Social Network Analysis

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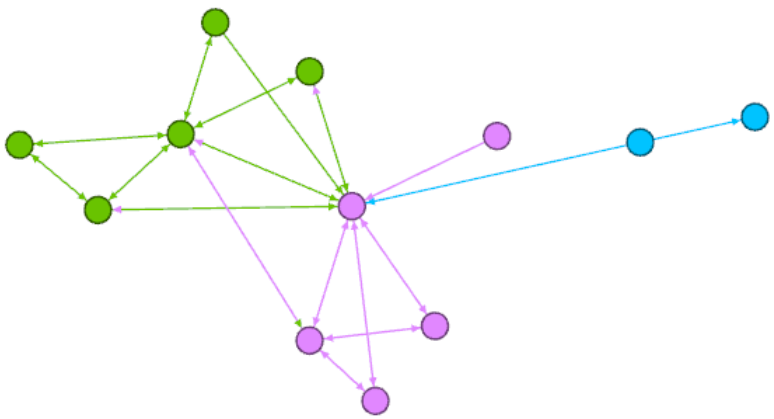
Comparison
Graph 1: (5G Conspiracy Graph) &
Graph 2: (Non Conspiracy Graph)

1) 5G Graph (74) :



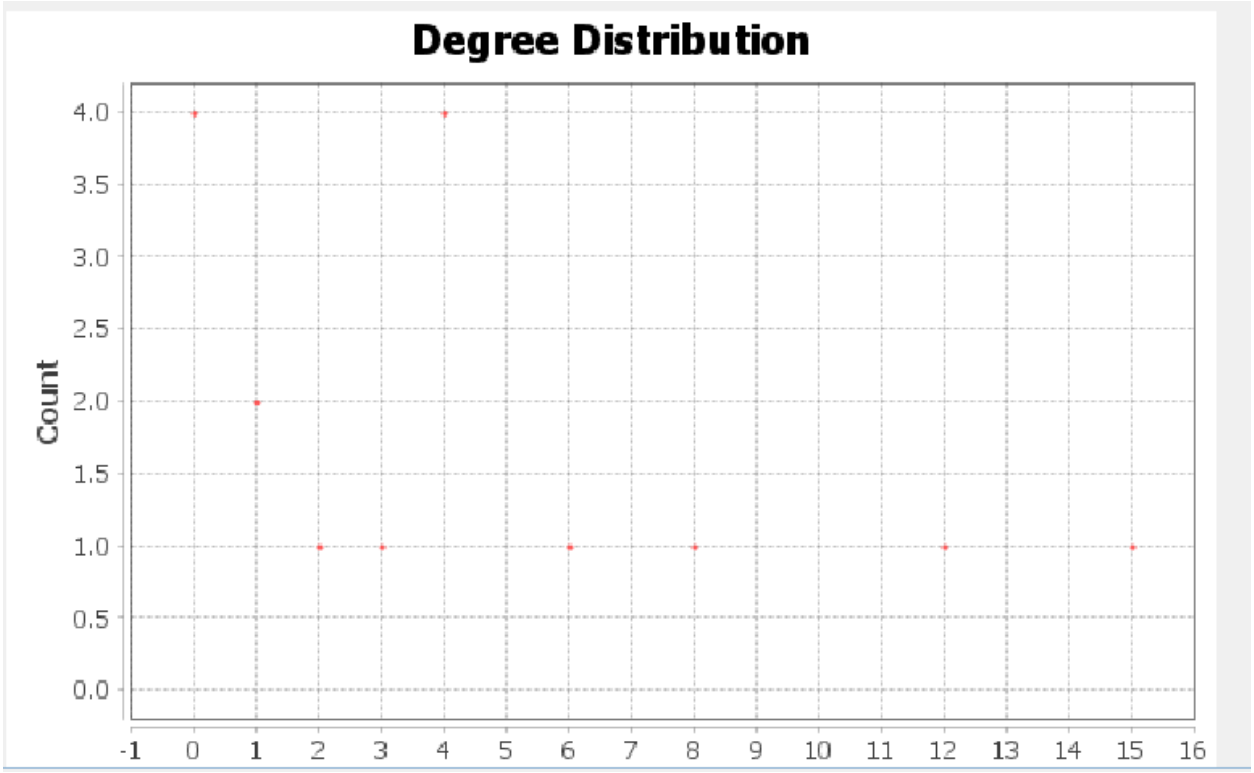
Nodes & Edges

Nodes: 16

Edges: 32

Average Degree

Results: 2



Note: there is a few nodes that has a **very high degree (infeluencers)**

Graph Density

Parameters => Network Interpretation: directed

Results => Density: 0.133

Note: despite the **low density** the **high avg degree** means that a low number has a **bigger infeluence**.

Average Clustering Coefficient

Results => 0.415

Note: we can see it as a high number and this can be called **echo chamber** (every one knows each other) in populating whispers.

Modularity

Parameters:

Randomize: On

Use edge weights: On

Resolution: 1.0

Results:

Modularity: 0.184

Modularity with resolution: 0.184

Number of Communities: 7

Note: we can see a **high number** of communities that are **isolated** to believe the lie more.

