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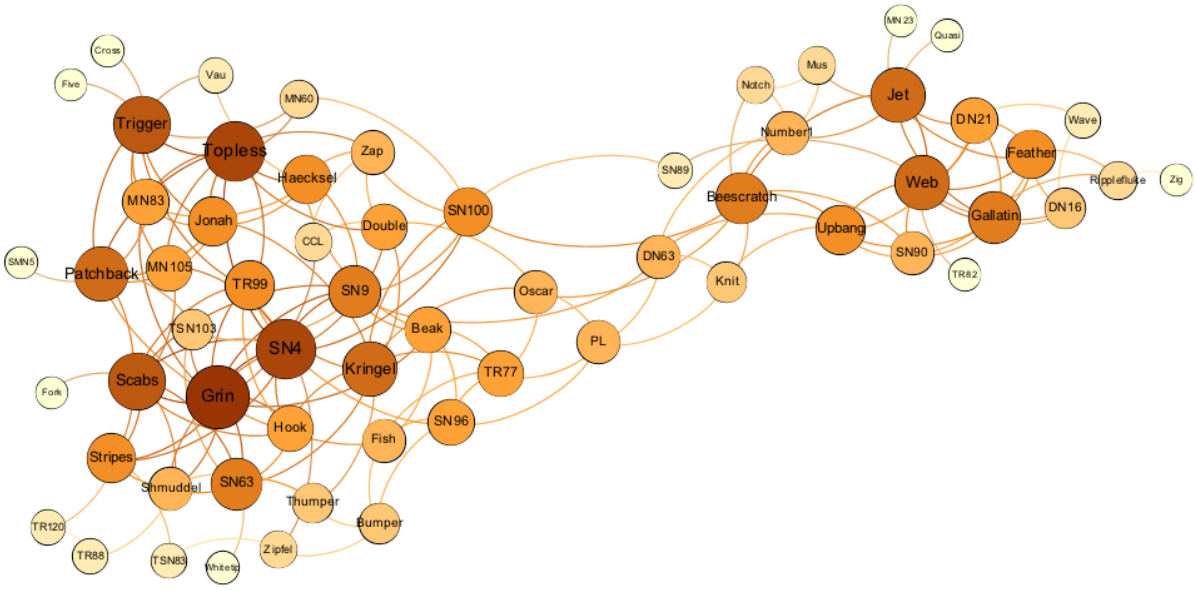
Praxis: Node Centrality

1 Popularity Contest

We want to know who the top dolphins are in the network, the real centers of attraction. Using what you learned about centrality from the readings and videos, choose an appropriate centrality measure that will tell us who those dolphins are. Justify your decision and list who the important dolphins are.

Solution:

The center of attraction or the most influential nodes can be inferred from degree centrality of the graph. The nodes having more degree are more popular or have opportunity to directly influence.
Below is the graph of the degree Centrality of dolphin graph



From the above graph we can observe that the dolphins SN4, Grin, are having high degree centrality.

