Graph Visualization With Neo4j Using Neovis.js

Leveraging Graph Algorithms For Data Visualization

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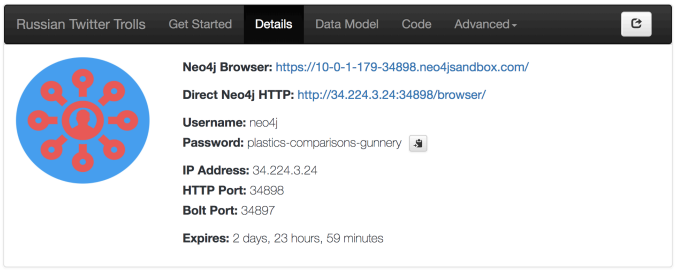
Agenda

- ***Neo4j Sandbox***
- ***Run some graph algorithms***
  - *Using neo4j-graph-algorithms*
- ***Visualize the results***
  - *Using neovis.js*
  - *Embed visualization in a web page*



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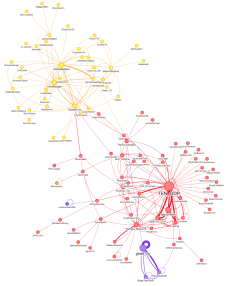


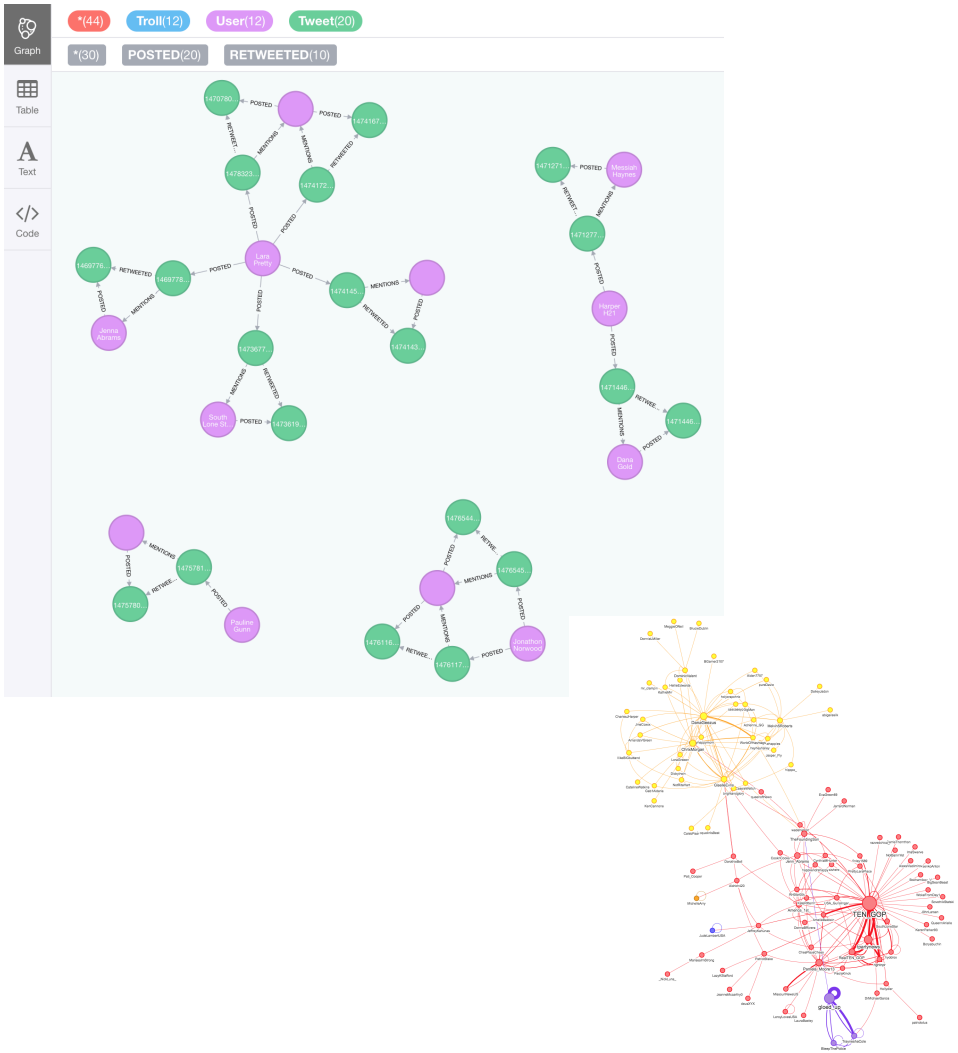
Goals Of Graph Visualization

- Explore the graph
- Summarize the data
- Show results of analysis

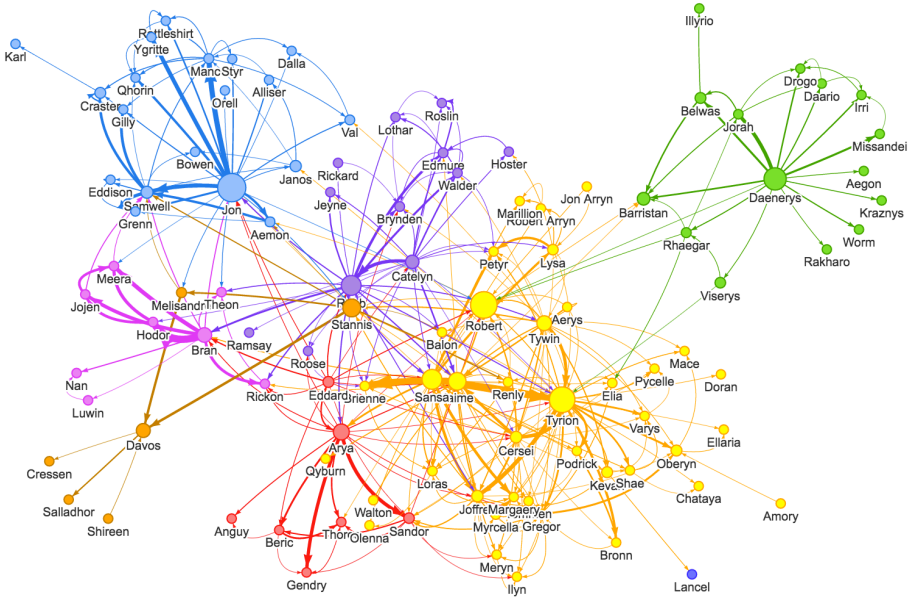
- Interactive
- Static

- Embed in (web) application
- Standalone application

```
1 MATCH p=(r1:Troll)-[:POSTED]->(:Tweet)<-[:RETWEETED]-(:Tweet)<-[:POSTED]-(r2:Troll)
2 RETURN p LIMIT 10
```



Neovis.js




```
function draw() {
    var config = {
        container_id: "viz",
        server_url: "bolt://localhost:7687",