Graph Distance

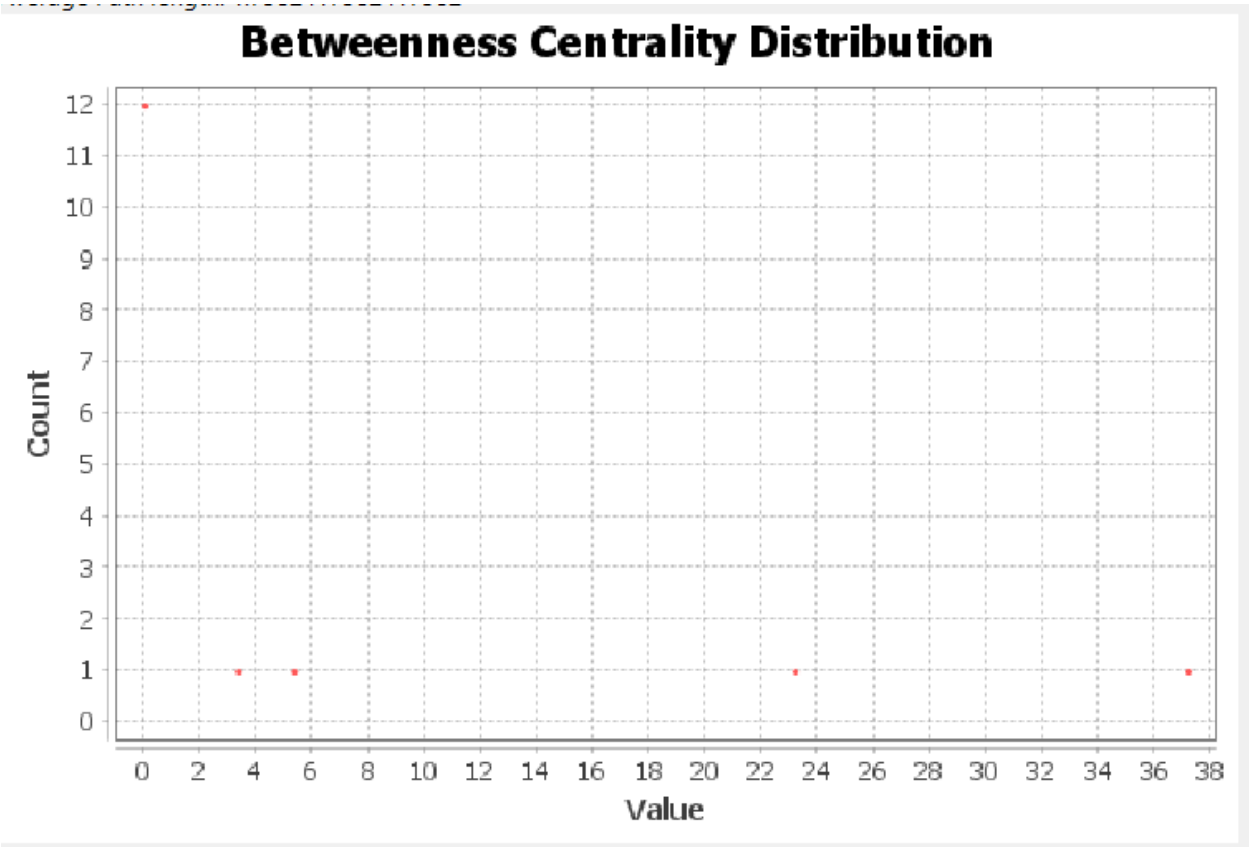
Results:

