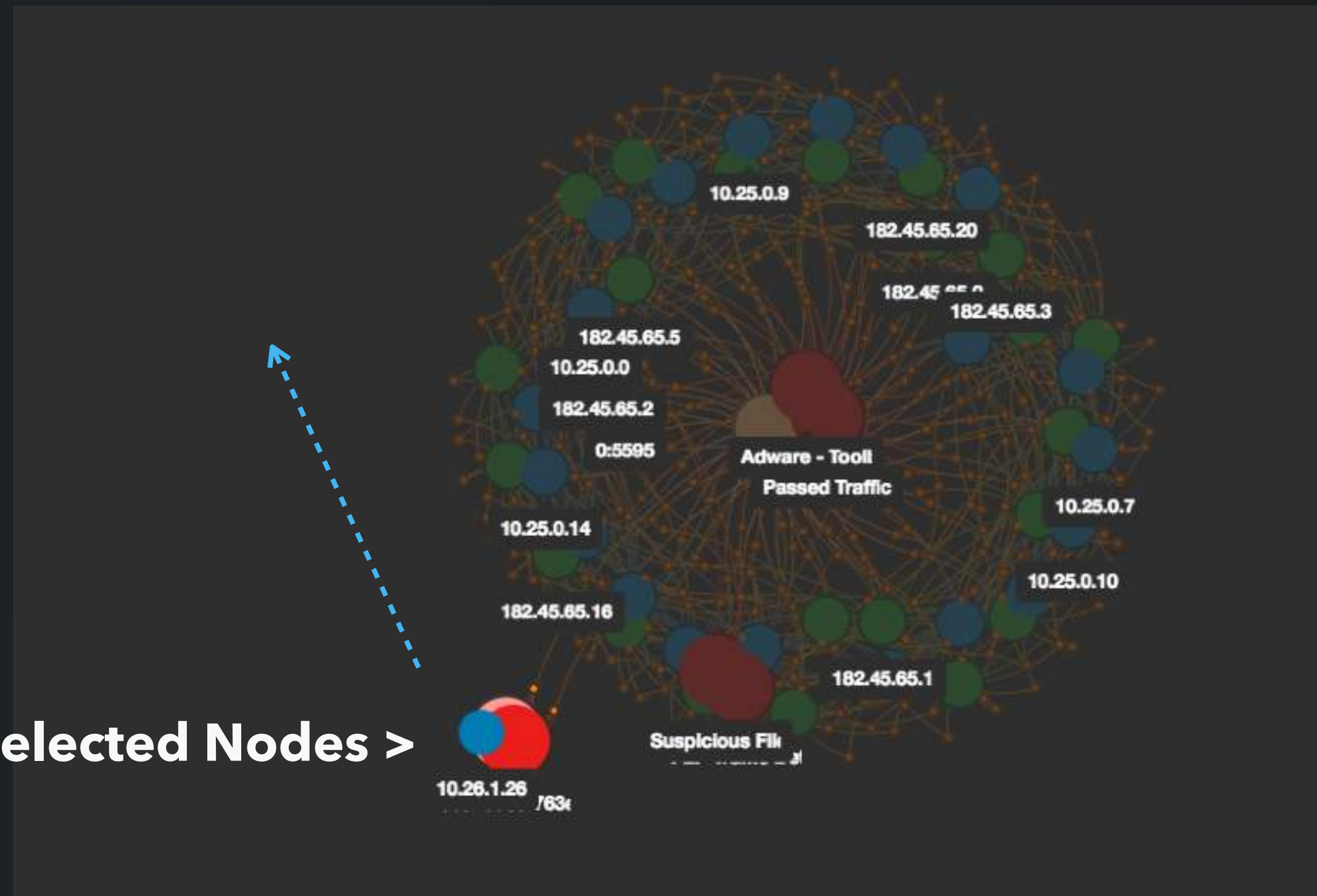
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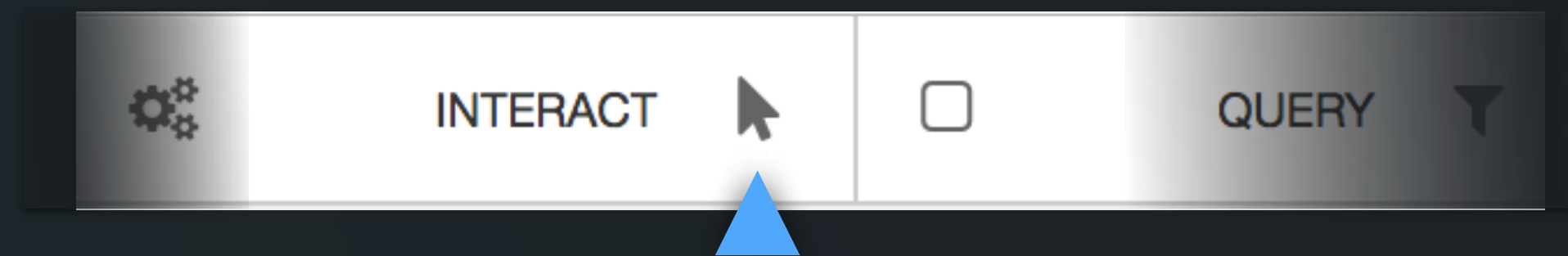
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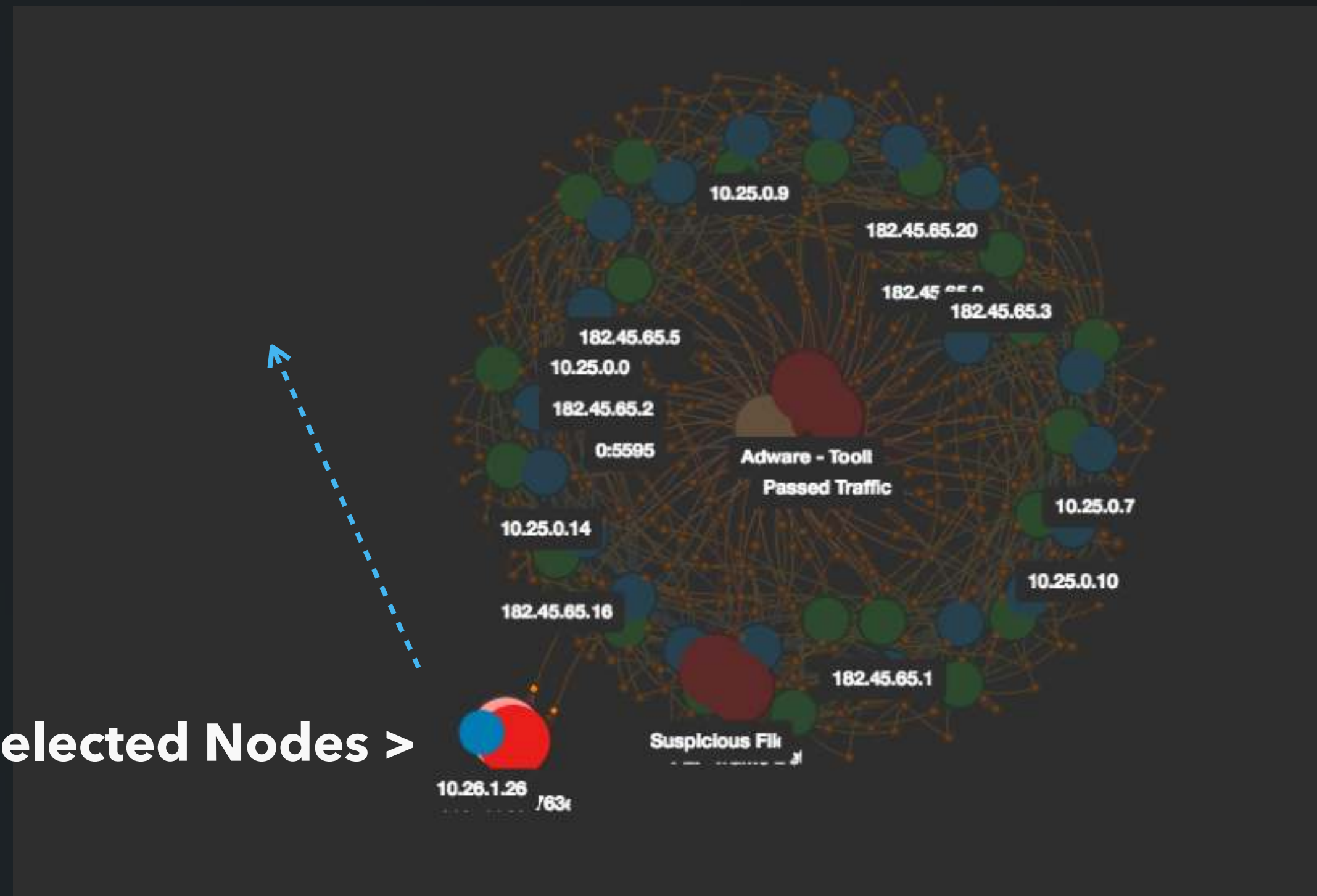
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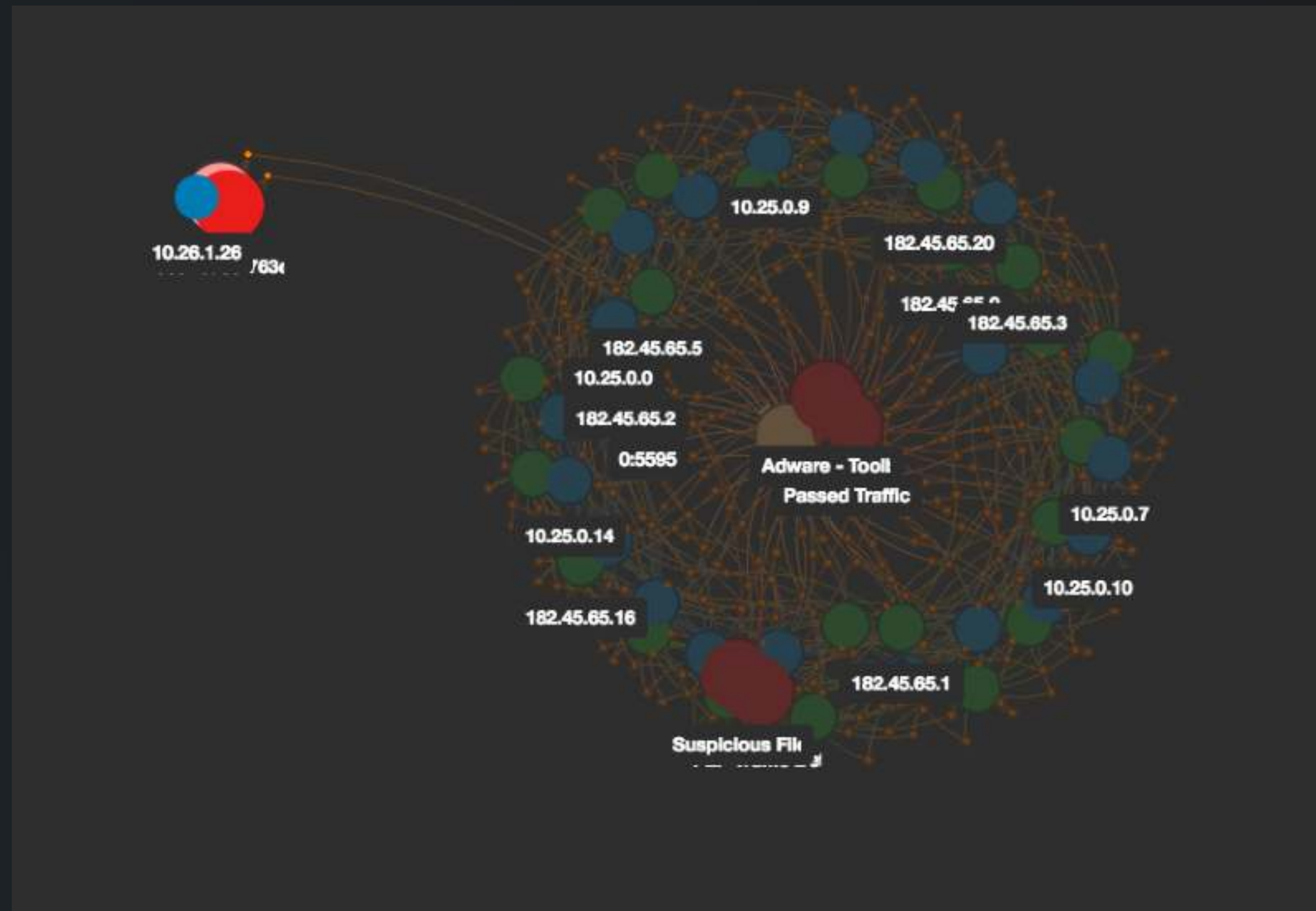
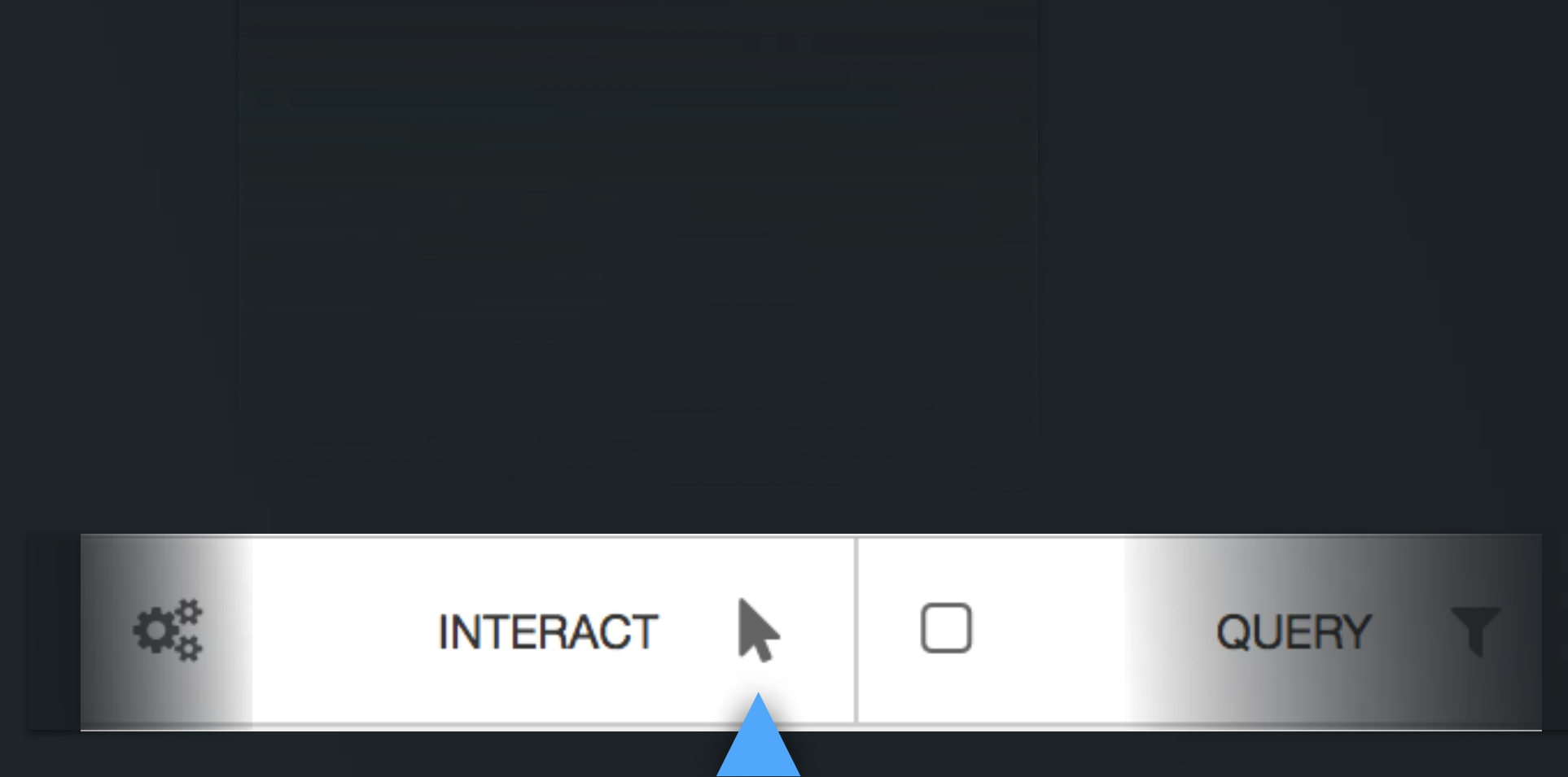
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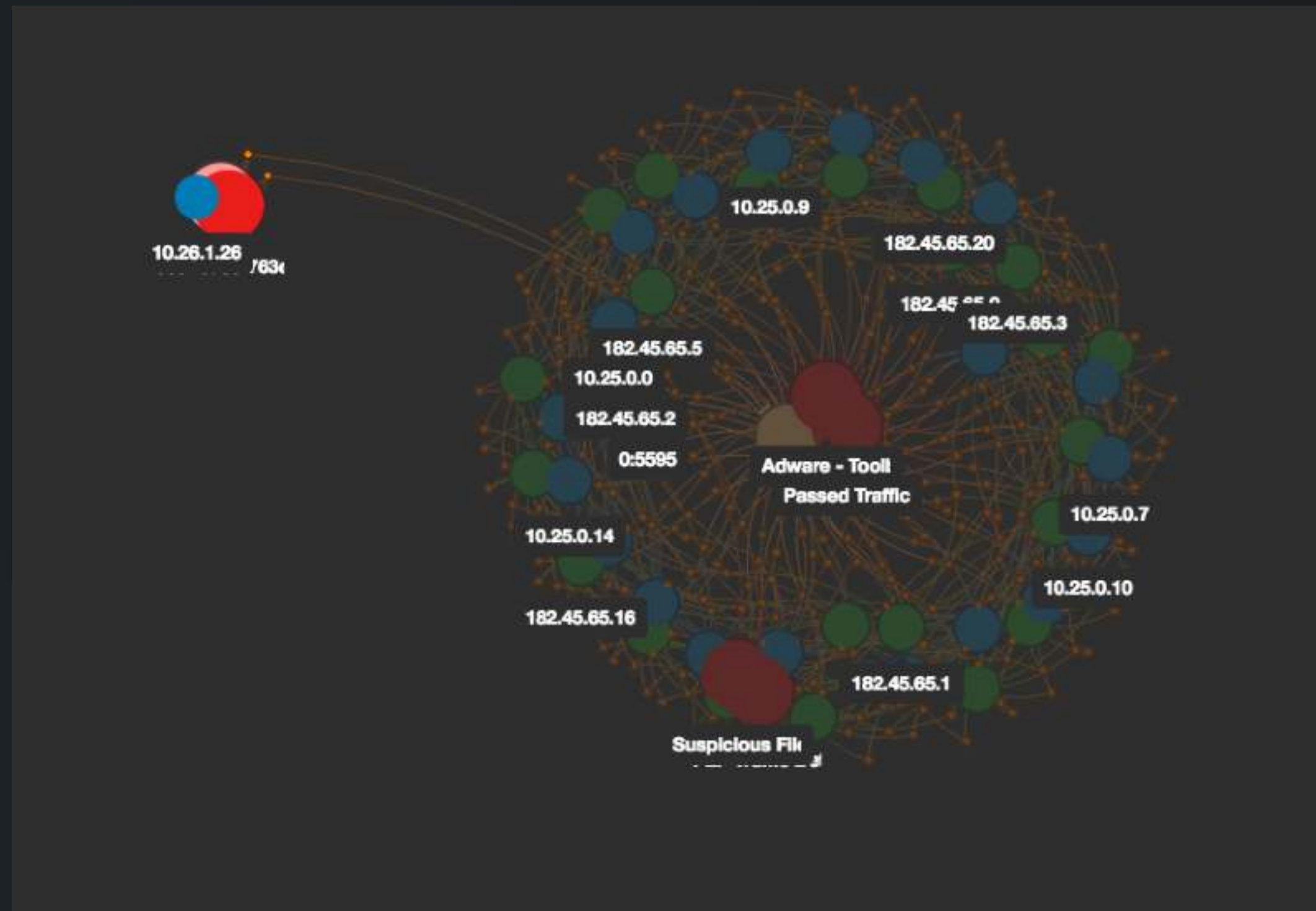
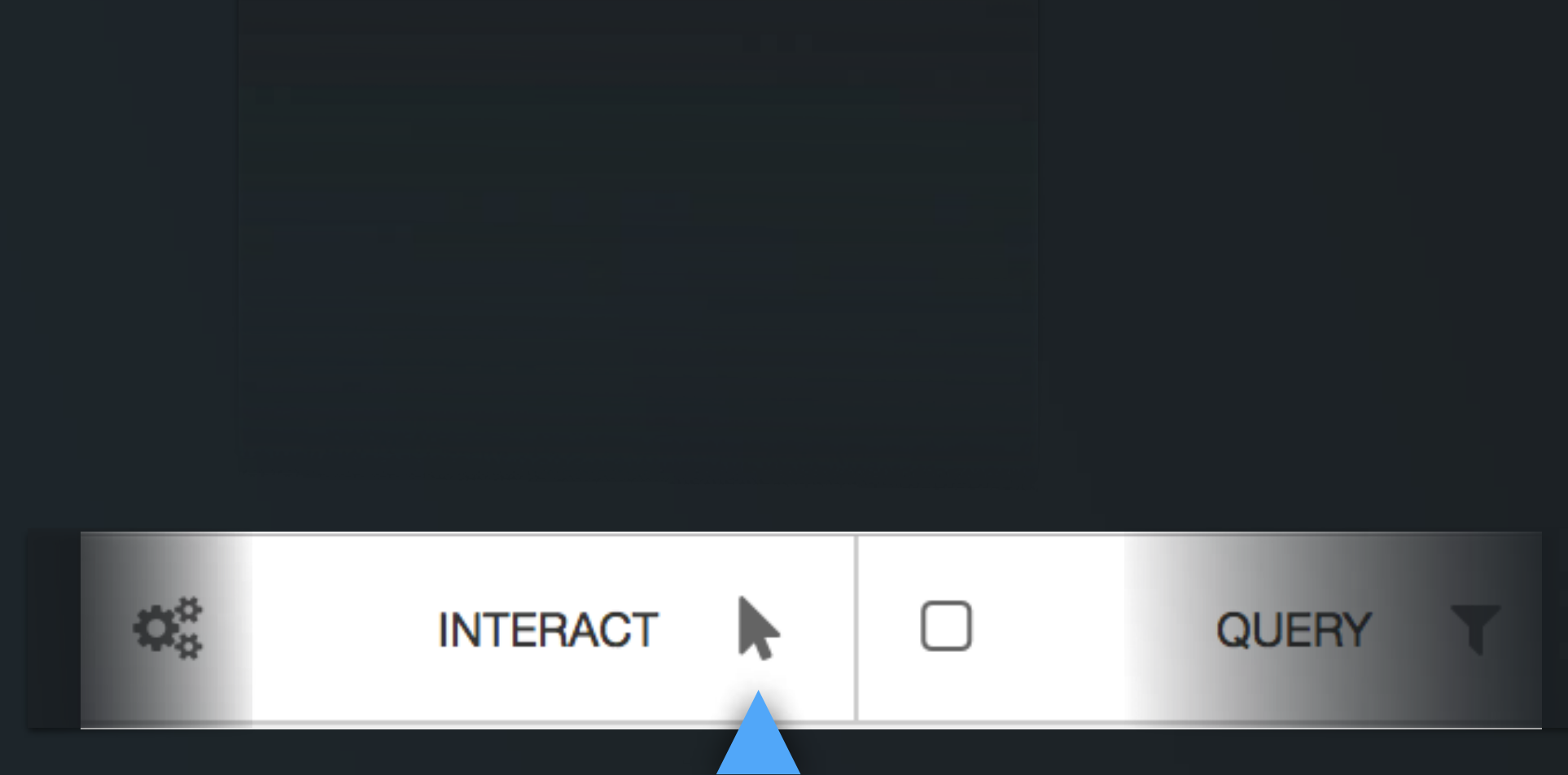
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## **Histogram Panel & Data Brush**