        server_user: "neo4j",
        server_password: "letmein",
        arrows: true,
        hierarchical: true,
        //hierarchical_sort_method: "directed",
        labels: {
            "Character": {
                "caption": "name",
                "size": "degree",
                "community": "community",
                "sizeCypher": "MATCH (n) WHERE id(n) = {id} MATCH (n)-[r]-() RETURN sum(r.weight) AS c"
            }
        },
        relationships: {
            "INTERACTS": {
                "thickness": "weight",
                "caption": true
            }
        },
        initial_cypher: "MATCH (n:Character)-[r:INTERACTS]->(m:Character) WHERE EXISTS(n.degree) AND EXISTS(m.degree) RETURN n,r,m LIMIT 200"
    };

    viz = new NeoVis.default(config);
    viz.render();
    console.log(viz);
```

github.com/neo4j-contrib/neovis.js

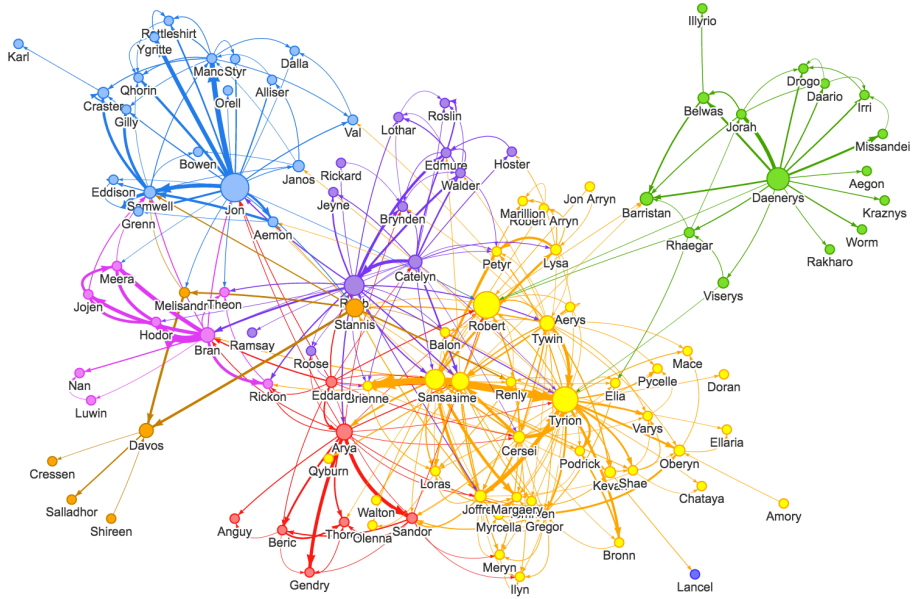
neo4j

Graph Visualization + Graph Algorithms

Node size → Centrality
(degree, PageRank, betweenness)