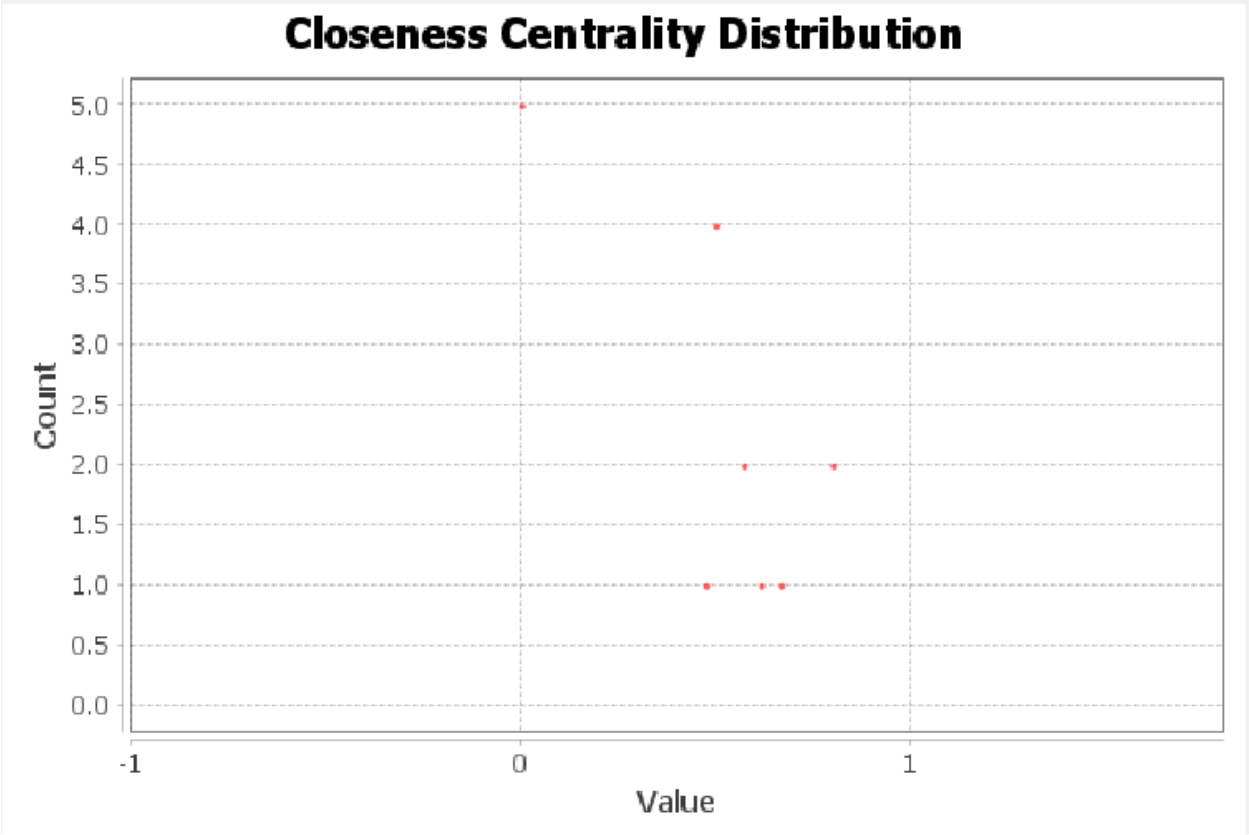
Diameter: 3

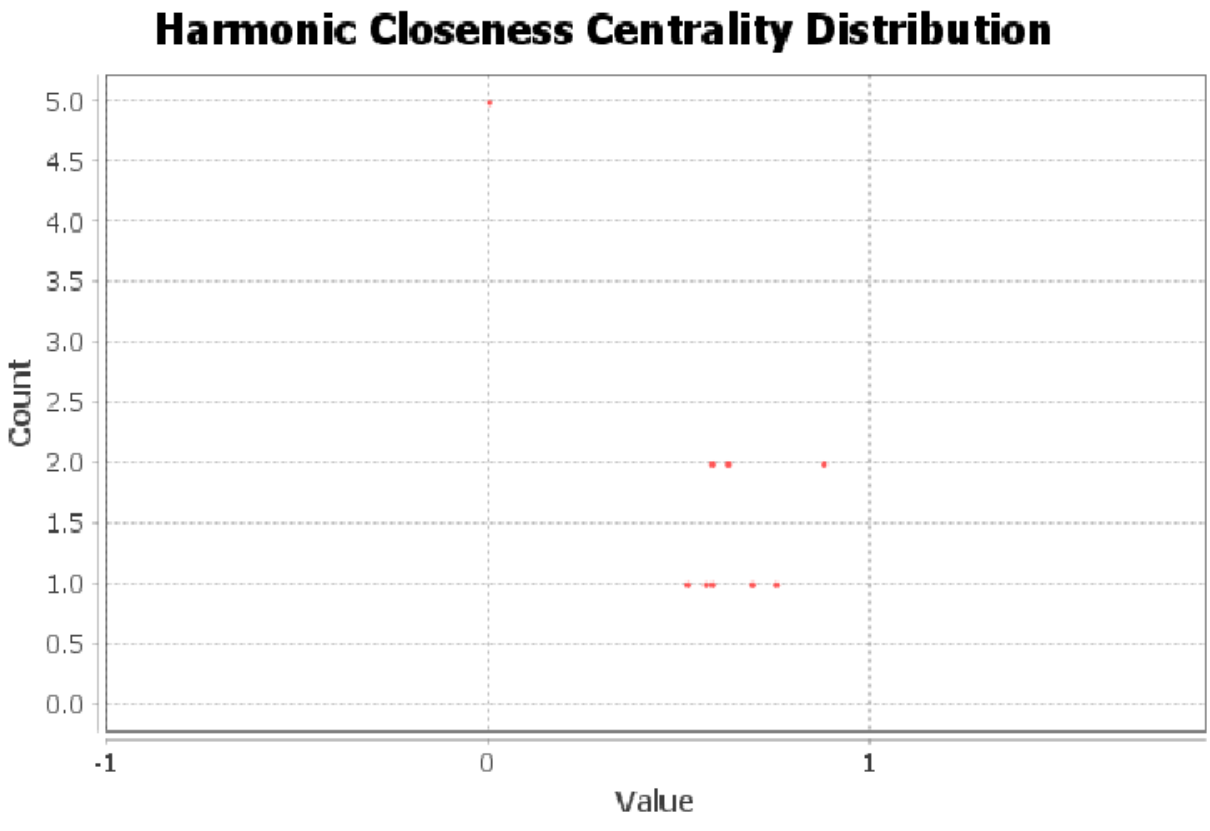
Radius: 0

Average Path length: 1.7582417582417582

Note: **3 steps** to reach from the start to the most far node and this is **very short (small world).**




Closeness Centrality Distribution
Count
5.0
4.5
4.0
3.5
3.0
2.5
2.0
1.5
1.0
0.5
0.0
-1
0
1
Value