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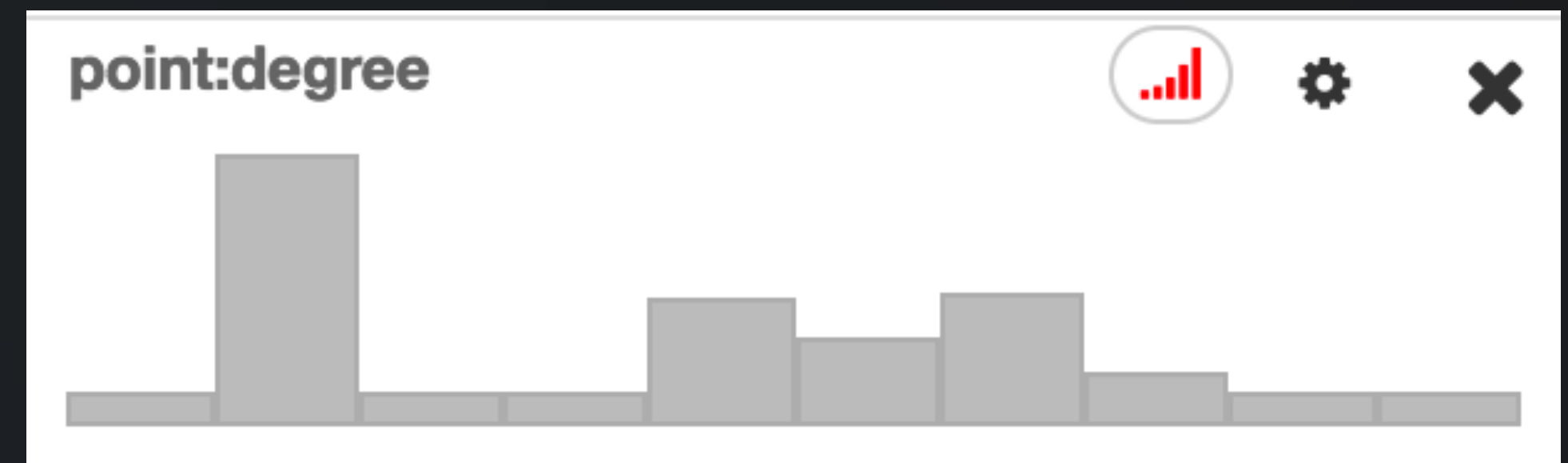
## For instance...

This histogram is looking at the **degree** (point:degree) property of all the data within our graph.

Our histogram creates a representation of our graph, broken down into bins.

### Things to try:

- *Hover* over the bins to see the nodes or edges highlighted in the graph.
- Click on a bin to create a filter from it



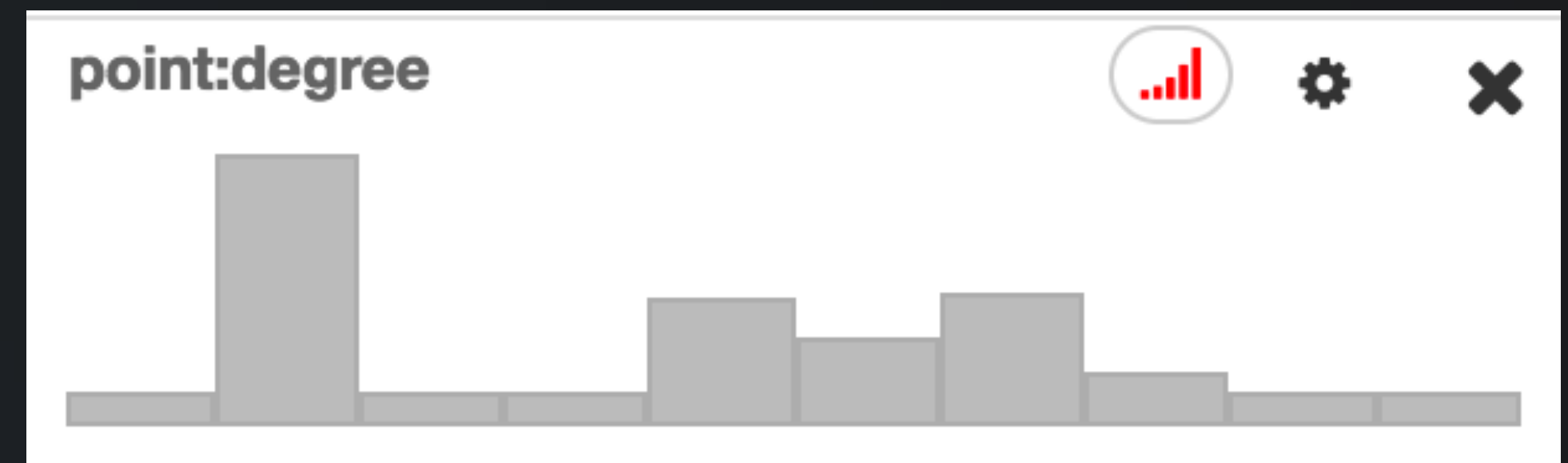
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# Histogram Panel

To add a new histogram :

1. Open the histogram panel with the toolbar
2. Use the search bar to create a histogram for any desired attribute

The screenshot displays the Gaphistry interface. On the left, a toolbar contains a 'WORKSPACE' button, an 'INSPECT' button, and a histogram icon. A blue triangle points to the histogram icon. The main area shows a network graph with nodes and edges. Nodes are labeled with IP addresses and MAC addresses, such as 10.26.1.26, 182.45.65.11, 10.25.0.15, 182.45.65.8, 182.45.65.5, 0:5476, 0:4854, 10.25.0.1, 182.45.65.9, 182.45.65.19, 10.25.0.7, 10.25.0.11, and 10.25.0.1. A red node is labeled 'p Adware - Tool' and another is labeled 'P2P Traffic Del'. On the right, the 'Add Histogram' panel is open, showing a search bar and a list of attributes: 'point: \_\_defaultPointSize', 'point: \_\_pointColors', 'point: \_\_pointCommunity', 'point: \_\_pointSizes', and 'point: title'. Below the list are three histogram visualizations for 'edge:Message', 'edge:Pivot', and an unlabeled one. A blue dashed circle highlights the search bar in the 'Add Histogram' panel.

# Histogram Panel

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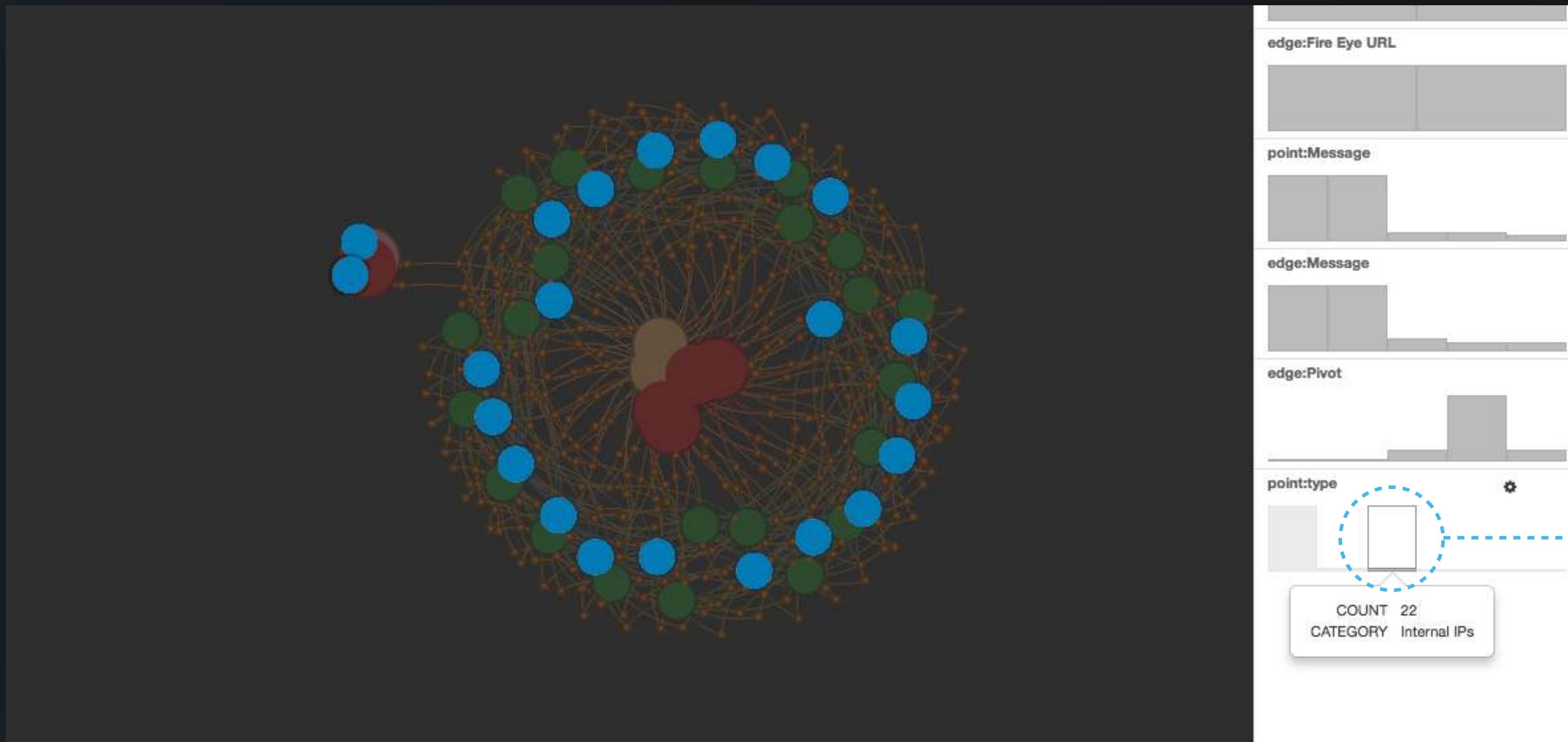
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The screenshot displays the Graphistry interface. On the left, a toolbar contains icons for 'INSPECT' and 'WORKSPACE'. A blue triangle points to the histogram icon in the 'INSPECT' section. The main area shows a network graph with nodes of various colors (red, blue, green, orange) and sizes, connected by edges. Labels on the graph include IP addresses like '10.26.1.26', '182.45.65.11', and '10.25.0.15', as well as identifiers like '09d10ae0f7634', '0:5476', '0:4854', and 'p Adware - Tool'. On the right, the 'Add Histogram' panel is open, showing a search bar 'Add histogram for...' and a list of attributes: 'point: \_\_defaultPointSize', 'point: \_\_pointColors', 'point: \_\_pointCommunity', 'point: \_\_pointSizes', and 'point: title'. Below the list are three histogram preview windows for 'edge:Message', 'edge:Pivot', and another attribute.

# Histogram Panel

To see data in a histogram:

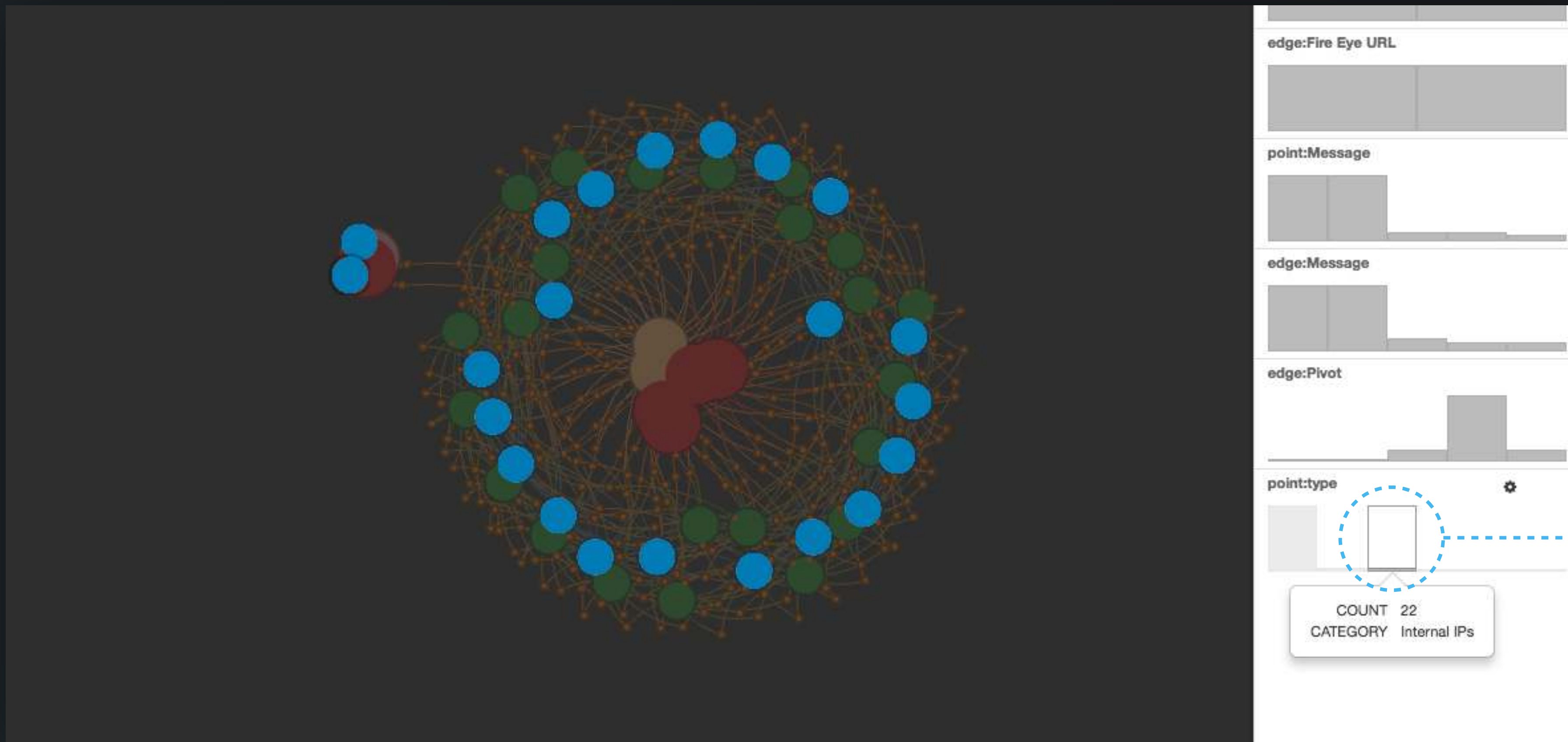
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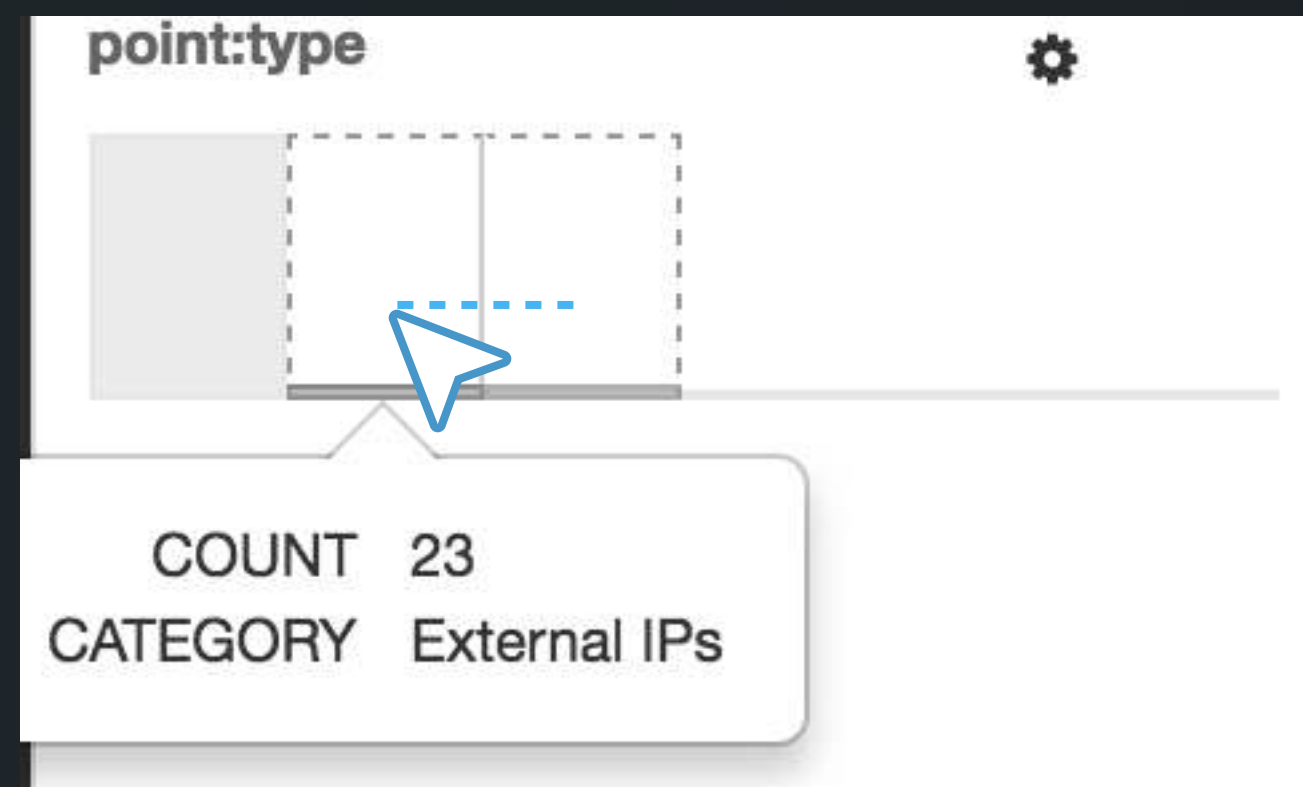
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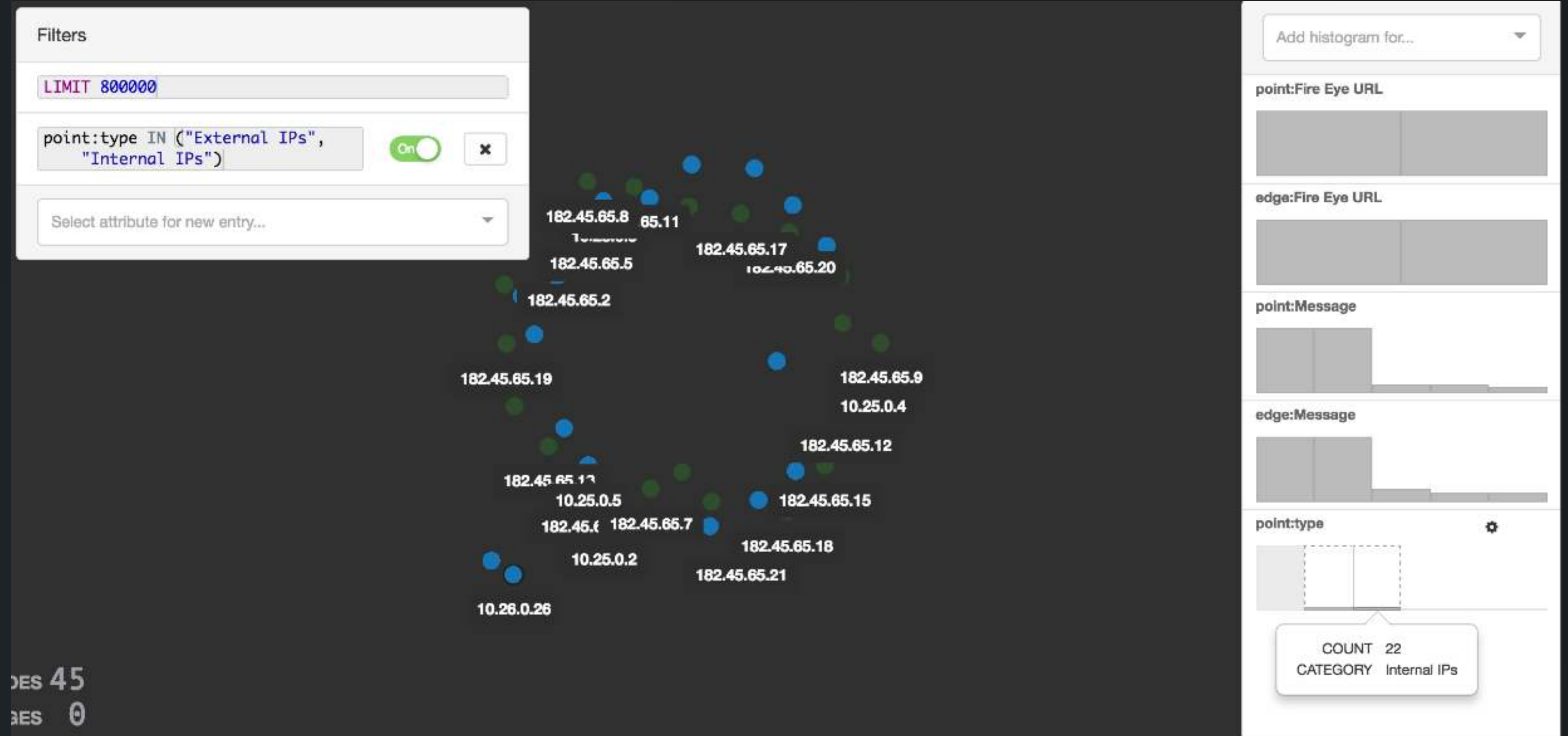
# Histogram Panel

To create a filter from a histogram section

1. Click and drag which sections of the histogram you'd like to see
2. Release click to apply filter to graph



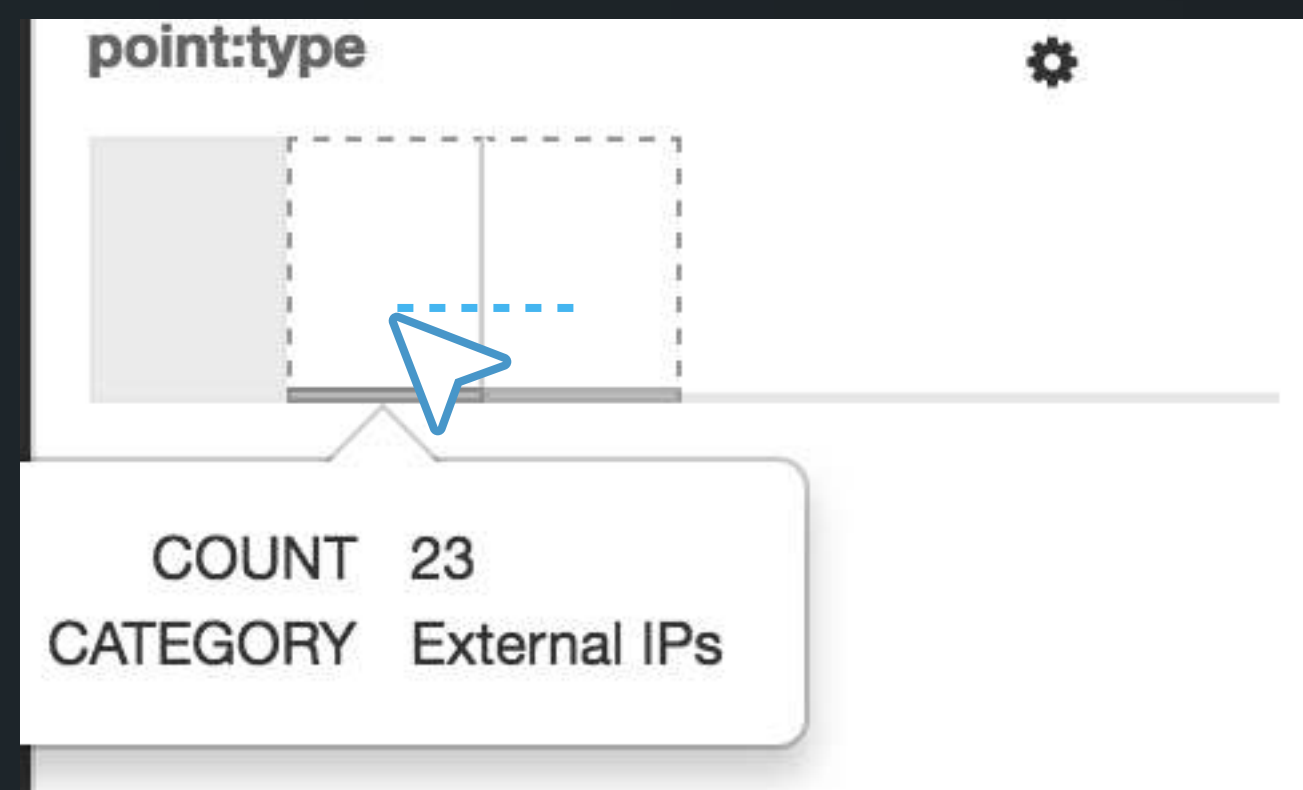
Click and drag desired bins



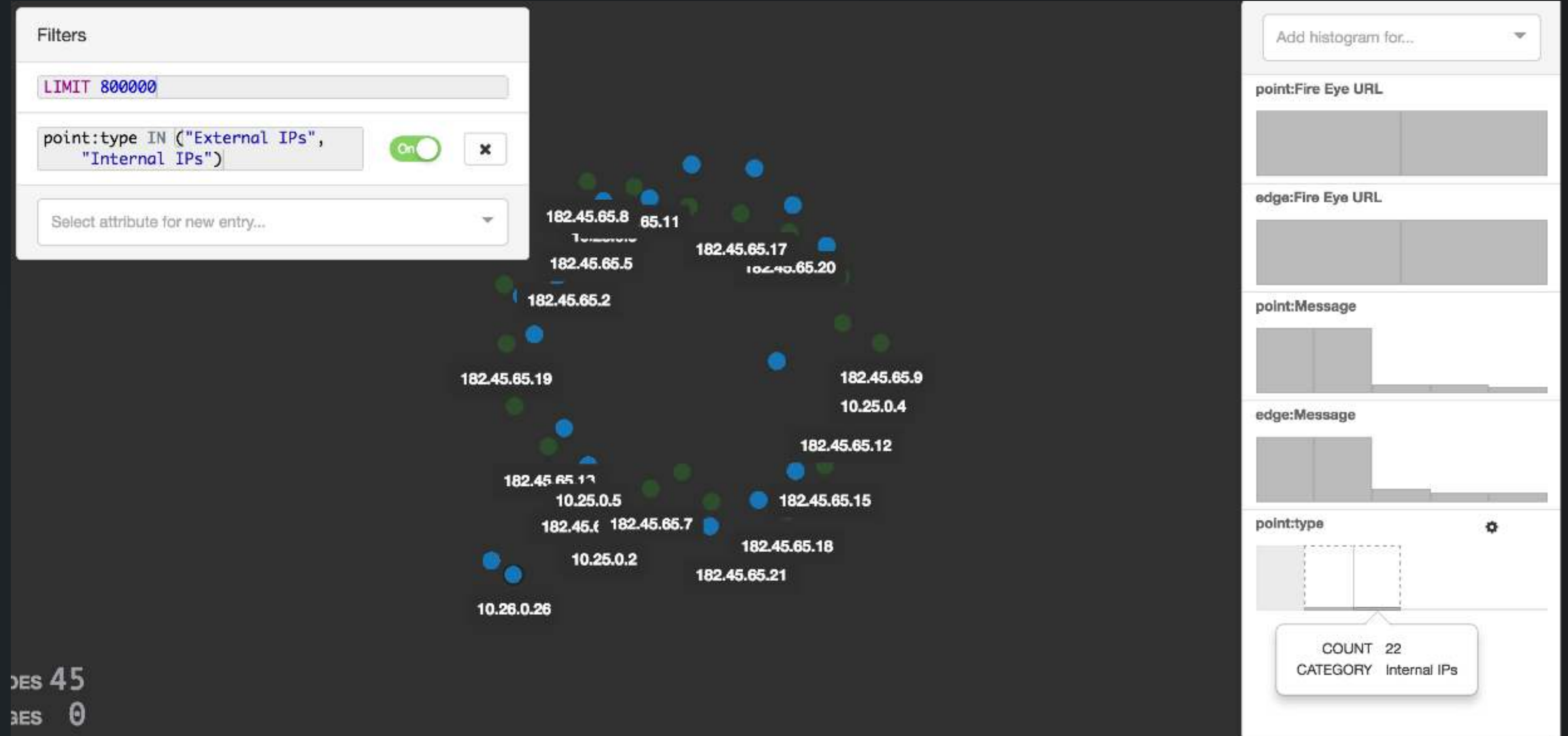
# Histogram Panel

To create a filter from a histogram section

1. Click and drag which sections of the histogram you'd like to see
2. Release click to apply filter to graph



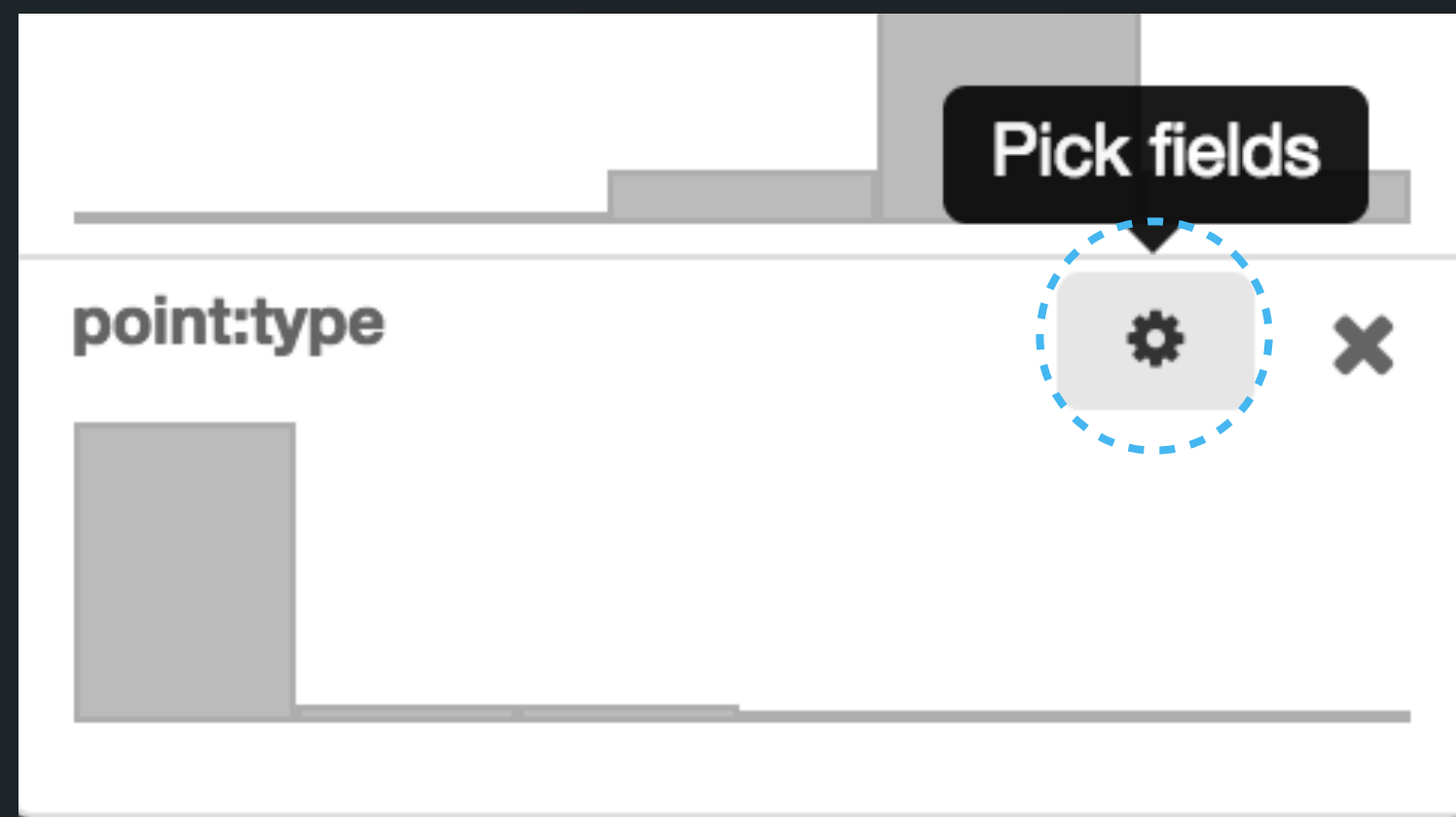
Click and drag desired bins



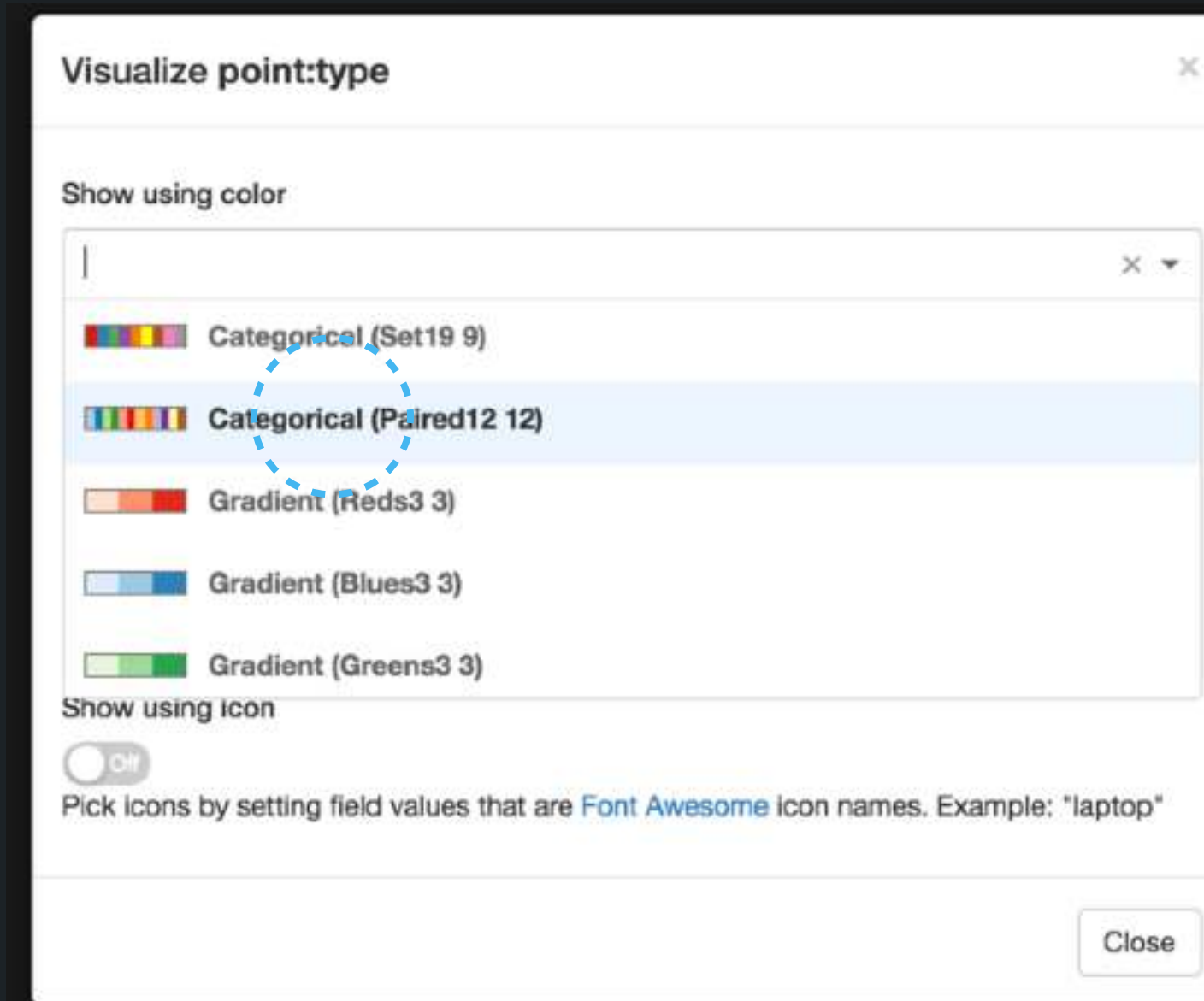
# Histogram Panel

To apply a color profile to a histogram:

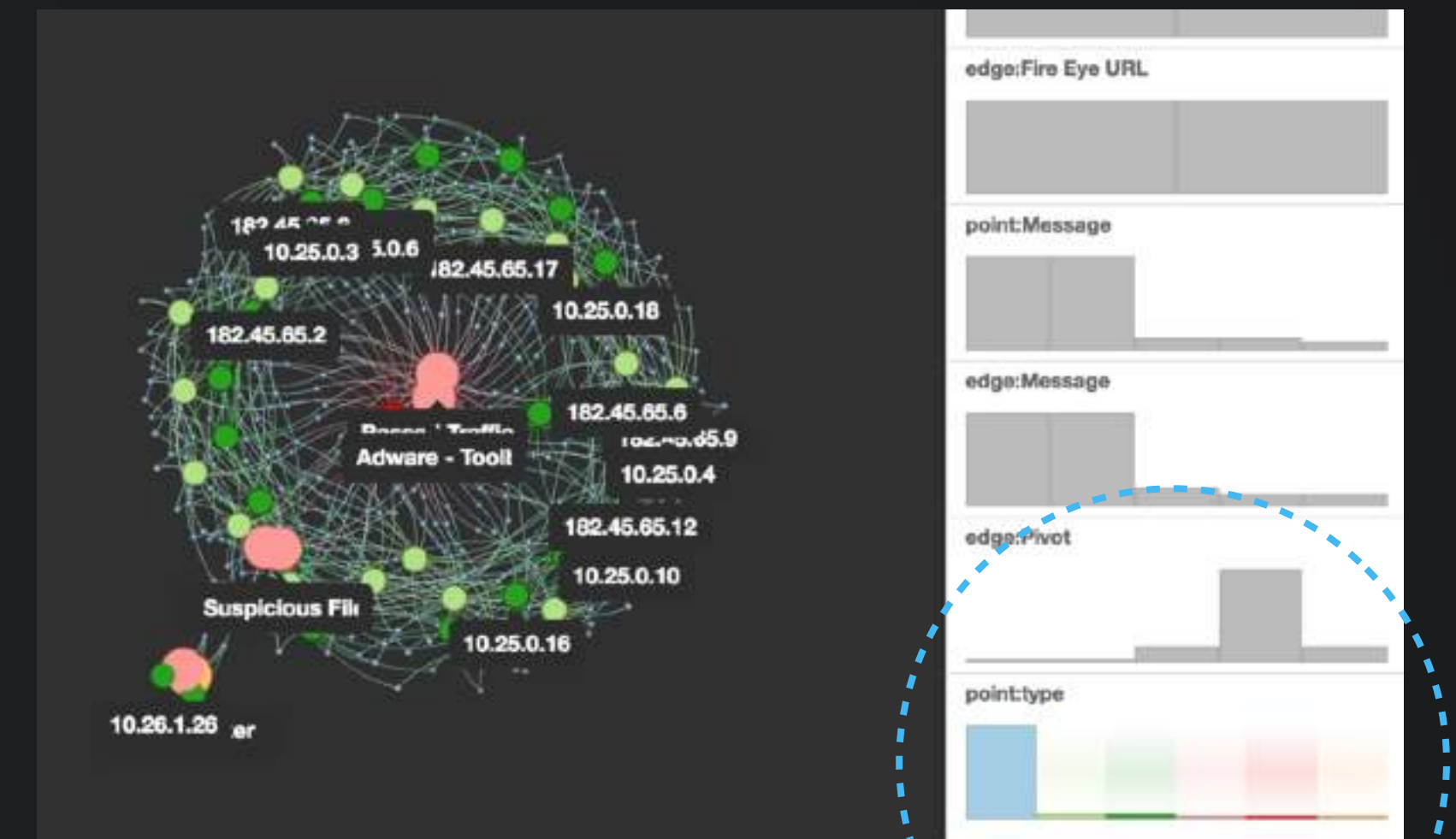
1. Open the histogram Settings
2. Choose a color profile to assign to the selected histogram



Open Histogram Settings



Choose a color profile

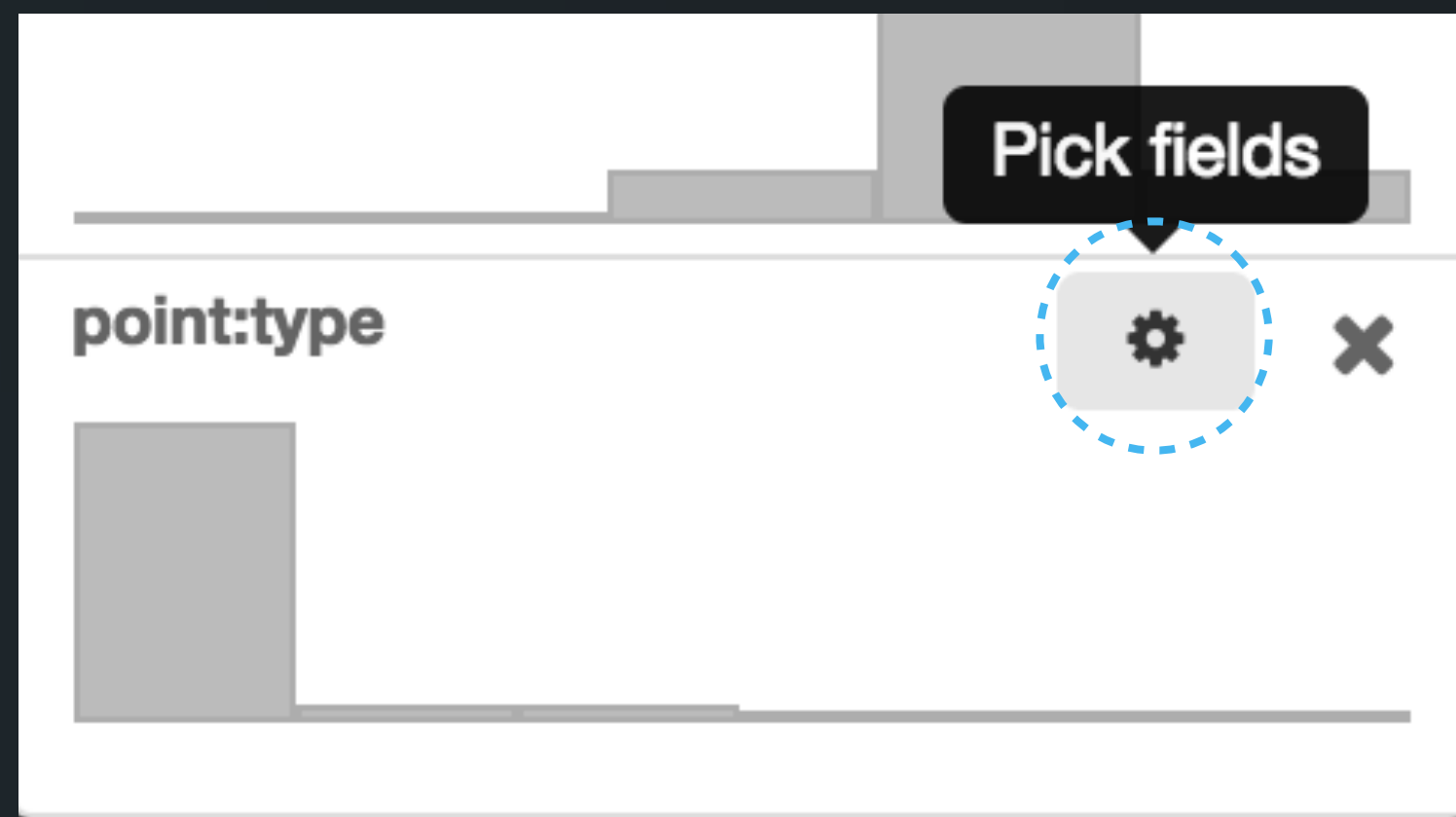


Profile is applied to histogram

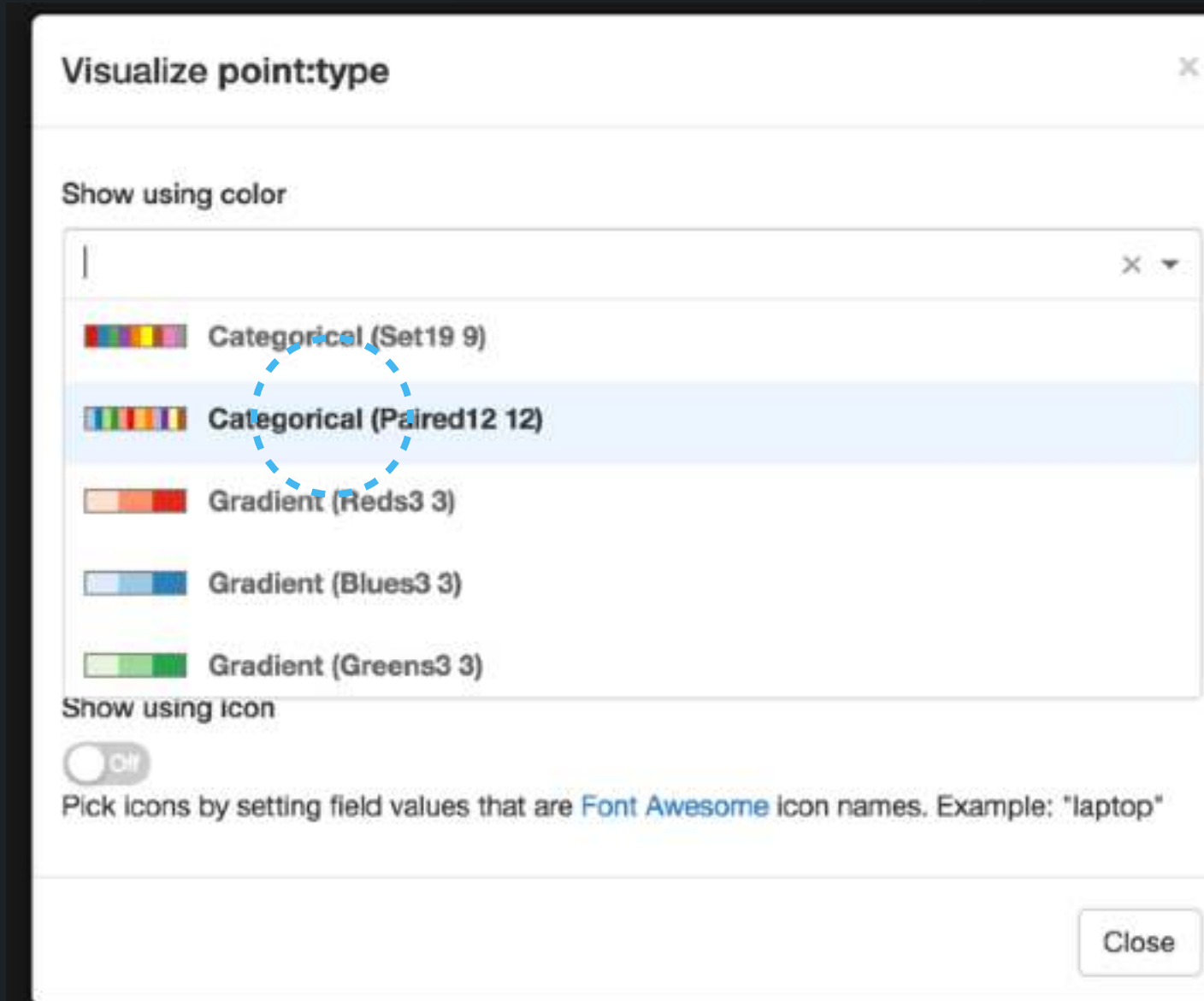
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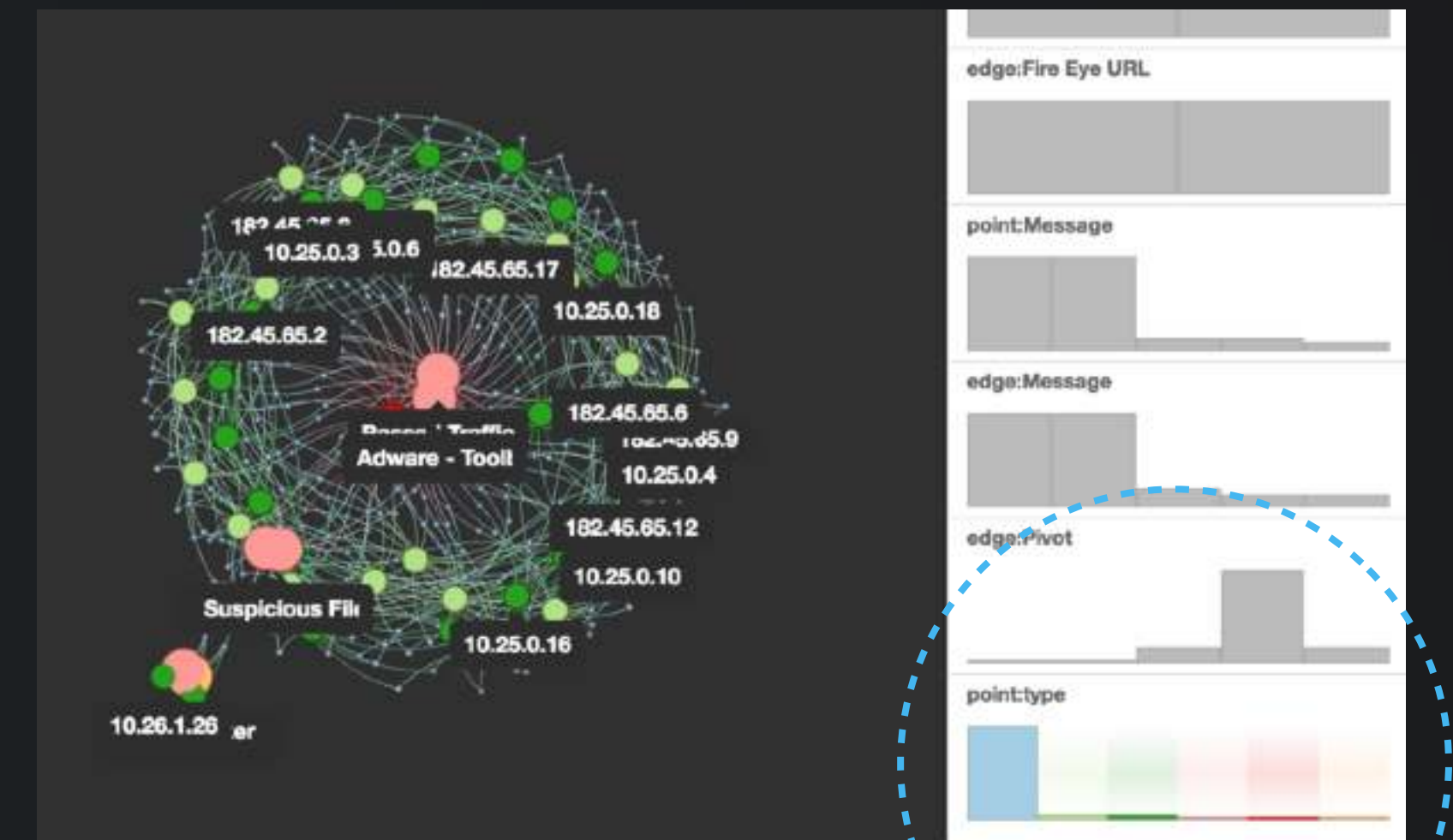
1. Open the histogram Settings
2. Choose a color profile to assign to the selected histogram



Open Histogram Settings



Choose a color profile



Profile is applied to histogram

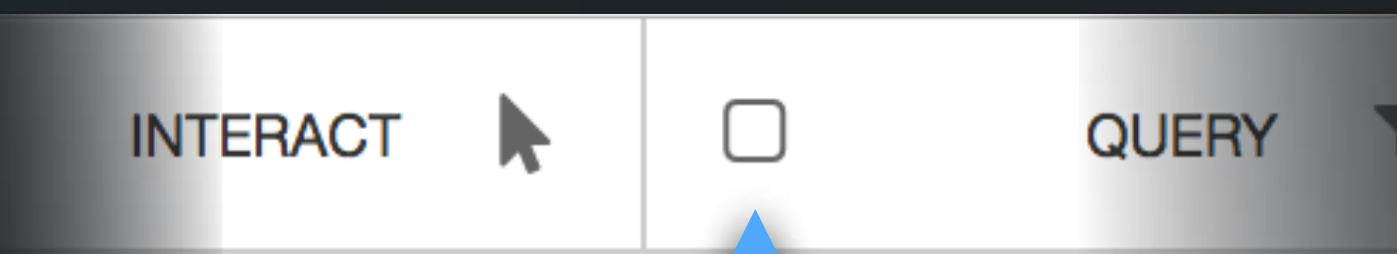
# Data Brush

The data brush allows you to highlight a section of the graph, and visualize the selected elements within the histogram panel, and data table.