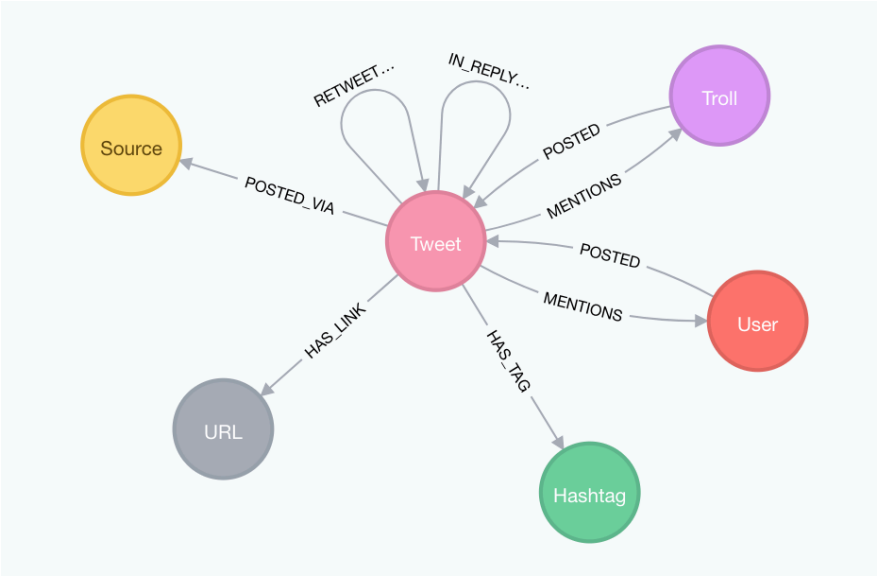
Color → Community
(label propagation, union find, Louvain)

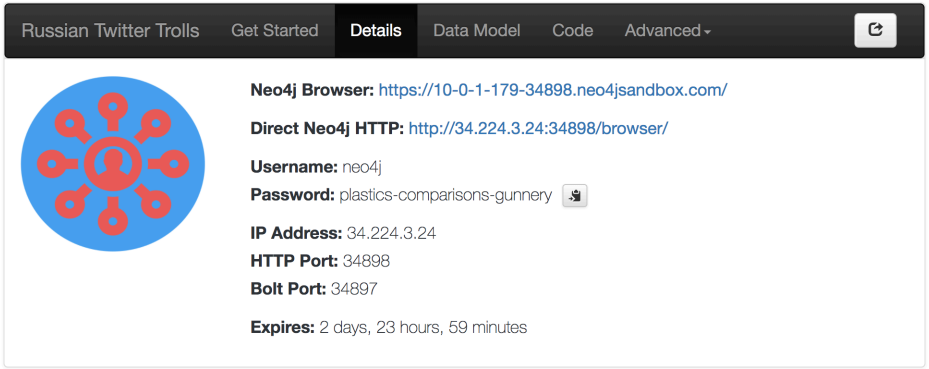
Relationship Thickness → Weight
(pathfinding, A, Dijkstra)*



Neo4j Sandbox

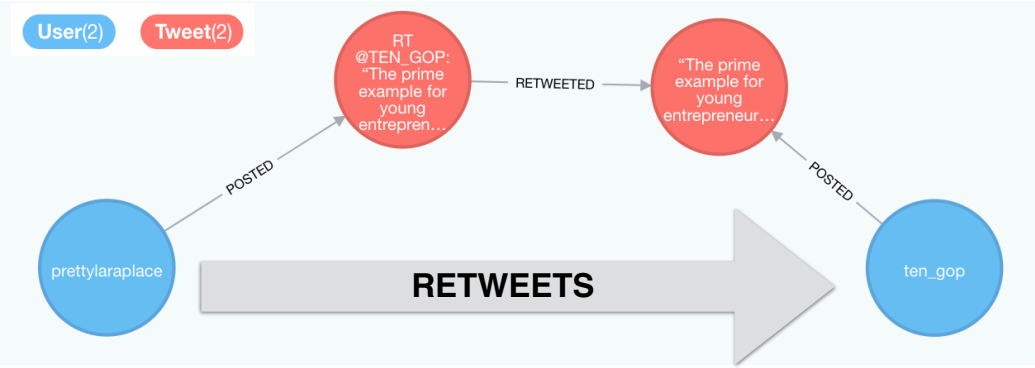
Russian Twitter Trolls





neo4jsandbox.com

Twitter Troll Retweet Graph



(:User)-[:RETWEETS]->(:User)