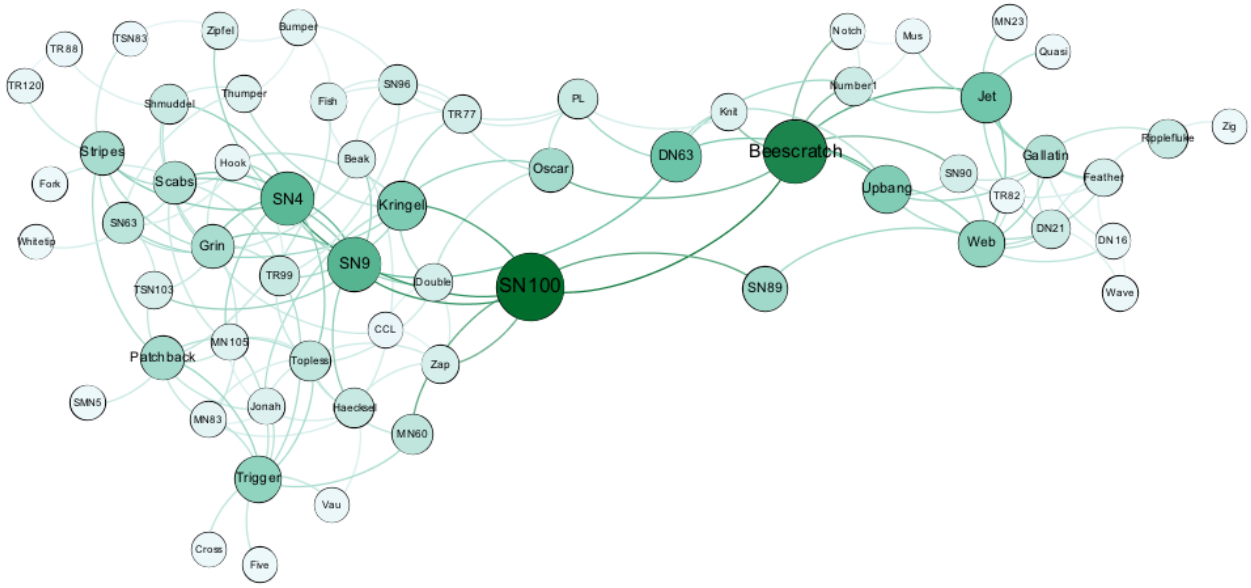
2 Relay

Dolphins like passing information around efficiently along the shortest-paths. Among their neighbors who are the most important message relayers in the network? Justify your centrality choice for finding these dolphins.

Solution:

Betweenness Centrality of nodes showcases the ability of maximum flow of information from one hub to another. Technically, betweenness centrality is the nodes that show up between shortest paths of two other nodes.

Below is the betweenness centrality for the dolphins graph.



From the above graph, we can see that dolphins SN100 and Beescratch have high betweenness centrality.

3 Gossip

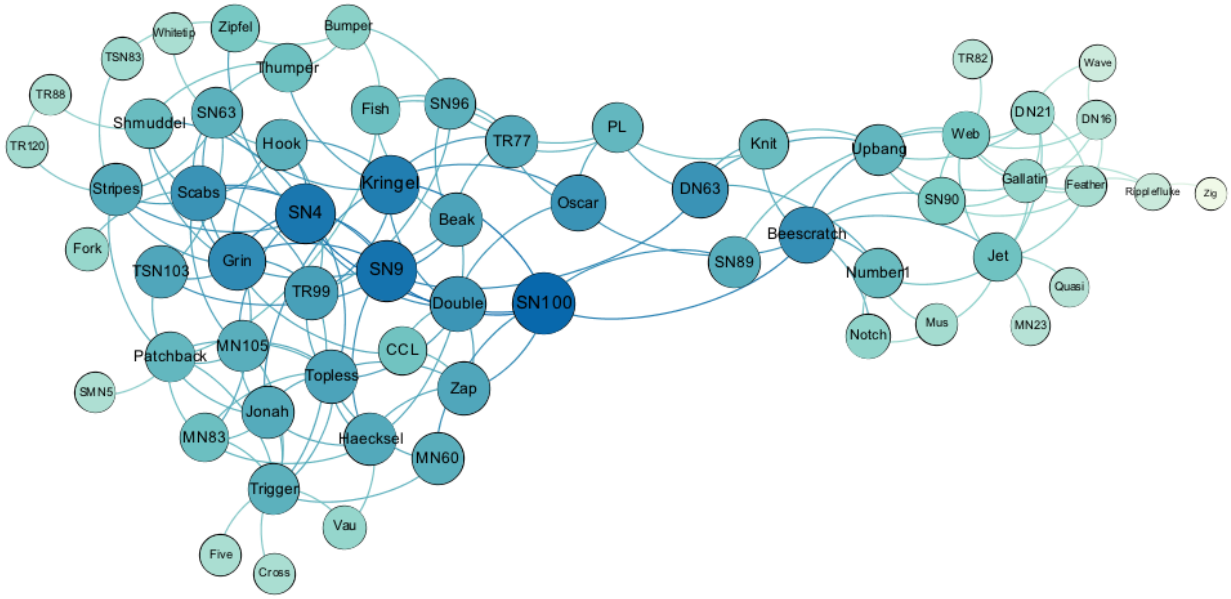
There is a lot smack going around the pod and everyone wants to know if Flipper will be inviting them to the party next week. But gossip takes time to travel. Which dolphins are in the best position for getting all the best gossip from around the pod? Justify your centrality choice for finding these dolphins.

Solution:

Closeness Centrality of node helps to determine time to hear a particular information or point of rapid diffusion.

Technically, closeness centrality helps to find the length of shortest path from a node to another.

Below is the visualization of closeness centrality of the dolphin graph.



From the above graph, we can see that the dolphins SN4, kringel, SN9 and SN100 are the ones having the highest closeness centrality.