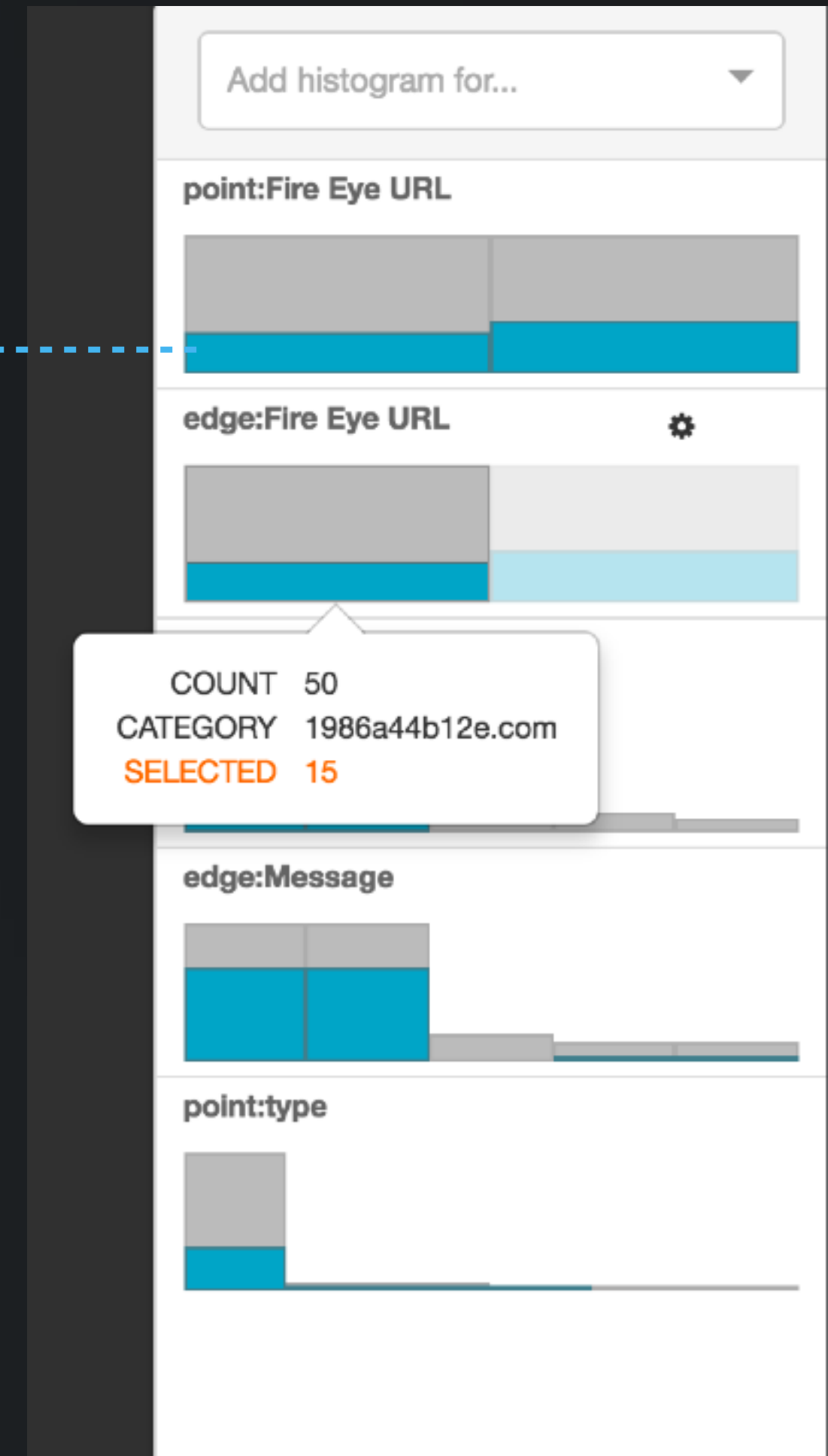
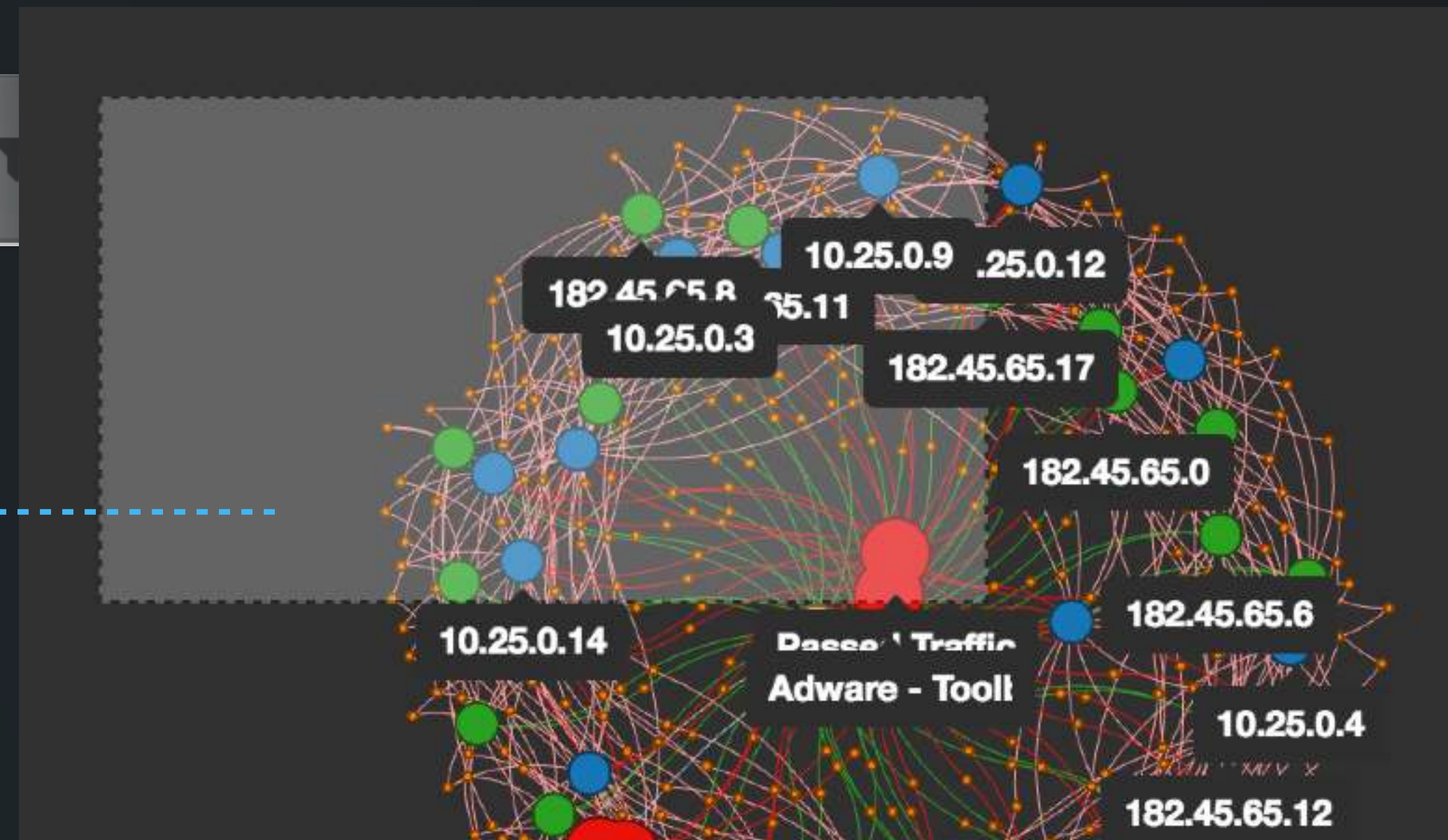
To use the data brush

1. Select the data brush icon from the toolbar
2. Click and drag to select a section of your graph
3. See corresponding values in histogram panel

Blue areas are selected nodes & edges.  
Hover over to see details



Click + Drag  
To select area



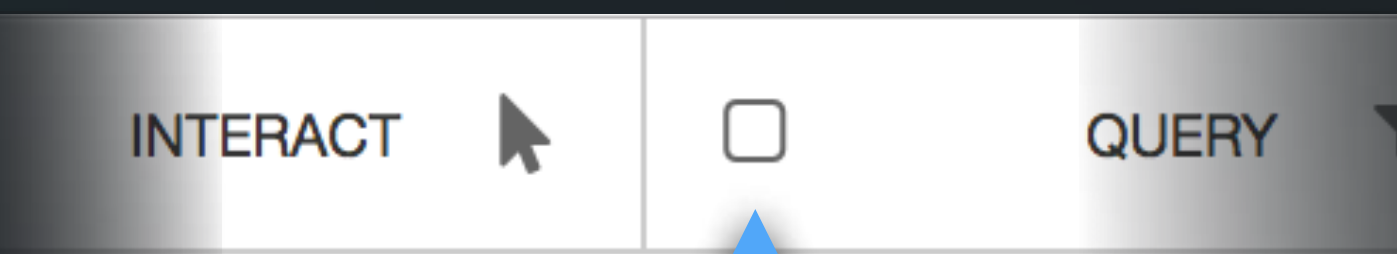
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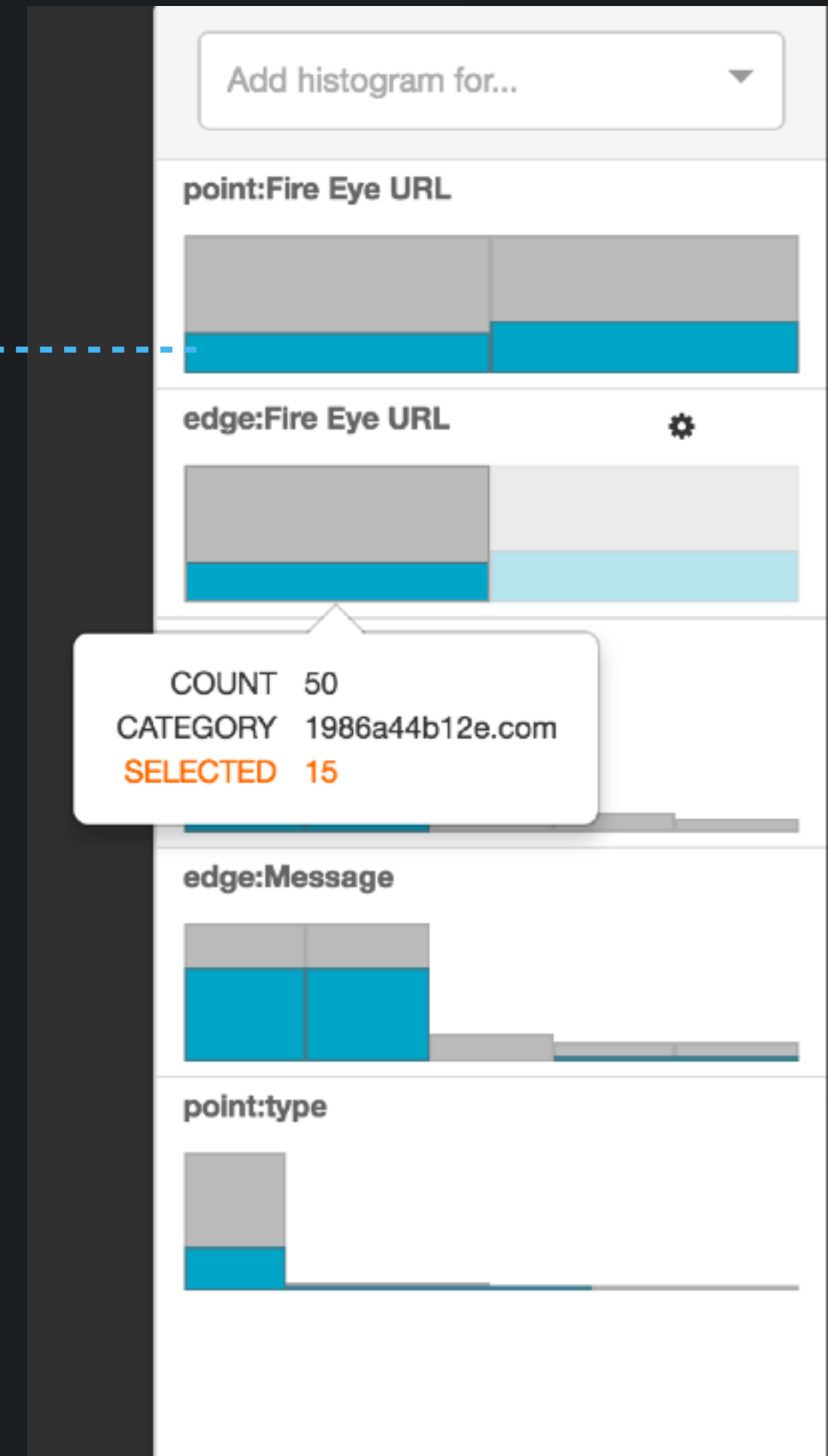
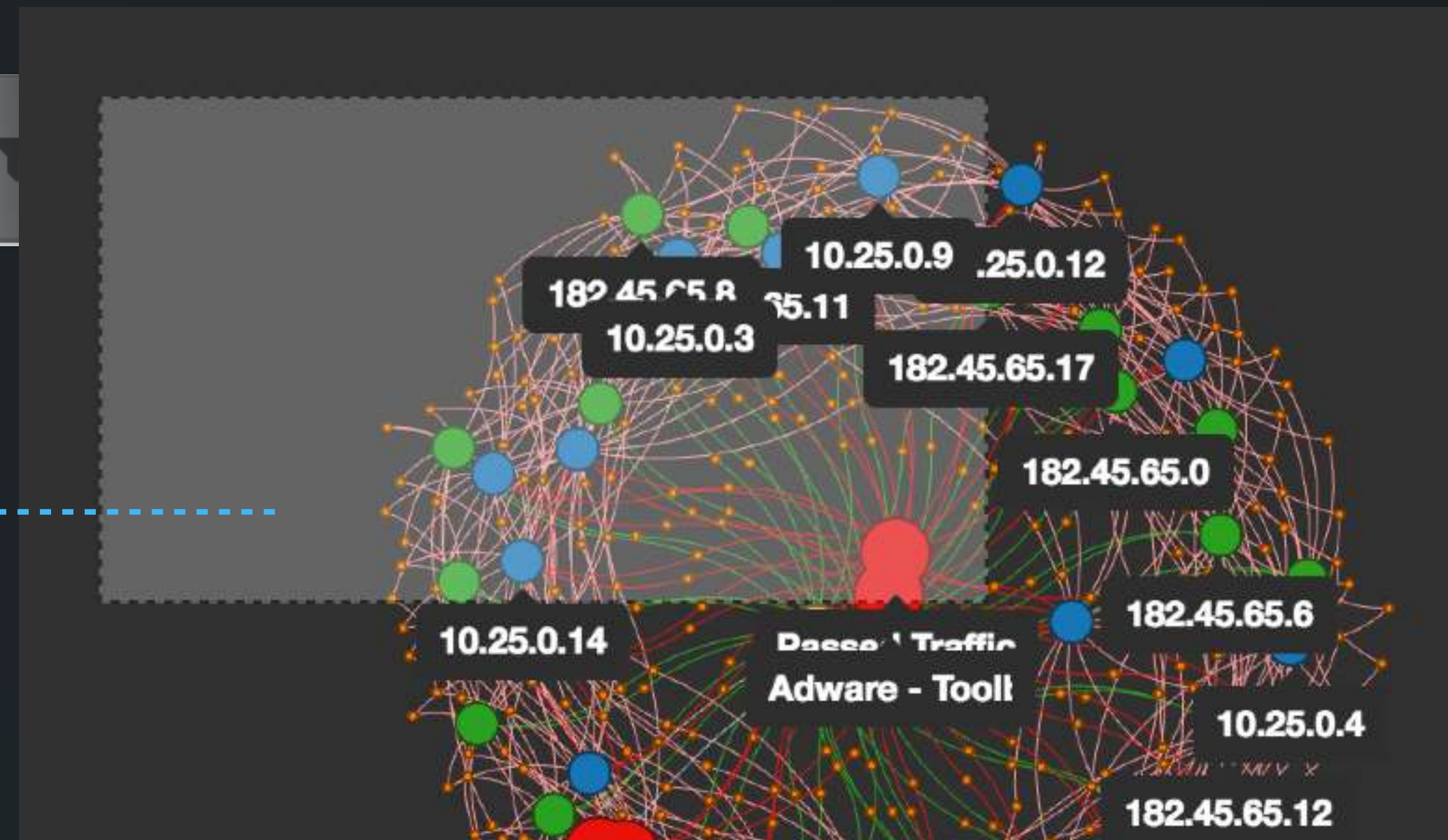
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Click + Drag  
To select area



## **Filters & Exclusions**

## **Filters & Exclusions**

# Filter Panel

To use a filter:

1. Click on the filter button to open the filter panel
2. Search for the attribute to filter. (“point:degree”)

The image shows a network visualization interface. On the left, a navigation bar contains a 'QUERY' button with a funnel icon, which is highlighted by a blue triangle. To its right is an 'INSPECT' button with a magnifying glass icon. A 'Filters' panel is open, displaying a 'LIMIT 800000' field, a search input containing 'point:degree >= 10' with a green 'On' toggle and a close button, and a dropdown menu labeled 'Select attribute for new entry...'. The main area shows a network graph with nodes and edges. A central node is labeled 'p Adware - Tool' and is highlighted in red. Other nodes are labeled with IP addresses and domain names, such as '182.45.65.11', '182.45.65.17', '10.25.0.3', '10.25.0.1', '10.25.0.4', '10.25.0.7', '10.25.0.10', '10.25.0.8', '10.25.0.19', '182.45.65.10', '182.45.65.7', '182.45.65.2', '10.25.0.0', '182.45.65.6', '10.25.0.15', '182.45.65.8', '0.25.0.6', and '182.45.65.12'. Nodes are colored in green, blue, and orange.