neo4jsandbox.com

Resources

Neo4j Sandbox

neo4jsandbox.com/

Neovis.js GitHub page

github.com/neo4j-contrib/neovis.js

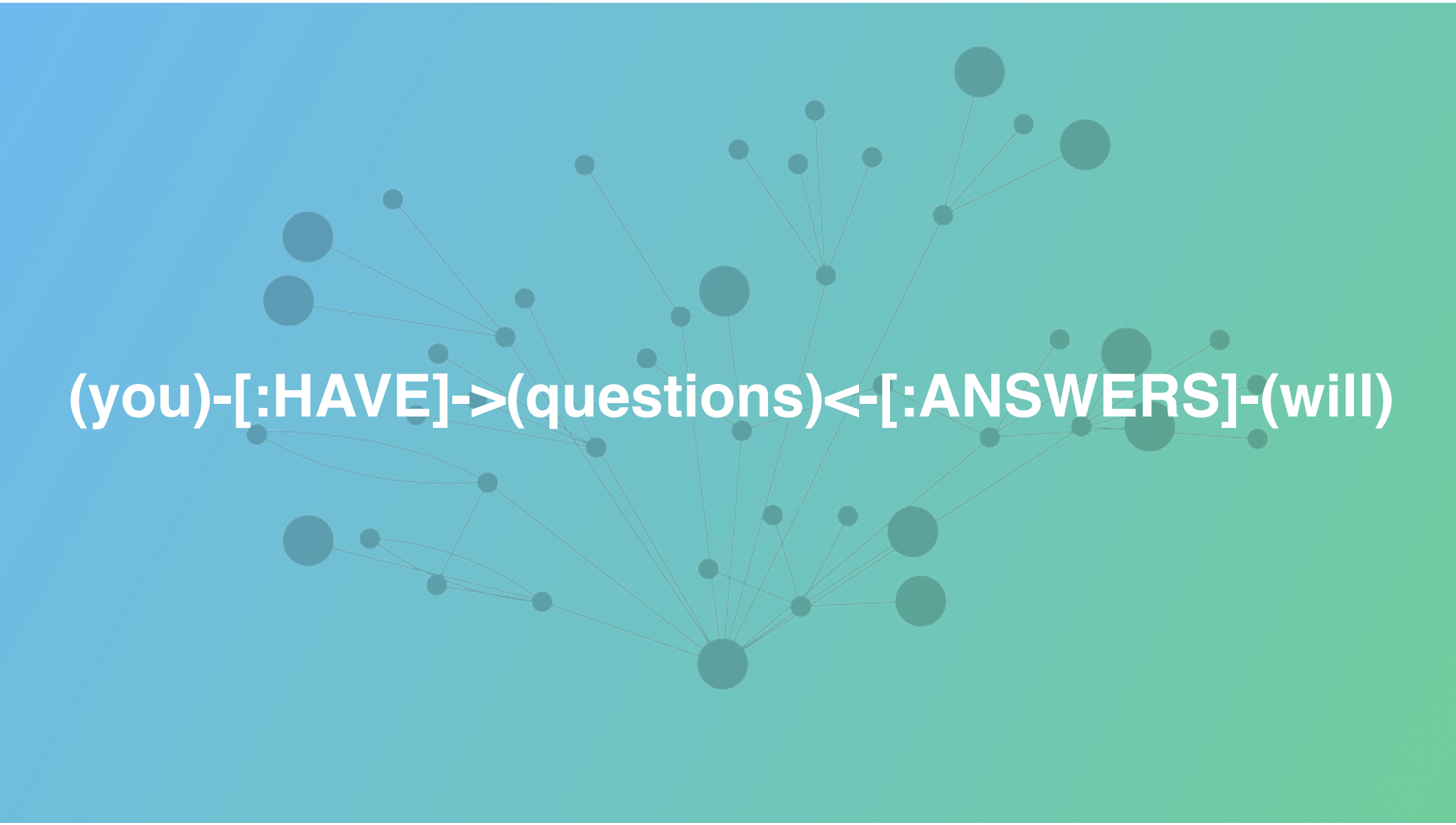
Neo4j Graph Visualization Developer Page

neo4j.com/developer/guide-data-visualization/

Neo4j Graph Algorithms

neo4j.com/developer/graph-algorithms/


neo4j


(you)-[:HAVE]->(questions)<-[:ANSWERS]-(will)