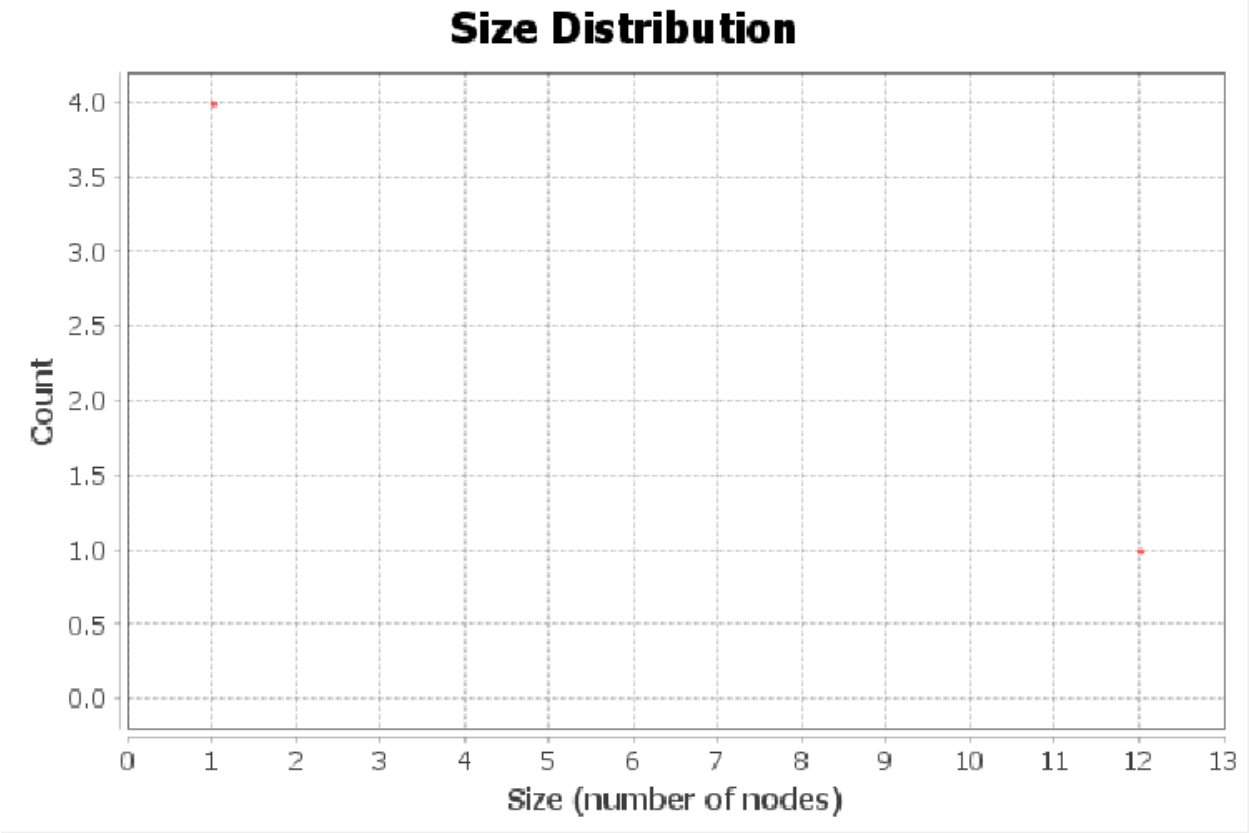

Harmonic Closeness Centrality Distribution
Count
5.0
4.5
4.0
3.5
3.0
2.5
2.0
1.5
1.0
0.5
0.0
-1
0
1
Value

Connected Components

Results:

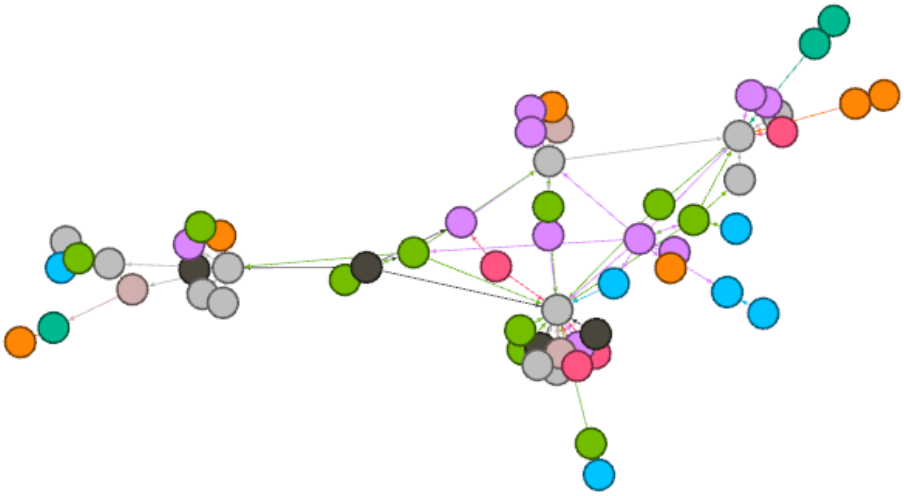
Number of Weakly Connected Components: 5

Number of Strongly Connected Components: 8



Note: this is a **very low connected components** then it is very **tight and reachable** from any point to make any data shared easily.