# Filter Panel

To use a filter:

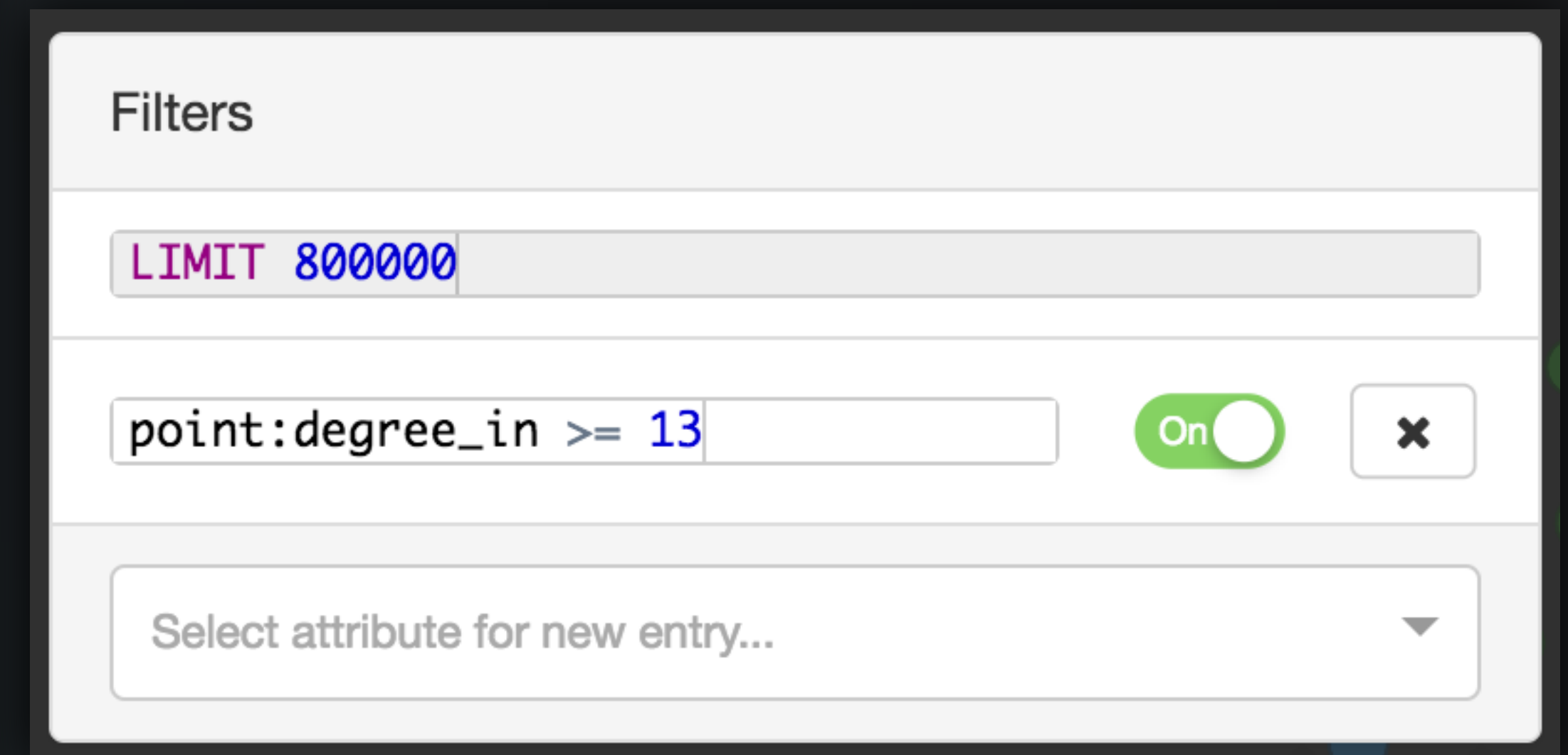
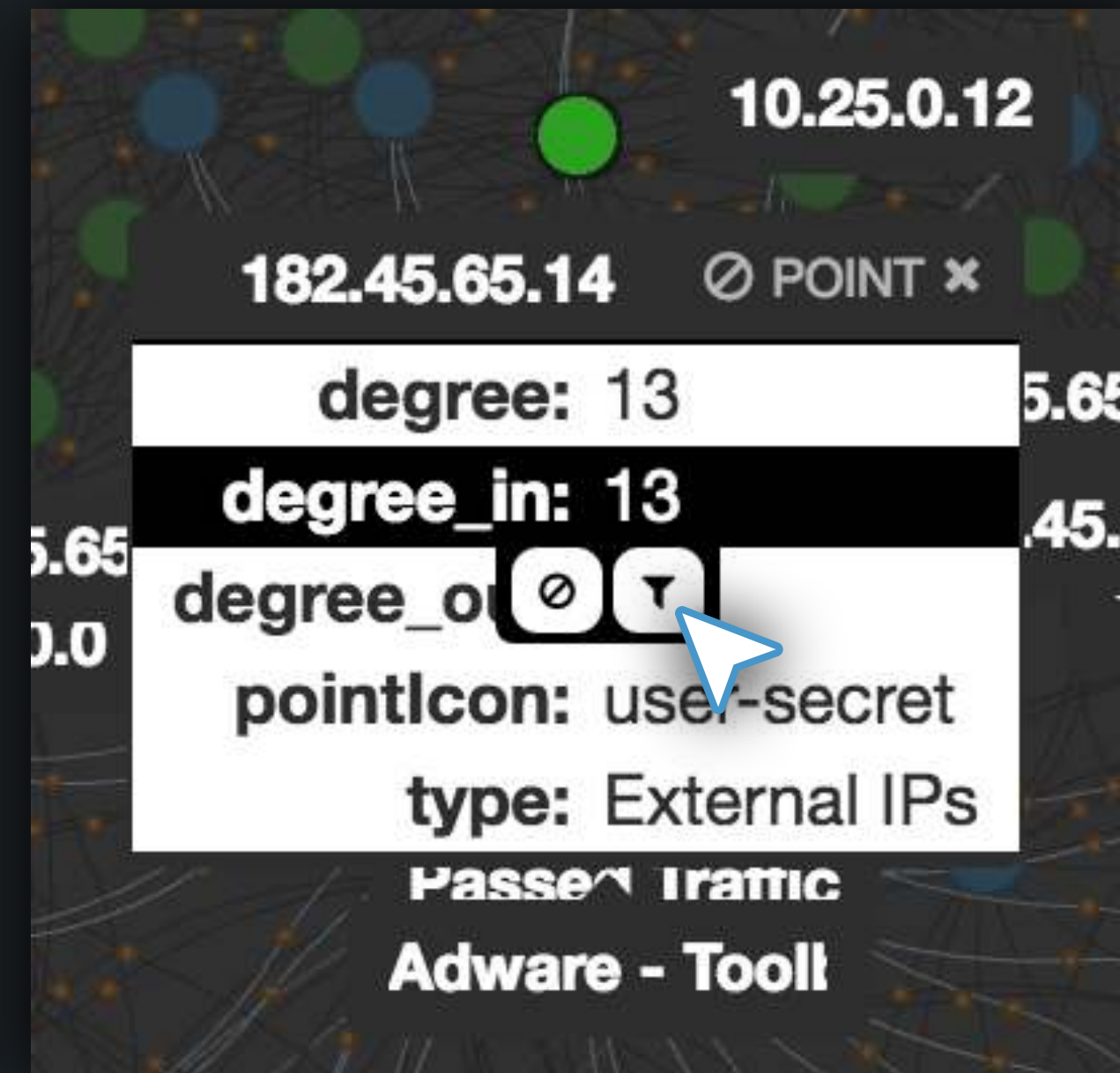
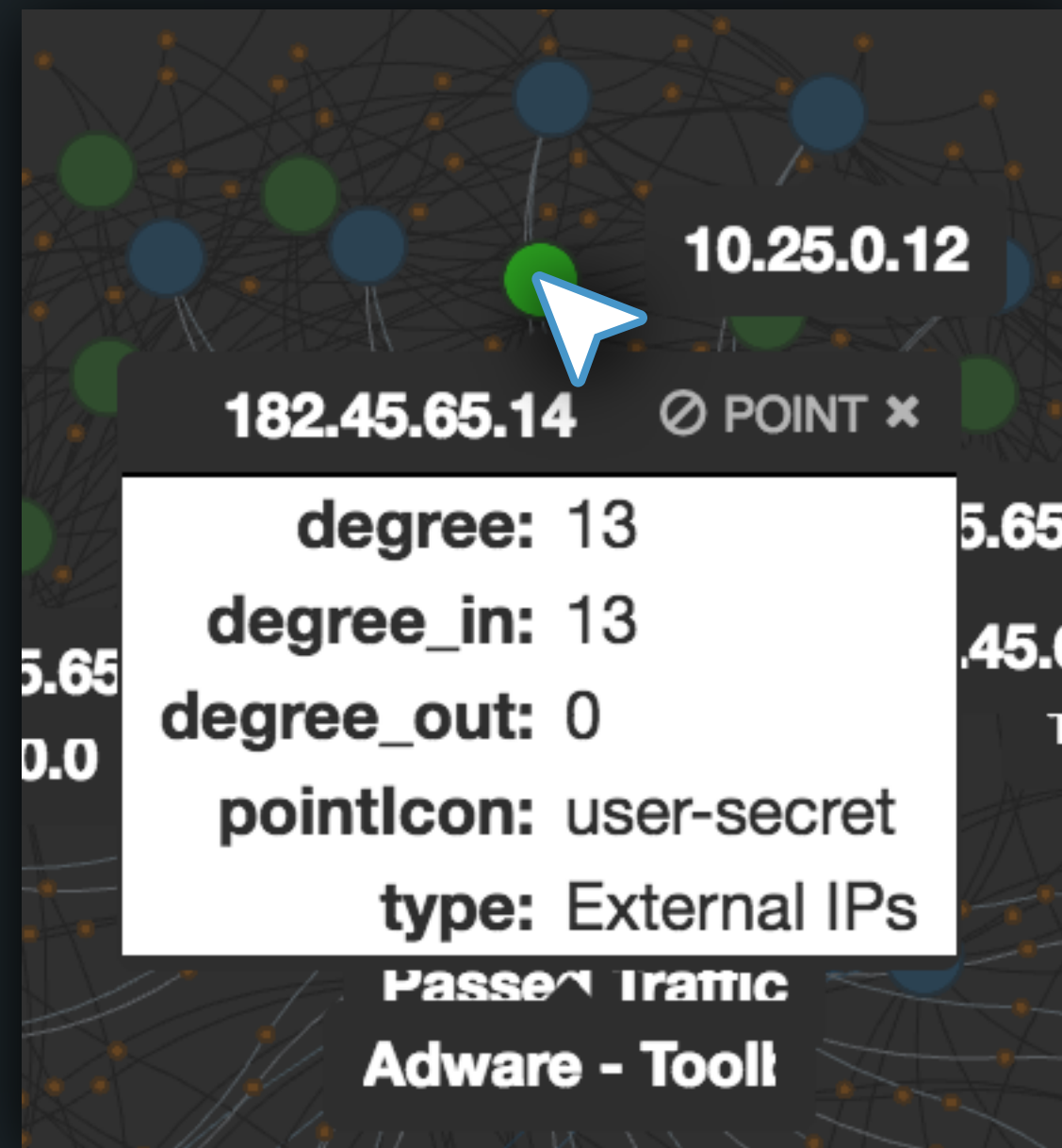
1. Click on the filter button to open the filter panel
2. Search for the attribute to filter. (“point:degree”)

The image shows a network visualization interface. On the left, a navigation bar contains a 'QUERY' button with a funnel icon, which is highlighted by a blue triangle. To its right is an 'INSPECT' button with a magnifying glass icon. A 'Filters' panel is open, displaying a 'LIMIT 800000' field, a search input containing 'point:degree >= 10' with a green 'On' toggle and a close 'x' button, and a dropdown menu labeled 'Select attribute for new entry...'. The main area shows a network graph with nodes and edges. A central node is labeled 'p Adware - Tool' and is highlighted with a large red circle. Other nodes are labeled with IP addresses and domain names, such as '182.45.65.11', '182.45.65.17', '10.25.0.1', and '10.25.0.19'. The nodes are colored in shades of blue, green, and orange.

## Filter with Label

To create a filter from a node property:

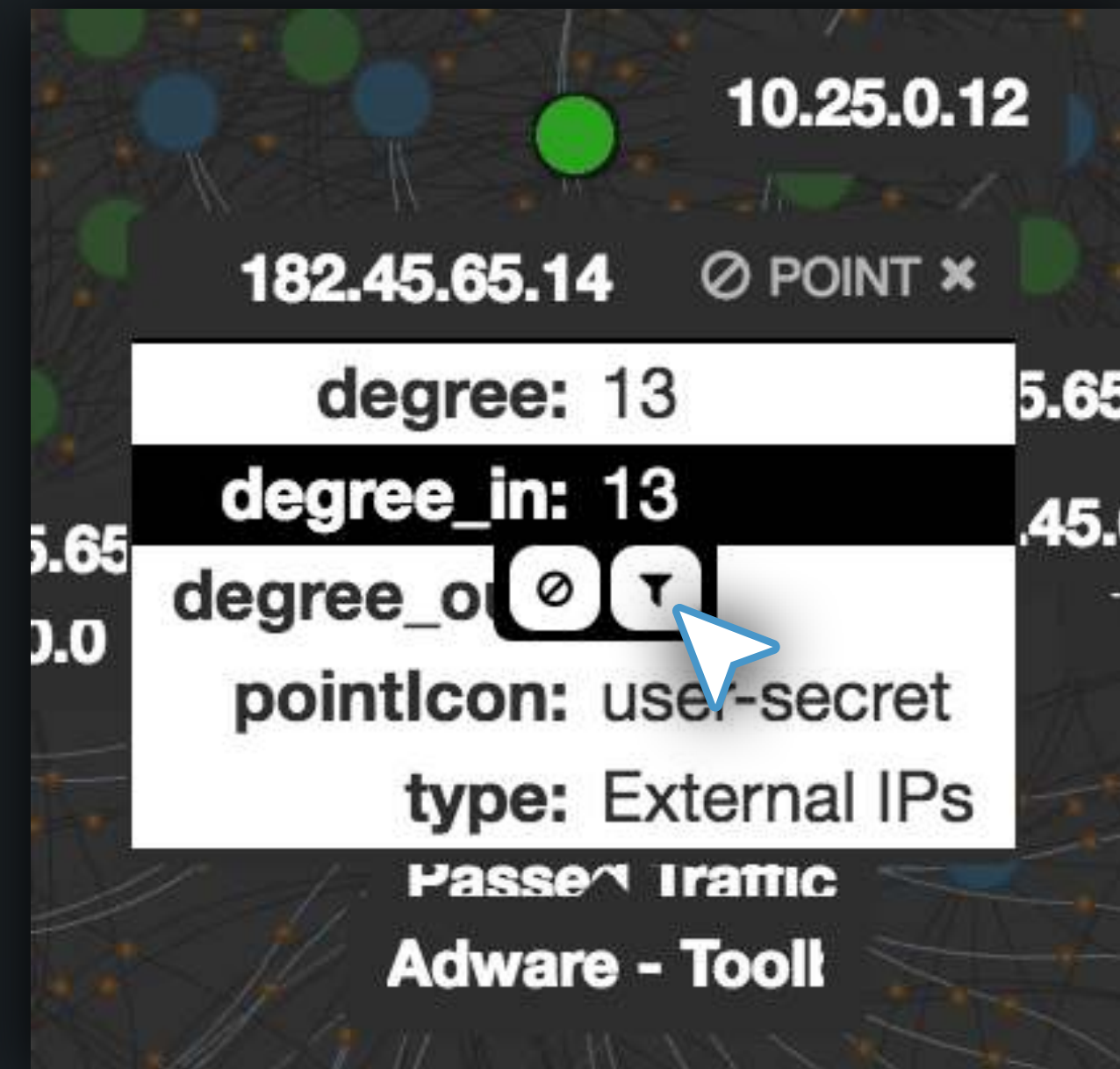
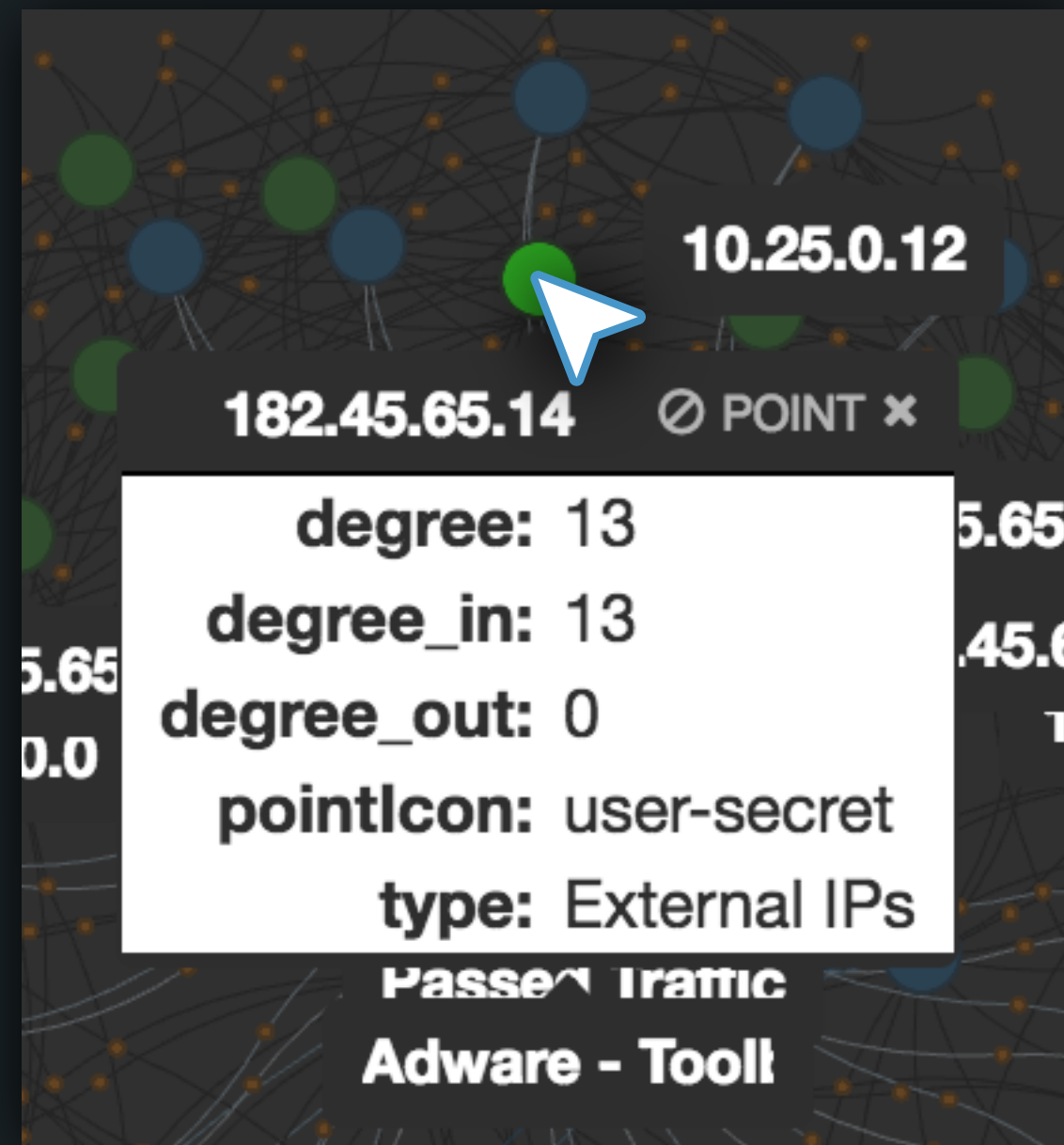
1. Click on the node to open its label
2. Hover over the desired property to expose its filter & exclusion options
3. Select the Filter option to generate a filter



## Filter with Label

To create a filter from a node property:

1. Click on the node to open its label
2. Hover over the desired property to expose its filter & exclusion options
3. Select the Filter option to generate a filter



# Exclusion Panel

To use an exclusion:

1. Click on the exclusions button to open the panel
2. Search for the attribute to filter. (“point:degree”)

The image shows a screenshot of a network visualization interface. On the left, a navigation bar contains a search icon, a filter icon, an exclusion icon (a circle with a diagonal line), and an inspection icon. The exclusion icon is highlighted with a blue triangle. The main area displays a network graph with a central red node labeled "Suspicious File" and several other nodes connected to it, including "10.26.1.26" and "0:5434". A white "Exclusions" panel is overlaid on the graph, showing a search input field containing "point:degree >= 4", a green "On" toggle switch, and a dropdown menu labeled "Select attribute for new entry...".

# Exclusion Panel

To use an exclusion:

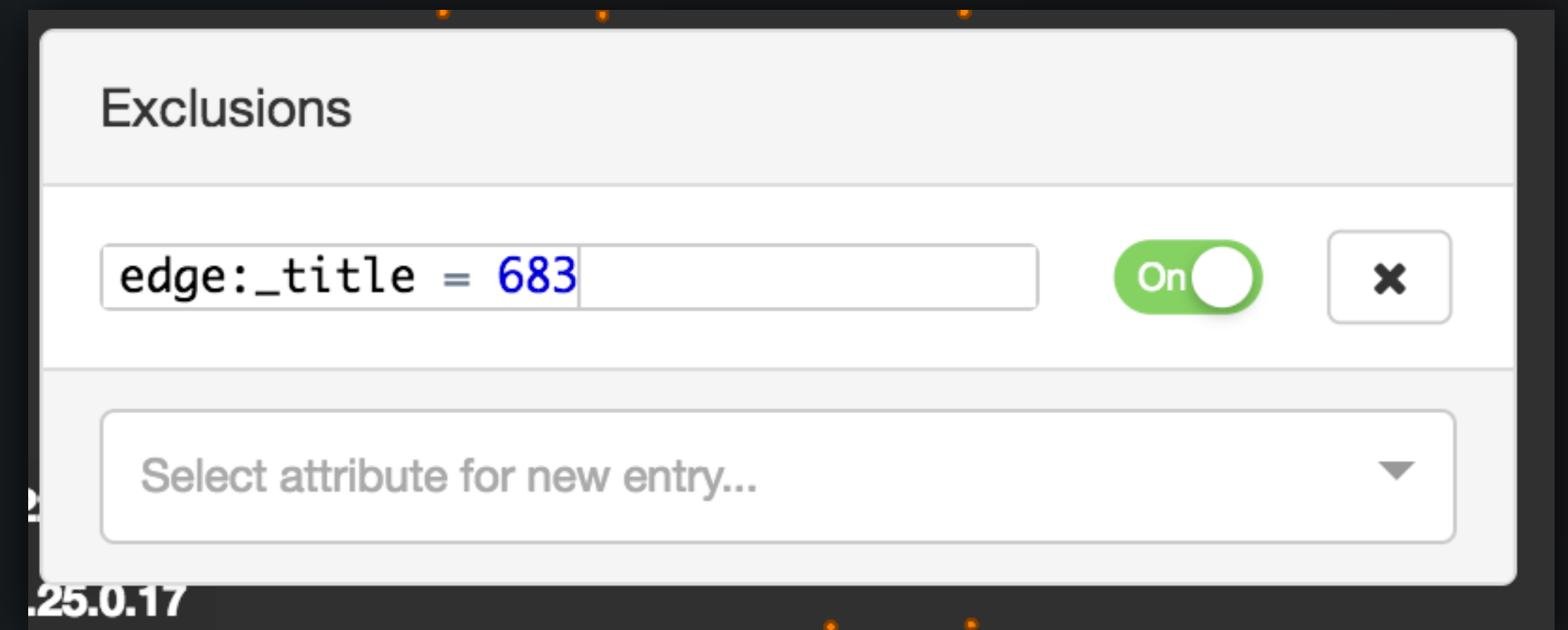
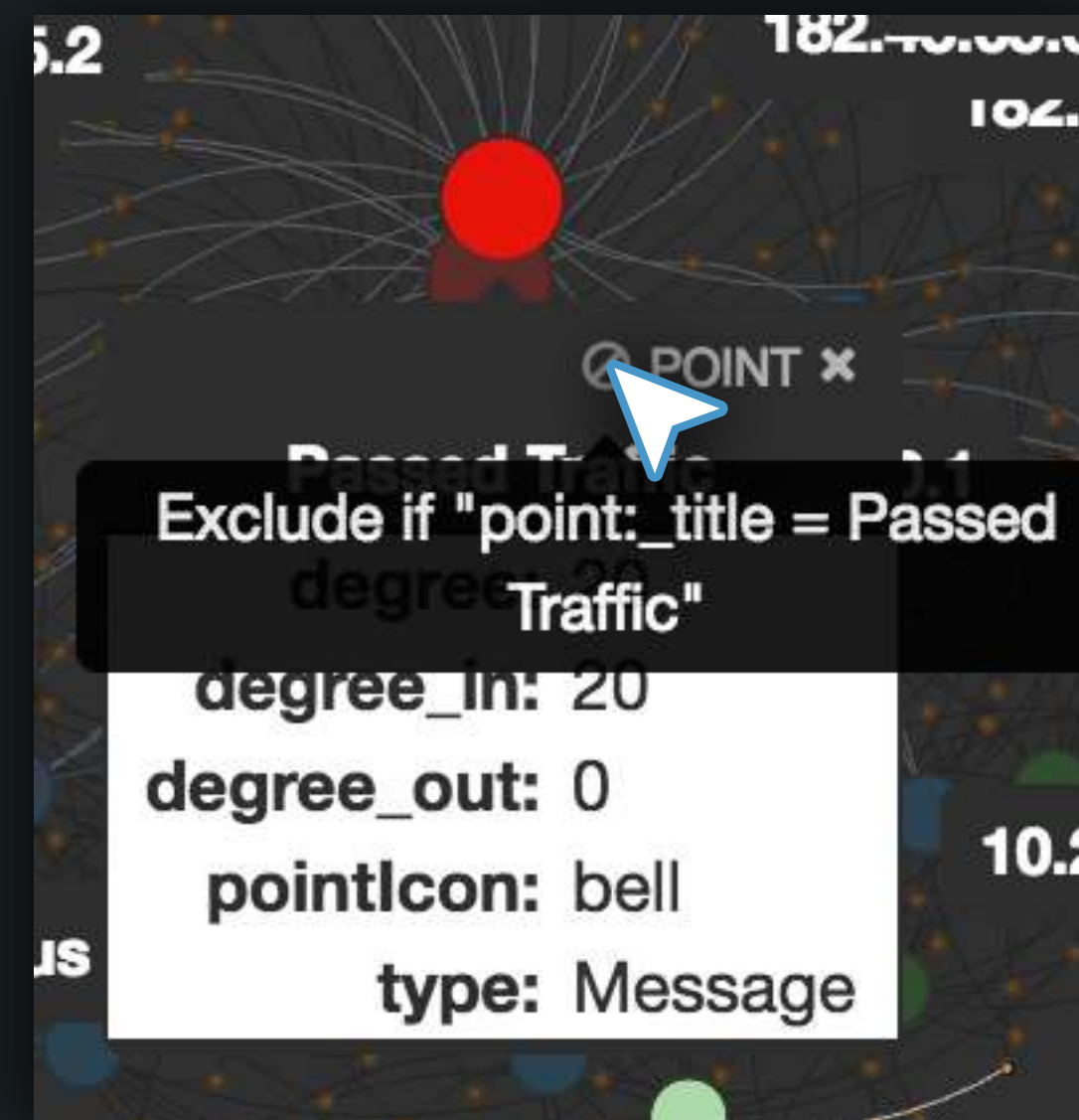
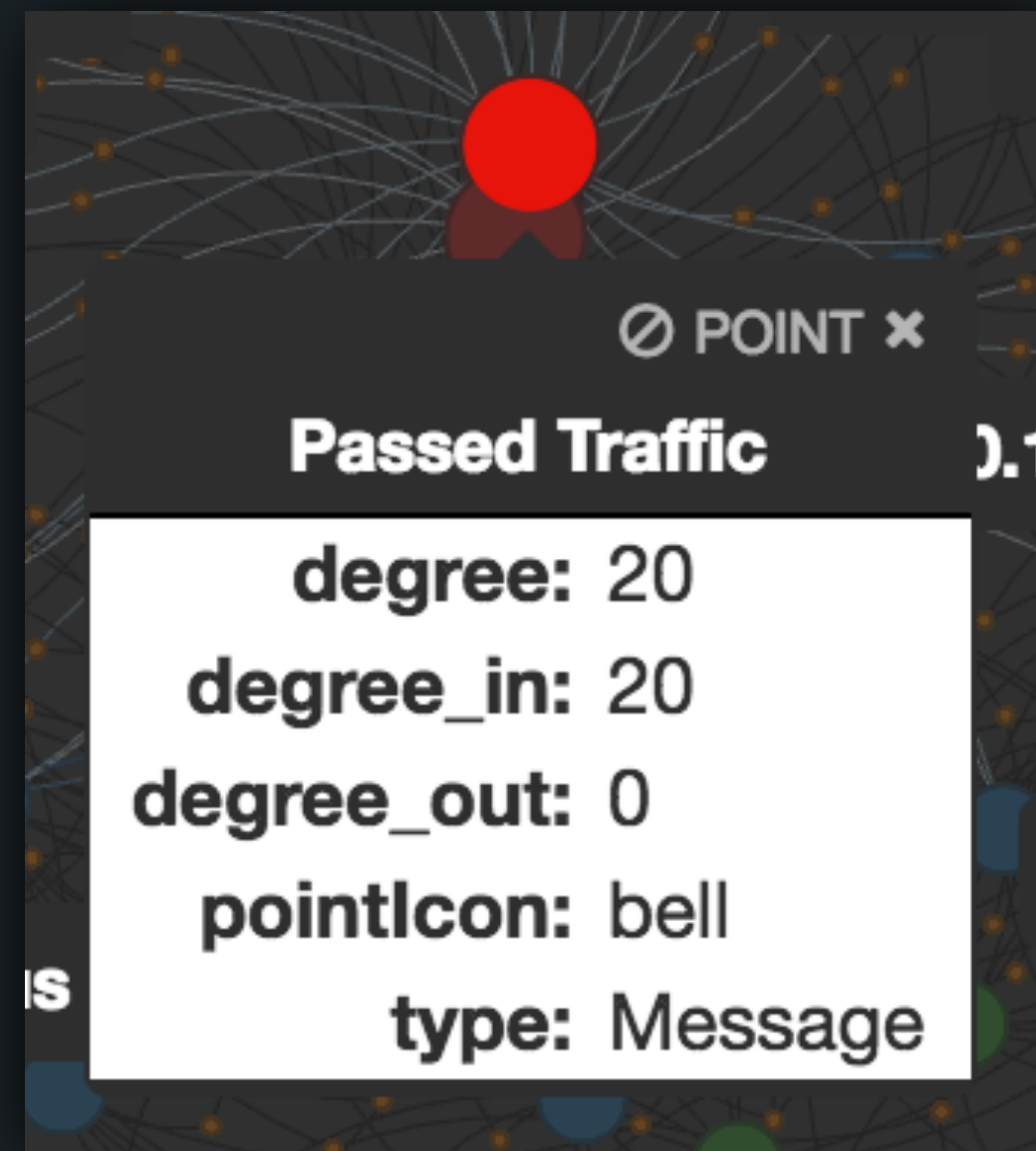
1. Click on the exclusions button to open the panel
2. Search for the attribute to filter. (“point:degree”)

The image shows a software interface for network visualization. On the left, a navigation bar contains a home icon, a 'QUERY' button with a funnel icon, an 'Exclusions' button with a circle and slash icon (highlighted by a blue triangle), and an 'INSPECT' button. An 'Exclusions' panel is open, displaying the filter 'point:degree >= 4' with an 'On' toggle and a close button. Below the filter is a dropdown menu labeled 'Select attribute for new entry...'. The main area shows a network graph with a central red node labeled 'Suspicious File' and several other nodes with labels like '0:5434', '0:5413', '0:5392', '0:5329', '0:5469', '0:5385 16', '0:5406', '0:5441', '0:5462', '0:5322', '0:5343', and '10.26.1.26 77634'. The nodes are connected by lines, and the background is dark with many small orange dots representing other nodes in the network.

## Exclusion with Label

To exclude a selected node using its label

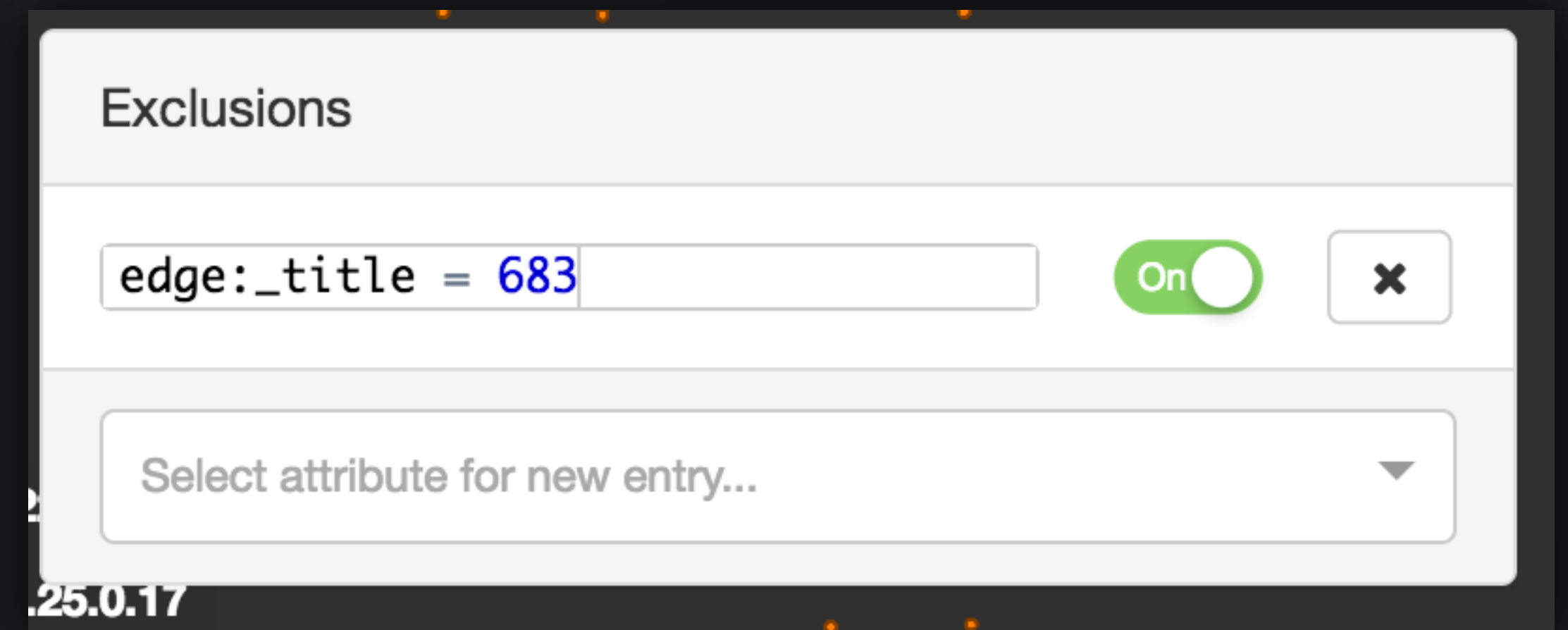
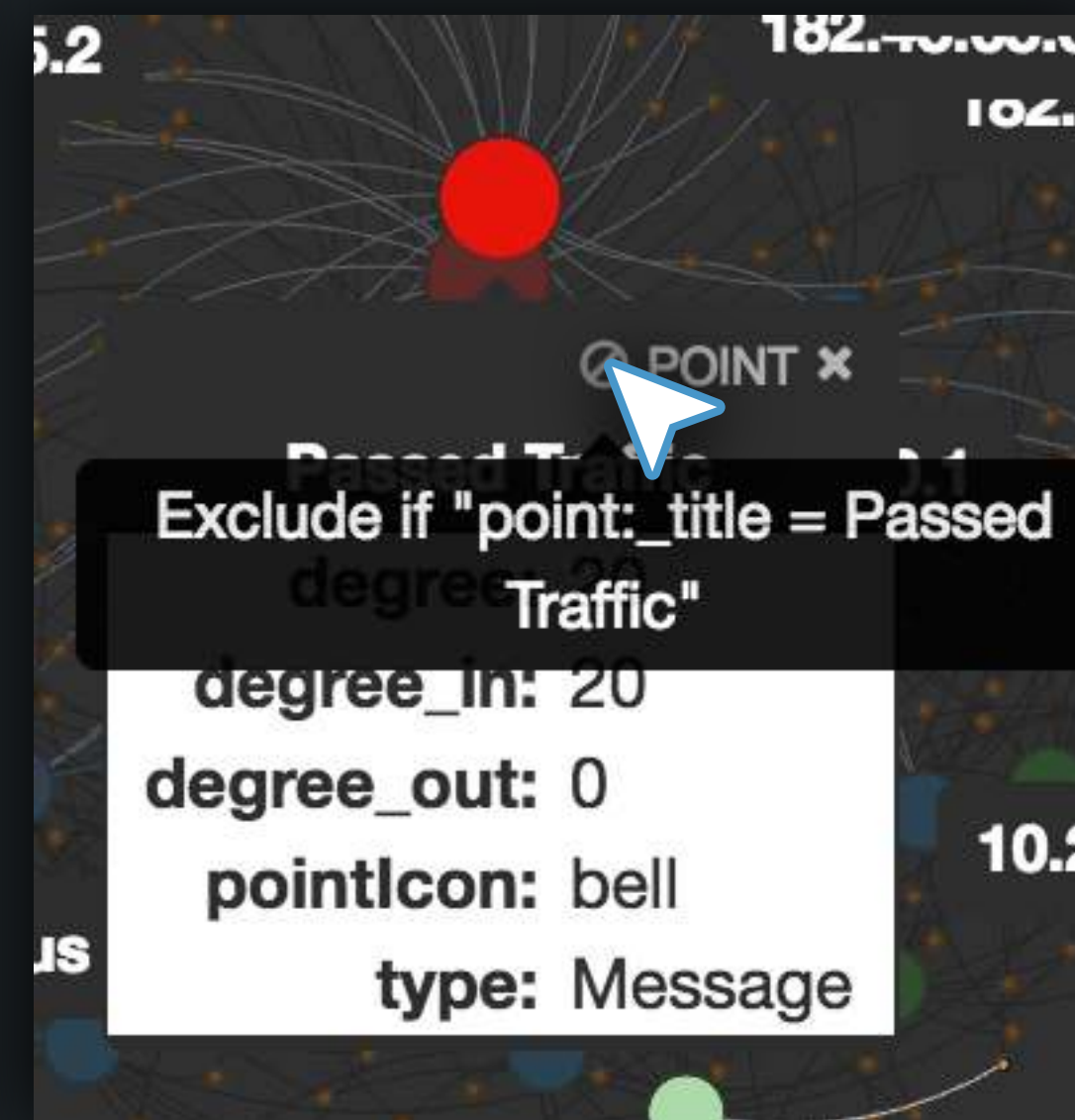
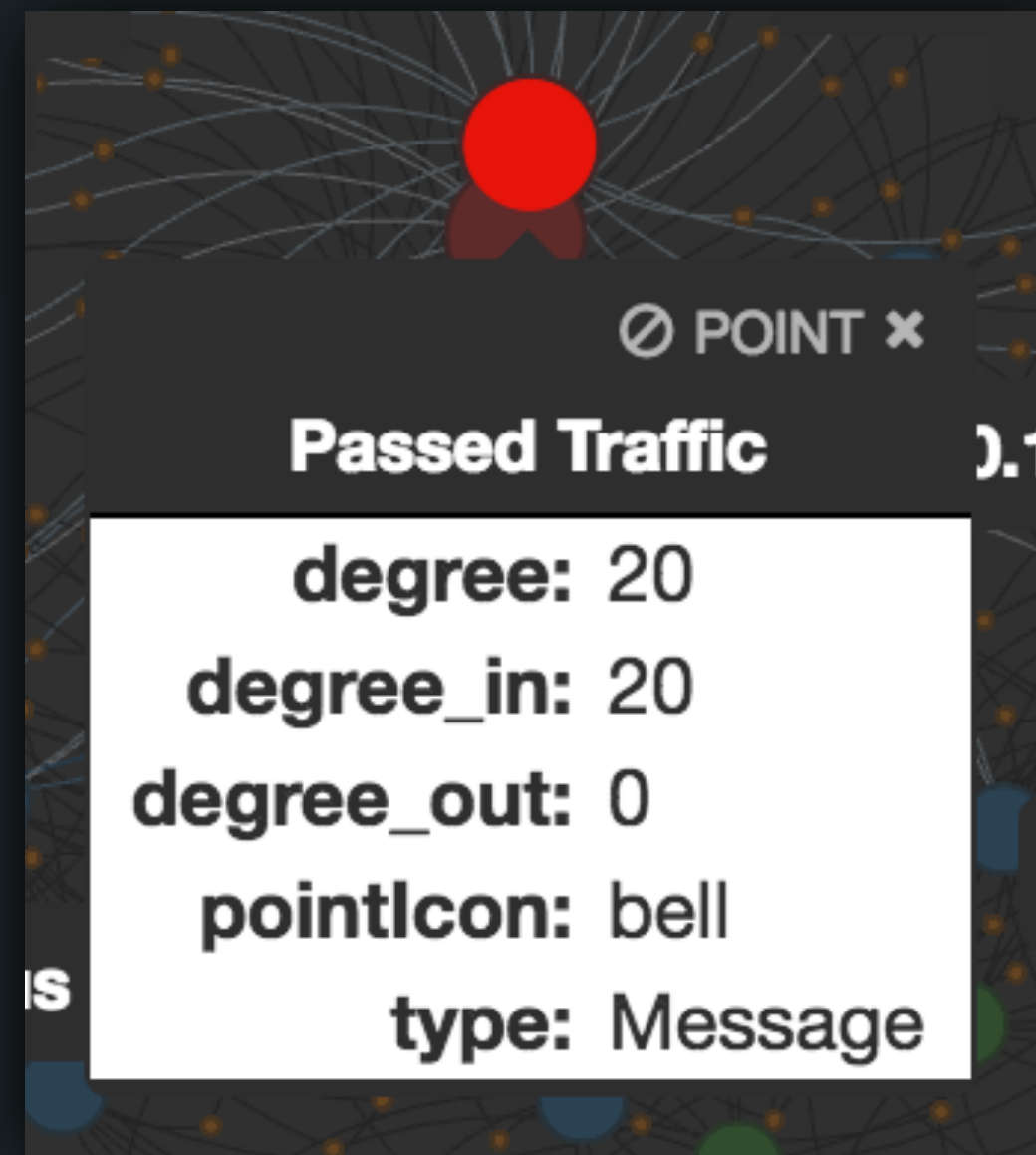
1. Click on the node to open its label
2. Click the exclusion icon to generate an exclusion