2) Non Conspiracy Graph (78) :



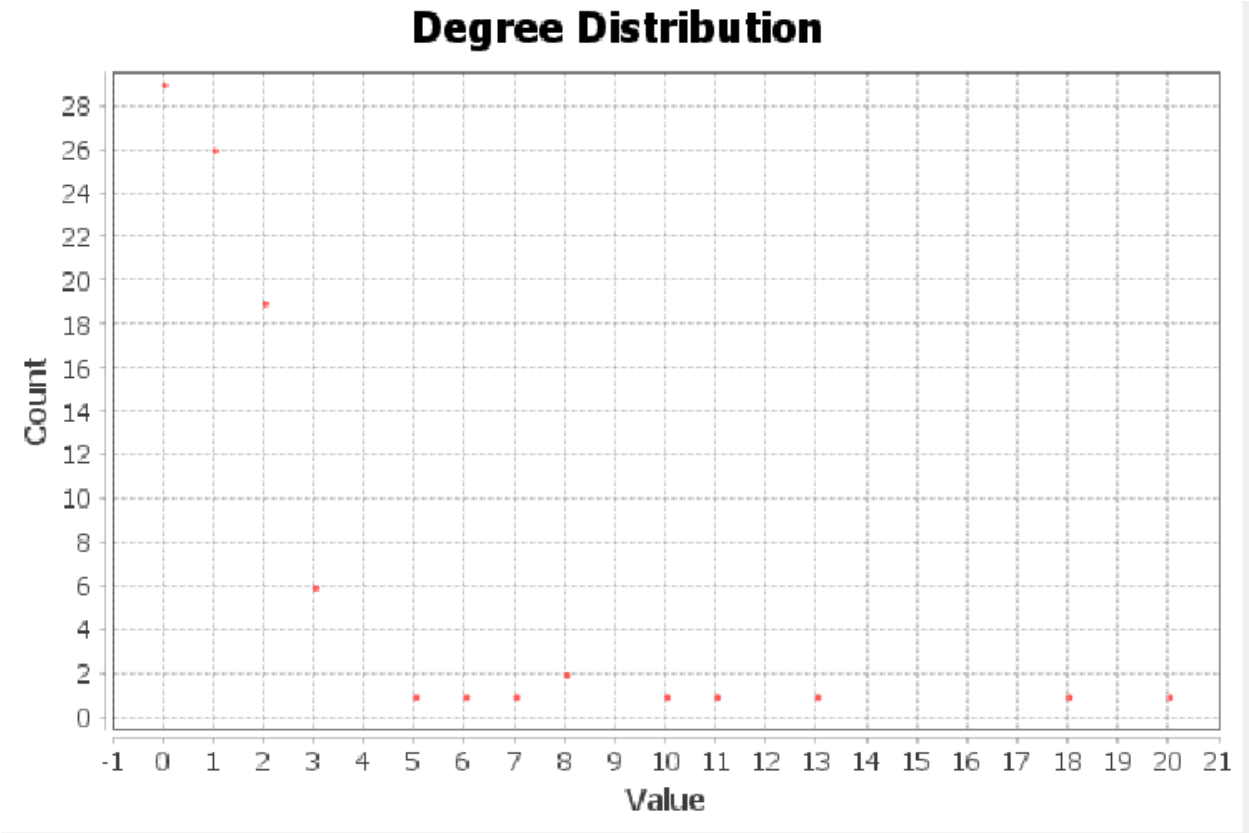
Nodes & Edges

Nodes: 90

Edges: 94

Average Degree

Results: 1.044



Graph Density

Parameters => Network Interpretation: directed

Results => Density: 0.012

Note: The density is **extremely low** compared to the conspiracy graph. This means the network is loose, and users are **not** heavily interconnected.

Average Clustering Coefficient

Results => 0.024

Note: Very low clustering indicates a lack of "Echo Chambers". Users here are open to diverse interactions and don't just talk to their own circles.

Modularity

Parameters:

Randomize: On

Use edge weights: On

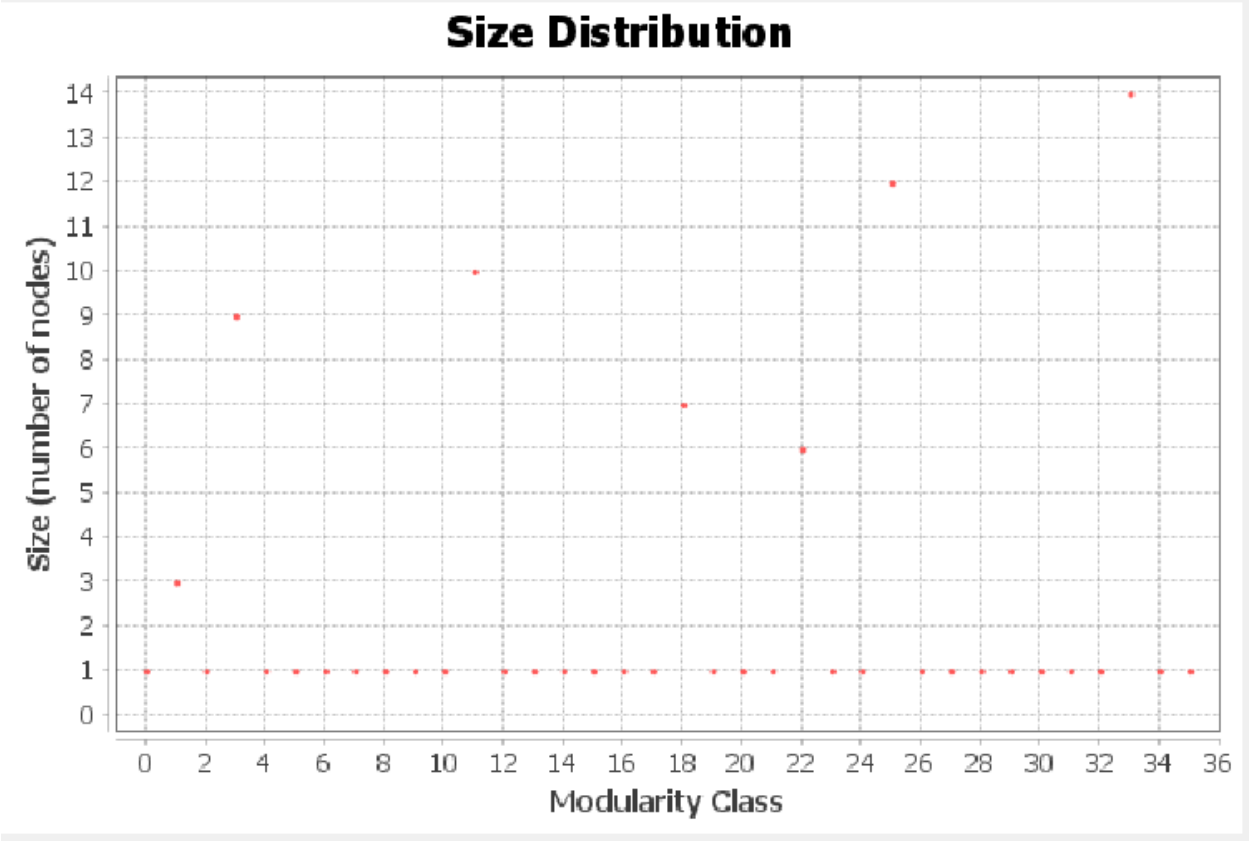
Resolution: 1.0

Results:

Modularity: 0.584

Modularity with resolution: 0.584

Number of Communities: 36



Note: A high modularity score with **many small communities** (36) means the network is **diverse and fragmented**, not polarized into one big group like the conspiracy one.

Graph Distance

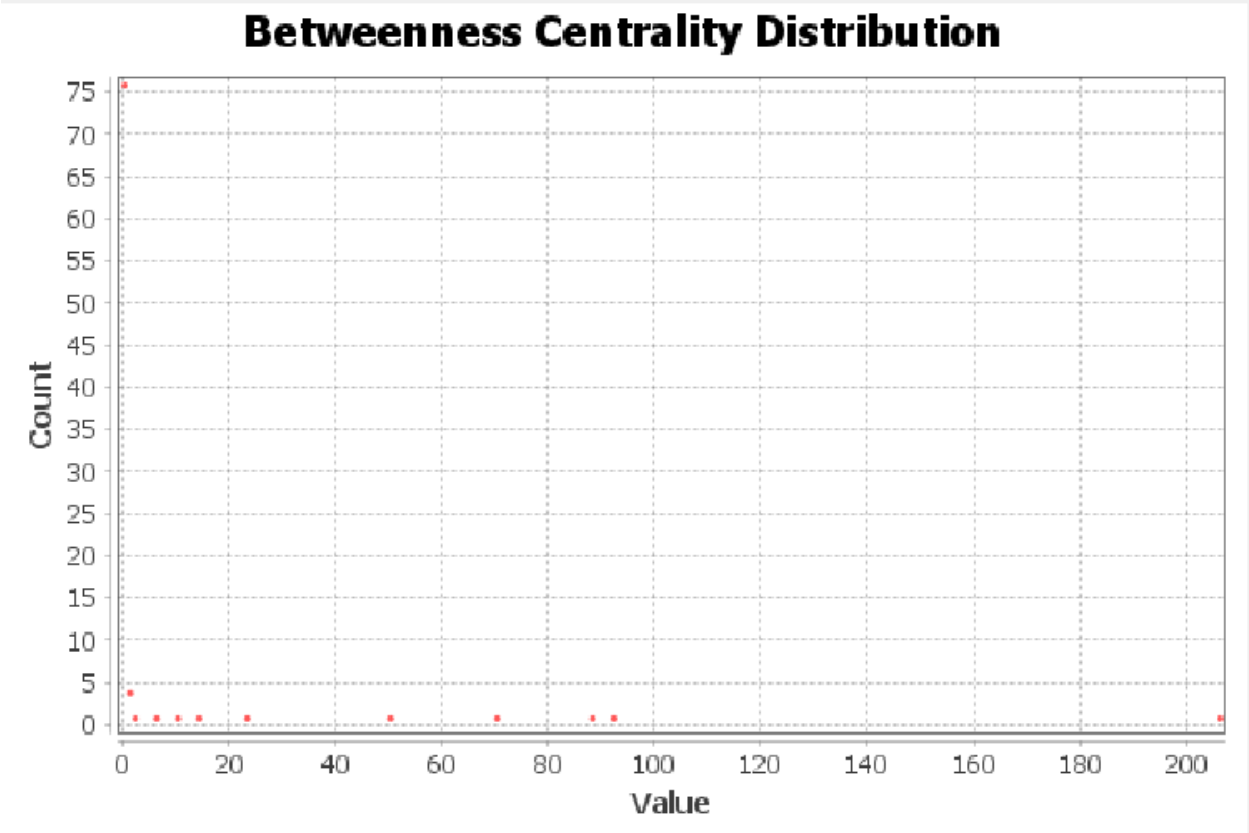
Results:

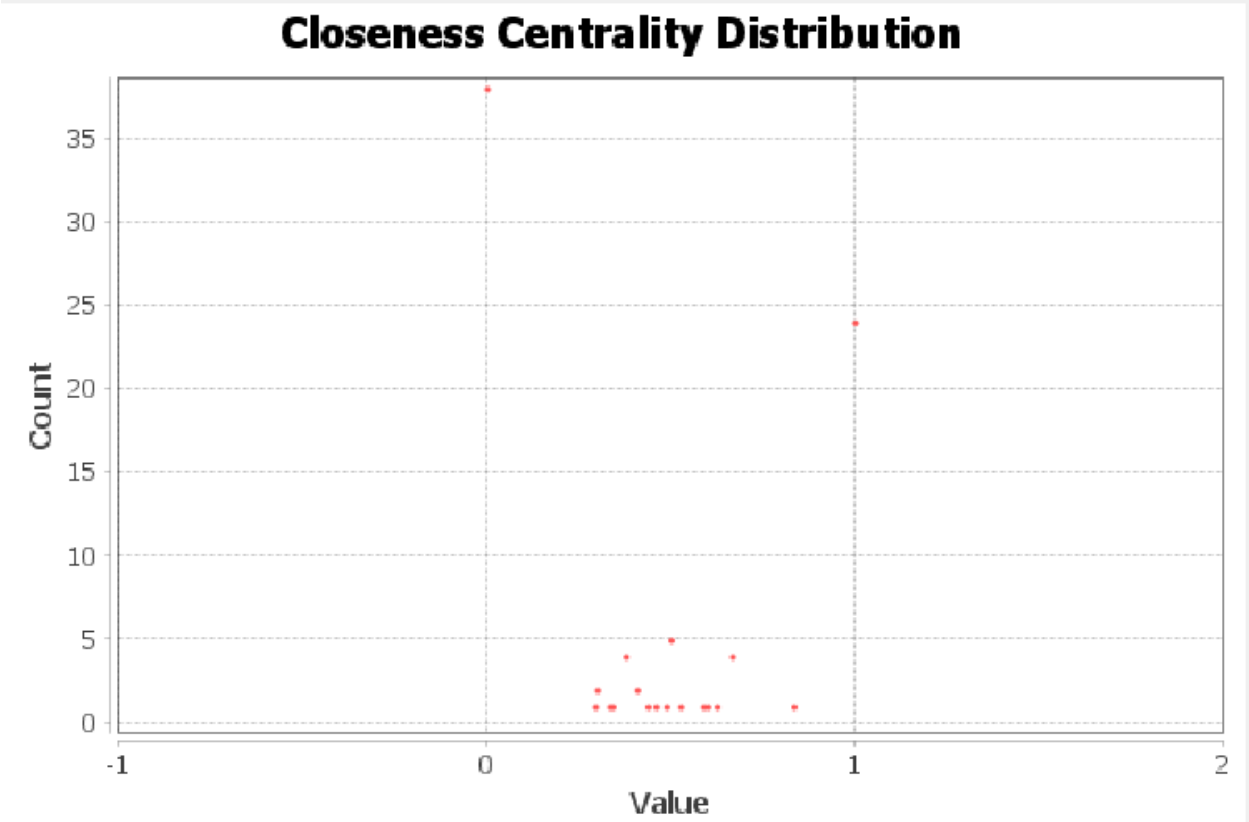
Diameter: 5

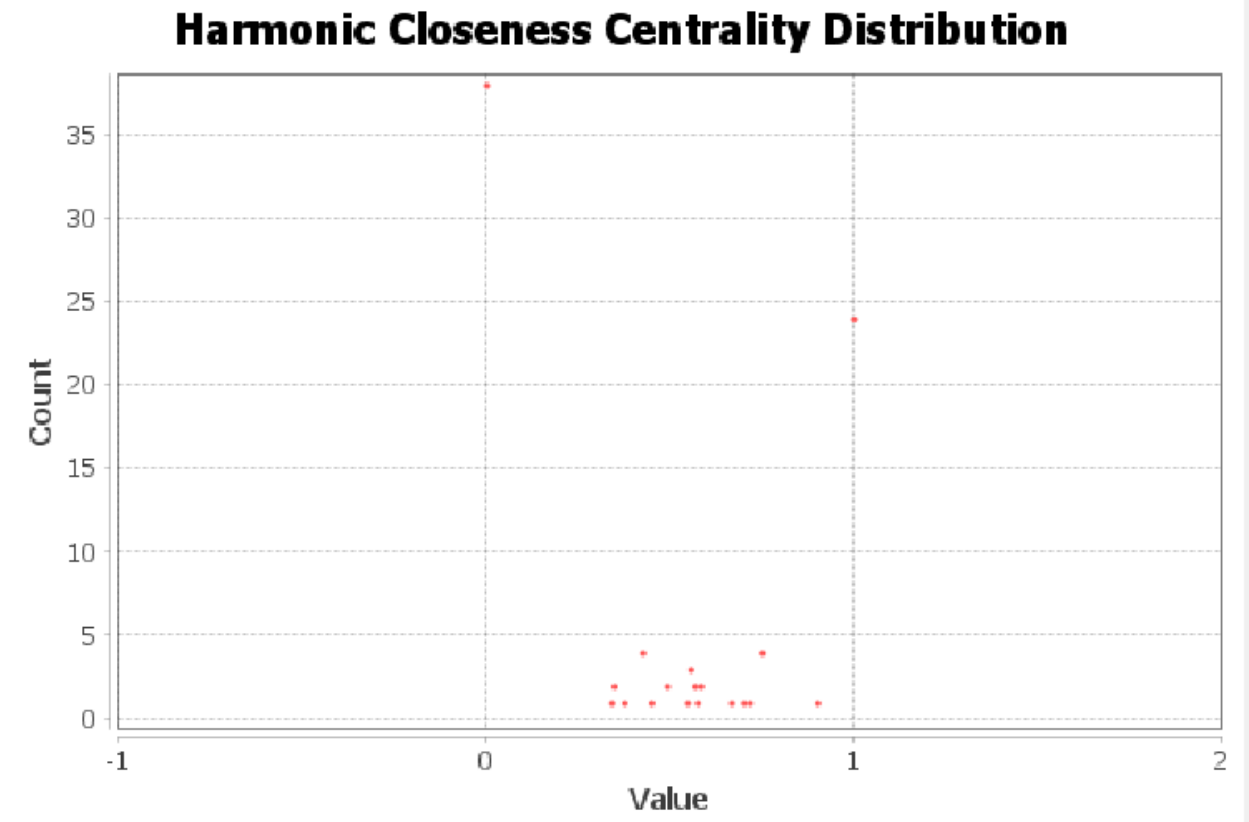
Radius: 0

Average Path length: 2.3950617283950617

Note: The distance is **longer** here. Information **takes more time** to travel across the network compared to the "Small World" nature of the conspiracy graph.




Closeness Centrality Distribution
Count
35
30
25
20
15
10
5
0
-1
0
1
2
Value

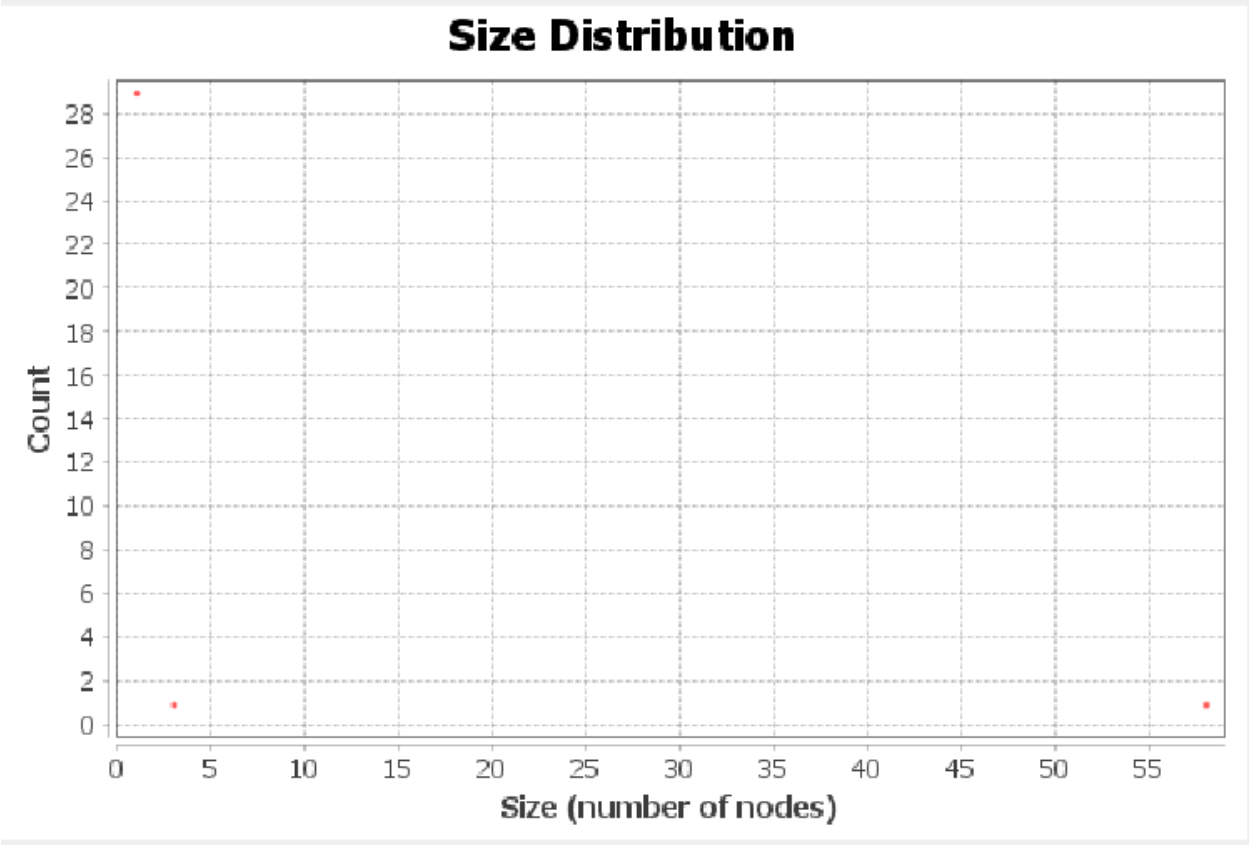

Harmonic Closeness Centrality Distribution
Count
35
30
25
20
15
10
5
0
-1
0
1
2
Value

Connected Components

Results:

Number of Weakly Connected Components: 31

Number of Strongly Connected Components: 72



Note: The network is **highly fragmented** (31 components), meaning information does **not easily reach everyone**. It's broken into many isolated islands.

The Final Conclusion

The analysis shows a **clear distinction** between the two networks. The **5G Conspiracy** network is dense, highly clustered (**Echo Chamber**), and has a **short path** length, making it ideal for the rapid spread of misinformation among a tight-knit group. In contrast, the **Non-Conspiracy** network is **sparse**, fragmented, and has **low clustering**, which acts as a natural barrier slowing down the spread of information and preventing the formation of closed ideological bubbles.