## Exclusion with Label

To exclude a selected node using its label

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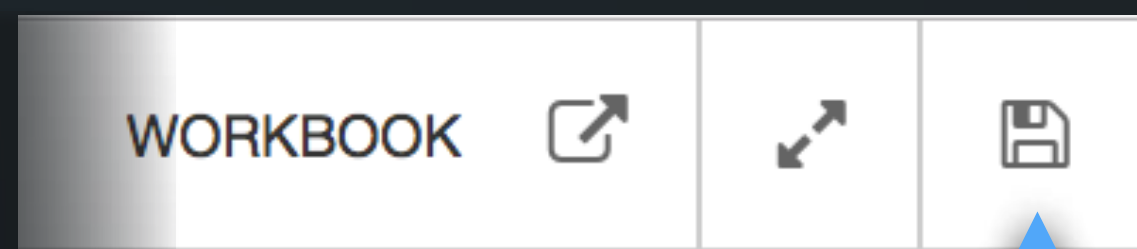


# References & Documentation

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# Workbooks

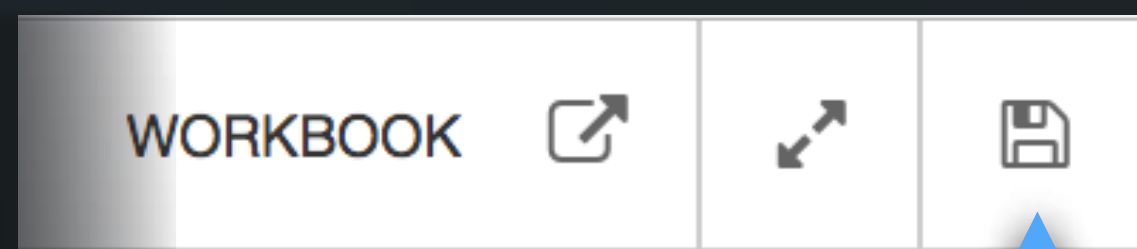
1. Workbooks save the active state of the visualization, including filters, exclusions and encodings.
2. Workbooks can be created by supplying the URL parameter "workbook" to any visualization.
3. If a workbook parameter is not supplied, a unique workbook ID will be created
4. To save a workbook, click on the "Save Workbook" icon in the toolbar.
5. Workbooks can be shared, simply by sharing the workbook URL parameters.



**Workbook Saved** ✓

# Workbooks

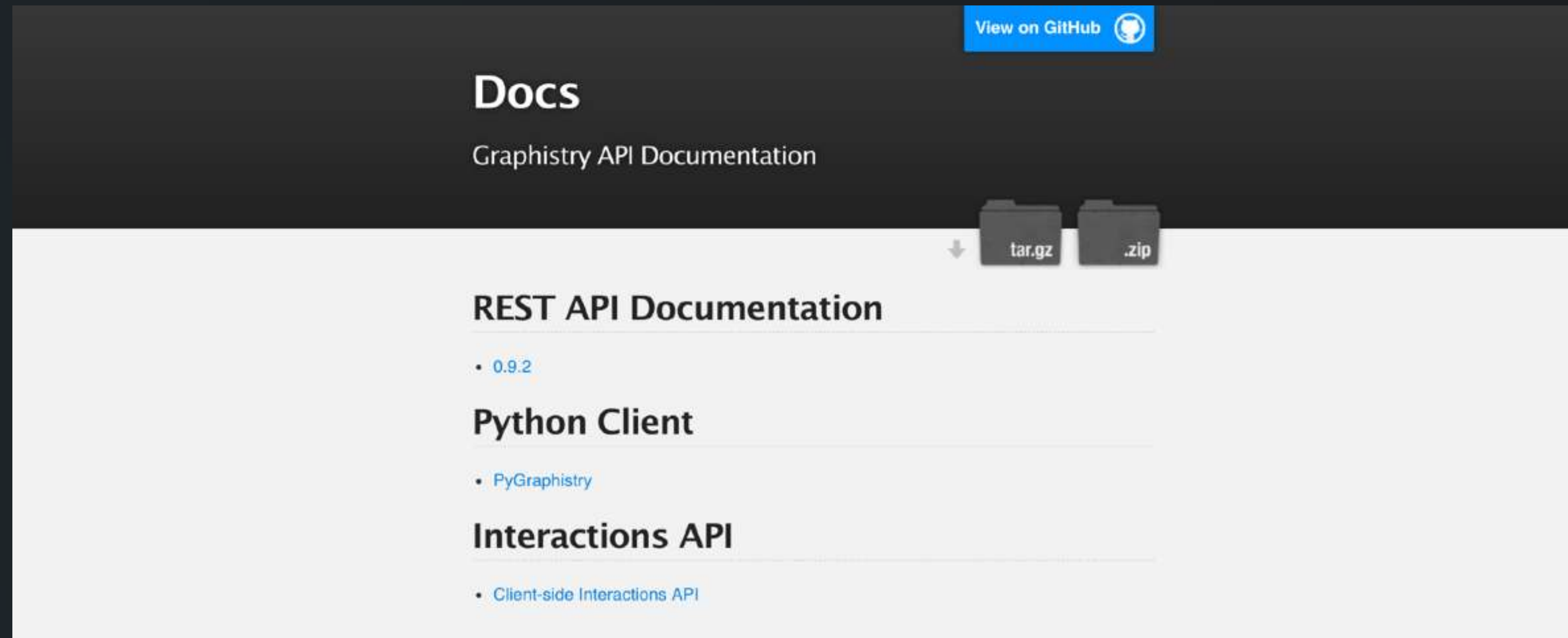
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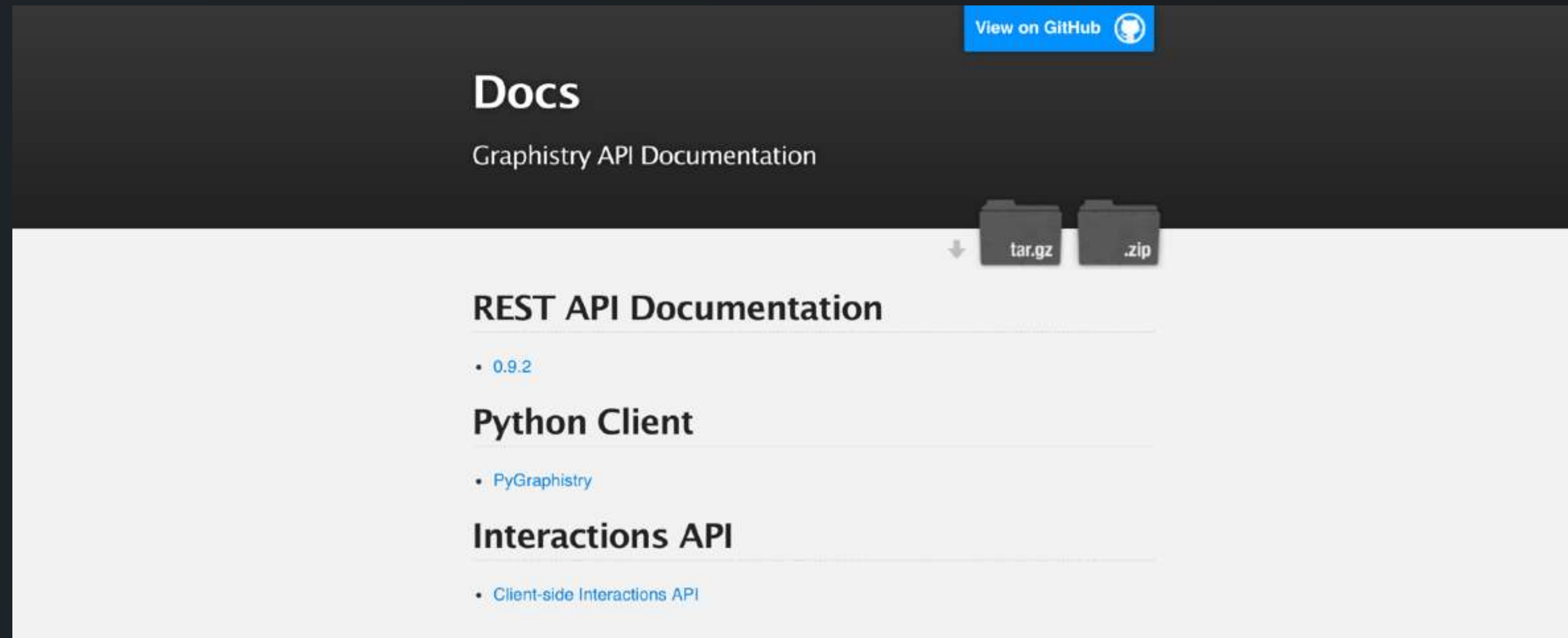
# API References

- Our API References are available online at: <https://graphistry.github.io/docs/>
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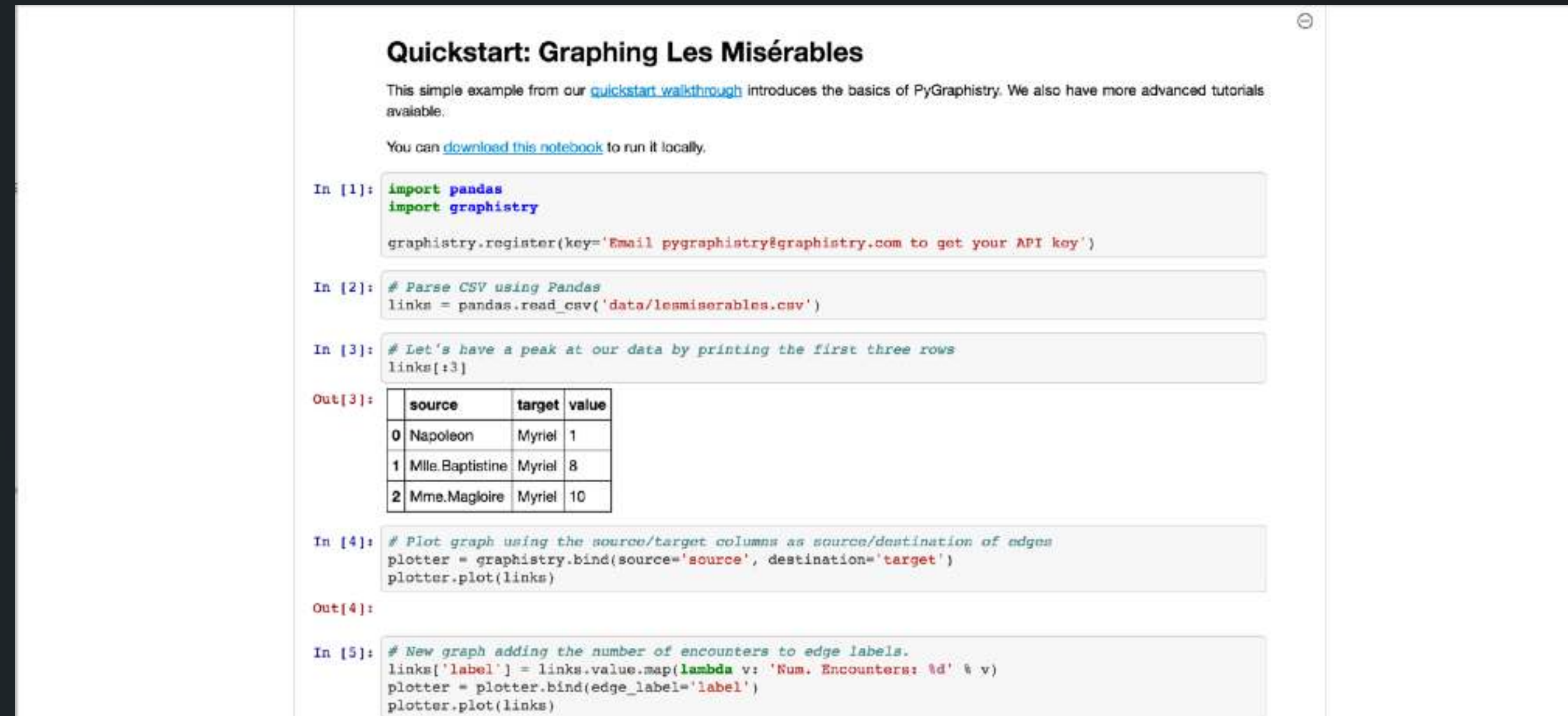
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# Tutorial and Demo Notebooks

- Tutorial and Demo notebooks can be found at:  
<https://github.com/graphistry/pygraphistry/tree/master/demos>
- Each one of these notebooks is also prepackaged in the Jupiter Notebook container that is provided in the release



**Quickstart: Graphing Les Misérables**

This simple example from our [quickstart walkthrough](#) introduces the basics of PyGraphistry. We also have more advanced tutorials available.

You can [download this notebook](#) to run it locally.

```
In [1]: import pandas
import graphistry

graphistry.register(key='Email pygraphistry@graphistry.com to get your API key')
```

```
In [2]: # Parse CSV using Pandas
links = pandas.read_csv('data/lesmiserables.csv')
```

```
In [3]: # Let's have a peak at our data by printing the first three rows
links[:3]
```

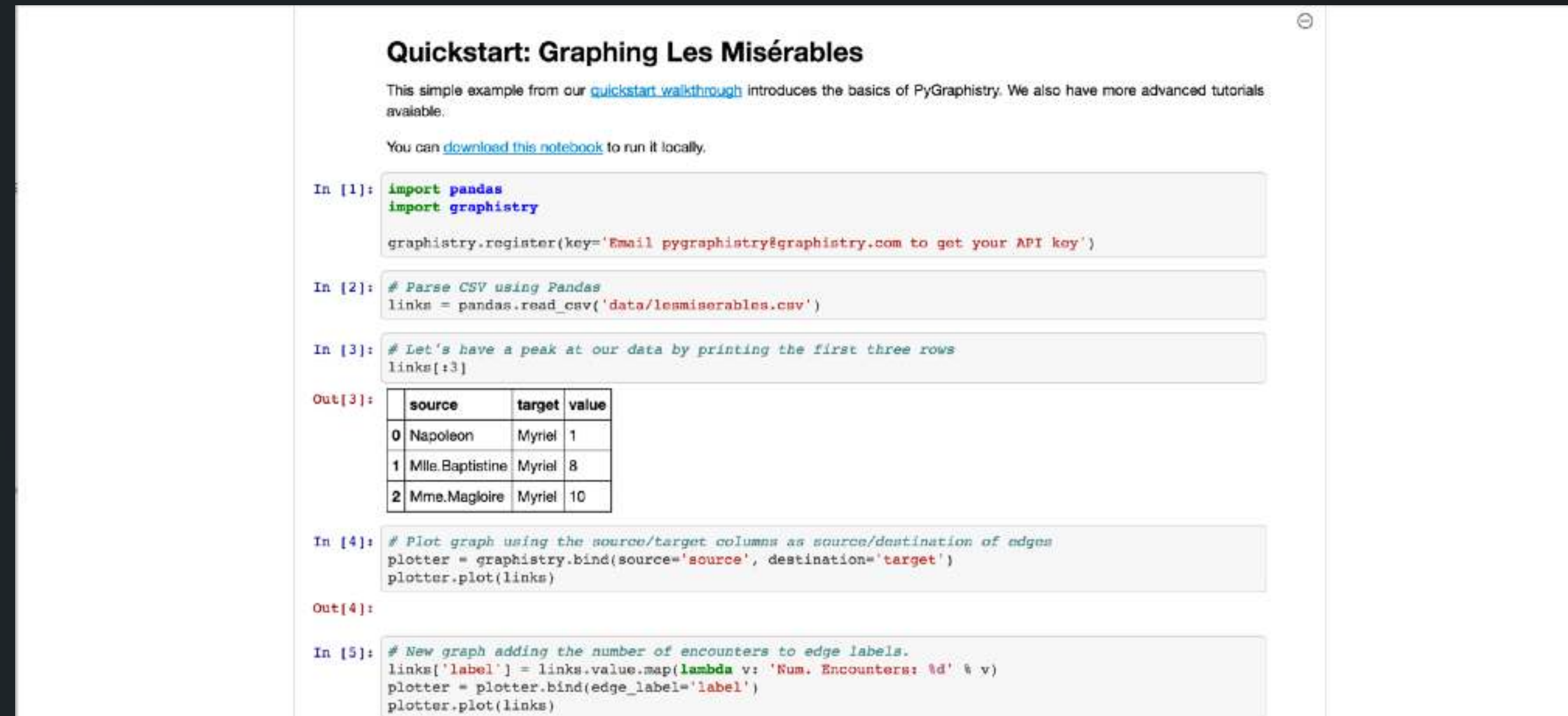
|   | source          | target | value |
|---|-----------------|--------|-------|
| 0 | Napoleon        | Myriel | 1     |
| 1 | Mlle.Baptistine | Myriel | 8     |
| 2 | Mme.Magloire    | Myriel | 10    |

```
In [4]: # Plot graph using the source/target columns as source/destination of edges
plotter = graphistry.bind(source='source', destination='target')
plotter.plot(links)
```

```
In [5]: # New graph adding the number of encounters to edge labels.
links['label'] = links.value.map(lambda v: 'Num. Encounters: %d' % v)
plotter = plotter.bind(edge_label='label')
plotter.plot(links)
```

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# Tutorial and Demo Notebooks

| Notebook Name                                     | Description  |
|---|--|
| <b>Deliverable Testing and Tutorial Notebooks</b> |  |
| UploadAPI   | REST Data Upload tutorial  |
| Workbook  | Demonstrates and tests Graphistry's saving and sharing functionality.  |
| Benchmarking/TestDatasets                         | Generates test datasets specified in the program plan.   |
| <b>Tutorials and Demos</b>                        |  |
| MiserablesDemo.ipynb                              | The 'Hello World' of graph visualization   |
| MarvelTutorial.ipynb                              | Visualizes social network of super heros based on their coappearances in marvel comics.                      |
| BitcoinTutorial.ipynb                             | Silk Road Bitcoin Embezzling Visualization   |
| BiogridDemo.ipynb                                 | Visualize proteins and their interactions from <a href="https://thebiogrid.org/">https://thebiogrid.org/</a> |
| TitanDemo.ipynb                                   | Integration with Titan graph database (now Datastax Graph)   |
| Tutorial Part 1 (Honey Pot)                       | Visualizing Attacks on a Honey Pot   |
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